

oni

Industrial Automation Equipment

2023-2024

smart
automation

oni-system.com





ONI® offers a wide range of components and software for industrial automation.

ONI trademark belongs to one of the leading Russian manufacturers of electrotechnical and lighting products — IEK GROUP, that owns a well-known electrotechnical brand IEK, as well as a platform for automation and management of technological processes MasterSCADA®. Combined application of ONI® products with IEK® electrical technologies allows customers to generate fully-compatible comprehensive solutions for various industrial sectors.

ONI® products are manufactured on contractual-based foreign venues — global leaders in industrial automation equipment production. ONI team has a solid experience in leading international companies making industrial electronics.

ONI® equipment is created using the most advanced technologies.

All ONI® devices undergo multi-stage quality control and operational testing in working conditions in proprietary test center. ONI® products are covered by a long-term warranty, technical service and high-quality maintenance, if necessary.

ONI is the foundation of a modern production system.

oni **iek** **itk**  **MasterSCADA**



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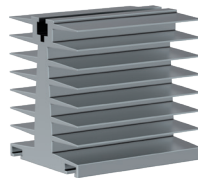
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OPERATOR PANELS ONI®

High-performance operator panels ONI® are a smart and user-friendly solutions to build management systems for various equipment: conveyors, warehouse equipment, pump stations, water treatment, ventilation and air conditioning systems, boiler and heat equipment, CIP stations, systems for lighting and technological equipment control.



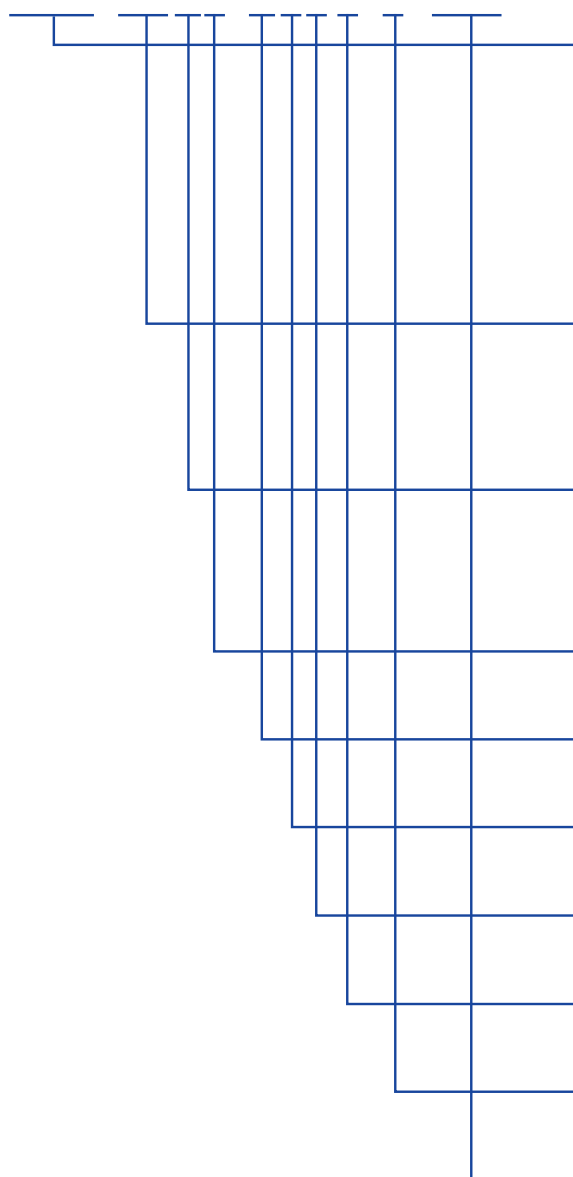
ADVANTAGES

- Pre-installed operating system and runtime environment.
- Compatibility with ONI® equipment and devices from other manufacturers.
- High reliability, productivity and outstanding technical specifications at an affordable price.
- Free software with intuitive interface, that significantly accelerates project development and debugging.

* Examples of appearance.

PRODUCT ID DECODING

OEM-A8HS-HSSN-S-043*



Series:

OEM – open-frame panel;

ETG – basic panel;

ETX – special design;

ETV – panel with video input;

ETC – operator capacitive panel;

TD – text panel

Processor/panel type:

CP – color panel;

MP – monochrome panel;

A8 – processor type

Color rendering:

CP – color panel;

H – 16 bit;

M – monochrome

Resolution:

S – Standard;

DEC (24 bits)

- D – 32 bit and more;

H – high

Host:

H – USB-host is present;

N – no USB-host

Slave:

- S – USB-slave is present;

N – no USB-slave

Serial port:

S – Serial port is present;

N – no Serial port

Ports:

H – Ethernet is present;

N – no Ethernet

Design:

S – Standard;

P – Protected

Diagonal

Diagonal of a screen is specified in 3 digits without a decimal number

OPERATOR SENSOR CAPACITIVE PANELS ONI® ETC

Do you need your equipment to stand out of competition, keeping its production cost? Operator sensor capacitive panels ONI® ETC offer an appealing design and more extensive functionality than panels with resistive screen.

They support standard communication protocols Modbus RTU and TCP/IP, enabling integration with equipment from any manufacturer.

Moreover, operator panels ONI® ETC meet all expectations for industrial equipment: contamination level, power supply range, impact, vibration loads and other factors.



ADVANTAGES

- Unprecedented image quality.
- High brightness and contrast ratio.
- Wide angle view.
- Screen dimensions up to 22".
- Electromagnetic compatibility of industrial equipment.
- Dual high strength protection glass with oleophobic coating.
- Multi-touch technology.
- Supporting Modbus RTU and TCP/IP protocols.

* Example of appearance.

PRODUCT RANGE

	Name	Diagonal, inches	USB	Modbus TCP/IP Ethernet	Modbus RTU RS-232/ RS-485	Modbus RTU RS-232	SD card	Product ID
	Operator capacitive panel ETC 7" plastic case ONI	7	1×Host 1×Slave	1	2	2	1	ETC-A8TS-HSSE-S-070
	Operator capacitive panel ETC 7" metal case ONI	7	1×Host 1×Slave	1	2	2	1	ETC-A8TS-HSSE-P-070
	Operator capacitive panel ETC 9.7" plastic case ONI	9.7	1×Host 1×Slave	1	2	2	1	ETC-A8TS-HSSE-S-097
	Operator capacitive panel ETC 9.7" metal case ONI	9.7	1×Host 1×Slave	1	2	2	1	ETC-A8TS-HSSE-P-097
	Operator capacitive panel ETC 17" metal case ONI	17	1×Host 1×Slave	1	2	2	1	ETC-A8TS-HSSE-P-170
	Operator capacitive panel ETC 22" metal case ONI	22	1×Host 1×Slave	1	2	2	1	ETC-A8TS-HSSE-P-220

* Examples of panel appearance are shown.

SPECIFICATIONS

Table 1

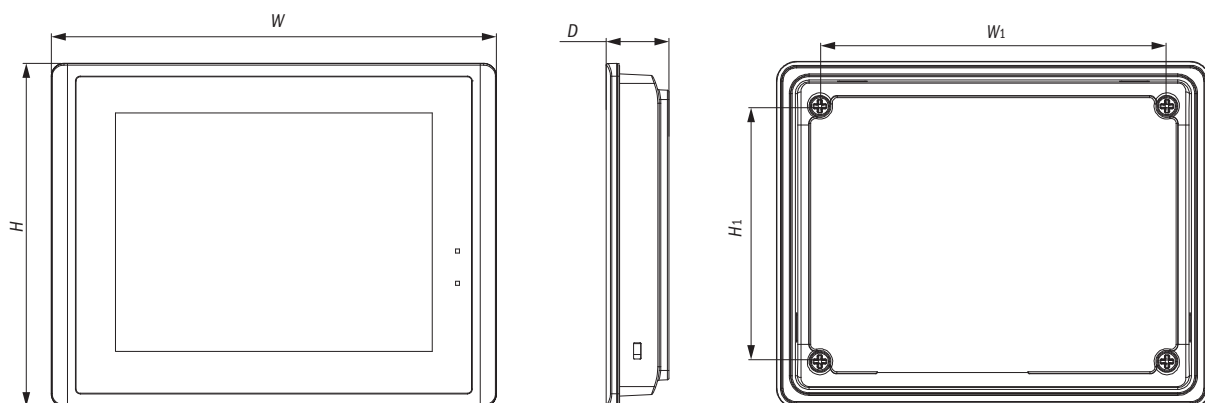
Parameter	Value
Rated supply current voltage, V	24 DC
Relative air humidity, %	10-95 (non-condensing)
Microenvironment contamination degree as per IEC 60664.1	2, without any aggressive and explosive steams and gases in concentrations, causing metal corrosion and insulation destruction
Cooling method	Natural ventilation with ambient air
Protection class according to GOST 14254 (IEC 60529)	IP65 on the screen side, IP20 on the socket side
Service life, years, min	5
Repairability	Non-repairable

Table 2

Parameter	Version					
	ETC 7 "	ETC 7 "	ETC 9.7 "	ETC 9.7 "	ETC 17 "	ETC 22 "
Screen diagonal, inches	7	7	9.7	9.7	17	22
Screen resolution	1024×600	1024×600	1024×768	1024×768	1280×1024	1920×1080
Colors index, bit	24	24	24	24	24	24
Brightness, cd/m ²	450	450	350	350	350	250
Backlight color	LED	LED	LED	LED	LED	LED
Sensor type*	C	C	C	C	C	C
CPU type	Cortex A8 600 MHz	Cortex A8 600 MHz	Cortex A8 600 MHz	Cortex A8 600 MHz	Cortex A8 800 MHz	Cortex A8 800 MHz
ROM, Mb	128	128	128	128	256	256
RAM, Mb	128	128	128	128	256	256
Connectivity	USB-host	1×2.0	1×2.0	1×2.0	1×2.0	1×2.0
	USB-device	1×2.0	1×2.0	1×2.0	1×2.0	1×2.0
	Ethernet	1	1	1	1	1
	RS-232/RS-485	2	2	2	2	2
	RS-232	2	2	2	2	2
	SD Card	-	1	1	1	1
Supply voltage range, V	0-28 DC	0-28 DC	0-28 DC	18-28 DC	18-28 DC	18-28 DC
Case material	Plastic	Metal	Plastic	Metal	Metal	Metal
Operating temperature range, °C	0...+50	-20...+70	0...+50	-20...+70	-20...+70	-20...+70
Weight, kg	0.65	1	1	1.1	5.8	6.3
Product ID	ETC-A8TS-HSSE-S-070	ETC-A8TS-HSSE-P-070	ETC-A8TS-HSSE-S-097	ETC-A8TS-HSSE-P-097	ETC-A8TS-HSSE-P-170	ETC-A8TS-HSSE-P-220

* C – capacitive, R – resistive.

OVERALL AND MOUNTING DIMENSIONS, MM



Product ID	Name	Overall dimensions, mm			Mounting cutout, mm	
		Width W	Height H	Depth D	Width W_1	Height H_1
ETC-A8TS-HSSE-S-070	Operator capacitive panel ETC 7" plastic case ONI	185.1	131.1	30.0	175.0	125.0
ETC-A8TS-HSSE-P-070	Operator capacitive panel ETC 7" metal case ONI	194.3	132.1	27.6	185.0	122.0
ETC-A8TS-HSSE-S-097	Operator capacitive panel ETC 9.7" plastic case ONI	247.0	197.0	31.5	230.0	180.0
ETC-A8TS-HSSE-P-097	Operator capacitive panel ETC 9.7" metal case ONI	247.0	197.0	31.2	230.0	180.0
ETC-A8TS-HSSE-P-170	Operator capacitive panel ETC 17" metal case ONI	392.2	324.6	44.8	Mounted 100×100 on a bracket	
ETC-A8TS-HSSE-P-220	Operator capacitive panel ETC 22" metal case ONI	530.0	338.0	52.4	Mounted 100×100 on a bracket	

OPERATOR SENSOR RESISTIVE PANELS ONI® ETG

Operator sensor resistive panels ONI® help create systems for local visualization and real-time management of an automated system.

They can be operated both in protective gloves and without them, because the screen responds to pressing, not to touch.

Operator panels ONI® are developed specially for application in demanding production conditions. The product meets all expectations to modern human-machine interfaces: high productivity, broad operation temperature, high environment protection class, good color rendering, brightness, contrast ratio, remote control and monitoring options.



ADVANTAGES

- Special protective coating of a printed circuit board.
- Isolated ports for utilization in industrial data communication network.
- Direct data exchange between panels.
- Integrated remote access.
- Superb image quality.
- Metal and plastic case.

* Example of appearance.

PRODUCT RANGE

	Name	Diagonal, inches	Communication options						Case material	Product ID
			USB- host	USB- de- vice	Ethernet, Mbit	RS-232/ 422/ 485	RS-232	SD Card		
	Operator panel ETG 4.3" plastic case ONI	4.3	1×2,0	1×2,0	—	1	1	—	Plastic	ETG-A8TS-HSSN-S-043
	Operator panel ETG 4.3" metal case ONI	4.3	1×2,0	1×2,0	1×10/100	1	1	—	Metal	ETG-CP-043
	Operator panel ETG 7" basic plastic case ONI	7.0	1×2,0	1×2,0	—	1	1	+	Plastic	ETG-A8TS-HSSN-S-070
	Operator panel ETG 7" high resolution plastic case ONI	7.0	1×2,0	1×2,0	1×10/100	2	2	+	Plastic	ETG-A8TH-HSSE-S-070
	Operator panel ETG 7" basic metal case ONI	7.0	1×2,0	1×2,0	—	1	1	+	Metal	ETG-A8TS-HSSN-P-070
	Operator panel ETG 7" metal case ONI	7.0	1×2,0	1×2,0	1×10/100	2	2	+	Metal	ETG-A8TS-HSSE-P-070
	Operator panel ETG 7" plastic case ONI	7.0	1×2,0	1×2,0	1×10/100	1	1	+	Plastic	ETG-CP-070
	Operator panel ETG 9.7" basic plastic case ONI	9.7	1×2,0	1×2,0	—	1	1	+	Plastic	ETG-A8TS-HSSN-S-097
	Operator panel ETG 9.7" plastic case ONI	9.7	1×2,0	1×2,0	1×10/100	2	2	+	Plastic	ETG-CP-097
	Operator panel ETG 9.7" metal case ONI	9.7	1×2,0	1×2,0	1×10/100	2	2	+	Metal	ETG-A8TS-HSSE-P-097

* Examples of panel appearance are shown.

	Name	Diagonal, inches	Communication options						Case material	Product ID
			USB- host	USB- de- vice	Ethernet, Mbit	RS-232/ 422/ 485	RS-232	SD Card		
	Operator panel ETG 10.4" metal case ONI	10.4	1×2,0	1×2,0	1×10/100	2	2	+	Metal	ETG-A8TS-HSSE-P-104
	Operator panel ETG 12.1" metal case ONI	12.1	1×2,0	1×2,0	1×10/100	2	2	+	Metal	ETG-CP-121
	Operator panel ETG 15" metal case ONI	15.1	1×2,0	1×2,0	1×10/100	2	2	+	Metal	ETG-CP-150

* Examples of panel appearance are shown.

GENERAL SPECIFICATIONS FOR GRAPHIC OPERATOR PANELS ONI® ETG

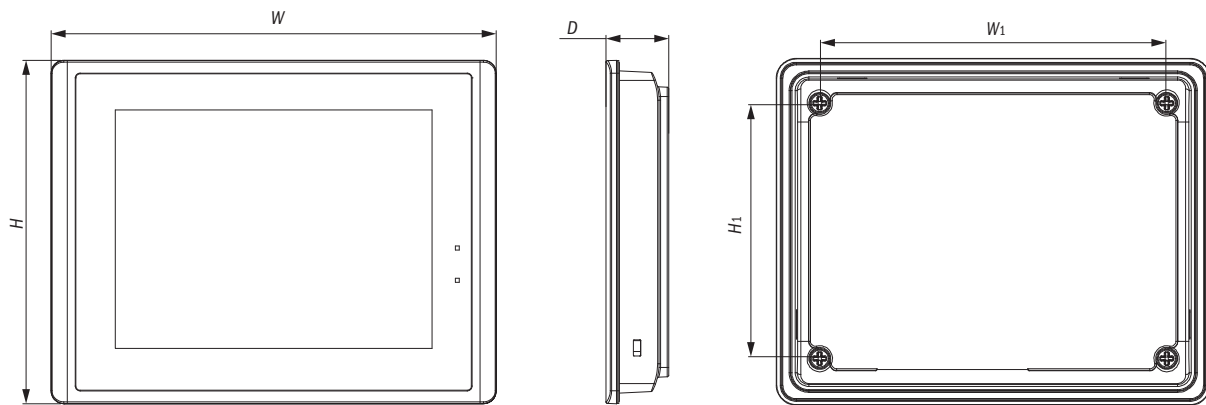
Parameter	Value				Standard
Power supply voltage, V DC	24 (±15 %)				
Relative humidity, %	10÷95 (non-condensing)				
Power consumption, W	<15				
Vibration resistance	Continuous vibration				
	Frequency, Hz	Acceleration, m/s ²	Displacement, mm	Interaction duration	
	$10 \leq f < 25$	19.6	-	30 min interaction on X, Y, Z axes	
EMC	Electrostatic discharge, kV	±4 (contact discharge), ±8 (air discharge)			IEC61000-4-2
	Nanosecond pulse noise	Type	Power lines	Communication interface	IEC61000-4-4
		Voltage, kV	3	1	
Operating fluid	Contamination level 2, without corrosive substances and excessive dust content				
Cooling	Natural ventilation with ambient air				
Protection degree	IP65 on the screen side, IP20 on the socket side				IEC60529

SPECIFICATIONS

Parameter		Model						
		ETG 4.3 "	ETG 4.3 "	ETG 7 "	ETG 7 "	ETG 7 "	ETG 7 "	ETG 7 "
Screen diagonal, inches		4.3	4.3	7	7	7	7	7
Resolution		480×272	480×272	800×480	800×480	1024×600	800×480	800×480
Colors index, bit		24	24	24	24	24	24	24
Brightness, cd/m ²		400	400	360	360	450	360	360
Backlight color		LED	LED	LED	LED	LED	LED	LED
Sensor type		Resistive						
CPU type		Cortex A8 600 MHz						
ROM/RAM		Cortex A8 600 MHz						
Connectivity	USB-host	1×2,0	1×2,0	1×2,0	1×2,0	1×2,0	1×2,0	1×2,0
	USB-device	1×2,0	1×2,0	1×2,0	1×2,0	1×2,0	1×2,0	1×2,0
	Ethernet	—	1	—	1	1	—	1
	RS-232/RS-485	1	1	1	2	2	1	2
	RS-232	1	1	1	2	2	1	2
	SD Card	1	—	—	1	1	—	1
Supply voltage range, V		9-28 DC						18-28 DC
Power consumption, W, max.		5	5	10	10	6	10	10
Case material		Plastic	Metal	Plastic	Plastic	Plastic	Metal	Metal
Operating temperature range, °C		0...50	-20...+70	0...50			-20...+70	
Weight, kg		0.5	0.5	0.65	0.65	0.65	0.8	0.8
Product ID		ETG-A8TS-HSSN-S-043	ETG-CP-043	ETG-A8TS-HSSN-S-070	ETG-CP-070	ETG-A8TH-HSSE-S-070	ETG-A8TS-HSSN-P-070	ETG-A8TS-HSSE-P-070

Parameter		Model					
		ETG 9.7 "	ETG 9.7 "	ETG 9.7 "	ETG 10.4 "	ETG 12.1 "	ETG 15 "
Screen diagonal, inches		9.7	9.7	9.7	10.4	12.1	15
Resolution		1024×768	1024×768	1024×768	800×600	1024×768	1024×768
Colors index, bit		24	24	24	24	24	24
Brightness, cd/m ²		350	350	350	500	370	400
Backlight color		LED	LED	LED	LED	LED	LED
Sensor type		Resistive					
CPU type		Cortex A8 600 MHz					
ROM/RAM		Cortex A8 600 MHz					
Connectivity	USB-host	1×2,0	1×2,0	1×2,0	1×2,0	1×2,0	1×2,0
	USB-device	1×2,0	1×2,0	1×2,0	1×2,0	1×2,0	1×2,0
	Ethernet	—	1	1	1	1	1
	RS-232/RS-485	1	2	2	2	2	2
	RS-232	1	2	2	2	2	2
	SD Card	1	—	1	1	1	1
Supply voltage range, V		9-28 DC		18-28 DC			
Power consumption, W, max.		10	10	10	15	15	15
Case material		Plastic	Plastic	Metal	Metal	Metal	Metal
Operating temperature range, °C		0...50		-20...+70			
Weight, kg		1	1	1.1	15	2.2	2.5
Product ID		ETG-A8TS-HSSN-S-D97	ETG-CP-097	ETG-A8TS-HSSE-P-097	ETG-A8TS-HSSE-P-104	ETG-CP-121	ETG-CP-150

OVERALL DIMENSIONS



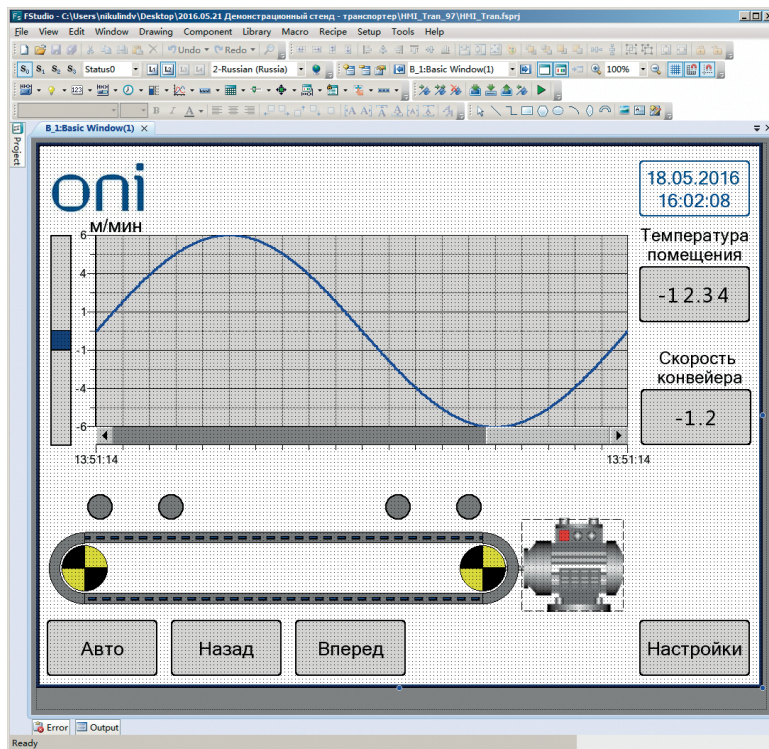
Product ID	Name	Overall dimensions, mm			Mounting cutout, mm	
		Width W	Height H	Depth D	Width W_1	Height H_1
ETG-A8TS-HSSN-S-043	Operator panel ETG 4.3" plastic case ONI	130.0	104.0	28.9	118.0	92.0
ETG-CP-043	Operator panel ETG 4,3" metal case ONI	130.0	104.0	30.0	118.0	92.0
ETG-A8TS-HSSN-S-070	Operator panel ETG 7" basic plastic case ONI	204.0	145.0	38.5	192.0	138.0
ETG-A8TS-HSSN-P-070	Operator panel ETG 7" basic metal case ONI	200.0	146.0	32.7	192.0	138.0
ETG-CP-070	Operator panel ETG 7" plastic case ONI	204.0	145.0	38.5	192.0	138.0
ETG-A8TS-HSSE-P-070	Operator panel ETG 7" metal case ONI	200.0	146.0	32.7	192.0	138.0
ETG-A8TH-HSSE-S-070	Operator panel ETG 7" high resolution plastic case ONI	185.1	131.1	30.0	175.0	125.0
ETG-A8TS-HSSN-S-097	Operator panel ETG 9.7" basic plastic case ONI	276.3	213.3	39.0	259.0	201.0
ETG-CP-097	Operator panel ETG 9.7" plastic case ONI	276.3	213.3	39.0	259.0	201.0
ETG-A8TS-HSSE-P-097	Operator panel ETG 9.7" metal case ONI	245.2	189.7	31.0	232.0	179.0
ETG-A8TS-HSSE-P-104	Operator panel ETG 10.4" metal case ONI	275.0	215.0	35.3	261.0	203.0
ETG-CP-121	Operator panel ETG 12.1" metal case ONI	310.0	240.0	42.5	290.0	217.0
ETG-CP-150	Operator panel ETG 15" metal case ONI	394.0	297.0	42.3	360.0	271.0

SOFTWARE ONI® VISUAL STUDIO

Software ONI® Visual Studio is designed specially to create visualization projects for graphic operator panels ONI®.

It consists of the following:

- graphic editor, allowing a user to create dynamic animated mnemonic process diagrams in different system windows;
- emergency messages and alerts;
- trends and archives;
- user access rights configuration;
- recipes;
- macros;
- event planner;
- setting languages and fonts of projects;
- graphic library, audio library and libraries of texts and tags;
- communication setting;
- offline-simulator.



Intuitive interface allows a user to master ONI® Visual Studio on the fly, easily and quickly create projects for automated process visualization systems. Software ONI® Visual Studio is supplied for free and can be downloaded from the website www.oni-system.com.

OPERATOR BUTTON TEXT PANELS ONI® TD

Operator button text panels ONI® are applied when there's no need in complicated graphics and automated process display.

Compact and convenient structure helps easily mount and debug a system, ensuring high level of protection against heavy operational factors. Programming simplicity allows a user to quickly create an HMI system, as well as monitor and change system parameters supporting emergency and information messages.



ADVANTAGES

- 19 integrated keys with an option to set functionality.
- Pictograph display.
- Broad network capability.
- Extended power range.
- Simple adoption and integration.

* Example of appearance.

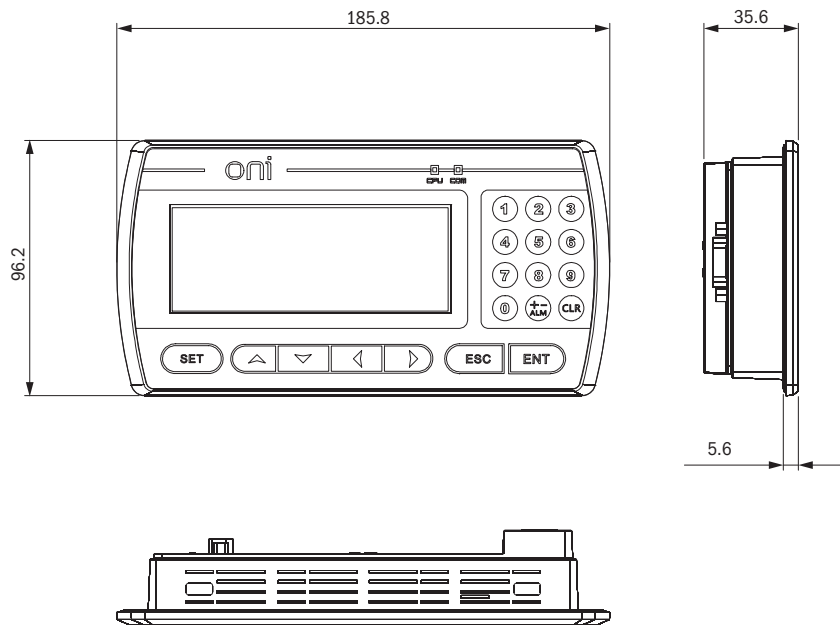
PRODUCT RANGE

Name	Diagonal, inches	Communication options						Product ID
		USB-host	USB-device	Ethernet	RS-232/RS-485	RS-232	SD Card	
ONI TD	4.3	-	1×2,0	-	1	1	-	TD-MP-043

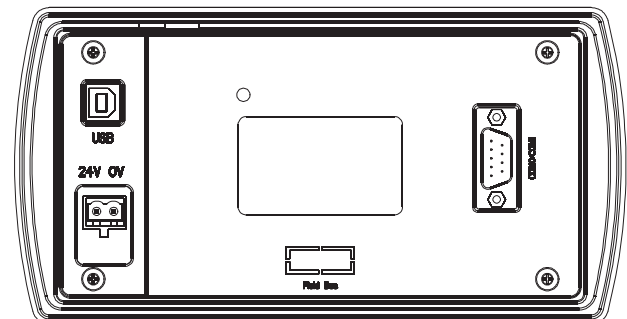
SPECIFICATIONS

Parameter		ONI® TD
Screen diagonal, inches		4.3
Resolution		192×64
Color		Monochrome
Brightness (cd/m ²)		60
Backlight color		LED
Service life, h		50,000
CPU		ARM RISC 32 Bit 72 MHz
ROM/RAM		256 K Flash/-
Connectivity	USB-host	-
	USB-device	1×2,0
	Ethernet	-
	RS-232/RS-485	1
	RS-232	1
	SD Card	-
Power consumption, W, max.		4
Case material		Plastic
Operating temperature range, °C		0...+45
Storage temperature range, °C		-20...+70
Weight, kg		0.3

OVERALL DIMENSIONS, MM



MOUNTING HOLE SIZE, MM, AND REAR VIEW



OPERATOR SENSOR RESISTIVE PANELS FOR OEM MANUFACTURERS ONI® OEM

Special version of open-frame operator panels ONI® for your equipment. They have high reliability and information process speed, large volume of built-in, dynamically distributed random access memory and read-only memory, all required interfaces and communication protocols, broad functionality and modern design. All operator panels ONI® are adapted to heavy industrial operation conditions. Software for creation of custom applications is supplied for free.



ADVANTAGES

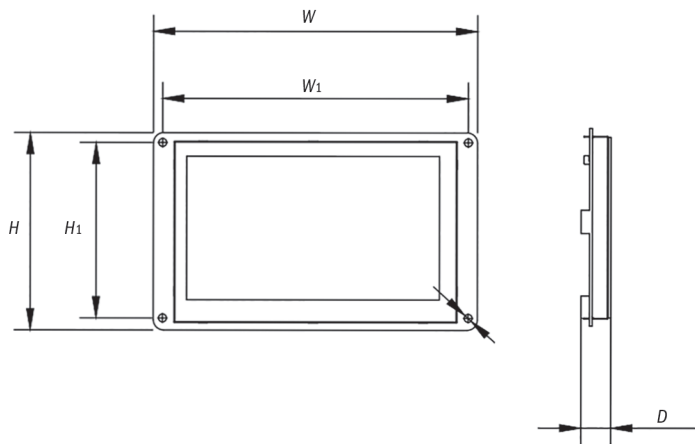
- High quality components.
- Wide angle view.
- Ultra-thin design.
- Advanced high-performance microprocessor Cortex A8 600 MHz.
- Mouse and keyboard connection.
- Wide operating temperature range.
- Open-frame version for simple integration into equipment.
- Free of charge development environment ONI Visual Studio.

* Example of appearance.

PRODUCT RANGE

Product ID	Overall dimensions, mm			Mounting dimensions, mm	
	Width <i>W</i>	Height <i>H</i>	Depth <i>D</i>	Width <i>W</i> ₁	Height <i>H</i> ₁
OEM-A8HS-HSSN-S-043	121.8	74.1	11.2	114.8	65.8
OEM-A8HS-HSSN-S-050	143.5	81	20	113.5	71
OEM-A8HS-HSSN-S-070	190.4	110	18.5	171.7	79.8

DIMENSIONS



SPECIFICATIONS

Parameter		OEM 4.3"	OEM 5"	OEM 7"
Screen diagonal, inches		4.3	5	7
Screen resolution		480×272	800×480	800×480
Colors index, bit		16	16	16
Brightness (cd/m ²)		300	300	300
Backlight color		LED	LED	LED
Sensor type		4-wire resistive	4-wire resistive	4-wire resistive
CPU		Cortex A8 600 MHz	Cortex A8 600 MHz	Cortex A8 600 MHz
Volume, Mb	ROM	128	128	128
	RAM	128	128	128
Options	USB-A	1×2,0	1×2,0	1×2,0
	USB-B	1×2.0 (micro)	1×2.0 (micro)	1×2.0 (micro)
	COM1	—	—	—
	COM3	—	—	—
	COM2	RS-232/485	RS-232/485	RS-232/485
	COM4	RS-232	RS-232	RS-232
	Ethernet	—	—	—
SD Card		Micro	Micro	Micro
Supply voltage range, V		9–28 DC		
Power consumption, W, max.		5		
Case material		Open-frame	Open-frame	Open-frame
Operating temperature range, °C		–20...+70		
Weight, kg		0.25	0.3	0.3
Product ID		OEM-A8HS-HSSN-S-043	OEM-A8HS-HSSN-S-050	OEM-A8HS-HSSN-S-070

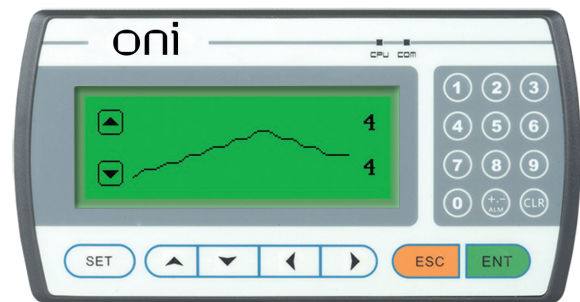
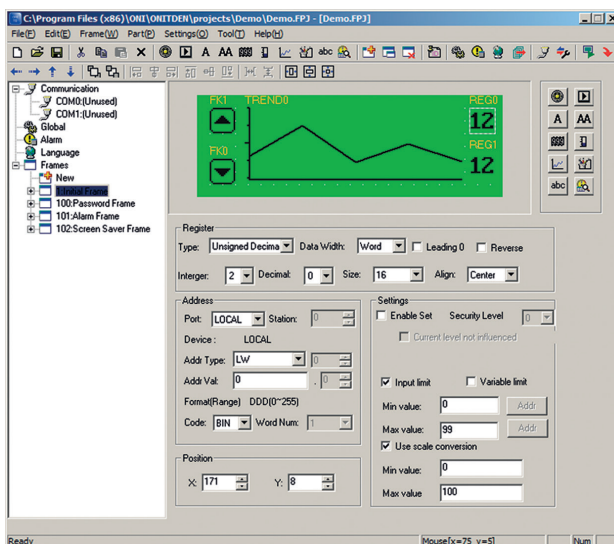
SOFTWARE ONI® TD

Free software (SW) for automated systems visualization based on text panels ONI® TD is simple to use and easy to master.

This SW offers user-friendly interface and helps configure communication with a programmable logic controller (PLC), integrate texts, mnemonic diagrams of a project, trends and a system of emergency messages and alerts.

A developed project can be tested in an offline simulator, included into installation package ONI® TD.

Software ONI® TD is supplied for free and can be downloaded from the website www.oni-system.com.



* Example of appearance.



PROGRAMMABLE LOGIC RELAYS ONI® PLR-S

Programmable logic relay ONI ® PLR-S is a cost-effective and user-friendly solution helping build simple automated management systems: conveyors, pump stations, systems for steam treatment and condensation collection, ventilation and air conditioning, compressor and lighting management systems. Module structure and broad nomenclature allow a user to configure logic relays ONI® PLR-S for effective addressing of tasks on control and management of local equipment.



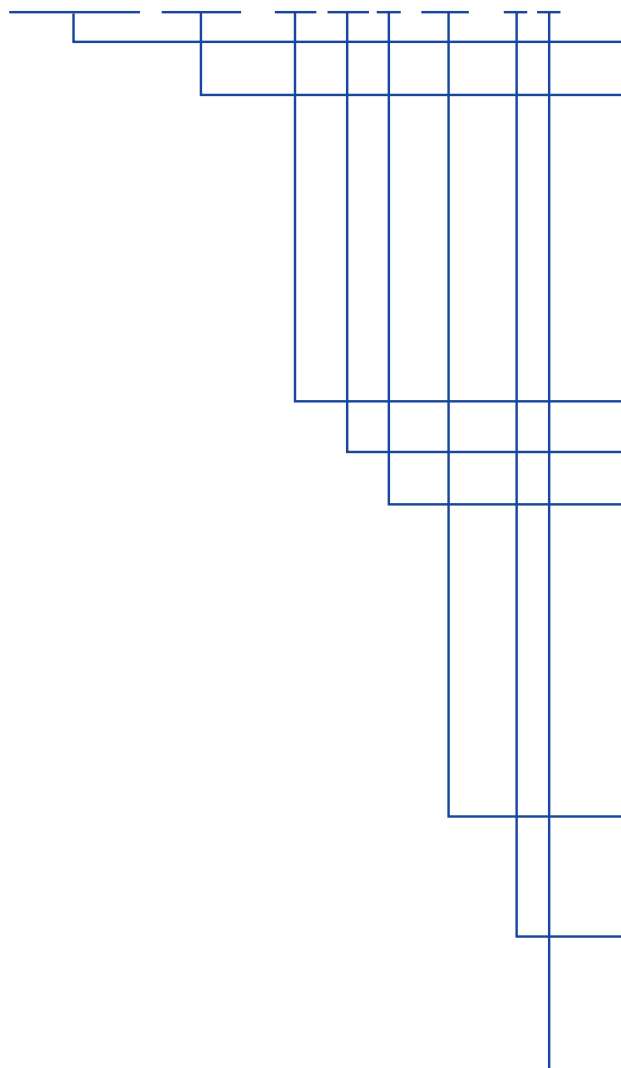
ADVANTAGES

- High reliability and performance at an affordable price.
- Capability to install up to 16 expansion modules, maximizing number of input/output channels to 280.
- Free of charge software with intuitive interface, broad set of out-of-the-box functional blocks and special programs.
- Easy to master, intuitive programming language FBD (standard IEC 61131-3). Program size up to 1024 functional blocks.
- Operation in remote input/output channels mode via Modbus RTU without preliminary programming.
- Integrated interface RS-485 and RS-232 with Modbus RTU communication protocol enables data exchange with various automation equipment.
- Operation both in Modbus RTU Master and in Modbus RTU Slave modes even in versions with integrated interface in the central processor unit (CPU) module.

* Examples of relay appearance are shown.

PRODUCT ID DECODING

PLR-S-CPU-1410R-AC-BE



PLR-S – series

Type:

CPU – core (CPU), main device;

EMA – module for expansion with analog channels;

EMD – module for expansion with digital channels;

EMC – module for expansion with communication channels;

Total inputs:

Number of outputs

Signal type:

R – electromagnetic relays;

T – transistor;

U – universal:

U – input voltage;

I – input current;

NR – service symbols

Power supply type:

AC – alternating current;

DC – direct current;

Display:

B – built-in;

N – none

Expansibility:

E – expansion modules can be connected;

N – expansion modules cannot be connected

GENERAL SPECIFICATIONS

Parameter	Value
Voltage	DC 12–24 V (10.8–28.8 V) or AC 110–240 V
Power consumption, W	Up to 4 per module (up to 64 with maximum expansion)

OPERATION CONDITIONS

Parameter	Value
Temperature range, °C	-20...+55
Relative air humidity, %	10-95 (non-condensing)
Altitude above sea level, m, max	2000
Microenvironment contamination degree	2, without any aggressive and explosive steams and gases in concentrations, causing metal corrosion and insulation destruction
Cooling method	Natural ventilation with ambient air
Protection degree	IP20

STORAGE AND TRANSPORTATION CONDITIONS

Parameter	Value
Temperature range, °C	-20...+55
Relative air humidity, %	10-95 (non-condensing)

FUNCTIONAL CHARACTERISTICS

Parameter		Description
Response time, ms per function		<0.1
Maximum number inputs/outputs		Up to 280 channels
Maximum expansion		Up to 16 expansion modules per one CPU module
Special functions	Rapid count	Up to 4 channels 60 kHz
	PID Control	Up to 30 blocks
	Real time clock	Up to 20 days of autonomous work
	High speed outputs	Up to 10 KHz
CPU operation mode		Start/Stop
Program execution		Cyclic
Maximum program size		Up to 1024 blocks (65,536 B)
Available programming languages		FBD
Communication protocols		Modbus RTU

CENTRAL PROCESSOR MODULES

The family of programmable logic relays ONI® includes 11 central processor modules with or without a built-in display. Display shows user messages, process data and helps correct it.



ADVANTAGES

- High reliability and performance.
- Embedded digital inputs can be used as analog 0–10 V.
- Embedded relay outputs up to 10 A.
- Connectivity to any kind of visualization and management systems, as well as to other equipment via Modbus RTU.
- Installation on 35 mm DIN rail or mounting panel.

* Example of appearance.

PRODUCT RANGE



Name		Logic relay PLR-S. CPU0804 24 V DC without a screen ONI	Logic relay PLR-S. CPU0804(R) 220 V AC without a screen ONI	Logic relay PLR-S. CPU0804(T) 24 V DC with a screen ONI	Logic relay PLR-S. CPU1004(R) 220 V AC with a screen ONI
Product ID		PLR-S-CPU-0804	PLR-S-CPU-0804R-AC-NN	PLR-S-CPU-0804T-DC-BN	PLR-S-CPU-1004R-AC-BE
Inputs	Universal	4 (0-10 V)	—	4 (0-10 V)	—
	Digital	4	8	4	10
	Analog	—	—	—	—
Outputs	Digital	4 relays	4 relays	4 relays	4 relays
	Analog	—	—	—	—
Interfaces	RS-232	+	+	+	+
	RS-485	—	—	—	+
Screen		—	—	+	+
Expansion		—	—	—	+
Power supply		24 V DC	230 V AC	24 V DC	230 V AC

* Examples of appearance are shown.

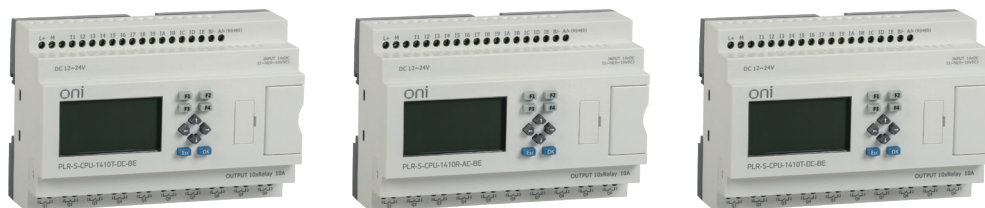
PRODUCT RANGE



Name		Logic relay PLR-S. CPU1004(R) 24 V DC with a screen ONI	Logic relay PLR-S. CPU1206 24 V DC with a screen ONI	Logic relay PLR-S. CPU1206(R) 220 V AC with a screen ONI	Logic relay PLR-S. CPU1206(T) 24 V DC with a screen ONI
Product ID		PLR-S-CPU-1004R-DC-BE	PLR-S-CPU-1206	PLR-S-CPU-1206R-AC-BE	PLR-S-CPU-1206T-DC-BE
Inputs	Universal	6 (0–10 V)	6 (0–10 V)	—	6 (0–10 V)
	Digital	4	6	12	6
	Analog	—	—	—	—
Outputs	Digital	4 relays	6 relays	6 relays	4 relays 2 transistor
	Analog	—	—	—	—
Interfaces	RS-232	+	+	+	+
	RS-485	+	—	—	—
Screen		+	+	+	+
Expansion		+	+	+	+
Power supply		24 V DC	24 V DC	230 V AC	24 V DC

* Examples of appearance are shown.

PRODUCT RANGE



Name	Logic relay PLR-S. CPU1410 24 V DC with a screen ONI		Logic relay PLR-S. CPU1410(R) 220 V AC with a screen ONI	Logic relay PLR-S. CPU1410(T) 24 V DC with a screen ONI
Product ID	PLR-S-CPU-1410		PLR-S-CPU-1410R-AC-BE	PLR-S-CPU-1410T-DC-BE
Inputs	Universal	6 (0-10 V)	—	4 (0-10 V)
	Digital	8	14	8
	Analog	—	—	2 (0-20 mA)
Outputs	Digital	10 relays	10 relays	6 relays 2 transistor
	Analog	—	—	1 (0-10 V or 0-20 mA)
Interfaces	RS-232	+	+	+
	RS-485	+	+	+
Screen	+		+	+
Expansion	+		+	+
Power supply	24 V DC		230 V AC	24 V DC

* Examples of appearance are shown.

SPECIFICATIONS

Parameter	Input		Relay output
	Universal	Digital	
Voltage	0÷28.8 V DC		AC 250 V/DC 110 V
Current	0.16 mA (DC 10.8 V) 0.17 mA (DC 12.0 V) 0.48 mA (DC 24.0 V) 0.62 mA (DC 28.8 V)	2.06 mA (DC 10.8 V) 2.29 mA (DC 12.0 V) 4.57 mA (DC 24.0 V) 5.49 mA (DC 28.8 V)	up to 10 A (active load)* up to 2 A (inductive load)**
Logic unit	> DC 8 V/0.12 mA	> DC 8 V/1.53 mA	—
Logic zero	< DC 5 V/0.08 mA	< DC 5 V/0.96 mA	—
Response time, ms	<1.5	<1	<15
Maximum signal frequency, Hz	4	4	—
Analog value measurement range, V	0 ÷ 10	—	—
ADC resolution, bit	10-0 V	—	—
Error at 25°, V	±0,02****	—	—
Error at 55°, V	±0,04*****	—	—
Galvanic isolation	No		Relay
Input type	SINK		—
Output type	—		EM relay
Service life, switches	—		105 ⁵ (maximum current)
Operating temperature, °C	-20...+55		
Relative air humidity, %	5-95 (non-condensing)		
Protection degree	IP20		

* Up to 3 A for outputs Q1-Q4 of the module PLR-S-EMD-0808.

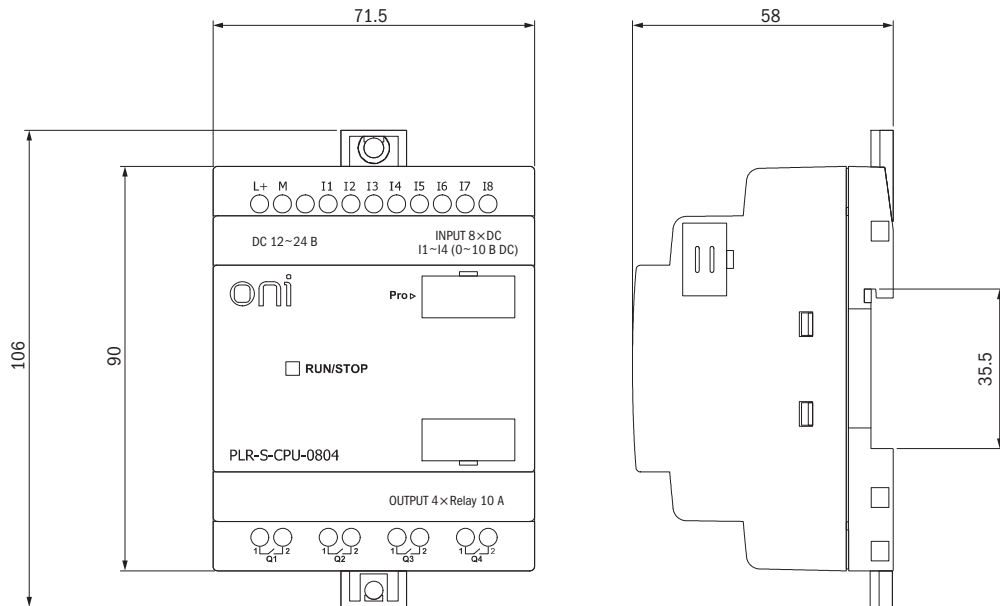
** Up to 1 A for outputs Q1-Q4 of the module PLR-S-EMD-0808.

*** 9 bit (0.015 V) for modules PLR-S-CPU-0804, PLR-S-EMD-0808.

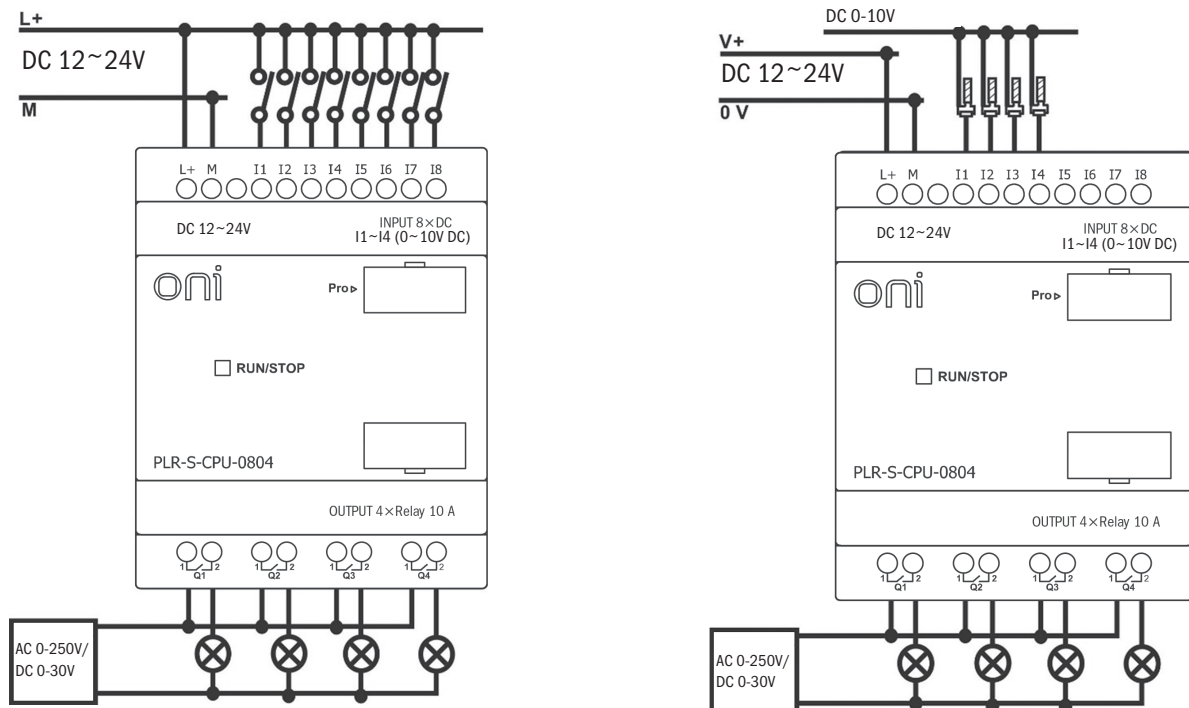
**** ±0.03 V for modules PLR-S-CPU-0804, PLR-S-EMD-0808.

***** ±0.06 V for modules PLR-S-CPU-0804, PLR-S-EMD-0808.

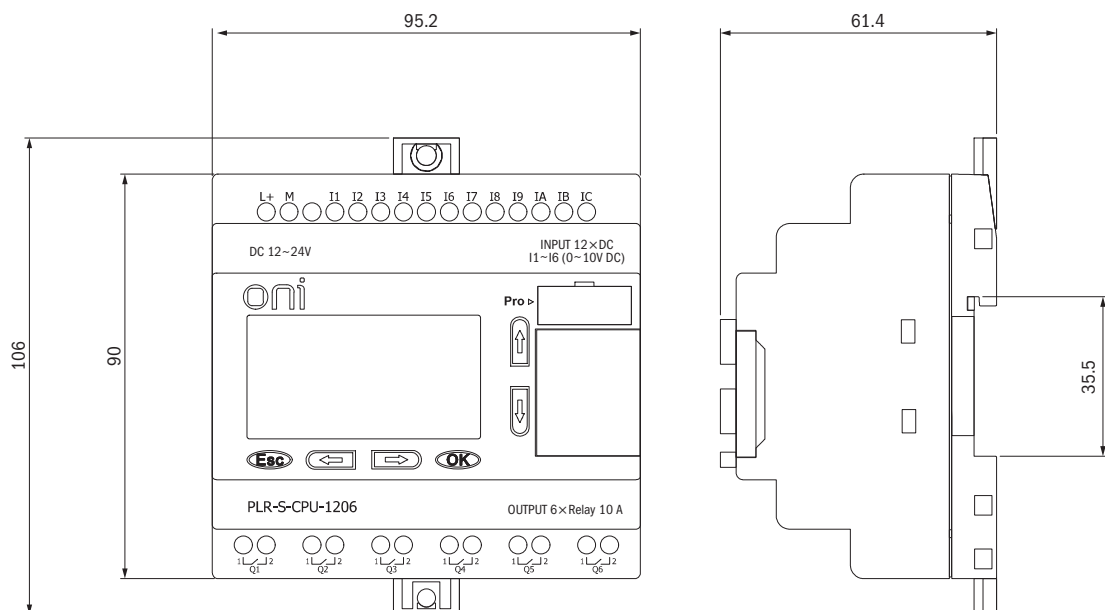
**OVERALL DIMENSIONS PLR-S-CPU-0804, PLR-S-CPU-0804R-AC-NN,
PLR-S-CPU-0804T-DC-BN, MM**



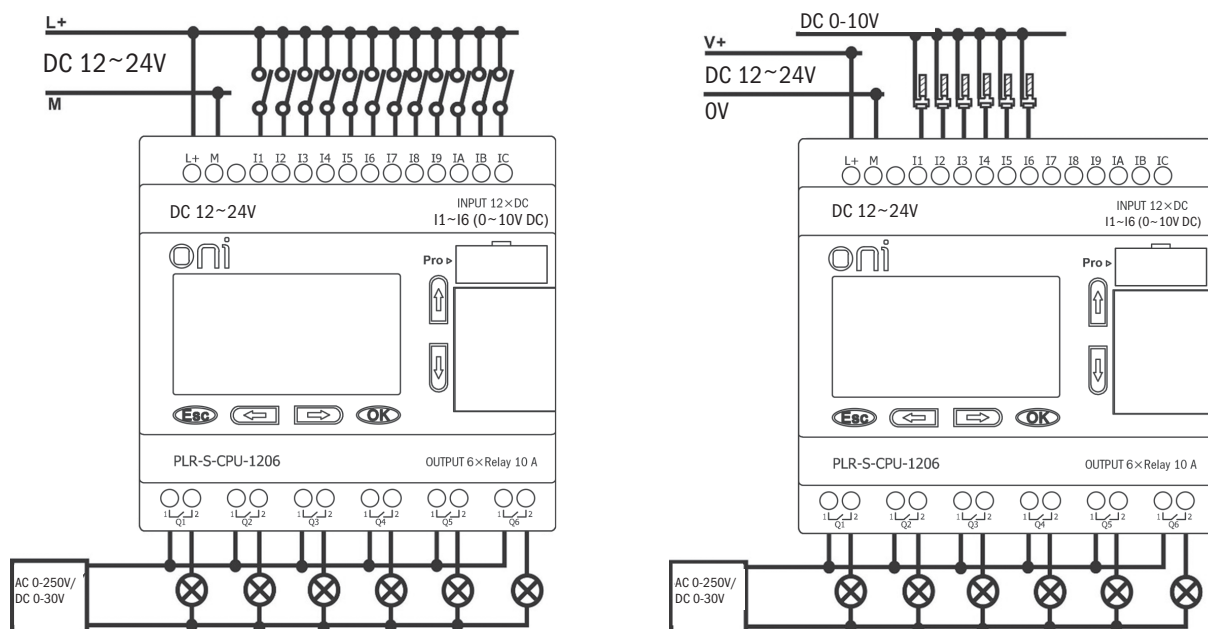
**CONNECTION DIAGRAMS PLR-S-CPU-0804, PLR-S-CPU-0804R-AC-NN,
PLR-S-CPU-0804T-DC-BN**



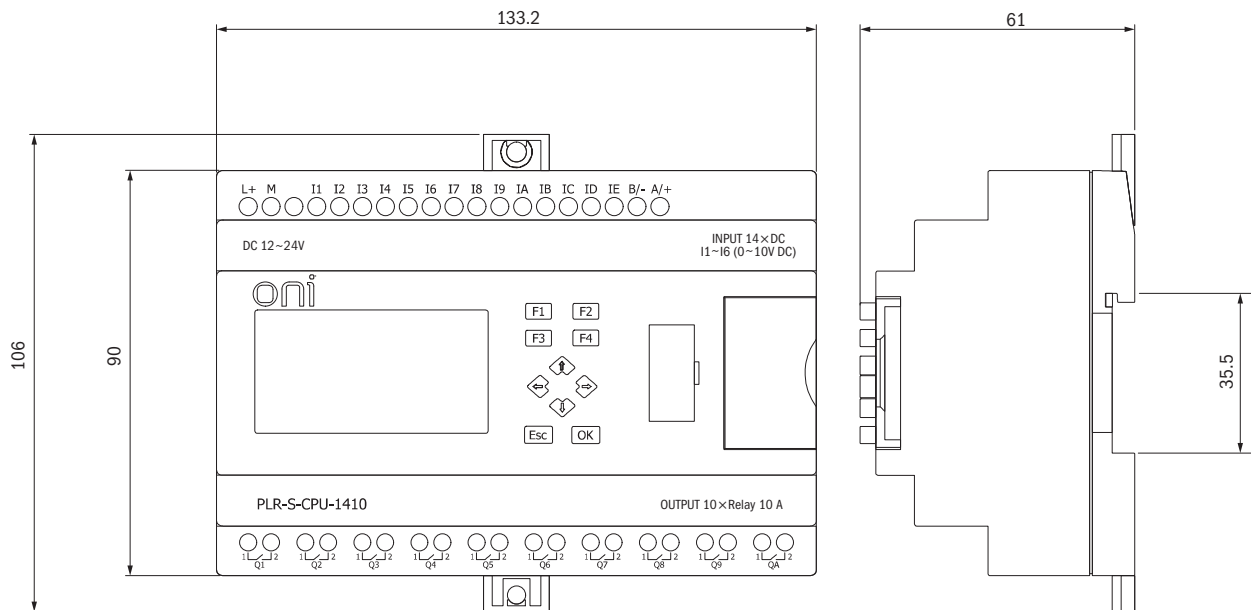
OVERALL DIMENSIONS PLR-S-CPU-1004R-AC-BE, PLR-S-CPU-1004R-DC-BE, PLR-S-CPU-1206, PLR-S-CPU-1206R-AC-BE, PLR-S-CPU-1206T-DC-BE, MM



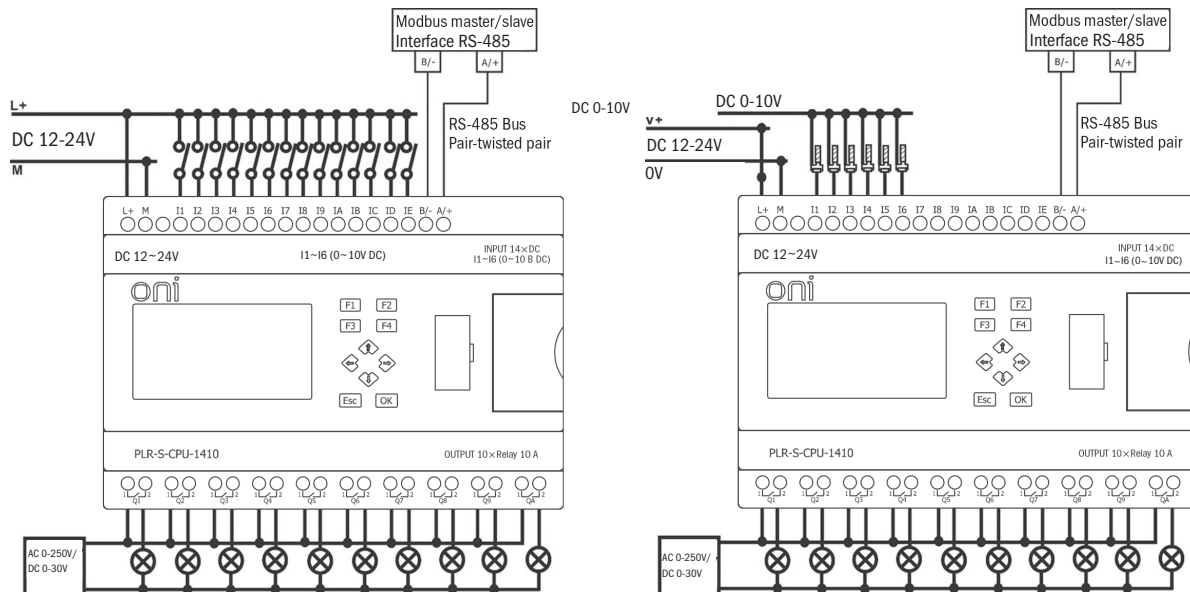
CONNECTION DIAGRAMS PLR-S-CPU-1004R-AC-BE, PLR-S-CPU-1004R-DC-BE, PLR-S-CPU-1206, PLR-S-CPU-1206R-AC-BE, PLR-S-CPU-1206T-DC-BE



OVERALL DIMENSIONS PLR-S-CPU-1410, PLR-S-CPU-1410R-AC-BE, PLR-S-CPU-1410T-DC-BE, MM



CONNECTION DIAGRAMS PLR-S-CPU-1410, PLR-S-CPU-1410R-AC-BE, PLR-S-CPU-1410T-DC-BE



NEW

CONTROLLERS FOR SMALL SYSTEMS HVAC ONI – HVAC-S

PLC HVAC-S – controllers for HVAC (heating, ventilation and air conditioning) systems. They are used to control compact ventilation units and can be applied to automate heating stations, helping address various automation tasks.



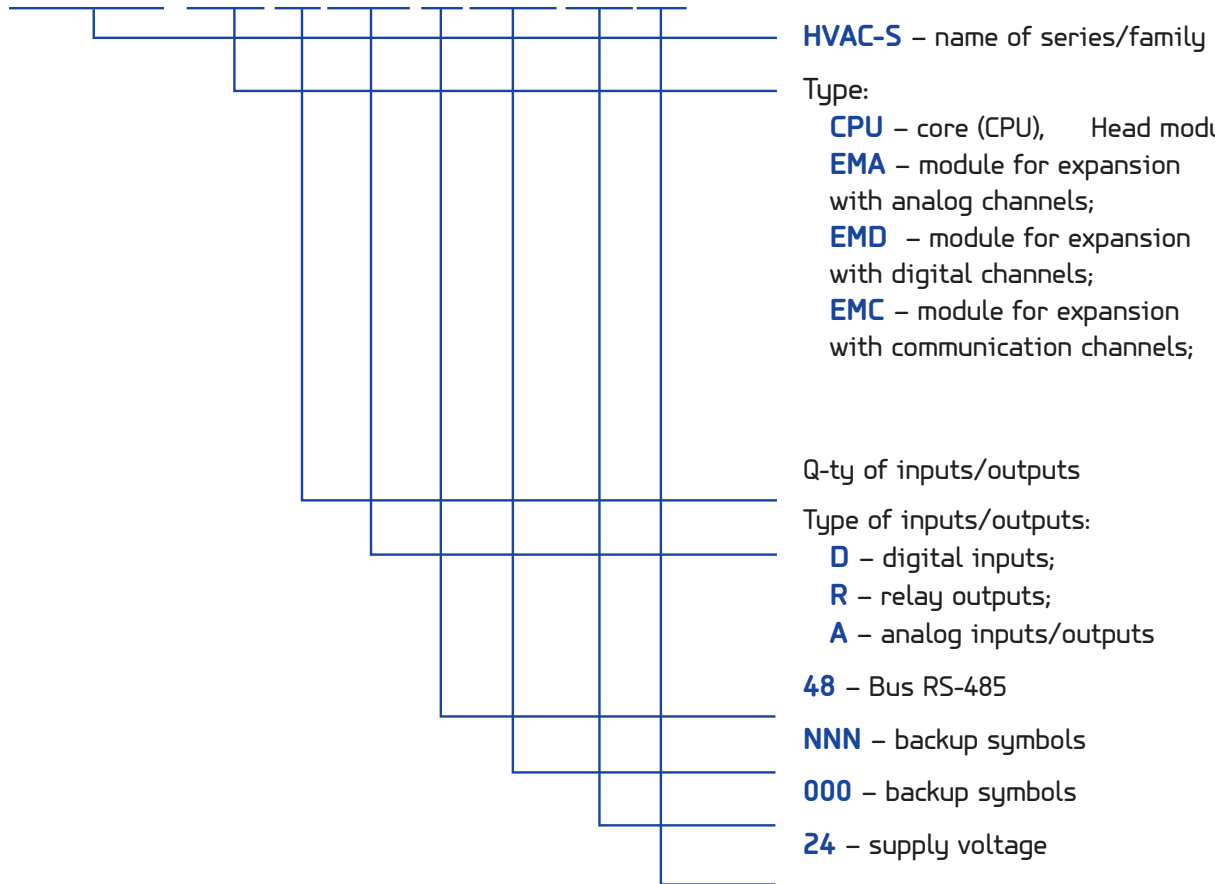
ADVANTAGES

- Quantity of analog and digital IOs per CPU module optimal for HVAC systems.
- Capability to increase IO number up to 280 by connecting max. 16 expansion modules.
- Free of charge SW with features for debugging, diagnostics and simulation.
- Programming powered by languages, corresponding to IEC 61131-3.
- Generation of custom libraries.
- Embedded special libraries.
- Modbus RTU communication protocol in the controller.
- Integrated text display.
- Real-time clock RTC.

* Example of appearance.

PRODUCT ID DECODING

HVAC-S-CPU22DRA48NNN00024



PRODUCT RANGE



Name	PLC HVAC S CPU 6DI 6DO 1AI 5PT 4AO LED RS-485 ONI	PLC HVAC S CPU 8DI 8DO 1AI 4PT 2AO LED RS-485 ONI
Product ID	HVAC-S-CPU22DRA48NNN00024	HVAC-S-CPU23DRA48NNN00024
Inputs	Universal	1 (0–10 V/0–20 mA)
	Digital	6
	Analog	5 (Pt1000)
Outputs	Digital	6 relays
	Thermal resistance	–
	Analog	4 (0–10 V)
	RS-485	+
	RS-232	+
Power supply	24 V AC/DC	24 V AC/DC

* Example of appearance is shown.



* Example of appearance.

EXPANSION MODULES FOR PROGRAMMABLE LOGIC RELAYS ONI® PLR-S

The family of programmable logic relays ONI® includes 10 kinds of expansion modules. They are installed on a standard 35 mm DIN rail on the right from CPU module and connected using a special line included into module delivery set.



ADVANTAGES

- High reliability and performance.
- Modules for expansion of digital and analog input/output channels.
- Communication module.
- Installation on 35 mm DIN rail or mounting panel.
- Programmable logic relay modules can be offset by up to 200 mm.

* Examples of relay appearance are shown.

PRODUCT RANGE



Name	Logic relay PLR-S. Expansion 8DI/8DO 24 V DC ONI	Logic relay PLR-S. Expansion 8DI/8DO (T) 24 V DC ONI	Logic relay PLR-S. Expansion 8DI/8DO (R) 220 V AC ONI	Logic relay PLR-S. Expansion 4AI 24 V DC ONI	Logic relay PLR-S. Expansion 2AO 24 V DC ONI	Logic relay PLR-S. Expansion 3RTD 24 V DC ONI
Product ID	PLR-S-EMD-0808	PLR-S-EMD-0808UT-DC	PLR-S-EMD-0808UR-AC	PLR-S-EMA-0400	PLR-S-EMA-0002	PLR-S-EMA-PT100
Inputs	Universal	4 (0-10 V)	4 (0-10 V)	—	—	—
	Digital	4	4	8	—	—
	Analog	—	—	—	4	—
Outputs	Digital	8 relays	8 transistors	8 relays	—	—
	Thermal resistance	—	—	—	—	3
	Analog	—	—	—	2	—
Power supply	24 V DC	24 V DC	230 V AC	24 V DC	24 V DC	24 V DC

* Example of appearance is shown.

PRODUCT RANGE

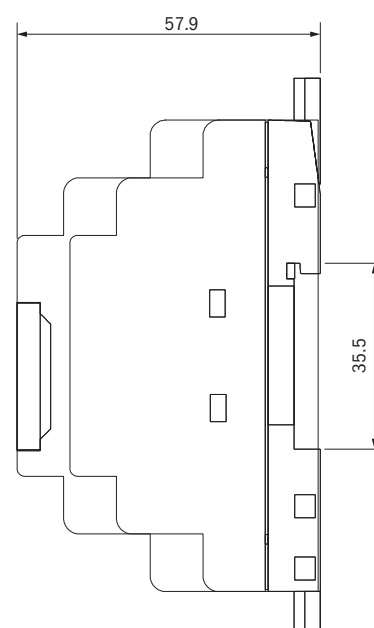
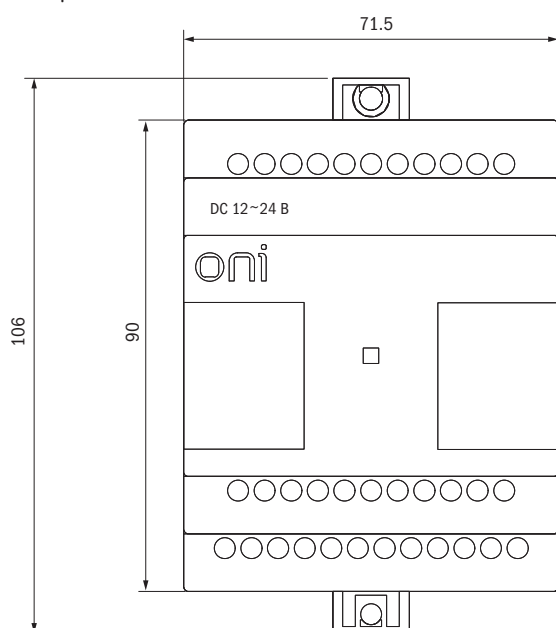


Name	Logic relay PLR-S. Expansion RS-485 ONI	Logic relay PLR-S. 4AI U/I ONI	Logic relay PLR-S. 16DO ONI	Logic relay PLR-S. 16DI ONI
Product ID	PLR-S-EMC-RS-485	PLR-S-EMA-0400UI-DC	PLR-S-EMD-0016NR-DC	PLR-S-EMD-1600NR-DC
Inputs	Universal	—	4 (0-10 V/0-20 mA)	—
	Digital	—	—	12
Outputs	Digital	—	16 relays	—
	Analog	—	—	—
Interfaces	RS-485	1 (3 terminal boards)	—	—
Power supply	24 V DC	24 V DC	24 V DC	24 V DC

* Example of appearance is shown.

OVERALL DIMENSIONS, MM

All expansion modules are executed in a common overall size.



DIGITAL INPUT/OUTPUT MODULE PLR-S-EMD-0808



* Example of appearance is shown.

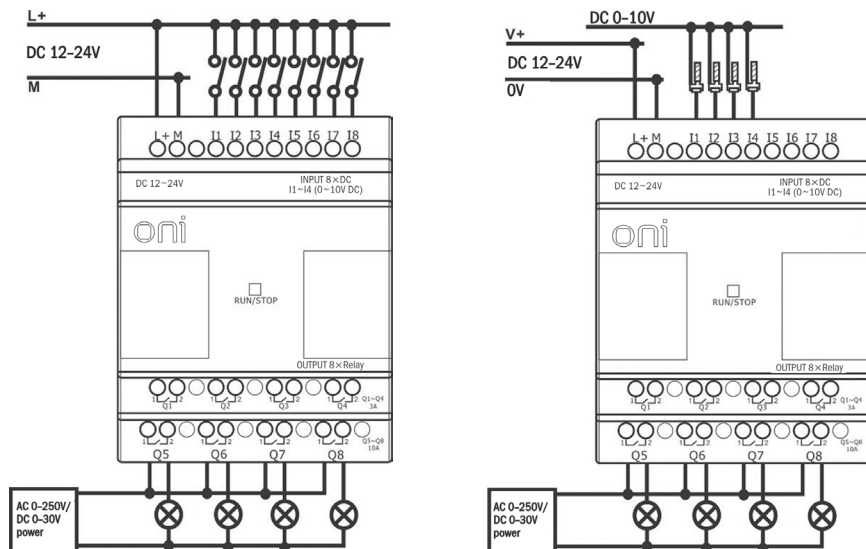
SPECIFICATIONS

Parameter	Input		Relay output
	Universal	Digital	
Voltage	0÷28.8 V DC		AC 250 V/DC 110 V
Current	0.16 mA (DC 10.8 V) 0.17 mA (DC 12.0 V) 0.48 mA (DC 24.0 V) 0.62 mA (DC 28.8 V)	2.06 mA (DC 10.8 V) 2.29 mA (DC 12.0 V) 4.57 mA (DC 24.0 V) 5.49 mA (DC 28.8 V)	Up to 10 A (active load)* Up to 2 A (inductive load)**
Logic unit	> DC 8 V/0.12 mA	> DC 8 V/1.53 mA	—
Logic zero	< DC 5 V/0.08 mA	< DC 5 V/0.96 mA	—
Response time, ms	<1.5	<1	<15
Maximum signal frequency, Hz	4	4	—
Analog value measurement range, V	0 ÷ 10	—	—
ADC resolution, bit	9	—	—
Error at 25°, V	±0.03	—	—
Error at 55°, V	±0.06	—	—
Galvanic isolation	No		Relay
Input type	SINK		—
Output type	—		EM relay
Service life, switches	—		10 (maximum current)

* Up to 3 A for outputs Q1-Q4 of the module PLR-S-EMD-0808.

** Up to 1 A for outputs Q1-Q4 of the module PLR-S-EMD-0808.

CONNECTION DIAGRAMS



DIGITAL INPUT/OUTPUT MODULE PLR-S-EMD-0808UT-DC



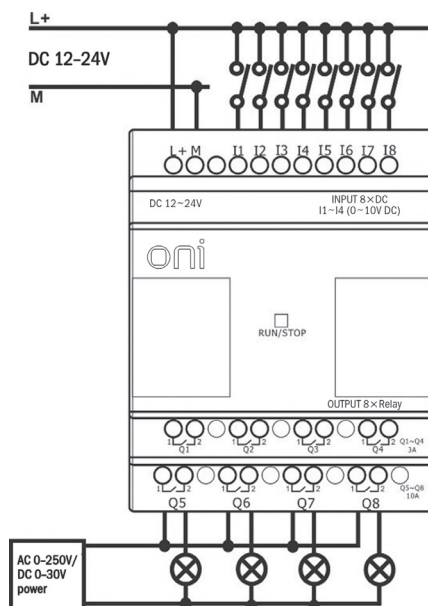
* Example of appearance is shown.

SPECIFICATIONS

Parameter	Value
Power supply voltage, V DC	10.8–28.8
Current, A, max	0.33 (at 10.8 V DC) ... 0.16 (at 28.8 V DC)
Inverse-polarity protection	Yes
Weight, kg, max.	0.3
Dimensions (H × D × W), mm	72×90×58

Parameter	Input		Transistor output
	Universal	Digital	
Voltage, V DC	0–28.8		5–30
Current	0.16 mA (DC 10.8 V) 0.17 mA (DC 12.0 V) 0.48 mA (DC 24.0 V) 0.62 mA (DC 28.8 V)	2.06 mA (DC 10.8 V) 2.29 mA (DC 12.0 V) 4.57 mA (DC 24.0 V) 5.49 mA (DC 28.8 V)	0.3
Logic unit, V	>8		–
Logic zero, V	<5		–
Response time, ms	<1.5	<1	–
Maximum signal frequency, Hz	4		–
Analog value measurement range, V	0–10	–	–
ADC resolution, bit	9	–	–
Error at 25°C, V	±0.03	–	–
Galvanic isolation	No		
Input type	SINK		–
Output type	–		PNP

CONNECTION SCHEME



DIGITAL INPUT/OUTPUT MODULE PLR-S-EMD-0808UR-AC



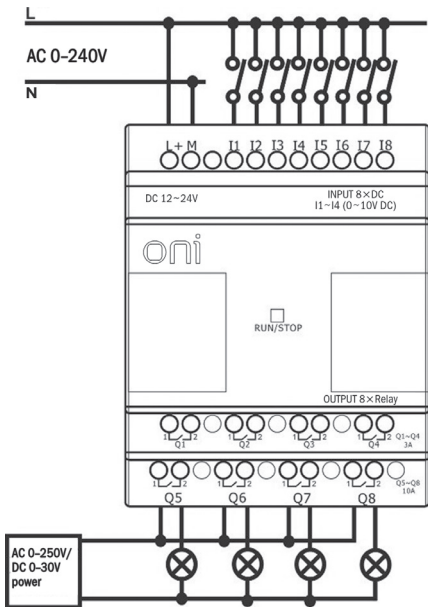
* Example of appearance is shown.

SPECIFICATIONS

Parameter	Value
Power supply voltage, V AC	85-265
Current, A, max	0.053 (at 85 V AC) ... 0.038 (at 265 V AC)
Inverse-polarity protection	Yes
Weight, kg, max.	0.3
Dimensions (H × D × W), mm	72×90×58

Parameter	Digital input	Relay output
Voltage, V AC	0-240	5-30
Current	—	Q1-Q4: AC 3, DC 3 Q5-Q8: AC 10, DC 5
Logic unit, V	>80	—
Logic zero, V	<40	—
Response time, ms	<1.5	—
Maximum signal frequency, Hz	4	2
Galvanic isolation	No	—
Input type	SINK	—
Output type	—	EM relay
Service life, switches	—	105 ⁵ (maximum current)

CONNECTION SCHEME



ANALOG INPUT-OUTPUT MODULES PLR-S-EMA-0400 AND PLR-S-EMA-0002



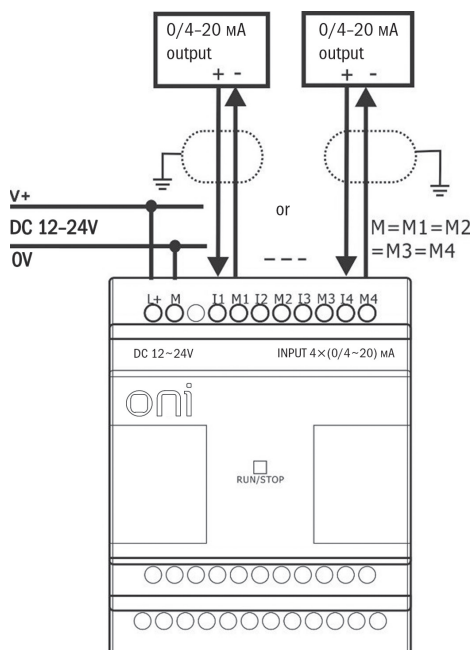
* Example of appearance is shown.

SPECIFICATIONS

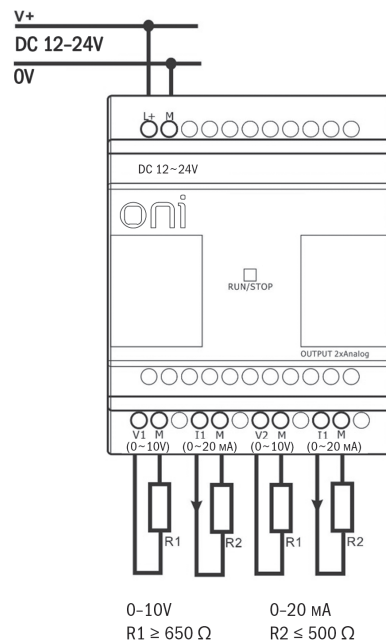
Parameter	Input	Output
Analog value measurement ranges	Current 0÷20 mA, 4÷20 mA	Voltage 0÷10 V, current 0÷20 mA
ADC (DAC) resolution, bit	10 (0.02 mA)	10 (0.01 V, 0.02 mA)
Error at 25 °C	±0.05 mA	±0.02 V or ±0.05 mA
Conversion rate, ms	50	—
Galvanic isolation	No	No

CONNECTION DIAGRAMS

PLR-S-EMA-0400



PLR-S-EMA-0002



MODULES FOR THERMAL RESISTANCE CONNECTION PLR-S-EMA-PT100

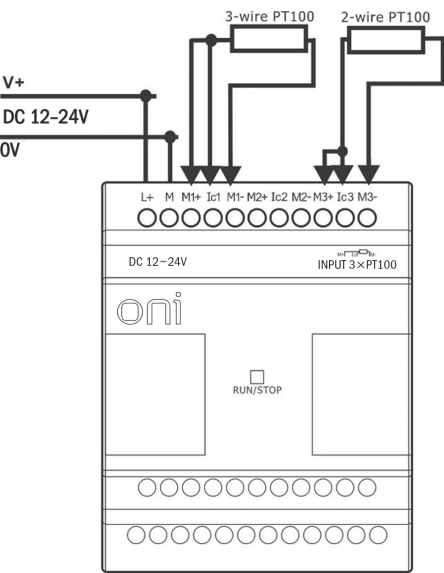


* Example of appearance is shown.

SPECIFICATIONS

Parameter	Input
Supported types of thermal resistance	PT100 (JIS C1640-1989, DIN 43760-1980)
Measurable temperature range, °C	PT100: -50...+200 (80-176 Ω)
Resolution	0.3
Galvanic isolation	No

CONNECTION DIAGRAMS



COMMUNICATION MODULE PLR-S-EMC-RS-485

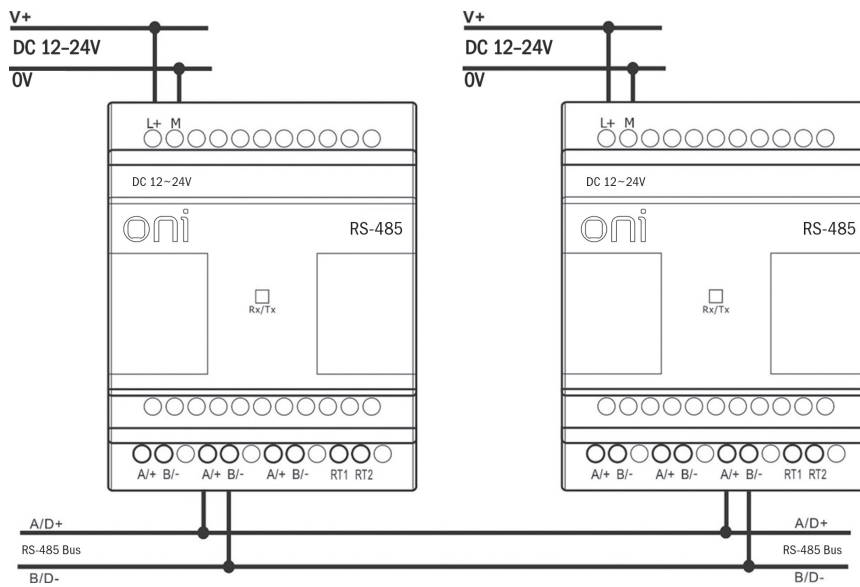


* Example of appearance is shown.

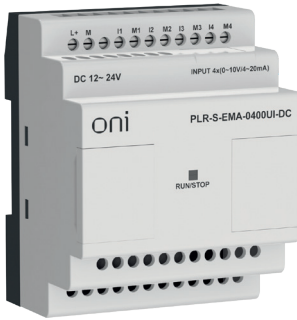
SPECIFICATIONS

Parameter		Technical Data
Protocol		Modbus RTU/ASCII (master/slave)
Data Format	Number of data bits	8
	Number of stop bits	1
	Parity	No
Synchronization		Asynchronous
Baud rate, bps		Up to 115200

CONNECTION DIAGRAMS



ANALOG INPUT MODULE PLR-S-EMA-0400UI-DC

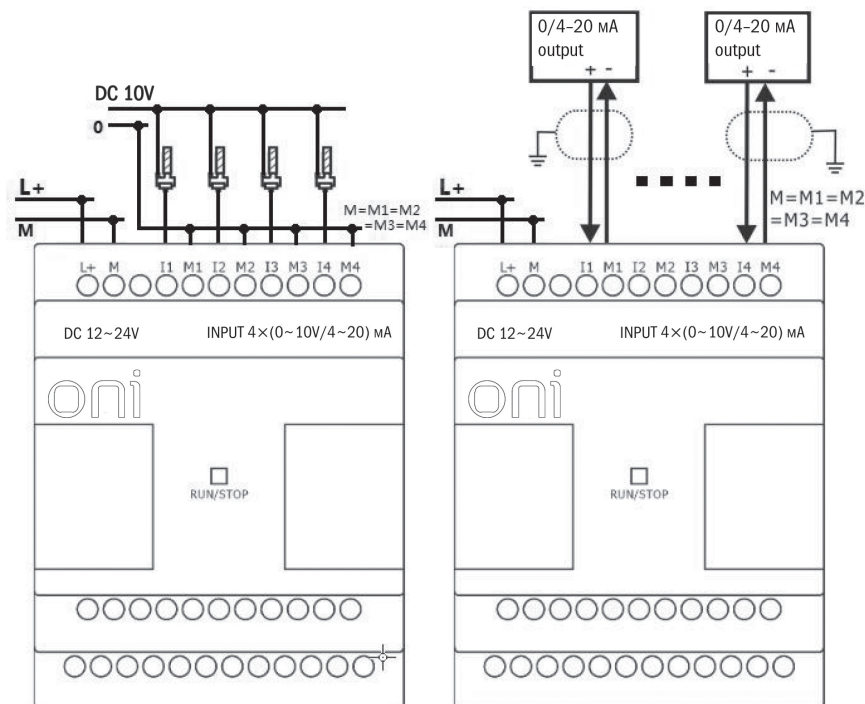


* Example of appearance is shown.

SPECIFICATIONS

Parameter	Input
Analog value measurement ranges	0-20 mA or 0-10 V
ADC (DAC) resolution, bit	14
Error at 25°C	±0.3 % (for <i>U</i> mode), ±0.5 % (for <i>I</i> mode)
Conversion rate, ms	50
Galvanic isolation	No

CONNECTION DIAGRAMS



DIGITAL OUTPUT MODULE PLR-S-EMD-0016NR-DC

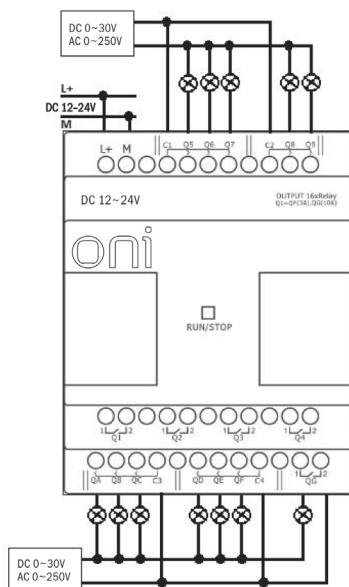


* Example of appearance is shown.

SPECIFICATIONS

Parameter	Output
Voltage	0÷28.8 V DC
Current, A	Max. 0.25
Max. current (act. load), A	3(Q1-QF)
Max. current (ind. load), A	1(Q1-QF)
Max. current (act. load), A	10(QG)
Max. current (ind. load), A	2(QG)
Service life, q-ty of faults at no load	10 ⁷
Service life, q-ty of faults at resistive load	10 ⁵
Max. switching voltage	AC 250 V/DC 110 V
Response time, ms	<15
Galvanic isolation	Dry contact (magneto-electric relay). With cluster common N.O. contacts

CONNECTION SCHEME



DIGITAL INPUT MODULE PLR-S-EMD-1600NR-DC

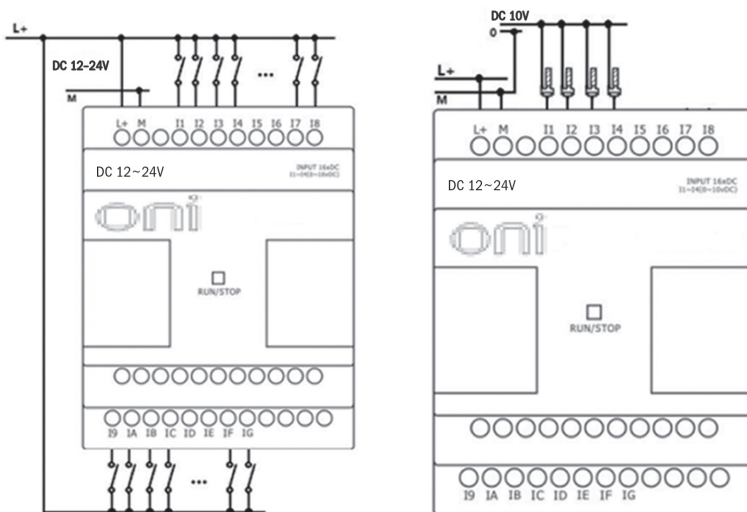


* Example of appearance is shown.

SPECIFICATIONS

Parameter	Input	
	Universal	Digital
Voltage	0÷28.8 V DC	
Current, A	Max. 0.25 A	
Logic unit	—	>8 V; >1.7 mA
Logic zero	—	<5 V; <1 mA
Response time, ms	—	<1
Max. signal frequency, Hz	4	4
Analog signal measurement range, V	0 ÷ 10	—
ADC resolution, bit	9×(0.015 V)	—
Error at 25°, V	±(Max. 0.03 V)	—
Error at 55°, V	±(Max. 0.06 V)	—
Galvanic isolation	No	No
Input type	Sink ("Plus" power supply signal)	

CONNECTION DIAGRAMS



ACCESSORIES FOR PROGRAMMABLE LOGIC RELAYS ONI® PLR-S

Name	Purpose	Product ID
 USB Cable for programmable logic relay ONI PLR-S	Used for programming the CPU modules on a personal computer	PLR-S-CABLE-USB
 RS-232 cable for programmable logic relay ONI PLR-S	Used for connection the operator panels and programming the CPU modules on a personal computer	PLR-S-CABLE-RS-232

* Examples of appearance are shown.



MICRO PLC ONI® PLR-M

Micro PLC is a new family of equipment for building the automated management systems. Due to high functionality and versatility, these PLCs allow users to address various tasks of small and medium automation.



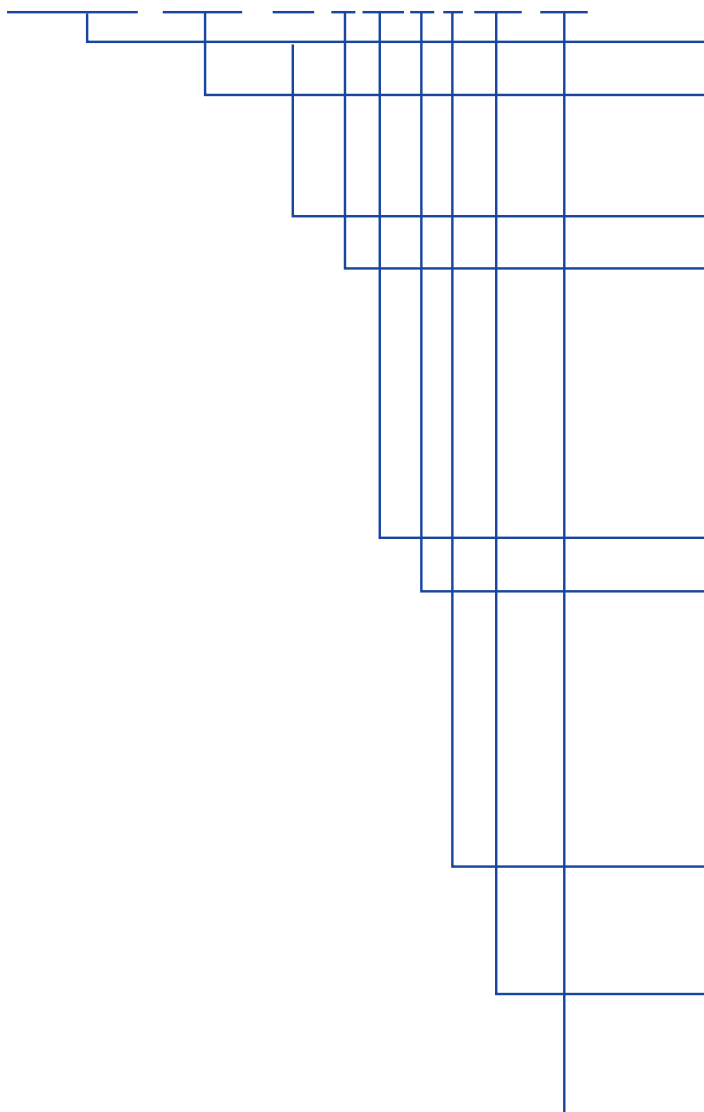
ADVANTAGES

- High functionality: up to 16 expansion modules in 1 rack.
- Easy connection of allied equipment: embedded Ethernet and RS-485 supporting protocols Modbus TCP/RTU/ ASCII and MQTT.
- Supporting Wi-Fi and GSM.
- Supporting cost-effective expansion modules ONI® PLR-S.
- Embedded real-time clock.
- Built-in high-speed counters up to 60 kHz and high-speed pulsewidth outputs up to 10 kHz.
- Built-in relay outputs up to 10 A AC (max. 5 V DC) or transistor outputs up to 0.3 A.
- Built-in analog inputs (Pt100, 0/4–20 mA and 0–10 V) and outputs (0/4–20 mA and 0–10 V).
- Power supply voltage 230 V AC or 24 V DC.
- WEB server.
- Process data archiving on microSD card.
- Integrated text display with HMI functions.

* Examples of appearance are shown.

PRODUCT ID DECODING

PLR-M-CPU-26U02AGWFDC

**PLR-M** – series

Type

CPU – core (CPU),
main device;

Total inputs:

Signal type:

R – electromagnetic relays;**T** – transistor;**U** – universal (digital or analog);**PT** – thermal resistance;**A** – analog

Number of outputs

Signal type:

R – electromagnetic relays;**T** – transistor;**U** – universal (digital or analog);**PT** – thermal resistance;**A** – analog

Additionally:

G/GSM – GSM;**N/O** – none

Additionally:

WF – Wi-Fi;**N/O** – none

Power supply type:

AC – alternating voltage;**DC** – direct voltage

GENERAL SPECIFICATIONS AND OPERATION CONDITIONS

Parameter		Value
Power supply voltage, V	DC	20.4-28.8
	AC	85-265
Power consumption, W	DC	<6 per single module
	AC	<10 per single module
Microenvironment contamination degree according to GOST R IEC 60664.1		2, without any aggressive and explosive steams and gases in concentrations, causing metal corrosion and insulation destruction
Cooling method		natural ventilation with ambient air
Protection class according to GOST 14254 (IEC 60529)		IP20
Service life, years		10
Repairability		Non-repairable
Weight, kg		Max. 0.45 per single module
Temperature range, °C		-20...+55
Relative air humidity, %		10-95 (non-condensing)

FUNCTIONAL CHARACTERISTICS

Parameter		Description
Response time, ms per function		<0.1
Maximum number inputs/outputs		Up to 142/138 with maximum expansion
Maximum expansion		Up to 16 expansion modules per one CPU module
Special functions	Rapid count	Up to 4 channels 60 kHz
	PI-control	Up to 30 blocks
	Real time clock	Up to 20 days of autonomous work
CPU operation mode		Start/Stop
Program execution		Cyclic
Maximum program size		Up to 1024 blocks (65,536 B)
Available programming languages		FBD, LD, IL
Communication protocols		Modbus TCP/RTU/ASCII, MQTT

CENTRAL PROCESSOR MODULES

The family of micro PLCs ONI® includes eight central processor modules with a built-in display, microSD card slot, RS-485 and Ethernet channels.

PRODUCT RANGE



Name		Micro PLC PLR-M. CPU DI08/ DO04(R) 24 V DC ONI	Micro PLC PLR-M. CPU DI12/ DO06(R) 24 V DC ONI	Micro PLC PLR-M. CPU DI12/ DO06(T) 24 V DC ONI	Micro PLC PLR-M. CPU DI12/ DO06(R) 220 V AC ONI
Product ID		PLR-M-CPU-12R00ADC	PLR-M-CPU-18R00ADC	PLR-M-CPU-18T00ADC	PLR-M-CPU-18R00AAC
Inputs	Universal	4 (0-10 V)	6 (0-10 V) 2 (0-10 V/0-20 mA)	6 (0-10 V) 2 (0-10 V/0-20 mA)	—
	Digital	4	4	4	12
Outputs	Digital	4 relays	6 relays	6 transistors	6 relays
	Analog	—	—	—	—
Interfaces	RS-232	+	+	+	+
	RS-485	1	1	1	—
	Ethernet	+	+	+	+
Power supply		24 V DC	24 V DC	230 V AC	230 V AC

* Example of appearance is shown.

Using expansion modules from logic relays PLR-S (page 26).

PRODUCT RANGE



Name		Micro PLC PLR-M. CPU DI16/ DO08(R)/AO02 24 V DC ONI	Micro PLC PLR-M. CPU DI16/ DO08(R)/DO02(T) 24 V DC ONI	Micro PLC PLR-M. CPU with GSM DI16/DO08(R)/O2(T) 24 V DC ONI	Micro PLC PLR-M. CPU with WiFi DI16/DO08(R)/O2(T) 24 V DC ONI
Product ID		PLR-M-CPU-26R02ADC	PLR-M-CPU-26U00ADC	PLR-M-CPU-26UGSMDC	PLR-M-CPU-26U0WFDC
Inputs	Universal	8 (0-10 V) 4 (0-10 V/0-20 mA)	8 (0-10 V) 4 (0-10 V/0-20 mA)	8 (0-10 V) 4 (0-10 V/0-20 mA)	8 (DI/0-10 D) 4 (DI/0-10 V/0-20 mA)
	Digital	4	4	4	4
Outputs	Digital	8 relays	8 relays 2 transistors	8 relays 2 transistors	8 relays 2 transistors
	Analog	2 (0-20 mA, 0-10 V)	-	-	-
Interfaces	RS-232	+	+	+	+
	RS-485	2	2	2	2
	Ethernet	+	+	+	+
	Wi-Fi	-	-	-	+
	GSM	-	-	+	-
Power supply		24 V DC	24 V DC	24 V DC	24 V DC

* Example of appearance is shown.



Name		Micro PLC PLR-M. CPU DI10/PT3/ DO08(R)/O2(T) 24 V DC ONI	Micro PLC PLR-M. CPU with GSM DI10/PT3/DO08(R)/O2(T) 24 V DC ONI	Micro PLC PLR-M. CPU DI16/ DO10 230 V AC ONI	Micro PLC PLR-M. CPU WiFi GSM DI16/DO08(R)/O2(T) 24 V DC ONI
Product ID		PLR-M-CPU-23UPTADC	PLR-M-CPU-23UGSMDC	PLR-M-CPU-26R00NAC	PLR-M-CPU-26UGWFDC
Inputs	Universal	2 (0-10 V) 4 (0-10 V/0-20 mA)	2 (0-10 V) 4 (0-10 V/0-20 mA)	-	8
	Analog	3 (Pt100)	3 (Pt100)	-	-
	Digital	4	4	16	8
Outputs	Digital	8 relays 2 transistors	8 relays 2 transistors	10 relays	8 relays 2 transistors
Interfaces	RS-232	+	+	+	+
	RS-485	1	1	1	2
	Ethernet	+	+	+	+
	Wi-Fi	-	-	-	+
	GSM	-	+	-	+
Power supply		24 V DC	24 V DC	24 V DC	24 V DC

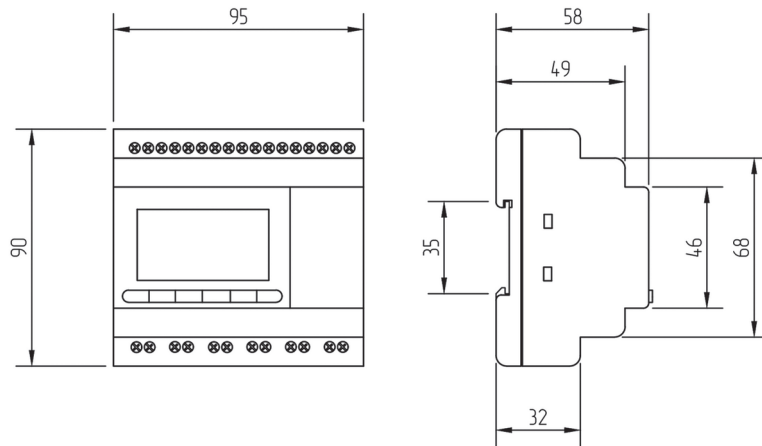
* Example of appearance is shown.

SPECIFICATIONS

Parameter	Value
Power supply voltage, V DC	20.4-28.8
Current, A, max	0.12 (at 20.4 V DC) ... 0.1 (at 28.8 V DC)
Inverse-polarity protection	Yes
IP protection class	20
Weight, kg, max.	0.3
Dimensions (H × D × W), mm	95×90×61

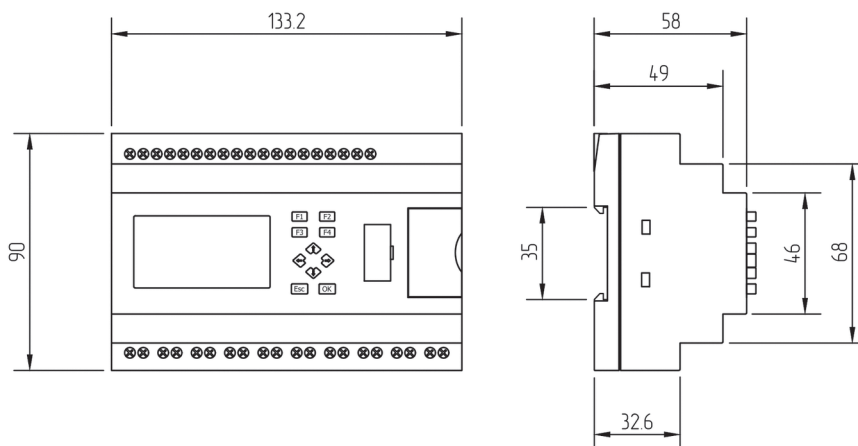
Parameter	Input		Output	
	Universal	Digital	Transistor	Relay
Voltage with DC power, V DC	0-28.8			AC 250, DC 30
Voltage with AC power, V DC				AC 250, DC 30
Current, A			0.3	AC 10, DC 5
Logic unit with DC power, V	>8			
Logic unit with AC power, V				
Logic zero with DC power, V	<5			
Logic zero with AC power, V				
Response time, ms	<1.5	<1		
Maximum signal frequency, Hz	4	60,000	10,000	2
Analog value measurement range, V	0-10			
Analog value measurement range, mA	0-20			
ADC/DAC resolution, bit	10			
Error at 25°C	±0.02 V or ±0.05 mA			
Max. closing time, ms				15
Max. opening time, ms				10
Galvanic isolation	No			
Input type	SINK			
Output type			PNP	
Service life, switches				10 ⁵

OVERALL AND INSTALLATION DIMENSIONS PLR-M-CPU-12R00ADC, PLR-M-CPU-18R00ADC, PLR-M-CPU-18T00ADC, PLR-M-CPU-18R00AAC, MM



OVERALL AND MOUNTING DIMENSION

SPLR-M-CPU-23UPTADC, PLR-M-CPU-23UGSMDC, PLR-M-CPU-26R00NAC, PLR-M-CPU-26U0WFDC, PLR-M-CPU-26UGWFDC, PLR-M-CPU-26R02ADC, PLR-M-CPU-26U00ADC, PLR-M-CPU-26UGSMDC, PLR-M-CPU-26R00AAC, MM

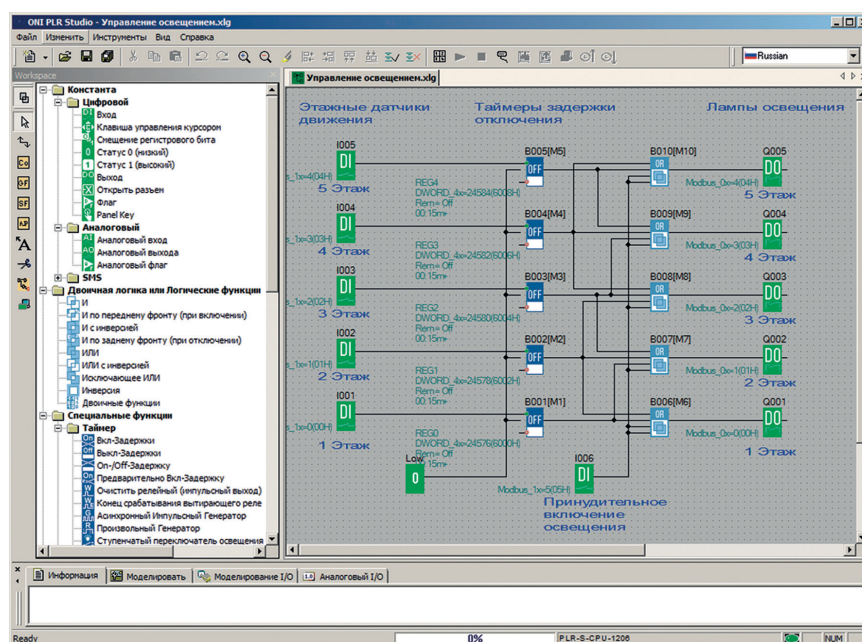


SOFTWARE ONI® PLR STUDIO

Software ONI® PLR Studio offers all features required for development of managing programs for programmable logic relays and micro PLCs ONI®. It has a simple and intuitive interface.

Programming is carried out using FBD language, meeting the IEC 61131-3 standard. For debugging of developed projects, the installation package offers an offline simulator.

Software ONI® PLR is supplied for free and can be downloaded from the website www.oni-system.com.

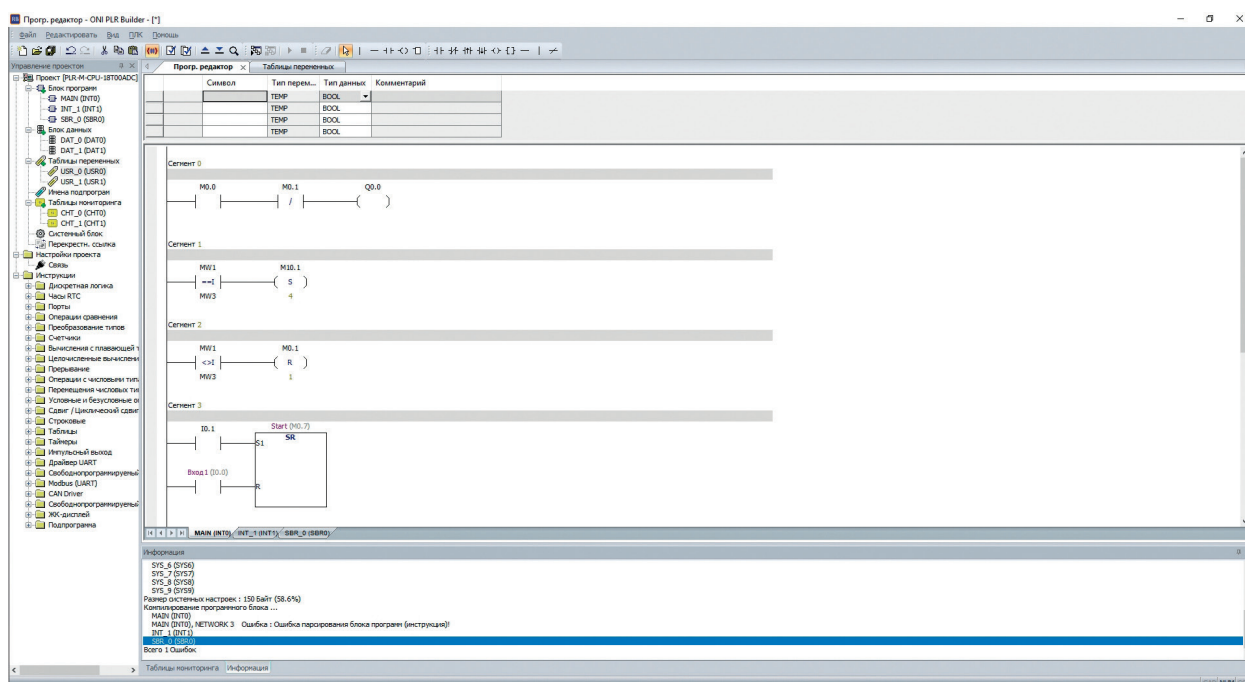


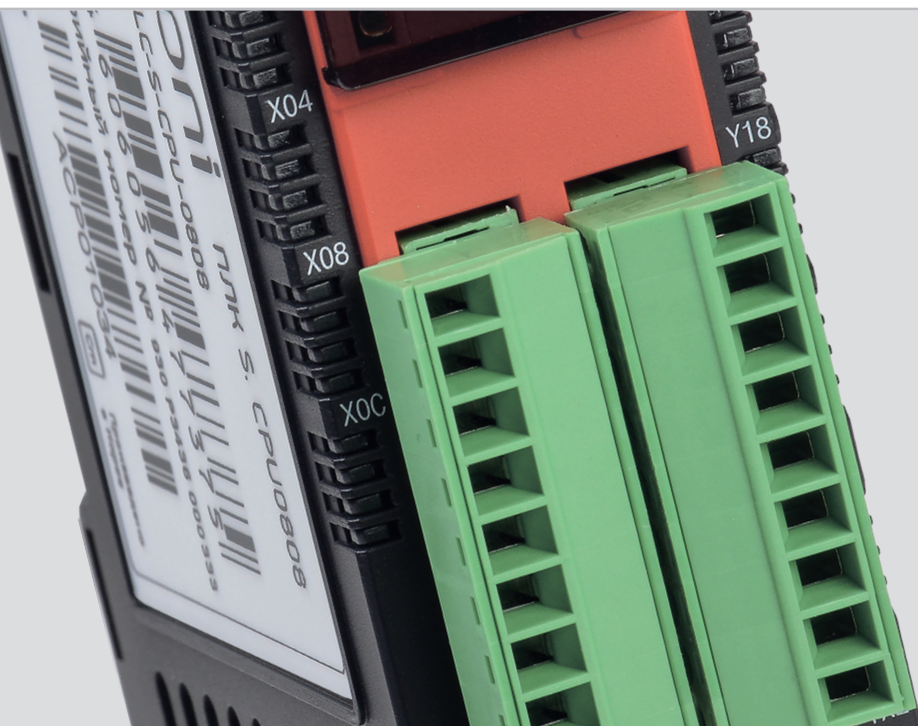
SOFTWARE PACKAGE ONI® BUILDER

Software package ONI® Builder includes software ONI® PLR Builder and ONI® PLR Designer.

ONI® PLR Builder helps program micro PLC ONI® PLR-M using languages LAD and IL, work with global and temporary variables, data blocks, floating point values, absolute, implicit and symbolic addressing and freely configurable protocols.

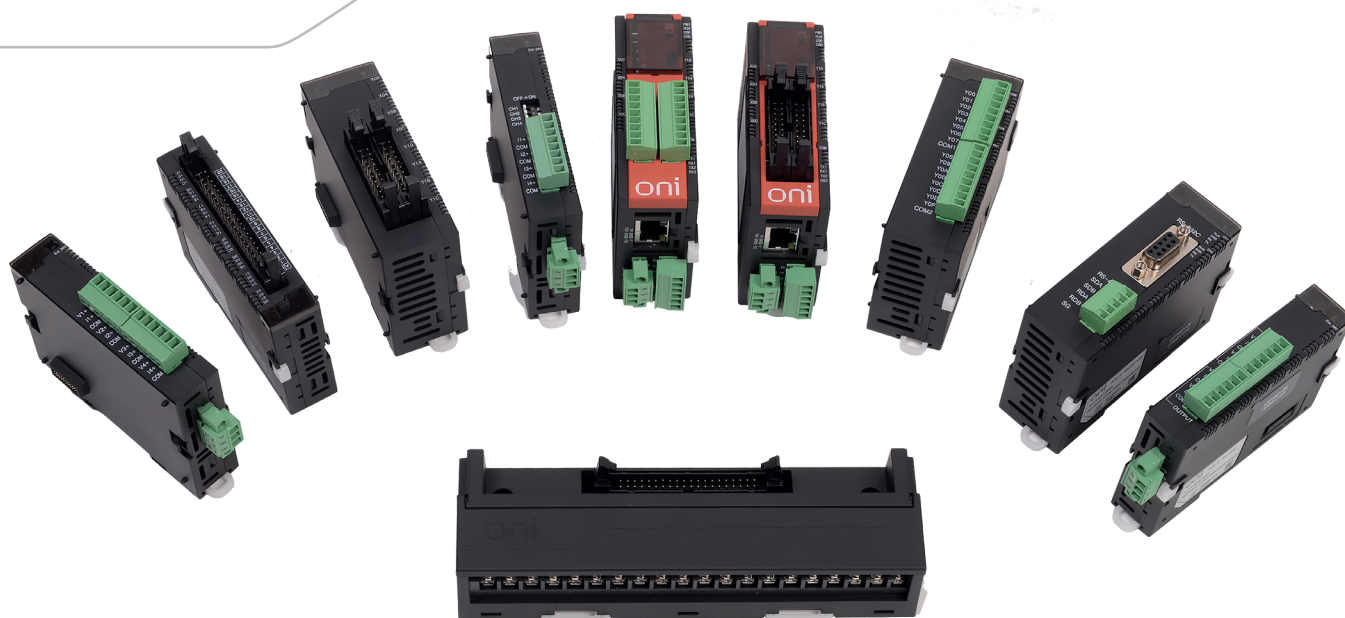
ONi® PLR Designer allows users to create pages for an LED display integrated into ONi® PLR-M. These pages can be used to host input and output fields, charts, buttons, static and dynamic text information, static and dynamic images and lists.





PROGRAMMABLE LOGIC CONTROLLERS ONI® PLC S

Modular programmable logic controllers ONI® PLC S are designed to build various automated management systems of small and medium complexity: conveyors, warehouse equipment, pump stations, systems for water treatment, ventilation and air conditioning, boiler and heating equipment, CIP-stations, lighting and technological equipment management systems. Modular design and broad nomenclature of the modules will allow users to configure the most efficient controller to address any tasks.



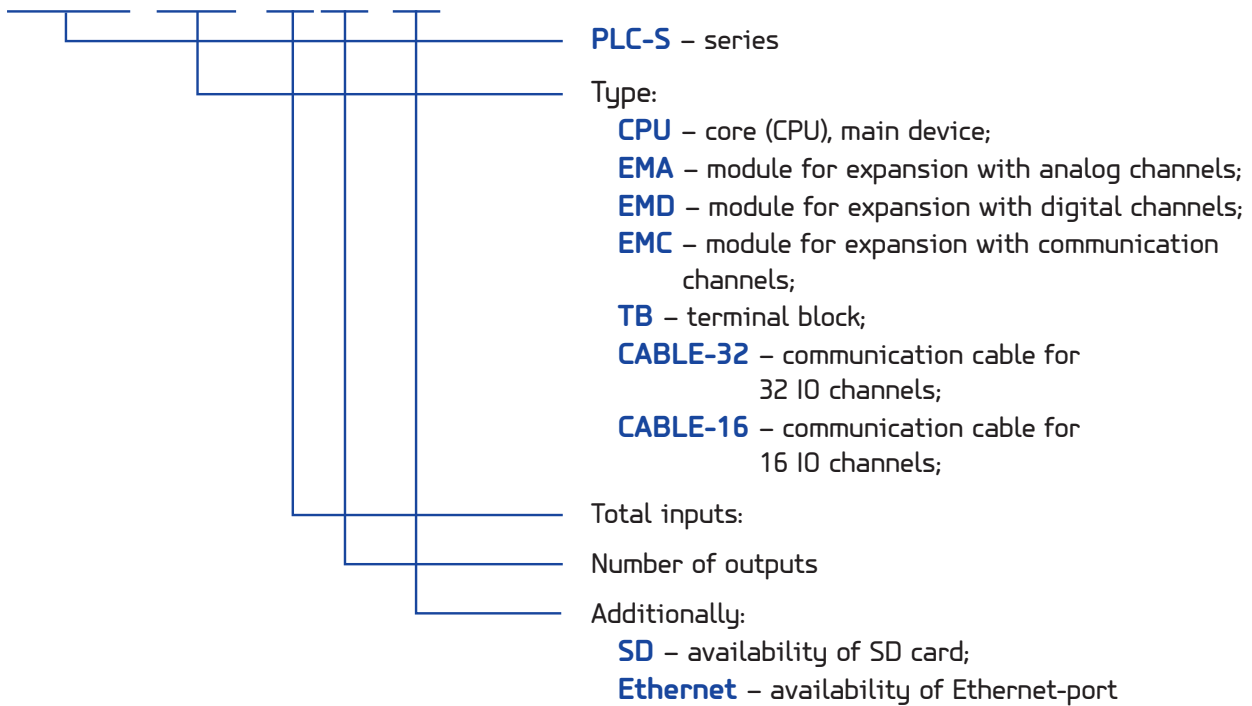
ADVANTAGES

- Compact size: module dimensions do not exceed 91×63×30 mm.
- High reliability and performance.
- Free of charge software with intuitive interface, broad set of out-of-the-box functional blocks and special programs.
- 4 languages for development of custom programs, meeting IEC 61131-3 standard.
- Uploading developed projects using a standard mini USB cable, Ethernet or SD card.
- Help easily adapt serial equipment to customer's needs.

* Examples of appearance are shown.

PRODUCT ID DECODING

PLC-S-CPU-1616-SD



GENERAL TECHNICAL SPECIFICATIONS OF PLC S

Parameter	Value
Voltage	24 V DC (-15...+20 %)
Operating temperature, °C	-10...+60
Storage temperature, °C	-25...+80
Relative air humidity, %	5-95 (non-condensing)
Protection degree	IP20

FUNCTIONAL CHARACTERISTICS

Parameter		Description
Processor bit depth, bit		32
Response time, ns/log. operation		300
Input/output control		Software control, indirect method
Maximum number inputs/outputs		Up to 384 with maximum expansion
Maximum expansion		Up to 11 expansion modules per one CPU module
Special functions	High-speed count	2 channels, 20 kHz in total 2 inputs per channel: count direction + imp. input
	Positioning control	Axis X: control 100 kHz/managing 100 kHz Axis Y: control 5 kHz/managing 100 kHz
	PID Control	32 channels, with auto-configuration
	Real-time clock (RTC)	Yes, backup by built-in battery CR2032
CPU operation mode		"Start", "Stop", "Remote start", "Remote stop"
CPU start options		"Cold", "Hot"
Self-diagnostics features		Program execution timeout, memory access error, power and backup battery faults
Program execution options		Cyclic execution, time interrupt
Max. quantity of programs in a project		Up to 128
Max. quantity of time interruptions		Up to 16 with minimum period 10 ms
Maximum program size, strings		10,000
Available programming languages		LD, IL, SFC, FBD
Available set of instructions	Logical	55 instructions
	Functional	389 instructions
Non-volatile data storage, bytes		Up to 15K
Executable program options		Cyclic program, asynchronous subprogram,
Programs supporting special features		PID controller, high-speed count (HSC), positioning program, digital filter
Communication programs		CPU module + expansion modules: Serial Modbus RTU Master, Serial User Protocol, High Speed PLC Link Expansion modules: Ethernet Modbus TCP Master, Ethernet User Protocol (UDP, TCP (Server/Client))

CENTRAL PROCESSOR MODULES

The product range includes four central processor modules, and each of them can be complemented with up to 11 expansion modules, maximizing number of input/output channels to 384. All modules are mounted on a standard DIN rail 35 mm deep.



ADVANTAGES

- Compact size.
- High performance and reliability.
- Up to four integrated communication interfaces.
- Built-in channels for high-speed count and positioning.
- Embedded real-time clock (RTC).
- Uploading developed projects using a standard mini USB cable, Ethernet or SD card.
- Embedded WEB server.

PRODUCT RANGE

	Name	Inputs/outputs		Embedded interfaces					Product ID
		DI	DO	USB	RS-232	RS-485	Ethernet	SD/MMC	
	PLC S. CPU0808	8	8 ^R	+	+	–	–	–	PLC-S-CPU-0808
	PLC S. CPU0806	8	6 ^R	+	+	+	+	–	PLC-S-CPU-0806
	PLC S. CPU1616-SD	16	16 ^T	+	+	+	+	+	PLC-S-CPU-1616-SD

R – relay output, T – transistor output.

SPECIFICATIONS

DIGITAL INPUTS/OUTPUTS

Parameter	INPUT	OUTPUT	
		Relay	Transistor
Rated voltage	DC 24 V	AC 230 V/DC 24 V	DC 24 V
Rated current	4 mA	Active load 2 A (COM 5 A)	0.2 A (COM 2 A)
Logic unit	> DC 19 V/3 mA	–	–
Logic zero	< DC 6 V/1 mA	–	–
Response time, ms	≤3	≤10	≤1
Status Indication	Logic unit, LED on	Contact closed, LED on	Transistor opened, LED on
Galvanic isolation	Optocoupler	Relay	Optocoupler
Input type	SINK	–	–
Output type	–	EM relay	Open manifold

SPECIFICATIONS

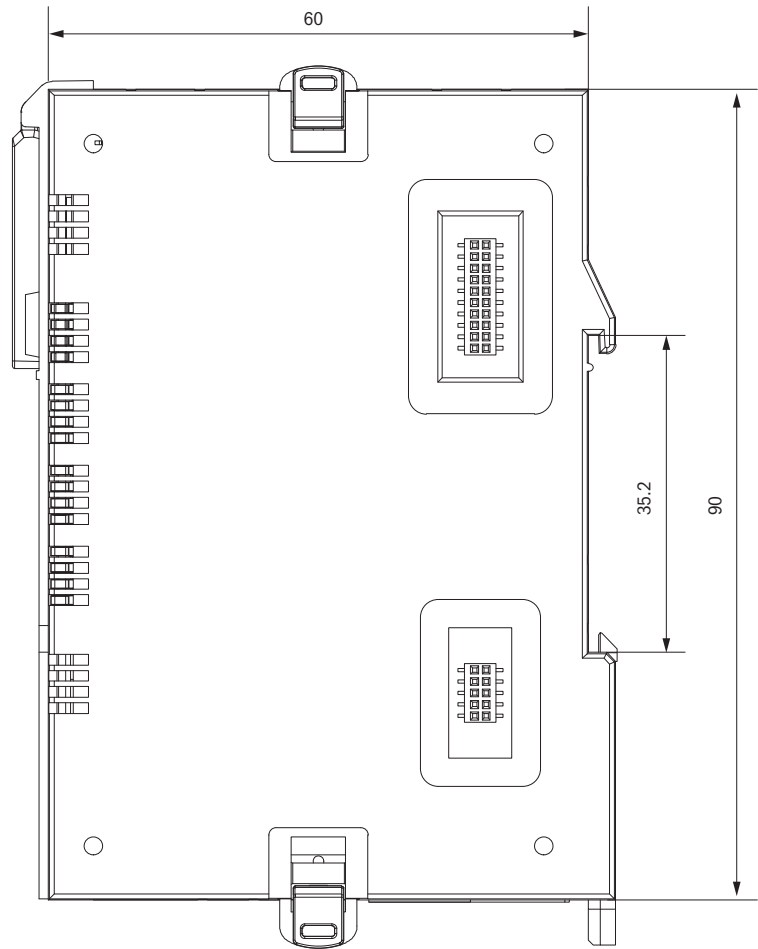
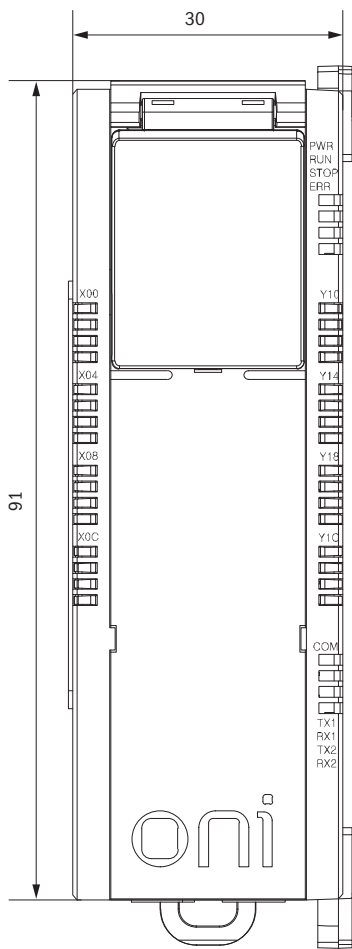
SERIAL COMMUNICATION INTERFACES

Parameter		Channel 1	Channel 2
		RS-232	RS-485
Protocol	Modbus RTU	+	+
	User Protocol	+	+
Data Format	Number of data bits	8	
	Number of stop bits	1 or 2	
	Parity	even/odd/none	
Synchronization		asynchronous	
Baud rate, bps		1200 ÷ 38 400	

ETHERNET INTERFACE

Parameter		Ethernet
Protocol	Modbus RTU	+
	User Protocol	+
DHCP support		+
Q-ty of connections		up to 5 (UDP 3/TCP 2)
Baud rate, bps		10; 100
Physical Interface		10BASE-T, 100BASE-TX

OVERALL DIMENSIONS, MM



DIGITAL EXPANSION MODULES

Allowing users to add required quantity of digital channels to existing system of local input/output of a controller. Modules are installed into a standard 25 mm DIN rail on the right from CPU. Special brackets and guide arms on each module ensure reliable coupling of modules between each other.

The product range includes five digital expansion modules.



ADVANTAGES

- Compact size.
- Quick response time.
- LED indication of channel status.
- Transistor outputs up to 1 A per channel.
- Embedded galvanic isolation.

* Examples of appearance are shown.

PRODUCT RANGE

	Name	Inputs	Outputs	Product ID
	PLC S. 32DI	32	—	PLC-S-EXD-3200
	PLC S. 32DO	—	32 ^T	PLC-S-EXD-0032
	PLC S. 16DI/16DO	16	16 ^T	PLC-S-EXD-1616
	PLC S. 16DO	—	16 ^R	PLC-S-EXD-0016
	PLC S. 08DI/08DO	8	8 ^R	PLC-S-EXD-0808

R – relay output, T – transistor output.

* Examples of appearance are shown.

SPECIFICATIONS OF PLC-S-EXD-3200

Parameter	Inputs	Outputs
Q-ty of inputs/outputs	32	—
I/O Type	SINK	—
Rated voltage	DC 24 V	—
Rated current, mA	4	—
Logic unit	> DC 19 V/3 mA	—
Logic zero	< DC 6 V/1 mA	—
Response time, ms	≤3	—
Status Indication	Logic unit, LED on	—
Galvanic isolation	Optocoupler*	—

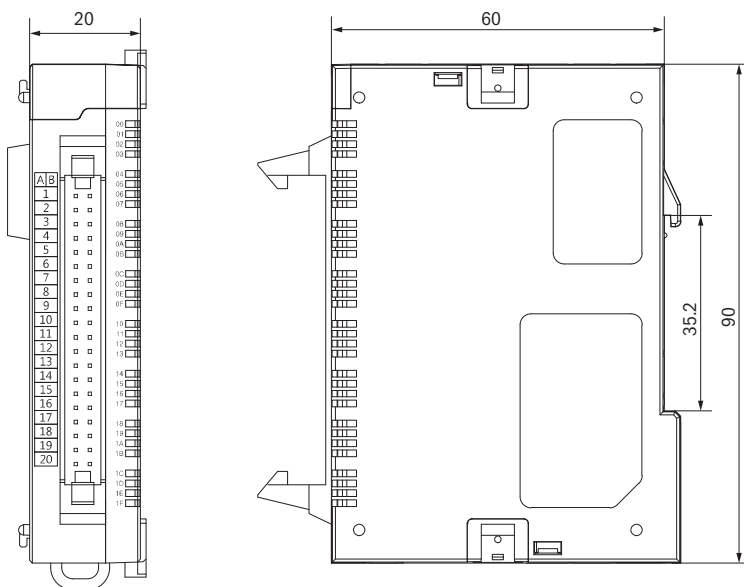
* Galvanic group isolation, provided for a group of inputs and digital PLC bus.

SPECIFICATIONS OF PLC-S-EXD-0032

Parameter	Inputs	Outputs
Q-ty of inputs/outputs	—	32
I/O Type	—	Transistor, open manifold
Rated voltage	—	DC 24 V
Rated current	—	1 A (COM 5 A)
Logic unit	—	—
Logic zero	—	—
Response time, ms	—	≤1
Status Indication	—	Transistor opened, LED on
Galvanic isolation	—	Optocoupler*

* Galvanic group isolation, provided for a group of outputs and digital PLC bus.

OVERALL DIMENSIONS PLC-S-EXD-3200 AND PLC-S-EXD-0032, MM

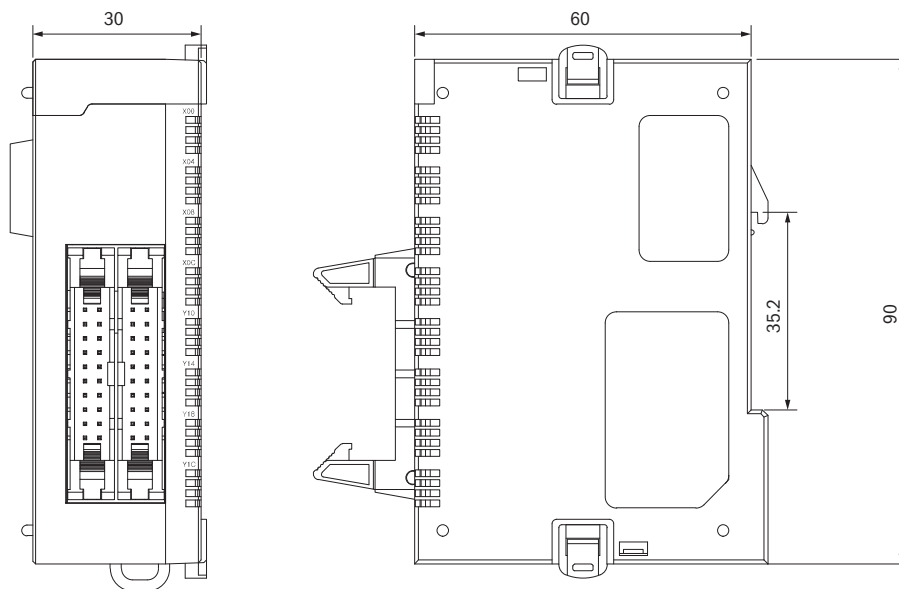


SPECIFICATIONS OF PLC-S-EXD-1616

Parameter	Inputs	Outputs
Q-ty of inputs/outputs	16	16
I/O Type	SINK	Transistor, open manifold
Rated voltage	DC 24 V	DC 24 V
Rated current	4 mA	1 A (COM 5 A)
Logic unit	> DC 19 V/3 mA	—
Logic zero	< DC 6 V/1 mA	—
Response time, ms	≤3	≤1
Status Indication	Logic unit, LED on	Transistor opened, LED on
Galvanic isolation	Optocoupler*	Optocoupler*

* Galvanic group isolation, provided for a group of outputs and digital PLC bus.

OVERALL DIMENSIONS PLC-S-EXD-1616, MM



SPECIFICATIONS OF PLC-S-EXD-0016

Parameter	Inputs	Outputs
Q-ty of inputs/outputs	—	16
I/O Type	—	EM relay
Rated voltage	—	AC 230 V/DC 24 V
Rated current	—	Active load 2 A (COM 5 A)
Logic unit	—	—
Logic zero	—	—
Response time, ms	—	≤10
Status Indication	—	Contact closed, LED on
Galvanic isolation	—	EM relay

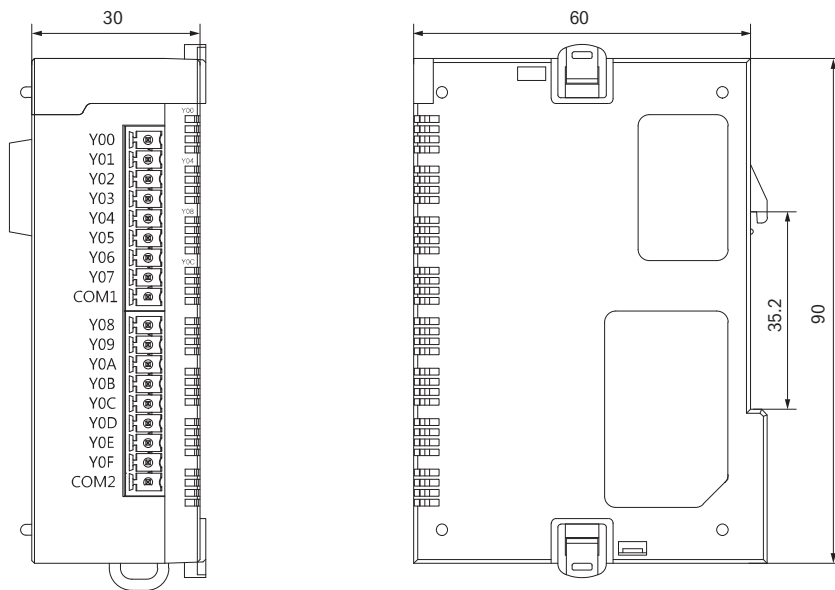
* Galvanic group isolation, provided for a group of outputs and digital PLC bus.

SPECIFICATIONS OF PLC-S-EXD-0808

Parameter	Inputs	Outputs
Q-ty of inputs/outputs	8	8
I/O Type	SINK	EM relay
Rated voltage	DC 24 V	AC 230 V/DC 24 V
Rated current	4 mA	Active load 2 A (COM 5 A)
Logic unit	> DC 19 V/3 mA	—
Logic zero	< DC 6 V/1 mA	—
Response time, ms	≤3	≤10
Status Indication	Logic unit, LED on	Contact closed, LED on
Galvanic isolation	Optocoupler*	EM relay

* Galvanic group isolation, provided for a group of outputs and digital PLC bus.

OVERALL DIMENSIONS PLC-S-EXD-0016 AND PLC-S-EXD-0808, MM



ANALOG EXPANSION MODULES

Expanding functionality of programmable logic controllers ONI® PLC S. Variety of modules allows users to flexibly configure an automated management system according to a task. Modules are installed into a standard 25 mm DIN rail on the right from CPU. Special brackets on each module ensure reliable coupling of modules between each other. The product range includes four analog expansion modules.



ADVANTAGES

- Compact size.
- High reliability.
- High precision of measurements and signal conversion speed.
- Wide range of types of measured signals.
- Wide range of types of control signals.
- Embedded galvanic isolation.

* Example of appearance is shown.

PRODUCT RANGE

	Name	Inputs	Outputs	Product ID
	PLC S. 4AI	4 U/I	—	PLC-S-EXA-0400
	PLC S. 2AI/2AO	2 U/I	2 {I>U/I<I}	PLC-S-EXA-0202
	PLC S. 4AO	—	4 I	PLC-S-EXA-0004
	PLC S. 4RTD	4 RTD	—	PLC-S-RTD

* Example of appearance is shown.

SPECIFICATIONS OF PLC-S-EXA-0400

Parameter		Inputs	Outputs
Q-ty of inputs/outputs		4	—
Rated input/output values	U, V	0 ÷ 5; 1 ÷ 5; 0 ÷ 10; -10 ÷ 10	—
	I, mA	0 ÷ 20; 4 ÷ 20	—
ADC/DAC resolution, bit		14	—
Error (25 °C)		±0.1 % from measuring range	—
Conversion time		2 ms/4 channels	—
Max. input/output values	U, V	±12	—
	I, mA	±24	—
Galvanic isolation		Optocoupler*	—
Power supply		DC 24 V 35 mA	—

* Group galvanic isolation, provided between inputs/outputs of the module and digital PLC bus.

SPECIFICATIONS OF PLC-S-EXA-0202

Parameter		Inputs	Outputs
Q-ty of inputs/outputs		2	2
Rated input/output values	<i>U, V</i>	0 ÷ 5; 1 ÷ 5; 0 ÷ 10; -10 ÷ 10	0 ÷ 5; 1 ÷ 5; 0 ÷ 10; -10 ÷ 10
	<i>I, mA</i>	0 ÷ 20; 4 ÷ 20	0 ÷ 20; 4 ÷ 20
ADC/DAC resolution, bit		14; 16	14; 16
Error (25 °C)		±0.2 % from measuring range	±0.2 % from measuring range
Conversion time		2 ms/4 channels	2 ms/4 channels
Max. input/output values	<i>U, V</i>	±12	±12
	<i>I, mA</i>	±24	±24
Galvanic isolation		Optocoupler*	Optocoupler*
Power supply		DC 24 V 50 mA	DC 24 V 70 mA

* Group galvanic isolation, provided between inputs/outputs of the module and digital PLC bus.

SPECIFICATIONS OF PLC-S-EXA-0004

Parameter		Inputs	Outputs
Q-ty of inputs/outputs		—	4
Rated input/output values	<i>U, V</i>	—	—
	<i>I, mA</i>	—	4 ÷ 20
ADC/DAC resolution, bit		—	14
Error (25 °C)		—	±0.1 % from measuring range
Conversion time		—	2 ms/4 channels
Max. input/output values	<i>U, V</i>	—	—
	<i>I, mA</i>	—	± 24
Galvanic isolation		—	Optocoupler*
Power supply		—	DC 24 V 70 mA

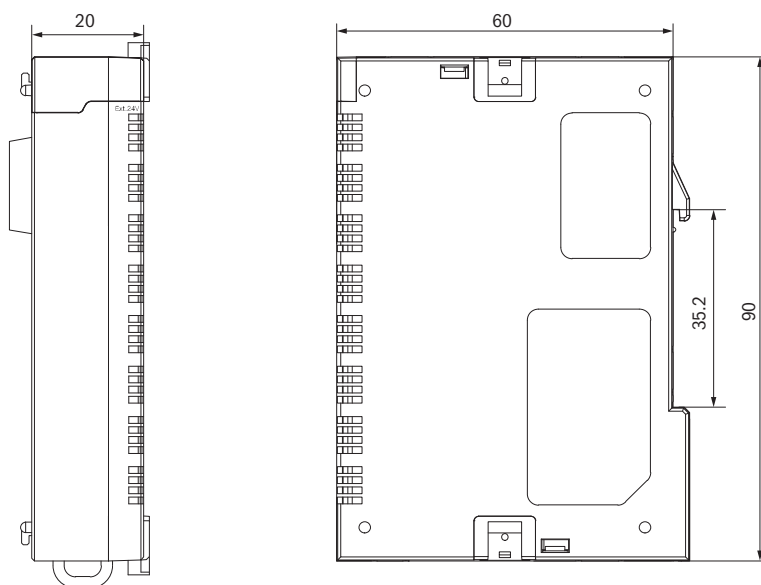
* Group galvanic isolation, provided between inputs/outputs of the module and digital PLC bus.

SPECIFICATIONS OF PLC-S-RTD

Parameter	Inputs
Number of measurement channels	4
Connection type	Three-wire/two-wire
Supported types of thermal resistance	Pt100 (JIS C1640-1989, DIN 43760-1980) JPt100 (KS C1603-1991, JIS C1604-1981) Pt1000 (DIN EN 60751) Ni1000 (DIN 43760) Ni1000 (TCR 5000)
Temperature range	Pt100: -200...+600 °C (18.52÷313.71 W) JPt100: -200...+600 °C (17.14÷317.31 W) Pt1000: -200...+600 °C (185.2÷3137.1 W) Ni1000 (DIN 43760): -50...+160 °C (742.6÷2065.9 W) Ni1000 (DIN 5000): -50...+160 °C (790.9÷1863.6 W)
Error (25 °C)	0.1 % from measuring range
Max. conversion time, ms	120
Galvanic isolation	Optocoupler*
External power supply	24 V DC

* Group galvanic isolation, provided between inputs/outputs of the module and digital PLC bus.

OVERALL DIMENSIONS OF PLC-S-EXA-0400, PLC-S-EXA-0202, PLC-S-EXA-0004 AND PLC-S-RTD, MM



COMMUNICATION EXPANSION MODULES

Communication modules help increase quantity of data exchange channels in programmable logic controllers ONI® PLC S. The modules are installed on a standard 35 mm DIN rail on the right from CPU module. Special brackets and guide arms on each module ensure reliable coupling of modules between each other.

Product range includes two communication modules.



ADVANTAGES

- Compact size.
- High reliability.
- Supporting various communication protocols, including Modbus RTU/TCP, as well as freely configurable protocol.
- Supporting Modbus RTU/TCP Master/Slave modes.
- Up to 12 simultaneous connections via Ethernet channel.

* Examples of appearance are shown.

PRODUCT RANGE

	Name	Interfaces	Product ID
	PLC S. RS-232/485	RS-232C/RS-422/485	PLC-S-EXC-2348
	PLC S. Ethernet	Ethernet	PLC-S-EXC-ETHERNET

* Examples of appearance are shown.

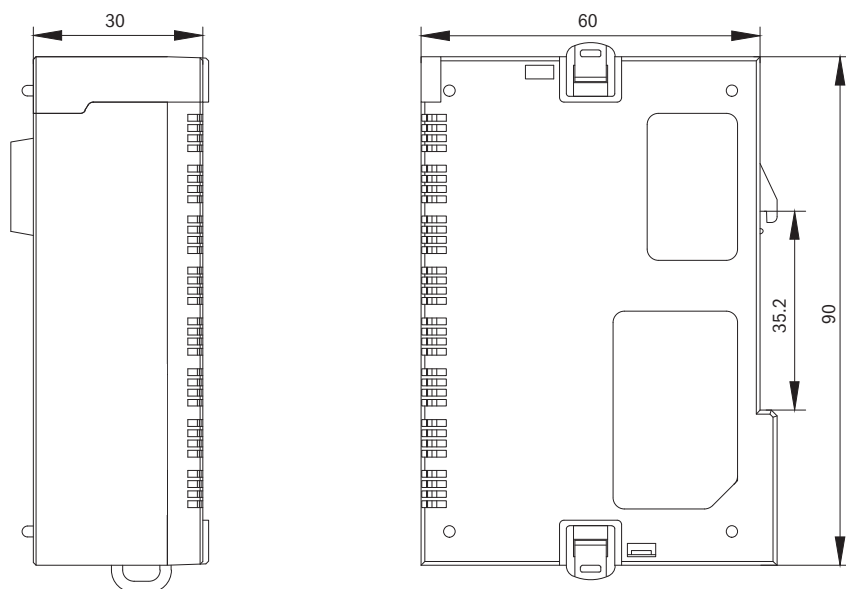
SPECIFICATIONS OF PLC-S-EXC-2348

Parameter		Channel 1	Channel 2
		RS-232	RS-422/485
Protocol	Modbus RTU	Master/Slave	Master/Slave
	User Protocol	+	+
Data Format	Number of data bits	8	
	Number of stop bits	1 or 2	
	Parity	Even/odd/none	
Synchronization		Asynchronous	
Baud rate, bps		1200 ÷ 38 400	

SPECIFICATIONS OF PLC-S-EXC-ETHERNET

Parameter		Ethernet
Protocol	Modbus TCP	Master/Slave
	User Protocol	+
DHCP support		+
Q-ty of connections		Up to 12 (UDP 12/TCP 12)
Baud rate, Mbit/s		10; 100
Physical Interface		10BASE-T, 100BASE-TX

OVERALL DIMENSIONS OF PLC-S-EXC-2348 AND PLC-S-EXC-ETHERNET, MM



ACCESSORIES FOR PROGRAMMABLE LOGIC CONTROLLERS ONI® PLC S

	Name	Purpose	Product ID
	Cable for connection of a terminal block to modules with 16 inputs and 16 outputs	Connection of digital inputs or outputs of PLC modules to a terminal block ONI® PLC-TB or relay assembly	PLC-TB-CABLE-16
	Cable for connection of a terminal block to modules with 32 inputs and 32 outputs	Connection of digital inputs or outputs of PLC modules to a terminal block ONI® PLC-TB or relay assembly	PLC-TB-CABLE-32
	Terminal block for ONI® PLC S	External terminal connection of PLC module digital channels with sensors and actuating mechanisms	PLC-TB

* Examples of appearance are shown.

SPECIFICATIONS

Parameter	Description	
	Cables	Terminal block
Length, m	1.5	—
Operating temperature range, °C	-10...+60	
Storage temperature, °C	-25...+80	

STARTING SETS ONI® PLC S

Starting sets ONI® PLC S are used to address various tasks of automated equipment management in water supply, wastewater disposal, heat generation and heat distribution systems. Versatility of the starting sets ONI® PLC S allows customers to use them in other technological equipment management systems.



ADVANTAGES

- Minimum time required to select equipment.
- Selection mistakes are excluded.
- Convenient delivery and storage.
- Convenient space organization during mounting.

* Examples of appearance are shown.

PRODUCT RANGE AND CONTENTS

	Product ID	Name	Module contents in a set (product ID)	Module contents in a set (name)
	PLC-S-SK-1616WEB	Starting set PLC S CPU 32IO WEB ONI	PLC-S-CPU-1616-SD	PLC S. CPU1616-SD series ONI
			PLC-TB-CABLE-16	PLC S. Cable for 16DI/16DO series ONI
			PLC-TB	PLC S. Terminal block series ONI
	PLC-S-SK-0808RTD	Starting set PLC S CPU 16IO RS-485 RTD ONI	PLC-S-CPU-0808	PLC S. CPU0808 series ONI
			PLC-S-RTD	PLC S. 4RTD series ONI
			PLC-S-EXC-2348	PLC S. RS-232/485 series ONI
	PLC-S-SK-3200DIT	Expansion kit PLC S 32DI ONI	PLC-S-EXD-3200	PLC S. 32DI series ONI
			PLC-TB-CABLE-32	ПЛК S. Cable for 32DI/DO series ONI
			PLC-TB	PLC S. Terminal block series ONI
	PLC-S-SK-0032DOT	Expansion kit PLC S 32DO ONI	PLC-S-EXD-0032	PLC S. 32DO series ONI
			PLC-TB-CABLE-32	ПЛК S. Cable for 32DI/DO series ONI
			PLC-TB	PLC S. Terminal block series ONI
	PLC-S-SK-1616DIO	Expansion kit PLC S 16DI and 16DO ONI	PLC-S-EXD-1616	PLC S. 16DI/16DO series ONI
			PLC-TB-CABLE-16	PLC S. Cable for 16DI/16DO series ONI
			PLC-TB	PLC S. Terminal block series ONI

* Examples of appearance are shown.

SOFTWARE ONI® CICON

Software ONI® CICON is a powerful solution for development of an automated system management program.

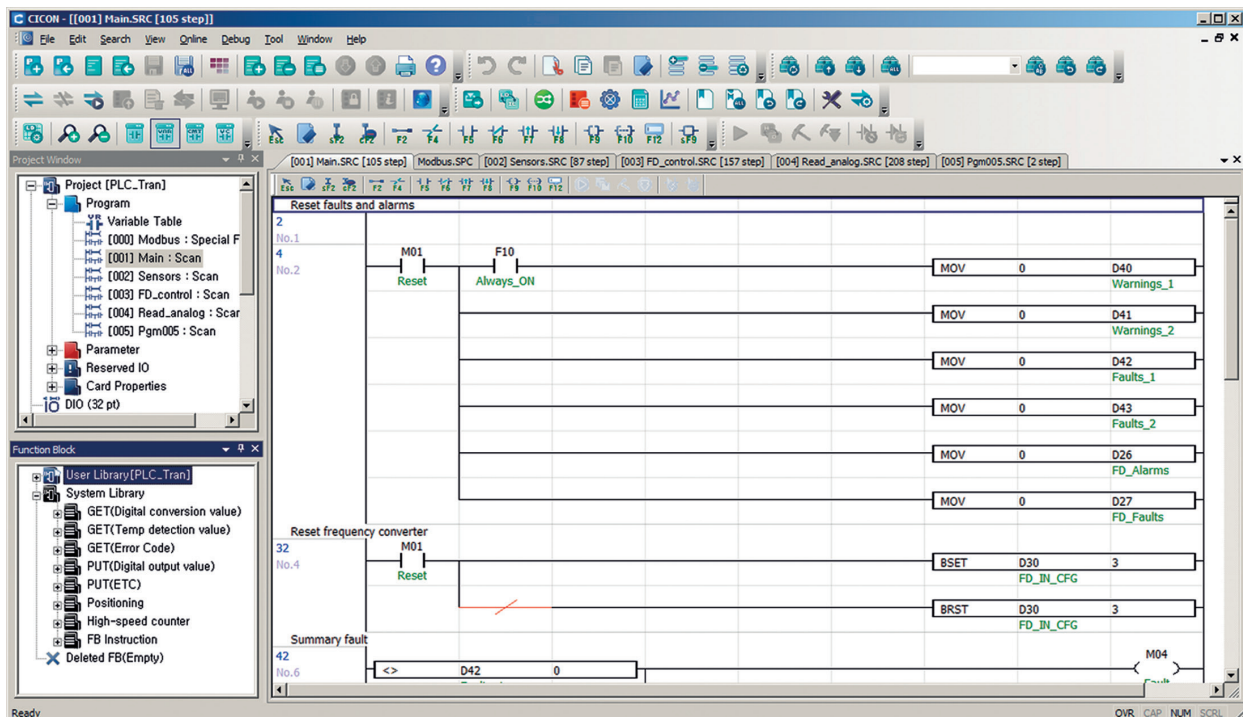
It allows users to create various programs for operation of programmable logic controllers ONI®, offers an intuitive user-friendly interface and is easy to master.

Projects can be developed using four languages, meeting IEC M3K 61131-3 standard. These are languages for ladder diagrams (LD), functional blocks (FB), sequential function charts (SFC)

A set of functional blocks hosted in standard and custom libraries ONI CICON, as well as a set of special programs, such as configuration of PID controllers, data exchange via a selected communication protocol, etc., help facilitate and accelerate development of a custom program.

A developed project can be tested in an offline simulator included into a standard installation, allowing a user to avoid programming errors and reduce time for set-up and start-up operations on PLC installation workspace.

Software ONI® CICON is supplied for free and can be downloaded from the website www.oni-system.com.





MasterSCADA

MasterSCADA is a Russian software platform for development of automation and dispatch systems in various industrial and housing and utilities sectors. MasterSCADA architecture covers tools for creation of both local and large distributed systems, enabling utilization of the Internet of Things technologies. MasterSCADA allows users to create automation projects for all levels of a system — programming PLCs, operator panels, operator AWS, servers and cloud services. Tasks of all levels are developed as part of a common project and shared information space.

The software product comes in two versions: MasterSCADA 4D and MasterSCADA 3.X.

MasterSCADA 4D is a new generation SCADA system with a set of tools for creation of large distributed systems supporting IoT, various hardware platforms and operating systems.

MasterSCADA 3.X is a vertically integrated client-server SCADA system for development of industrial automation and dispatching systems.

MasterSCADA is included in the Unified Register of Russian Programs for Electronic Computers and Databases of the Ministry of Digital Development of the Russian Federation, meets requirements regarding independence from import and facilitates technological sovereignty of national economy.



NEW

UNIVERSAL CONTROLLER ONI PLC-W

ONI PLC-W is a universal automation controller, running the MasterPLC executive system. It is used for automation of objects of any complexity: from compact ventilation installations up to large and distributed industrial systems.



ADVANTAGES

- It can operate in severe temperature conditions from -40 to $+75$ °C.
- Overvoltage protection for ports.
- Easy mounting on a DIN rail.
- Broad product range of external modules for various tasks and objects.
- Terminals included into a delivery set with PLC and modules.
- Embedded wired and wireless communication interfaces.

Learn more on the ONI website



* Example of appearance is shown.

PRODUCT RANGE

Article	Name
PLC-W-CPU-06-DC-2G64GIND	PLC W. CPU 6 IO 1GB RAM 8GB ROM 24 V DC industrial design ONI
PLC-W-ACS-MBRTU-USB	PLC W. Interface converter USB-RS-485 ONI
PLC-W-EMA-0304	PLC W. Expansion of inputs/outputs via Modbus RTU 4 AO or PWM ONI
PLC-W-ACS-0800-IMP	PLC W. Expansion of inputs/outputs via Modbus RTU 8 DI ONI
PLC-W-EMD-0706	PLC W. Switching expansion 7 DI 6 DO maximum starter current 80A ONI
PLC-W-EMA-06U00	PLC W. Expansion 6 AI universal ONI
PLC-W-CPU-06-DC-2G64GCOM	PLC W. CPU 6 IO 2GB RAM 64GB ROM 24 V DC commercial design ONI
PLC-W-CPU-06-DC-2G64GIND	PLC W. CPU 6 IO 1GB RAM 8GB ROM 24 V DC industrial design ONI
PLC-W-CPU-06-DC-512M8GIND	PLC W. CPU 6 IO 512MB RAM 8GB ROM 24 V DC industrial design ONI
PLC-W-ANT-4GLTE	PLC W. External remote antenna 4G/LTE socket SMA ONI
PLC-W-ANT-GSMOUT3M	PLC W. External antenna GPS/GLONASS 3 m socket SMA ONI
PLC-W-ANT-GSMOUT	PLC W. External remote antenna 3G/LTE SMA ONI
PLC-W-ANT-GSMSTR	PLC W. Straight short antenna GSM/3G socket SMA ONI
PLC-W-ANT-GSMANG	ПЛК W. Angular short antenna GSM/3G socket SMA ONI
PLC-W-ANT-WIFIBT	PLC W. Antenna socket RP-SMA amplification 2 dBi ONI
PLC-W-DEMO31	PLC W. Demo-suitcase v.3 1 8GB ONI
PLC-W-DEMO32	PLC W. Demo-suitcase v.3 2 64GB ONI
PLC-W-EMC-ZWAVE	PLC W. Z-Wave interface and license for stack Z-Way ONI
PLC-W-ACS-TERMINAL1	PLC W. Terminals 3.5 3 contacts ONI
PLC-W-ACS-TERMINAL2	PLC W. Terminals 3.5 4 contacts ONI
PLC-W-ACS-TERMINAL3	PLC W. Terminals 3.5 6 contacts ONI
PLC-W-ACS-TERMINAL4	PLC W. Terminals 5.08 4 contacts ONI
PLC-W-ACS-DIN19	PLC W. Fixation panel 19" with a DIN rail ONI
PLC-W-EMP-UPS2	PLC W. Uninterruptible power module 12 or 24 V ONI
PLC-W-ACS-MBRTU-IR	PLC W. IR control module Modbus RTU ONI
PLC-W-EMC-EBUS	PLC W. Expansion module eBus ONI
PLC-W-EMC-GPS	PLC W. Expansion module GPS/GLONASS ONI
PLC-W-EMC-KNX	PLC W. Expansion module KNX ONI
PLC-W-EMC-LORA	PLC W. Expansion module LoRa ONI
PLC-W-EMC-OPENTHERM	PLC W. Expansion module OpenTherm ONI
PLC-W-EMC-RS-232	PLC W. Expansion module RS-232 ONI
PLC-W-EMC-RS-485	PLC W. Expansion module RS-485 (isol.) ONI
PLC-W-EMC-ZIGBEE1	PLC W. Expansion module Zigbee v.1 ONI
PLC-W-EMC-ZIGBEE2	PLC W. Expansion module Zigbee v.2 ONI
PLC-W-EMC-4G	PLC W. Expansion module network modem 4G ONI
PLC-W-EMP-BATTERY	PLC W. Standby power module based on battery ONI
PLC-W-EMP-SUPERCAP	PLC W. Standby power module based on supercapacitors ONI

* Already in stock.

Article	Name
PLC-W-ACS-MBRTU-WATER	PLC W. Module for water consumption audit and leakage monitoring Modbus RTU ONI
PLC-W-ACS-MBRTU-ETHIP	PLC W. Interface converter Modbus RTU to Ethernet ONI
PLC-W-ACS-MBRTU-IP-EXT	PLC W. Interface converter Modbus RTU to Ethernet connection of modules ONI
PLC-W-ACS-MBRTU-EXT	PLC W. Interface converter Modbus RTU for remote connection ONI
PLC-W-ACS-TS64	PLC W. Industrial memory card 64GB ONI
PLC-W-EMD-0100	PLC W. Expansion 1 DI ONI
PLC-W-EMD-0001	PLC W. Expansion 1 DO SPDT contact ONI
PLC-W-EMD-0001R	PLC W. Expansion 1 DO HO contact ONI
PLC-W-EMD-1400	PLC W. Expansion 14 DI ONI
PLC-W-EMD-0016R	PLC W. Expansion 16 DO 230 V ONI
PLC-W-EMD-0002	PLC W. Expansion 2 DO SPDT contact ONI
PLC-W-EMD-0300	PLC W. Expansion 3 DI ONI
PLC-W-EMD-0004R	PLC W. Expansion 4 DO 230 V ONI
PLC-W-EMD-0800	PLC W. Expansion 8 DI 230 V AC ONI
PLC-W-EMD-0008R	PLC W. Expansion 8 DO 230 V AC ONI
PLC-W-EMD-0008	PLC W. Expansion 8 DO ONI
PLC-W-EMD-0202-80A	PLC W. Switching expansion 2 DI 2 DO maximum starter current 80 A ONI
PLC-W-EMD-0202-ACT	PLC W. Switching expansion 2 DI 2 DO with power measurement ONI
PLC-W-EMD-0403-120A	PLC W. Switching expansion 4 DI 3 DO maximum starter current 120 A ONI
PLC-W-EMD-0403-165A	PLC W. Switching expansion 4 DI 3 DO maximum starter current 165 A ONI
PLC-W-EMD-0403-31A	PLC W. Switching expansion 4 DI 3 DO maximum starter current 31 A ONI
PLC-W-EMD-0006-165A	PLC W. Switching expansion 6 DO maximum starter current 165 A ONI
PLC-W-EMD-0006-80A	PLC W. Switching expansion 6 DO maximum starter current 80 A ONI
PLC-W-EMD-0706-120A	PLC W. Switching expansion 7 DI 6 DO maximum starter current 120 A ONI
PLC-W-EMD-0706-160A	PLC W. Switching expansion 7 DI 6 DO maximum starter current 165 A ONI
PLC-W-EMD-0706-POWER	PLC W. Switching expansion 7 DI 6 DO maximum starter current 80 A ONI with power ONI
PLC-W-EMA-0200	PLC W. Expansion 2 AI ONI



INDUSTRIAL POWER SUPPLY UNITS ONI®

Industrial power supply unit ONI® is a modern, compact, high-quality and functional equipment providing power for both responsible and secondary consumers.

In compliance with requirements of international and Russian standards to industrial equipment, they supply high-quality and stable power to your automated management systems.



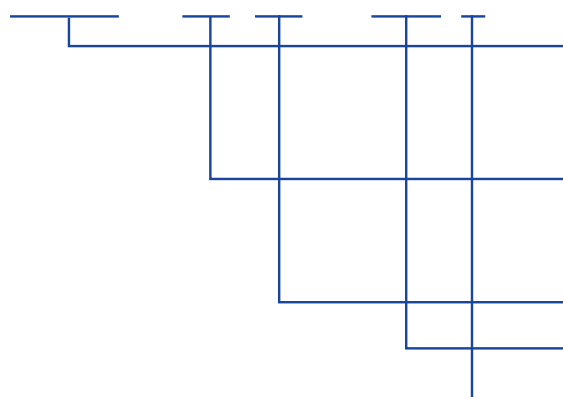
ADVANTAGES

- High energy performance: Working efficiency up to 94.4%.
- Wide operating temperature range: from -25 to +70 °C.
- Protection against short-circuit, overheating, overload and overvoltage with auto-recovery.
- LED indication of operating modes.
- Reinforced insulation.
- Resilience to A class EM effect.
- Fixation on a standard 35 mm DIN rail.
- Warranty period is 3 years.
- Relay output for alarm.
- Voltage loss compensation on long lines.
- Special features for 40 A power supply units.

* Examples of appearance are shown.

PRODUCT ID DECODING

OPSE – DC 24 – 240 V



Series:

OPS – compact type. Standard functionality;

OPSE – compact type. Extended functionality

Output voltage type:

AC – alternating voltage;

DC – direct voltage

Output voltage (V)

Power, W

Generation:

A – first; **B** – second;

C – third; **D** – fourth

PRODUCT RANGE

Article	Name	Rated input voltage, V, AC	Rated output voltage, V, DC	Rated current, A	Rated power, W
OPS-DC12-120B	Power supply unit OPS 220 V AC/12 V DC 120 W ONI	230	12	10	120
OPS-DC12-015B	Power supply unit OPS 220 V AC/12 V DC 15 W ONI		12	1.25	15
OPS-DC12-060B	Power supply unit OPS 220 V AC/12 V DC 60 W ONI		12	5	60
OPS-DC24-120B	Power supply unit OPS 220 V AC/24 V DC 120 W ONI		24	5	120
OPS-DC24-240B	Power supply unit OPS 220 V AC/24 V DC 240 W ONI		24	10	240
OPS-DC24-030B	Power supply unit OPS 220 V AC/24 V DC 30 W ONI		24	1.25	30
OPS-DC24-060B	Power supply unit OPS 220 V AC/24 V DC 60 W ONI		24	2.5	60
OPS-DC24-075B	Power supply unit OPS 220 V AC/24 V DC 75 W ONI		24	3.2	76.8
OPS-DC48-240B	Power supply unit OPS 220 V AC/48 V DC 240 W ONI		48	5	240
OPSE-DC12-120B	Power supply unit OPSE 220 V AC/12 V DC 120 W ONI	230	12	10	120
OPSE-DC24-120B	Power supply unit OPSE 220 V AC/24 V DC 120 W ONI		24	5	120
OPSE-DC24-240B	Power supply unit OPSE 220 V AC/24 V DC 240 W ONI		24	10	240
OPSE-DC24-360B	Power supply unit OPSE 220 V AC/24 V DC 360 W ONI		24	15	360
OPSE-DC24-480B	Power supply unit OPSE 220 V AC/24 V DC 480 W ONI		24	20	480
OPSE-DC24-960B	Power supply unit OPSE 220 V AC/24 V DC 960 W ONI		24	40	960

SPECIFICATIONS OF OPS

Parameter			Value for a power supply unit				
			OPS 220 V AC/24 V DC 30 W ONI	OPS 220 V AC/24 V DC 60 W ONI	OPS 220 V AC/24 V DC 3,2 A 75 W ONI	OPS 220 V AC/24 V DC 120 W ONI	OPS 220 V AC/24 V DC 240 W ONI
Input parameters	Input voltage		90–264 V AC; 127–370 V DC				
	Frequency range, Hz		47–63 (category B)				
	Efficiency coefficient, %		85	88	87	88	87
	Current, A	230 V AC	0.8	1.6	1	1.35	2.5
		115 V AC	—	—	2	2.7	3
Output parameters	Peak starting current at input voltage, A	230 V AC	50	50	35	35	60
		115 V AC	—	—	20	20	30
	Intrinsic current consumption, A, max.		0.035				
	Rated voltage, V, DC		24				
	Rated current, A		1.25	2.5	3.2	5	10
	Current range, A		0–1.25	0–2.5	0–3.2	0–5	0–10
	Rated power at ambient air temperature 25 °C, W		30	60	76	120	240
	Peak-to-peak noise and ripple voltage at ambient air temperature, mV, max.	–25...0 °C	70	50	120	120	120
		0...70 °C	140	100	240	240	240
	Voltage setting range, V		24–28				
	Maximum allowable deflection of output voltage at fixed output power (reference error), %		1.0				
	Power voltage effect (output voltage instability during power voltage measurement), %		0.5				
	Load effect (load instability), %		1.0				
	Temperature coefficient		±0.03 %/°C (category C)				
Protection parameters	Installation time with load 100 % and voltage, ms, max.	230 V AC	1500	1500	1500	1200	2000
		115 V AC	—	—	3000	3000	—
	Hold time at 230 V AC and load 100 %, ms, min.	230 V AC	20	20	20	20	20
		115 V AC	—	—	10	10	—
	Overheat protection		—			Output voltage interrupt at temperature 100±5 °C, reclosure after temperature reduction	
Protection against rated output power overload, %		120-200	120–160	164–203	105–130	103–115	
		Type of protection: output current limit, restored automatically after overload elimination					
Overvoltage protection		Operating boundaries: 28.8 and 31.2 V					
		Type of protection: output voltage interrupt, reclosure after voltage recovery in a range (category C)					
Safety and EMC parameters	Dielectric strength, kV	Input – output	3.0				
		Input – case	1.5				
		Output – case	0.5				
	Insulation resistance at 500 V, MΩ	Input – output	10				100
		Input – case	10				100
		Output – case	10				100
	Resilience to electromagnetic effect according to GOST 32132.3		Quality criteria A				
	Electric shock protection class according to GOST IEC 61140		I				
	Insulation according to GOST 12.2.091		Reinforced				
	Over voltage category according to GOST R 50571.4.44 (IEC 60364-4-44)		II				
Protection class according to GOST 14254 (IEC 60529)		IP20					
Other	Mounting method		On a T-shaped guide of a type TH-35 according to GOST IEC 60715				
	Functioning of consecutively connected power supply units		Provided				
	Mean time between failures at 25 °C and 100 % load, thous. h., min.		590	590	500	500	300
	Cross-section of conductors, connected to input terminals, mm²	Single-core	0.32–2.5	0.32–2.5	0.5–6.0	0.5–6.0	0.5–6.0
		Multicore	0.32–2.5	0.32–2.5	0.5–4.0	0.5–4.0	0.5–4.0
	Cross-section of conductors, connected to output terminals, mm²	Single-core	0.65–2.5	0.65–2.5	0.5–6.0	0.5–6.0	0.5–6.0
		Multicore	0.65–2.5	0.65–2.5	0.5–4.0	0.5–4.0	0.5–4.0
Weight, kg, max.		0.19	0.24	0.52	0.52	0.8	

Parameter			Value for a power supply unit			
			OPS 220 V AC/12 V DC 15 W ONI	OPS 220 V AC/12 V DC 60 W ONI	OPS 220 V AC/12 V DC 120 W ONI	OPS 220 V AC/48 V DC 240 W ONI
Input parameters	Input voltage		90–264 V AC	90–264 V AC; 127–370 V DC		
	Frequency range, Hz		47–63 (category B)			
	Efficiency coefficient, %		77	86	85	88
	Current, A	230 V AC	0.5	1.6	1.35	2.5
		115 V AC	—	—	2.7	3.5
	Peak starting current at input voltage, A	230 V AC	50	65	35	60
		115 V AC	—	—	20	30
Intrinsic current consumption, A, max.			0.035			
Output parameters	Rated voltage, V, DC		12			48
	Rated current, A		1.25	5	10	5
	Current range, A		0–1.25	0–5	0–10	0–5
	Rated power at ambient air temperature 25 °C, W		15	60	120	240
	Peak-to-peak noise and ripple voltage at ambient air temperature, mV, max.		120 (–25...+10 °C)	120 (–25...+10 °C)	240 at +20 °C	480 (–25...+10 °C)
			60 (10...50 °C)	60 (10...50 °C)	120 (10...70 °C)	240 (10...70 °C)
	Voltage setting range, V		12–14			48–56
	Maximum allowable deflection of output voltage at fixed output power (reference error), %		1.0			
	Power voltage effect (output voltage instability during power voltage measurement), %		0.5			
	Load effect (load instability), %		1.0			
	Temperature coefficient		±0.03 %/°C (category C)			
	Installation time with load 100 % and voltage, ms, max.	230 V AC	1500	1500	1200	2000
115 V AC		—	—	3	—	
Hold time at 230 V AC and load 100 %, ms, min.	230 V AC	20	20	20	20	
	115 V AC	—	—	10	—	
Protection parameters	Overheat protection		—	—	Output voltage interrupt at temperature 100±5 °C, reclosure after temperature reduction	
	Protection against rated output power overload, %		120–150		105–130	110–126
			Type of protection: interrupt with automatic recovery		Type of protection: direct current limitation	Type of protection: supporting constant output voltage
	Overvoltage protection		Operating boundaries: 15.0 and 16.8 V	Operating boundaries: 15.4 and 18 V	Operating boundaries: 15 and 18 V	Operating boundaries: 53.0 and 68.0 V
			Type of protection: interrupt with automatic recovery	Type of protection: output voltage interrupt, automatic recovery	Type of protection: interrupt	Type of protection: interrupt with automatic recovery
Short circuit protection			Long-term mode, automatic recovery			
Safety and EMC parameters	Dielectric strength, kV	Input – output	3.0			
		Input – case	1.5			
		Output – case	0.5			
	Insulation resistance at 500 V, MΩ	Input – output	10			
		Input – case	10			
		Output – case	10			
	Resilience to electromagnetic effect according to GOST 32132.3		Quality criteria A			
	Electric shock protection class according to GOST IEC 61140		I			
	Insulation according to GOST 12.2.091		Reinforced			
	Over voltage category according to GOST R 50571.4.44 (IEC 60364-4-44)		II			
Protection class according to GOST 14254 (IEC 60529)		IP20				

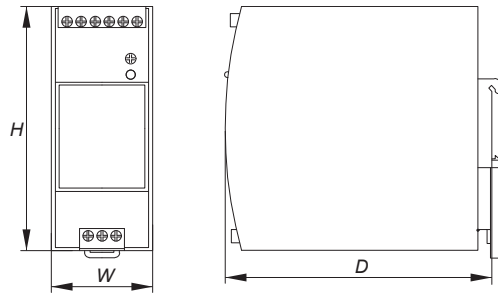
Parameter			Value for a power supply unit			
			OPS 220 V AC/12 V DC 15 W ONI	OPS 220 V AC/12 V DC 60 W ONI	OPS 220 V AC/12 V DC 120 W ONI	OPS 220 V AC/48 V DC 240 W ONI
Other	Mounting method		On a T-shaped guide of a type TH-35 according to GOST IEC 60715			
	Functioning of consecutively connected power supply units		Provided			
	Mean time between failures at 25 °C and 100 % load, thous. h., min.		300	590	500	300
	Cross-section of conductors, connected to input terminals, mm ²	Single-core	0.32-2.50	0.32-2.50	0.5-6.0	
		Multicore	0.32-2.50	0.32-2.50	0.5-4.0	
	Cross-section of conductors, connected to output terminals, mm ²	Single-core	0.65-2.50	0.65-2.50	0.5-6.0	
		Multicore	0.65-2.50	0.65-2.50	0.5-4.0	

SPECIFICATIONS OF OPSE

Parameter			Value for a power supply unit					
			OPS 220 V AC/24 V DC 360 W ONI	OPS 220 V AC/24 V DC 480 W ONI	OPS 220 V AC/24 V DC 120 W ONI	OPS 220 V AC/24 V DC 240 W ONI	OPS 220 V AC/12 V DC 120 W ONI	OPS 220 V AC/24 V DC 960 W ONI
Input parameters	Input voltage		85–264 V AC 127–375 V DC	85–264 V AC 130–350 V DC	85–264 V AC 127–360 V DC	90–264 V AC 127–370 V DC	85–264 V AC 127–360 V DC	85–264 V AC; 220–370 V DC
	Frequency range, Hz		47–63 (category B)					
	Efficiency coefficient, %		93	93.8	91	87	89.5	94.4
	Current, A	230 V AC	2.5	3.5	0.65	2.5	0.65	5.0
		100 V AC	5	7	1.5	3	1.5	11.0
	Peak starting current at input voltage, A	230 V AC	40	40	60	60	60	60.0
		115 V AC	20	20	30	30	30	30,0–100 V AC
Intrinsic current consumption, A, max.		0.035						–
Rated voltage, V, DC			24				12	24
Rated current, A			15	20	5	10	40	
Current range, A			0–15	0–20	0–5	0–10	–	
Rated power at ambient air temperature 25 °C, W			360	480	120	30	76	60
Output parameters	Peak-to-peak noise and ripple voltage at ambient air temperature, mV, max.	from -25 °C	480	480	240	240	200	480
		0...70 °C	240	240	120	120	100	240
	Voltage setting range, V		24–28				12–14	24–28
	Maximum allowable deflection of output voltage at fixed output power (reference error), %		3.0		1.0			3.0
	Power voltage effect (output voltage instability during power voltage measurement), %		0.5					
	Load effect (load instability), %		1.0					
	Temperature coefficient			±0.03 %/°C (category C)				
Installation time with load 100 % and voltage, ms, max.	230 V AC	3000	3000	250	2000	250	1000	
	100 V AC	–	–	500	–	500	2000	
Hold time at 230 V AC and load 100 %, ms, min.	230 V AC	20	20	20	20	20	20	
	100 V AC	–	–	–	–	–	–	
Protection parameters	Overheat protection		Output voltage interrupt at temperature 115±5 °C, reclosure after temperature reduction		Output voltage interrupt at temperature 100±5 °C, reclosure after temperature reduction	Output voltage interrupt at temperature 100±5 °C, automatic recovery after trouble-shooting	Output voltage interrupt at temperature 100±5 °C, reclosure after temperature reduction	Output voltage interrupt at temperature 115±5 °C, reclosure after temperature reduction

Parameter			Value for a power supply unit													
			OPS 220 V AC/24 V DC 360 W ONI		OPS 220 V AC/24 V DC 480 W ONI		OPS 220 V AC/24 V DC 120 W ONI		OPS 220 V AC/24 V DC 240 W ONI		OPS 220 V AC/12 V DC 120 W ONI		OPS 220 V AC/24 V DC 960 W ONI			
Protection parameters	Protection against rated output power overload, %		110–150						103–115		110–150		100–150			
			Type of protection: output current limit, restored automatically after overload elimination						Type of protection: output current limitation		Type of protection: output current limit, restored automatically after overload elimination		Type of protection: output current limit, restored automatically after overload elimination			
	Overvoltage protection		Operating boundaries: 29.0 and 33.0 V						Operating boundaries: 28.0 and 35.0 V		Operating boundaries: 15.0 and 18.0 V		Operating boundaries: 29.0 and 33.0 V			
			Type of protection: output voltage interrupt, automatic recovery			Type of protection: output voltage interrupt			Type of protection: output voltage interrupt, automatic recovery				Type of protection: interrupt with automatic recovery			
	Short circuit protection			Long-term mode, automatic recovery												
Safety and EMC parameters	Dielectric strength, kV		Input – output		3.0										3.0	
			Input – case		2.5										1.5	
			Output – case		0.5										0.5	
			Output DC/OK		0.5										—	
	Insulation resistance at 500 V, MΩ		Input – output		10										10.0	
			Input – case		10										10.0	
			Output – case		10										10.0	
	Resilience to electromagnetic effect according to GOST 32132.3			Quality criteria A												
	Electric shock protection class according to GOST IEC 61140			I												
	Insulation according to GOST 12.2.091			Reinforced												
	Over voltage category according to GOST R 50571.4.44 (IEC 60364-4-44)			II												
	Protection class according to GOST 14254 (IEC 60529)			IP20												
Other	Mounting method		On a T-shaped guide of a type TH-35 according to GOST IEC 60715													
	Functioning of consecutively connected power supply units		Provided													
	Relay DC-OK		Max. 30 V DC/1 A, or 60 V DC/0.3 A, or 30 V AC/0.3 A resistive load													
	DC-OK		V On.: when output voltage is up to 90 % of the rated output voltage. V Off.: when output voltage drops to 80 % of the rated output voltage.										—			
	Remote shutdown		—										+			
	Remote control and configuration of output voltage		—										+			
	Mean time between failures at 25 °C and 100 % load, thous. h., min.		300		300		300		300		300		300			
	Cross-section of conductors, connected to input terminals, mm ²		Single-core		0.5–6.0		0.5–6.0		0.5–6.0		0.5–6.0		0.5–6.0			
			Multicore		0.5–4.0		0.5–4.0		0.5–4.0		0.5–4.0		0.5–4.0			
	Cross-section of conductors, connected to output terminals, mm ²		Single-core		0.5–6.0		0.5–6.0		0.5–6.0		0.5–6.0		0.5–6.0			
			Multicore		0.5–4.0		0.5–4.0		0.5–4.0		0.5–4.0		0.5–4.0			
	Cross-section of conductors, connected to DC-OK terminals, mm ²		Single-core		0.5–6.0		0.5–6.0		0.5–6.0		0.5–6.0		0.15–1.5			
			Multicore		0.5–4.0		0.5–4.0		0.5–4.0		0.5–4.0		0.15–1.5			

OVERALL DIMENSIONS



Product ID	Name	Overall dimensions, mm		
		Width <i>W</i>	Height <i>H</i>	Depth <i>D</i>
OPS-DC12-015B	Power supply unit OPS 220 V AC/12 V DC 15 W ONI	32	97.5	103.7
OPS-DC12-060B	Power supply unit OPS 220 V AC/12 V DC 60 W ONI	32	97.5	103.7
OPS-DC12-120B	Power supply unit OPS 220 V AC/12 V DC 120 W ONI	45	124	119
OPS-DC24-030B	Power supply unit OPS 220 V AC/24 V DC 30 W ONI	32	97.5	103.7
OPS-DC24-060B	Power supply unit OPS 220 V AC/24 V DC 60 W ONI	32	97.5	103.7
OPS-DC24-075B	Power supply unit OPS 220 V AC/24 V DC 75 W ONI	45	127.5	124
OPS-DC24-120B	Power supply unit OPS 220 V AC/24 V DC 120 W ONI	45	127.5	124
OPS-DC24-240B	Power supply unit OPS 220 V AC/24 V DC 240 W ONI	70	127.5	131.7
OPS-DC48-240B	Power supply unit OPS 220 V AC/48 V DC 240 W ONI	70	127.5	131.7
OPSE-DC12-120B	Power supply unit OPSE 220 V AC/12 V DC 120 W ONI	32	124	119
OPSE-DC24-120B	Power supply unit OPSE 220 V AC/24 V DC 120 W ONI	32	124	119
OPSE-DC24-240B	Power supply unit OPSE 220 V AC/24 V DC 240 W ONI	32	124	119
OPSE-DC24-360B	Power supply unit OPSE 220 V AC/24 V DC 360 W ONI	50	124	127
OPSE-DC24-480B	Power supply unit OPSE 220 V AC/24 V DC 480 W ONI	70	124	131.7
OPSE-DC24-960B	Power supply unit OPSE 220 V AC/24 V DC 960 W ONI	140	124.6	138.2



AIR SEAL DRIVES ONI®

An air seal drive is an actuating mechanism, switching the seal in automatic and remote modes to a position, corresponding to its functional purpose.

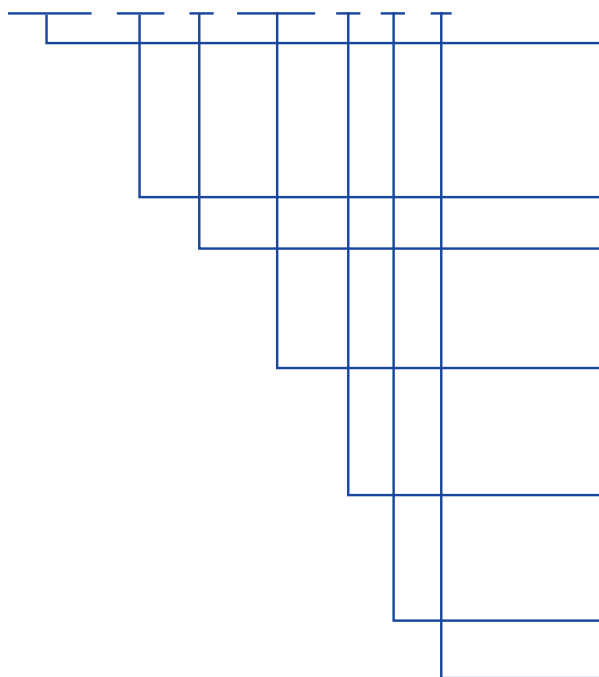


ADVANTAGES

- High reliability: overload protection, metal gear.
- Automatic shut-off upon reaching a specified point (limit switches are not required).
- Models with 2-, 3-positional and smooth control.
- Broad application coverage.
- Convenient installation (mounting bracket in a kit).
- Manual control.
- Extended warranty for 5 months.

PRODUCT ID DECODING

ODF-05-D-024-S-A-T



Air seal drive name:

ODA – seal drive;

ODQ – quick response seal drive;

ODF – fire-prevention seal drive

Torque on the outlet shaft of the drive, Nm

Type of control:

D – 2-, 3-positional;

M – smooth control 0–10 V/4–20 mA

Rated voltage, V:

024 – 24 V AC/DC;

230 – 230 V

Return spring:

N – no return spring;

S – with return spring

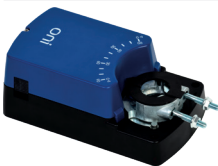
A – with an additional switch

T – thermal sensor

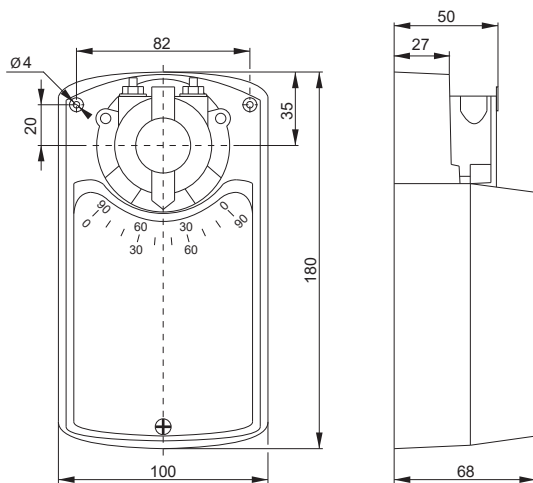
GENERAL TECHNICAL SPECIFICATIONS

Parameter	Value
Torque, Nm	2–40
Operating voltage	24 V DC/AC, 230 V AC
Version	Without a spring, with a spring
Control type	2-, 3-positional, smooth control
Type of signal for models with smooth control	0–10 V/4–20 mA
Protection class	IP44 (without a spring), IP54 (with a spring)
Feedback	Yes, no
Manual control	Yes

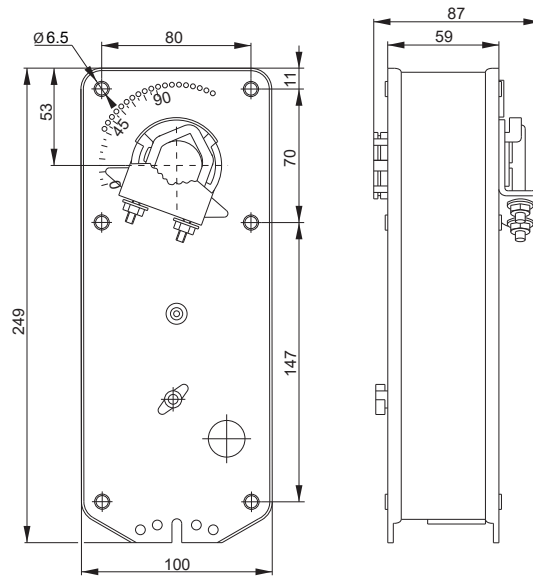
PRODUCT RANGE AND TECHNICAL SPECIFICATIONS

	Product ID	Name	Operating voltage	Control type	Torque value, Nm	Version
	ODA-08-D-024-N-A	Seal drive 8 N-m 24 V AC/DC 2-, 3-positional without a return spring with an additional switch ONI	24 V AC/DC	2-, 3-positional	8	Without a return spring
	ODA-08-M-024-N-A	Seal drive 8 N-m 24 V AC/DC controlled 0-10 V/4-20 A without a return spring with an additional switch ONI	24 V AC/DC	Smooth control	8	Without a return spring
	ODA-08-D-230-N-A	Seal drive 8 N-m 230 V AC 2-, 3-positional without a return spring with an additional switch ONI	230 V AC	2-, 3-positional	8	Without a return spring
	ODA-08-M-230-N-A	Seal drive 8 N-m 230 V AC controlled 0-10 V/4-20 A without a return spring with an additional switch ONI	230 V AC	Smooth control	8	Without a return spring
	ODA-16-D-024-N-A	Seal drive 16 N-m 24 V AC/DC 2-, 3-positional without a return spring with an additional switch ONI	24 V AC/DC	2-, 3-positional	16	Without a return spring
	ODA-16-M-024-N-A	Seal drive 16 N-m 24 V AC/DC controlled 0-10 V/4-20 A without a return spring with an additional switch ONI	24 V AC/DC	Smooth control	16	Without a return spring
	ODA-16-D-230-N-A	Seal drive 16 N-m 230 V AC 2-, 3-positional without a return spring with an additional switch ONI	230 V AC	2-, 3-positional	16	Without a return spring
	ODA-16-M-230-N-A	Seal drive 16 N-m 230 V AC controlled 0-10 V/4-20 A without a return spring with an additional switch ONI	230 V AC	Smooth control	16	Without a return spring
	ODA-24-D-024-N-A	Seal drive 24 N-m 24 V AC/DC 2-, 3-positional without a return spring with an additional switch ONI	24 V AC/DC	2-, 3-positional	24	Without a return spring
	ODA-24-M-024-N-A	Seal drive 24 N-m 24 V AC/DC controlled 0-10 V/4-20 A without a return spring with an additional switch ONI	24 V AC/DC	Smooth control	24	Without a return spring
	ODA-24-D-230-N-A	Seal drive 24 N-m 230 V AC 2-, 3-positional without a return spring with an additional switch ONI	230 V AC	2-, 3-positional	24	Without a return spring
	ODA-24-M-230-N-A	Seal drive 24 N-m 230 V AC controlled 0-10 V/4-20 A without a return spring with an additional switch ONI	230 V AC	Smooth control	24	Without a return spring
	ODA-40-D-024-N-A	Seal drive 40 N-m 24 V AC/DC 2-, 3-positional without a return spring with an additional switch ONI	24 V AC/DC	2-, 3-positional	40	Without a return spring
	ODA-40-M-024-N-A	Seal drive 40 N-m 24 V AC/DC controlled 0-10 V/4-20 A without a return spring with an additional switch ONI	24 V AC/DC	Smooth control	40	Without a return spring
	ODA-40-D-230-N-A	Seal drive 40 N-m 230 V AC 2-, 3-positional without a return spring with an additional switch ONI	230 V AC	2-, 3-positional	40	Without a return spring
	ODA-40-M-230-N-A	Seal drive 40 N-m 230 V AC controlled 0-10-4-20 V/4-20 A without a return spring with an additional switch ONI	230 V AC	Smooth control	40	Without a return spring
	ODA-40-M-230-N-A	Seal drive 40 N-m 230 V AC controlled 0-10 V/4-20 A without a return spring with an additional switch ONI	230 V AC	Smooth control	40	Without a return spring
	ODA-10-D-024-S-A	Seal drive 10 N-m 24 V AC/DC 2-positional with a return spring with an additional switch ONI	24 V AC/DC		10	with return spring
	ODA-10-D-230-S-A	Seal drive 10 N-m 230 V AC 2-positional with a return spring with an additional switch ONI	230 V AC	2-positional	10	with return spring
	ODA-15-D-024-S-A	Seal drive 15 N-m 24 V AC/DC 2-positional with a return spring with an additional switch ONI	24 V AC/DC	2-positional	15	with return spring
	ODA-15-D-230-S-A	Seal drive 15 N-m 230 V AC 2-positional with a return spring with an additional switch ONI	230 V AC	2-positional	15	with return spring

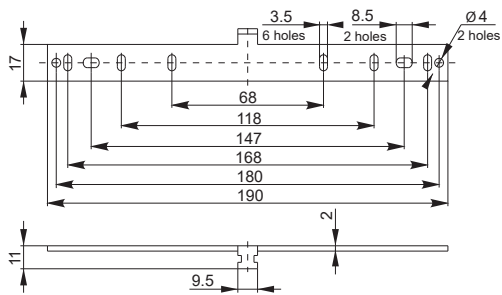
OVERALL DIMENSIONS, MM



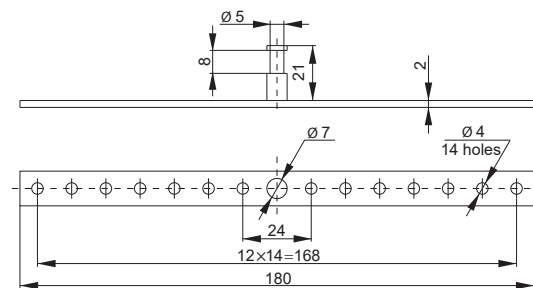
Drives without a return spring



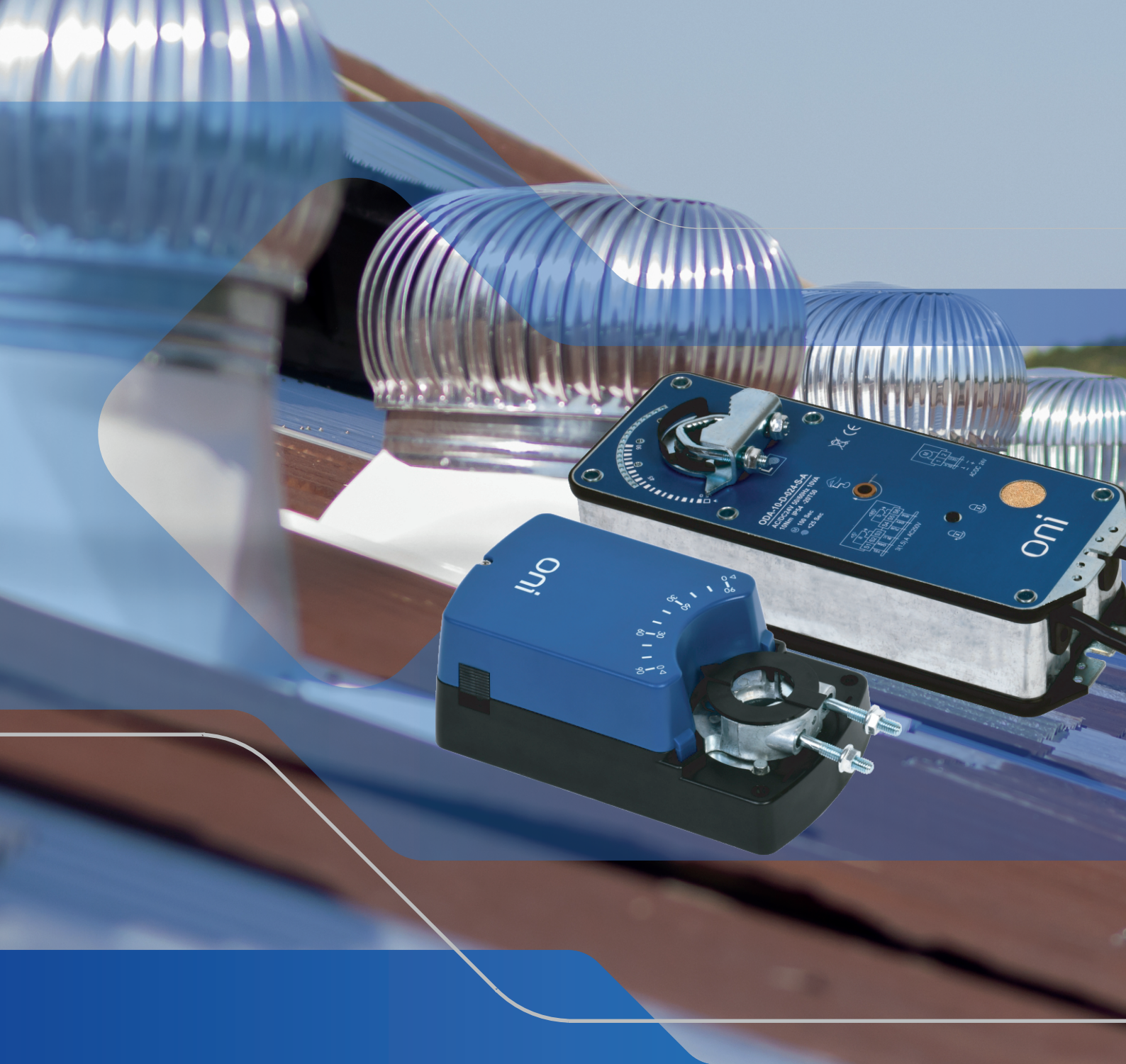
Drives with a return spring



Drive frame without a return spring



Drive frame with a return spring



Air seal drives ONI® – convenient operation of ventilation plants



High Reliability



Auto Shutdown



Convenient Mounting
(bracket included)



Manual
Control



Simple fastening
of Damper Shaft



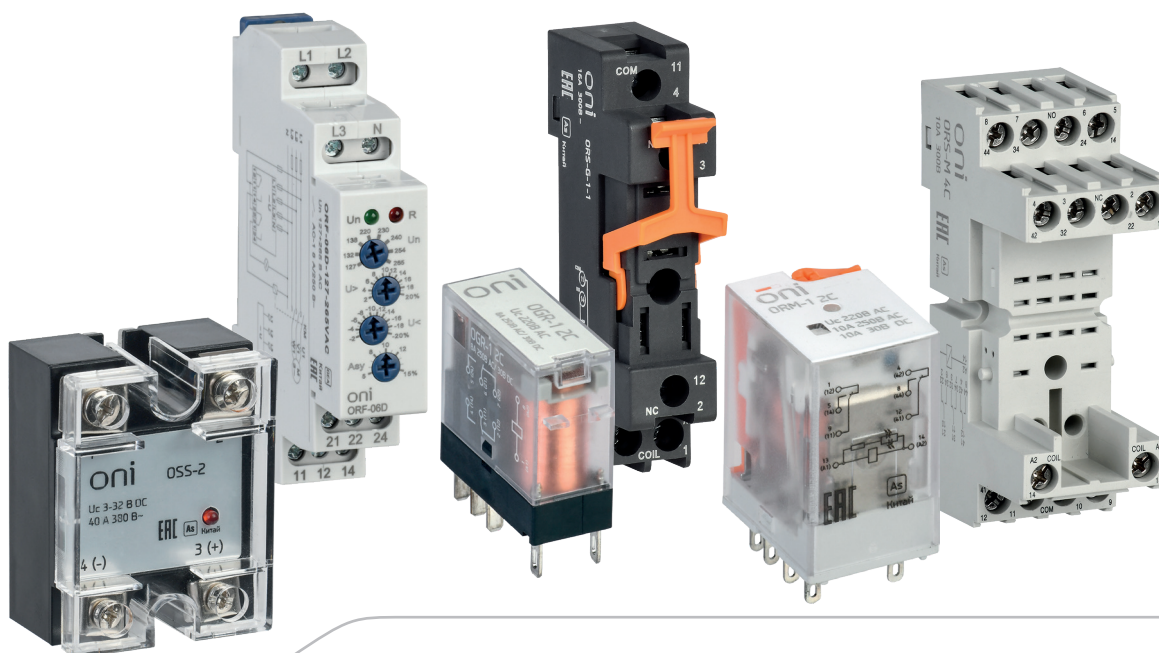
5 Year
Warranty!



RELAY AUTOMATION ONI®

Relay automation is a set of equipment designed for electric systems control, signal switching, electric circuits protection and control of their parameters.

Product range of relay automation ONI® includes a full spectrum of products, applied in electric systems.

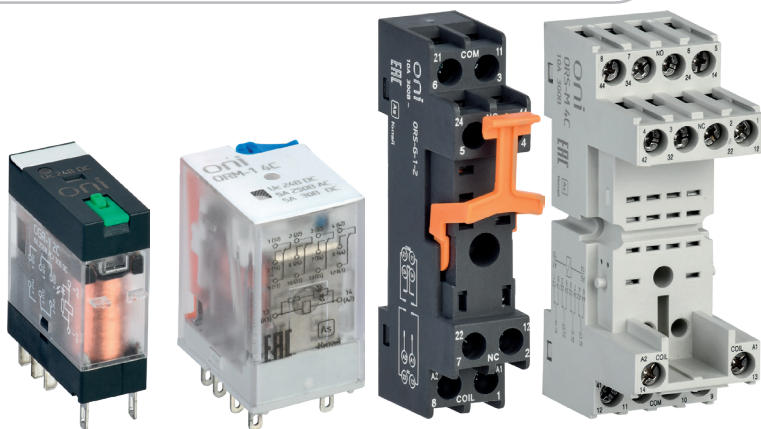


ADVANTAGES

- High quality – enhanced safety and equipment durability.
- Diagnostics without power supply — "Test" button with fixation.
- Power LED indication — relay operation visualized.
- Wide range for any applications.

ELECTROMECHANICAL RELAYS ONI®

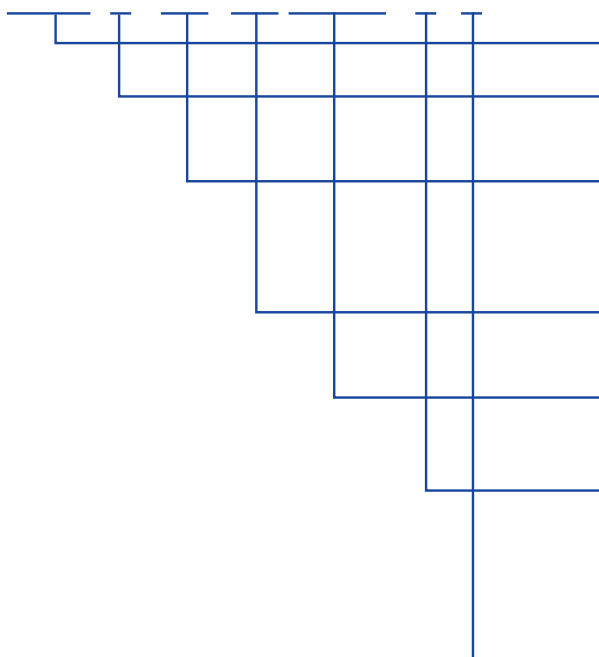
Electromechanical relay is a switching devices, intended to establish and break connections in electric circuits. Relay is triggered in case of abrupt changes of input value.



ADVANTAGES

- Installation into similar sockets of other manufacturers.
- Affordable price.
- High-quality plastic and eco-friendly contact materials.
- Agni contact material — enhanced strength of contacts.
- Wide range of warehouse products (relays, sockets for DIN rail, "relay + socket" kits, accessories for relays).
- Diagnostics without power supply — "Test" button with fixation.
- Power LED indication — relay operation visualized.

PRODUCT ID DECODING

OGR-1-1C-AC220V-L-B**OGR** – relay series

Type:

- 1** – industrial;
- 2** – universal

Type of relay contacts:

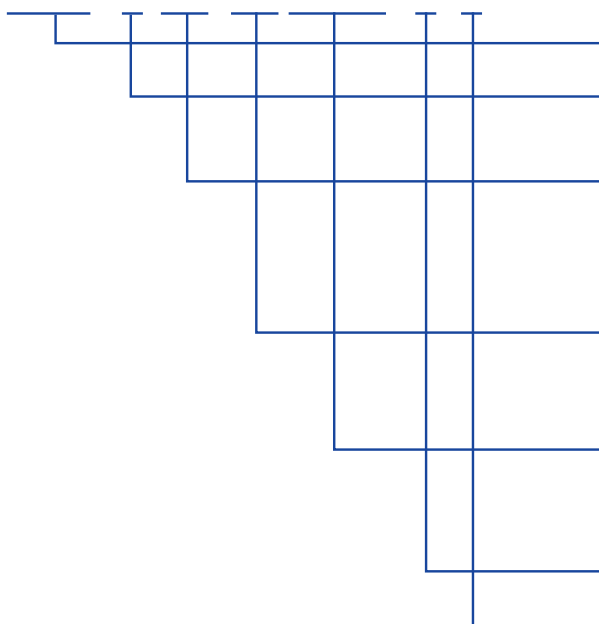
- 1C** – 1 group of changeover contacts;
- 2C** – 2 groups of changeover contacts;
- 4C** – 4 groups of changeover contacts.

Current type:

- DC** – direct current;
- AC** – alternating current.

Power supply voltage:

- 24V** – 24 V;
- 220V** – 220

L – LED indication**B** – test button**ORM-1-2C-AC220V-L-B****ORM** – relay series

Contacts material:

- 1** – AgNi

Type of relay contacts:

- 1C** – 1 group of changeover contacts;
- 2C** – 2 groups of changeover contacts;
- 4C** – 4 groups of changeover contacts.

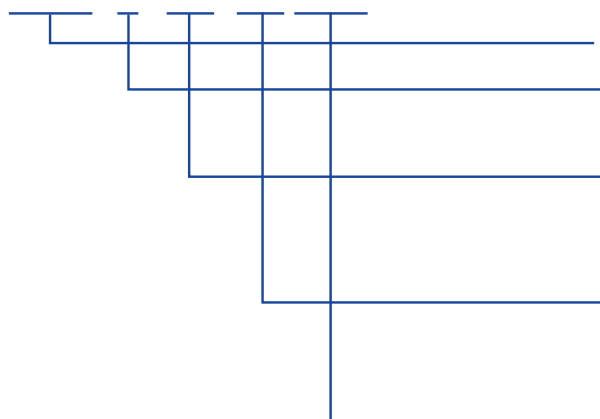
Current type:

- DC** – direct current;
- AC** – alternating current.

Power supply voltage:

- 24V** – 24 V;
- 220V** – 220

L – LED indication**B** – test button

ORK-1-1A-DC24V

ORK – relay series

Type:

1 – with screw clamps

Type of relay contacts:

1A – 1 normally opened (NO) contact;

1C – 1 changeover (CO) contact

Current type:

ACDC – direct and alternating current;

DC – direct current;

Rated voltage (24 V, 230 V)

GENERAL SPECIFICATIONS AND OPERATION CONDITIONS

Parameter	Value
Control voltage	24 V DC, 220 V AC
Number of changeover contacts	1, 2, 4
Switching current	Up to 12 A
Additional options	LED indication, test button (fixing)
Mounting method	Standard pin assignment for sockets on a DIN rail

PRODUCT RANGE AND TECHNICAL SPECIFICATIONS

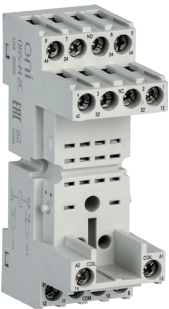
	Product ID	Name	Control voltage, V	Type of contacts (quantity of groups)	Switching current, A	Product ID of a socket
	OGR-1-1C-AC220V	General purpose relay OGR-1 1C 220 V AC ONI	220	1C	12	ORS-G-1-1-G
	OGR-1-1C-AC220V-L-B	General purpose relay OGR-1 1C with an LED and test button ONI	220	1C	12	ORS-G-1-1-G
	OGR-1-1C-DC24V	General purpose relay OGR-1 1C 24 V DC ONI	24	1C	12	ORS-G-1-1-G
	OGR-1-1C-DC24V-L-B	General purpose relay OGR-1 1C with an LED and test button ONI	24	1C	12	ORS-G-1-1-G
	OGR-1-2C-AC220V	General purpose relay OGR-1 2C 220 V AC ONI	220	2C	8	ORS-G-1-2-G
	OGR-1-2C-AC220V-L-B	General purpose relay OGR-1 2C with an LED and test button ONI	220	2C	8	ORS-G-1-2-G
	OGR-1-2C-DC24V	General purpose relay OGR-1 2C 24 V DC ONI	24	2C	8	ORS-G-1-2-G
	OGR-1-2C-DC24V-L-B	General purpose relay OGR-1 2C with an LED and test button ONI	24	2C	8	ORS-G-1-2-G
	OGR-2-2C-AC220V	General purpose relay OGR-2 2C 220 V AC ONI	220	2C	10	ORS-G-2-2-G ORS-G-2-4-G ORS-M-1-2-G ORS-M-1-4-G

	Product ID	Name	Control voltage, V	Type of contacts (quantity of groups)	Switching current, A	Product ID of a socket
	OGR-2-2C-DC24V	General purpose relay OGR-2 2C 24 V DC ONI	24	2C	10	ORS-G-2-2-G ORS-G-2-4-G ORS-M-1-2-G ORS-M-1-4-G
	OGR-2-4C-AC220V	General purpose relay OGR-2 4C 220 V AC ONI	220	4C	5	ORS-G-2-4-G ORS-M-1-4-G
	OGR-2-4C-DC24V	General purpose relay OGR-2 4C 24 V DC ONI	24	4C	5	ORS-G-2-4-G ORS-M-1-4-G
	ORM-1-2C-AC220V-L-B	Interface relay ORM-1 2C 220 V AC with an LED and test button ONI	220	2C	10	ORS-G-2-2-G ORS-G-2-4-G ORS-M-1-2-G ORS-M-1-4-G
	ORM-1-2C-DC24V-L-B	Interface relay ORM-1 2C 24 V DC with an LED and test button ONI	24	2C	10	ORS-G-2-2-G ORS-G-2-4-G ORS-M-1-2-G ORS-M-1-4-G
	ORM-1-4C-AC220V-L-B	Interface relay ORM-1 4C 220 V AC with an LED and test button ONI	220	4C	5	ORS-G-2-4-G ORS-M-1-4-G
	ORM-1-4C-DC24V-L-B	Interface relay ORM-1 4C 24 V DC with an LED and test button ONI	24	4C	5	ORS-G-2-4-G ORS-M-1-4-G

	Product ID	Name	Control voltage, V	Type of contacts (quantity of groups)	Switching current, A
	ORK-1-1A-DC24V	Interface relay ORK with a socket 1A 24 V DC ONI	24	1A	6
	ORK-1-1C-DC24V	Interface relay ORK with a socket 1C 24 V DC ONI	24	1C	6
	ORK-1-1C-ACDC24V	Interface relay ORK with a socket 1C 24 V AC/DC ONI	24	1C	6
	ORK-1-1C-ACDC230V	Interface relay ORK with a socket 1C 230 V AC/DC ONI	220-240	1C	6

	Product ID	Name	Control voltage, V	Type of contacts (quantity of groups)
	OSR-1	Ultra-thin relay OSR 1C 24 V DC ONI	24	1C
	OSR-2	Ultra-thin relay OSR 1C 60 V DC ONI	60	1C

	Product ID	Name	Control voltage, V	Type of contacts (quantity of groups)	Switching current, A
	ORS-G-1-1-G	Socket ORS-G-1-1 for relay OGR-1 1C ONI	300	1	16
	ORS-G-1-2-G	Socket ORS-G-1-2 for relay OGR-1 2C ONI	300	2	10
	ORS-G-2-2-G	Socket ORS-G-2-2 for relay OGR-2 2C ONI	300	2	12
	ORS-G-2-4-G	Socket ORS-G-2-4 for relay OGR-2 4C ONI	300	4	7

	Product ID	Name	Control voltage, V	Type of contacts (quantity of groups)	Switching current, A
	ORS-M-1-2-G	Socket ORS-M for relay ORM 2C ONI	300	2	10
	ORS-M-1-4-G	Socket ORS-M for relay ORM 4C ONI	300	4	10
	ORS-S-1	Socket ORS-S1 for relay OSR- 1 ONI	24	1	6
	ORS-S-2	Socket ORS-S1 for relay OSR- 2 ONI	230	1	6
	NEW ORS-M-2-2-G	Three-tier socket	300	2C	10
	NEW ORS-M-2-4-G	Three-tier socket	300	4C	10

SELECTION TABLE

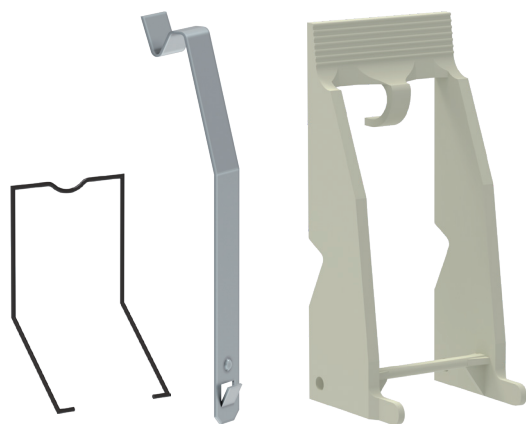
Relay contacts material: AgNi

Relay type	Photo	Product ID	Voltage												Type of contacts					Switching current						
			12 V (DC)	12 V (AC)	24 V (DC)	24 V (AC)	48 V (DC)	48 V (AC)	60 V (DC)	110 V (DC)	110 V (AC)	220 V (DC)	220 V (AC)	1NO	1CO	2CO	3CO	4CO	3 A	5 A	6 A	8 A	10 A	12 A	16 A	
Ultra-thin relays		OSR-1			•										•						•					
		OSR-2							•							•						•				
		ORK-1-1A-DC24V			•										•						•					
		ORK-1-1C-DC24V			•											•						•				
		ORK-1-1C-ACDC24V			•	•										•						•				
		ORK-1-1C-ACDC230V											•	•		•						•				
ORM-41F-3				•										•						•						
Miniature industrial relays OGR-1		OGR-1-1C-AC220V											•		•									•		
		OGR-1-1C-AC220V-L-B											•		•									•		
		OGR-1-1C-DC24V			•											•								•		
		OGR-1-1C-DC24V-L-B			•											•								•		
		OGR-1-2C-AC220V											•			•						•				
		OGR-1-2C-AC220V-L-B											•			•						•				
		OGR-1-2C-DC24V			•											•						•				
		OGR-1-2C-DC24V-L-B			•											•						•				
Miniature universal relays OGR-2		OGR-2-2C-AC220V											•		•								•			
		OGR-2-2C-DC24V			•											•							•			
		OGR-2-4C-AC220V											•					•		•						
		OGR-2-4C-DC24V			•													•		•						
		OGR-2-4C-DC220V											•					•		•						
Miniature universal relays ORM-1		ORM-1-2C-AC220V-L-B										•			•								•			
		ORM-1-2C-DC24V-L-B			•											•							•			
		ORM-1-4C-AC220V-L-B											•					•		•						
		ORM-1-4C-DC24V-L-B			•													•		•						

NEW

ACCESSORIES FOR RELAYS

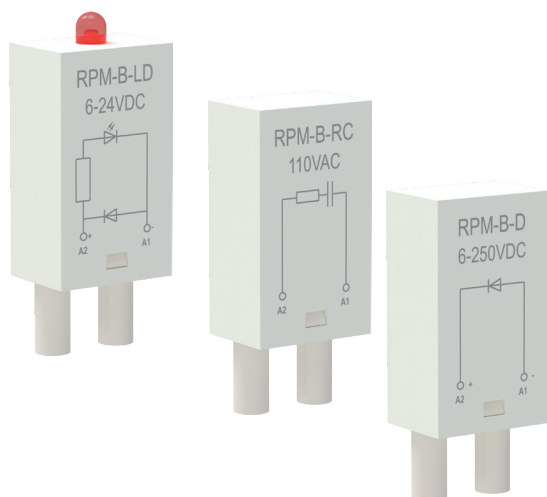
BUCKLES



They are designed for additional fixation of relays in ORS-M and ORS-G sockets.

Product ID	Name
CRS-M-1	Metal brace for a socket ORS-M ONI
CRS-M-2	Plastic brace for a socket ORS-M ONI
CRS-G-1	Metal brace for a socket ORS-G ONI

RPM-B MODULES

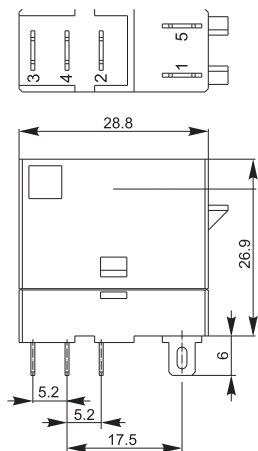


These modules protect control circuits against voltage surge and additionally indicate on relay triggering (voltage supply to relay coil). They are installed into ORS-M relay.

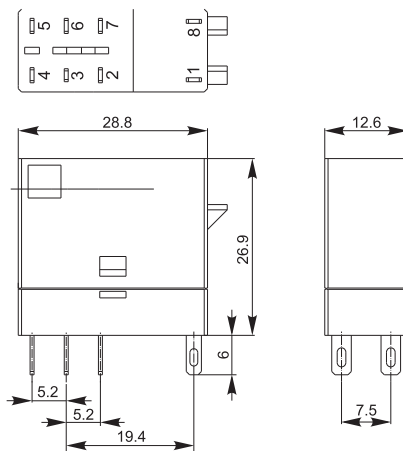
Product ID	Name
RPM-B-V-ACDC240V	Relay protection module variable resistor 240 V ACDC ONI
RPM-B-LD-DC6-24V	Relay protection module diode + LED 6-24 V DC ONI
RPM-B-V-ACDC24V	Relay protection module variable resistor 24 V ACDC ONI
RPM-B-RC-AC110V	Relay protection module RC-circuit 110 V AC ONI
RPM-B-RC-AC240V	Relay protection module RC-circuit 240 V AC ONI
RPM-B-LD-DC240V	Relay protection module diode + LED 240 V DC ONI
RPM-B-D-DC6-250V	Relay protection module diode 6-250 V DC ONI
RPM-B-RC-AC6-24V	Relay protection module RC-circuit 6-24 V AC ONI

OVERALL DIMENSIONS, MM

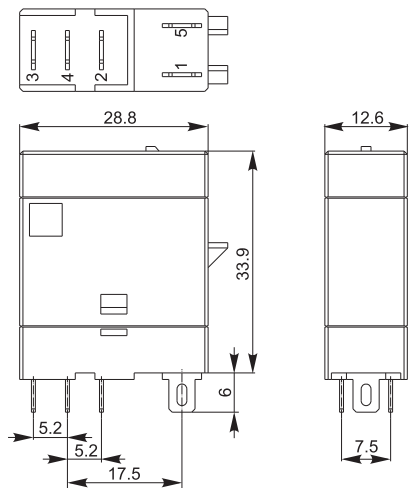
GENERAL PURPOSE RELAYS OGR



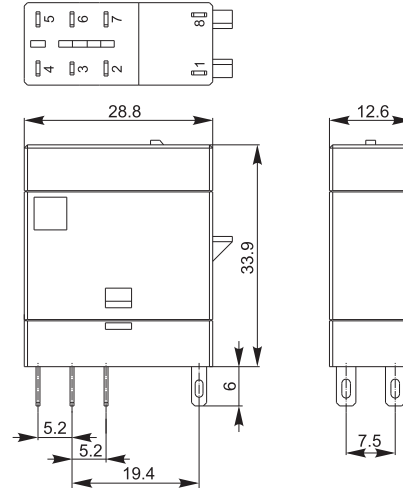
a) General purpose relay OGR-1 1C



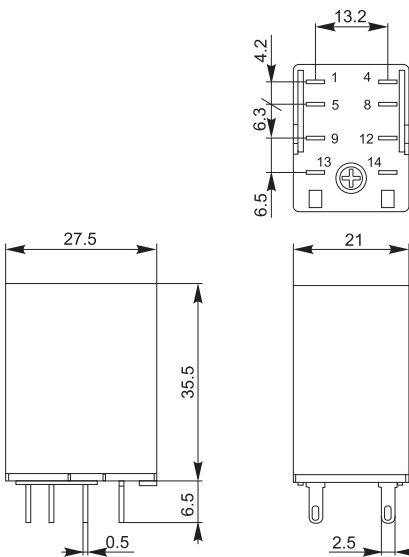
b) General purpose relay OGR-1 2C



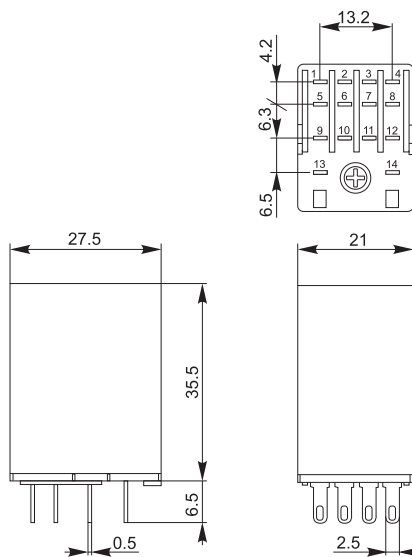
c) General purpose relay OGR-1 1C with an LED and test button



d) General purpose relay OGR-1 2C with an LED and test button

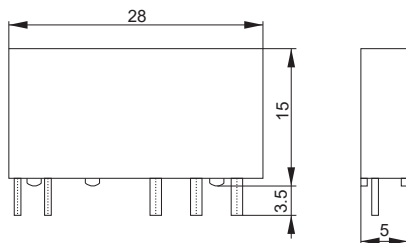


e) General purpose relay OGR-2 2C

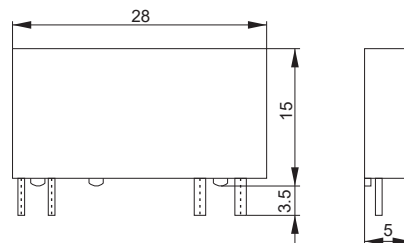


f) General purpose relay OGR-2 4C

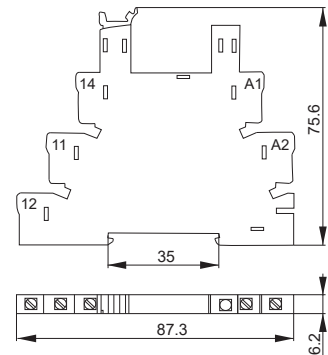
INTERFACE RELAY ORK WITH A SOCKET



a) ORK 1C

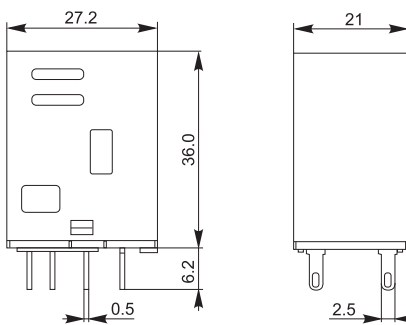
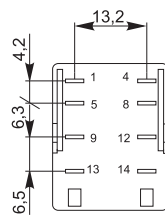


b) ORK 1A

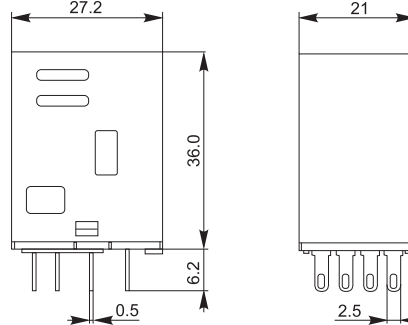
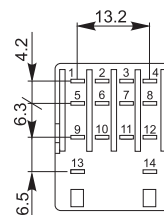


c) Socket

INTERFACE RELAY ORM

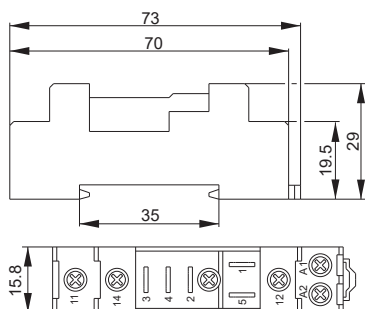


a) Interface relay ORM-2C

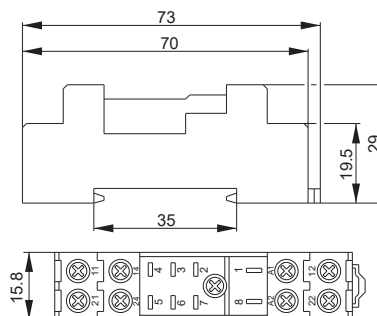


b) Interface relay ORM-4C

SOCKET ORS-G FOR RELAY OGR

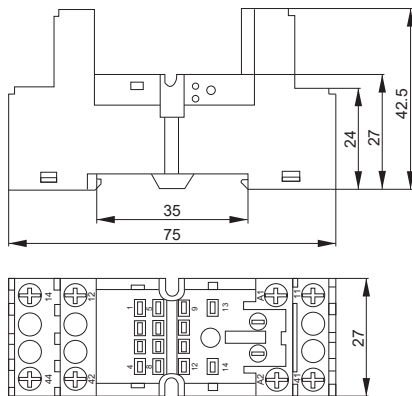


a) Socket for relay OGR-1 1C

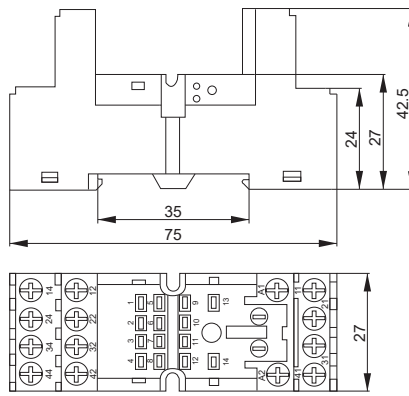


b) Socket for relay OGR-1 2C

SOCKET ORS-M FOR RELAY ORM

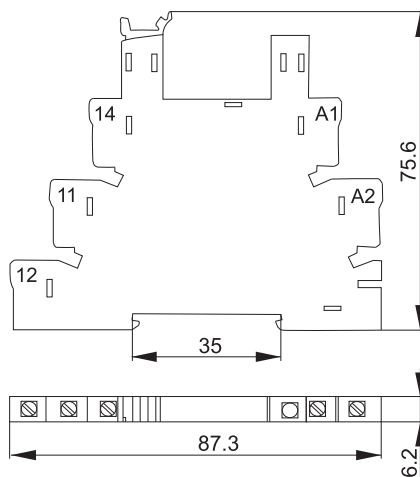


a) Socket for relay ORM 2C



b) Socket for relay ORM 4C

SOCKET ORS-S FOR RELAY OSR



SOLID-STATE RELAYS ONI®

Solid-state relay is an electronic device, that switches on and off a high-capacity circuit using low voltages. This type of relay does not have mechanical moving elements. Solid-state relays can be used both in direct and alternating current networks.

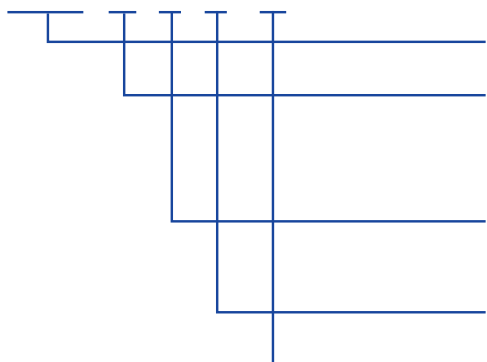


ADVANTAGES

- Absolutely noiseless operation (no moving parts).
- Long service life — up to 10B switches.
- High switching frequency: response of solid-state relays takes fractions of milliseconds, whereas electromagnetic relays need from 50 ms to 1 s.
- Energy consumption is 95 % lower than that of a coil of electromagnetic analogs.
- Switching high currents (up to 100 A and more).
- Small dimensions with high values of rated current.

PRODUCT ID DECODING

OSS-X-Y-Z-W



OSS – relay series

X – model:

1 – three-phase;

2 – single-phase

Y – maximum supply voltage of the load:

3-380 V 4-480 V

Z – rated switching capacity, A:

25/40/50/60/100

W – rated voltage of control circuit:

B – from 3 to 32 DC;

E – from 4 to 32 DC/AC

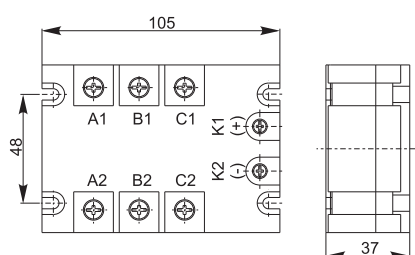
GENERAL SPECIFICATIONS AND OPERATION CONDITIONS

Parameter	Value
Control voltage	3-32 V DC, 4-32 V DC/AC
Relay types	Single-phase Three-phase
Switching current	Up to 100 A
Load voltage	24-480 V AC

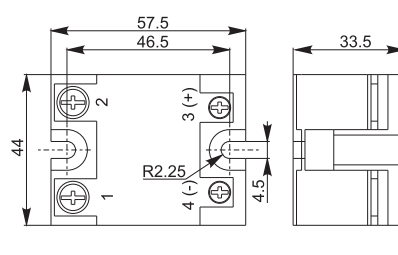
PRODUCT RANGE AND TECHNICAL SPECIFICATIONS

	Product ID	Name	Voltage, V	Type of contacts (quantity of groups for sockets)	Switching current, A
	OSS-1-3-100-B	Solid-state relay OSS-1 100 A 380 V AC 3-32 V DC ONI	24-380	3-32	100
	OSS-1-3-25-B	Solid-state relay OSS-1 25 A 380 V AC 3-32 V DC ONI	24-380	3-32	25
	OSS-1-3-40-B	Solid-state relay OSS-1 40 A 380 V AC 3-32 V DC ONI	24-380	3-32	40
	OSS-1-3-60-B	Solid-state relay OSS-1 60 A 380 V AC 3-32 V DC ONI	24-380	3-32	60
	OSS-2-3-25-B	Solid-state relay OSS-2 25 A 380 V AC 3-32 V DC ONI	24-380	3-32	25
	OSS-2-3-40-B	Solid-state relay OSS-2 40 A 380 V AC 3-32 V DC ONI	480	3-32	40
	OSS-2-3-60-B	Solid-state relay OSS-2 60 A 380 V AC 3-32 V DC ONI	480	3-32	60
	OSS-2-4-100-B	Solid-state relay OSS-2 100 A 380 V AC 3-32 V DC ONI	480	4-32	100
	OSS-2-4-50-B	Solid-state relay OSS-2 50 A 380 V AC 3-32 V DC ONI	24-380	3-32	50

OVERALL DIMENSIONS, MM



a) Solid-state relay OSS-1
(lid on the front view is not shown)

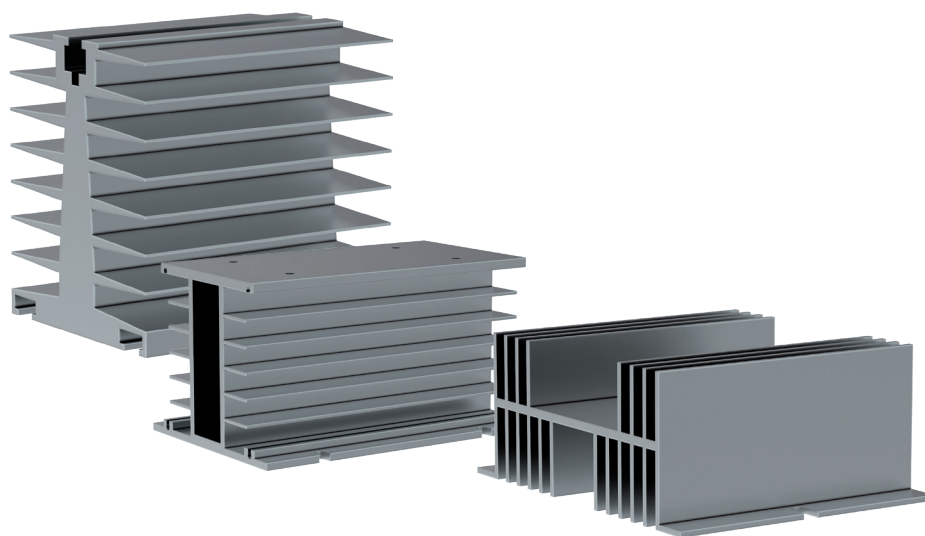


b) Solid-state relay OSS-2
(lid on the front view is not shown)

NEW

ACCESSORIES FOR RELAYS — RADIATORS

Designed for effective cooling of solid-state OSS relays. Made of high-quality aluminium. Radiators are used with thermal paste to switch currents from 10 A. This enables high currents switching and increases service life of a solid-state relay.



Product ID	Name
RSS-2-25	Radiator for a solid-state relay OSS-2 25 A ONI
RSS-2-40	Radiator for a solid-state relay OSS-2 40 A ONI
RSS-2-60	Radiator for a solid-state relay OSS-2 60 A ONI
RSS-2-80	Radiator for a solid-state relay OSS-2 80 A ONI
RSS-2-100	Radiator for a solid-state relay OSS-2 100 A ONI
RSS-1-25	Radiator for a solid-state relay OSS-1 25 A ONI
RSS-1-40	Radiator for a solid-state relay OSS-1 40 A ONI
RSS-1-60	Radiator for a solid-state relay OSS-1 60 A ONI
RSS-1-80	Radiator for a solid-state relay OSS-1 80 A ONI
RSS-1-100	Radiator for a solid-state relay OSS-1 100 A ONI

TEMPERATURE CONTROL RELAY ONI®

Temperature control relay is a special device, that controls operation of a required equipment when ambient temperature is changed. Relay is configured to a desired temperature, and when this metric exceeds an established range, the contact relay is triggered.

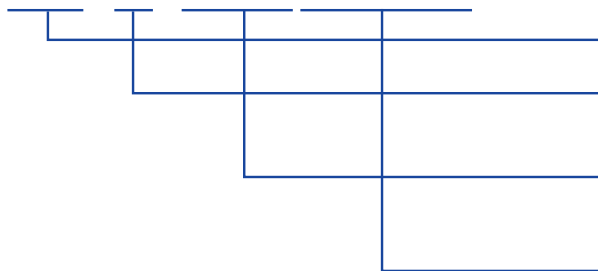


ADVANTAGES

- Short circuit or sensor breakout control.
- "Heating/cooling" feature.
- Universal power supply 24–240 V AC/DC.
- LED indication of relay status.
- Mounting on a DIN rail, relay is one module wide.
- Temperature sensor NTC-10K-3950 is included in the delivery set.
- High reliability.

PRODUCT ID DECODING

OTR-01-ACDC24-240V



OTR – relay series

Type:

01 – operation with NTC sensor

Current type:

ACDC – alternating and direct current.

Power supply voltage:

24-240V

PRODUCT RANGE AND TECHNICAL SPECIFICATIONS

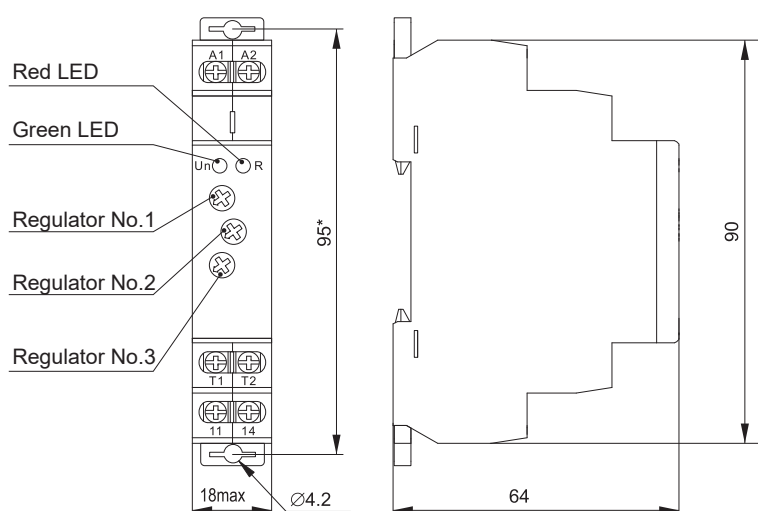
Product ID	Name	Voltage	Number of changeover contacts	Switching current	Range of controlled temperatures, °C	Mounting method	External temperature sensor cable length, m	Operation and power supply indication
OTR-01-ACDC24-240V	Temperature relay OTR-01 1 cont. 24-240 V AC/DC ONI	24-240 V AC/ DC	1	Up to 16 A	-15...+45	On a DIN rail	2	LED indication



GENERAL SPECIFICATIONS AND OPERATION CONDITIONS

Parameter	Value
Control voltage	24-240 V AC/DC
Number of changeover contacts	1
Switching current, A	Up to 16
Operation indication	LED indication
Mounting method	Mounting on a DIN rail, relay is one module wide
External temperature sensor cable length, m	2
Range of controlled temperatures, °C	-15...+45
Sensor type	NTC

OVERALL DIMENSIONS, MM



* This size is required to install a relay on a flat surface.

PHASE CONTROL RELAY WITH NEUTRAL CONTROL ONI®

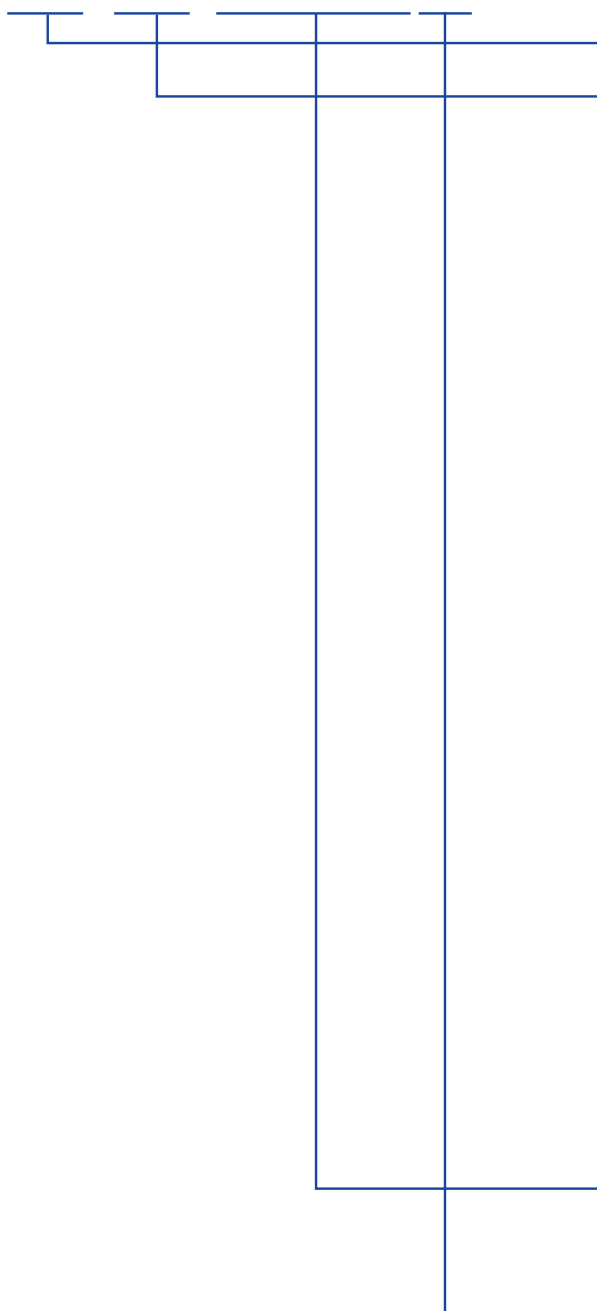
Phase control relay is a device that protects electric equipment powered by three-phase network, when at least one phase is missing, voltage is reduced or increased in relation to a setpoint, phase sequence order is broken, in case of unbalance or neutral line breakage.



ADVANTAGES

- Intrinsic power voltage control (True RMS).
- Setting eight levels of operational voltage.
- Voltage measurement error <1 %.
- 2 contact groups.
- LED indication of operation.
- High reliability.
- Phase sequence.
- Phase fault.

PRODUCT ID DECODING

ORF-06D-220-460VAC**ORF** – relay series

Type:

- 03** – controlling phase sequence and breakage, without adjustments;
- 04** – controlling over-/under-voltage, phase sequence and breakage;
- 05** – controlling over-/under-voltage, phase sequence and breakage, controlling phase unbalance (fixed value);
- 06** – controlling over-/under-voltage, phase sequence and breakage, controlling phase unbalance (time delay of relay triggering is fixed);
- 06D** – controlling over-/under-voltage, phase sequence and breakage, neutral line breakage, controlling phase unbalance (time delay of relay triggering is fixed) with two changeover contacts;
- 08** – controlling over-/under-voltage, phase sequence and breakage, controlling phase unbalance (time delay of relay triggering is fixed);
- 10** – controlling over-/under-voltage, phase sequence and breakage, neutral line breakage, controlling phase unbalance with two changeover contacts; **10** – controlling over-/under-voltage, phase sequence and breakage, neutral line breakage, controlling phase unbalance with two changeover contacts;

Power supply voltage, V:

127-265 (controlling neutral line);
220-460

AC – current type

PRODUCT RANGE AND TECHNICAL SPECIFICATIONS

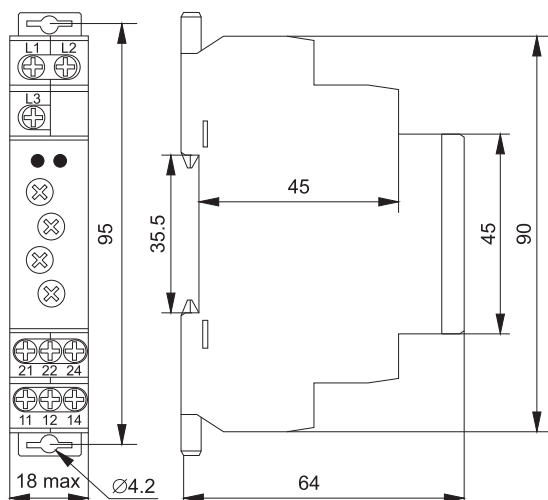
	Product ID	Name	Control voltage	Q-ty of changeover contacts	Switching current, A	Neutral line control function	Mounting method	Setting ranges				Operation indication
								Over-voltage, %	Under-voltage, %	Unbalance, %	Triggering delay, s	
	ORF-06D-220-460VAC	Phase relay ORF 06D. 3 p. AC 2 cont. 220-460 V AC ONI	220-460 V AC	2	Up to 8	No	On a DIN rail	2...20	-20...2	5-15	2	LED indication
	ORF-06D-127-265VAC	Phase relay ORF 06D. 2 cont. controlling neutral line 127-265 V AC ONI	127-265 V AC	2	Up to 8	Yes	On a DIN rail	2...20	-20...2	5-15	2	LED indication
	ORF-08D-220-460VAC	Phase relay ORF 08D. 3 p. AC 2 cont. 220-460 V AC ONI	220-460 V AC	2	Up to 8	No	On a DIN rail	15	-15	8	2	LED indication
	ORF-08D-127-265VAC	Phase relay ORF 08D. 2 cont. controlling neutral line 127-265 V AC ONI	127-265 V AC	2	Up to 8	Yes	On a DIN rail	15	-15	8	2	LED indication
	ORF-10-220-460VAC	Phase relay ORF-10. 3 p. 2 AC cont. 220-460 V AC ONI	220-460 V AC	2	Up to 8	No	On a DIN rail	2...20	-20...2	5-15	0,1... 10	LED indication
	ORF-10-127-265VAC	Phase relay ORF 2 cont. controlling neutral line 127-265 V AC ONI	127-265 V AC	2	Up to 8	Yes	On a DIN rail	2...20	-20...2	5-15	0,1... 10	LED indication
 NEW	ORF-SN-070-400VAC	Phase relay ORF-3 p. 2 cont. 70-400 V AC controlling neutral line ONI										
 NEW	ORF-SP-130-650VAC	Phase relay ORF-3 p. 2 cont. 130-650 V AC ONI										

Product ID	Name	Phase sequence control feature	Phase breakage control feature
ORF-06D-220-460VAC	Phase relay ORF-06D 3 p. 2 cont. 220-460 V AC ONI	Yes	Yes
ORF-06D-127-265VAC	Phase relay ORF-06D 3 p. 2 cont. 127-265 V AC controlling neutral line ONI	Yes	Yes
ORF-08D-220-460VAC	Phase relay ORF-08D 3 p. 2 cont. 220-460 V AC ONI	Yes	Yes
ORF-08D-127-265VAC	Phase relay ORF-08D 3 p. 2 cont. 127-265 V AC controlling neutral line ONI	Yes	Yes
ORF-10-220-460VAC	Phase relay ORF-10 3 p. 2 cont. 220-460 V AC ONI	Yes	Yes
ORF-10-127-265VAC	Phase relay ORF-10 3 p. 2 cont. 127-265 V AC controlling neutral line ONI	Yes	Yes

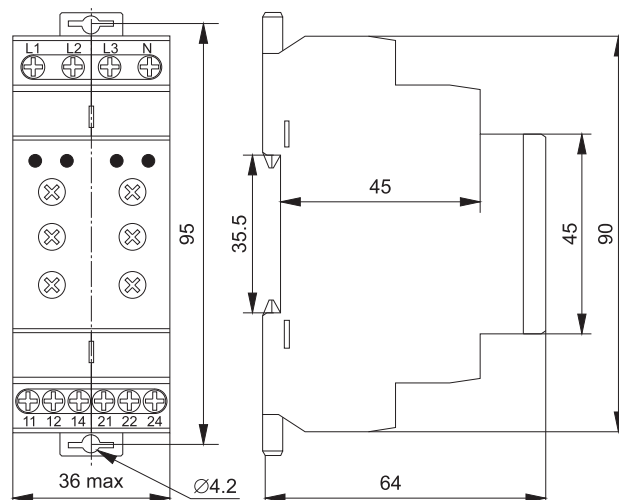
GENERAL SPECIFICATIONS AND OPERATION CONDITIONS

Parameter	Value	
Type	No neutral control feature (L-L)	With neutral control feature (L-N)
Control voltage	220-460 V AC	127-265 V AC
Number of changeover contacts	2	2
Switching current	Up to 8 A	Up to 8 A
Operation indication	LED indication	LED indication
Mounting method	On a DIN rail	On a DIN rail
Measured voltage range	176-552 V AC	101-318 V AC

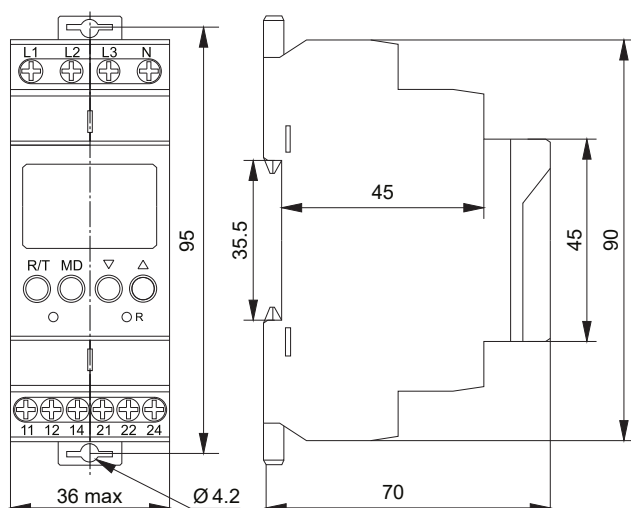
OVERALL DIMENSIONS, MM



a) ORF-06D; ORF-08D

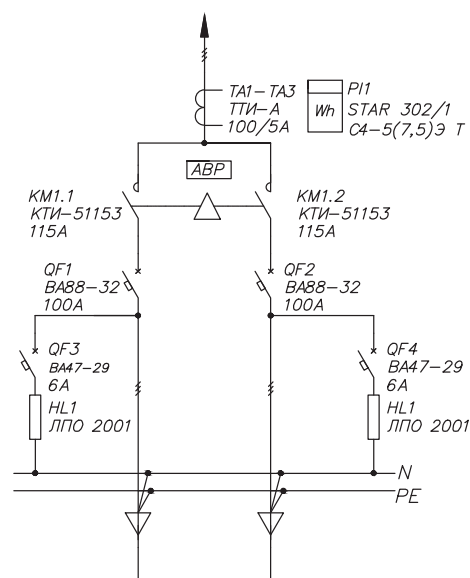


b) ORF-10



c) ORF-S

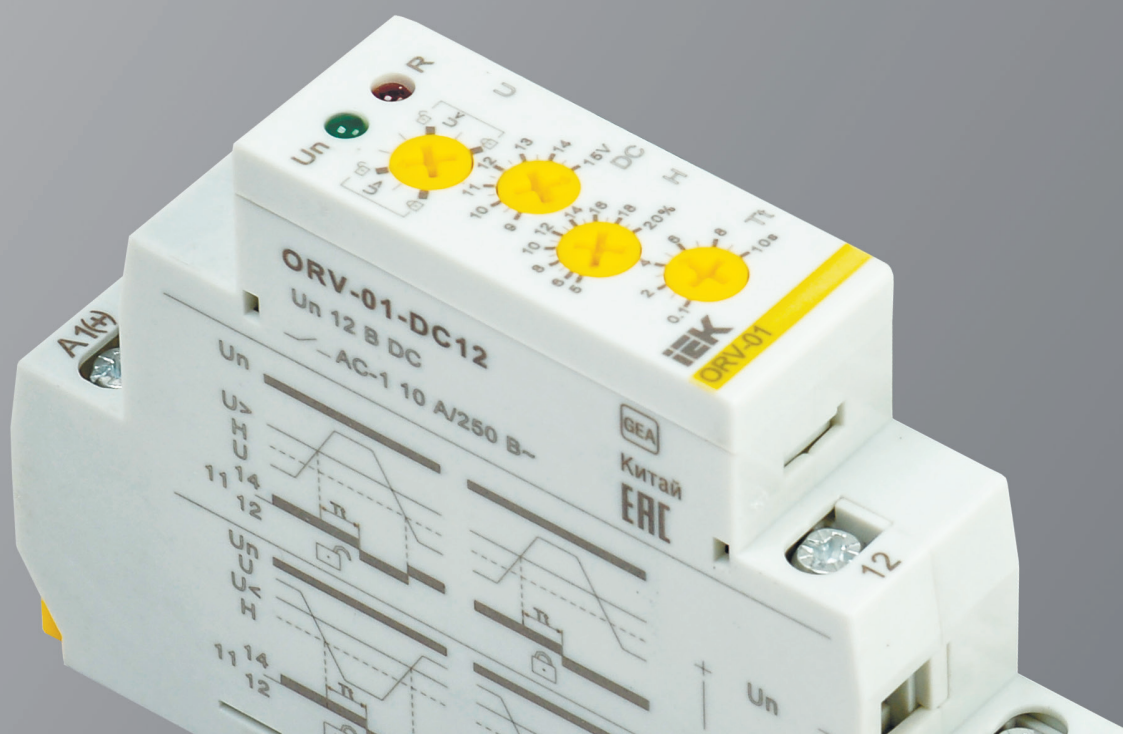
Metal assembling case for incoming and distribution switchboard with an automatic transfer switch receives, distributes and measures electric energy in 380/220 V mains of three-phase alternating current 50 Hz frequency, as well as protects the lines in case of overloads and short circuit.



Item	Designation	Product ID	Name	Q-ty	Note
1	QF1, QF2	SVA10-3-0100-R	Circ. break. BA88-32 3P 100 A 25 kA IEK	2	
2	KM1.1, KM1.2	KKT53-115-230-10	Contactors KTI-51153 reverse 115 A 230 V/AC3 IEK	1	
3	TA1-TA3	ITI10-2-05-0100	Current transf. TTI-A 100/5 A 5 VA 0.5 IEK	3	
4	PI1	CCE-3C4-1-02-1	Three-phase electric energy meter STAR 302/1 C4-5(7,5)3 T	1	
5	QF3, QF4	MVA20-1-006-C	Circ. break. VA47-29 1P 6 A spec IEK	2	
6	HL1, HL2	LLP00-2001-1-08-K01	Luminaire LPO 2001, 8 W IEK	2	
7		ORF-06-220-460VAC	Phase relay ORF IEK	2	
8		YKM2-C3-2084-31	Full-weld floor cabinet of TITAN metal assembling case for incoming and distribution switchboard-2 20.80.45 IP31	1	
9		YKV10-PM-500-730	Mounting panel 500×730 SMART	1	1 pack. (2 pcs.)
10		YKV10-PM-250-730	Mounting panel 250×730 SMART	1	1 pack. (2 pcs.)
11		YKV10-UV-600 1	Vertical angle 600 TITAN	1	4 pack. (8 pcs.)
12		YKV10-UV-1100	Vertical angle 1100 TITAN	1	2 pack. (4 pcs.)
13		YKV10-PB-2045-31	Side panel for metal assembling case for incoming and distribution switchboard 20.XX.45 IP31 TITAN (for a project)	1	1 pack. (2 pcs.)



RELAY AUTOMATION IEK®



- Control and management relay
- Intermediate and interface relay

Control and management relay

Relay automation devices IEK® are a reliable and cost-effective solution that can be utilized in various electric circuits switching and automation systems.



Advantages

- Versions with adjustments and with fixed settings.
- Simple and convenient indication of operation modes.
- Wide range of operational voltages.
- Hardware components from the leading global manufacturers.

- Mounting on a standard DIN rail.
- Case is made of non-flammable materials.

Phase control relay

Designed to control electric mains parameters (phase sequencing and breakage, unbalance, over-/under-voltage) and transfer commands to actuation devices.

Product ID decoding

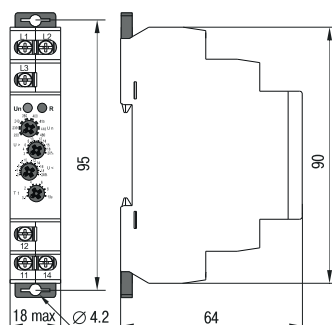
ORF-03-220-460VAC

	Series
	Relay Model: 03; 04; 05; 08
	Rated supply voltage
	Current type: AC

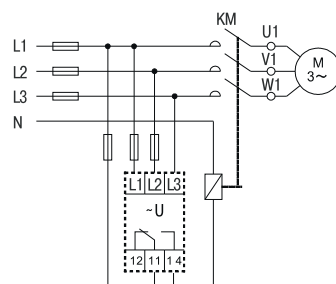
	Name	Voltage U	Voltage <U, %	Skewness voltage	Delay	Phase sequence fault Fases	Open- circuit current, A	Switching current, A	Quantity of contact groups	Product ID
	Phase relay ORF 03. — 3 p. 220-460 V AC	—	—	—	—	+	+	10	1	ORF-03-220-460VAC
	Phase relay ORF 04. 2÷20 3 p. 220-460 V AC	—	-20÷2	—	0.1÷10	+	+	10	1	ORF-04-220-460VAC
	Phase relay ORF 05. 2÷20 3 p. 220-460 V AC	—	-20÷2	8	0.1÷10	+	+	10	1	ORF-05-220-460VAC
	Phase relay ORF 06. 2÷20 3 p. 220-460 V AC	—	-20÷2	5-15	2	+	+	10	1	ORF-06-220-460VAC
	Phase relay ORF 08. 15 3 p. 220-460 V AC	—	-15	8	2	+	+	10	1	ORF-08-220-460VAC

Note. "+" – feature is available, "—" – feature is unavailable.

Overall dimensions, mm



Connection diagrams

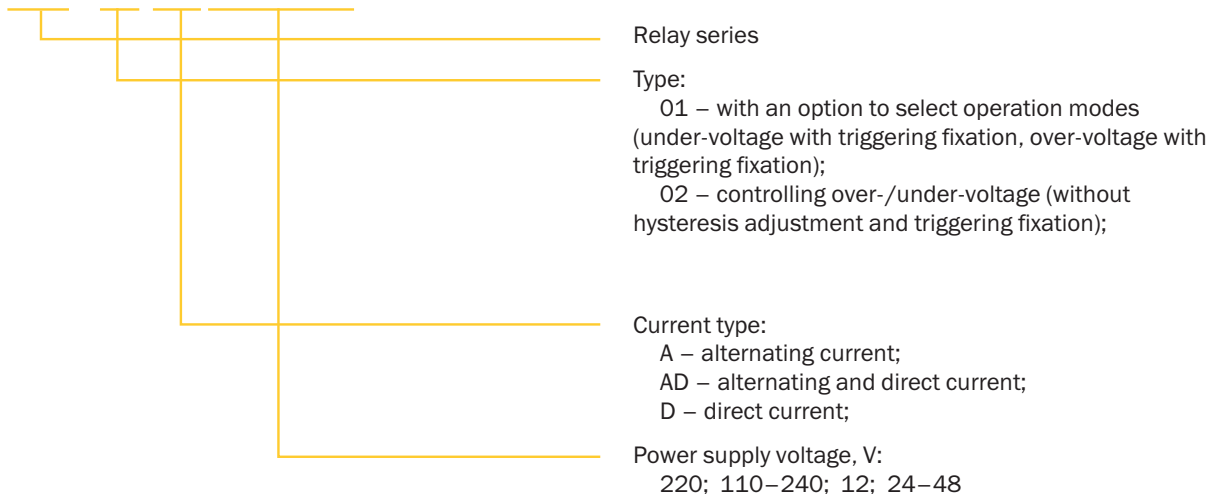


Voltage control relay

Designed to control electrical mains voltage parameters and issue commands to actuating elements.

Product ID decoding

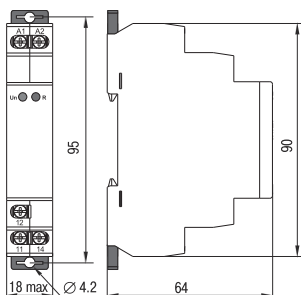
ORV-01-AD110-240



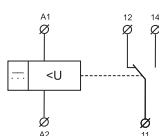
	Name	Rated voltage, V	Over-voltage control	Under-voltage control	Hysteresis, %	Switching current, A	Product ID
	Voltage relays ORV. 1 p. 110–240 V AC/DC	110–240	+	+	5–20	10	ORV-01-AD110-240
	Voltage relays ORV. 1 p. 12 V DC	12	+	+	5–20	10	ORV-01-DC12
	Voltage relays ORV. 1 p. 220 V AC	220	+	+	5–20	10	ORV-01-A220
	Voltage relays ORV. 1 p. 24–48 V AC/DC	24–48	+	+	5–20	10	ORV-01-AD48
	Over-voltage relay ORV. 1 p. 110–240 V AC/DC	110–240	+	+	3	10	ORV-02-AD110-240
	Over-voltage relay ORV. 1 p. 12 V DC IEC	12	+	+	3	10	ORV-02-DC12
	Over-voltage relay ORV. 1 p. 220 V AC IEC	220	+	+	3	10	ORV-02-A220
	Over-voltage relay ORV. 1 p. 24–48 V AC/DC ONI IEC	24–48	+	+	3	10	ORV-02-AD48

* When this mode is selected.

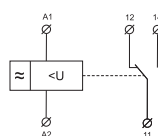
Overall dimensions, mm



Electric schematic diagrams



a) connection to direct current mains



a) connection to alternating current mains

Current control relay

Designed to control electric current parameters in the mains and issue commands to actuating elements*.

Product ID decoding

ORI-01-05



Series

Type: 01 – measuring only
alternating current

Measured current range

05 – 0.05...0,5 A

1 – 0.1...1 A

2 – 0.2...2 A

5 – 0.5...5 A

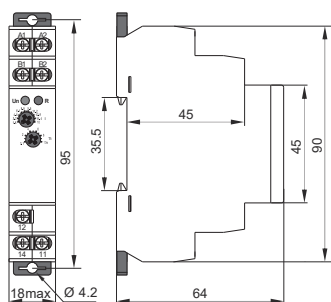
8 – 0.8...8 A

16 – 1.6...16 A

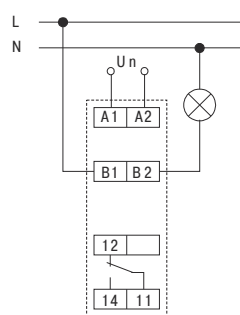
	Name	Measured current range, A	Switching current, A	Quantity of contact groups	Product ID
	Current relay ORI. 0.05–0,5 A 24–240 V AC/24 V DC IEC	0.05–0.5	10	1	ORI-01-05
	Current relay ORI. 0.1–1 A 24–240 V AC/24 V DC IEC	0.1–1	10	1	ORI-01-1
	Current relay ORI. 0.2–2 A 24–240 V AC/24 V DC IEC	0.2–2	10	1	ORI-01-2
	Current relay ORI. 0.5–5 A 24–240 V AC/24 V DC IEC	0.5–5	10	1	ORI-01-5
	Current relay ORI. 0.8–8 A 24–240 V AC/24 V DC IEC	0.8–8	10	1	ORI-01-8
	Current relay ORI. 1.6–16 A 24–240 V AC/24 V DC IEC	1.6–16	10	1	ORI-01-16

* Measured current – AC 50 Hz.

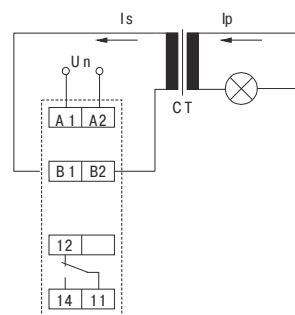
Overall dimensions, mm



Relay connection diagrams

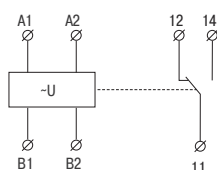


a) without current transformer



a) with current transformer

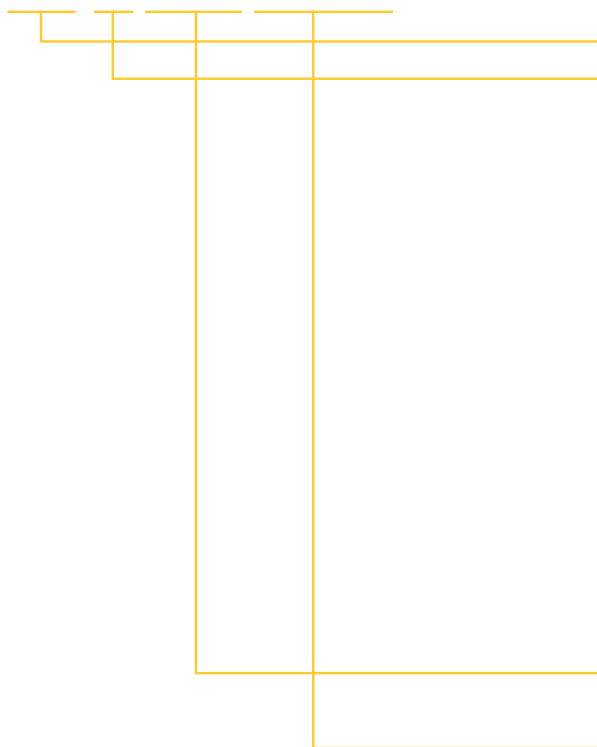
Electric schematic diagram



Time relay

Product ID decoding

ORT-2T-ACDC12-240V



Relay series

Type:

- O2T – dual-channel with two independent setpoints for actuation time;
- A1 – with delay for turn-on and one changeover contact;
- A2 – with delay for turn-on and two changeover contacts;
- B1 – with delay for turn-off and one changeover contact;
- B2 – with delay for turn-off and two changeover contacts;
- D – with delay for turn-off at power off and one changeover contact;
- M1 – multifunctional with one changeover contact;
- M2 – multifunctional with two changeover contacts;
- S1 – cyclic with one changeover contact;
- S2 – cyclic with two changeover contacts;
- ST – "star – delta" start relay

Current type:

ACDC; AC

Rated supply current voltage, V

12–240; 230; 400

On and Off delay relay

Designed for turning on and off the consumers with an established time delay after power on. Applied in industrial and household automation systems.

	Name	Number of contacts	Rated voltage, V	Product ID
	Turn-on delay relay ORT. 1 cont. 230 V AC	1	230	ORT-A1-AC230V
	Turn-on delay relay ORT. 2 cont. 230 V AC	2	230	ORT-A2-AC230V
	Turn-off delay relay ORT. 1 cont. 230 V AC	1	230	ORT-B1-AC230V
	Turn-off delay relay ORT. 2 cont. 230 V AC	2	230	ORT-B2-AC230V
	Turn-on delay relay ORT. 1 cont. 12–240 V AC/DC	1	12–240	ORT-A1-ACDC12-240V
	Turn-on delay relay ORT. 2 cont. 12–240 V AC/DC	2	12–240	ORT-A2-ACDC12-240V
	Turn-off delay relay ORT. 1 cont. 12–240 V AC/DC	1	12–240	ORT-B1-ACDC12-240V
	Turn-off delay relay ORT. 2 cont. 12–240 V AC/DC	2	12–240	ORT-B2-ACDC12-240V

Two-channel timing relay

Designed for automatic switching on of electrotechnical equipment with delay after power on. Applied in industrial and household automation systems.



Name	Rated voltage, V	Switching current, A	Quantity of contact groups	Product ID
Time relay ORT 2 cont. 2 setp. 230 V AC	230	16 (8)*	2	ORT-2T-AC230V
Time relay ORT 2 cont. 2 setp. 12-240 V AC/DC	12-240	16 (8)*	2	ORT-2T-ACDC12-240V

* Rated current value 16 A – for single installation or installation with at least 18 mm gap.
Rated current value 8 A when products are installed closely.

Multi-functional timing relay

Designed for time delays, cyclic switching on/off the equipment via one of ten operation modes, selected by a user.



Name	Rated voltage, V	Quantity of contact groups	Product ID
Multif. time relay ORT 1 cont. 12-240 V AC/DC	12-240	1	ORT-M1-ACDC12-240V
Multif. time relay ORT 1 cont. 230 V AC	230	1	ORT-M1-AC230V



Multif. time relay ORT 2 cont. 12-240 V AC/DC	12-240	2	ORT-M2-ACDC12-240V
Multif. time relay ORT 2 cont. 230 V AC	230	2	ORT-M2-AC230V

* Rated current value 16 A – for single installation or installation with at least 18 mm gap.
Rated current value 8 A when products are installed closely.

Cyclic timing relay

Designed for cyclic switching on and off of industrial and household equipment for the time specified by a user.



Name	Rated voltage, V	Switching current, A	Quantity of contact groups	Product ID
Cycl. relay ORT. 1 cont. 230 V AC	230	16 (8)*	1	ORT-S1-AC230V
Cycl. relay ORT. 2 cont. 230 V AC	230	16 (8)*	2	ORT-S2-AC230V



Cycl. relay ORT. 1 cont. 12-240 V AC/DC	12-240	16 (8)*	1	ORT-S1-ACDC12-240V
Cycl. relay ORT. 2 cont. 12-240 V AC/DC	12-240	16 (8)*	2	ORT-S2-ACDC12-240V

* Rated current value 16 A – for single installation or installation with at least 18 mm gap.
Rated current value 8 A when products are installed closely.

Off delay relay upon power shutdown

Designed for automatic switching off the electrotechnical equipment with delay after power shutdown.

	Name	Rated Voltage B	Rated current, A	Quantity of the contacts	Product ID
	Off relay at power shutd. ORT. 12-240 V AC/DC	230 12-240	16 (8)*	1	ORT-D-ACDC12-240V

«Star – delta» start relay

Designed to launch the electric motors based on "star – delta" diagram using an established time delay on the start in "star" mode and with subsequent transition of an electric motor to "delta" mode, with delay of an established time between switching from the "star" to "delta" mode.

	Name	Rated voltage, V	Switching current, A	Quantity of contact groups	Product ID
	«Star – delta» start relay ORT. 400 V AC 400		16 (8)*	2	ORT-ST-AC400V
	«Star – delta» start relay ORT. 12-230 V 12-240 AC/DC		16 (8)*	2	ORT-ST-ACDC12-240V

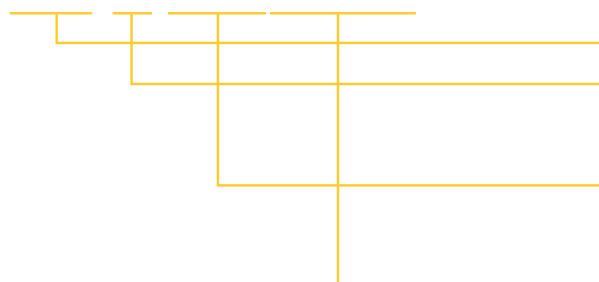
* Rated current value 16 A – for single installation or installation with at least 18 mm gap.
Rated current value 8 A when products are installed closely.

Pulse relays

Designed for turning on and off the consumers in industrial and household automation systems from several locations using buttons connected in parallel.

Product ID decoding

ORM-01-ACDC12-240V



Relay series

Type:

- 01 – with one changeover contact;
- 02 – with two changeover contacts.

Current type:

- AC – alternating current;
- ACDC – alternating and direct current.

Power supply voltage, V:

- 230; 12–240



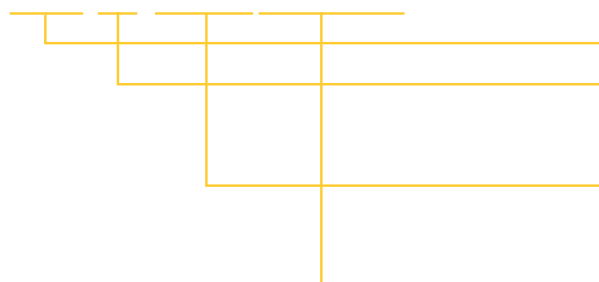
Name	Rated voltage, V	Number of contacts	Switching current, A	Product ID
Pulse relay ORM. 1 cont. 230 V AC	230	1	16	ORM-01-AC230
Pulse relay ORM. 1 cont. 12-240 V AC/DC	12-240	1	16	ORM-01-ACDC12-240V
Pulse relay ORM. 2 cont. 230 V AC	230	2	16	ORM-02-AC230
Pulse relay ORM. 2 cont. 12-240 V AC/DC	12-240	2	16	ORM-02-ACDC12-240V

Level switch

Designed to control level of conductive liquids, manage pumps and alarm the equipment state.

Product ID decoding

ORL-01-ACDC24-240V



Relay series

Type:

- 01 – supporting two levels of liquid;
- 02 – supporting one or two levels of liquid (mode selection: drainage/filling)

Current type:

- ACDC – alternating and direct current.

Power supply voltage, V:

- 24–240



Name	Q-ty of controlled levels	Switching current, A	Quantity of contact groups	Product ID
Level relay ORL 24-240 V AC/DC	2	10	1	ORL-01-ACDC24-240V
Fill/drain relay ORL 24-240 V AC/DC	1 or 2	10	1	ORL-02-ACDC24-240V

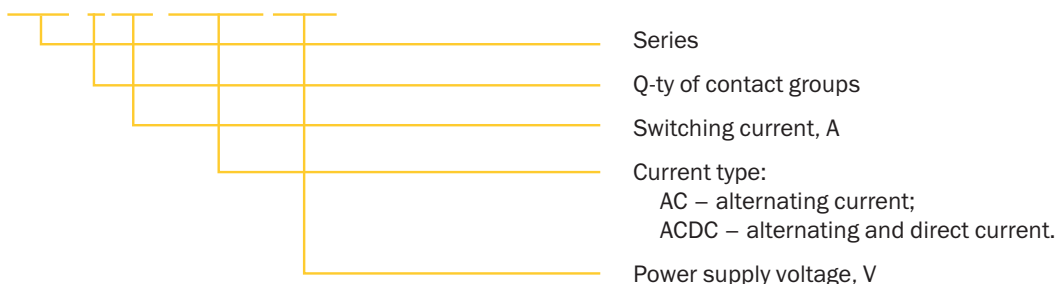
Intermediate and interface relay

Intermediate module relay

Designed to provide galvanic isolation and switch electric and alarm circuits.

Product ID decoding

OIR-116-ACDC12V



	Name	Rated coil voltage, V	Rated contact current, A	Quantity of contact groups	Product ID
	Interm. relay OIR 1 cont. (16 A) 12 V AC/DC	12	16	1	OIR-116-ACDC12V
	Interm. relay OIR 1 cont. (16 A) 48 V AC/DC	48	16	1	OIR-116-ACDC48V
	Interm. relay OIR 1 cont. (16 A) 24 V AC/DC	24	16	1	OIR-116-ACDC24V
	Interm. relay OIR 1 cont. (16 A) 110 V AC/DC	110	16	1	OIR-116-ACDC110V
	Interm. relay OIR 1 cont. (16 A) 230 V AC	230, 24	16	1	OIR-116-AC230V
	Interm. relay OIR 2 cont. (8 A) 12 V AC/DC	12	8	2	OIR-208-ACDC12V
	Interm. relay OIR 2 cont. (8 A) 24 V AC/DC	24	8	2	OIR-208-ACDC24V
	Interm. relay OIR 2 cont. (8 A) 48 V AC/DC	48	8	2	OIR-208-ACDC48V
	Interm. relay OIR 2 cont. (8 A) 110 V AC/DC	110	8	2	OIR-208-ACDC110V
	Interm. relay OIR 2 cont. (8 A) 230 V AC	230, 24	8	2	OIR-208-AC230V
	Interm. relay OIR 3 cont. (8 A) 12 V AC/DC	12	8	3	OIR-308-ACDC12V
	Interm. relay OIR 3 cont. (8 A) 24 V AC/DC	24	8	3	OIR-308-ACDC24V
	Interm. relay OIR 3 cont. (8 A) 48 V AC/DC	48	8	3	OIR-308-ACDC48V
	Interm. relay OIR 3 cont. (8 A) 110 V AC/DC	110	8	3	OIR-308-ACDC110V
	Interm. relay OIR 3 cont. (8 A) 230 V AC	230, 24	8	3	OIR-308-AC230V
	Interm. relay OIR 3 cont. (16 A) 12 V AC/DC	12	16	3	OIR-316-ACDC12V
	Interm. relay OIR 3 cont. (16 A) 24 V AC/DC	24	16	3	OIR-316-ACDC24V
	Interm. relay OIR 3 cont. (16 A) 230 V AC	230	16	3	OIR-316-AC230V

Interface relay

Designed to provide galvanic isolation and switch electric and alarm circuits.

Unlike intermediate relays, they have a compact size and can be connected directly to programmable logic controllers.

	Name	H×D×W, mm	Rated switched current, A	Terminal type	Q-ty of contact groups	Product ID
	Interf. relay ORM 3. 1NO+1NC. 24 V DC	135×80×6,2	6 AC/5 DC	Spring-type	1	ORM-41F-3

Intermediate relay REK

Intermediate relays of the modular series REK77 and REK78 are designed to issue management commands by actuating elements via switching their electric circuits using changeover contacts. Relays are connected using modular sockets RRM77 and RRM78, installed on a 35 mm mounting DIN rail.

The sockets are integrated with output clamps of changeover contacts and coil.

Relays are equipped with silver-containing contacts.



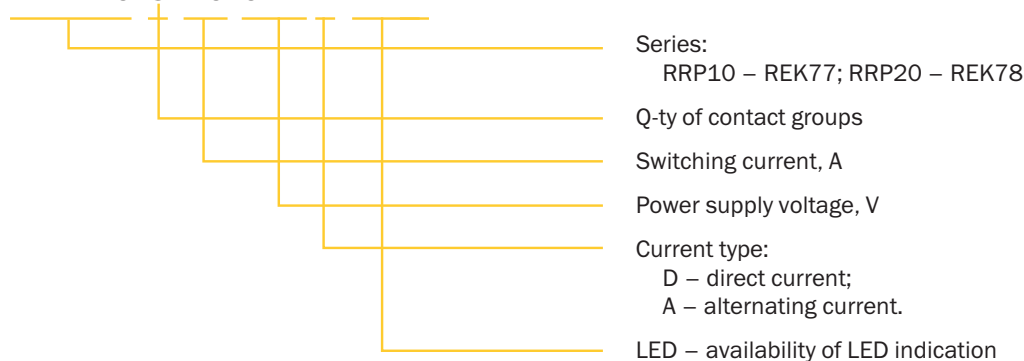
Advantages

- Higher rated current of the contacts in comparison to intermediate relay RP 21 enables utilization of REK series relays in circuits up to 10 A.
- Any operating position in space.
- REK series relays have smaller dimensions, enabling more rational arrangement of devices on mounting surfaces.

- Utilization of silver-containing contacts enhances their durability.
- Relay can be equipped with modular sockets for fixation on a DIN rail and using screws.
- Indication shows relay state.

Product ID decoding

RRP10-3-10-012D-LED



Product range

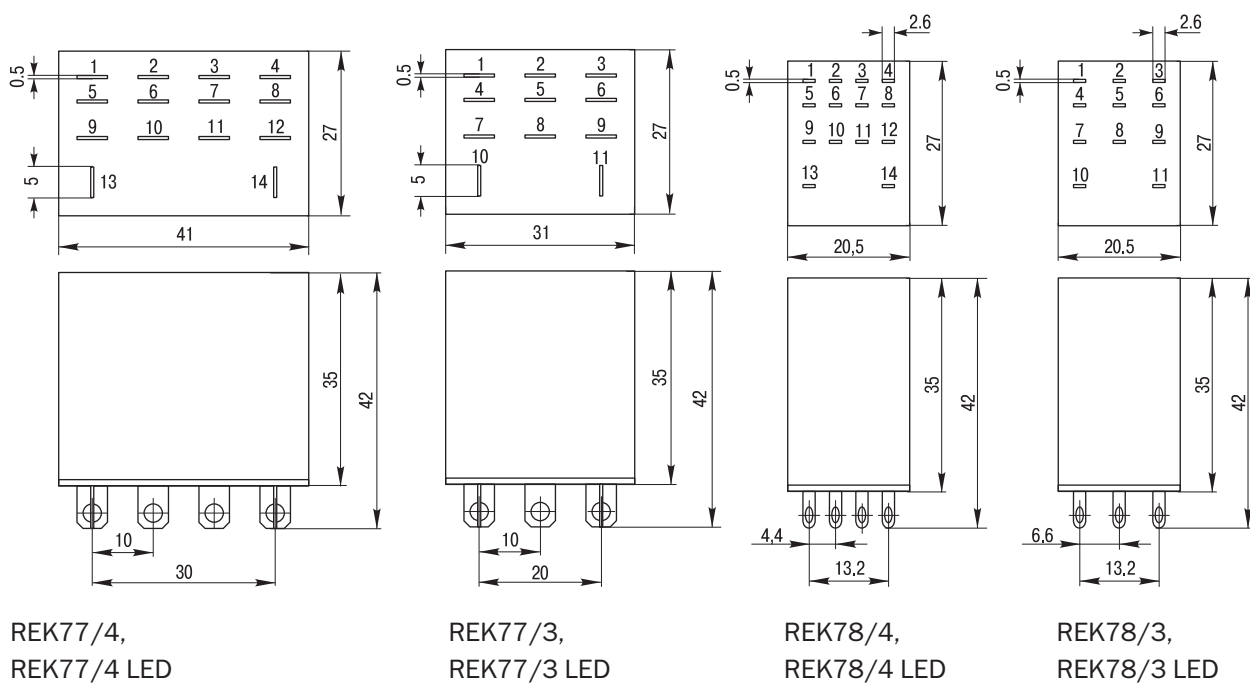
	Name	Rated contact current, A	Rated voltage of the control coil, V	Quantity in a pack.	Quantity in a transp. box	Product ID
	Modular socket RRM77/3 for REK77/3			10	400	RRP10D-RRM-3
	Modular socket RRM77/4 for REK77/4			10	400	RRP10D-RRM-4
	Relay REK77/3 10 A 12 V DC	10	12	20	300	RRP10-3-10-012D
	Relay REK77/3 10 A 12 V AC	10	12	20	300	RRP10-3-10-012A
	Relay REK77/3 10 A 24 V DC	10	24	20	300	RRP10-3-10-024D
	Relay REK77/3 10 A 24 V AC	10	24	20	300	RRP10-3-10-024A
	Relay REK77/3 10 A 230 V AC	10	230	20	300	RRP10-3-10-220A
	Relay REK77/3(LY3) with indication 10 A 12 V DC	10	12	20	300	RRP10-3-10-012D-LED
	Relay REK77/3(LY3) with indication 10 A 12 V AC	10	12	20	300	RRP10-3-10-012A-LED
	Relay REK77/3(LY3) with indication 10 A 220 V AC	10	230	20	300	RRP10-3-10-220A-LED
	Relay REK77/3(LY3) with indication 10 A 24 V DC	10	24	20	300	RRP10-3-10-024D-LED
	Relay REK77/3(LY3) with indication 10 A 24 V AC	10	24	20	300	RRP10-3-10-024A-LED
	Relay REK77/4 10 A 12 V DC	10	12	20	300	RRP10-4-10-012D
	Relay REK77/4 10 A 12 V AC	10	12	20	300	RRP10-4-10-012A
	Relay REK77/4 10 A 24 V DC	10	24	20	300	RRP10-4-10-024D
	Relay REK77/4 10 A 24 V AC	10	24	20	300	RRP10-4-10-024A
	Relay REK77/4 10 A 230 V AC	10	230	20	300	RRP10-4-10-220A
	Relay REK77/4(LY4) with indication 10 A 12 V DC	10	12	20	300	RRP10-4-10-012D-LED
	Relay REK77/4(LY4) with indication 10 A 12 V AC	10	12	20	300	RRP10-4-10-012A-LED
	Relay REK77/4(LY4) with indication 10 A 220 V AC	10	230	20	300	RRP10-4-10-220A-LED
	Relay REK77/4(LY4) with indication 10 A 24 V DC	10	24	20	300	RRP10-4-10-024D-LED
	Relay REK77/4(LY4) with indication 10 A 24 V AC	10	24	20	300	RRP10-4-10-024A-LED

	Name	Rated contact current, A	Rated voltage of the control coil, V	Quantity in a pack.	Quantity in a transp. box	Product ID
	Modular socket RRM78/3 for REK78/3			20	600	RRP20D-RRM-3
	Modular socket RRM78/4 for REK78/4			20	600	RRP20D-RRM-4
	REK78/3 5 A 12 V DC	5	12	20	500	RRP20-3-05-012D
	REK78/3 5 A 12 V AC	5	12	20	500	RRP20-3-05-012A
	REK78/3 5 A 24 V DC	5	24	20	500	RRP20-3-05-024D
	REK78/3 5 A 24 V AC	5	24	20	500	RRP20-3-05-024A
	REK78/3 5 A 230 V AC	5	230	20	500	RRP20-3-05-220A
	Relay REK78/3(MY3) with indication 5 A 12 V DC	5	12	20	500	RRP20-3-05-012D-LED
	Relay REK78/3(MY3) with indication 5 A 12 V AC	5	12	20	500	RRP20-3-05-012A-LED
	Relay REK78/3(MY3) with indication 5 A 24 V DC	5	24	20	500	RRP20-3-05-024D-LED
	Relay REK78/3(MY3) with indication 5 A 24 V AC	5	24	20	500	RRP20-3-05-024A-LED
	Relay REK78/3(MY3) with indication 5 A 220 V AC	5	230	20	500	RRP20-3-05-220A-LED
	REK78/4 3 A 12 V DC	3	12	20	500	RRP20-4-03-012D
	REK78/4 3 A 12 V AC	3	12	20	500	RRP20-4-03-012A
	REK78/4 3 A 24 V DC	3	24	20	500	RRP20-4-03-024D
	REK78/4 3 A 24 V AC	3	24	20	500	RRP20-4-03-024A
	REK78/4 3 A 230 V AC	3	230	20	500	RRP20-4-03-220A
	Relay REK78/4(MY4) with indication 3 A 12 V DC	3	12	20	500	RRP20-4-03-012D-LED
	Relay REK78/4(MY4) with indication 3 A 12 V AC	3	12	20	500	RRP20-4-03-012A-LED
	Relay REK78/4(MY4) with indication 3 A 24 V DC	3	24	20	500	RRP20-4-03-024D-LED
	Relay REK78/4(MY4) with indication 3 A 24 V AC	3	24	20	500	RRP20-4-03-024A-LED
	Relay REK78/4(MY4) with indication 3 A 220 V AC	3	230	20	500	RRP20-4-03-220A-LED

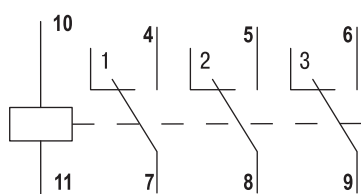
Selection guide

Intermediate relay of the modular series REK77	REK77/3 P3K77/3 with indication	REK77/4 with indication	REK78/3 REK78/3 with indication	REK78/4 REK78/4 with indication
Rated contact current, A	10	10	5	3
Number of changeover contact groups	3	4	3	4
Rated voltage of the control coil, V				
AC	12; 24; 230	12; 24; 230	12; 24; 230	12; 24; 230
DC	12; 24	12; 24	12; 24	12; 24
Type of a socket connected	RRM77/3	RRM77/4	RRM78/3	RRM78/4

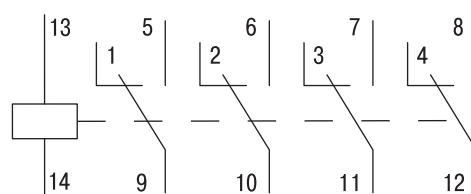
Overall dimensions, mm



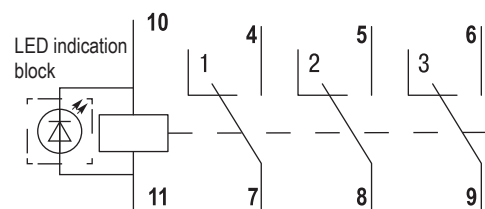
Connection diagrams



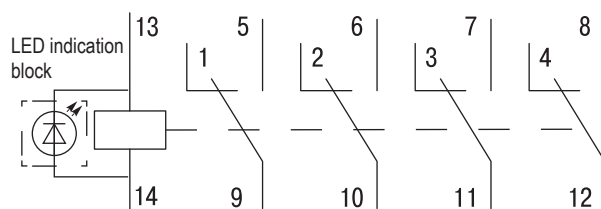
REK77/3, REK78/3



REK77/4, REK78/4



REK77/3 LED and REK78/3 LED



REK77/4 LED and REK78/4 LED



FREQUENCY CONVERTERS

Frequency converters are widely used to manage synchronous and asynchronous electric motors in many sectors: primary and secondary industries, construction and housing and utilities infrastructure, power industry and transport, food industry, ventilation and water supply systems.



ADVANTAGES

- Wide selection of models for various operation conditions.
- High overload capacity and starting torque.
- Industry-wide and specialized models.
- Compatibility with industrial protocols: Modbus RTU, Profibus DP, Profinet TCP/IP, CanOpen, etc.
- Display with convenient indication for parameter configuration and control.
- Remote control in a delivery set.
- Reliable power terminal connections.
- Protective varnish coating on boards, enhancing equipment service life.
- Configuration using a console or specialized software.
- Remote connection of the frequency converter console.

FREQUENCY CONVERTERS A150 ONI®

Frequency converters (FC) A150 ONI® offer all basic features for simple industrial applications and meet all expectations of OEM customers and switchboard engineers. Frequency converters A150 are easy to put into operation, so they are great for motor control in simple situations. Built-in brake module expands A150 capabilities in operation with high inertial mechanisms.

Primary scope of application of FC ONI® A150:

- Ventilation management system.
- Simple systems and installations with diverse operation algorithms.
- Control cabinet for operation with small power pumps without cascade control.

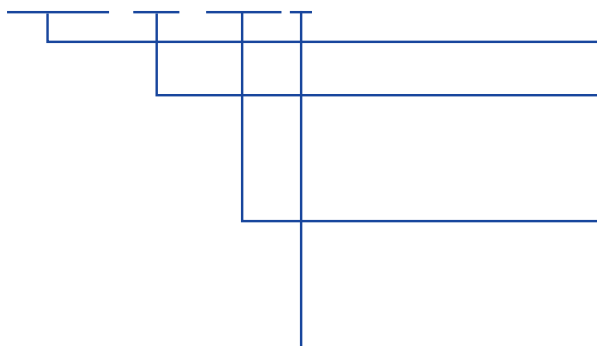
ADVANTAGES

- Control panel with built-in potentiometer in a standard configuration.
- Expansion boards: increasing inputs/ outputs, relay outputs, Modbus RTU protocol.
- Scalar and vector control without feedback.
- Built-in brake module for warehouse products.



PRODUCT ID DECODING

A150-33-22NT



A150 – model and series of the converter

Voltage:

21 – 220÷240 V 1 p. **23** – 220÷240 V 3 p.

33 – $380 \div 480$ V 3 p. 63 – $660 \div 720$ V 3 p.

Power, HD mode:

0.75 kW – 075

2,2 kW – 22

30 kW – 30

Brake transistor:

T – built-in; **N** – none

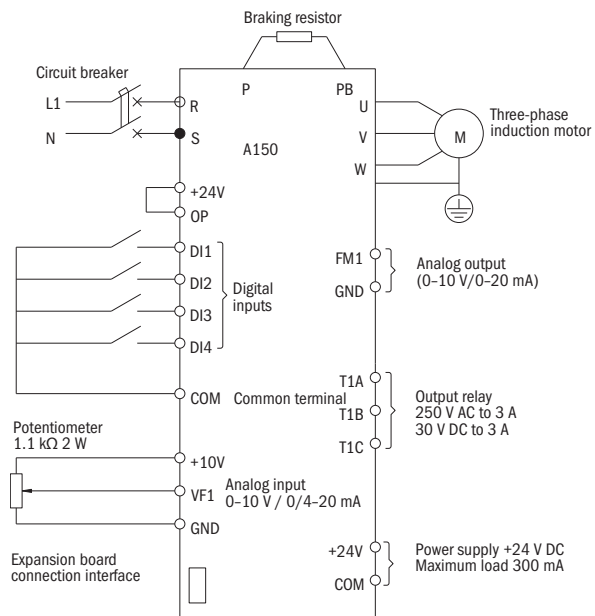
SPECIFICATIONS

Parameter		Value
Control method		V/f. Vector control with open circuit (SVC)
Frequency accuracy		Digital value: 0.02 %. Analog value: 0.1 %
Curve V/f		Linear, square, arbitrary V/f
Overload capacity		HD: 150 % of rated current 60 s; 180 % of rated current 3 s
Starting torque		HD: 0.5 Hz/ 150 % (SVC)
Speed regulation limits		1:100 (SVC)
Speed control accuracy		±0.5% (SVC)
Torque compensation		Torque compensation, manual configuration (0.1÷30.0 %) Automatic torque compensation
Inputs/Outputs	Power supply +24 V	Maximum output current 300 mA, no overload protection
	Input terminals	4 digital inputs DI1÷DI4 in basic configuration. 2 additional inputs DI5÷DI6 on an expansion board (optional). 1 analog input VF1, from 0 to 10 V or 0/4 to 20 mA. 1 additional analog input VF2 on an expansion board from 0 to 10 V (optional). Can be used as a digital input, operating on voltage level 10 V DC
	Output terminals	1 analog output FM1, from 0/4 to 10 V or from 0 to 20 mA. 1 additional analog output (FM2) from 0 to 10 V or from 0/4 to 20 mA. 1 output relay T1, DC 30 V/1 A, AC 250 V/3 A. 1 output relay on an expansion board T, DC 30 V/1 A, AC 250 V/3 A (optional)
Functions	Control sources	Keyboard, inputs/outputs, communication via RS-485 (optional)
	Frequency source	14 types of frequency sources, 14 auxiliary frequency sources. Several methods of combined switching between frequency sources
	Acceleration and deceleration time	4 periods of time of linear acceleration, S-curve 1, S-curve 2
	Emergency shutdown	Immediate shutdown of frequency converter output
	Stepped speed	Up to 16 different speeds can be set by combining switches of multiple-step speed terminals
	Inching function control	Time of operation on inching speed, direction and frequency are configured separately. A priority of inching speed can be selected
	Searching for the speed	Frequency converter monitors motor speed before the start
	Built-in PID	Can support a particular system parameter using a feedback sensor
	AVR function	Providing stable output voltage in case of mains voltage fluctuations
	DC braking	Carries out quick and stable stop
	Slip compensation	Compensates deviations of rotation speed, caused by increased load
	Frequency jumping	Interrupts operation on load resonance frequency
I/O devices	Analog input (AI)	1 point (AI: 0÷5 B, 0÷10 B (12 бит), 0/4÷20 mA (11 бит))
	Digital input (DI)	6 points
	Analog output (AO)	1 point (FM: 0÷10 B (10 bits))
	Digital output (DO)	0
	Relay output (RO)	1 point
Communication interface		RS-485, Modbus protocol (additional expansion board)

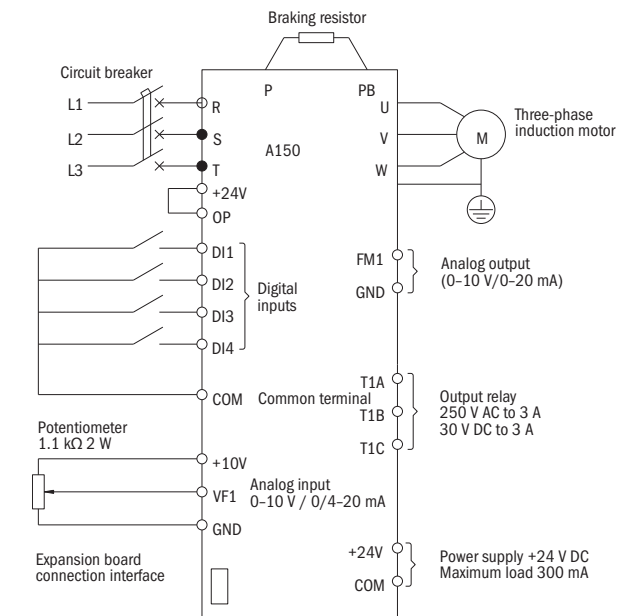
PRODUCT RANGE

	Model	Motor capacity, kW	Input current, A	Output current, A	Full power, kVA	Heat losses, kW
1 phase, 220 V, 50/60 Hz						
	A150-21-04H	0.4	5.0	3.0	0.8	0.011
	A150-21-04HT	0.4	5.0	3.0	0.8	0.011
	A150-21-075H	0.75	9	5.0	1.5	0.045
	A150-21-075HT	0.75	9	5.0	1.5	0.045
	A150-21-11N	1.1	11.7	6.5	2.0	0.023
	A150-21-11NT	1.1	11.7	6.5	2.0	0.023
	A150-21-15N	1.5	15.7	7.0	2.7	0.023
	A150-21-15NT	1.5	15.7	7.0	2.7	0.023
	A150-21-22N	2.2	27	10.0	3.8	0.062
	A150-21-22NT	2.2	27	10.0	3.8	0.062
3 phases, 380 V, 50/60 Hz (built-in brake module)						
	A150-33-075HT	0.75	3.4	4.4	1.5	0.045
	A150-33-15NT	1.5	5.0	6.0	3.0	0.066
	A150-33-22NT	2.2	5.8	6.8	4.0	0.0623
	A150-33-37NT	3.7	10.5	11	5.9	0.132
	A150-33-55NT	5.5	15.5	13	8.5	0.196
	A150-33-75NT	7.5	20.5	17	11	0.277
	A150-33-11T	11	26	25	17	0.523
	A150-33-15T	15	35	32	21	0.542

CONNECTION DIAGRAMS



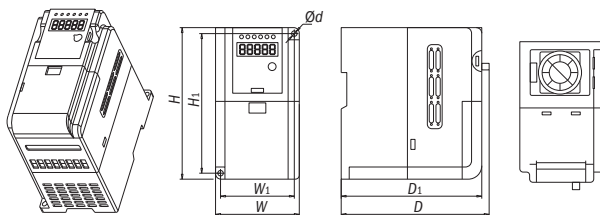
1 phase, 220 V



3 phases, 380 V

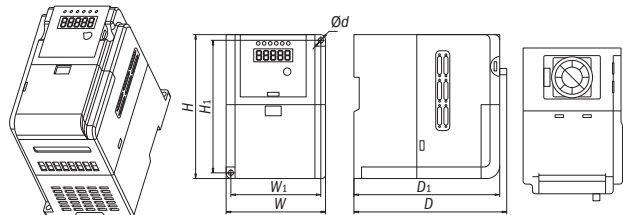
OVERALL DIMENSIONS, MM

Size 1



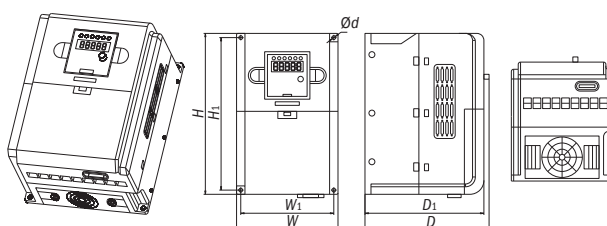
Model	W	W ₁	H	H ₁	D	D ₁	Ød
A150-21-04H	84	74	152	140	148.4	141	5.5
A150-21-04HT							
A150-21-075H							
A150-21-075HT							
A150-21-11N							
A150-21-11NT							
A150-33-075HT							
A150-33-15NT							

Size 2



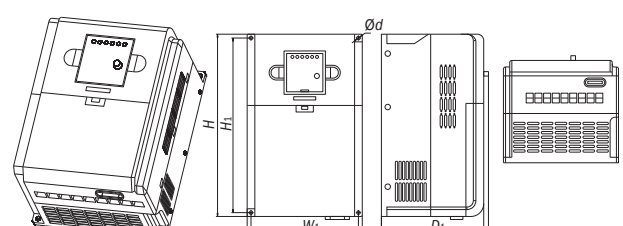
Model	W	W ₁	H	H ₁	D	D ₁	Ød
A150-21-15N	105	95	165	153	161.4	154	5.5
A150-21-15NT							
A150-21-22N							
A150-21-22NT							
A150-33-22NT							
A150-33-37NT							

Size 3



Model	W	W ₁	H	H ₁	D	D ₁	Ød
A150-33-55NT	145	133	230	218	177.4	170	5.5
A150-33-75NT							

Dimensions 4



Model	W	W ₁	H	H ₁	D	D ₁	Ød
A150-33-11T	180	168	285	273	167.4	160	5.5
A150-33-15T							



FREQUENCY CONVERTERS CONTROL-A310 IEK®*

Frequency converters CONTROL-A310 are designed to manage asynchronous electric motors in a wide range of power for industry-wide applications. CONTROL-A310 offers all required functions, providing effective, reliable and safe operation of mechanisms in technological processes. Variety of versions and detachable control panel make mounting, commissioning and maintenance of the frequency converter more convenient and simple.



ADVANTAGES

- Distance measurement function allows a consumer to control movement of an actuating mechanism.
- High resilience to overload up to 180 % for 3 s.
- Embedded RS-485 interface supporting Modbus RTU helps operate in various centralized PCS.
- Built-in DC-reactor (optional for power up to 22 kW and in basic configurations for power 200 kW and more) increases energy efficiency and provides additional equipment protection.
- Embedded PID controller enables precise maintenance of established parameters of a technological process.
- Embedded mini-PLC helps implement various logic operations without additional external devices.
- Operation with mechanisms with constant and variable torque.

* Since 2023 the products are offered under ONI trademark.

Voltage:
U – 220÷240 V; **D** – 380÷480 V;
P – 660÷720 V

Quantity of phases on input and output:
13 – single phase; **33** – three phases

Type of control:
S – scalar; **V** – vector without feedback

Power:
0037 – 0,37 kW **015** – 1,5 kW
22 – 22 kW **220** – 220 kW

Screen type:
T – LED; **C** – LCD

Control panel:
E – detachable; **N** – none

DC reactor:
L – built-in; **N** – none

Brake transistor:
Z – built-in; **N** – none

Load type:
G – heavy load;
P – light load (fan, pump);
N – none

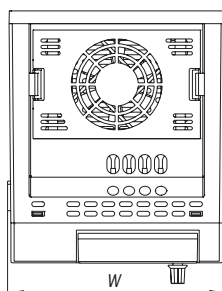
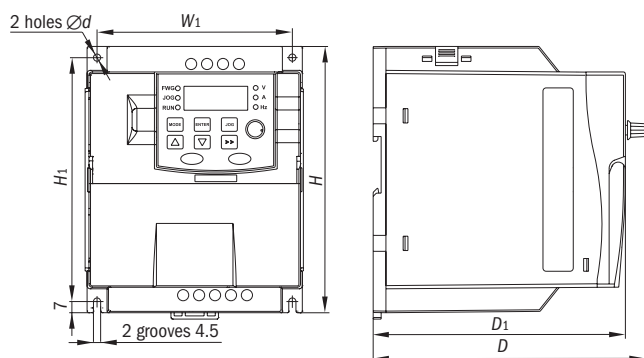
PRODUCT RANGE

	Name	Motor power, HD/ND (rat.), kW	Heat. curr. HD/ND, A	Weight, kg	Product ID
	CONTROL-A310 380 V, 3 p. 0,75 kW 2,3 A	0.75	2.3	1.40	CNT-A310D33V0075TEZ
	CONTROL-A310 380 V, 3 p. 1,5 kW 3,7 A	1.5	3.7	1.40	CNT-A310D33V015TEZ
	CONTROL-A310 380 V, 3 p. 2,2 kW 5,1 A	2.2	5.1	1.40	CNT-A310D33V022TEZ
	CONTROL-A310 380 V, 3 p. 3,7 kW 8,8 A	3.7	8.8	2.35	CNT-A310D33V037TEZ
	CONTROL-A310 380 V, 3 p. 5.5–7.5 kW 13–17 A	5.5/7.5	13/17	5.10	CNT-A310D33V055-075TEZ
	CONTROL-A310 380 V, 3 p. 7.5–11 kW 17–25 A	7.5/11	17 ~ 25	5.10	CNT-A310D33V075-11TEZ
	CONTROL-A310 380 V, 3 p. 11–15 kW 25–32 A	11/15	25/32	8.00	CNT-A310D33V11-15TEZ
	CONTROL-A310 380 V, 3 p. 15–18.5 kW 32–37 A	15/18.5	32/37	8.00	CNT-A310D33V15-18TEZ
	CONTROL-A310 380 V, 3 p. 18–22 kW 37–45 A	18.5/22	37/45	8.60	CNT-A310D33V18-22TE
	CONTROL-A310 380 V, 3 p. 18–22 kW 37–45 A, emb. brake	18.5/22	37/45	11.00	CNT-A310D33V18-22ZTEZ
	CONTROL-A310 380 V, 3 p. 18–22 kW 37–45 A, emb. DTT	18.5/22	37/45	11.90	CNT-A310D33V18-22TEL
	CONTROL-A310 380 V, 3 p. 18–22 kW 37–45 A, emb. brake and DTT	18.5/22	37/45	11.90	CNT-A310D33V18-22TELZ
	CONTROL-A310 380 V, 3 p. 22 kW 45 A	22	45	11.00	CNT-A310D33V22TE
	CONTROL-A310 380 V, 3 p. 22 kW 45 A, emb. brake	22	45	11.00	CNT-A310D33V22TEZ
	CONTROL-A310 380 V, 3 p. 22 kW 45 A, emb. DTT	22	45	11.90	CNT-A310D33V22TEL
	CONTROL-A310 380 V, 3 p. 22 kW 45 A, emb. brake and DTT	22	45	11.90	CNT-A310D33V22TELZ
	CONTROL-A310 380 V, 3 p. 30–37 kW 60–75 A	30/37	60/75	15	CNT-A310D33V30-37TE
	CONTROL-A310 380 V, 3 p. 37–45 kW 75–90 A	37/45	75/90	15	CNT-A310D33V37-45TE
	CONTROL-A310 380 V, 3 p. 45–55 kW 90–110 A	45/55	90/110	25	CNT-A310D33V45-55TE
	CONTROL-A310 380 V, 3 p. 55–75 kW 110–152 A	55/75	110/152	25	CNT-A310D33V55-75TE
	CONTROL-A310 380 V, 3 p. 75–93 kW 152–176 A	75/93	152/176	36	CNT-A310D33V75-93TE
	CONTROL-A310 380 V, 3 p. 93–110 kW 176–210 A	93/110	176/210	36	CNT-A310D33V93-110TE
	CONTROL-A310 380 V, 3 p. 110–132 kW 210–253 A	110/132	210/253	36	CNT-A310D33V110-132TE
	CONTROL-A310 380 V, 3 p. 132–160 kW 253–300 A	132/160	253/300	75	CNT-A310D33V132-160TE
	CONTROL-A310 380 V, 3 p. 160–185 kW 300–340 A	160/185	300/340	75	CNT-A310D33V160-185TE
	CONTROL-A310 380 V, 3 p. 185–200 kW 340–380 A	185/200	340/380	75	CNT-A310D33V185-200TE
	CONTROL-A310 380 V, 3 p. 200–220 kW 380–420 A	200/220	380/420	160	CNT-A310D33V200-220TEL
	CONTROL-A310 380 V, 3 p. 220 kW G 420 A	220 (HD)	420 (HD)	160	CNT-A310D33V220TEL-G
	CONTROL-A310 380 V, 3 p. 250 kW P 480 A	250 (ND)	480 (ND)	160	CNT-A310D33V250TEL-P
	CONTROL-A310 380 V, 3 p. 250–280 kW 480–540 A	250/280	480/540	180	CNT-A310D33V250-280TEL
	CONTROL-A310 380 V, 3 p. 280–315 kW 540–600 A	280/315	540/600	180	CNT-A310D33V280-315TEL
	CONTROL-A310 380 V, 3 p. 315–355 kW 600–680 A	315/355	600/680	180	CNT-A310D33V315-355TEL
	CONTROL-A310 380 V, 3 p. 355–375 kW 680–710 A	355/375	680/710	200	CNT-A310D33V355-375TEL
	CONTROL-A310 380 V, 3 p. 375–400 kW 710–750 A	375/400	710/750	200	CNT-A310D33V375-400TEL
	CONTROL-A310 380 V, 3 p. 400 kW G 750 A	400 (HD)	750 (HD)	207	CNT-A310D33V400TEL-G
	CONTROL-A310 380 V, 3 p. 500 kW G 930 A	500 (HD)	930 (HD)	215	CNT-A310D33V500TEL-G
	CONTROL-A310 380 V, 3 p. 500 kW P 930 A	500 (ND)	930 (ND)	215	CNT-A310D33V500TEL-P
	CONTROL-A310 380 V, 3 p. 630 kW G 1200 A	630 (HD)	1200 (HD)	215	CNT-A310D33V630TEL-G

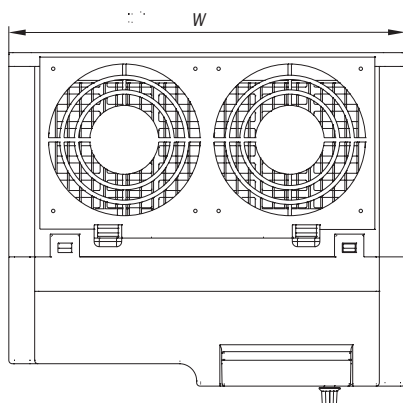
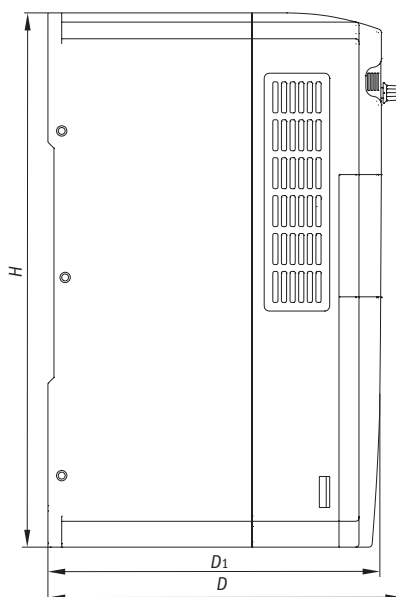
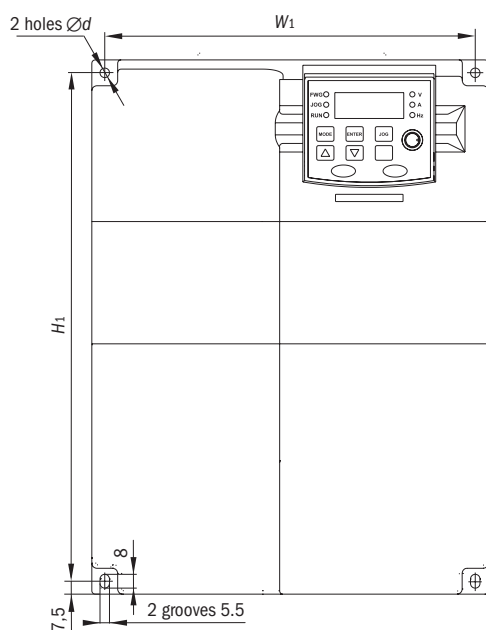
SPECIFICATIONS

Parameter		Value
Power circuit	Power network, V	380
	Supply frequency, Hz	50/60
	Output Frequency (Hz)	0 ÷ 3200
	Number of phases	3
	Braking chopper for operation with braking resistor	Models with 0.75–15 kW power – embedded, models with power starting from 18 kW – optional
Control system parameters	Control method	V/f-vector control without feedback (SVC)
	Frequency maintenance accuracy, %	±0.5
	Frequency setting accuracy, %	Digital command – 0.02
		Analog command – 0.1
	Starting torque, %	Up to 150
	Speed control range	1 ÷ 100
	Acceleration/braking time, s	0.1÷6500 (acceleration time and braking time are set independent from each other)
	V/f-templates	Linear, square, arbitrary
	Permissible loads	150 % – 1 min, 180 % – 3 s
	Functional specification*	Multi-speed operations, switching acceleration/deceleration of speed, acceleration/deceleration on S-curve, 3-wire control circuit, slip compensation, frequency jump, high/low thresholds for a frequency, direct current braking for start/stop, PID controller, logic operations, timers, etc.
	Motor protection	Yes
	Parameter setting method	Manually on a converter panel, digital and analog inputs, network protocol
	Display	Yes
Inputs/outputs	Remote control panel option	Yes
	Analog input (AI)	2 VF1 points: 0 ÷ 10 V, 0 ÷ 20 mA, VF2: –10 ÷ +10 V
	Digital input (DI)	5 points
	Analog output (AO)	1 FM1 point: 0 ÷ 10 V, 0 ÷ 20 mA
	Digital output (DO)	No
	Relay output (RO)	1 point
	PTC input	No
Environment	Installation place	Indoor. Shall not be subjected to direct sunlight, aggressive gas, oil fog, steam
	Air temperature, °C	–10...+40, relative humidity – at least 90 % without frosting and condensation
	Storage temperature, °C	–20...+65
	Altitude, m	Up to 1000
	Protection class of the case according to GOST 14254 (IEC 60529)	IP20
	Climatic version	NF 3.1
	Cooling method	Fan
Communications		Modbus RTU (RS-485 port)
Certificate		GOST

DIMENSIONS

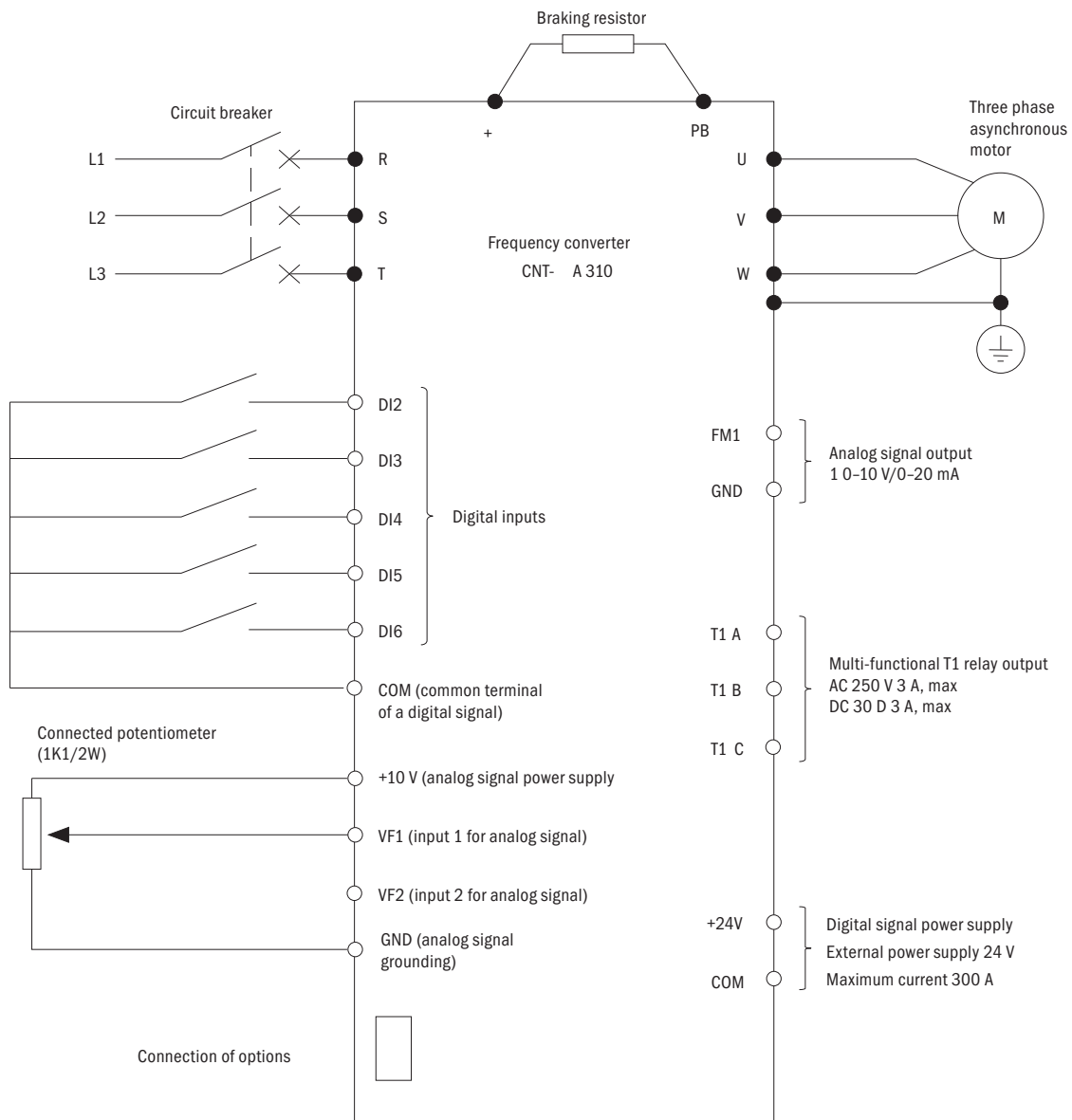


Power, kW	Dimensions, mm						
	W	W ₁	H	H ₁	D	D ₁	Ød
0.75–2.2	109	99	167	153	161	148	4.5
3.7	135	122	167	153	171	158	4.5



Power, kW	Dimensions, mm						
	W	W ₁	H	H ₁	D	D ₁	Ød
5.5–7.5	180	165	280	265	197.5	185	5.5
11–15	230	215	310	295	206	193.5	5.5
18–22	260	245	340	325	223	210.5	5.5

CONNECTION SCHEME



FREQUENCY CONVERTERS

A650 ONI®

A650 series frequency converters are designed for application at pump and ventilation plants and meet requirements to cascade control over pumping units. They offer all required functionality to build highly efficient control systems.

Due to special "pumping" features and embedded board for cascade control over pumps, A650 can address even the most complicated tasks of pumping plant control.



ADVANTAGES

- Cascade control board in a basic configuration (for up to five pumps).
- An option to configure PID setpoint to organize operation in "day/night" mode.
- Metering and balancing running hours of pumps.
- Adapted for operation in "poor" networks.
- Embedded Modbus RTU support helps operate in various centralized PCS.
- Copying/recording parameters without connection to power mains.
- Embedded DC reactor increases energy efficiency and provides additional protection for equipment.
- Embedded mini-PLC helps reduce costs for control circuits, implementing various logic operations without additional external devices.
- Detachable control panel in basic configuration.
- Built-in brake module for several kinds of power.

NEW

FREQUENCY CONVERTERS A650 ONI® ADVANCED

Advanced FC A650 comes in compact size, but has the same output power of a frequency converter as the previous model A650. On average, FC size is 30 % less, also reducing mounting space.

Integration of new IGBT modules significantly increases temperature limit of heating the FC power board (up to 150 °C). Quicker triggering of advanced FC A650 helps increase output current.

Independent ventilation system prevents dust ingress into FC, significantly reducing risks of a short circuit, which enables reliable and stable operation of the inverter in contaminated environments.

Advanced A650 series features more specialized functions, more pumps controlled in a common cascade and higher power of FC, available to order (up to 450 kW).

Advanced FC A650 can be enhanced by expansion boards, increasing its functionality.

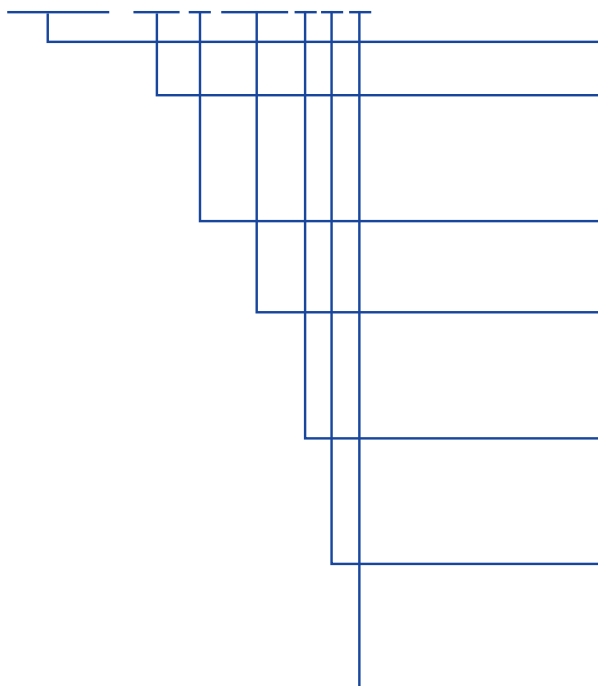


FEATURES

- Advanced cascade control over pumps (up to 8 pcs. in "Constant master" mode).
- PID controller.
- "Multi-master" mode.
- Extended list of specialized functions.
- Compact dimensions of FC case.

PRODUCT ID DECODING

A650-33E110TRM



A650 – model and series of the converter

Voltage:

21 – 220 V 1 p.;

23 – 220 V 3 p.;

33 – 380÷420 V 3 p.

63 – 660÷720 V 3 p.

Control panel type:

E – LED;

L – LCD

Rated power:

0037 – 0,37 kW

015 – 1,5 kW

22 – 22 kW

220 – 220 kW

Braking module:

T – module embedded;

no – no module

PTC reactor:

R – reactor included;

no – no module

M – modernized version 2023

PRODUCT RANGE

	Product ID	Name	Product ID modernized	Name modernized	Motor power, ND (rat.), kW	Load current, ND, A
	A650-33E0075T	Frequency converter A650 380 V 3 p. 0.75 kW 2.5 A ONI			0.75	2.5
	A650-33E015T	Frequency converter A650 380 V 3 p. 1.5 kW 4.2 A ONI	A650-33E015TM	Frequency converter A650 380 V 3 p. 1.5 kW 4.2 A emb. brake ONI	1.5	4.2
	A650-33E022T	Frequency converter A650 380 V 3 p. 2.2 kW 5.5 A ONI	A650-33E022TM	Frequency converter A650 380 V 3 p. 2.2 kW 5.5 A emb. brake ONI	2.2	5.5
	A650-33E037T	Frequency converter A650 380 V 3 p. 3.7 kW 9.5 A ONI	A650-33E037TM	Frequency converter A650 380 V 3 p. 3.7 kW 9.5 A emb. brake ONI	3.7	9.5
	A650-33E055T	Frequency converter A650 380 V 3 p. 5.5 kW 13 A ONI	A650-33E055TM	Frequency converter A650 380 V 3 p. 5.5 kW 13 A emb. brake ONI	5.5	13
	A650-33E075T	Frequency converter A650 380 V 3 p. 7.5 kW 17 A ONI	A650-33E075TM	Frequency converter A650 380 V 3 p. 7.5 kW 17 A emb. brake ONI	7.5	17
	A650-33E11T	Frequency converter A650 380 V 3 p. 11 kW 25 A ONI	A650-33E11TM	Frequency converter A650 380 V 3 p. 11 kW 25 A emb. brake ONI	11	25
	A650-33E15T	Frequency converter A650 380 V 3 p. 15 kW 32 A ONI	A650-33E15TM	Frequency converter A650 380 V 3 p. 15 kW 32 A emb. brake ONI	15	32
	A650-33E18T	Frequency converter A650 380 V 3 p. 18.5 kW 37 A ONI	A650-33E18TM	Frequency converter A650 380 V 3 p. 18.5 kW 37 A emb. brake ONI	18.5	37
	A650-33E22T	Frequency converter A650 380 V 3 p. 22 kW 45 A ONI	A650-33E22TM	Frequency converter A650 380 V 3 p. 22 kW 45 A emb. brake ONI	22	45
	A650-33E30T	Frequency converter A650 380 V 3 p. 30 kW 60 A ONI	A650-33E30TM	Frequency converter A650 380 V 3 p. 30 kW 60 A emb. brake ONI	30	60
	A650-33E37T	Frequency converter A650 380 V 3 p. 37 kW 75 A ONI	A650-33E37TM	Frequency converter A650 380 V 3 p. 37 kW 75 A emb. brake ONI	37	75
	A650-33E45	Frequency converter A650 380 V 3 p. 45 kW 91 A ONI	A650-33E45M	Frequency converter A650 380 V 3 p. 45 kW 91 A ONI	45	91
			A650-33E45TM	Frequency converter A650 380 V 3 p. 45 kW 91 A emb. brake ONI		
	A650-33E55	Frequency converter A650 380 V 3 p. 55 kW 112 A ONI	A650-33E55M	Frequency converter A650 380 V 3 p. 55 kW 112 A ONI	55	112
			A650-33E55TM	Frequency converter A650 380 V 3 p. 55 kW 112 A emb. brake ONI		
	A650-33E75	Frequency converter A650 380 V 3 p. 75 kW 150 A ONI	A650-33E75M	Frequency converter A650 380 V 3 p. 75 kW 150 A ONI	75	150
			A650-33E75TM	Frequency converter A650 380 V 3 p. 75 kW 150 A emb. brake ONI		
	A650-33E90	Frequency converter A650 380 V 3 p. 90 kW 176 A ONI	A650-33E90M	Frequency converter A650 380 V 3 p. 90 kW 176 A ONI	90	176
			A650-33E90TM	Frequency converter A650 380 V 3 p. 90 kW 176 A emb. brake ONI		

PRODUCT RANGE

	Product ID	Name	Product ID modernized	Name modernized	Motor power, ND (rat.), kW	Load current, ND, A
	A650-33E110R	Frequency converter A650 380 V 3 p. 110 kW 210 A ONI	A650-33E110M	Frequency converter A650 380 V 3 p. 110 kW 210 A ONI	110	210
	A650-33E132R	Frequency converter A650 380 V 3 p. 132 kW 253 A ONI	A650-33E132M	Frequency converter A650 380 V 3 p. 132 kW 253 A ONI	132	253
	A650-33E160R	Frequency converter A650 380 V 3 p. 160 kW 304 A ONI	A650-33E160M	Frequency converter A650 380 V 3 p. 160 kW 304 A ONI	160	304
	A650-33E185R	Frequency converter A650 380 V 3 p. 185 kW 350 A ONI	A650-33E185M	Frequency converter A650 380 V 3 p. 185 kW 350 A ONI	185	350
	A650-33E200R	Frequency converter A650 380 V 3 p. 200 kW 377 A ONI	A650-33E200M	Frequency converter A650 380 V 3 p. 200 kW 377 A ONI	200	377
	A650-33E220R	Frequency converter A650 380 V 3 p. 220 kW 426 A ONI	A650-33E220M	Frequency converter A650 380 V 3 p. 220 kW 426 A ONI	220	426
	A650-33E250R	Frequency converter A650 380 V 3 p. 250 kW 470 A ONI	A650-33E250M	Frequency converter A650 380 V 3 p. 250 kW 470 A ONI	250	470
	A650-33E280R	Frequency converter A650 380 V 3 p. 280 kW 520 A ONI	A650-33E280M	Frequency converter A650 380 V 3 p. 280 kW 520 A ONI	280	520
	A650-33E315R	Frequency converter A650 380 V 3 p. 315 kW 600 A ONI	A650-33E315M	Frequency converter A650 380 V 3 p. 315 kW 600 A ONI	315	600
	A650-33E355R	Frequency converter A650 380 V 3 p. 355 kW 650 A ONI	A650-33E355M	Frequency converter A650 380 V 3 p. 355 kW 650 A ONI	355	650
	A650-33E400R	Frequency converter A650 380 V 3 p. 400 kW 725 A ONI	A650-33E400M	Frequency converter A650 380 V 3 p. 400 kW 725 A ONI	400	725
	A650-33E450R	Frequency converter A650 380 V 3 p. 450 kW 800 A ONI	A650-33E450M	Frequency converter A650 380 V 3 p. 450 kW 800 A ONI	450	800

SPECIFICATIONS

Parameter			Description
Power line input	Rated input voltage, V		3-phase 380 V (-15...+30 %)
	Rated input frequency, Hz		50/60 Hz, tolerance: ±5 %
Power output	Max. output voltage, V		0÷400, V
	Max. input frequency, Hz		0÷600, step – 0.01 Hz
Control characteristics	V/f dependency		V/f control Sensorless vector control 1. Sensorless vector control 2
	Speed Range		1:50 (V/f control). 1:100 (sensorless vector control 1). 1:200 (sensorless vector control 2)
	Speed accuracy, %		±0.5 (V/f control). ±0.2 (sensorless vector control 1, 2)
	Speed swings, %		±0.3 (sensorless vector control 1, 2)
	Torque response, ms		<10 (sensorless vector control 1, 2)
	Initial Torque		0.5 Hz: 180 % (V/f control, sensorless vector control 1). 0.25 Hz: 180 % (sensorless vector control 2)
Key functions	Carrier frequency, kHz		0.7÷16
	Permissible loads		120% of rated current – 60 s
	Torque rise		Automatic torque rise; manual torque rise 0.1÷30.0 %
	Curve V/f		Three types: straight, multiple points, templates
	Acceleration and deceleration		Linear or non-linear acceleration and deceleration. Four kinds of acceleration and deceleration time 0.0÷6000.0 s
	DC braking		Initial frequency of DC braking: 0.00÷600.00 Hz. DC braking time: 0.0÷10.0 s. DC braking current: 0.0÷150.0 %
	Jog feed		Frequency range of jog feed: 0.00÷50.00 Hz. Jog feed deceleration time: 0.0÷6000.0 s.
	Simple PLC, multiple-speed		16 steps for programming multiple-stage speeds
	Integrated into PID		Automatic maintenance of a required process value
	Automatic voltage regulation (AVR)		Output voltage can be maintained automatically when mains voltage changes
	Current limiting function		Minimizes inverter start with overcurrent protection
	Overvoltage fail, overcurrent		The system automatically limits current and voltage during operation
Start	Control source		Control panels, digital input, Modbus
	Setting frequency		Frequency control sources: digital configuration, potentiometer on control panel, analog inputs, pulse input, Modbus, multiple-speed option, via mini-PLC, via PID process. There are several adjustment methods:
Inputs/ outputs	Inputs	Up to 2,2 kW	5 digital inputs. One of them can be set as an pulse input; 2 analog inputs 0÷10 V, 0/4÷20 mA
		From 3.7 kW	7 digital inputs. One of them can be set as an pulse input; 2 analog inputs 2÷0 V, 10÷0/4 mA; 1 analog input -1...+10 V
	Outputs	Up to 2,2 kW	1 digital output; 2 relay outputs; 2 analog outputs 0÷10 V, 0/4÷20 mA
		From 3.7 kW	2 digital outputs; 2 relay outputs; 2 analog outputs 0÷10 V, 0/4÷20 mA

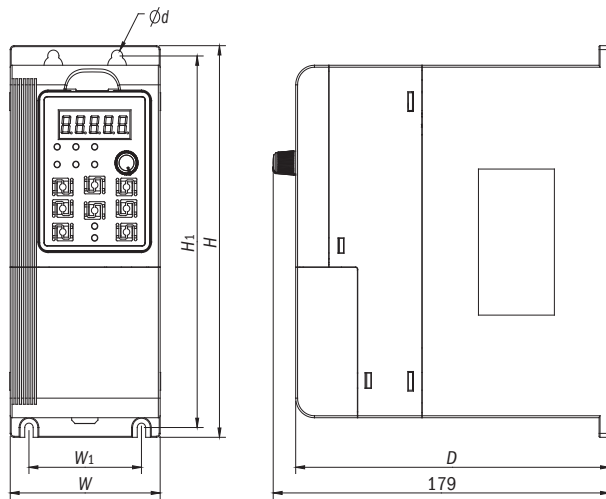
SPECIFICATIONS

Parameter		Description
Special functions		Copying parameters, backup, flexible displaying and hiding the parameters. Various leading and auxiliary commands and switching. Searching for the speed. Various programmable curves of acceleration/deceleration. Time delay control, fixed length monitoring, function calculation. Recording three malfunctions. Braking overexcitation, programming overvoltage prevention, programming voltage reduction prevention, restart in case of power loss. Four kinds of acceleration/deceleration time. Motor thermal insulation. Flexible fan control. Flexible control of the PID process, simple PLC, programmable 16-step speed control. Special functions for pump group control. Pump cleaning function. Pipe filling function. Dry run protection function. Programming multifunctional keys, controlling with field weakening. Highly accurate torque control, separate V/f control, controlling the torque with sensorless vector control
Protection Functions		Provides protection against malfunctions: overcurrent, overvoltage, under-voltage, overheating, overload, etc.
Display & Keypad	LED display	Display parameters
	Key locking and function selection	Blocking several or all keys, range of key identification for prevention of wrong actions
	Information on start and stop control	In start and stop mode you can establish control over U00 group consisting of four objects
Environment	Operation Conditions	In a room with no dust, aggressive or flammable gas, oil fog, water steam, water and salt, without direct sunlight, etc.
	Altitude above sea level, m	0÷2000 m Parameter reduction by 1 % per each 100 m of ascending above 1000 m
	Ambient temperature, °C	-10...+40
	Relative humidity, %	5÷95 (non-condensing)
	Climatic version	NF 3.1
	Vibration, m/s ²	<5.9 (0.6 g)
	Storage temperature, °C	-20...+70
Other	Efficiency	≥93 % at rated power
	Installation	Wall-mounted or DIN-rail
	Protection degree	IP20
	Cooling method	Forced using a fan
	Certificate	GOST

* Detailed information can be requested from distributor.

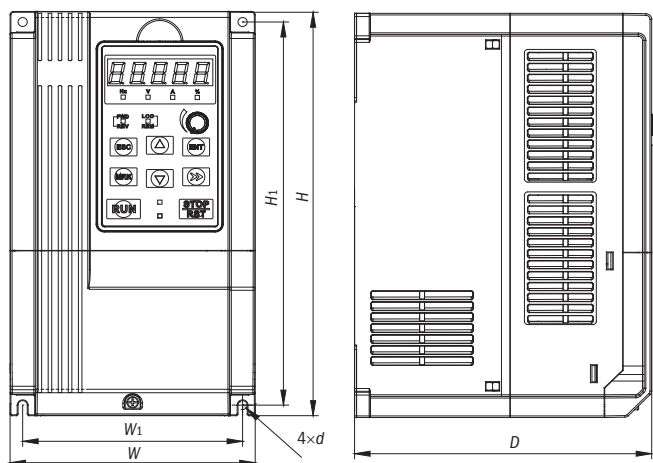
OVERALL DIMENSIONS FOR FC A650 MODERNIZED

SIZE 1



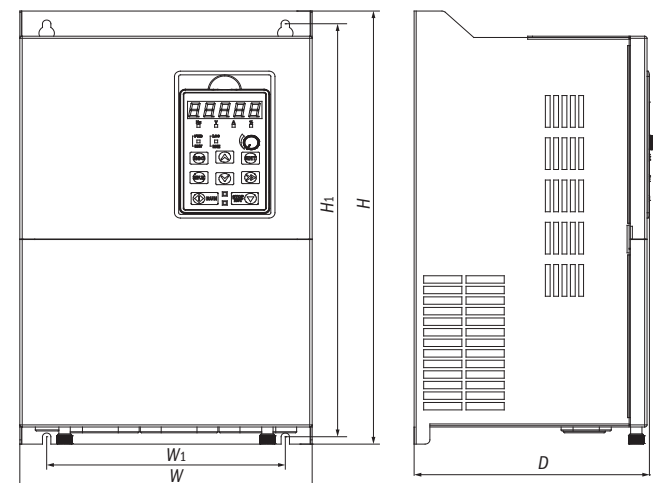
Power, kW	Dimensions, mm					
	W	W_1	H	H_1	D	ϕd
1.5÷2.2	80	60	200	190	150	6

SIZE 2



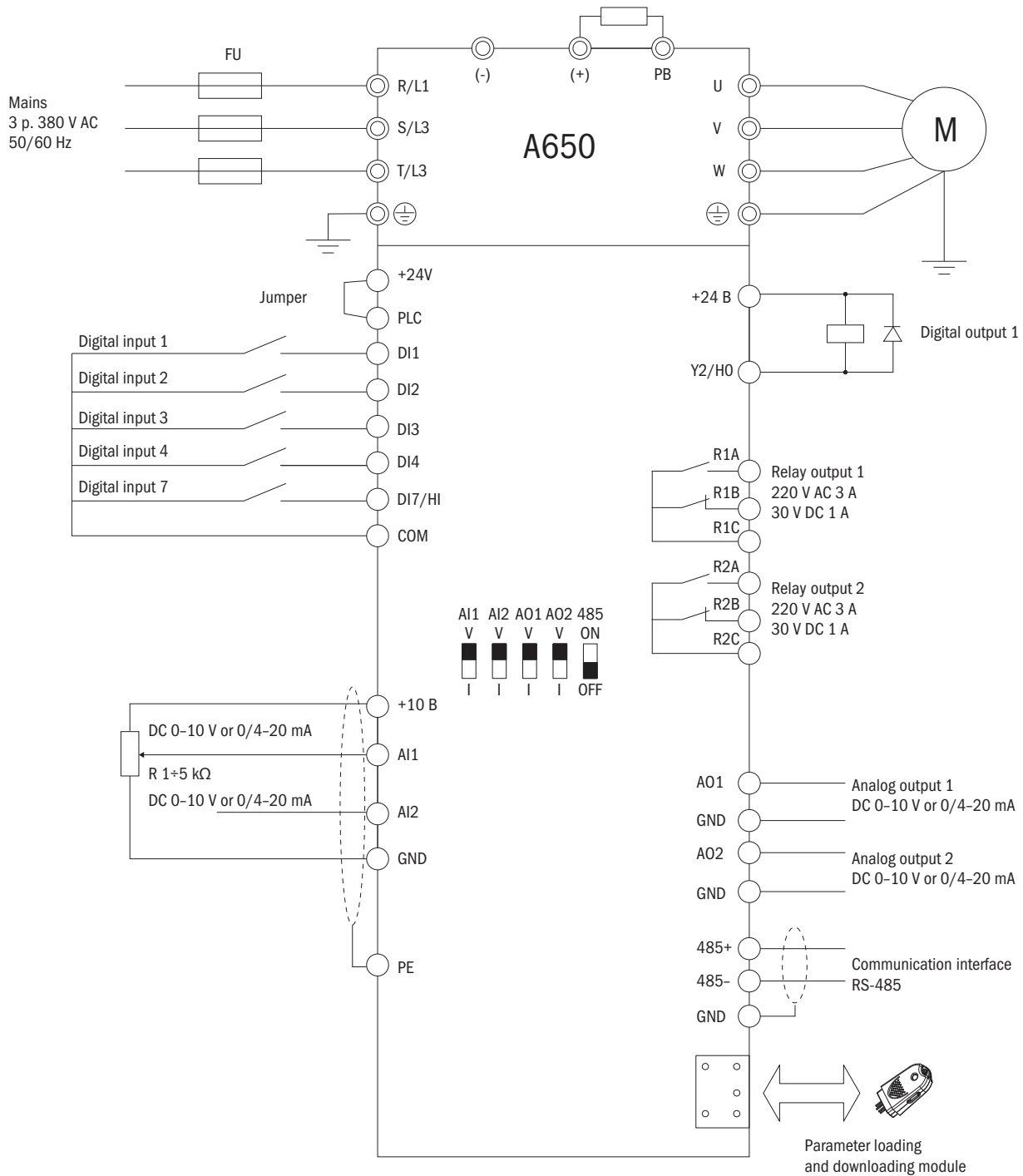
Power, kW	Dimensions, mm					
	W	W_1	H	H_1	D	ϕd
3.7÷7.5	117	107	187	177	175	4.5
11	146	131	249	236	177	5.5
15÷30	198	183	300	287	185	5.5

SIZE 3

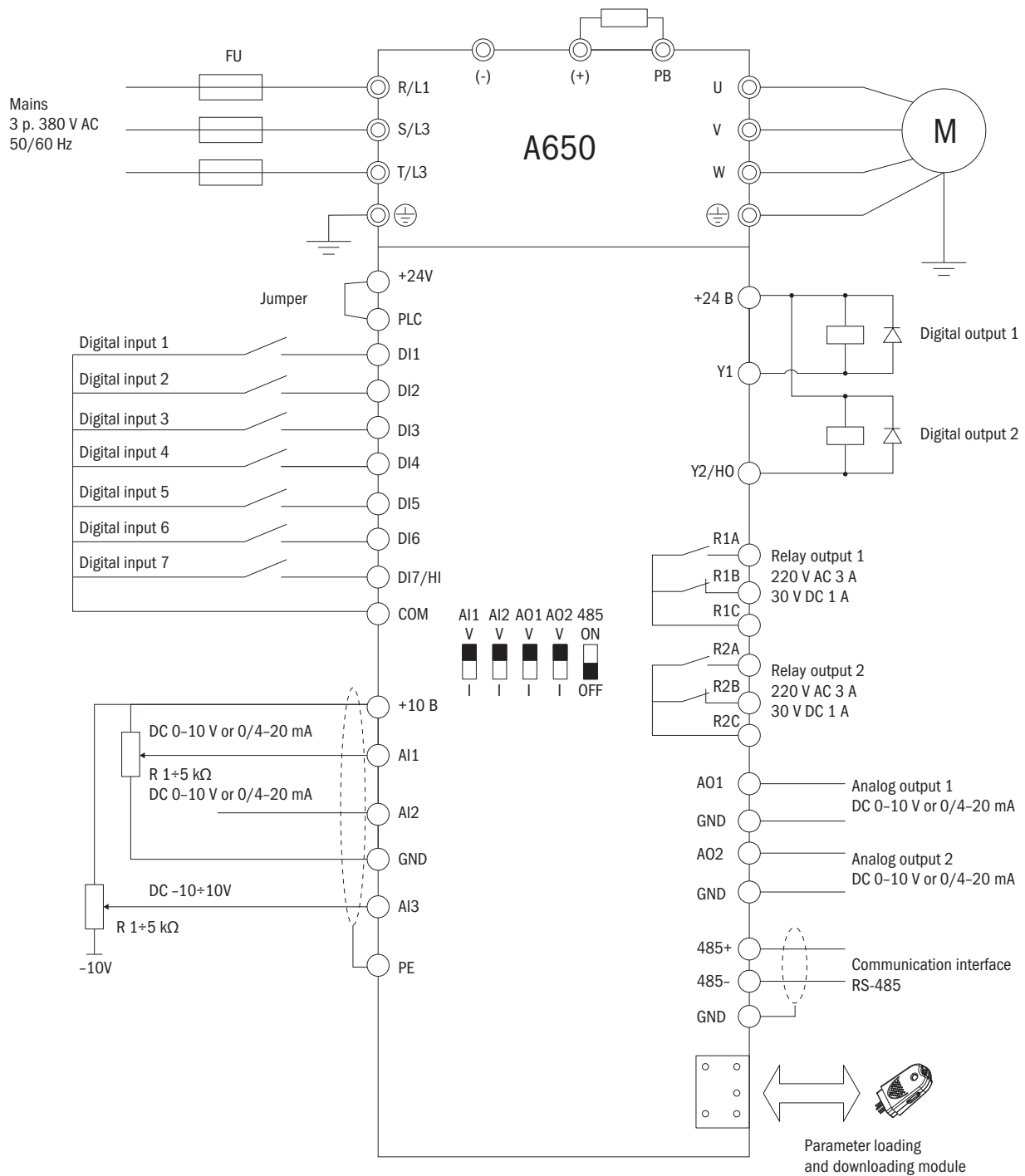


Power, kW	Dimensions, mm					
	W	W_1	H	H_1	D	ϕd
37	245	200	410	391	200	7
45÷75	300	200	485	466	226	7
90÷110	310	200	620	601	280	9.5
132÷160	310	200	650	620	350	11.5
185	400	300	750	724	300	11.5
200÷250	500	300	855	822	370	12
280÷315	540	340	924.5	896	380	12
355÷400	620	400	996	963	390	12

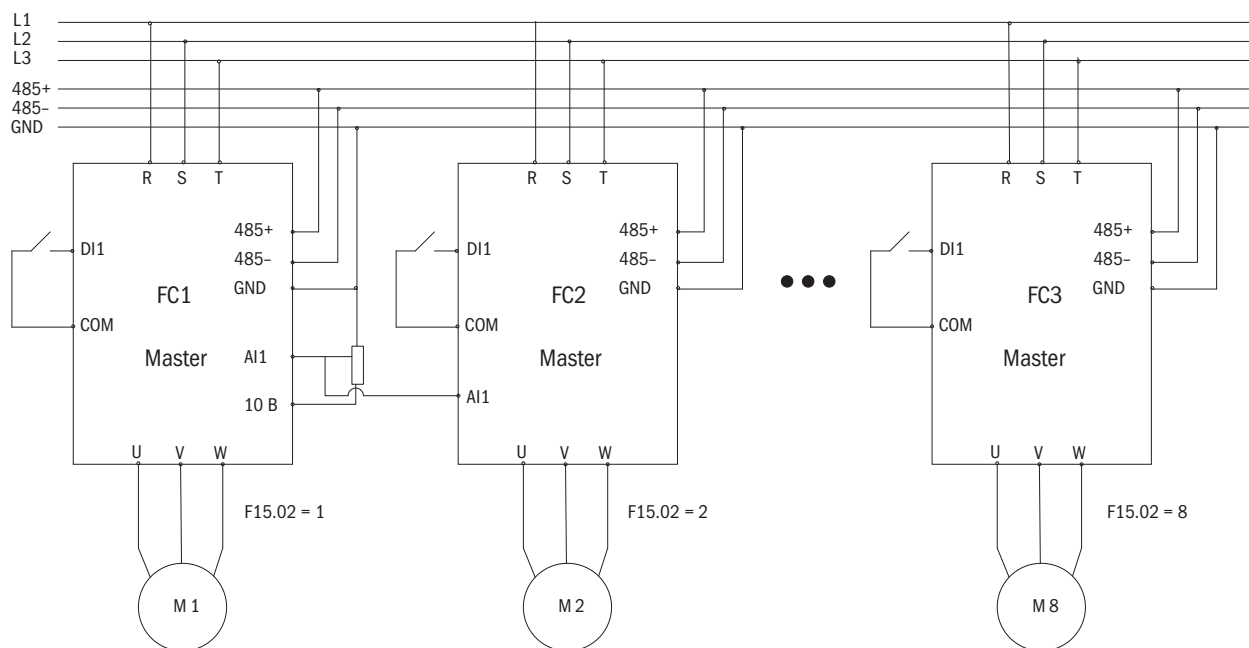
CONNECTION DIAGRAM FOR A MODERNIZED FC A650 WITH UP TO 2.2 KW POWER



CONNECTION DIAGRAM FOR A MODERNIZED FC A650 WITH UP TO 3.7 KW POWER

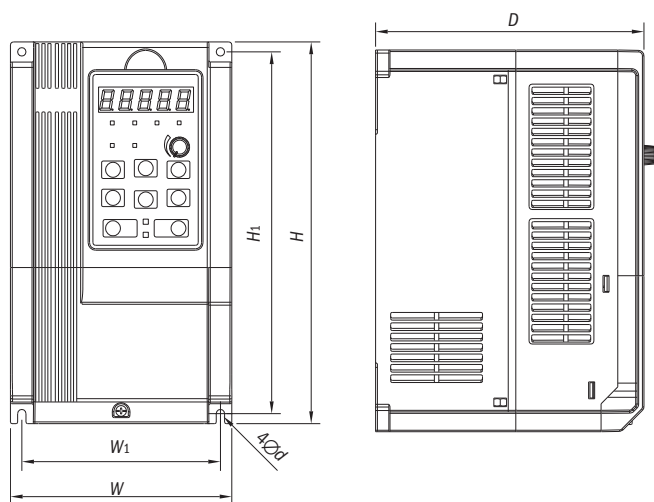


MODE OF OPERATION WITH FREQUENCY CONVERTER ON EACH PUMP



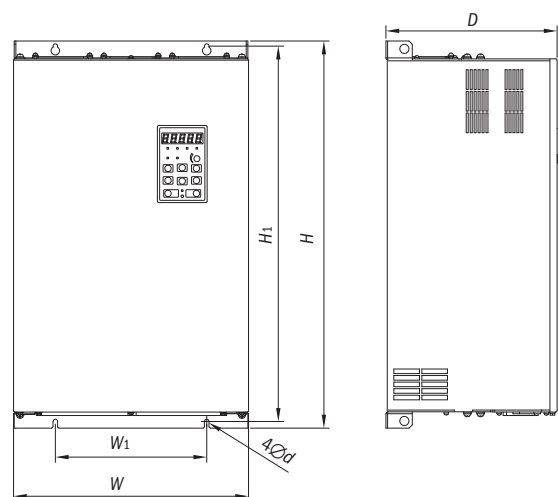
OVERALL DIMENSIONS FOR FC A650

SIZE 1



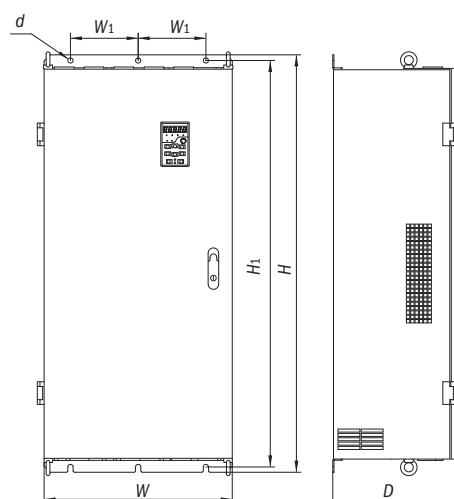
Power, kW	Dimensions, mm					
	W	W ₁	H	H ₁	D	Ød
0.75÷2.2	117	107	187	177	160	4.5
3.7÷11	146	131	249	236	177	5.5
15÷18.5	198	183	300	287	185	5.5

SIZE 2



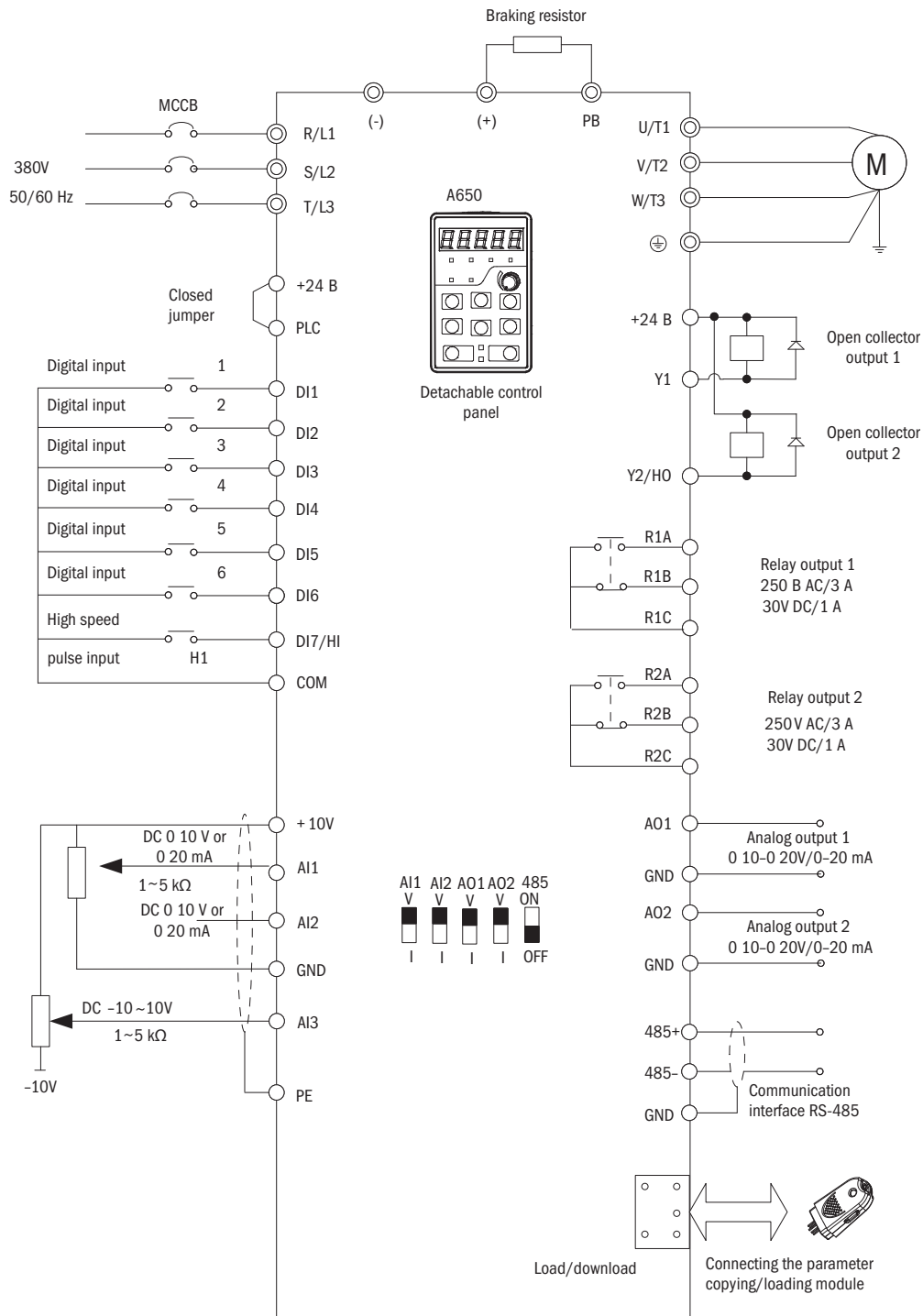
Power, kW	Dimensions, mm					
	W	W ₁	H	H ₁	D	Ød
22÷37	255	176	459	443	220	7
45÷55	270	130	590	572	260	7
75÷90	357	230	590	572	260	7
110÷160	430	320	830	802	293	12

SIZE 3



Power, kW	Dimensions, mm					
	W	W ₁	H	H ₁	D	Ød
185÷220	500	180	1107	1078	328	14
250÷315	660	230	1160	1130	340	14
355÷450	810	300	1140	1110	400	14

CONNECTION DIAGRAM FOR FC A650



NOTES:

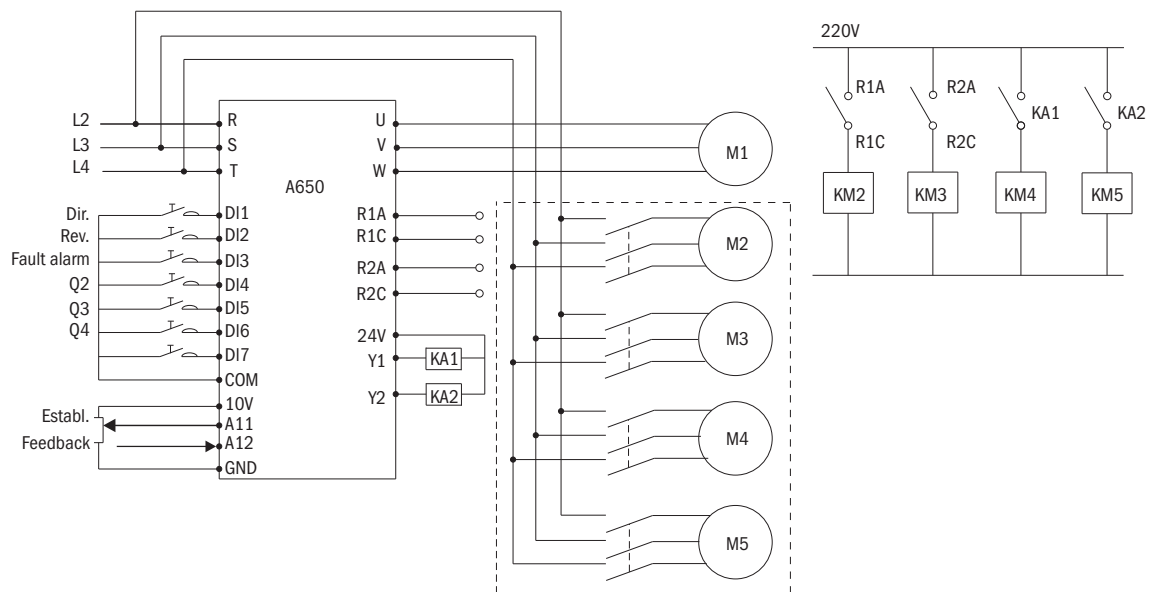
⊙⊙ – power circuit outputs, ○ – control circuit outputs.

2. User selects a braking resistor based on an actual need (see "Braking resistor selection guide").

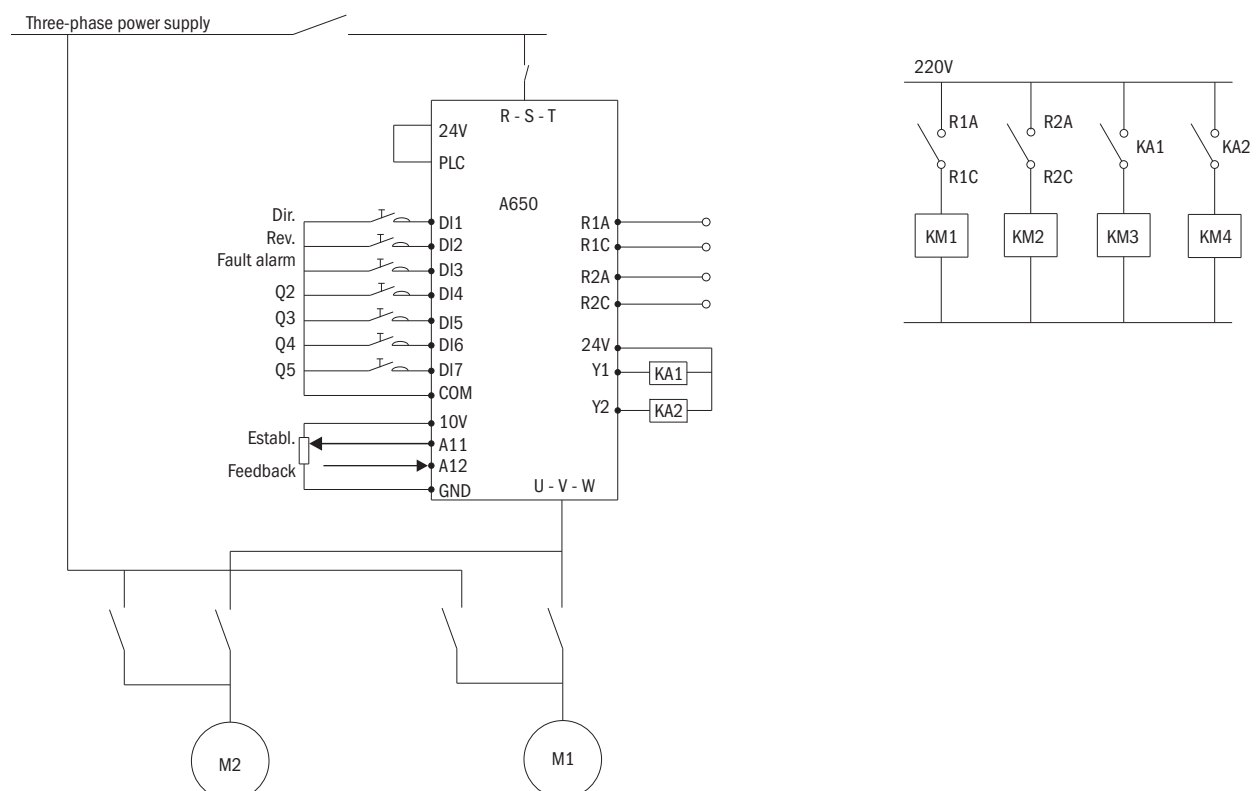
3. Signal cable and power cable must be laid separately. If the control cable and power cable intersect with each other, make sure that intersection angle is 90°.

The best option of analog signal lines is a shielded twisted wire pair. For a power cable use a shielded three-phase cable (motor cable specification must comply with standard electric cables for a motor)

CONNECTION DIAGRAM FOR THE "CONSTANT MASTER" SOLUTION



CONNECTION DIAGRAM FOR THE "VARIABLE MASTER" SOLUTION



FREQUENCY CONVERTERS

K750 ONI®

Frequency converter ONI® K750 is a flagship device offering maximum functionality. A key objective that FC K750 accomplishes with utmost efficiency is motor control in open and closed adjustment systems, including using an encoder, where a high initial starting torque is required and a constant torque must be maintained on a shaft, even on low speed. FC K750 ONI® can operate in industrial networks with various protocols.

Main applications for **FC ONI® K750**:

- Conveyors of various configuration.
- Hoisting units of various types.
- Heavy-loaded equipment that required speed or torque control.
- Different plants in housing and utilities sector.

Other sectors:

- Devices and units, where it is required to minimize starting currents, provide maximum starting torque, quick response to load mode change, etc.



FEATURES

- Vector control with feedback using an encoder.
- Full-text LCD display with Russian language support.
- Reliable component base.
- Additional features provided by expansion boards.
- Supporting industrial protocols: Modbus RTU, Profinet, CAN.
- Two configurable relay outputs in a base.
- External braking modules helping control the units with high inertia torque.
- Embedded braking modules up to 75 kW for warehouse items.
- Regular updates of integrated software, extension of inverter functionality.

NEW

FREQUENCY CONVERTERS K751 ONI®

Specialized frequency converter is designed based on K750 model. It features a set of parameters and a custom software version **for hoisting mechanisms and cranes**. Just like the basic model K750, specialized FC K751 supports all possible expansion boards (including encoder board, Profinet board).

Custom software enables brake control, highly smooth stroke and positioning of the cargo, smooth start and stop of a hoisting drive.

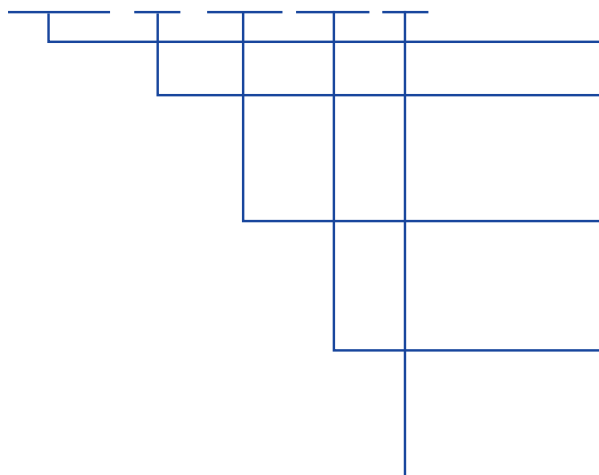


MAIN PARAMETERS FOR LIFTING/LOWERING THE CARGO:

- Torque direction.
- Brake release frequency
- Brake release method.
- Brake monitoring (feedback).
- Reverse control during movement.

PRODUCT ID DECODING

K750-33-55N75NTM



K750, K751 – model and series of the converter

Voltage:

21 – 220÷240 V 1 p. **23** – 220÷240 V 3 p.

33 – $380 \div 480$ V 3 p. **63** – $660 \div 720$ V 3 p.

Power, HD mode:

0.75 kW – 075H; **2.2 kW** – 15N;

30 kW – 30

Power, ND mode:

0.75 kW – 075H; **2.2 kW** – 15N;

30 kW – 30

Brake transistor:

T – built-in; **N** – none

EMC filter:

F – embedded; **N** – none

DC reactor:

R – embedded; **N** – none

Encoder support:

M – control option with feedback;

N – none

PRODUCT RANGE

	Product ID K750	Product ID K751	Apparent power HD/ND*, kVA	Input current HD/ND*, A	Output current HD/ND*, A	Motor power, HD/ND (rat.), kW	Heat losses, kW	Size	Braking module
3 phases: 400 V, 50/60 HZ									
	K750-33-55N75NTM	K751-33-55N75NTM	8.9/11	14.6/20.5	13/17	5.5/7.5	0.22	1	Embed.
	K750-33-75N11TM	K751-33-75N11TM	11/17	20.5/26	17/23	7.5/11	0.3		
	K750-33-1115TM	K751-33-1115TM	17/21	26/35	25/31	11/15	0.44	2	Embed.
	K750-33-1518TM	K751-33-1518TM	21/24	35/38.5	32/37	15/18	0.6		
	K750-33-1822TM	K751-33-1822TM	24/30	38.5/46.5	37/45	18/22	0.72	3	Embed.
	K750-33-2230TM	K751-33-2230TM	30/40	46.5/62	45/57	22/30	0.88		
	K750-33-3037M	K751-33-3037M K751-33-3037TM	40/50	62/76	60/75	30/37	1.2	4	Option
	K750-33-3745M	K751-33-3745M K751-33-3745TM	50/60	76/92	75/87	37/45	1.5		
	K750-33-4555M	K751-33-4555M K751-33-4555TM	60/85	92/113	90/110	45/55	1.8	5	Option
	K750-33-5575M	K751-33-5575M K751-33-5575TM	85/104	113/157	110/135	55/75	2.2		

* HD – constant load mode (with constant torque), ND – variable load mode (with variable torque).

PRODUCT RANGE

	Product ID K750	Product ID K751	Apparent power HD/ND*, kVA	Input current HD/ND*, A	Output current HD/ND*, A	Motor power, HD/ND (rat.), kW	Heat losses, kW	Size	Braking module
	K750-33-7590M	K751-33-7590M K751-33-7590TM	104/112	157/170	152/165	75/90	3.0	6	Option
	K750-33-90110M	K751-33-90110M	112/145	170/220	176/210	90/110	3.6	6	External
	K750-33-110132M	K751-33-110132M	145/170	220/258	210/253	110/132	4.4	7	
	K750-33-132160M	K751-33-132160M	170/210	258/320	253/304	132/160	5.3	8	External
	K750-33-160185M	K751-33-160185M	210/245	320/372	304/360	160/185	6.4		
	K750-33-185200M	K751-33-185200M	245/250	372/380	360/380	185/200	7.4	9	External
	K750-33-200220M	K751-33-200220M	250/280	380/425	380/426	200/220	8.0		
	K750-33-220250RM	K751-33-220250RM	280/315	425/479	426/465	220/250	8.8	10	External
	K750-33-250280RM	K751-33-250280RM	315/350	479/532	465/520	250/280	10.0		

* HD – constant load mode (with constant torque), ND – variable load mode (with variable torque).

PRODUCT RANGE

	Product ID K750	Product ID K751	Apparent power HD/ND*, kVA	Input current HD/ND*, A	Output current HD/ND*, A	Motor power, HD/ND (rat.), kW	Heat losses, kW	Size	Braking module
	K750-33-280315RM	K751-33-280315RM	350/385	532/585	520/585	280/315	11.2	11	External
	K750-33-315355RM	K751-33-315355RM	385/420	585/638	585/650	315/355	12.6		
	K750-33-355400RM	K751-33-355400RM	420/470	638/714	650/725	355/400	14.2	12	External
	K750-33-400450RM	K751-33-400450RM	470/630	714/800	725/820	400/450	16.0		
	K750-33-450500RM	K751-33-450500RM	630/700	800/880	820/900	450/500	18.0	13	External
	K750-33-500560RM	K751-33-500560RM	700/784	880/950	900/980	500/560	20.0		
	K750-33-560630RM	K751-33-560630RM	784	950/1080	980/1120	560/630	22.4	14	External
	K750-33-630RM	K751-33-630RM	710	1080	1120	630	25.2		
	K750-33-710RM	K751-33-710RM	790	1200	1260	710	28.4		

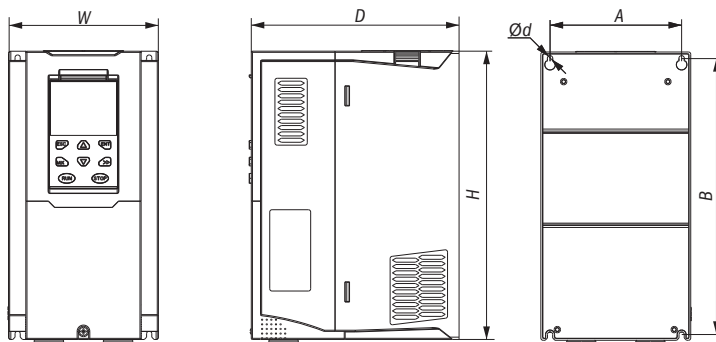
* HD – constant load mode (with constant torque), ND – variable load mode (with variable torque).

SPECIFICATIONS

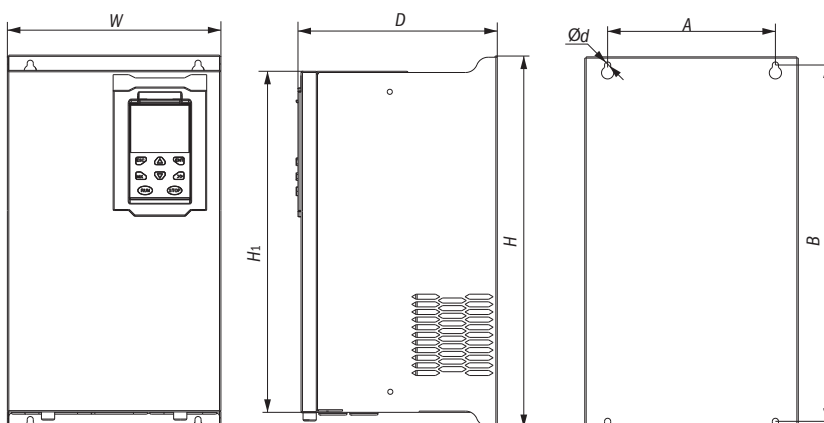
Parameter		Specifications
Input rating	Input voltage	Three-phase voltage 400 V AC
	Allowable voltage range, V	323÷483
	Input frequency, Hz	50/60, mean deviation less than 5 %
Output characteristics	Output voltage	Three phase: 0 ÷ input voltage
	Overload capacity	Heavy load (HD) – 150 % during 60 s, at most 1 time per 10 min Pumps, fans (ND) – 120 % during 60 s, at most 1 time per 10 min
Control	Control mode	Scalar control (V/f) Vector control without feedback (SVC) Vector control with feedback (VC)
	Operation mode	Speed control, torque control (SVC and VC)
	Speed range	1:100 (V/f) 1:200 (SVC) 1:1000 (VC)
	Speed control error, %	0.5 (V/f) 0.2 (SVC) 0.02 (VC)
	Speed triggering, Hz	5 (V/f) 20 (SVC) 50 (VC)
	Frequency range, Hz	0.00÷600.00 (V/f) 0.00÷200.00 (SVC) 0.00÷400.00 (VC)
	Frequency setting resolution	Digital setting: 0.01 Hz Analog setting: maximum frequency × 0.1 %
	Starting torque	150 %/0.5 Hz (V/f) 180 %/0.25 Hz (SVC) 200 %/0 Hz (VC)
	Torque control error	SVC: up to 5 Hz – 10 %, more than 5 Hz – 5 % VC: 3.0 %
	Voltage/frequency curve	Type of voltage/frequency curve: straight line, multiple points, power function, voltage/frequency division Torque amplification: automatic boost (factory settings), manual boost
	Acceleration and deceleration	Supporting acceleration and deceleration curve of linear and S-type; 4 groups of acceleration and deceleration time, setting range 0.00÷60,000 s
	Voltage regulation of direct current bus	Overvoltage protection in the direct current circuit upon deceleration; controlled deceleration upon under-voltage of the power supply mains: output frequency control switches the motor to generation mode to maintain the required direct current circuit voltage and other functions
	Carrier frequency, kHz	÷12 (changes depending on converter capacity)
	Start method	Acceleration (dynamic braking can be applied) Search for the speed
	Stop method	Stop with deceleration (dynamic braking can be applied) Runout Runout
	Main control functions	Inching speed, frequency monitoring, 16 staged speeds, avoiding resonance frequency, operation at swing frequency, switching the acceleration and deceleration time, voltage and frequency division, dynamic braking, PID-control of the process, sleep and operation function, embedded simple logic PLC, virtual input and outputs, embedded delay device, embedded comparison block and logic block, parameter backup and recovery, error log, emergency reset, two groups of arbitrary switching of motor parameters, terminals for speed increase and reduction

Parameter		Specifications
Functions	Control panel	LED digital control panel Control panel with LCD display (optional)
	Communication channel	Modbus (RS-485)
	Encoder board (optional)	Interface board of an increment encoder (differential output and open collector) Resolver
	Inputs	Standard: 5 digital inputs HDI input support pulse mode up to 50 kHz: 2 analog inputs support input voltage 0÷10 V or 0/4÷20 mA Additional board (optional): 4 digital inputs 2 analog inputs -10...+10 V
	Output terminal	Standard: 1 digital output 1 high frequency pulse output (open collector) 0÷50 kHz 2 relays 2 analog outputs support output current 0÷20 mA or output voltage 0÷10 V Additional board: 4 digital outputs

OVERALL AND MOUNTING DIMENSIONS

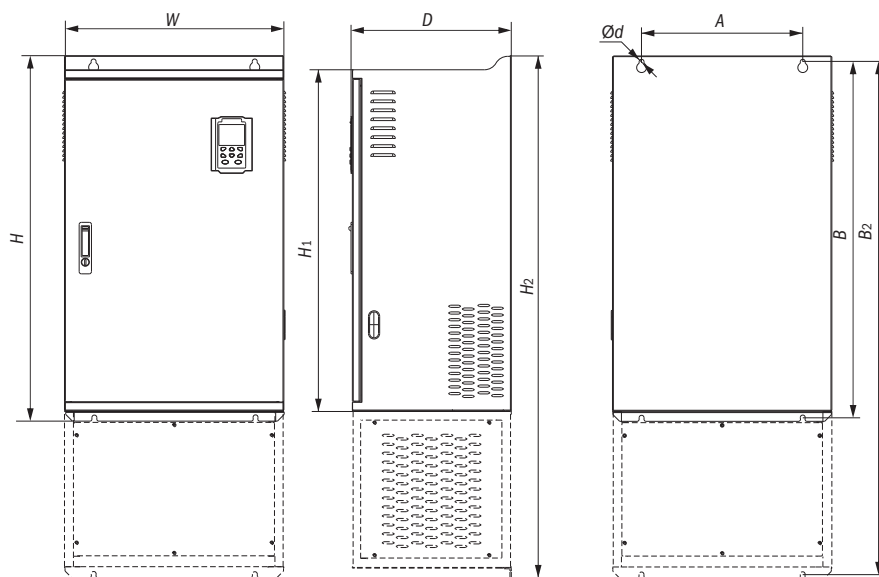


Overall and installation dimensions 1÷2 (5.5÷15 kW)

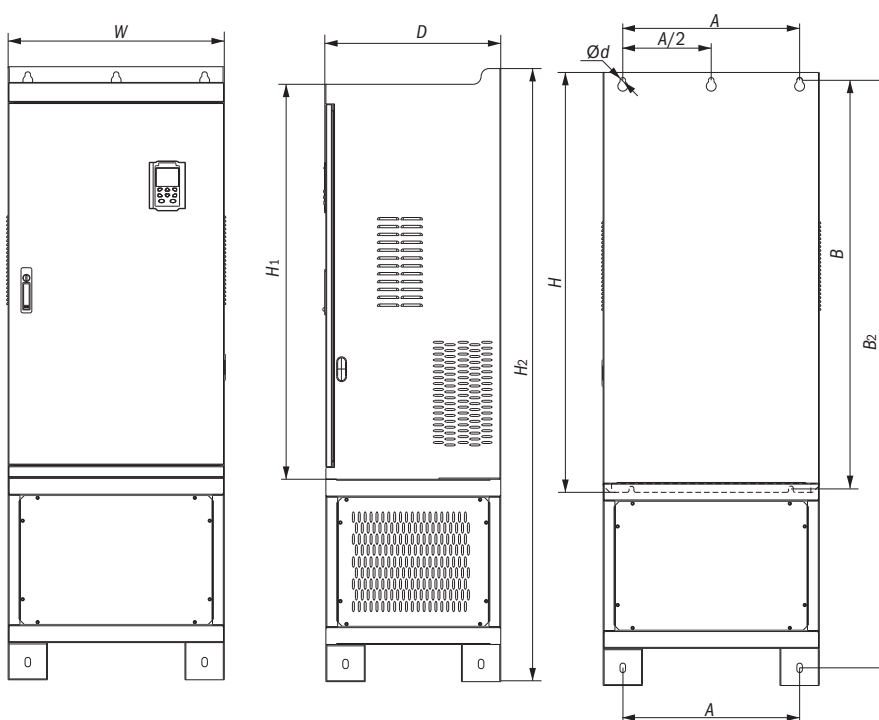


Overall and installation dimensions 3÷6 (18.5÷90 kW)

OVERALL AND MOUNTING DIMENSIONS

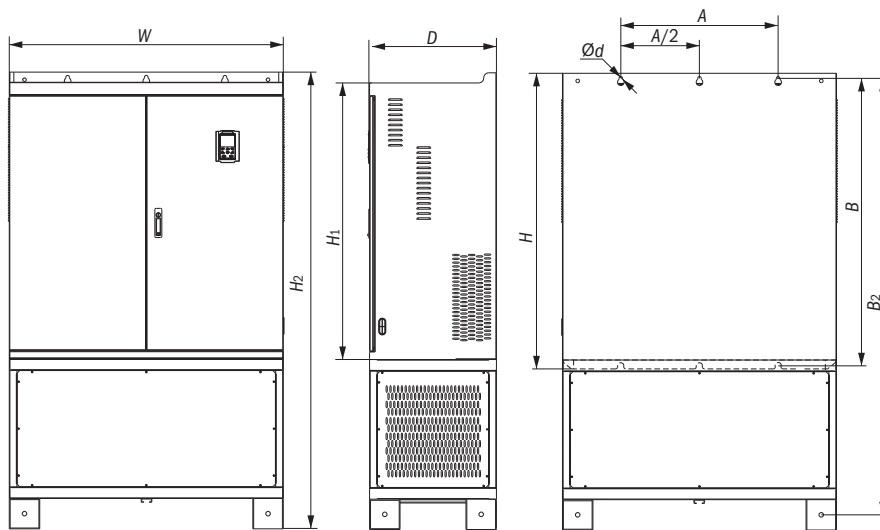


Overall and installation dimensions 7+10 (110÷250 kW)



Overall and installation dimensions 11 (280÷315 kW)

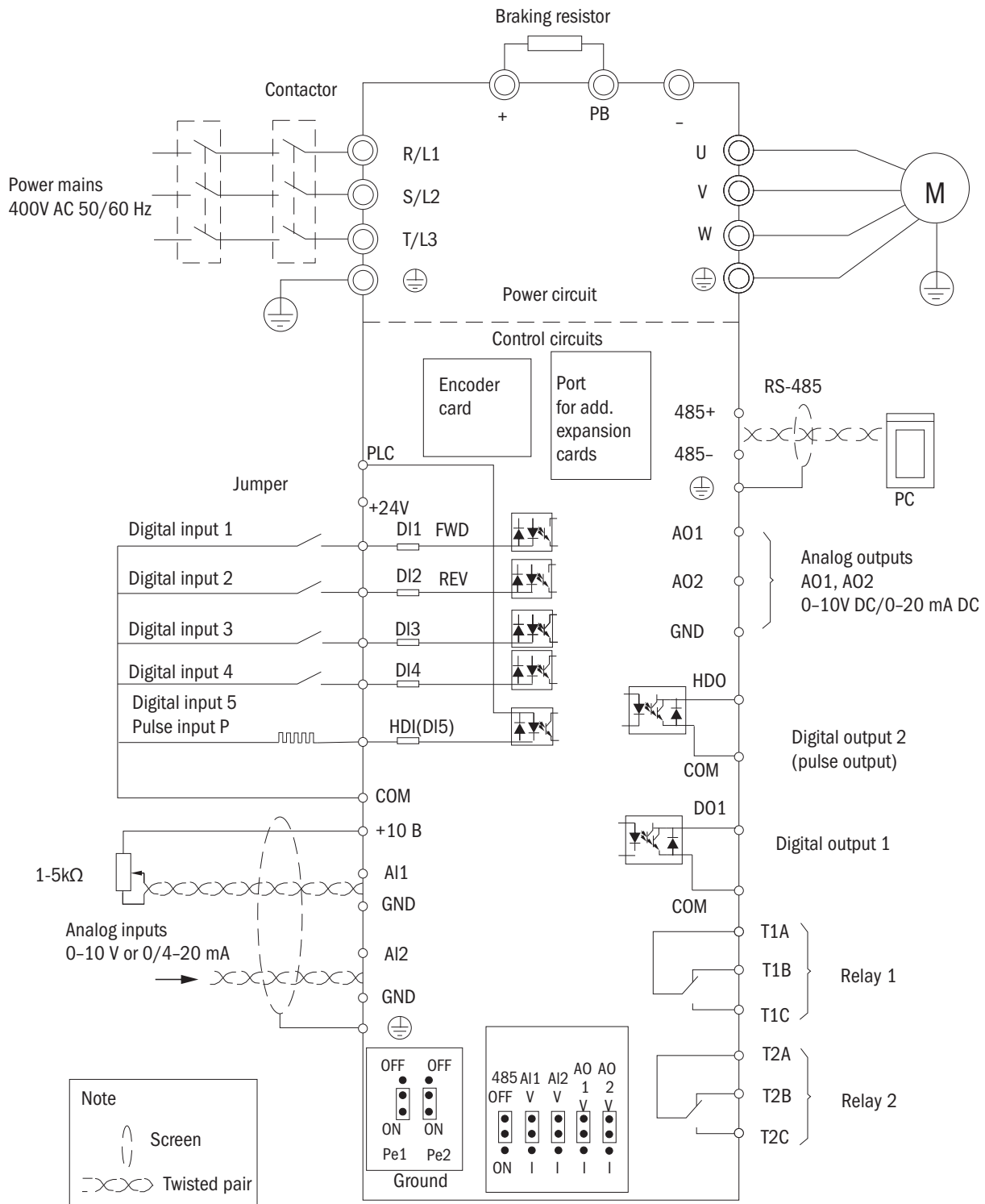
Size 7+9 (110÷200 kW) — standard model without a reactor and bottom base.
Reactor and bottom base are optional.



Overall and installation dimensions 12÷14 (355÷710 kW)

Power, kW	External view and installation dimensions, mm									
	A	B	B ₂	H	H ₁	H ₂	W	D	d	Fastening screw
5.5÷7.5	113	239.5	—	250	—	—	130	180	Ø 5,0	M4×16
11÷15	153	299	—	310	—	—	170	193	Ø 6,0	M5×16
18.5÷22	165	350	—	370	335	—	210	205	Ø 6,0	M5×16
30÷37	218	438	—	452.5	424	—	260	230	Ø 7,0	M6×16
45÷55	250	535	—	555	520	—	320	275	Ø 10,0	M8×20
75÷90	280	620	—	640	605	—	350	290	Ø 10,0	M8×20
110	280	695	915	715	660	935	370	313	Ø 11,0	M8×25
132÷160	280	705	925	725	670	945	360	338	Ø 11,0	M8×25
185÷200	360	795	1145	816	762	1166	490	358	Ø 11,0	M10×25
220÷250	360	795	1145	816	762	1166	490	358	Ø 11,0	M10×25
Installation on the floor cover: H ₂ ×W×D = 1166×490×358										
280÷315	450	1045	1495	1075	1005	1560	550	450	Ø 13,0	M12×30
Installation on the floor cover: H ₂ ×W×D = 1560×550×450										
355÷400	630	1013	1425	1045	970	1495	730	450	Ø 13,0	M12×30
Installation on the floor cover: H ₂ ×W×D = 1495×730×450										
450÷500	660	1063	1505	1095	1020	1575	785	450	Ø 13,0	M12×30
Installation on the floor cover: H ₂ ×W×D = 1575×785×450										
560÷710	Only for installation on the floor cover: H ₂ ×W×D = 1800×1080×500									M12×30

CONNECTION SCHEME



NEW

FREQUENCY CONVERTERS K740 ONI®

Modern industrial frequency converters K740 are designed for responsible applications in various sectors. The key feature of FC K740 is convenient and quick integration into the enterprise industrial network via various protocols (Modbus RTU, Profibus). Initially Profibus expansion board is integrated into FC K740 for corresponding product IDs.

Vector control with feedback enables accurate adjustment of rotation speed. Frequency converters series K740 includes a wide range of powers and voltages, including 690 V for industrial networks.

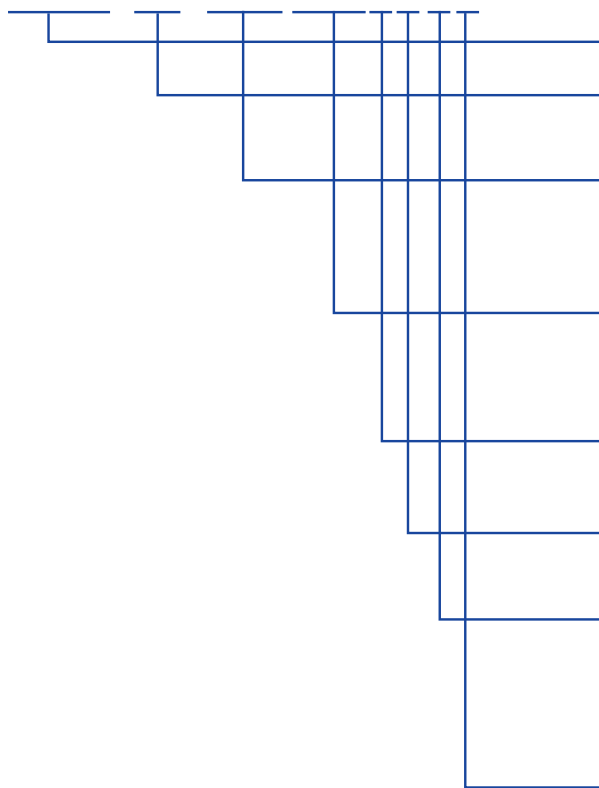


FEATURES

- Wide range of powers and voltages: 0.75–630 kW, 380 V; 22–700 kW, 690 V.
- Controlling both synchronous and asynchronous motors.
- Electric motor control: scalar (V/f), vector without feedback (SVC), vector (VC).
- Overload capacity in HD mode 3 s up to 180 % of rated current.
- Embedded PLC for simple programming tasks.
- Embedded expansion board Profibus (Modbus RTU optional).
- Boards with protective coating for heavy operation conditions.
- High speed maintenance accuracy due to various feedback sensors (encoders, resolver).
- Embedded reactor in the direct current link for several unit sizes.
- Braking key and resistor optionally.
- Additional expansion boards for inputs/ outputs.

PRODUCT ID DECODING

K740-33-55G75PTRMZ



K740 – model and series of the converter

Voltage:

33 – 380 V 3 p.;

63 – 690 V 3 p.

Power, HD mode:

0.75 kW – 0075G;

2.2 kW – 022G;

30 kW – 30G

Power, ND mode:

0.75 kW – 0075P;

2.2 kW – 022P;

30 kW – 30P

Brake transistor:

T – built-in; **N** – none

DC reactor:

R – embedded;

N – none

Encoder support:

M – control option with feedback;

N – none

Profibus support:

Z – optional Profibus board can be installed;

N – none

PRODUCT RANGE

Size	Product ID	Name	Input current, A	Output current, A	Weight, kg, max.
380 V					
1	K740-33-0075GTM	FC K740 380 V 3 p. 0.75 kW 2.3 A brk. enc. ONI	3.4	2.3	2
1	K740-33-015GTM	FC K740 380 V 3 p. 1.5 kW 3.7 A brk. enc. ONI	5	3.7	2
1	K740-33-022GTM	FC K740 380 V 3 p. 2.2 kW 5.1 A brk. enc. ONI	5.8	5.1	2
2	K740-33-037G055PTM	FC K740 380 V 3 p. 3.7–5.5 kW 9–13 A brk. enc. ONI	10.5–15.5	9–13	2.6
2	K740-33-037G055PTMZ	FC K740 380 V 3 p. 3.7–5.5 kW 9–13 A brk. enc. Profibus ONI	10.5–15.5	9–13	2.6
3	K740-33-055G075PTM	FC K740 380 V 3 p. 5.5–7.5 kW 13–17 A brk. enc. ONI	15.5–20.5	13–17	5.4
3	K740-33-055G075PTMZ	FC K740 380 V 3 p. 5.5–7.5 kW 13–17 A brk. enc. Profibus ONI	15.5–20.5	13–17	5.4
3	K740-33-075G11PTM	FC K740 380 V 3 p. 7.5–11 kW 17–25 A brk. enc. ONI	20.5–26	17–25	5.4
3	K740-33-075G11PTMZ	FC K740 380 V 3 p. 7.5–11 kW 17–25 A brk. enc. Profibus ONI	20.5–26	17–25	5.4
4	K740-33-11G15PTRM	FC K740 380 V 3 p. 11–15 kW 25–32 A brk. DTT enc. ONI	26–35	25–32	11
4	K740-33-11G15PTRMZ	FC K740 380 V 3 p. 11–15 kW 25–32 A brk. DTT enc. Profibus ONI	26–35	25–32	11
4	K740-33-15G18PTRM	FC K740 380 V 3 p. 15–18.5 kW 32–37 A brk. DTT enc. ONI	35–38	32–37	11
4	K740-33-15G18PTRMZ	FC K740 380 V 3 p. 15–18.5 kW 32–37 A brk. DTT enc. Profibus ONI	35–38	32–37	11
5	K740-33-18G22PM	FC K740 380 V 3 p. 18.5–22 kW 37–45 A enc. ONI	38–46	37–45	13.8
5	K740-33-18G22PMZ	FC K740 380 V 3 p. 18.5–22 kW 37–45 A enc. Profibus ONI	38–46	37–45	13.8
5	K740-33-22G30PM	FC K740 380 V 3 p. 22–30 kW 45–60 A enc. ONI	46–62	45–60	15
5	K740-33-22G30PMZ	FC K740 380 V 3 p. 22–30 kW 45–60 A enc. Profibus ONI	46–62	45–60	15
5	K740-33-30G37PM	FC K740 380 V 3 p. 30–37 kW 60–75 A enc. ONI	62–76	60–75	15
5	K740-33-30G37PMZ	FC K740 380 V 3 p. 30–37 kW 60–75 A enc. Profibus ONI	62–76	60–75	15
6	K740-33-37G45PM	FC K740 380 V 3 p. 37–45 kW 75–90 A enc. ONI	76–92	75–90	24
6	K740-33-37G45PMZ	FC K740 380 V 3 p. 37–45 kW 75–90 A enc. Profibus ONI	76–92	75–90	24
6	K740-33-45G55PM	FC K740 380 V 3 p. 45–55 kW 90–110 A enc. ONI	92–113	90–110	24
6	K740-33-45G55PMZ	FC K740 380 V 3 p. 45–55 kW 90–110 A enc. Profibus ONI	92–113	90–110	24
7	K740-33-55G75PM	FC K740 380 V 3 p. 55–75 kW 110–152 A enc. ONI	113–157	110–152	31
7	K740-33-55G75PMZ	FC K740 380 V 3 p. 55–75 kW 110–152 A enc. Profibus ONI	113–157	110–152	31
7	K740-33-75G93PM	FC K740 380 V 3 p. 75–93 kW 152–176 A enc. ONI	157–180	152–176	32
7	K740-33-75G93PMZ	FC K740 380 V 3 p. 75–93 kW 152–176 A enc. Profibus ONI	157–180	152–176	32
8	K740-33-93G110PM	FC K740 380 V 3 p. 93–110 kW 176–210 A enc. ONI	180–214	176–210	57
8	K740-33-93G110PMZ	FC K740 380 V 3 p. 93–110 kW 176–210 A enc. Profibus ONI	180–214	176–210	57
8	K740-33-110G132PM	FC K740 380 V 3 p. 110–132 kW 210–253 A enc. ONI	214–256	210–253	57
8	K740-33-110G132PMZ	FC K740 380 V 3 p. 110–132 kW 210–253 A enc. Profibus ONI	214–256	210–253	57

Size	Product ID	Name	Input current, A	Output current, A	Weight, kg, max.
9	K740-33-132G160PM	FC K740 380 V 3 p. 132–160 kW 253–300 A enc. ONI	256–305	253–300	92
9	K740-33-132G160PMZ	FC K740 380 V 3 p. 132–160 kW 253–300 A enc. Profibus ONI	256–305	253–300	92
9	K740-33-160G185PM	FC K740 380 V 3 p. 160–185 kW 300–340 A enc. ONI	305–344	300–340	92
9	K740-33-160G185PMZ	FC K740 380 V 3 p. 160–185 kW 300–340 A enc. Profibus ONI	305–344	300–340	92
9	K740-33-185G200PM	FC K740 380 V 3 p. 185–200 kW 340–380 A enc. ONI	344–383	340–380	92
9	K740-33-185G200PMZ	FC K740 380 V 3 p. 185–200 kW 340–380 A enc. Profibus ONI	344–383	340–380	92
10	K740-33-200G220PM	FC K740 380 V 3 p. 200–220 kW 380–420 A enc. ONI	383–425	380–420	185
10	K740-33-200G220PMZ	FC K740 380 V 3 p. 200–220 kW 380–420 A enc. Profibus ONI	383–425	380–420	185
10	K740-33-220GRM	FC K740 380 V 3 p. 220 kW 420 A DTT G-mode enc. ONI	425	420	185
10	K740-33-220GRMZ	FC K740 380 V 3 p. 220 kW 420 A DTT G-mode enc. Profibus ONI	425	420	185
10	K740-33-250PRM	FC K740 380 V 3 p. 250 kW 480 A DTT P-mode enc. ONI	484	480	185
10	K740-33-250PRMZ	FC K740 380 V 3 p. 250 kW 480 A DTT P-mode enc. Profibus ONI	484	480	185
11	K740-33-250G280PRM	FC K740 380 V 3 p. 250–280 kW 480–540 A DTT enc. ONI	484–543	480–540	240
11	K740-33-250G280PRMZ	FC K740 380 V 3 p. 250–280 kW 480–540 A DTT enc. Profibus ONI	484–543	480–540	240
11	K740-33-280G315PRM	FC K740 380 V 3 p. 280–315 kW 540–600 A DTT enc. ONI	543–605	540–600	240
11	K740-33-280G315PRMZ	FC K740 380 V 3 p. 280–315 kW 540–600 A DTT enc. Profibus ONI	543–605	540–600	240
11	K740-33-315G355PRM	FC K740 380 V 3 p. 315–355 kW 600–680 A DTT enc. ONI	605–714	600–680	240
11	K740-33-315G355PRMZ	FC K740 380 V 3 p. 315–355 kW 600–680 A DTT enc. Profibus ONI	605–714	600–680	240
12	K740-33-355G375PRM	FC K740 380 V 3 p. 355–375 kW 680–710 A DTT enc. ONI	683–714	680–710	500
12	K740-33-355G375PRMZ	FC K740 380 V 3 p. 355–375 kW 680–710 A DTT enc. Profibus ONI	683–714	680–710	500
12	K740-33-375GRM	FC K740 380 V 3 p. 375 kW 710 A DTT G-mode enc. ONI	714	710	500
12	K740-33-375GRMZ	FC K740 380 V 3 p. 375 kW 710 A DTT G-mode enc. Profibus ONI	714	710	500
12	K740-33-400PRM	FC K740 380 V 3 p. 400 kW 750 A DTT P-mode enc. ONI	753	750	450
12	K740-33-400PRMZ	FC K740 380 V 3 p. 400 kW 750 A DTT P-mode enc. Profibus ONI	753	750	450
12	K740-33-400GRM	FC K740 380 V 3 p. 400 kW 750 A DTT G-mode enc. ONI	753	750	450
12	K740-33-400GRMZ	FC K740 380 V 3 p. 400 kW 750 A DTT G-mode enc. Profibus ONI	753	750	450
12	K740-33-500PRM	FC K740 380 V 3 p. 500 kW 930 A DTT P-mode enc. ONI	934	930	450
12	K740-33-500PRMZ	FC K740 380 V 3 p. 500 kW 930 A DTT P-mode enc. Profibus ONI	934	930	450
12	K740-33-500GRM	FC K740 380 V 3 p. 500 kW 930 A DTT G-mode enc. ONI	934	930	500
12	K740-33-500GRMZ	FC K740 380 V 3 p. 500 kW 930 A DTT G-mode enc. Profibus ONI	934	930	500
12	K740-33-630GRM	FC K740 380 V 3 p. 630 kW 1200 A DTT G-mode enc. ONI	1206	1200	500
12	K740-33-630GRMZ	FC K740 380 V 3 p. 630 kW 1200 A DTT G-mode enc. Profibus ONI	1206	1200	500

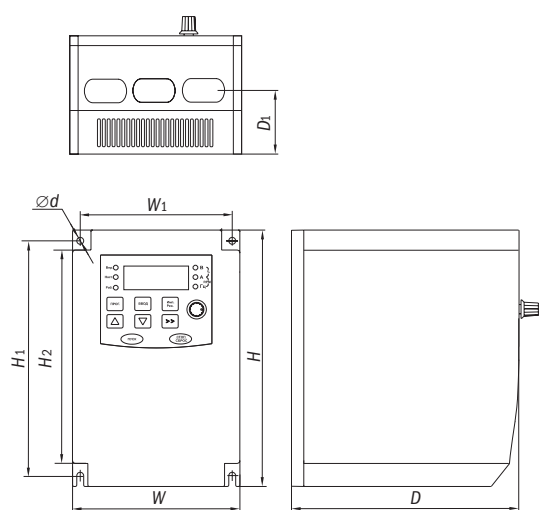
Size	Product ID	Name	Input current, A	Output current, A	Weight, kg, max.
690 V					
13	K740-63-22G30PM	FC K740 690 V 3 p. 22-30 kW 28-38 A enc. ONI	30-40	28-38	35
13	K740-63-22G30PMZ	FC K740 690 V 3 p. 22-30 kW 28-38 A enc. Profibus ONI	30-40	28-38	35
13	K740-63-30G37PM	FC K740 690 V 3 p. 30-37 kW 38-46 A enc. ONI	40-49	38-46	35
13	K740-63-30G37PMZ	FC K740 690 V 3 p. 30-37 kW 38-46 A enc. Profibus ONI	40-49	38-46	35
14	K740-63-37G45PM	FC K740 690 V 3 p. 37-45 kW 46-56 A enc. ONI	49-59	46-56	50
14	K740-63-37G45PMZ	FC K740 690 V 3 p. 37-45 kW 46-56 A enc. Profibus ONI	49-59	46-56	50
14	K740-63-45G55PM	FC K740 690 V 3 p. 45-55 kW 56-68 A enc. ONI	59-72	56-68	50
14	K740-63-45G55PMZ	FC K740 690 V 3 p. 45-55 kW 56-68 A enc. Profibus ONI	59-72	56-68	50
14	K740-63-55G75PM	FC K740 690 V 3 p. 55-75 kW 68-92 A enc. ONI	72-97	68-92	60
14	K740-63-55G75PMZ	FC K740 690 V 3 p. 55-75 kW 68-92 A enc. Profibus ONI	72-97	68-92	60
15	K740-63-75G93PM	FC K740 690 V 3 p. 75-93 kW 92-110 A enc. ONI	97-116	92-110	79
15	K740-63-75G93PMZ	FC K740 690 V 3 p. 75-93 kW 92-110 A enc. Profibus ONI	97-116	92-110	79
15	K740-63-93G110PM	FC K740 690 V 3 p. 93-110 kW 110-132 A enc. ONI	116-139	110-132	89
15	K740-63-93G110PMZ	FC K740 690 V 3 p. 93-110 kW 110-132 A enc. Profibus ONI	116-139	110-132	89
15	K740-63-110G132PM	FC K740 690 V 3 p. 110-132 kW 132-155 A enc. ONI	139-163	132-155	89
15	K740-63-110G132PMZ	FC K740 690 V 3 p. 110-132 kW 132-155 A enc. Profibus ONI	139-163	132-155	89
16	K740-63-132G160PRM	FC K740 690 V 3 p. 132-160 kW 155-180 A DTT enc. ONI	163-190	155-180	260
16	K740-63-132G160PRMZ	FC K740 690 V 3 p. 132-160 kW 155-180 A DTT enc. Profibus ONI	163-190	155-180	260
16	K740-63-160G185PRM	FC K740 690 V 3 p. 160-185 kW 180-210 A DTT enc. ONI	190-221	180-210	270
16	K740-63-160G185PRMZ	FC K740 690 V 3 p. 160-185 kW 180-210 A DTT enc. Profibus ONI	190-221	180-210	270
16	K740-63-185G220PM	FC K740 690 V 3 p. 185-220 kW 210-245 A DTT enc. ONI	221-258	210-245	270
16	K740-63-185G220PRMZ	FC K740 690 V 3 p. 185-220 kW 210-245 A DTT enc. Profibus ONI	221-258	210-245	270
16	K740-63-220G250PRM	FC K740 690 V 3 p. 220-250 kW 245-275 A DTT enc. ONI	258-290	245-275	290
16	K740-63-220G250PRMZ	FC K740 690 V 3 p. 220-250 kW 245-275 A DTT enc. Profibus ONI	258-290	245-275	290
16	K740-63-250G280PRM	FC K740 690 V 3 p. 250-280 kW 275-305 A DTT enc. ONI	290-321	275-305	290
16	K740-63-250G280PRMZ	FC K740 690 V 3 p. 250-280 kW 275-305 A DTT enc. Profibus ONI	290-321	275-305	290
17	K740-63-280G315PRM	FC K740 690 V 3 p. 280-315 kW 305-345 A DTT enc. ONI	321-364	305-345	310
17	K740-63-280G315PRMZ	FC K740 690 V 3 p. 280-315 kW 305-345 A DTT enc. Profibus ONI	321-364	305-345	310
17	K740-63-315G355PRM	FC K740 690 V 3 p. 315-355 kW 345-390 A DTT enc. ONI	364-411	345-390	310
17	K740-63-315G355PRMZ	FC K740 690 V 3 p. 315-355 kW 345-390 A DTT enc. Profibus ONI	364-411	345-390	310
17	K740-63-355G400PRM	FC K740 690 V 3 p. 355-400 kW 390-430 A DTT enc. ONI	411-453	390-430	310
17	K740-63-355G400PRMZ	FC K740 690 V 3 p. 355-400 kW 390-430 A DTT enc. Profibus ONI	411-453	390-430	310

Size	Product ID	Name	Input current, A	Output current, A	Weight, kg, max.
18	K740-63-400GRM	FC K740 690 V 3 p. 400 kW 430 A DTT G-mode enc. ONI	453	430	550
18	K740-63-400GRMZ	FC K740 690 V 3 p. 400 kW 430 A DTT G-mode enc. Profibus ONI	453	430	550
18	K740-63-500PRM	FC K740 690 V 3 p. 500 kW 540 A DTT P-mode enc. ONI	569	540	550
18	K740-63-500PRMZ	FC K740 690 V 3 p. 500 kW 540 A DTT P-mode enc. Profibus ONI	569	540	550
18	K740-63-500GRM	FC K740 690 V 3 p. 500 kW 540 A DTT G-mode enc. ONI	569	540	550
18	K740-63-500GRMZ	FC K740 690 V 3 p. 500 kW 540 A DTT G-mode enc. Profibus ONI	569	540	550
18	K740-63-600PRM	FC K740 690 V 3 p. 600 kW 630 A DTT P-mode enc. ONI	664	630	550
18	K740-63-600PRMZ	FC K740 690 V 3 p. 600 kW 630 A DTT P-mode enc. Profibus ONI	664	630	550
18	K740-63-600GRM	FC K740 690 V 3 p. 600 kW 630 A DTT G-mode enc. ONI	664	630	550
18	K740-63-600GRMZ	FC K740 690 V 3 p. 600 kW 630 A DTT G-mode enc. Profibus ONI	664	630	550
18	K740-63-700PRM	FC K740 690 V 3 p. 700 kW 720 A DTT P-mode enc. ONI	758	720	550
18	K740-63-700PRMZ	FC K740 690 V 3 p. 700 kW 720 A DTT P-mode enc. Profibus ONI	758	720	550
18	K740-63-700GRM	FC K740 690 V 3 p. 700 kW 720 A DTT G-mode enc. ONI	758	720	550
18	K740-63-700GRMZ	FC K740 690 V 3 p. 700 kW 720 A DTT G-mode enc. Profibus ONI	758	720	550

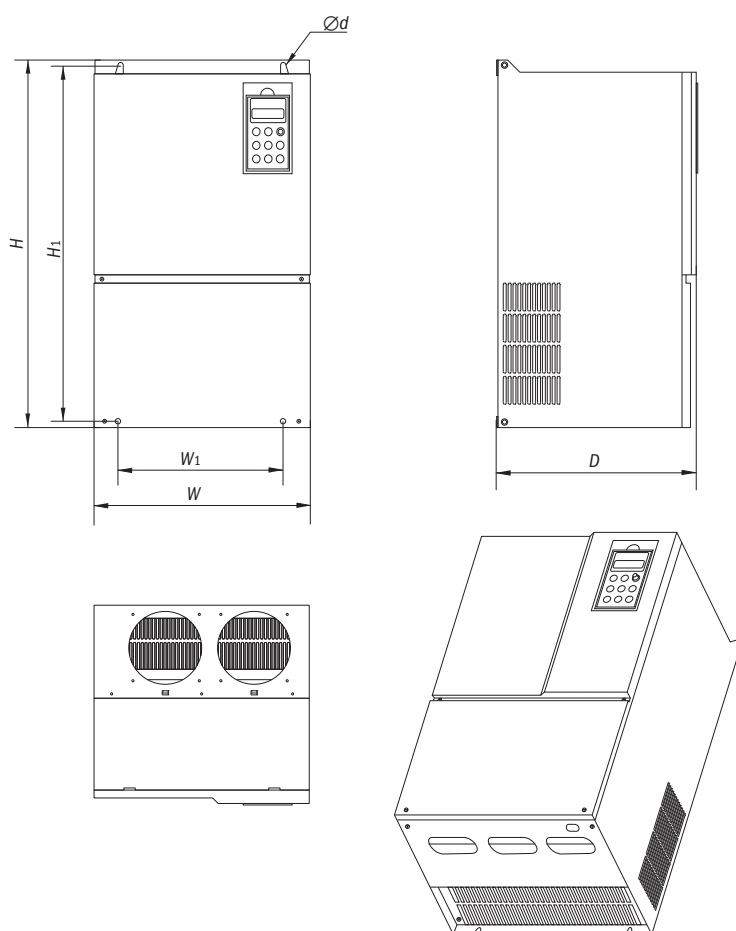
SPECIFICATIONS

Parameter		Specifications
Control method		V/f. Vector control with open circuit (SVC) Vector control with feedback (VC)
Speed control error, %		SVC: 0.5. VC: 0.2
Curve V/f		Type of voltage/frequency curve: straight line, multiple points, power function, voltage/frequency division
Overload capacity		HD: 150 % of rated current – 60 s; 180 % of rated current – 3 s
Starting torque		HD: 0.25 Hz/150 % (SVC), 180 %/0 Hz (VC); ND: 100 %/0.5 Hz
Speed regulation limits		1:100 (SVC), 1:1000 (VC)
Torque compensation		Torque compensation, manual configuration (0.1÷30.0 %) Torque compensation, manual configuration (0.1÷30.0 %)
Inputs/outputs	Power supply +24 V	Maximum output current 300 mA, no overload protection
	Input terminals	5 digital inputs DI1÷DI5 in basic configuration. 4 additional inputs DI6÷DI9 on an expansion board (optional). 2 analog inputs, from 0 to 10 V or 0/4 to 20 mA. 1 additional analog input on an expansion board from 0 to 10 V (optional)
	Output terminals	2 analog outputs, from 0 to 10 V or 0 to 20 mA. 2 digital outputs (open collector) on an expansion board (optional). 1 digital output (open collector). 1 high frequency pulse output (open collector) 0÷100 kHz. 2 relays
	Control sources	Keyboard, inputs/outputs, communication via RS-485 or Profibus (selected upon ordering)
Functions	Frequency source	14 kinds of main frequency sources. 14 kinds of aux frequency sources
	Acceleration and deceleration time	Several methods of combined switching between frequency sources 4 linear acceleration times, S-curve 1, S-curve 2
	Emergency shutdown	Immediate shutdown of frequency converter output
	Stepped speed	Up to 16 different speeds can be set by combining switches of multiple-step speed terminals
	Inching function control	Time of operation on inching speed, direction and frequency are configured separately. A priority of inching speed can be selected
	Searching for the speed	Frequency converter monitors motor speed before the start
	Built-in PID	Yes, can support a particular system parameter using a feedback sensor
	AVR function	Providing stable output voltage in case of mains voltage fluctuations
	DC braking	Carries out quick and stable stop
	Slip compensation	Compensates deviations of rotation speed, caused by increased load
	Frequency jumping	Interrupts operation on load resonance frequency
	PLC	Embedded simple logic PLC, virtual input and outputs, embedded comparison block and logic block, parameter backup and recovery, error log
Analog input (AI)		2 points (AI: 0÷5 V, 0÷10 V (12 bits), 0/4÷20 mA (11 bits))
Inputs/outputs	Digital input (DI)	5 points
	Analog output (AO)	1 point (FM: 0÷10 B (10 bits))
	Digital output (DO)	1 point high frequency pulse output (open collector) 0÷100 kHz
	Relay output (RO)	2 points
	Interface	RS-485, Modbus or Profibus protocol, encoder support (optionally, using expansion board)

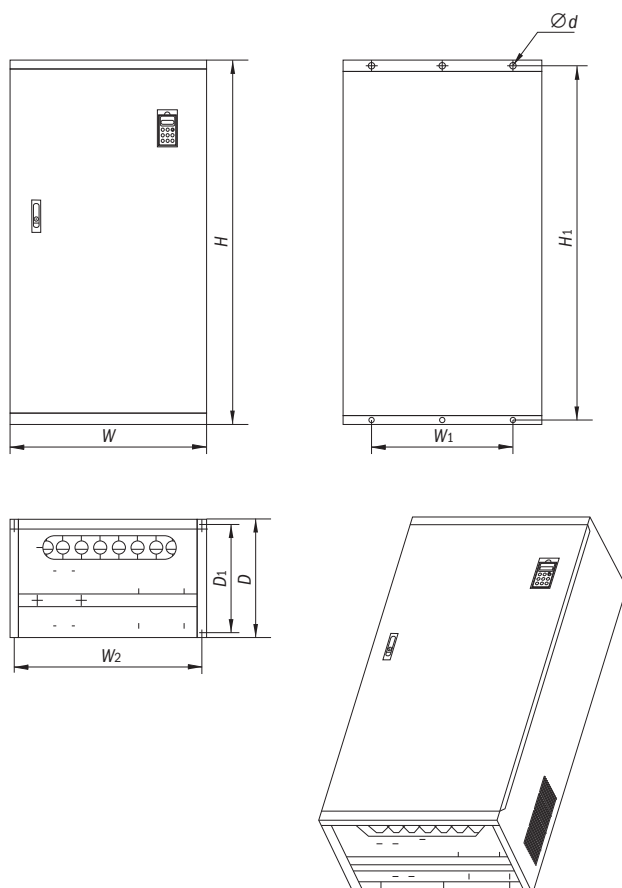
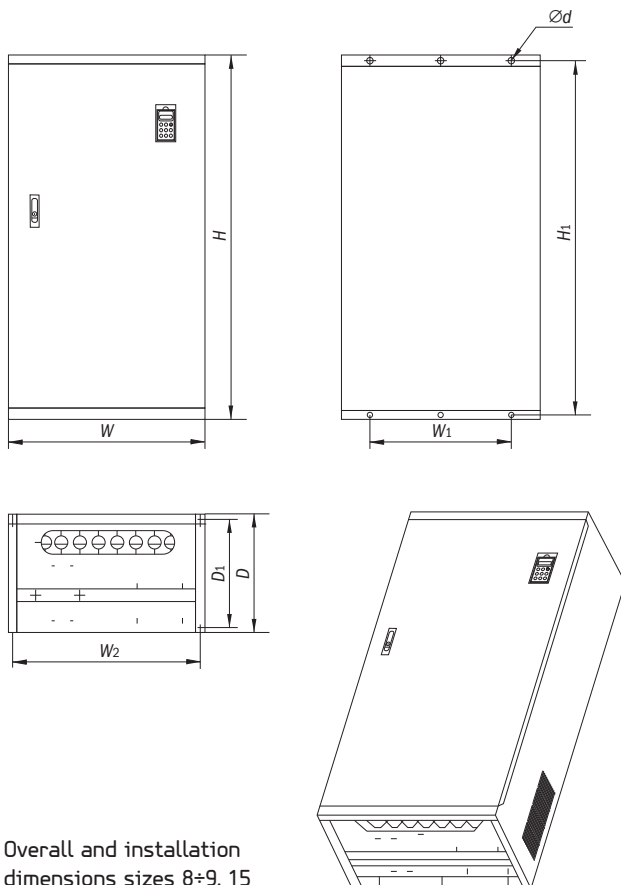
DIMENSIONAL DRAWINGS

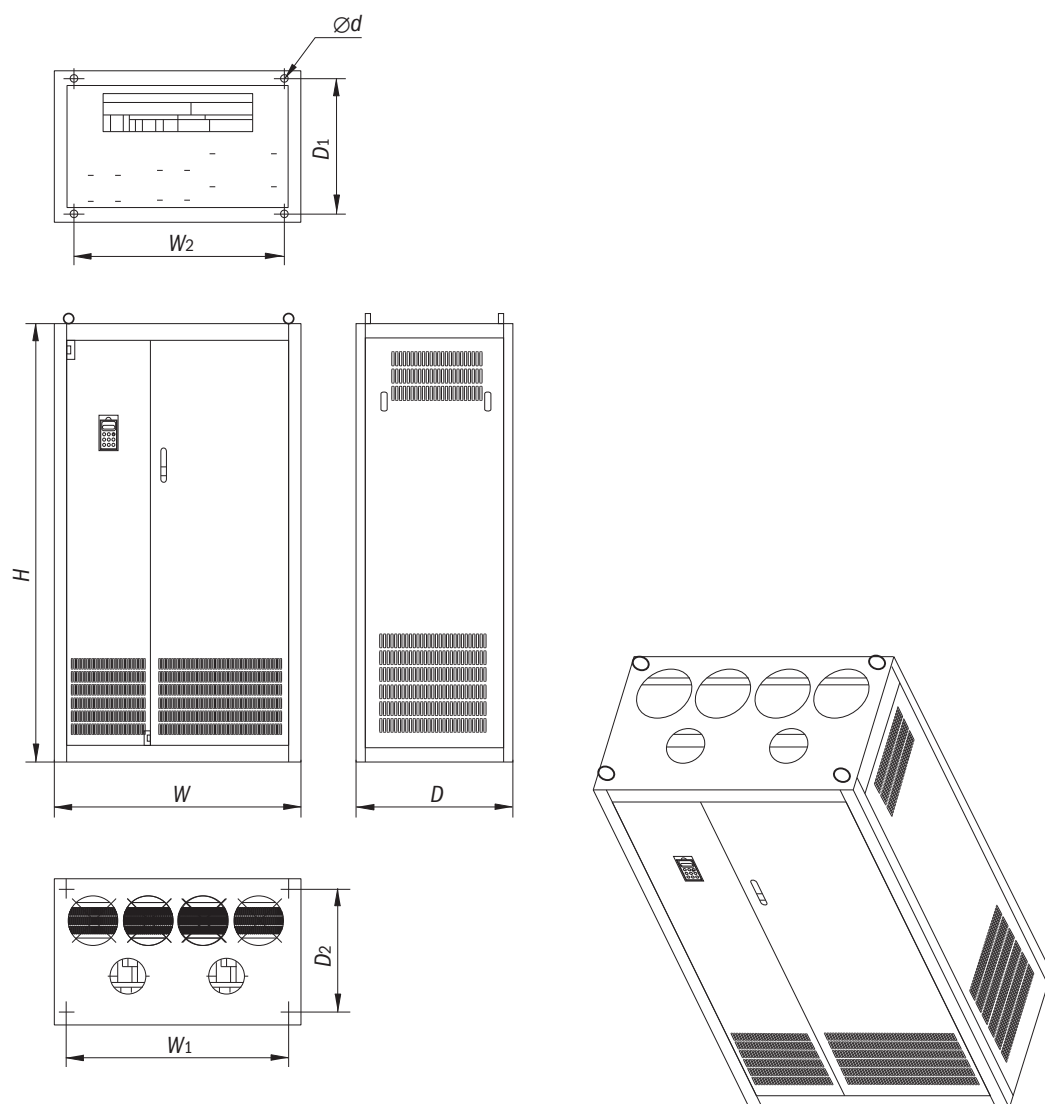


Overall and installation dimensions sizes 1+3



Overall and installation dimensions sizes 4+7, 13+14





Overall and installation dimensions sizes 12, 17÷18

Size	External view and installation dimensions, mm										
	W	W ₁	W ₂	H	H ₁	H ₂	D	D ₁	D ₂	D ₃	d
1	130	120	—	180	170	154	148	85	—	—	5
2	155	145	—	225	215	199	160	97	—	—	5
3	200	188	—	300	288	270	170	130	—	—	6
4	250	180	—	420	405	—	189	—	—	—	7
5	300	190	—	460	445	—	209	—	—	—	7
6	355	290	—	530	515	—	257	—	—	—	9
7	390	290	—	600	585	—	257	—	—	—	9
8	470	300	435	435	750	720	305	270	—	—	13
9	530	350	495	495	950	920	375	345	—	—	13
10	620	450	580	580	1250	1210	420	380	—	—	15
11	700	500	600	600	1400	1360	420	380	—	—	15
12	1000	900	850	1800	—	600	600	550	500	300	16
13	355	220	—	540	525	—	297	—	—	—	7
14	400	300	—	720	690	—	312	—	—	—	12
15	540	420	505	505	1000	970	360	330	—	—	14
16	540	420	496	496	1170	1130	400	360	—	—	13
17	800	700	700	1800	—	600	600	500	500	390	16
18	1000	900	850	1800	—	600	600	550	500	436	16



SOFT STARTERS SFB

Soft starters SFB ONI® are intended to reduce starting current at motor start by smooth voltage rise. They are designed with a focus on reliability and functionality and offer a flexible selection of required features. Such options as Modbus RTU protocol support, selection of a controlling voltage, wide range of voltages from 220 to 500 V enable maximum utilization of equipment potential. Built-in bypass for all power ratings without exclusions help increase energy efficiency, extend service life of the plants, reduce heat losses and equipment wear.

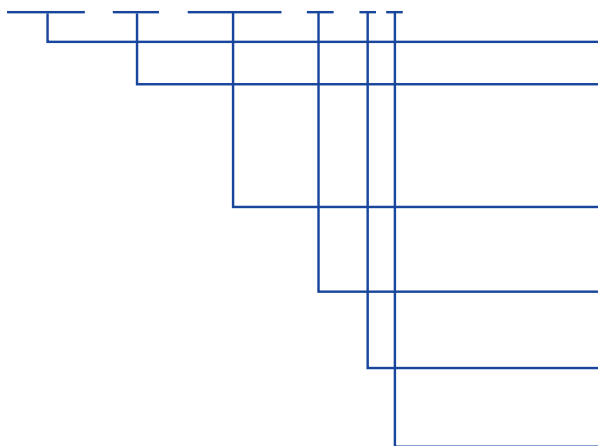


ADVANTAGES

- Wide range of optional versions help maximize efficiency of the equipment.
- Smart design. Simple and functional solutions allow consumers to operate the soft starters in a "plug&play" algorithm.
- Modbus support — for installation into systems with automated monitoring and control. Enables state monitoring in real time.
- Motor protection features help prevent equipment shutdown in emergency situations.
- Built-in bypass minimizes emission of heat in the cabinet and increases quantity of starts per hour.
- Two relay outputs allow users to configure the "operation/fault" alarm on the equipment without additional devices.
- Several methods to connect the motor windings: "star", "outer delta" and "inner delta" diagrams.

PRODUCT ID DECODING

SFB-21-C075-A-00



Soft starter series

Rated voltage:

21 – 230 V 1 p.;**23** – 500 V 3 p.**33** – 400 V 3 p.;

Rated power:

C075 – 0.75 kW; **D11** – 1.1 kW; 22 – 22 kW

Control supply voltage:

A – 100÷240 V AC; E – 24 V DC

RS-485 (Modbus RTU):

0 – No;**1** – Integrated

START button:

0 – No;**1** – Integrated

SPECIFICATIONS

Parameter	Value
Rated voltage	220 V, 380 V, 500 V AC (–15 to 10 %)*
Rated frequency, Hz	50/60
Rated voltage of control circuit	100 ÷ 240 V AC or 24 V DC*
Provided methods for winding connection	"Star" diagram connection
"Inner delta" diagram connection	200 ÷ 415 (from –15 to 10 %)
"Outer delta" diagram connection	13
Initial start voltage	30÷70
Acceleration time, s	1÷30
Deceleration time, s	0÷30
Bypass	Built-in
Starts per hour	At normal load or without load up to 10. At heavy load up to 5
Industrial network	Modbus RTU (RS-485)*
Protections	Short circuit protection Long overload protection Protection against overload 10 A, class 10, 20 and 30 Protection against phase currents unbalance Protection against incorrect phase sequencing Protection against phase faults Protection against voltage loss Overtemperature protection SCR
Utilization category	AC-53a
Permissible loads	300 % during 7 s (with 50 % ON time and 50 % OFF time)
Climatic version according to GOST 15150	NF3
Operating temperature, °C	0–50
Humidity	– relative humidity – 75 % at +15 °C. The converters may be operated at 95 % relative humidity and +25 °C temperature;
Storage temperature, °C	–40...+70
Protection class according to GOST 14254 (IEC 60529)	IP20
Altitude above sea level, m	1000 (at altitude higher than 1000 m, rated current decreases by 1 % per every 100 m)
Environment	– non-explosive environment, that must not contain any corrosive gases and vapors in concentrations that destroy metals and insulation, not saturated with conductive dust and water vapor.
Structural design category as per GOST 7516.1	M2

* Depending on the ordered model.

PRODUCT RANGE

Table 1 shows rated currents and dimensions for single-phase models with rated voltage 230 V.

Table 1

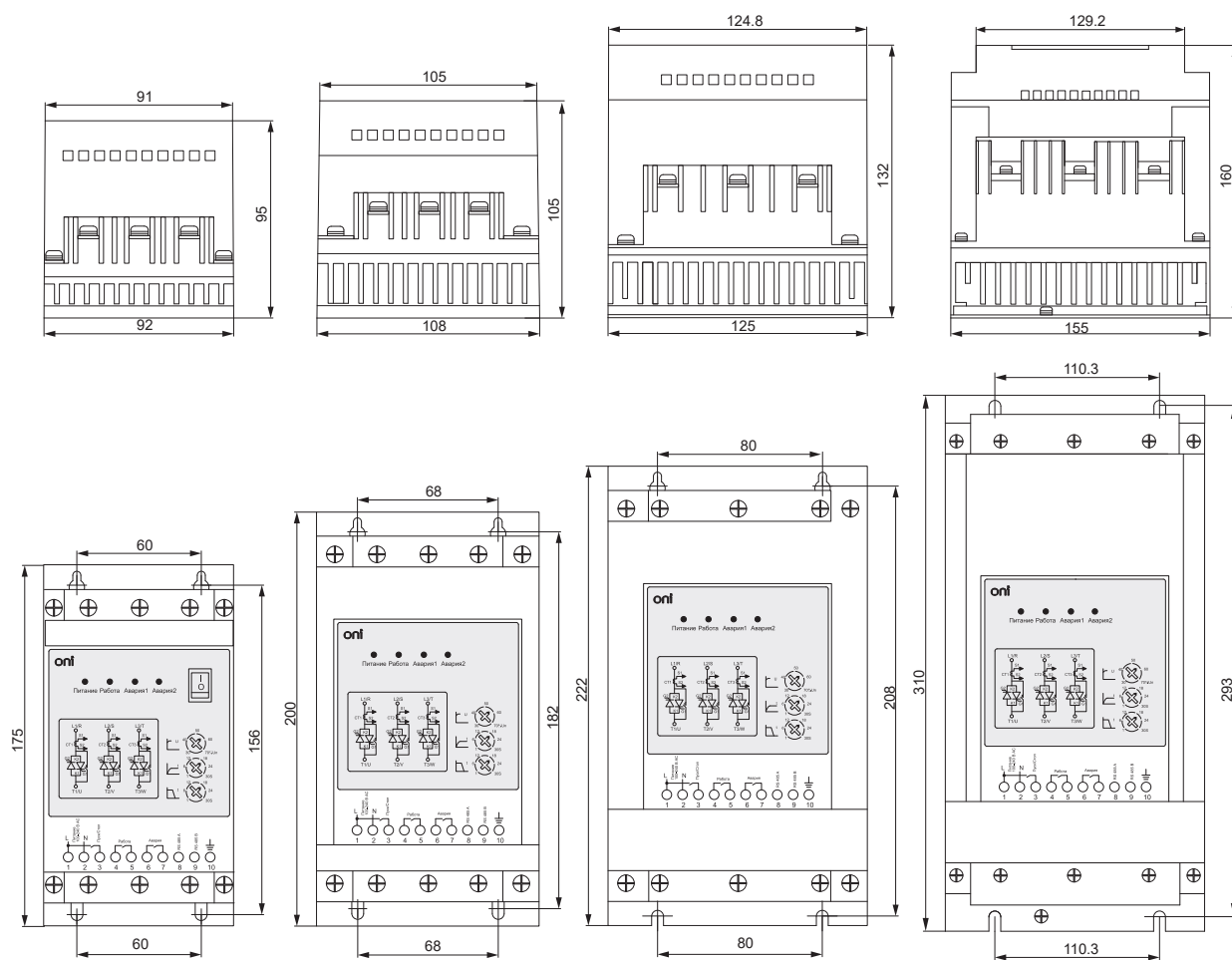
Model	Power, kW	Rated current, A	Size	Weight, kg
SFB-21-D04-X-XX	0.37	2	1	0.8
SFB-21-C055-X-XX	0.55	3	1	0.8
SFB-21-C075-X-XX	0.75	4	1	0.8
SFB-21-D11-X-XX	1.1	6	1	0.8
SFB-21-D15-X-XX	1.5	9	1	0.8
SFB-21-D22-X-XX	2.2	12	1	0.8
SFB-21-D37-X-XX	3.7	20	1	1
SFB-21-D55-X-XX	5.5	30	3	1
SFB-21-D75-X-XX	7.5	45	3	2

Table 2 shows rated currents and dimensions for three-phase models with rated voltage 400 V.

Table 2

Model	Power, kW	Rated current, A	Size	Weight, kg
SFB-33-C075-X-XX	0.75	1.5	1	0.8
SFB-33-D11-X-XX	1.1	2.2	1	0.8
SFB-33-D15-X-XX	1.5	3	1	0.8
SFB-33-D22-X-XX	2.2	4.5	1	0.8
SFB-33-D37-X-XX	3.7	7.5	1	0.8
SFB-33-D55-X-XX	5.5	11	1	0.8
SFB-33-D75-X-XX	7.5	15	2	1.4
SFB-33-11-X-XX	11	22	2	1.4
SFB-33-15-X-XX	15	30	3	2.4
SFB-33-18-X-XX	18.5	37	3	2.4
SFB-33-22-X-XX	22	45	3	2.4
SFB-33-30-X-XX	30	60	3	2.4
SFB-33-37-X-XX	37	75	3	2.4
SFB-33-45-X-XX	45	90	4	5
SFB-33-55-X-XX	55	110	4	5.2
SFB-33-75-X-XX	75	150	4	5.2

OVERALL DIMENSIONS, MM



Size 1

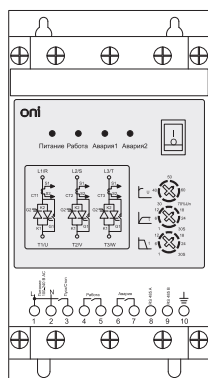
Size 2

Size 3

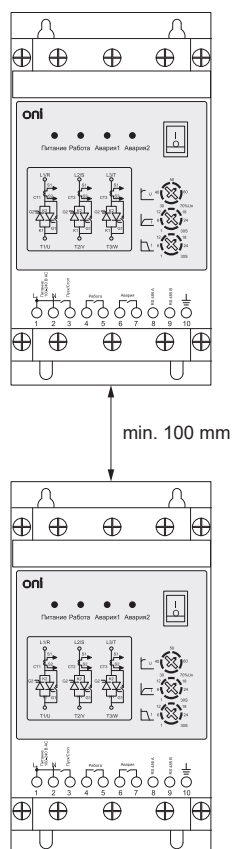
Dimensions 4

INSTALLATION

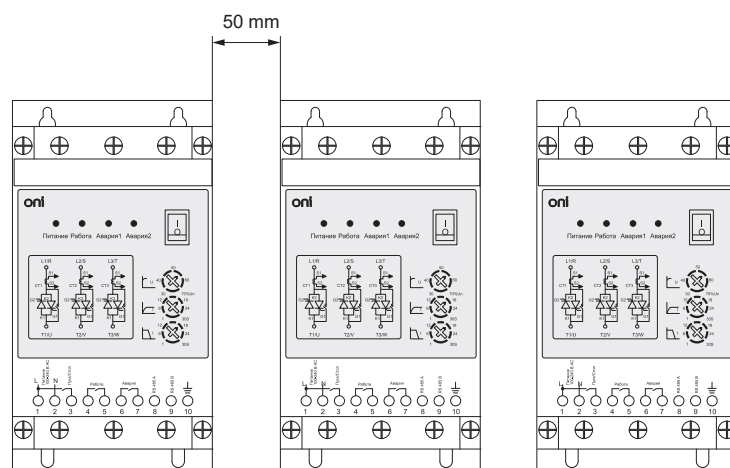
a)



b)



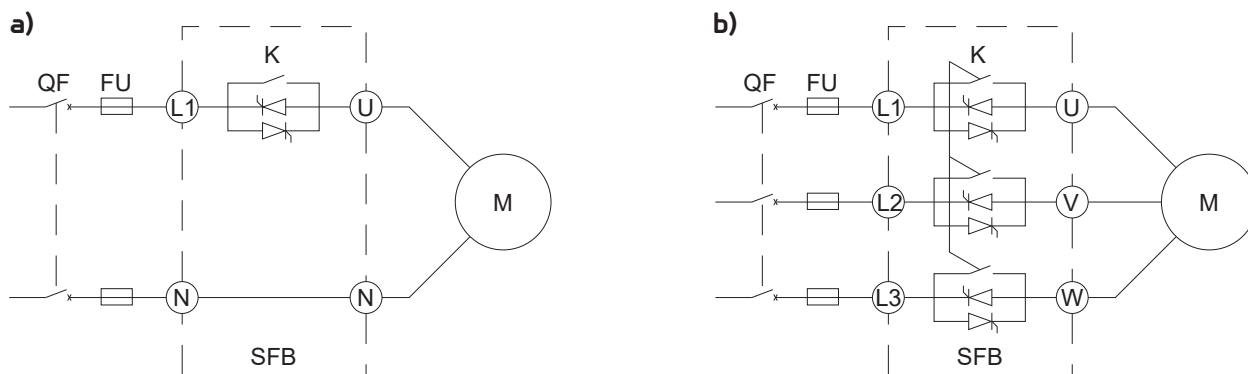
c)



Device installation: a) single, b) vertical in a group, c) wall to wall in a group.

SOFT STARTERS SFB CONNECTION DIAGRAMS

Power circuit connection



Power circuit diagram: a) for models with single-phase power supply, b) for models with three-phase power supply, where

QF – load switch,

FU – fuse,

K – electromechanical relay of an embedded bypass.

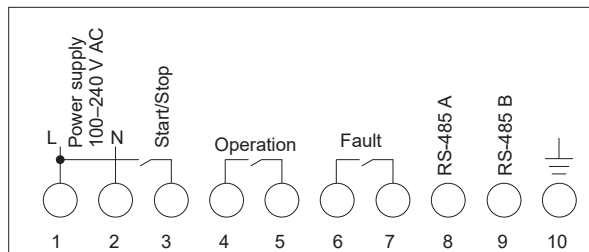
Designation of power circuit terminals

Terminal marking	Terminal name	Function
SFB 1 phase 230 V		
L/R, N	Input power terminals	Single-phase power connection
T/U, N	Output terminals	Single-phase motor connection
SFB 3 phases 400 V and 500 V		
L1/R, L2/S, L3/T	Input power terminals	Three-phase power connection
T1/U, T2/V, T3/W	Output terminals	Three-phase motor connection

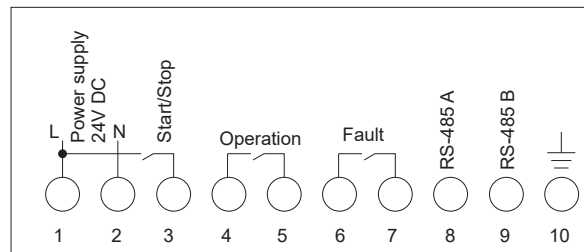
Power circuit connection

The figure shows a diagram for connection of control circuit terminals.

a)



b)

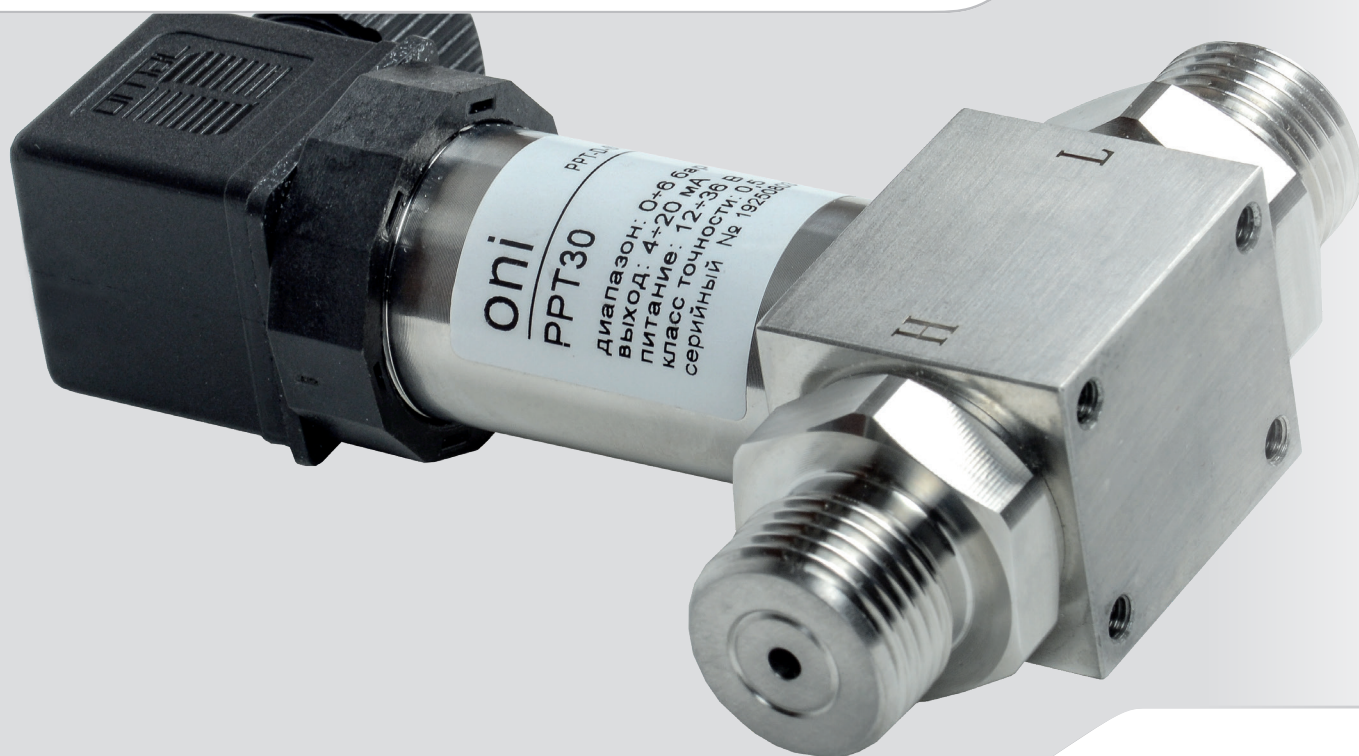


Control terminals diagram: a) control board with power voltage 100-240 V AC,
b) control board with power voltage 24 V DC.

Control terminals assignment is described in the table.

Terminal marking	No.	Name	Description
L	1	Control circuit power supply	Control circuit power supply for boards with rated voltage 100÷240 V AC
N	2		
" + "	1	Control circuit power supply	Control circuit power supply for boards with rated voltage 24 V DC
" - "	2		
Start/Stop	3	"Start/Stop" control signal	Terminal for start and stop signal input
Operation	4	"Operation" relay output	When a soft starter is in "Operation" "Acceleration" "Deceleration" and "Bypass" state, relay is closed. Rated relay current – 5 A 220 V AC
Operation	5	Common terminal of the "Operation" relay	
Fault	6	"Fault" relay output	When a soft starter is in "Fault" state, relay is closed. Rated relay current – 5 A 220 V AC
Fault	7	Common terminal of the "Fault" relay	
RS-485 A	8	RS-485 line A	Terminals for connection to the Modbus industrial network*
RS-485 B	9	RS-485 line B	
	10	Grounding terminal	

* Only for soft starters version with an integrated Modbus SFB-XX-XXX-X-X1.
Detailed information can be requested from distributor.



PRESSURE SENSORS ONI®

Pressure sensor is a device that converts value of the measured pressure to a standardized industrial signal. Pressure sensors are the main component in nodes in systems where it is required to monitor pressure of various media (liquid, gas, steam).

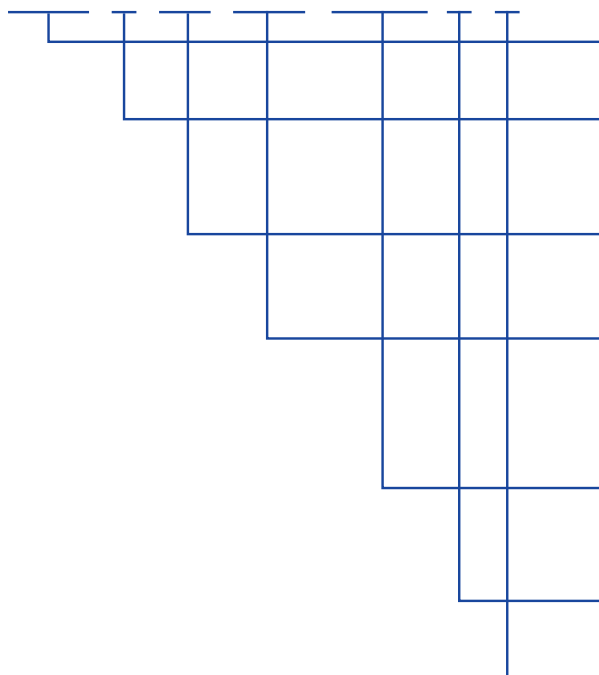


ADVANTAGES

- Measurement ranges: from 0...2.5 bar to 0...100 bar.
- High accuracy class: 0.25.
- Unified output signals: 4–20 mA or 0–10 V.
- Case and membrane material: stainless steel.
- Various types of connection to the process: G1/2, G1/4, M20×1.5.
- Electrical connection: DIN43650, Mini 4-pin.
- Degree of protection: IP65.
- High resilience to interference, vibration and impact loads.
- 1.5X overload on pressure.

PRODUCT ID DECODING

PPT-G-ST-010-4-20-3-2



PPT – name of the pressure transducer series

Type of pressure measured:

A – absolute; **G** – redundant;

D – differential

Accuracy class (limit of main allowable error):

ST – 0.5 (± 0.5 %); **HY** – 0.25 (± 0.25 %)

Measurement range:

025 – 0–2.5 bar; **006** – 0–6 bar

010 – 0–10 bar; **016** – 0–16 bar

025 – 0–25 bar; **100** – 0–100 bar

Output signal:

4-20 – direct current power 4–20 mA;

0-10 – direct current voltage 0–10 V

Connecting thread:

1 – G1/4; **2** – G1/2; **3** – M20×1.5

Electrical connection:

1 – Mini 4-pin; **2** – DIN 43650

PRODUCT RANGE

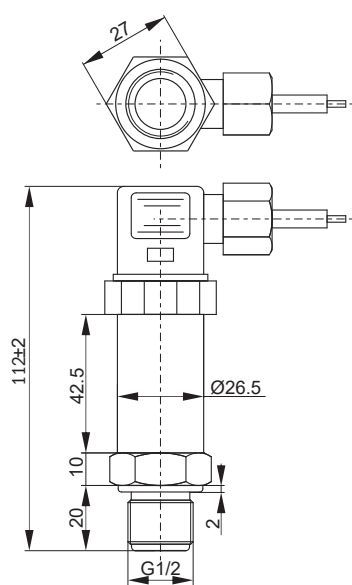
	Name	Output signal type	Connection to the process	Electrical Connection	Accuracy class	Type of pressure measured	Range of pressure measured, bar	Product ID
	Pres. transd. PPT10 0.25 % 0-100 bar 4-20 mA G1/2 DIN 43650	4-20 mA	G1/2	DIN 43650	0.25	Redundant	0-100	PPT-G-HY-100-4-20-2-2
	Pres. transd. PPT10 0.5 % 0-16 bar 0-10 V G1/2 DIN 43650	0-10 V	G1/2	DIN 43650	0.5	Redundant	0-16	PPT-G-ST-016-0-10-2-2
	Pres. transd. PPT10 0.5 % 0-100 bar 4-20 mA G1/2 DIN 43650	4-20 mA	G1/2	DIN 43650	0.5	Redundant	0-100	PPT-G-ST-100-4-20-2-2
	Pres. transd. PPT10 0.5 % 0-100 bar 0-10 V G1/2 DIN 43650	0-10 V	G1/2	DIN 43650	0.5	Redundant	0-100	PPT-G-ST-100-0-10-2-2
	Pres. transd. PPT10 0.25 % 0-10 bar 0-10 V G1/2 DIN 43650	0-10 V	G1/2	DIN 43650	0.25	Redundant	0-10	PPT-G-HY-010-0-10-2-2
	Pres. transd. PPT20 0.25 % 0-25 bar 4-20 mA G1/2 DIN 43650	4-20 mA	G1/2	DIN 43650	0.25	Absolute	0-25	PPT-A-HY-025-4-20-2-2
	Pres. transd. PPT20 0.5 % 0-25 bar 4-20 mA G1/2 DIN 43650	4-20 mA	G1/2	DIN 43650	0.5	Absolute	0-25	PPT-A-ST-025-4-20-2-2
	Pres. transd. PPT20 0.5 % 0-25 bar 0-10 V G1/2 DIN 43650	0-10 V	G1/2	DIN 43650	0.5	Absolute	0-25	PPT-A-ST-025-0-10-2-2
	Pres. transd. PPT10 0.25 % 0-25 bar 4-20 mA G1/2 DIN 43650	4-20 mA	G1/2	DIN 43650	0.25	Redundant	0-25	PPT-G-HY-025-4-20-2-2
	Pres. transd. PPT20 0.25 % 0-6 bar 4-20 mA G1/2 DIN 43650	4-20 mA	G1/2	DIN 43650	0.25	Absolute	0-6	PPT-A-HY-006-4-20-2-2
	Pres. transd. PPT20 0.5 % 0-6 bar 4-20 mA G1/2 DIN 43650	4-20 mA	G1/2	G1/2 DIN 43650	0.5	Absolute	0-6	PPT-A-ST-006-4-20-2-2
	Pres. transd. PPT10 0.25 % 0-6 bar 4-20 mA G1/2 DIN 43650	4-20 mA	G1/2	DIN 43650	0.25	Redundant	0-6	PPT-G-HY-006-4-20-2-2
	Pres. transd. PPT10 0.5 % 0-16 bar 4-20 mA G1/4 Mini 4-pin	4-20 mA	G1/4	Mini 4-pin	0.5	Redundant	0-16	PPT-G-ST-016-4-20-1-1
	Pres. transd. PPT10 0.5 % 0-10 bar 4-20 mA G1/4 Mini 4-pin	4-20 mA	G1/4	Mini 4-pin	0.5	Redundant	0-10	PPT-G-ST-010-4-20-1-1
	Pres. transd. PPT10 0.5 % 0-25 bar 4-20 mA G1/4 Mini 4-pin	4-20 mA	G1/4	Mini 4-pin	0.5	Redundant	0-25	PPT-G-ST-025-4-20-1-1
	Pres. transd. PPT10 0.5 % 0-2.5 bar 4-20 mA G1/4 Mini 4-pin	4-20 mA	G1/4	Mini 4-pin	0.5	Redundant	0-2.5	PPT-G-ST-D25-4-20-1-1
	Pres. transd. PPT10 0.5 % 0-6 bar 4-20 mA G1/4 Mini 4-pin	4-20 mA	G1/4	Mini 4-pin	0.5	Redundant	0-6	PPT-G-ST-006-4-20-1-1
	Pres. transd. PPT30 0.5 % 0-6 bar 4-20 mA G1/2 DIN 43650	4-20 mA	G1/2	DIN 43650	0.5	Differential	0-6	PPT-D-ST-006-4-20-2-2

	Name	Output signal type	Connection to the process	Electrical Connection	Accuracy class	Type of pressure measured	Range of pressure measured, bar	Product ID
	Pres. transd. PPT10 0,5 % 0-6 bar 4-20 mA M20 DIN 43650 ONI	4-20 mA	M20×1.5	DIN 43650	0.5	Redundant	0-6	PPT-G-ST-006-4-20-3-2
	Pres. transd. PPT10 0,5 % 0-10 bar 4-20 mA M20 DIN 43650 ONI	4-20 mA	M20×1.5	DIN 43650	0.5	Redundant	0-10	PPT-G-ST-010-4-20-3-2
	Pres. transd. PPT10 0,5 % 0-16 bar 4-20 mA M20 DIN 43650 ONI	4-20 mA	M20×1.5	DIN 43650	0.5	Redundant	0-16	PPT-G-ST-016-4-20-3-2
	Pres. transd. PPT10 0,5 % 0-25 bar 4-20 mA M20 DIN 43650 ONI	4-20 mA	M20×1.5	DIN 43650	0.5	Redundant	0-25	PPT-G-ST-025-4-20-3-2
	Pres. transd. PPT20 0,5 % 0-6 bar 4-20 mA M20 DIN 43650 ONI	4-20 mA	M20×1.5	DIN 43650	0.5	Absolute	0-6	PPT-A-ST-006-4-20-3-2
	Pres. transd. PPT20 0,5 % 0-10 bar 4-20 mA M20 DIN 43650 ONI	4-20 mA	M20×1.5	DIN 43650	0.5	Absolute	0-10	PPT-A-ST-010-4-20-3-2
	Pres. transd. PPT20 0,5 % 0-16 bar 4-20 mA M20 DIN 43650 ONI	4-20 mA	M20×1.5	DIN 43650	0.5	Absolute	0-16	PPT-A-ST-016-4-20-3-2
	Pres. transd. PPT20 0,5 % 0-25 bar 4-20 mA M20 DIN 43650 ONI	4-20 mA	M20×1.5	DIN 43650	0.5	Absolute	0-25	PPT-A-ST-025-4-20-3-2
	Pres. transd.	0-10 V	M20×1.5	DIN 43650	0.5	Redundant	0-6	PPT-G-ST-006-0-10-3-2
	Pres. transd. PPT10 0,5 % 0-10 bar 0-10 mA M20 DIN 43650 ONI	0-10 V	M20×1.5	DIN 43650	0.5	Redundant	0-10	PPT-G-ST-010-0-10-3-2
	Pres. transd. PPT10 0,5 % 0-16 bar 0-10 mA M20 DIN 43650 ONI	0-10 V	M20×1.5	DIN 43650	0.5	Redundant	0-16	PPT-G-ST-016-0-10-3-2
	Pres. transd. PPT10 0,5 % 0-25 bar 0-10 mA M20 DIN 43650 ONI	0-10 V	M20×1.5	DIN 43650	0.5	Redundant	0-25	PPT-G-ST-025-0-10-3-2
	Pres. transd. PPT20 0,5 % 0-6 bar 0-10 mA M20 DIN 43650 ONI	0-10 V	M20×1.5	DIN 43650	0.5	Absolute	0-6	PPT-A-ST-006-0-10-3-2
	Pres. transd. PPT20 0,5 % 0-10 bar 0-10 mA M20 DIN 43650 ONI	0-10 V	M20×1.5	DIN 43650	0.5	Absolute	0-10	PPT-A-ST-010-0-10-3-2
	Pres. transd. PPT20 0,5 % 0-16 bar 0-10 mA M20 DIN 43650 ONI	0-10 V	M20×1.5	DIN 43650	0.5	Absolute	0-16	PPT-A-ST-016-0-10-3-2
	Pres. transd. PPT20 0,5 % 0-25 bar 0-10 mA M20 DIN 43650 ONI	0-10 V	M20×1.5	DIN 43650	0.5	Absolute	0-25	PPT-A-ST-025-0-10-3-2
	Pres. transd. PPT10 0,5 % 0-10 bar 0-10 mA G1/4 Mini 4-pin ONI	0-10 V	G1/4	Mini 4-pin	0.5	Redundant	0-10	PPT-G-ST-010-0-10-1-1
	Pres. transd. PPT10 0.5 % 0-10 bar 4-20 mA G1/2 DIN 43650 ONI	4-20 mA	G1/2	DIN 43650	0.5	Redundant	0-10	PPT-G-ST-010-4-20-2-2
	Pres. transd. PPT10 0,5 % 0-16 bar 0-4 mA 10B/4 Mini 4-pin ONI	0-10 V	G1/4	Mini 4-pin	0.5	Redundant	0-16	PPT-G-ST-016-0-10-1-1
	Pres. transd. PPT10 0.5 % 0-16 bar 4-20 mA G1/2 DIN 43650 ONI	4-20 mA	G1/2	DIN 43650	0.5	Redundant	0-16	PPT-G-ST-016-4-20-2-2
	Pres. transd. PPT10 0.5 % 0-25 bar 0-10 V G1/2 DIN 43650 ONI	0-10 V	G1/2	DIN 43650	0.5	Redundant	0-25	PPT-G-ST-025-0-10-2-2

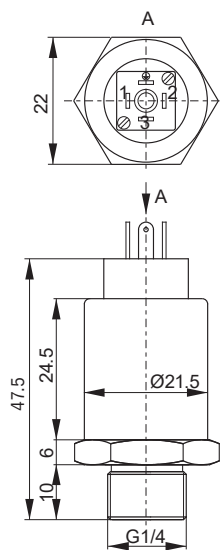
GENERAL SPECIFICATIONS AND OPERATION CONDITIONS

Parameter	Value
Supply voltage range, V	12-36
External load resistance range, Ω	0-1200
Overload pressure limit, %	150
Insulation resistance, M Ω	≥ 100
Reproducibility, %	$\leq \pm 0.1$
Additional errors, caused by ambient air temperature deviation from normal conditions, %	Not more than 0.25 for transducers with 0.25 accuracy class
	Not more than 0.5 for transducers with 0.5 accuracy class
Response time, ms	≤ 1
Protection class according to GOST 14254 (IEC60529)	IP65
Service life, years, min	15

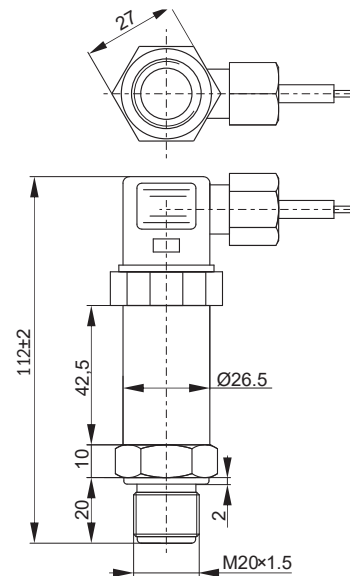
OVERALL AND INSTALLATION DIMENSIONS, MM



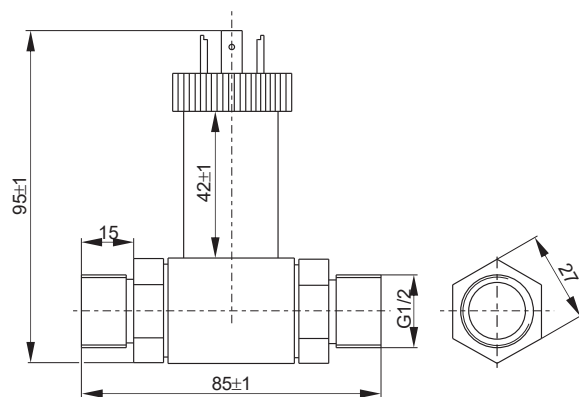
**Transducer
PPT-G(A) G1/2**



**Transducer
PPT-G(A) G1/4**



**Transducer
PPT-G(A) M20×1.5**



Transducer PPT-D G1/2



TEMPERATURE SENSORS ONI®

Temperature sensor is a device that measures temperature of environment, liquids, different materials and surfaces. They convert the measured temperature to electrical signal.

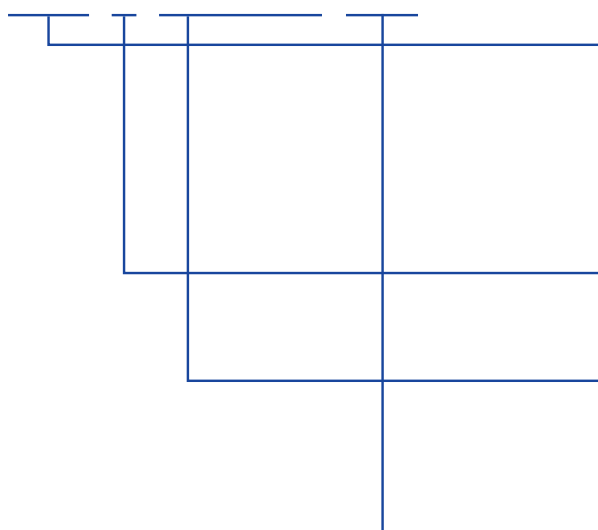


ADVANTAGES

- Wide range of temperature measurement: from -35 to $+180$ °C.
- Sensing elements PT100, PT1000, NI1000, NTC10K.
- Various design versions: immersive, attachable, outside, etc.
- High measurement accuracy.
- Protection sleeve made of nickel plated steel.

PRODUCT ID DECODING

TCD-2-NTC10K-150



Sensor type:

TSD – immersive temperature sensor;

TSS – attachable temperature sensor;

TSO – outside temperature sensor;

TSC – cable temperature sensor;

TSI – indoor temperature sensor

Parameters:

1 – standard parameters*;

2 – advanced parameters*

Sensing element:

NTC10K **PT100**

PT1000 **NI1000**

NTC1.8K

For immersive sensors:

Length of immersion sleeve, mm

* Range of standard and advanced parameters is specified in data sheet.

PRODUCT RANGE AND TECHNICAL SPECIFICATIONS

	Name	Sensing element type	Operating temperature, °C	Product ID
Attachable temperature sensors				
	Attachable temperature sensor NTC1.8K ONI	NTC1.8K	-35...+150	TSS-1-NTC1800
	Attachable temperature sensor NTC10K ONI	NTC10K	-35...+150	TSS-1-NTC10K
	Attachable temperature sensor PT100 ONI	PT100	-35...+180	TSS-1-PT100
	Attachable temperature sensor PT1000 ONI	PT1000	-35...+180	TSS-1-PT1000
	Attachable temperature sensor NI1000 ONI	NI1000	-35...+180	TSS-1-NI1000
Outside temperature sensors				
	Outside temperature sensor NTC1.8K ONI	NTC1.8K	-50...+90	TSO-1-NTC1800
	Outside temperature sensor NTC10K ONI	NTC10K	-50...+90	TSO-1-NTC10K
	Outside temperature sensor PT100 ONI	PT100	-50...+90	TSO-1-PT100
	Outside temperature sensor PT1000 ONI	PT1000	-50...+90	TSO-1-PT1000
	Outside temperature sensor NI1000 ONI	NI1000	-50...+90	TSO-1-NI1000
Cable temperature sensors				
	Cable temperature sensor NTC1.8K ONI	NTC1.8K	-50...+150	TSC-1-NTC1800
	Cable temperature sensor NTC10K ONI	NTC10K	-50...+150	TSC-1-NTC10K
	Cable temperature sensor PT100 ONI	PT100	-50...+180	TSC-1-PT100
	Cable temperature sensor PT1000 ONI	PT1000	-50...+180	TSC-1-PT1000
	Cable temperature sensor NI1000 ONI	NI1000	-35...+180	TSC-1-NI1000
Indoor temperature sensors				
	Indoor temperature sensor NTC1.8K ONI	NTC1.8K	-30...+70	TSI-1-NTC1800
	Indoor temperature sensor NTC10K ONI	NTC10K	-30...+70	TSI-1-NTC10K
	Indoor temperature sensor PT100 ONI	PT100	-30...+70	TSI-1-PT100
	Indoor temperature sensor PT1000 ONI	PT1000	-30...+70	TSI-1-PT1000
	Indoor temperature sensor NI1000 ONI	NI1000	-30...+70	TSI-1-NI1000

PRODUCT RANGE AND TECHNICAL SPECIFICATIONS

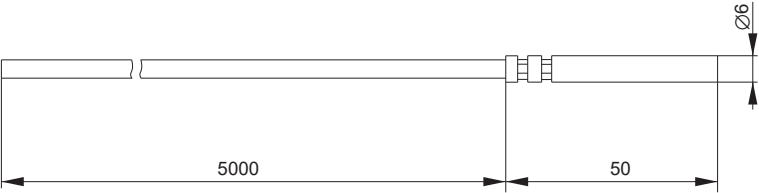
Name	Sensing element type	Length, mm	Operating temperature range, °C	Product ID	
Immersion temperature sensors					
	Immersive temperature sensor NTC10K L = 200 mm ONI	NTC10K	200	-30...+150	TSD-2-NTC10K-200
	Immersive temperature sensor NTC10K L = 400 mm ONI	NTC10K	400	-30...+150	TSD-2-NTC10K-400
	Immersive temperature sensor NTC10K L = 150 mm ONI	NTC10K	150	-30...+150	TSD-2-NTC10K-150
	Immersive temperature sensor PT100 L = 200 mm ONI	PT100	200	-30...+150	TSD-2-PT100-200
	Immersive temperature sensor PT100 L = 400 mm ONI	PT100	400	-30...+150	TSD-2-PT100-400
	Immersive temperature sensor PT1000 L = 200 mm ONI	PT1000	200	-30...+150C	TSD-2-PT1000-200
	Immersive temperature sensor PT1000 L = 400 mm ONI	PT1000	400	-30...+150	TSD-2-PT1000-400
	Immersive temperature sensor NI1000 L = 200 mm ONI	NI1000	200	-30...+150	TSD-2-NI1000-200
	Immersive temperature sensor NI1000 L = 400 mm ONI	NI1000	400	-30...+150	TSD-2-NI1000-400
	Immersive temperature sensor PT100 L = 50 mm ONI	PT100	50	-35...+180	TSD-1-PT100-050
	Immersive temperature sensor PT100 L = 100 mm ONI	PT100	100	-35...+180	TSD-1-PT100-100
	Immersive temperature sensor PT100 L = 150 mm ONI	PT100	150	-35...+180	TSD-1-PT100-150
	Immersive temperature sensor PT1000 L = 50 mm ONI	PT1000	50	-35...+180	TSD-1-PT1000-050
	Immersive temperature sensor PT1000 L = 100 mm ONI	PT1000	100	-35...+180	TSD-1-PT1000-100
	Immersive temperature sensor PT1000 L = 150 mm ONI	PT1000	150	-35...+180	TSD-1-PT1000-150
	Immersive temperature sensor NI1000 L = 50 mm ONI	NI1000	50	-35...+180	TSD-1-NI1000-050
	Immersive temperature sensor NI1000 L = 100 mm ONI	NI1000	100	-35...+180	TSD-1-NI1000-100
	Immersive temperature sensor NI1000 L = 150 mm ONI	NI1000	150	-35...+180	TSD-1-NI1000-150
Temperature sensor sleeves					
		—	50	max. +150	IPB-1-050
	Brass-made temperature sensor sleeve L = 100 mm ONI	—	100	max. +150	IPB-1-100
	Brass-made temperature sensor sleeve L = 150 mm ONI	—	150	max. +150	IPB-1-150
Protection thermostat					
	Mechanical frost protection thermostat	—	1.8 m	+7...+70	FPT-1-180
	Mechanical frost protection thermostat L = 3 m ONI	—	3 m	+7...+70	FPT-1-300

GENERAL SPECIFICATIONS AND OPERATION CONDITIONS FOR TEMPERATURE SENSORS

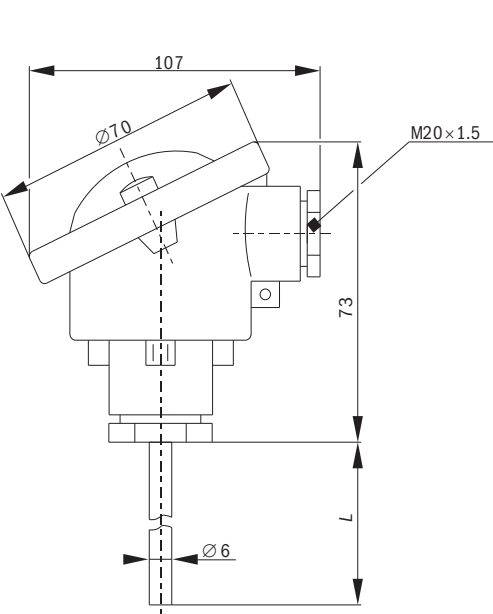
Parameter	Value
Output signal type	Passive
Sensing element type	Thermal resistance. PT100, PT1000, NTC1.8K, NTC10K, NI1000
Sensor type	delivery* Cable Outer Indoor use Submersible
Operating temperature range, °C	-35...+180 (depending on a model)
Protection class according to GOST IEC 61140	III
Protection class according to GOST 14254 (IEC60529)	IP54, IP65 (depending on a model)
Service life, years, min	10

OVERALL AND INSTALLATION DIMENSIONS, MM

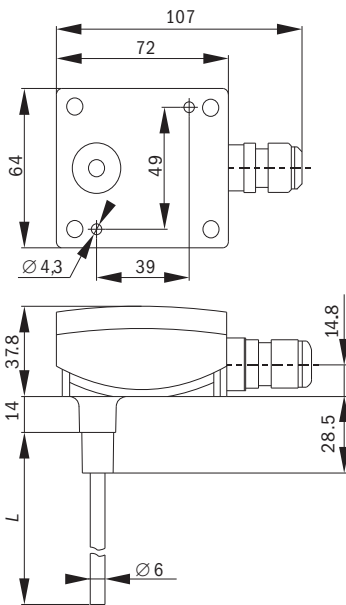
Cable temperature sensors



Immersion temperature sensors

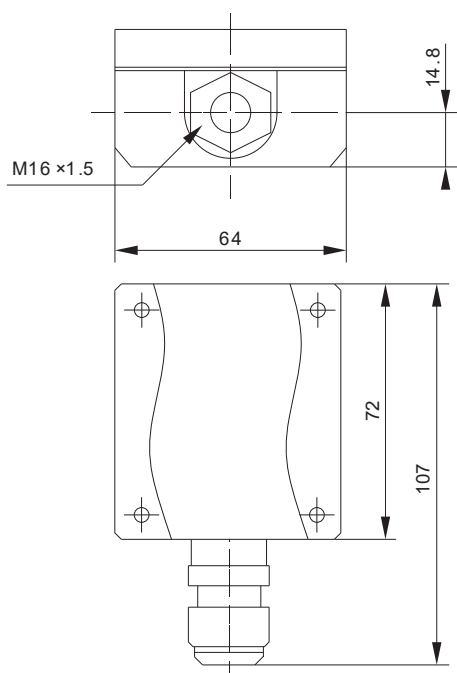


	Value, mm
L	50 100 150

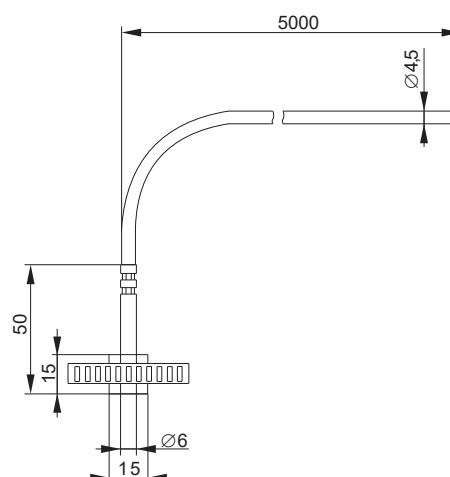


	Value, mm
L	150 200 400

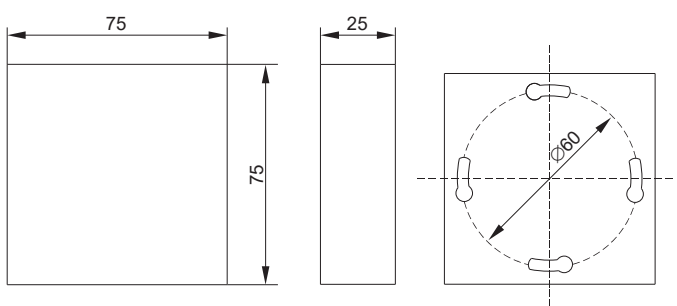
Outside temperature sensors



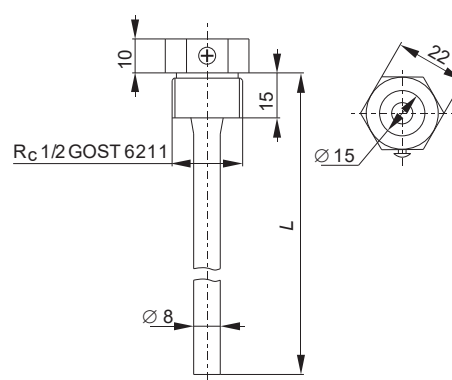
Attachable temperature sensors



Indoor temperature sensors

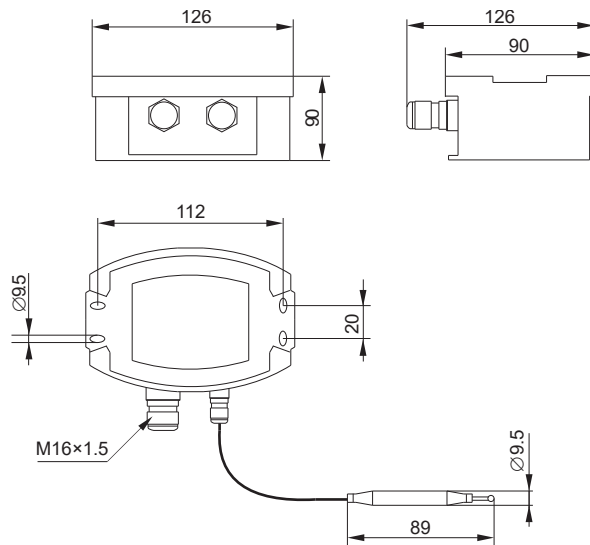


Temperature sensor sleeves

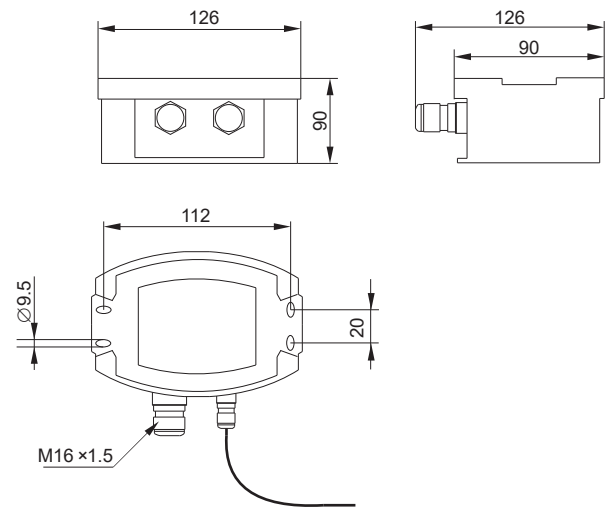


	Value, mm		
L	50	100	150

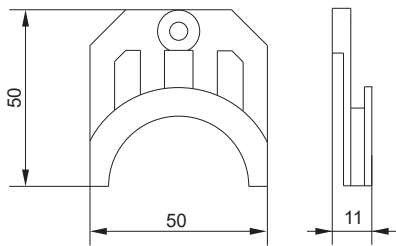
Frost protection thermostats



Mechanical frost protection thermostat $L = 1.8$ m
(environment – water)



Mechanical frost protection thermostat $L = 3$ m
(environment – air)

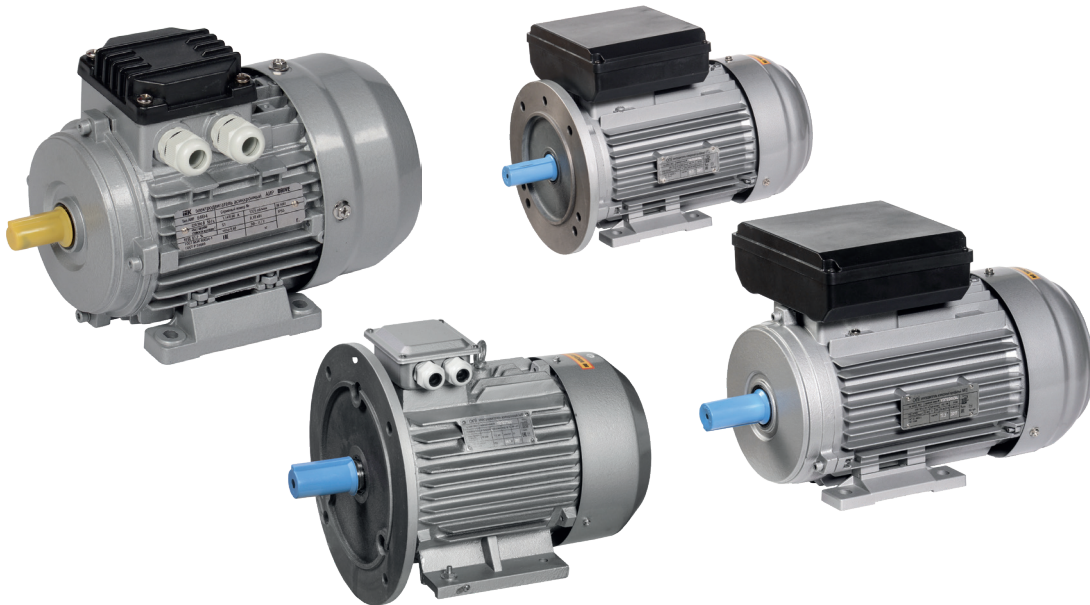


c) Mounting clip



ASYNCHRONOUS ELECTRIC MOTORS

Asynchronous direct current motors are the most commonly used among electric motors transforming electric energy into mechanical energy. Electric motors ONI® meet all expectations of both Russian and global industry, helping manufacture reliable and efficient solutions.



ADVANTAGES

- Reliable bearings.
- Triple quality control.
- Cooled by a fan on the motor shaft.
- Full compliance with GOST 31606–2012.
- Winding material – electrotechnical copper.
- Material of case and end shield for AIR starting from size 80 and higher, for AIS starting from size 180 and higher – cast iron.
- 3 years warranty.

ASYNCHRONOUS ELECTRIC MOTORS AIR2E SERIES

Asynchronous electric motors are widely used in many sectors: primary and secondary industries, construction and housing and utilities, power sector and transportation.

AIR2E electric motors are often used as a component for electric drives of various household appliances (wood-working machines, pumps, compressors, etc.) and labor saving tools for household use (fodder choppers, concrete mixing machines, etc.).

SPECIFICATIONS

- Supply voltage frequency: 50 Hz.
- Protection class according to GOST 17494 (IEC 34-5-81): IP55.
- Insulation class according to GOST 8865: F.
- Working cycle type according to GOST R 52776-2007: S1.
- Operating temperature: -45 a + 40°C.

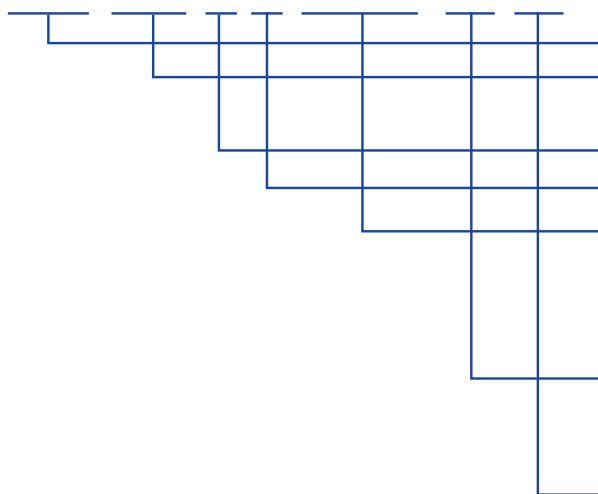
ADVANTAGES

- Reliable bearings.
- Triple quality control – on the conveyor, after manufacture and before shipment.
- Cooled by a fan on the motor shaft.
- Full compliance with GOST 31606-2012.
- Winding material – electrotechnical copper.
- 3 years warranty.



PRODUCT ID DECODING

ONP 071-B 2-000-8-30 10



Electric motor series

Overall dimension:

Rotation axis height, mm

Stator core length option (A, B, C)

Q-ty of poles

Rated power P_r :**00X-X** – up to 10 kW;**0XX-X** – from 10 to 100 kW;**XXX-X** – from 100 kWRated speed n :**07** – 750 rpm **10** – 1000 rpm;**15** – 1500 rpm**30** – 3000 rpm

Mounting style:

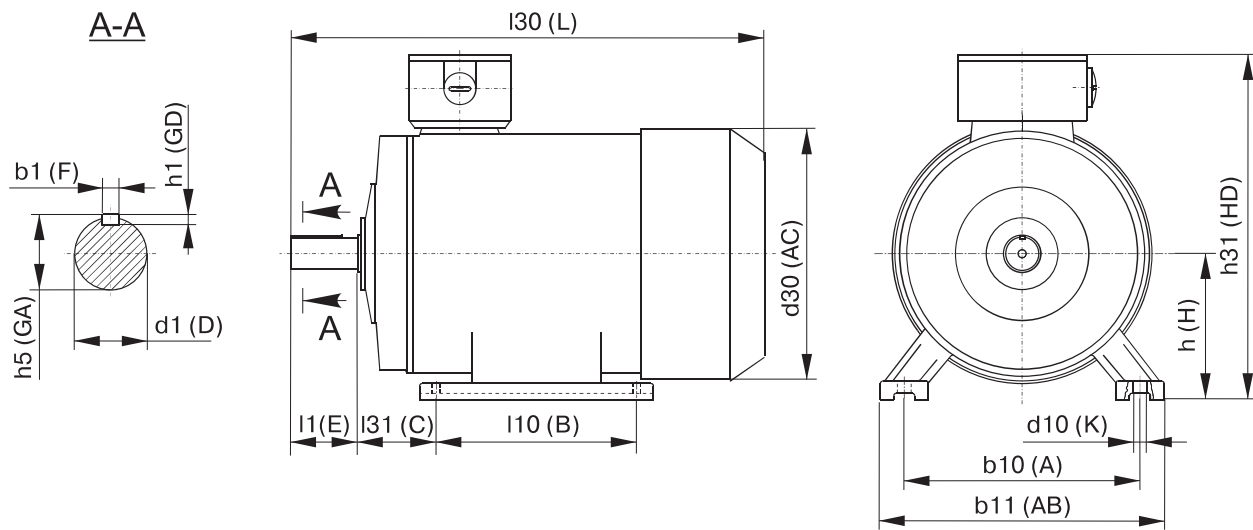
10 – on lugs (IM1081);**20** – on lugs, with a flange (IM2081)

PRODUCT RANGE

Article	Name
ONP071-B2-000-8-3010	El. motor 1 p. AIR2E 71B2 220 V 0.75 kW 3000 rpm 1081 ONI
ONP071-C2-001-1-3010	El. motor 1 p. AIR2E 71C2 220 V 1.1 kW 3000 rpm 1081 ONI
ONP071-B4-000-6-1510	El. motor 1 p. AIR2E 71B4 220 V 0.55 kW 1500 rpm 1081 ONI
ONP071-C4-000-8-1510	El. motor 1 p. AIR2E 71C4 220 V 0.75 kW 1500 rpm 1081 ONI
ONP080-B2-001-5-3010	El. motor 1 p. AIR2E 80B2 220 V 1.5 kW 3000 rpm 1081 ONI
ONP080-C2-002-2-3010	El. motor 1 p. AIR2E 80C2 220 V 2.2 kW 3000 rpm 1081 ONI
ONP080-B4-001-1-1510	El. motor 1 p. AIR2E 80B4 220 V 1.1 kW 1500 rpm 1081 ONI
ONP080-C4-001-5-1510	El. motor 1 p. AIR2E 80C4 220 V 1.5 kW 1500 rpm 1081 ONI
ONP071-B2-000-8-3020	El. motor 1 p. AIR2E 71B2 220 V 0.75 kW 3000 rpm 2081 ONI
ONP071-C2-001-1-3020	El. motor 1 p. AIR2E 71C2 220 V 1.1 kW 3000 rpm 2081 ONI
ONP071-B4-000-6-1520	El. motor 1 p. AIR2E 71B4 220 V 0.55 kW 1500 rpm 2081 ONI
ONP071-C4-000-8-1520	El. motor 1 p. AIR2E 71C4 220 V 0.75 kW 1500 rpm 2081 ONI
ONP080-B2-001-5-3020	El. motor 1 p. AIR2E 80B2 220 V 1.5 kW 3000 rpm 2081 ONI
ONP080-C2-002-2-3020	El. motor 1 p. AIR2E 80C2 220 V 2.2 kW 3000 rpm 2081 ONI
ONP080-B4-001-1-1520	El. motor 1 p. AIR2E 80B4 220 V 1.1 kW 1500 rpm 2081 ONI
ONP080-C4-001-5-1520	El. motor 1 p. AIR2E 80C4 220 V 1.5 kW 1500 rpm 2081 ONI

APPEARANCE, OVERALL, INSTALLATION AND CONNECTION DIMENSIONS OF ELECTRIC MOTORS

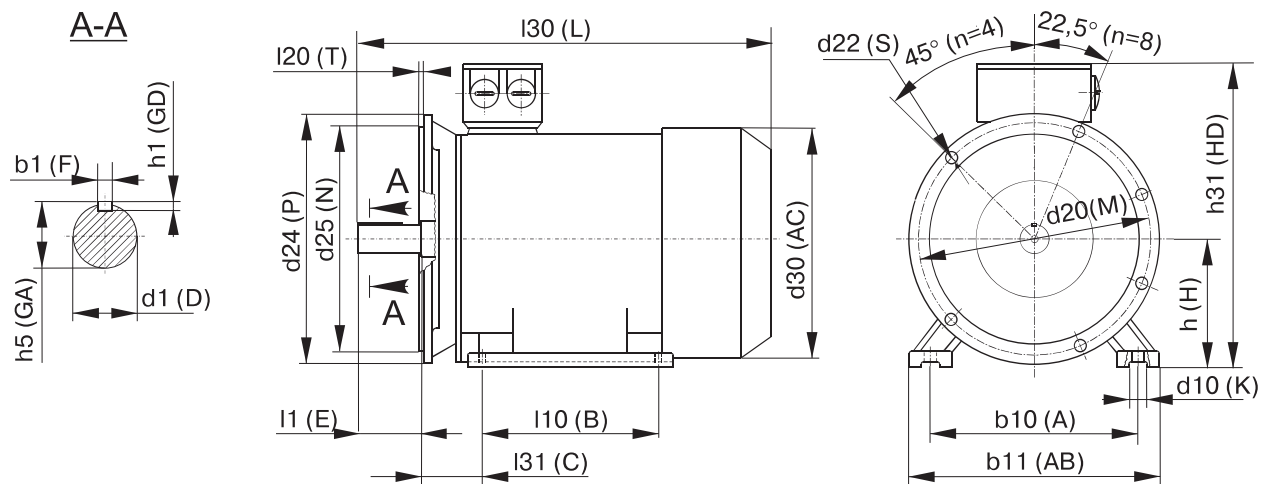
Dimensions of IM 1081 mounting version motors



Frame size	Installation and connection dimensions, mm										Overall dimensions, mm				
	D	E	F	GA	GD	K	A	B	C		AB	AC	H	HD	L
	d1	l1	b1	h5	h1	d10	b10	l10	l31		b11	d30	h	h31	l30
AIR2E 71 B2	19	40	6	21.5	6	7	112	90	45		130	158	71	271.5	290
AIR2E 71 C2	19	40	6	21.5	6	7	112	90	45		130	158	71	271.5	290
AIR2E 71 B4	19	40	6	21.5	6	7	112	90	45		130	158	71	271.5	290
AIR2E 71 C4	19	40	6	21.5	6	7	112	90	45		130	158	71	271.5	290
AIR2E 80 B2	22	50	6	24.5	6	10	125	100	50		160	176	80	232	333
AIR2E 80 C2	22	50	6	24.5	6	10	125	100	50		160	176	80	232	363
AIR2E 80 B4	22	50	6	24.5	6	10	125	100	50		160	176	80	232	333
AIR2E 80 C4	22	50	6	24.5	6	10	125	100	50		160	176	80	232	363

APPEARANCE, OVERALL, INSTALLATION AND CONNECTION DIMENSIONS OF ELECTRIC MOTORS

Dimensions of IM 2081 mounting version motors



Frame size	Installation and connection dimensions, mm													Overall dimensions, mm					
	D	E	F	GA	GD	K	A	B	C	S	T	M	N	P	AB	AC	H	HD	L
	d1	l1	b1	h5	h1	d10	b10	l10	l31	d22	l20	d20	d25	d24	b11	d30	h	h31	l30
AIR2E 71 B2	19	40	6	21.5	6	7	112	90	45	12	3.5	165	130	200	130	158	71	271.5	290
AIR2E 71 C2	19	40	6	21.5	6	7	112	90	45	12	3.5	165	130	200	130	158	71	271.5	290
AIR2E 71 B4	19	40	6	21.5	6	7	112	90	45	12	3.5	165	130	200	130	158	71	271.5	290
AIR2E 71 C4	19	40	6	21.5	6	7	112	90	45	12	3.5	165	130	200	130	158	71	271.5	290
AIR2E 80 B2	22	50	6	24.5	6	10	125	100	50	12	3.5	165	130	200	160	176	80	230	350
AIR2E 80 C2	22	50	6	24.5	6	10	125	100	50	12	3.5	165	130	200	160	176	80	230	350
AIR2E 80 B4	22	50	6	24.5	6	10	125	100	50	12	3.5	165	130	200	160	176	80	230	350
AIR2E 80 C4	22	50	6	24.5	6	10	125	100	50	12	3.5	165	130	200	160	176	80	230	350

MAIN PARAMETERS AND CHARACTERISTICS OF ELECTRIC MOTORS AIR2E ONI®

Name	Rated power P_r , kW	Rated current I_r , A	Rotation speed n , rpm	Rated voltage U_n , V	Efficiency, %	$\cos \varphi$	Overload capacity M_{max}/M_r	Starting torque ratio M_s/M_r	Starting current ratio I_s/I_r
AIR2E 71 B2	0.75	5.15	2780	220	72	0.92	1.8	2.2	6.5
AIR2E 71 C2	1.1	7.02	2780	220	75	0.95	1.8	2.2	6.5
AIR2E 71 B4	0.55	4.0	1380	220	68	0.92	1.8	2.3	6.5
AIR2E 71 C4	0.75	5.22	1380	220	71	0.92	1.8	2.3	6.5
AIR2E 80 B2	1.5	9.44	2800	220	76	0.95	1.8	2.2	6.5
AIR2E 80 C2	2.2	13.67	2800	220	77	0.95	1.8	2.2	6.5
AIR2E 80 B4	1.1	7.2	1400	220	73	0.95	1.8	2.3	6.5
AIR2E 80 C4	1.5	9.57	1400	220	75	0.95	1.8	2.3	6.5



ASYNCHRONOUS ELECTRIC MOTORS AIR AND AIS DRIVE SERIES

Asynchronous electric motors are widely used in many sectors: primary and secondary industries, construction and housing and utilities, power sector and transportation.

Electric motors are an indispensable component in fans, pumps, transporters, processing machines, mixing machines, traversing mechanisms, shutters and gates, compressors, etc.

SPECIFICATIONS

- Supply voltage frequency: 50 Hz.
- Protection class according to GOST 17494 (IEC 34-5-81): IP55.
- Insulation class according to GOST 8865: F.
- Working cycle type according to GOST 28173: S1.
- Operating temperature: -45 a + 40°C.



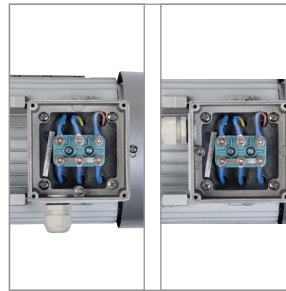
ADVANTAGES

- Reliable bearings.
- Triple quality control.
- Cooled by a fan on the motor shaft.
- Full compliance with GOST 51689.
- Winding material – electrotechnical copper.
- Case and end shields can be made of cast iron or aluminium.
- 3 years warranty.

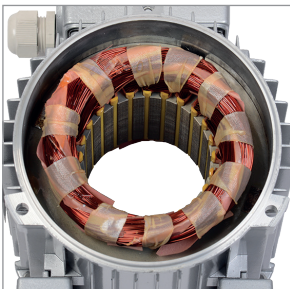
CONSTRUCTION FEATURES



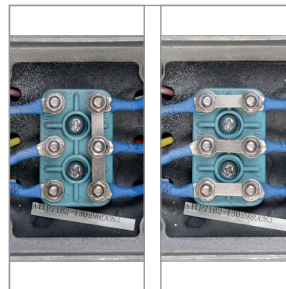
Electric motors are equipped with reliable high performance roller bearings.



For convenient mounting the terminal box may be turned in relation to its axis and motor bed.



Insulation class F according to GOST 8865.



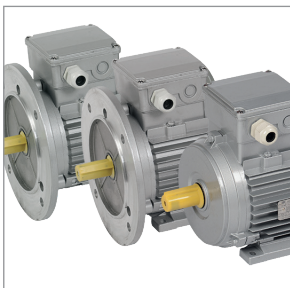
Depending on power mains voltage, the jumpers may be installed on a terminal panel by:
– "star" connection "Y".



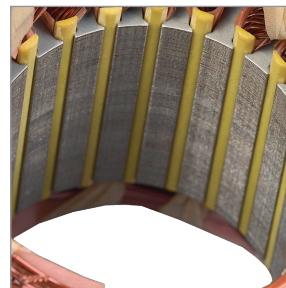
The electric motor is cooled by a fan located on the shaft. Metal hood prevents from access to blades and provides protection against mechanical damage.



Protection class – IP55 according to GOST 17494 (IEC 34-5-81).



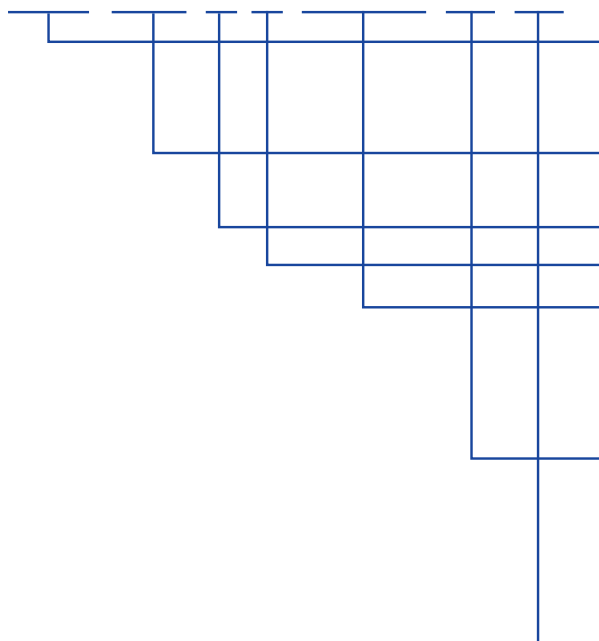
According to GOST IEC 60034-7, electric motors are supplied in the following versions: IM1081 – lugs, IM2081 – combined, IM3081 – flange.



Stator core is made of high-quality cold-rolled steel.

PRODUCT ID DECODING

DRV 056-A 2-000-2-30 20



Electric motor series:

DRV – AIR;

AIS – AIS

Overall dimension:

Rotation axis height, mm

Stator core length option (A, B, C)

Q-ty of poles

Rated power P_r :

00X-X – up to 10 kW;

0XX-X – from 10 to 100 kW;

XXX-X – from 100 kW

Rated speed n :

07 – 750 rpm

10 – 1000 rpm

15 – 1500 rpm

30 – 3000 rpm

Mounting style:

10 – on lugs (IM 1081);

20 – on lugs, with a flange (IM 2081);

30 – with a flange (IM 3081)

AIR PRODUCT RANGE

Mounting style IM1081 (lugs)

	Name	Power, kW	Rate speed, rpm	Voltage, V	Weight, kg	Product ID
	AIR 56A2 380 V 0.18 kW 3000 rpm 1081 DRIVE	0.18	2700	220/380	5.7	DRV056-A2-000-2-3010
	AIR 56A4 380 V 0.12 kW 1500 rpm 1081 DRIVE	0.12	1325	220/380	5.7	DRV056-A4-000-1-1510
	AIR 56B2 380 V 0.25 kW 3000 rpm 1081 DRIVE	0.25	2720	220/380	6.2	DRV056-B2-000-3-3010
	AIR 56B4 380 V 0.18 kW 1500 rpm 1081 DRIVE	0.18	1310	220/380	4.3	DRV056-B4-000-2-1510
	AIR 63A2 380 V 0.37 kW 3000 rpm 1081 DRIVE	0.37	2730	220/380	9	DRV063-A2-000-4-3010
	AIR 63A4 380 V 0.25 kW 1500 rpm 1081 DRIVE	0.25	1325	220/380	9	DRV063-A4-000-3-1510
	AIR 63A6 380 V 0.18 kW 1000 rpm 1081 DRIVE	0.18	860	220/380	9.5	DRV063-A6-000-2-1010
	AIR 63B2 380 V 0.55 kW 3000 rpm 1081 DRIVE	0.55	2770	220/380	9.5	DRV063-B2-000-5-3010
	AIR 63B4 380 V 0.37 kW 1500 rpm 1081 DRIVE	0.37	1325	220/380	9.5	DRV063-B4-000-4-1510
	AIR 63B6 380 V 0.25 kW 1000 rpm 1081 DRIVE	0.25	860	220/380	10	DRV063-B6-000-3-1010
	AIR 71A2 380 V 0.75 kW 3000 rpm 1081 DRIVE	0.75	2820	220/380	11	DRV071-A2-000-8-3010
	AIR 71A4 380 V 0.55 kW 1500 rpm 1081 DRIVE	0.55	1350	220/380	11	DRV071-A4-000-5-1510
	AIR 71A6 380 V 0.37 kW 1000 rpm 1081 DRIVE	0.37	895	220/380	12	DRV071-A6-000-4-1010
	AIR 71A8 380 V 0.18 kW 750 rpm 1081 DRIVE	0.18	690	220/380	12	DRV071-A8-000-2-0710
	AIR 71B2 380 V 1.1 kW 3000 rpm 1081 DRIVE	1.1	2790	220/380	12	DRV071-B2-001-1-3010
	AIR 71B4 380 V 0.75 kW 1500 rpm 1081 DRIVE	0.75	1360	220/380	12	DRV071-B4-000-7-1510
	AIR 71B6 380 V 0.55 kW 1000 rpm 1081 DRIVE	0.55	895	220/380	12	DRV071-B6-000-5-1010
	AIR 71B8 380 V 0.18 kW 750 rpm 1081 DRIVE	0.18	655	220/380	10	DRV071-B8-000-3-0710
	AIR 80A2 380 V 1.5 kW 3000 rpm 1081 DRIVE	1.5	2830	220/380	16	DRV080-A2-001-5-3010
	AIR 80A4 380 V 1.1 kW 1500 rpm 1081 DRIVE	1.1	1375	220/380	16	DRV080-A4-001-1-1510
	AIR 80A6 380 V 0.75 kW 1000 rpm 1081 DRIVE	0.75	910	220/380	16	DRV080-A6-000-7-1010
	AIR 80A8 380 V 0.37 kW 750 rpm 1081 DRIVE	0.37	675	220/380	18	DRV080-A8-000-4-0710
	AIR 80B2 380 V 2.2 kW 3000 rpm 1081 DRIVE	2.2	2840	220/380	20	DRV080-B2-002-2-3010
	AIR 80B4 380 V 1.5 kW 1500 rpm 1081 DRIVE	1.5	1390	220/380	20	DRV080-B4-001-5-1510
	AIR 80B6 380 V 1.1 kW 1000 rpm 1081 DRIVE	1.1	910	220/380	20	DRV080-B6-001-1-1010
	AIR 80B8 380 V 0.55 kW 750 rpm 1081 DRIVE	0.55	675	220/380	19	DRV080-B8-000-5-0710
	AIR 90L2 380 V 3 kW 3000 rpm 1081 DRIVE	3	2840	220/380	17	DRV090-L2-003-0-3010
	AIR 90L4 380 V 2.2 kW 1500 rpm 1081 DRIVE	2.2	1400	220/380	17.8	DRV090-L4-002-2-1510
	AIR 90L6 380 V 1.5 kW 1000 rpm 1081 DRIVE	1.5	910	220/380	18.1	DRV090-L6-001-5-1010
	AIR 90LA8 380 V 0.75 kW 750 rpm 1081 DRIVE	0.75	685	220/380	30	DRV090-L8-000-7-0710
	AIR 90LB8 380 V 1.1 kW 750 rpm 1081 DRIVE	1.1	685	220/380	32	DRV090-B8-001-1-0710
	AIR 100L2 380 V 5.5 kW 3000 rpm 1081 DRIVE	5.5	2870	220/380	34.3	DRV100-L2-005-5-3010
	AIR 100L4 380 V 4 kW 1500 rpm 1081 DRIVE	4	1430	220/380	33.8	DRV100-L4-004-0-1510
	AIR 100L6 380 V 2.2 kW 1000 rpm 1081 DRIVE	2.2	940	220/380	31	DRV100-L6-002-2-1010
	AIR 100L8 380 V 1.5 kW 750 rpm 1081 DRIVE	1.5	690	220/380	49	DRV100-L8-001-5-0710
	AIR 100S2 380 V 4 kW 3000 rpm 1081 DRIVE	4	2870	220/380	31.4	DRV100-S2-004-0-3010
	AIR 100S4 380 V 3 kW 1500 rpm 1081 DRIVE	3	1430	220/380	31	DRV100-S4-003-0-1510
	AIR 112M2 380 V 7.5 kW 3000 rpm 1081 DRIVE	7.5	2890	220/380	43.2	DRV112-M2-007-5-3010
	AIR 112M4 380 V 5.5 kW 1500 rpm 1081 DRIVE	5.5	1440	220/380	42.6	DRV112-M4-005-5-1510
	AIR 112MA6 380 V 3 kW 1000 rpm 1081 DRIVE	3	940	220/380	39.4	DRV112-M6-003-0-1010
	AIR 112MA8 380 V 2.2 kW 750 rpm 1081 DRIVE	2.2	700	220/380	46	DRV112-M8-002-2-0710
	AIR 112MB6 380 V 4 kW 1000 rpm 1081 DRIVE	4	935	220/380	52	DRV112-B6-004-0-1010
	AIR 112MB8 380 V 3 kW 750 rpm 1081 DRIVE	3	700	220/380	53	DRV112-B8-003-0-0710
	AIR 132M2 660 V 11 kW 3000 rpm 1081 DRIVE	11	2900	380/660	90	DRV132-M2-011-0-3010
	AIR 132M4 660 V 11 kW 1500 rpm 1081 DRIVE	11	1450	380/660	91	DRV132-M4-011-0-1510
	AIR 132M6 660 V 7.5 kW 1000 rpm 1081 DRIVE	7.5	960	380/660	78	DRV132-M6-007-5-1010
	AIR 132M8 660 V 5.5 kW 750 rpm 1081 DRIVE	5.5	715	380/660	86	DRV132-M8-005-5-0710
	AIR 132S4 660 V 7.5 kW 1500 rpm 1081 DRIVE	7.5	1440	380/660	80	DRV132-S4-007-5-1510
	AIR 132S6 660 V 5.5 kW 1000 rpm 1081 DRIVE	5.5	960	380/660	71	DRV132-S6-005-5-1010
	AIR 132S8 660 V 4 kW 750 rpm 1081 DRIVE	4	715	380/660	92	DRV132-S8-004-0-0710

	Name	Power, kW	Rate speed, rpm	Voltage, V	Weight, kg	Product ID
	AIR 160M2 660 V 18,5 kW 3000 rpm 1081 DRIVE	18.5	2930	380/660	106	DRV160-M2-018-5-3010
	AIR 160M4 660 V 18.5 kW 1500 rpm 1081 DRIVE	18.5	1460	380/660	128	DRV160-M4-018-5-1510
	AIR 160M6 660 V 15 kW 1000 rpm 1081 DRIVE	15	970	380/660	122	DRV160-M6-015-0-1010
	AIR 160M8 660 V 11 kW 750 rpm 1081 DRIVE	11	720	380/660	125	DRV160-M8-011-0-0710
	AIR 160S2 660 V 15 kW 3000 rpm 1081 DRIVE	15	2940	380/660	101	DRV160-S2-015-0-3010
	AIR 160S4 660 V 15 kW 1500 rpm 1081 DRIVE	15	1460	380/660	114	DRV160-S4-015-0-1510
	AIR 160S6 660 V 11 kW 1000 rpm 1081 DRIVE	11	970	380/660	114	DRV160-S6-011-0-1010
	AIR 160S8 660 V 7.5 kW 750 rpm 1081 DRIVE	7.5	720	380/660	108	DRV160-S8-007-5-0710
	AIR 180M2 660 V 30 kW 3000 rpm 1081 DRIVE	30	2940	380/660	176	DRV180-M2-030-0-3010
	AIR 180M4 660 V 30 kW 1500 rpm 1081 DRIVE	30	1470	380/660	200	DRV180-M4-030-0-1510
	AIR 180M6 660 V 18.5 kW 1000 rpm 1081 DRIVE	18.5	970	380/660	186	DRV180-M6-018-5-1010
	AIR 180S4 660 V 22 kW 1500 rpm 1081 DRIVE	22	1470	380/660	165	DRV180-S4-022-0-1510
	AIR 180S2 660 V 22 kW 3000 rpm 1081 DRIVE	22	2920	380/660	150	DRV180-S2-022-0-3010
	AIR M8 180 V 660 kW 15 rpm 750 DRIVE	15	720	380/660	177	DRV180-M8-015-0-0710
	AIR 200M2 660 V 37 kW 3000 rpm 1081 DRIVE	37	2950	380/660	221	DRV200-M2-037-0-3010
	AIR 200M4 660 V 37 kW 1500 rpm 1081 DRIVE	37	1470	380/660	238	DRV200-M4-037-0-1510
	AIR 200M6 660 V 22 kW 1000 rpm 1081 DRIVE	22	970	380/660	222	DRV200-M6-022-0-1010
	AIR 200M8 660 V 18.5 kW 750 rpm 1081 DRIVE	18.5	720	380/660	217	DRV200-M8-018-5-0710
	AIR 200L2 660 V 45 kW 3000 rpm 1081 DRIVE	45	2920	380/660	243	DRV200-L2-045-0-3010
	AIR 200L4 660 V 45 kW 1500 rpm 1081 DRIVE	45	1450	380/660	250	DRV200-L4-045-0-1510
	AIR 200L6 660 V 30 kW 1000 rpm 1081 DRIVE	30	960	380/660	262	DRV200-L6-030-0-1010
	AIR 200L8 660 V 22 kW 750 rpm 1081 DRIVE	22	720	380/660	258	DRV200-L8-022-0-0710
	AIR 225M2 660 V 55 kW 3000 rpm 1081 DRIVE	55	2920	380/660	293	DRV225-M2-055-0-3010
	AIR 225M4 660 V 55 kW 1500 rpm 1081 DRIVE	55	1470	380/660	330	DRV225-M4-055-0-1510
	AIR 225M6 660 V 37 kW 1000 rpm 1081 DRIVE	37	980	380/660	306	DRV225-M6-037-0-1010
	AIR 225M8 660 V 30 kW 750 rpm 1081 DRIVE	30	720	380/660	297	DRV225-M8-030-0-0710
	AIR 250M2 660 V 90 kW 3000 rpm 1081 DRIVE	90	2920	380/660	409	DRV250-M2-090-0-3010
	AIR 250M4 660 V 90 kW 1500 rpm 1081 DRIVE	90	1480	380/660	450	DRV250-M4-090-0-1510
	AIR 250M6 660 V 55 kW 1000 rpm 1081 DRIVE	55	980	380/660	520	DRV250-M6-055-0-1010
	AIR 250M8 660 V 45 kW 750 rpm 1081 DRIVE	45	730	380/660	402	DRV250-M8-045-0-0710
	AIR 250S2 660 V 75 kW 3000 rpm 1081 DRIVE	75	2920	380/660	380	DRV250-S2-075-0-3010
	AIR 250S4 660 V 75 kW 1500 rpm 1081 DRIVE	75	1480	380/660	413	DRV250-S4-075-0-1510
	AIR 250S6 660 V 45 kW 1000 rpm 1081 DRIVE	45	980	380/660	547	DRV250-S6-045-0-1010
	AIR 250S8 660 V 37 kW 750 rpm 1081 DRIVE	37	730	380/660	465	DRV250-S8-037-0-0710
	AIR 280M2 660 V 132 kW 3000 rpm 1081 DRIVE	132	2960	380/660	535	DRV280-M2-132-0-3010
	AIR 280M4 660 V 132 kW 1500 rpm 1081 DRIVE	132	1470	380/660	636	DRV280-M4-132-0-1510
	AIR 280M6 660 V 90 kW 1000 rpm 1081 DRIVE	90	970	380/660	598	DRV280-M6-090-0-1010
	AIR 280M8 660 V 75 kW 750 rpm 1081 DRIVE	75	735	380/660	622	DRV280-M8-075-0-0710
	AIR 280S2 660 V 110 kW 3000 rpm 1081 DRIVE	110	2920	380/660	541	DRV280-S2-110-0-3010
	AIR 280S4 660 V 110 kW 1500 rpm 1081 DRIVE	110	1480	380/660	508	DRV280-S4-110-0-1510
	AIR 280S6 660 V 75 kW 1000 rpm 1081 DRIVE	75	980	380/660	523	DRV280-S6-075-0-1010
	AIR 280S8 660 V 55 kW 750 rpm 1081 DRIVE	55	735	380/660	725	DRV280-S8-055-0-0710
	AIR 315MA2 660 V 200 kW 3000 rpm 1081 DRIVE	200	2940	380/660	1004	DRV315-M2-200-0-3010
	AIR 315MA6 660 V 132 kW 1000 rpm 1081 DRIVE	132	980	380/660	1074	DRV315-M6-132-0-1010
	AIR 315MA8 660 V 110 kW 750 rpm 1081 DRIVE	110	740	380/660	1083	DRV315-M8-110-0-0710
	AIR 315S2 660 V 160 kW 3000 rpm 1081 DRIVE	160	2940	380/660	965	DRV315-S2-160-0-3010
	AIR 315S4 660 V 160 kW 1500 rpm 1081 DRIVE	160	1480	380/660	958	DRV315-S4-160-0-1510
	AIR 315S6 660 V 110 kW 1000 rpm 1081 DRIVE	110	980	380/660	942	DRV315-S6-110-0-1010
	AIR 315S8 660 V 90 kW 750 rpm 1081 DRIVE	90	740	380/660	1012	DRV315-S8-090-0-0710
	AIR 355S2 660 V 250 kW 3000 rpm 1081 DRIVE	250	2950	380/660	1416	DRV355-S2-250-0-3010
	AIR 355S6 660 V 160 kW 1000 rpm 1081 DRIVE	160	980	380/660	1385	DRV355-S6-160-0-1010
	AIR 355S8 660 V 132 kW 750 rpm 1081 DRIVE	132	740	380/660	1384	DRV355-S8-132-0-0710

	Name	Power, kW	Rate speed, rpm	Voltage, V	Weight, kg	Product ID
Mounting style IM2081 (lugs + flange)						
	AIR 56A2 380 V 0.18 kW 3000 rpm 2081 DRIVE	0.18	2700	220/380	5.9	DRV056-A2-000-2-3020
	AIR 56A4 380 V 0.12 kW 1500 rpm 2081 DRIVE	0.12	1325	220/380	5.9	DRV056-A4-000-1-1520
	AIR 56B2 380 V 0.25 kW 3000 rpm 2081 DRIVE	0.25	2720	220/380	6.4	DRV056-B2-000-3-3020
	AIR 56B4 380 V 0.18 kW 1500 rpm 2081 DRIVE	0.18	1310	220/380	5.1	DRV056-B4-000-2-1520
	AIR 63A2 380 V 0.37 kW 3000 rpm 2081 DRIVE	0.37	2730	220/380	9.4	DRV063-A2-000-4-3020
	AIR 63A4 380 V 0.25 kW 1500 rpm 2081 DRIVE	0.25	1325	220/380	9.4	DRV063-A4-000-3-1520
	AIR 63A6 380 V 0.18 kW 1000 rpm 2081 DRIVE	0.18	860	220/380	9.9	DRV063-A6-000-2-1020
	AIR 63B2 380 V 0.55 kW 3000 rpm 2081 DRIVE	0.55	2770	220/380	9.9	DRV063-B2-000-5-3020
	AIR 63B4 380 V 0.37 kW 1500 rpm 2081 DRIVE	0.37	1325	220/380	9.9	DRV063-B4-000-4-1520
	AIR 63B6 380 V 0.25 kW 1000 rpm 2081 DRIVE	0.25	860	220/380	10	DRV063-B6-000-3-1020
	AIR 71A2 380 V 0.75 kW 3000 rpm 2081 DRIVE	0.75	2820	220/380	11	DRV071-A2-000-8-3020
	AIR 71A4 380 V 0.55 kW 1500 rpm 2081 DRIVE	0.55	1350	220/380	11	DRV071-A4-000-5-1520
	AIR 71A6 380 V 0.37 kW 1000 rpm 2081 DRIVE	0.37	895	220/380	13	DRV071-A6-000-4-1020
	AIR 71A8 380 V 0.18 kW 750 rpm 2081 DRIVE	0.18	690	220/380	13	DRV071-A8-000-2-0720
	AIR 71B2 380 V 1.1 kW 3000 rpm 2081 DRIVE	1.1	2790	220/380	13	DRV071-B2-001-1-3020
	AIR 71B4 380 V 0.75 kW 1500 rpm 2081 DRIVE	0.75	1360	220/380	12	DRV071-B4-000-7-1520
	AIR 71B6 380 V 0.55 kW 1000 rpm 2081 DRIVE	0.55	895	220/380	13	DRV071-B6-000-5-1020
	AIR 71B8 380 V 0.18 kW 750 rpm 2081 DRIVE	0.18	655	220/380	11	DRV071-B8-000-3-0720
	AIR 80A2 380 V 1.5 kW 3000 rpm 2081 DRIVE	1.5	2830	220/380	16	DRV080-A2-001-5-3020
	AIR 80A4 380 V 1.1 kW 1500 rpm 2081 DRIVE	1.1	1375	220/380	17	DRV080-A4-001-1-1520
	AIR 80A6 380 V 0.75 kW 1000 rpm 2081 DRIVE	0.75	910	220/380	17	DRV080-A6-000-7-1020
	AIR 80A8 380 V 0.37 kW 750 rpm 2081 DRIVE	0.37	675	220/380	19	DRV080-A8-000-4-0720
	AIR 80B2 380 V 2.2 kW 3000 rpm 2081 DRIVE	2.2	2840	220/380	20	DRV080-B2-002-2-3020
	AIR 80B4 380 V 1.5 kW 1500 rpm 2081 DRIVE	1.5	1390	220/380	20	DRV080-B4-001-5-1520
	AIR 80B6 380 V 1.1 kW 1000 rpm 2081 DRIVE	1.1	910	220/380	21	DRV080-B6-001-1-1020
	AIR 90L2 380 V 3 kW 3000 rpm 2081 DRIVE	3	2840	220/380	21	DRV090-L2-003-0-3020
	AIR 90L4 380 V 2.2 kW 1500 rpm 2081 DRIVE	2.2	1400	220/380	21.8	DRV090-L4-002-2-1520
	AIR 90L6 380 V 1.5 kW 1000 rpm 2081 DRIVE	1.5	910	220/380	22.1	DRV090-L6-001-5-1020
	AIR 90LA8 380 V 0.75 kW 750 rpm 2081 DRIVE	0.75	685	220/380	31	DRV090-L8-000-7-0720
	AIR 90LB8 380 V 1.1 kW 750 rpm 2081 DRIVE	1.1	685	220/380	33	DRV090-B8-001-1-0720

	Name	Power, kW	Rate speed, rpm	Voltage, V	Weight, kg	Product ID
	AIR 100L2 380 V 5.5 kW 3000 rpm 2081 DRIVE	5.5	2870	220/380	38.3	DRV100-L2-005-5-3020
	AIR 100L4 380 V 4 kW 1500 rpm 2081 DRIVE	4	1430	220/380	37	DRV100-L4-004-0-1520
	AIR 100L6 380 V 2.2 kW 1000 rpm 2081 DRIVE	2.2	940	220/380	38	DRV100-L6-002-2-1020
	AIR 100L8 380 V 1.5 kW 750 rpm 2081 DRIVE	1.5	690	220/380	51	DRV100-L8-001-5-0720
	AIR 100S2 380 V 4 kW 3000 rpm 2081 DRIVE	4	2870	220/380	35.4	DRV100-S2-004-0-3020
	AIR 100S4 380 V 3 kW 1500 rpm 2081 DRIVE	3	1430	220/380	35	DRV100-S4-003-0-1520
	AIR 112M2 380 V 7.5 kW 3000 rpm 2081 DRIVE	7.5	2890	220/380	48.2	DRV112-M2-007-5-3020
	AIR 112M4 380 V 5.5 kW 1500 rpm 2081 DRIVE	5.5	1440	220/380	47.4	DRV112-M4-005-5-1520
	AIR 112MA6 380 V 3 kW 1000 rpm 2081 DRIVE	3	940	220/380	40.4	DRV112-M6-003-0-1020
	AIR 112MA8 380 V 2.2 kW 750 rpm 2081 DRIVE	2.2	700	220/380	48	DRV112-M8-002-2-0720
	AIR 112MB6 380 V 4 kW 1000 rpm 2081 DRIVE	4	935	220/380	54	DRV112-B6-004-0-1020
	AIR 112MB8 380 V 3 kW 750 rpm 2081 DRIVE	3	700	220/380	55	DRV112-B8-003-0-0720
	AIR 132M2 660 V 11 kW 3000 rpm 2081 DRIVE	11	2900	380/660	94	DRV132-M2-011-0-3020
	AIR 132M4 660 V 11 kW 1500 rpm 2081 DRIVE	11	1450	380/660	95	DRV132-M4-011-0-1520
	AIR 132M6 660 V 7.5 kW 1000 rpm 2081 DRIVE	7.5	960	380/660	81	DRV132-M6-007-5-1020
	AIR 132M8 660 V 5.5 kW 750 rpm 2081 DRIVE	5.5	715	380/660	89	DRV132-M8-005-5-0720
	AIR 132S4 660 V 7.5 kW 1500 rpm 2081 DRIVE	7.5	1440	380/660	83	DRV132-S4-007-5-1520
	AIR 132S6 660 V 5.5 kW 1000 rpm 2081 DRIVE	5.5	960	380/660	74	DRV132-S6-005-5-1020
	AIR 132S8 660 V 4 kW 750 rpm 2081 DRIVE	4	715	380/660	96	DRV132-S8-004-0-0720
	AIR 160M2 660 V 11 kW 3000 rpm 2081 DRIVE	18.5	2930	380/660	116	DRV160-M2-018-5-3020
	AIR 160M4 660 V 18.5 kW 1500 rpm 2081 DRIVE	18.5	1460	380/660	138	DRV160-M4-018-5-1520
	AIR 160M6 660 V 15 kW 1000 rpm 2081 DRIVE	15	970	380/660	132.5	DRV160-M6-015-0-1020
	AIR 160M8 660 V 11 kW 750 rpm 2081 DRIVE	11	720	380/660	135	DRV160-M8-011-0-0720
	AIR 160S2 660 V 15 kW 3000 rpm 2081 DRIVE	15	2940	380/660	111	DRV160-S2-015-0-3020
	AIR 160S4 660 V 15 kW 1500 rpm 2081 DRIVE	15	1460	380/660	125	DRV160-S4-015-0-1520
	AIR 160S6 660 V 11 kW 1000 rpm 2081 DRIVE	11	970	380/660	124	DRV160-S6-011-0-1020
	AIR 160S8 660 V 7.5 kW 750 rpm 2081 DRIVE	7.5	720	380/660	118	DRV160-S8-007-5-0720
	AIR 180M2 660 V 30 kW 3000 rpm 2081 DRIVE	30	2940	380/660	188	DRV180-M2-030-0-3020
	AIR 180M4 660 V 30 kW 1500 rpm 2081 DRIVE	30	1470	380/660	212	DRV180-M4-030-0-1520
	AIR 180M6 660 V 18.5 kW 1000 rpm 2081 DRIVE	18.5	970	380/660	198	DRV180-M6-018-5-1020
	AIR 180S4 660 V 22 kW 1500 rpm 2081 DRIVE	22	1470	380/660	177	DRV180-S4-022-0-1520
	AIR 180S2 660 V 22 kW 3000 rpm 2081 DRIVE	22	2920	380/660	172	DRV180-S2-022-0-3020
	AIR M8 180 V 660 kW 15 rpm 750 DRIVE	15	720	380/660	185	DRV180- M8-015-0-0720
	AIR 200M2 660 V 37 kW 3000 rpm 2081 DRIVE	37	2950	380/660	235	DRV200-M2-037-0-3020
	AIR 200M6 660 V 22 kW 1000 rpm 2081 DRIVE	22	970	380/660	236	DRV200-M6-022-0-1020
	AIR 200M6 660 V 22 kW 1000 rpm 2081 DRIVE	22	970	380/660	236	DRV200-M6-022-0-1020
	AIR 200M8 660 V 18.5 kW 750 rpm 2081 DRIVE	18.5	720	380/660	232	DRV200-M8-018-5-0720
	AIR 200L2 660 V 45 kW 3000 rpm 2081 DRIVE	45	2920	380/660	250	DRV200-L2-045-0-3020
	AIR 200L4 660 V 45 kW 1500 rpm 2081 DRIVE	45	1450	380/660	258	DRV200-L4-045-0-1520
	AIR 200L6 660 V 30 kW 1000 rpm 2081 DRIVE	30	960	380/660	258	DRV200-L6-030-0-1020
	AIR 200L8 660 V 22 kW 750 rpm 2081 DRIVE	22	720	380/660	250	DRV200-L8-022-0-0720

	Name	Power, kW	Rate speed, rpm	Voltage, V	Weight, kg	Product ID
	AIR 225M2 660 V 55 kW 3000 rpm 2081 DRIVE	55	2920	380/660	312	DRV225-M2-055-0-3020
	AIR 225M4 660 V 55 kW 1500 rpm 2081 DRIVE	55	1470	380/660	333	DRV225-M4-055-0-1520
	AIR 225M6 660 V 37 kW 1000 rpm 2081 DRIVE	37	980	380/660	321	DRV225-M6-037-0-1020
	AIR 225M8 660 V 30 kW 750 rpm 2081 DRIVE	30	720	380/660	314	DRV225-M8-030-0-0720
	AIR 250M2 660 V 90 kW 3000 rpm 2081 DRIVE	90	2920	380/660	437	DRV250-M2-090-0-3020
	AIR 250M4 660 V 90 kW 1500 rpm 2081 DRIVE	90	1480	380/660	451	DRV250-M4-090-0-1520
	AIR 250M6 660 V 55 kW 1000 rpm 2081 DRIVE	55	980	380/660	550	DRV250-M6-055-0-1020
	AIR 250M8 660 V 45 kW 750 rpm 2081 DRIVE	45	730	380/660	428	DRV250-M8-045-0-0720
	AIR 250S2 660 V 75 kW 3000 rpm 2081 DRIVE	75	2920	380/660	415	DRV250-S2-075-0-3020
	AIR 250S4 660 V 75 kW 1500 rpm 2081 DRIVE	75	1480	380/660	424	DRV250-S4-075-0-1520
	AIR 250S6 660 V 45 kW 1000 rpm 2081 DRIVE	45	980	380/660	567	DRV250-S6-045-0-1020
	AIR 250S8 660 V 37 kW 750 rpm 2081 DRIVE	37	730	380/660	500	DRV250-S8-037-0-0720
	AIR 280M2 660 V 132 kW 3000 rpm 2081 DRIVE	132	2960	380/660	750	DRV280-M2-132-0-3020
	AIR 280M4 660 V 132 kW 1500 rpm 2081 DRIVE	132	1470	380/660	700	DRV280-M4-132-0-1520
	AIR 280M6 660 V 90 kW 1000 rpm 2081 DRIVE	90	970	380/660	578	DRV280-M6-090-0-1020
	AIR 280M8 660 V 75 kW 750 rpm 2081 DRIVE	75	735	380/660	647	DRV280-M8-075-0-0720
	AIR 280S2 660 V 110 kW 3000 rpm 2081 DRIVE	110	2920	380/660	523	DRV280-S2-110-0-3020
	AIR 280S4 660 V 110 kW 1500 rpm 2081 DRIVE	110	1480	380/660	533	DRV280-S4-110-0-1520
	AIR 280S6 660 V 75 kW 1000 rpm 2081 DRIVE	75	980	380/660	548	DRV280-S6-075-0-1020
	AIR 280S8 660 V 55 kW 750 rpm 2081 DRIVE	55	735	380/660	765	DRV280-S8-055-0-0720
	AIR 315MA2 660 V 200 kW 3000 rpm 2081 DRIVE	200	2940	380/660	1165.5	DRV315-M2-200-0-3020
	AIR 315MA6 660 V 132 kW 1000 rpm 2081 DRIVE	132	980	380/660	1060.5	DRV315-M6-132-0-1020
	AIR 315MA8 660 V 110 kW 750 rpm 2081 DRIVE	110	740	380/660	1076.25	DRV315-M8-110-0-0720
	AIR 315S2 660 V 160 kW 3000 rpm 2081 DRIVE	160	2940	380/660	1018.5	DRV315-S2-160-0-3020
	AIR 315S4 660 V 160 kW 1500 rpm 2081 DRIVE	160	1480	380/660	1109.85	DRV315-S4-160-0-1520
	AIR 315S6 660 V 110 kW 1000 rpm 2081 DRIVE	110	980	380/660	958.65	DRV315-S6-110-0-1020
	AIR 315S8 660 V 90 kW 750 rpm 2081 DRIVE	90	740	380/660	1013.25	DRV315-S8-090-0-0720
	AIR 355S2 660 V 250 kW 3000 rpm 2081 DRIVE	250	2950	380/660	1249.5	DRV355-S2-250-0-3020
	AIR 355S6 660 V 160 kW 1000 rpm 2081 DRIVE	160	980	380/660	1129.8	DRV355-S6-160-0-1020
	AIR 355S8 660 V 132 kW 750 rpm 2081 DRIVE	132	740	380/660	1186.5	DRV355-S8-132-0-0720

Mounting style IM3081 (flange)

	Name	Power, kW	Rate speed, rpm	Voltage, V	Weight, kg	Product ID
	AIR 56A2 380 V 0.18 kW 3000 rpm 3081 DRIVE	0.18	2700	220/380	5.9	DRV056-A2-000-2-3030
	AIR 56A4 380 V 0.12 kW 1500 rpm 3081 DRIVE	0.12	1325	220/380	5.9	DRV056-A4-000-1-1530
	AIR 56B2 380 V 0.25 kW 3000 rpm 3081 DRIVE	0.25	2720	220/380	6.4	DRV056-B2-000-3-3030
	AIR 56B4 380 V 0.18 kW 1500 rpm 3081 DRIVE	0.18	1325	220/380	6.2	DRV056-B4-000-2-1530
	AIR 63A2 380 V 0.37 kW 3000 rpm 3081 DRIVE	0.37	2730	220/380	9.3	DRV063-A2-000-4-3030
	AIR 63A4 380 V 0.25 kW 1500 rpm 3081 DRIVE	0.25	1325	220/380	9.3	DRV063-A4-000-3-1530
	AIR 63A6 380 V 0.18 kW 1000 rpm 3081 DRIVE	0.18	860	220/380	9.8	DRV063-A6-000-2-1030
	AIR 63B2 380 V 0.55 kW 3000 rpm 3081 DRIVE	0.55	2770	220/380	9.8	DRV063-B2-000-5-3030
	AIR 63B4 380 V 0.37 kW 1500 rpm 3081 DRIVE	0.37	1325	220/380	9.8	DRV063-B4-000-4-1530
	AIR 63B6 380 V 0.25 kW 1000 rpm 3081 DRIVE	0.25	860	220/380	10	DRV063-B6-000-3-1030
	AIR 71A2 380 V 0.75 kW 3000 rpm 3081 DRIVE	0.75	2820	220/380	11	DRV071-A2-000-8-3030
	AIR 71A4 380 V 0.55 kW 1500 rpm 3081 DRIVE	0.55	1350	220/380	11	DRV071-A4-000-5-1530
	AIR 71A6 380 V 0.37 kW 1000 rpm 3081 DRIVE	0.37	895	220/380	13	DRV071-A6-000-4-1030
	AIR 71A8 380 V 0.18 kW 750 rpm 3081 DRIVE	0.18	690	220/380	13	DRV071-A8-000-2-0730
	AIR 71B2 380 V 1.1 kW 3000 rpm 3081 DRIVE	1.1	2790	220/380	13	DRV071-B2-001-1-3030
	AIR 71B4 380 V 0.75 kW 1500 rpm 3081 DRIVE	0.75	1360	220/380	12	DRV071-B4-000-7-1530
	AIR 71B6 380 V 0.55 kW 1000 rpm 3081 DRIVE	0.55	895	220/380	13	DRV071-B6-000-5-1030
	AIR 71B8 380 V 0.18 kW 750 rpm 3081 DRIVE	0.18	655	220/380	11	DRV071-B8-000-3-0730
	AIR 80A2 380 V 1.5 kW 3000 rpm 3081 DRIVE	1.5	2830	220/380	16	DRV080-A2-001-5-3030
	AIR 80A4 380 V 1.1 kW 1500 rpm 3081 DRIVE	1.1	1375	220/380	16	DRV080-A4-001-1-1530
	AIR 80A6 380 V 0.75 kW 1000 rpm 3081 DRIVE	0.75	910	220/380	16	DRV080-A6-000-7-1030
	AIR 80A8 380 V 0.37 kW 750 rpm 3081 DRIVE	0.37	675	220/380	19	DRV080-A8-000-4-0730
	AIR 80B2 380 V 2.2 kW 3000 rpm 3081 DRIVE	2.2	2840	220/380	20	DRV080-B2-002-2-3030
	AIR 80B4 380 V 1.5 kW 1500 rpm 3081 DRIVE	1.5	1390	220/380	20	DRV080-B4-001-5-1530
	AIR 80B6 380 V 1.1 kW 1000 rpm 3081 DRIVE	1.1	910	220/380	21	DRV080-B6-001-1-1030
	AIR 80B8 380 V 0.55 kW 750 rpm 3081 DRIVE	0.55	675	220/380	19	DRV080-B8-000-5-0730
	AIR 90L2 380 V 3 kW 3000 rpm 3081 DRIVE	3	2845	220/380	22	DRV090-L2-003-0-3030
	AIR 90L4 380 V 2.2 kW 1500 rpm 3081 DRIVE	2.2	1400	220/380	26	DRV090-L4-002-2-1530
	AIR 90L6 380 V 1.5 kW 1000 rpm 3081 DRIVE	1.5	920	220/380	26	DRV090-L6-001-5-1030
	AIR 90LA8 380 V 0.75 kW 750 rpm 3081 DRIVE	0.75	685	220/380	31	DRV090-L8-000-7-0730
	AIR 90LB8 380 V 1.1 kW 750 rpm 3081 DRIVE	1.1	685	220/380	33	DRV090-B8-001-1-0730
	AIR 100L2 380 V 5.5 kW 3000 rpm 3081 DRIVE	5.5	2870	220/380	35	DRV100-L2-005-5-3030
	AIR 100L4 380 V 4 kW 1500 rpm 3081 DRIVE	4	1420	220/380	38	DRV100-L4-004-0-1530
	AIR 100L6 380 V 2.2 kW 1000 rpm 3081 DRIVE	2.2	930	220/380	39	DRV100-L6-002-2-1030
	AIR 100L8 380 V 1.5 kW 750 rpm 3081 DRIVE	1.5	690	220/380	51	DRV100-L8-001-5-0730
	AIR 100S2 380 V 4 kW 3000 rpm 3081 DRIVE	4	2870	220/380	31	DRV100-S2-004-0-3030
	AIR 100S4 380 V 3 kW 1500 rpm 3081 DRIVE	3	1420	220/380	35	DRV100-S4-003-0-1530
	AIR 112M2 380 V 7.5 kW 3000 rpm 3081 DRIVE	7.5	2880	220/380	55	DRV112-M2-007-5-3030
	AIR 112M4 380 V 5.5 kW 1500 rpm 3081 DRIVE	5.5	1430	220/380	57	DRV112-M4-005-5-1530
	AIR 112MA6 380 V 3 kW 1000 rpm 3081 DRIVE	3	935	220/380	53	DRV112-M6-003-0-1030
	AIR 112MA8 380 V 2.2 kW 750 rpm 3081 DRIVE	2.2	700	220/380	47	DRV112-M8-002-2-0730
	AIR 112MB6 380 V 4 kW 1000 rpm 3081 DRIVE	4	935	220/380	54	DRV112-B6-004-0-1030
	AIR 112MB8 380 V 3 kW 750 rpm 3081 DRIVE	3	700	220/380	55	DRV112-B8-003-0-0730
	AIR 132M2 660 V 11 kW 3000 rpm 3081 DRIVE	11	2900	380/660	93	DRV132-M2-011-0-3030
	AIR 132M4 660 V 11 kW 1500 rpm 3081 DRIVE	11	1450	380/660	94	DRV132-M4-011-0-1530
	AIR 132M6 660 V 7.5 kW 1000 rpm 3081 DRIVE	7.5	960	380/660	80	DRV132-M6-007-5-1030
	AIR 132M8 660 V 5.5 kW 750 rpm 3081 DRIVE	5.5	715	380/660	89	DRV132-M8-005-5-0730
	AIR 132S4 660 V 7.5 kW 1500 rpm 3081 DRIVE	7.5	1440	380/660	82	DRV132-S4-007-5-1530
	AIR 132S6 660 V 5.5 kW 1000 rpm 3081 DRIVE	5.5	960	380/660	73	DRV132-S6-005-5-1030
	AIR 132S8 660 V 4 kW 750 rpm 3081 DRIVE	4	715	380/660	95	DRV132-S8-004-0-0730

AIS PRODUCT RANGE

Mounting style IM1081 (lugs)

	Name	Power, kW	Rate speed, rpm	Voltage, V	Weight, kg	Product ID
	AIS 56A2 380 V 0.09 kW 3000 rpm 1081 DRIVE	0.09	2710	220/380	2.3	AIS056-A2-000-1-3010
	AIS 56B2 380 V 0.12 kW 3000 rpm 1081 DRIVE	0.12	2710	220/380	2.7	AIS056-B2-000-1-3010
	AIS 56A4 380 V 0.06 kW 1500 rpm 1081 DRIVE	0.06	1360	220/380	3.7	AIS056-A4-000-1-1510
	AIS 56B4 380 V 0.09 kW 1500 rpm 1081 DRIVE	0.09	1360	220/380	2.6	AIS056-B4-000-1-1510
	AIS 56C4 380 V 0.12 kW 1500 rpm 1081 DRIVE	0.12	1360	220/380	2.9	AIS056-C4-000-1-1510
	AIS 63A2 380 V 0.18 kW 3000 rpm 1081 DRIVE	0.18	2710	220/380	3.7	AIS063-A2-000-2-3010
	AIS 63B2 380 V 0.25 kW 3000 rpm 1081 DRIVE	0.25	2710	220/380	3.9	AIS063-B2-000-3-3010
	AIS 63C2 380 V 0.37 kW 3000 rpm 1081 DRIVE	0.37	2710	220/380	4.4	AIS063-C2-000-4-3010
	AIS 63A4 380 V 0.12 kW 1500 rpm 1081 DRIVE	0.12	1360	220/380	3.4	AIS063-A4-000-1-1510
	AIS 63B4 380 V 0.18 kW 1500 rpm 1081 DRIVE	0.18	1310	220/380	3.9	AIS063-B4-000-2-1510
	AIS 63C4 380 V 0.25 kW 1500 rpm 1081 DRIVE	0.25	1340	220/380	4.7	AIS063-C4-000-3-1510
	AIS 71A2 380 V 0.37 kW 3000 rpm 1081 DRIVE	0.37	2730	220/380	4.7	AIS071-A2-000-4-3010
	AIS 71B2 380 V 0.55 kW 3000 rpm 1081 DRIVE	0.55	2760	220/380	5.5	AIS071-B2-000-6-3010
	AIS 71C2 380 V 0.75 kW 3000 rpm 1081 DRIVE	0.75	2730	220/380	6.5	AIS071-C2-000-8-3010
	AIS 71A4 380 V 0.25 kW 1500 rpm 1081 DRIVE	0.25	1350	220/380	4.5	AIS071-A4-000-3-1510
	AIS 71B4 380 V 0.37 kW 1500 rpm 1081 DRIVE	0.37	1370	220/380	5.3	AIS071-B4-000-4-1510
	AIS 71C4 380 V 0.55 kW 1500 rpm 1081 DRIVE	0.55	1380	220/380	6	AIS071-C4-000-6-1510
	AIS 71A6 380 V 0.18 kW 1000 rpm 1081 DRIVE	0.18	880	220/380	5.1	AIS071-A6-000-2-1010
	AIS 71B6 380 V 0.25 kW 1000 rpm 1081 DRIVE	0.25	900	220/380	5.5	AIS071-B6-000-3-1010
	AIS 71C6 380 V 0.37 kW 1000 rpm 1081 DRIVE	0.37	890	220/380	6.3	AIS071-C6-000-4-1010
	AIS 80A2 380 V 0.75 kW 3000 rpm 1081 DRIVE	0.75	2770	220/380	8.2	AIS080-A2-000-8-3010
	AIS 80B2 380 V 1.1 kW 3000 rpm 1081 DRIVE	1.1	2770	220/380	9.5	AIS080-B2-001-1-3010
	AIS 80C2 380 V 1.5 kW 3000 rpm 1081 DRIVE	1.5	2800	220/380	10.7	AIS080-C2-001-5-3010
	AIS 80A4 380 V 0.55 kW 1500 rpm 1081 DRIVE	0.55	1370	220/380	7.6	AIS080-A4-000-6-1510
	AIS 80B4 380 V 0.75 kW 1500 rpm 1081 DRIVE	0.75	1380	220/380	8.6	AIS080-B4-000-8-1510
	AIS 80C4 380 V 1.1 kW 1500 rpm 1081 DRIVE	1.1	1390	220/380	10.5	AIS080-C4-001-1-1510
	AIS 80A6 380 V 0.37 kW 1000 rpm 1081 DRIVE	0.37	900	220/380	7.6	AIS080-A6-000-4-1010
	AIS 80B6 380 V 0.55 kW 1000 rpm 1081 DRIVE	0.55	900	220/380	9.1	AIS080-B6-000-6-1010
	AIS 80C6 380 V 0.75 kW 1000 rpm 1081 DRIVE	0.75	900	220/380	9.5	AIS080-C6-000-8-1010
	AIS 80A8 380 V 0.18 kW 750 rpm 1081 DRIVE	0.18	680	220/380	8.9	AIS080-A8-000-2-0710
	AIS 80B8 380 V 0.25 kW 750 rpm 1081 DRIVE	0.25	680	220/380	9.6	AIS080-B8-000-3-0710
	AIS 90S2 380 V 1.5 kW 3000 rpm 1081 DRIVE	1.5	2840	220/380	11	AIS090-S2-001-5-3010
	AIS 90L2 380 V 2.2 kW 3000 rpm 1081 DRIVE	2.2	2840	220/380	13.5	AIS090-L2-002-2-3010
	AIS 90LB2 380 V 3 kW 3000 rpm 1081 DRIVE	3	2840	220/380	14	AIS090-B2-003-0-3010
	AIS 90S4 380 V 1.1 kW 1500 rpm 1081 DRIVE	1.1	1400	220/380	10.7	AIS090-S4-001-1-1510
	AIS 90L4 380 V 1.5 kW 1500 rpm 1081 DRIVE	1.5	1400	220/380	13.4	AIS090-L4-001-5-1510
	AIS 90LB4 380 V 2.2 kW 1500 rpm 1081 DRIVE	2.2	1400	220/380	16.6	AIS090-B4-002-2-1510
	AIS 90S6 380 V 0.75 kW 1000 rpm 1081 DRIVE	0.75	1110	220/380	10.3	AIS090-S6-000-8-1010
	AIS 90L6 380 V 1.1 kW 1000 rpm 1081 DRIVE	1.1	1110	220/380	13.4	AIS090-L6-001-1-1010
	AIS 90S8 380 V 0.37 kW 750 rpm 1081 DRIVE	0.37	680	220/380	11.5	AIS090-S8-000-8-0710
	AIS 90L8 380 V 0.55 kW 750 rpm 1081 DRIVE	0.55	680	220/380	14.3	AIS090-L8-001-1-0710
	AIS 100L2 380 V 3 kW 3000 rpm 1081 DRIVE	3	2840	220/380	19	AIS100-L2-003-0-3010
	AIS 100LB2 380 V 4 kW 3000 rpm 1081 DRIVE	4	2850	220/380	23	AIS100-B2-004-0-3010
	AIS 100L4 380 V 2.2 kW 1500 rpm 1081 DRIVE	2.2	1420	220/380	18.2	AIS100-L4-002-2-1510
	AIS 100LB4 380 V 3 kW 1500 rpm 1081 DRIVE	3	1420	220/380	21.5	AIS100-B4-003-0-1510
	AIS 100LC4 380 V 4 kW 1500 rpm 1081 DRIVE	4	1430	220/380	26.3	AIS100-C4-004-0-1510
	AIS 100L6 380 V 1.5 kW 1000 rpm 1081 DRIVE	1.5	945	220/380	17.8	AIS100-L6-001-5-1010
	AIS 100L8 380 V 0.75 kW 750 rpm 1081 DRIVE	0.75	710	220/380	16.2	AIS100-L8-000-8-0710
	AIS 100LB8 380 V 1.1 kW 750 rpm 1081 DRIVE	1.1	710	220/380	18.5	AIS100-B8-001-1-0710

	Name	Power, kW	Rate speed, rpm	Voltage, V	Weight, kg	Product ID
	AIS 112M2 380 V 4 kW 3000 rpm 1081 DRIVE	4	2880	220/380	21	AIS112-M2-004-0-3010
	AIS 112L2 380 V 5.5 kW 3000 rpm 1081 DRIVE	5.5	2880	220/380	24.3	AIS112-L2-005-5-3010
	AIS 112M4 380 V 4 kW 1500 rpm 1081 DRIVE	4	1430	220/380	24	AIS112-M4-004-0-1510
	AIS 112L4 380 V 5.5 kW 1500 rpm 1081 DRIVE	5.5	1440	220/380	30.7	AIS112-L4-005-5-1510
	AIS 112M6 380 V 2.2 kW 1000 rpm 1081 DRIVE	2.2	955	220/380	20	AIS112-M6-002-2-1010
	AIS 112M8 380 V 1.5 kW 750 rpm 1081 DRIVE	1.5	710	220/380	20.5	AIS112-M8-001-5-0710
	AIS 132S2 380 V 5.5 kW 3000 rpm 1081 DRIVE	5.5	2900	220/380	32.4	AIS132-S2-005-5-3010
	AIS 132SB2 380 V 7.5 kW 3000 rpm 1081 DRIVE	7.5	2920	220/380	35.3	AIS132-B2-007-5-3010
	AIS 132M2 380 V 9.2 kW 3000 rpm 1081 DRIVE	9.2	2930	220/380	42.2	AIS132-M2-009-2-3010
	AIS 132MB2 380 V 11 kW 3000 rpm 1081 DRIVE	11	2930	220/380	46.5	AIS132-B2-011-0-3010
	AIS 132S4 380 V 5.5 kW 1500 rpm 1081 DRIVE	5.5	1450	220/380	33	AIS132-S4-005-5-1510
	AIS 132M4 380 V 7.5 kW 1500 rpm 1081 DRIVE	7.5	1450	220/380	42.6	AIS132-M4-007-5-1510
	AIS 132MB4 380 V 9.2 kW 1500 rpm 1081 DRIVE	9.2	1460	220/380	50.5	AIS132-B4-009-2-1510
	AIS 132MC4 380 V 11 kW 1500 rpm 1081 DRIVE	11	1460	220/380	58	AIS132-C4-011-0-1510
	AIS 132S6 380 V 3 kW 1000 rpm 1081 DRIVE	3	960	220/380	29	AIS132-S6-003-0-1010
	AIS 132M6 380 V 4 kW 1000 rpm 1081 DRIVE	4	960	220/380	41.6	AIS132-M6-004-0-1010
	AIS 132MB6 380 V 5.5 kW 1000 rpm 1081 DRIVE	5.5	960	220/380	44.7	AIS132-B6-005-5-1010
	AIS 132S8 380 V 2.2 kW 750 rpm 1081 DRIVE	2.2	720	220/380	28.2	AIS132-S8-002-2-0710
	AIS 132M8 380 V 3 kW 750 rpm 1081 DRIVE	3	720	220/380	34	AIS132-M8-003-0-0710
	AIS 160M2 660 V 11 kW 3000 rpm 1081 DRIVE	11	2935	380/660	68	AIS160-M2-011-0-3010
	AIS 160MB2 660 V 15 kW 3000 rpm 1081 DRIVE	15	2935	380/660	69.5	AIS160-B2-015-0-3010
	AIS 160L2 660 V 18.5 kW 3000 rpm 1081 DRIVE	18.5	2940	380/660	84	AIS160-L2-018-5-3010
	AIS 160M4 660 V 11 kW 1500 rpm 1081 DRIVE	11	1460	380/660	65	AIS160-M4-011-0-1510
	AIS 160L4 660 V 15 kW 1500 rpm 1081 DRIVE	15	1460	380/660	80.5	AIS160-L4-015-0-1510
	AIS 160M6 660 V 7.5 kW 1000 rpm 1081 DRIVE	7.5	970	380/660	62	AIS160-M6-007-5-1010
	AIS 160L6 660 V 11 kW 1000 rpm 1081 DRIVE	11	970	380/660	79	AIS160-L6-011-0-1010
	AIS 160M8 660 V 4 kW 750 rpm 1081 DRIVE	4	720	380/660	51	AIS160-M8-004-0-0710
	AIS 160MB8 660 V 5.5 kW 750 rpm 1081 DRIVE	5.5	720	380/660	61	AIS160-B8-005-5-0710
	AIS 180M2 660 V 22 kW 3000 rpm 1081 DRIVE	22	2940	380/660	171	AIS180-M2-022-0-3010
	AIS 180M4 660 V 18.5 kW 1500 rpm 1081 DRIVE	18.5	1470	380/660	173	AIS180-M4-018-5-1510
	AIS 180L4 660 V 22 kW 1500 rpm 1081 DRIVE	22	1470	380/660	181	AIS180-L4-022-0-1510
	AIS 180L6 660 V 15 kW 1000 rpm 1081 DRIVE	15	970	380/660	186	AIS180-L6-015-0-1010
	AIS 180L8 660 V 11 kW 750 rpm 1081 DRIVE	11	730	380/660	175	AIS180-L8-011-0-0710
	AIS 200L2 660 V 30 kW 3000 rpm 1081 DRIVE	30	2945	380/660	225	AIS200-L2-030-0-3010
	AIS 200LB2 660 V 37 kW 3000 rpm 1081 DRIVE	37	2945	380/660	240	AIS200-B2-037-0-3010
	AIS 200L4 660 V 30 kW 1500 rpm 1081 DRIVE	30	1470	380/660	255	AIS200-L4-030-0-1510
	AIS 200L6 660 V 18.5 kW 1000 rpm 1081 DRIVE	18.5	975	380/660	205	AIS200-L6-018-5-1010
	AIS 200LB6 660 V 22 kW 1000 rpm 1081 DRIVE	22	975	380/660	235	AIS200-B6-022-0-1010
	AIS 200L8 660 V 15 kW 750 rpm 1081 DRIVE	15	730	380/660	235	AIS200-L8-015-0-0710
	AIS 225M2 660 V 45 kW 3000 rpm 1081 DRIVE	45	2950	380/660	289	AIS225-M2-045-0-3010
	AIS 225S4 660 V 37 kW 1500 rpm 1081 DRIVE	37	1475	380/660	264	AIS225-S4-037-0-1510
	AIS 225M4 660 V 45 kW 1500 rpm 1081 DRIVE	45	1475	380/660	300	AIS225-M4-045-0-1510
	AIS 225M6 660 V 30 kW 1000 rpm 1081 DRIVE	30	980	380/660	272	AIS225-M6-030-0-1010
	AIS 225S8 660 V 18.5 kW 750 rpm 1081 DRIVE	18.5	730	380/660	246	AIS225-S8-018-5-0710
	AIS 225M8 660 V 22 kW 750 rpm 1081 DRIVE	22	730	380/660	272	AIS225-M8-022-0-0710
	AIS 250M2 660 V 55 kW 3000 rpm 1081 DRIVE	55	2965	380/660	383	AIS250-M2-055-0-3010
	AIS 250M4 660 V 55 kW 1500 rpm 1081 DRIVE	55	1475	380/660	407	AIS250-M4-055-0-1510
	AIS 250M6 660 V 37 kW 1000 rpm 1081 DRIVE	37	980	380/660	388	AIS250-M6-037-0-1010
	AIS 250M8 660 V 30 kW 750 rpm 1081 DRIVE	30	730	380/660	385	AIS250-M8-030-0-0710

	Name	Power, kW	Rate speed, rpm	Voltage, V	Weight, kg	Product ID
	AIS 280S2 660 V 75 kW 3000 rpm 1081 DRIVE	75	2965	380/660	519	AIS280-S2-075-0-3010
	AIS 280M2 660 V 90 kW 3000 rpm 1081 DRIVE	90	2965	380/660	595	AIS280-M2-090-0-3010
	AIS 280S4 660 V 75 kW 1500 rpm 1081 DRIVE	75	1485	380/660	537	AIS280-S4-075-0-1510
	AIS 280M4 660 V 90 kW 1500 rpm 1081 DRIVE	90	1485	380/660	642	AIS280-M4-090-0-1510
	AIS 280S6 660 V 45 kW 1000 rpm 1081 DRIVE	45	980	380/660	511	AIS280-S6-045-0-1010
	AIS 280M6 660 V 55 kW 1000 rpm 1081 DRIVE	55	980	380/660	570	AIS280-M6-055-0-1010
	AIS 280M8 660 V 45 kW 750 rpm 1081 DRIVE	45	735	380/660	495	AIS280-M8-045-0-0710
	AIS 315S2 660 V 110 kW 3000 rpm 1081 DRIVE	110	2975	380/660	940	AIS315-S2-110-0-3010
	AIS 315M2 660 V 132 kW 3000 rpm 1081 DRIVE	132	2975	380/660	1040	AIS315-M2-132-0-3010
	AIS 315L2 660 V 160 kW 3000 rpm 1081 DRIVE	160	2975	380/660	1120	AIS315-L2-160-0-3010
	AIS 315LB2 660 V 200 kW 3000 rpm 1081 DRIVE	200	2975	380/660	1150	AIS315-B2-200-0-3010
	AIS 315S4 660 V 110 kW 1500 rpm 1081 DRIVE	110	1485	380/660	960	AIS315-S4-110-0-1510
	AIS 315M4 660 V 132 kW 1500 rpm 1081 DRIVE	132	1485	380/660	1060	AIS315-M4-132-0-1510
	AIS 315L4 660 V 160 kW 1500 rpm 1081 DRIVE	160	1485	380/660	1120	AIS315-L4-160-0-1510
	AIS 315LB4 660 V 200 kW 1500 rpm 1081 DRIVE	200	1485	380/660	1230	AIS315-B4-200-0-1510
	AIS 315S6 660 V 75 kW 1000 rpm 1081 DRIVE	75	990	380/660	950	AIS315-S6-075-0-1010
	AIS 315M6 660 V 90 kW 1000 rpm 1081 DRIVE	90	990	380/660	1040	AIS315-M6-090-0-1010
	AIS 315L6 660 V 110 kW 1000 rpm 1081 DRIVE	110	990	380/660	1110	AIS315-L6-110-0-1010
	AIS 315LB6 660 V 132 kW 1000 rpm 1081 DRIVE	132	990	380/660	1170	AIS315-B6-132-0-1010
	AIS 355M2 660 V 250 kW 3000 rpm 1081 DRIVE	250	2980	380/660	1710	AIS355-M2-250-0-3010
	AIS 355L2 660 V 315 kW 3000 rpm 1081 DRIVE	315	2980	380/660	1800	AIS355-L2-315-0-3010
	AIS 355M4 660 V 250 kW 1500 rpm 1081 DRIVE	250	1490	380/660	1650	AIS355-M4-250-0-1510
	AIS 355L4 660 V 315 kW 1500 rpm 1081 DRIVE	315	1490	380/660	1800	AIS355-L4-315-0-1510
	AIS 355M6 660 V 160 kW 1000 rpm 1081 DRIVE	160	990	380/660	1550	AIS355-M6-160-0-1010
	AIS 355MB6 660 V 200 kW 1000 rpm 1081 DRIVE	200	990	380/660	1650	AIS355-B6-200-0-1010
	AIS 355L6 660 V 250 kW 1000 rpm 1081 DRIVE	250	990	380/660	1750	AIS355-L6-250-0-1010
Mounting style IM2081 (lugs + flange)						
	AIS 56A2 380 V 0.09 kW 3000 rpm 2081 DRIVE	0.09	2710	220/380	2.4	AIS056-A2-000-1-3020
	AIS 56B2 380 V 0.12 kW 3000 rpm 2081 DRIVE	0.12	2710	220/380	2.9	AIS056-B2-000-1-3020
	AIS 56A4 380 V 0.06 kW 1500 rpm 2081 DRIVE	0.06	1360	220/380	3.9	AIS056-A4-000-1-1520
	AIS 56B4 380 V 0.09 kW 1500 rpm 2081 DRIVE	0.09	1360	220/380	2.7	AIS056-B4-000-1-1520
	AIS 56C4 380 V 0.12 kW 1500 rpm 2081 DRIVE	0.12	1360	220/380	3.1	AIS056-C4-000-1-1520
	AIS 63A2 380 V 0.18 kW 3000 rpm 2081 DRIVE	0.18	2710	220/380	3.9	AIS063-A2-000-2-3020
	AIS 63B2 380 V 0.25 kW 3000 rpm 2081 DRIVE	0.25	2710	220/380	4.1	AIS063-B2-000-3-3020
	AIS 63C2 380 V 0.37 kW 3000 rpm 2081 DRIVE	0.37	2710	220/380	4.6	AIS063-C2-000-4-3020
	AIS 63A4 380 V 0.12 kW 1500 rpm 2081 DRIVE	0.12	1360	220/380	3.6	AIS063-A4-000-1-1520
	AIS 63B4 380 V 0.18 kW 1500 rpm 2081 DRIVE	0.18	1310	220/380	4.1	AIS063-B4-000-2-1520
	AIS 63C4 380 V 0.25 kW 1500 rpm 2081 DRIVE	0.25	1340	220/380	4.9	AIS063-C4-000-3-1520
	AIS 71A2 380 V 0.37 kW 3000 rpm 2081 DRIVE	0.37	2730	220/380	4.9	AIS071-A2-000-4-3020
	AIS 71B2 380 V 0.55 kW 3000 rpm 2081 DRIVE	0.55	2760	220/380	5.8	AIS071-B2-000-6-3020
	AIS 71C2 380 V 0.75 kW 3000 rpm 2081 DRIVE	0.75	2730	220/380	6.9	AIS071-C2-000-8-3020
	AIS 71A4 380 V 0.25 kW 1500 rpm 2081 DRIVE	0.25	1350	220/380	4.8	AIS071-A4-000-3-1520
	AIS 71B4 380 V 0.37 kW 1500 rpm 2081 DRIVE	0.37	1370	220/380	5.6	AIS071-B4-000-4-1520
	AIS 71C4 380 V 0.55 kW 1500 rpm 2081 DRIVE	0.55	1380	220/380	6.3	AIS071-C4-000-6-1520
	AIS 71A6 380 V 0.18 kW 1000 rpm 2081 DRIVE	0.18	880	220/380	5.4	AIS071-A6-000-2-1020
	AIS 71B6 380 V 0.25 kW 1000 rpm 2081 DRIVE	0.25	900	220/380	5.8	AIS071-B6-000-3-1020
	AIS 71C6 380 V 0.37 kW 1000 rpm 2081 DRIVE	0.37	890	220/380	6.6	AIS071-C6-000-4-1020
	AIS 80A2 380 V 0.75 kW 3000 rpm 2081 DRIVE	0.75	2770	220/380	8.6	AIS080-A2-000-8-3020
	AIS 80B2 380 V 1.1 kW 3000 rpm 2081 DRIVE	1.1	2770	220/380	10	AIS080-B2-001-1-3020
	AIS 80C2 380 V 1.5 kW 3000 rpm 2081 DRIVE	1.5	2800	220/380	11.3	AIS080-C2-001-5-3020
	AIS 80A4 380 V 0.55 kW 1500 rpm 2081 DRIVE	0.55	1370	220/380	8	AIS080-A4-000-6-1520
	AIS 80B4 380 V 0.75 kW 1500 rpm 2081 DRIVE	0.75	1380	220/380	9	AIS080-B4-000-8-1520

	Name	Power, kW	Rate speed, rpm	Voltage, V	Weight, kg	Product ID
	AIS 80C4 380 V 1.1 kW 1500 rpm 2081 DRIVE	1.1	1390	220/380	11	AIS080-C4-001-1-1520
	AIS 80A6 380 V 0.37 kW 1000 rpm 2081 DRIVE	0.37	900	220/380	8	AIS080-A6-000-4-1020
	AIS 80B6 380 V 0.55 kW 1000 rpm 2081 DRIVE	0.55	900	220/380	9.6	AIS080-B6-000-6-1020
	AIS 80C6 380 V 0.75 kW 1000 rpm 2081 DRIVE	0.75	900	220/380	10	AIS080-C6-000-8-1020
	AIS 80A8 380 V 0.18 kW 750 rpm 2081 DRIVE	0.18	680	220/380	9.4	AIS080-A8-000-2-0720
	AIS 80B8 380 V 0.25 kW 750 rpm 2081 DRIVE	0.25	680	220/380	10.1	AIS080-B8-000-3-0720
	AIS 90S2 380 V 1.5 kW 3000 rpm 2081 DRIVE	1.5	2840	220/380	11.6	AIS090-S2-001-5-3020
	AIS 90L2 380 V 2.2 kW 3000 rpm 2081 DRIVE	2.2	2840	220/380	14.2	AIS090-L2-002-2-3020
	AIS 90LB2 380 V 3 kW 3000 rpm 2081 DRIVE	3	2840	220/380	14.8	AIS090-B2-003-0-3020
	AIS 90S4 380 V 1.1 kW 1500 rpm 2081 DRIVE	1.1	1400	220/380	11.3	AIS090-S4-001-1-1520
	AIS 90L4 380 V 1.5 kW 1500 rpm 2081 DRIVE	1.5	1400	220/380	14.1	AIS090-L4-001-5-1520
	AIS 90LB4 380 V 2.2 kW 1500 rpm 2081 DRIVE	2.2	1400	220/380	17.5	AIS090-B4-002-2-1520
	AIS 90S6 380 V 0.75 kW 1000 rpm 2081 DRIVE	0.75	1110	220/380	10.9	AIS090-S6-000-8-1020
	AIS 90L6 380 V 1.1 kW 1000 rpm 2081 DRIVE	1.1	1110	220/380	14.1	AIS090-L6-001-1-1020
	AIS 90S8 380 V 0.37 kW 750 rpm 2081 DRIVE	0.37	680	220/380	12.1	AIS090-S8-000-8-0720
	AIS 90L8 380 V 0.55 kW 750 rpm 2081 DRIVE	0.55	680	220/380	15.1	AIS090-L8-001-1-0720
	AIS 100L2 380 V 3 kW 3000 rpm 2081 DRIVE	3	2840	220/380	20	AIS100-L2-003-0-3020
	AIS 100LB2 380 V 4 kW 3000 rpm 2081 DRIVE	4	2850	220/380	24.2	AIS100-B2-004-0-3020
	AIS 100L4 380 V 2.2 kW 1500 rpm 2081 DRIVE	2.2	1420	220/380	19.2	AIS100-L4-002-2-1520
	AIS 100LB4 380 V 3 kW 1500 rpm 2081 DRIVE	3	1420	220/380	22.6	AIS100-B4-003-0-1520
	AIS 100LC4 380 V 4 kW 1500 rpm 2081 DRIVE	4	1430	220/380	27.7	AIS100-C4-004-0-1520
	AIS 100L6 380 V 1.5 kW 1000 rpm 2081 DRIVE	1.5	945	220/380	18.7	AIS100-L6-001-5-1020
	AIS 100L8 380 V 0.75 kW 750 rpm 2081 DRIVE	0.75	710	220/380	17	AIS100-L8-000-8-0720
	AIS 100LB8 380 V 1.1 kW 750 rpm 2081 DRIVE	1.1	710	220/380	19.5	AIS100-B8-001-1-0720
	AIS 112M2 380 V 4 kW 3000 rpm 2081 DRIVE	4	2880	220/380	22.3	AIS112-M2-004-0-3020
	AIS 112L2 380 V 5.5 kW 3000 rpm 2081 DRIVE	5.5	2880	220/380	25.8	AIS112-L2-005-5-3020
	AIS 112M4 380 V 4 kW 1500 rpm 2081 DRIVE	4	1430	220/380	25.5	AIS112-M4-004-0-1520
	AIS 112L4 380 V 5.5 kW 1500 rpm 2081 DRIVE	5.5	1440	220/380	32.5	AIS112-L4-005-5-1520
	AIS 112M6 380 V 2.2 kW 1000 rpm 2081 DRIVE	2.2	955	220/380	21.3	AIS112-M6-002-2-1020
	AIS 112M8 380 V 1.5 kW 750 rpm 2081 DRIVE	1.5	710	220/380	21.8	AIS112-M8-001-5-0720
	AIS 132S2 380 V 5.5 kW 3000 rpm 2081 DRIVE	5.5	2900	220/380	34.3	AIS132-S2-005-5-3020
	AIS 132SB2 380 V 7.5 kW 3000 rpm 2081 DRIVE	7.5	2920	220/380	37.4	AIS132-B2-007-5-3020
	AIS 132M2 380 V 9.2 kW 3000 rpm 2081 DRIVE	9.2	2930	220/380	44.6	AIS132-M2-009-2-3020
	AIS 132MB2 380 V 11 kW 3000 rpm 2081 DRIVE	11	2930	220/380	49.1	AIS132-B2-011-0-3020
	AIS 132S4 380 V 5.5 kW 1500 rpm 2081 DRIVE	5.5	1450	220/380	35	AIS132-S4-005-5-1520
	AIS 132M4 380 V 7.5 kW 1500 rpm 2081 DRIVE	7.5	1450	220/380	45	AIS132-M4-007-5-1520
	AIS 132MB4 380 V 9.2 kW 1500 rpm 2081 DRIVE	9.2	1460	220/380	53.3	AIS132-B4-009-2-1520
	AIS 132MC4 380 V 11 kW 1500 rpm 2081 DRIVE	11	1460	220/380	61.2	AIS132-C4-011-0-1520
	AIS 132S6 380 V 3 kW 1000 rpm 2081 DRIVE	3	960	220/380	30.8	AIS132-S6-003-0-1020
	AIS 132M6 380 V 4 kW 1000 rpm 2081 DRIVE	4	960	220/380	44	AIS132-M6-004-0-1020
	AIS 132MB6 380 V 5.5 kW 1000 rpm 2081 DRIVE	5.5	960	220/380	47.2	AIS132-B6-005-5-1020
	AIS 132S8 380 V 2.2 kW 750 rpm 2081 DRIVE	2.2	720	220/380	29.9	AIS132-S8-002-2-0720
	AIS 132M8 380 V 3 kW 750 rpm 2081 DRIVE	3	720	220/380	36	AIS132-M8-003-0-0720
	AIS 160M2 660 V 11 kW 3000 rpm 2081 DRIVE	11	2935	380/660	71.8	AIS160-M2-011-0-3020
	AIS 160MB2 660 V 15 kW 3000 rpm 2081 DRIVE	15	2935	380/660	73.4	AIS160-B2-015-0-3020
	AIS 160L2 660 V 18.5 kW 3000 rpm 2081 DRIVE	18.5	2940	380/660	88.6	AIS160-L2-018-5-3020
	AIS 160M4 660 V 11 kW 1500 rpm 2081 DRIVE	11	1460	380/660	68.7	AIS160-M4-011-0-1520
	AIS 160L4 660 V 15 kW 1500 rpm 2081 DRIVE	15	1460	380/660	85	AIS160-L4-015-0-1520
	AIS 160M6 660 V 7.5 kW 1000 rpm 2081 DRIVE	7.5	970	380/660	65.5	AIS160-M6-007-5-1020
	AIS 160L6 660 V 11 kW 1000 rpm 2081 DRIVE	11	970	380/660	83.4	AIS160-L6-011-0-1020
	AIS 160M8 660 V 4 kW 750 rpm 2081 DRIVE	4	720	380/660	54	AIS160-M8-004-0-0720
	AIS 160MB8 660 V 5.5 kW 750 rpm 2081 DRIVE	5.5	720	380/660	64.5	AIS160-B8-005-5-0720
	AIS 160L8 660 V 7.5 kW 750 rpm 2081 DRIVE	7.5	720	380/660	83.4	AIS160-L8-007-5-0720

	Name	Power, kW	Rate speed, rpm	Voltage, V	Weight, kg	Product ID
	AIS 180M2 660 V 22 kW 3000 rpm 2081 DRIVE	22	2940	380/660	180	AIS180-M2-022-0-3020
	AIS 180M4 660 V 18.5 kW 1500 rpm 2081 DRIVE	18.5	1470	380/660	182.1	AIS180-M4-018-5-1520
	AIS 180L4 660 V 22 kW 1500 rpm 2081 DRIVE	22	1470	380/660	190.5	AIS180-L4-022-0-1520
	AIS 180L6 660 V 15 kW 1000 rpm 2081 DRIVE	15	970	380/660	195.8	AIS180-L6-015-0-1020
	AIS 180L8 660 V 11 kW 750 rpm 2081 DRIVE	11	730	380/660	184.2	AIS180-L8-011-0-0720
	AIS 200L2 660 V 30 kW 3000 rpm 2081 DRIVE	30	2945	380/660	237	AIS200-L2-030-0-3020
	AIS 200LB2 660 V 37 kW 3000 rpm 2081 DRIVE	37	2945	380/660	252.8	AIS200-B2-037-0-3020
	AIS 200L4 660 V 30 kW 1500 rpm 2081 DRIVE	30	1470	380/660	268.5	AIS200-L4-030-0-1520
	AIS 200L6 660 V 18.5 kW 1000 rpm 2081 DRIVE	18.5	975	380/660	216	AIS200-L6-018-5-1020
	AIS 200LB6 660 V 22 kW 1000 rpm 2081 DRIVE	22	975	380/660	247.5	AIS200-B6-022-0-1020
	AIS 200L8 660 V 15 kW 750 rpm 2081 DRIVE	15	730	380/660	247.5	AIS200-L8-015-0-0720
	AIS 225M2 660 V 45 kW 3000 rpm 2081 DRIVE	45	2950	380/660	304.5	AIS225-M2-045-0-3020
	AIS 225S4 660 V 37 kW 1500 rpm 2081 DRIVE	37	1475	380/660	278.2	AIS225-S4-037-0-1520
	AIS 225M4 660 V 45 kW 1500 rpm 2081 DRIVE	45	1475	380/660	316	AIS225-M4-045-0-1520
	AIS 225M6 660 V 30 kW 1000 rpm 2081 DRIVE	30	980	380/660	286.6	AIS225-M6-030-0-1020
	AIS 225S8 660 V 18.5 kW 750 rpm 2081 DRIVE	18.5	730	380/660	259.3	AIS225-S8-018-5-0720
	AIS 225M8 660 V 22 kW 750 rpm 2081 DRIVE	22	730	380/660	286.6	AIS225-M8-022-0-0720
	AIS 250M2 660 V 55 kW 3000 rpm 2081 DRIVE	55	2965	380/660	403.2	AIS250-M2-055-0-3020
	AIS 250M4 660 V 55 kW 1500 rpm 2081 DRIVE	55	1475	380/660	428.4	AIS250-M4-055-0-1520
	AIS 250M6 660 V 37 kW 1000 rpm 2081 DRIVE	37	980	380/660	408.4	AIS250-M6-037-0-1020
	AIS 250M8 660 V 30 kW 750 rpm 2081 DRIVE	30	730	380/660	405.3	AIS250-M8-030-0-0720
	AIS 280S2 660 V 75 kW 3000 rpm 2081 DRIVE	75	2965	380/660	546.2	AIS280-S2-075-0-3020
	AIS 280M2 660 V 90 kW 3000 rpm 2081 DRIVE	90	2965	380/660	626	AIS280-M2-090-0-3020
	AIS 280S4 660 V 75 kW 1500 rpm 2081 DRIVE	75	1485	380/660	565.1	AIS280-S4-075-0-1520
	AIS 280M4 660 V 90 kW 1500 rpm 2081 DRIVE	90	1485	380/660	675.4	AIS280-M4-090-0-1520
	AIS 280S6 660 V 45 kW 1000 rpm 2081 DRIVE	45	980	380/660	537.8	AIS280-S6-045-0-1020
	AIS 280M6 660 V 55 kW 1000 rpm 2081 DRIVE	55	980	380/660	599.8	AIS280-M6-055-0-1020
	AIS 280M8 660 V 45 kW 750 rpm 2081 DRIVE	45	735	380/660	521	AIS280-M8-045-0-0720
	AIS 315S2 660 V 110 kW 3000 rpm 2081 DRIVE	110	2975	380/660	989	AIS315-S2-110-0-3020
	AIS 315M2 660 V 132 kW 3000 rpm 2081 DRIVE	132	2975	380/660	1094	AIS315-M2-132-0-3020
	AIS 315L2 660 V 160 kW 3000 rpm 2081 DRIVE	160	2975	380/660	1178	AIS315-L2-160-0-3020
	AIS 315LB2 660 V 200 kW 3000 rpm 2081 DRIVE	200	2975	380/660	1209.5	AIS315-B2-200-0-3020
	AIS 315S4 660 V 110 kW 1500 rpm 2081 DRIVE	110	1485	380/660	1010	AIS315-S4-110-0-1520
	AIS 315M4 660 V 132 kW 1500 rpm 2081 DRIVE	132	1485	380/660	1115	AIS315-M4-132-0-1520
	AIS 315L4 660 V 160 kW 1500 rpm 2081 DRIVE	160	1485	380/660	1178	AIS315-L4-160-0-1520
	AIS 315LB4 660 V 200 kW 1500 rpm 2081 DRIVE	200	1485	380/660	1293.5	AIS315-B4-200-0-1520
	AIS 315S6 660 V 75 kW 1000 rpm 2081 DRIVE	75	990	380/660	999.5	AIS315-S6-075-0-1020
	AIS 315M6 660 V 90 kW 1000 rpm 2081 DRIVE	90	990	380/660	1094	AIS315-M6-090-0-1020
	AIS 315L6 660 V 110 kW 1000 rpm 2081 DRIVE	110	990	380/660	1167.5	AIS315-L6-110-0-1020
	AIS 315LB6 660 V 132 kW 1000 rpm 2081 DRIVE	132	990	380/660	1230.5	AIS315-B6-132-0-1020
	AIS 355M2 660 V 250 kW 3000 rpm 2081 DRIVE	250	2980	380/660	1798	AIS355-M2-250-0-3020
	AIS 355L2 660 V 315 kW 3000 rpm 2081 DRIVE	315	2980	380/660	1892.5	AIS355-L2-315-0-3020
	AIS 355M4 660 V 250 kW 1500 rpm 2081 DRIVE	250	1490	380/660	1735	AIS355-M4-250-0-1520
	AIS 355L4 660 V 315 kW 1500 rpm 2081 DRIVE	315	1490	380/660	1892.5	AIS355-L4-315-0-1520
	AIS 355M6 660 V 160 kW 1000 rpm 2081 DRIVE	160	990	380/660	1630	AIS355-M6-160-0-1020
	AIS 355MB6 660 V 200 kW 1000 rpm 2081 DRIVE	200	990	380/660	1735	AIS355-B6-200-0-1020
	AIS 355L6 660 V 250 kW 1000 rpm 2081 DRIVE	250	990	380/660	1840	AIS355-L6-250-0-1020

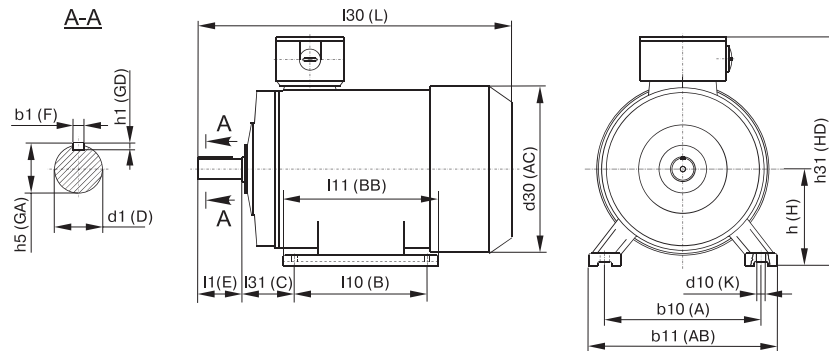
SPECIFICATIONS OF AIR

Name	Rated power P_r , kW	Rated current I_r , A Δ/Y 220/380	Rotation speed n , rpm	Rated voltage U_n , V Δ/Y	Efficiency, %	$\cos \varphi$	Overload capacity M_{max}/M_r	Starting torque ratio M_s/M_r	Starting current ratio I_s/I_r
AIR56A2	0.18	0.95/0.55	2700	220/380	65.7	0.77	2.2	2.2	5.3
AIR56A4	0.12	0.86/0.50	1325	220/380	56.5	0.66	2.2	2.1	4.6
AIR56B2	0.25	1.26/0.73	2720	220/380	68	0.78	2.2	2.2	5.3
AIR56B4	0.18	1.20/0.70	1325	220/380	61.2	0.68	2.2	2.1	4.9
AIR63A2	0.37	1.73/1.00	2730	220/380	69.7	0.81	2.2	2.2	5.7
AIR63A4	0.25	1.40/0.82	1325	220/380	64.5	0.73	2.2	2.1	5.1
AIR63A6	0.18	1.38/0.80	860	220/380	55.5	0.64	2	1.9	4.1
AIR63B2	0.55	2.40/1.40	2770	220/380	72.7	0.82	2.3	2.2	5.7
AIR63B4	0.37	1.93/1.12	1325	220/380	66.3	0.76	2.2	2.1	5.1
AIR63B6	0.25	1.90/1.10	860	220/380	58.3	0.65	2	1.9	4
AIR71A2	0.75	3.28/1.90	2820	220/380	74	0.83	2.3	2.2	6.1
AIR71A4	0.55	3.02/1.75	1350	220/380	70	0.73	2.3	2.2	5.4
AIR71A6	0.37	2.30/1.33	895	220/380	62.8	0.68	2	1.9	4.7
AIR71A8	0.18	1.68/0.97	690	220/380	55	0.65	1.8	1.5	4
AIR71B2	1.1	4.66/2.70	2790	220/380	77.6	0.83	2.3	2.2	6.7
AIR71B4	0.75	3.80/2.20	1360	220/380	71.3	0.77	2.3	2.2	5.7
AIR71B6	0.55	3.28/1.90	895	220/380	65.7	0.7	2	1.9	4.7
AIR71B8	0.25	2.02/1.17	655	220/380	54.5	0.6	1.9	1.8	3.7
AIR80A2	1.5	6.22/3.60	2830	220/380	78.1	0.84	2.3	2.2	7
AIR80A4	1.1	5.25/3.04	1375	220/380	74.5	0.76	2.3	2.3	5.8
AIR80A6	0.75	3.95/2.29	910	220/380	69	0.72	2.1	2	5.3
AIR80A8	0.37	2.59/1.50	675	220/380	60.1	0.62	1.9	1.8	4.3
AIR80B2	2.2	8.64/5.00	2840	220/380	80.6	0.85	2.3	2.2	7
AIR80B4	1.5	6.82/3.95	1390	220/380	77.5	0.78	2.3	2.3	6.2
AIR80B6	1.1	5.49/3.18	910	220/380	72.1	0.74	2.1	2	5.3
AIR80B8	0.55	3.76/2.18	675	220/380	62.9	0.62	2	1.8	4
AIR90L2	3	11.23/6.50	2845	220/380	83.4	0.86	2.3	2.2	7.2
AIR90L4	2.2	9.15/5.30	1400	220/380	80	0.81	2.3	2.3	6.8
AIR90L6	1.5	7.25/4.20	920	220/380	76	0.74	2.1	2	6
AIR90LA8	0.75	4.02/2.33	685	220/380	72.4	0.7	2	1.9	4
AIR90LB8	1.1	5.65/3.27	685	220/380	73	0.69	2	1.8	4
AIR100S2	4	14.51/8.40	2870	220/380	83.7	0.88	2.3	2.2	7.5
AIR100S4	3	12.43/7.20	1420	220/380	81.4	0.82	2.3	2.3	7
AIR100L2	5.5	19.00/11.00	2870	220/380	84.8	0.89	2.3	2.2	7.5
AIR100L4	4	16.06/9.30	1420	220/380	82.8	0.81	2.3	2.3	7
AIR100L6	2.2	10.19/5.90	930	220/380	77.1	0.76	2.1	2	6.3
AIR100L8	1.5	7.77/4.50	690	220/380	73.5	0.72	2	1.9	4.7
AIR112M2	7.5	26.25/15.20	2880	220/380	85.4	0.88	2.4	2.2	7.2
AIR112M4	5.5	21.24/12.30	1430	220/380	84.1	0.82	2.3	2.3	6.6
AIR112MA6	3	13.64/7.90	935	220/380	80.1	0.76	2.2	2.1	5.7
AIR112MB6	4	17.79/10.30	935	220/380	80.7	0.77	2.1	2.1	5.7
AIR112MA8	2.2	11.05/6.40	700	220/380	75.6	0.71	2.1	2	4.9
AIR112MB8	3	14.85/8.60	700	220/380	76.9	0.71	2.1	2	5
AIR132S4	7.5	27.80/16.10	1440	220/380	86	0.81	2.3	2.2	6.7
AIR132S6	5.5	23.14/13.40	960	220/380	82.8	0.78	2.1	2.1	6.3
AIR132S8	4	18.65/10.80	715	220/380	81.9	0.78	2.1	2.1	5.6
AIR132M2	11	37.65/21.80	2900	220/380	87.4	0.9	2.3	2.2	7.2
AIR132M4	11	39.89/23.10	1450	220/380	87.1	0.82	2.3	2.2	6.8
AIR132M6	7.5	29.70/17.20	960	220/380	84.1	0.8	2.2	2.1	6.2
AIR132M8	5.5	25.39/14.7	715	220/380	80.9	0.74	2.1	2.1	5.6
AIR160S2	15	30.0/17.3	2925	380/660	88.4	0.88	2.4	2.2	7.1
AIR160S4	15	30.8/17.8	1455	380/660	88.7	0.84	2.3	2.2	6.8
AIR160S6	11	24.6/14.2	970	380/660	86.8	0.79	2.2	2	6.3
AIR160S8	7.5	19.2/11.1	720	380/660	85.2	0.74	2.1	2	5.8

Name	Rated power P_r , kW	Rated current I_r , A Δ/Y 220/380	Rotation speed n , rpm	Rated voltage U_n , V Δ/Y	Efficiency, %	$\cos \varphi$	Overload capacity M_{max}/M_r	Starting torque ratio M_s/M_r	Starting current ratio I_s/I_r
AIR160M2	18.5	36.3/21.0	2925	380/660	89.3	0.89	2.4	2.2	7.1
AIR160M4	18.5	37.8/21.9	1455	380/660	89.8	0.84	2.3	2.2	6.8
AIR160M6	15	33.0/19.1	970	380/660	88.2	0.81	2.2	2	6.5
AIR160M8	11	27.3/15.8	720	380/660	86.4	0.76	2.1	2	5.8
AIR180S4	22	44.4/25.7	1465	380/660	90.6	0.85	2.4	2.1	7
AIR180M2	30	56.9/32.9	2940	380/660	90.7	0.9	2.5	2.1	7.3
AIR180M4	30	59.6/34.5	1465	380/660	91.2	0.86	2.3	2.1	6.8
AIR180M6	18.5	39.0/22.5	970	380/660	88.9	0.82	2.1	2.1	6.6
AIR200M2	37	71.0/41.0	2940	380/660	91.2	0.89	2.4	2.1	7.1
AIR200M4	37	73.1/42.3	1470	380/660	92	0.86	2.3	2.2	7
AIR200M6	22	45.2/26.1	970	380/660	89.7	0.83	2.2	2.1	6.3
AIR180S2	22.0	41.04/23.63	2920	380/660	90.5	0.9	2.3	2.0	7.5
AIR180M8	15.00	34.5/19.92	720	380/660	87.6	0.78	2.0	2.0	6.6
AIR200L2	45	82.31/47.39	2920	380/660	92.3	0.9	1.0	2.0	7.5
AIR200L4	45	84.96/48.92	1450	380/660	92.5	0.87	2.3	2.0	7.5
AIR200L6	30	59.58/34.31	960	380/660	90.0	0.85	2.3	2.2	7.2
AIR200L8	22	45.85/26.4	720	380/660	90.0	0.81	2.1	2.0	7.0
AIR200M8	18.5	38.99/22.45	720	380/660	89.0	0.81	2.0	1.9	6.6
AIR225M2	55	99.28/57.16	2920	380/660	92.5	0.91	2.3	2.0	7.5
AIR225M4	55	103.28/59.47	1470	380/660	93.0	0.87	2.3	2.2	7.2
AIR225M6	37	72.68/41.85	980	380/660	91.0	0.85	2.1	2.1	7.0
AIR225M8	30	62.18/35.8	720	380/660	90.5	0.81	2.0	1.9	6.6
AIR250M2	90	161.58/93.03	2920	380/660	93.0	0.91	2.3	2.0	7.5
AIR250M4	90	165.31/95.18	1480	380/660	94.0	0.88	2.3	2.2	7.2
AIR250M6	55	105.05/60.48	980	380/660	92.5	0.86	2.0	2.1	7.0
AIR250M8	45	92.76/53.41	730	380/660	91.0	0.81	2.0	1.9	6.6
AIR250S2	75	135.38/77.94	2920	380/660	92.5	0.91	2.3	2.0	7.5
AIR250S4	75	137.76/79.32	1480	380/660	94.0	0.88	2.3	2.2	7.2
AIR250S6	45	86.96/50.07	980	380/660	92.5	0.85	2.0	2.1	7.0
AIR250S8	37	77.65/44.71	730	380/660	90.5	0.80	2.0	1.9	6.6
AIR280M2	132	240.0/138.6	2960	380/660	93.5	0.91	2.2	1.8	7.1
AIR280M4	132	244.0/140.9	1470	380/660	93.8	0.88	2.2	2.1	6.9
AIR280M6	90	177.0/102.2	970	380/660	92.9	0.85	2.0	2.0	7.0
AIR280M8	75	154.0/88.91	735	380/660	92.0	0.81	2.0	1.8	6.6
AIR280S2	110	198.61/114.35	2920	380/660	93.5	0.9	2.2	1.8	7.1
AIR280S4	110	200.98/115.71	1480	380/660	94.5	0.88	2.2	2.1	6.9
AIR280S6	75	141.72/81.59	980	380/660	93.5	0.86	2.0	2.0	7.0
AIR280S8	55	113.54/65.37	735	380/660	92.0	0.8	2.0	1.8	6.6
AIR315MA2	200	349.53/201.24	2940	380/660	94.5	0.92	2.2	1.8	7.1
AIR315MA6	132	245.24/141.2	980	380/660	94.0	0.87	2.0	2.0	6.7
AIR315MA8	110	216.83/124.84	740	380/660	94.0	0.82	2.0	1.8	6.4
AIR315S2	160	280.21/161.34	2940	380/660	94.3	0.92	2.2	1.8	7.1
AIR315S4	160	287.52/165.54	1480	380/660	95.0	0.89	2.2	2.1	6.9
AIR315S6	110	206.74/119.03	980	380/660	94.0	0.86	2.0	2.0	6.7
AIR315S8	90	177.78/102.36	740	380/660	93.8	0.82	2.0	1.8	6.6
AIR355S2	250	436.91/251.55	2950	380/660	94.5	0.92	2.2	1.6	7.1
AIR355S6	160	292.33/168.31	980	380/660	94.5	0.88	2.0	1.9	6.7
AIR355S8	132	261.03/150.29	740	380/660	93.7	0.82	2.0	1.8	6.4

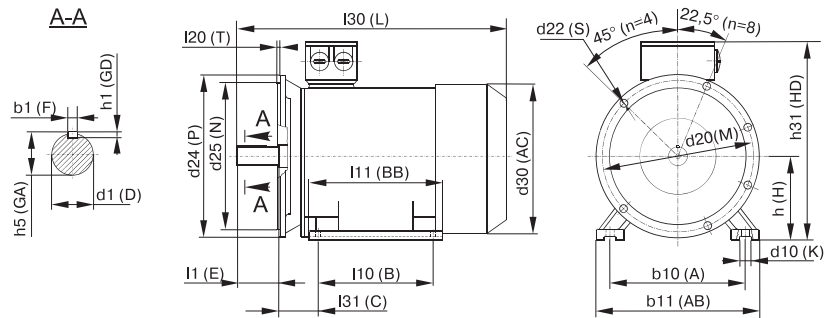
OVERALL, INSTALLATION AND CONNECTION DIMENSIONS OF AIR

Mounting style 1081



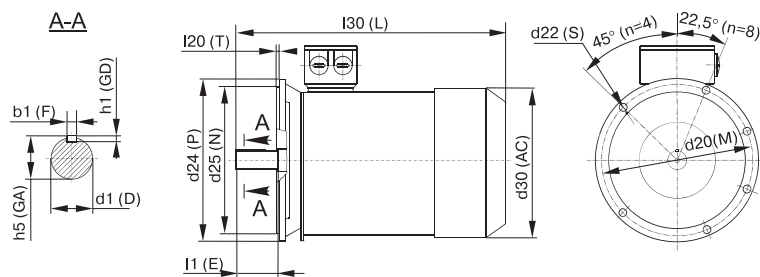
Frame size	Q-ty of poles	Overall dimensions, mm			Installation and connection dimensions, mm												
		I30	h31	d30	b10	b11	I10	I11	I31	d1	I1	b1	h5	h1	h	d10	
		L	HD	AC	A	AB	B	BB	C	D	E	F	GA	GD	H	K	
AIR56A	2, 4	210	150	120	90	110	71	90	36	11	23	4	12.5	4	56	5.8	
AIR56B	2, 4	210	150	120	90	110	71	90	36	11	23	4	12.5	4	56	5.8	
AIR63A	2, 4, 6	230	170	140	100	135	80	102	40	14	30	5	16	5	63	5.8	
AIR63B	2, 4, 6	230	170	140	100	135	80	102	40	14	30	5	16	5	63	5.8	
AIR71A	2, 4, 6	290	175	155	112	140	90	120	45	19	40	6	21.5	6	71	7	
AIR71B	2, 4, 6, 8	290	175	155	112	140	90	120	45	19	40	6	21.5	6	71	7	
AIR80A	2, 4, 6, 8	310	215	176	125	160	100	131	50	22	50	6	24.5	6	80	10	
AIR80B	2, 4, 6, 8	335	215	176	125	160	100	155	50	22	50	6	24.5	6	80	10	
AIR90LA	2, 4, 6, 8	350	245	185	140	195	125	170	56	24	50	8	27	7	90	10	
AIR90LB	8	350	245	185	140	195	125	170	56	24	50	8	27	7	90	10	
AIR100S	2, 4	385	250	215	160	200	112	180	63	28	60	8	31	7	100	12	
AIR100L	2, 4, 6, 8	415	250	215	160	200	140	185	63	28	60	8	31	7	100	12	
AIR112MA	2, 4, 6, 8	435	280	240	190	240	140	223	70	32	80	10	35	8	112	12	
AIR112MB	6, 8	435	280	240	190	240	140	223	70	32	80	10	35	8	112	12	
AIR132S	4, 6, 8	475	325	283	216	275	140	237	89	38	80	10	41	8	132	12	
AIR132M	2, 4, 6, 8	515	325	283	216	275	178	238	89	38	80	10	41	8	132	12	
AIR160S	2	635	375	330	254	320	178	314	108	42	110	12	45	8	160	15	
	4, 6, 8	635	375	330	254	320	178	314	108	48	110	14	51.5	9	160	15	
AIR160M	2	679	375	330	254	320	210	314	108	42	110	12	45	8	160	15	
	4, 6, 8	679	375	330	254	320	210	314	108	48	110	14	51.5	9	160	15	
AIR180S	2	700	435	380	279	355	203	343	121	48	110	14	51.5	9	180	15	
	4	700	435	380	279	355	203	343	121	55	110	16	59	10	180	15	
AIR180M	2	738	435	380	279	355	241	355	121	48	110	14	51.5	9	180	15	
	4, 6, 8	738	435	380	279	355	241	355	121	55	110	16	59	10	180	15	
AIR200M	2	780	475	420	318	390	267	379	133	55	110	16	59	10	200	19	
	4, 6, 8	810	475	420	318	390	267	379	133	60	140	18	64	11	200	19	
AIR200L	2	780	475	420	318	390	305	379	133	55	110	16	59	10	200	19	
	4, 6, 8	810	475	420	318	390	305	379	133	60	140	18	64	11	200	19	
AIR225M	2	845	555	470	356	435	311		149	55	110	16	59	10	225	19	
	4, 6, 8	875	555	470	356	435	311		149	65	140	18	69	11	225	19	
AIR250S/M	2	920	615	485	406	484	311/349		168	65	140	18	69	11	250	24	
	4, 6, 8	920	615	485	406	484	311/349		168	75	140	20	79.5	12	250	24	
AIR280S/M	2	975/1025	680	547	457	550	368/419		190	70	140	20	74.5	20	280	24	
	4, 6, 8	1005/1055	680	547	457	550	368/419		190	80	170	22	85.0	22	280	24	
AIR315S/M	2	1185/1295	870	620	508	630	406/457		216	75	140	20	79.5	20	315	28	
	4, 6, 8, 10	1215/1325	870	620	508	630	406/457		216	90	170	25	95	25	315	28	
AIR355S/M	2	1500/1530	970	705	610	730	500/560		254	85	170	22	90	22	355	28	
	4, 6, 8, 10	1540/1570	970	705	610	730	500/560		254	100	210	28	106	28	355	28	

Mounting style 2081



Frame size	Q-ty of poles	Overall dimensions, mm					Installation and connection dimensions, mm																		
		I30	h31	d30	D24	b10	b11	I10	I11	I31	d1	I1	b1	h5	h1	h	d10	d20	d25	I20	d22	n			
		L	HD	AC	P	A	AB	B	BB	C	D	E	F	GA	GD	H	K	M	N	T	S	n			
AIR56A	2, 4	210	150	120	140	90	110	71	90	36	11	23	4	12.5	4	56	5.8	115	95	3	10	4			
AIR56B	2, 4	210	150	120	140	90	110	71	90	36	11	23	4	12.5	4	56	5.8	115	95	3	10	4			
AIR63A	2, 4, 6	230	170	140	160	100	135	80	102	40	14	30	5	16	5	63	5.8	130	110	3.5	10	4			
AIR63B	2, 4, 6	230	170	140	160	100	135	80	102	40	14	30	5	16	5	63	5.8	130	110	3.5	10	4			
AIR71A	2, 4, 6	290	175	155	200	112	140	90	120	45	19	40	6	21.5	6	71	7	165	130	3.5	12	4			
AIR71B	2, 4, 6, 8	290	175	155	200	112	140	90	120	45	19	40	6	21.5	6	71	7	165	130	3.5	12	4			
AIR80A	2, 4, 6, 8	310	215	176	200	125	160	100	131	50	22	50	6	24.5	6	80	10	165	130	3.5	12	4			
AIR80B	2, 4, 6, 8	335	215	176	200	125	160	100	155	50	22	50	6	24.5	6	80	10	165	130	3.5	12	4			
AIR90LA	2, 4, 6, 8	350	245	185	250	140	195	125	170	56	24	50	8	27	7	90	10	215	180	4	15	4			
AIR90LB	8	350	245	185	250	140	195	125	170	56	24	50	8	27	7	90	10	215	180	4	15	4			
AIR100S	2, 4	385	250	215	250	160	200	112	180	63	28	60	8	31	7	100	12	215	180	4	15	4			
AIR100L	2, 4, 6, 8	415	250	215	250	160	200	140	185	63	28	60	8	31	7	100	12	215	180	4	15	4			
AIR112MA	2, 4, 6, 8	435	280	240	300	190	240	140	223	70	32	80	10	35	8	112	12	265	230	4	15	4			
AIR112MB	6, 8	435	280	240	300	190	240	140	223	70	32	80	10	35	8	112	12	265	230	4	15	4			
AIR132S	4, 6, 8	475	325	283	350	216	275	140	237	89	38	80	10	41	8	132	12	300	250	5	19	4			
AIR132M	2, 4, 6, 8	515	325	283	350	216	275	178	238	89	38	80	10	41	8	132	12	300	250	5	19	4			
AIR160S	2	635	375	330	350	254	320	178	314	108	42	110	12	45	8	160	15	300	250	5	19	4			
	4, 6, 8	635	375	330	350	254	320	178	314	108	48	110	14	51.5	9	160	15	300	250	5	19	4			
AIR160M	2	679	375	330	350	254	320	210	314	108	42	110	12	45	8	160	15	300	250	5	19	4			
	4, 6, 8	679	375	330	350	254	320	210	314	108	48	110	14	51.5	9	160	15	300	250	5	19	4			
AIR180S	2	700	435	380	400	279	355	203	343	121	48	110	14	51.5	9	180	15	350	300	5	19	8			
	4	700	435	380	400	279	355	203	343	121	55	110	16	59	10	180	15	350	300	5	19	8			
AIR180M	2	738	435	380	400	279	355	241	355	121	48	110	14	51.5	9	180	15	350	300	5	19	8			
	4, 6, 8	738	435	380	400	279	355	241	355	121	55	110	16	59	10	180	15	350	300	5	19	8			
AIR200M	2	780	475	420	450	318	390	267	379	133	55	110	16	59	10	200	19	400	350	5	19	8			
	4, 6, 8	810	475	420	450	318	390	267	379	133	60	140	18	64	11	200	19	400	350	5	19	8			
AIR200L	2	780	475	420	450	318	390	305	379	133	55	110	16	59	10	200	19	400	350	5	19	8			
	4, 6, 8	810	475	420	450	318	390	305	379	133	60	140	18	64	11	200	19	400	350	5	19	8			
AIR225M	2	845	555	470	550	356	435	311		149	55	110	16	59	10	225	19	500	450	5.0	19	8			
	4, 6, 8	875	555	470	550	356	435	311		149	65	140	18	69	11	225	19	500	450	5.0	19	8			
AIR250S/M	2	920	615	485	550	406	484	311/349		168	65	140	18	69	11	250	24	500	450	5.0	19	8			
	4, 6, 8	920	615	485	550	406	484	311/349		168	75	140	20	79.5	12	250	24	500	450	5.0	19	8			
AIR280S/M	2	975/1025	680	547	660	457	550	368/419		190	70	140	20	74.5	20	280	24	600	550	6.0	24	8			
	4, 6, 8	1005/1055	680	547	660	457	550	368/419		190	80	170	22	85.0	22	280	24	600	550	6.0	24	8			

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Frame size	Q-ty of poles	Overall dimensions, mm			Installation and connection dimensions, mm									
		I30	d30	d24	d1	I1	b1	h5	h1	d20	d25	I20	d22	n
		L	AC	P	D	E	F	GA	GD	M	N	T	S	n
AIR56A	2, 4	210	120	140	11	23	4	12.5	4	115	95	3	10	4
AIR56B	2, 4	210	120	140	11	23	4	12.5	4	115	95	3	10	4
AIR63A	2, 4, 6	230	140	160	14	30	5	16	5	130	110	3.5	10	4
AIR63B	2, 4, 6	230	140	160	14	30	5	16	5	130	110	3.5	10	4
AIR71A	2, 4, 6	290	155	200	19	40	6	21.5	6	165	130	3.5	12	4
AIR71B	2, 4, 6, 8	290	155	200	19	40	6	21.5	6	165	130	3.5	12	4
AIR80A	2, 4, 6, 8	310	176	200	22	50	6	24.5	6	165	130	3.5	12	4
AIR80B	2, 4, 6, 8	335	176	200	22	50	6	24.5	6	165	130	3.5	12	4
AIR90LA	2, 4, 6, 8	350	185	250	24	50	8	27	7	215	180	4	15	4
AIR90LB	8	350	185	250	24	50	8	27	7	215	180	4	15	4
AIR100S	2, 4	385	215	250	28	60	8	31	7	215	180	4	15	4
AIR100L	2, 4, 6, 8	415	215	250	28	60	8	31	7	215	180	4	15	4
AIR112MA	2, 4, 6, 8	435	240	300	32	80	10	35	8	265	230	4	15	4
AIR112MB	6, 8	435	240	300	32	80	10	35	8	265	230	4	15	4
AIR132S	4, 6, 8	475	283	350	38	80	10	41	8	300	250	5	19	4
AIR132M	2, 4, 6, 8	515	283	350	38	80	10	41	8	300	250	5	19	4

SPECIFICATIONS OF AIS

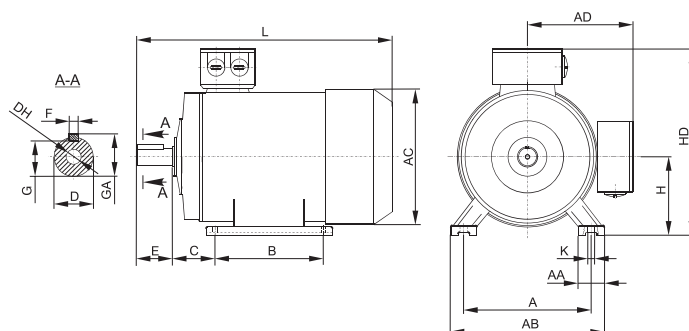
Name	Rated power <i>P_r</i> , kW	Rated current <i>I_r</i> , A Δ/Y 220/ 380	Rotation speed <i>n</i> , rpm	Rated voltage <i>U_n</i> , V Δ/Y	Efficiency, Cos φ %		Overload capacity <i>M_{max}/M_r</i>	Starting torque ratio <i>M_s/M_r</i>	Starting current ratio <i>I_s/I_r</i>
AIS56A2	0.09	0.62/0.36	2710	220/380	53	0.72	2.3	2.2	4
AIS56B2	0.12	0.73/0.42	2710	220/380	61	0.72	2.3	2.2	4
AIS56A4	0.06	0.56/0.33	1360	220/380	50	0.56	2.3	2.3	4
AIS56B4	0.09	0.77/0.45	1360	220/380	52	0.59	2.3	2.3	4
AIS56C4	0.12	0.95/0.55	1360	220/380	52	0.64	2.3	2.2	4
AIS63A2	0.18	1/0.58	2710	220/380	63	0.75	2.4	2.2	6
AIS63B2	0.25	1.29/0.75	2710	220/380	65	0.78	2.4	2.2	6
AIS63C2	0.37	1.92/1.11	2710	220/380	65	0.78	2.4	2.2	6
AIS63A4	0.12	0.95/0.55	1360	220/380	52	0.64	2.3	2.2	4
AIS63B4	0.18	1.28/0.74	1310	220/380	57	0.65	2.3	2.2	4
AIS63C4	0.25	1.46/0.84	1340	220/380	60	0.66	2.3	2.2	4
AIS71A2	0.37	1.76/1.02	2730	220/380	70	0.79	2.4	2.2	6
AIS71B2	0.55	2.57/1.49	2760	220/380	71	0.79	2.4	2.2	6
AIS71C2	0.75	3.33/1.93	2730	220/380	72	0.82	2.4	2.2	6
AIS71A4	0.25	1.52/0.88	1350	220/380	60	0.72	2.3	2.2	6
AIS71B4	0.37	2.02/1.17	1370	220/380	65	0.74	2.3	2.2	6
AIS71C4	0.55	2.92/1.69	1380	220/380	66	0.75	2.3	2.2	6
AIS71A6	0.18	1.28/0.74	880	220/380	56	0.66	2.3	1.6	4
AIS71B6	0.25	1.59/0.92	900	220/380	59	0.7	2.3	2.1	4
AIS71C6	0.37	2.31/1.34	890	220/380	61	0.69	2.3	2	4
AIS80A2	0.75	3.21/1.86	2770	220/380	73	0.84	2.4	2.2	6
AIS80B2	1.1	4.56/2.64	2770	220/380	76.2	0.83	2.4	2.2	6
AIS80C2	1.5	6.04/3.5	2800	220/380	78.5	0.83	2.4	2.2	6
AIS80A4	0.55	2.87/1.66	1370	220/380	67	0.75	2.3	2.2	6
AIS80B4	0.75	3.5/2.03	1380	220/380	72	0.78	2.3	2.2	6
AIS80C4	1.1	4.86/2.81	1390	220/380	76.2	0.78	2.3	2.2	6
AIS80A6	0.37	2.24/1.3	900	220/380	62	0.7	2.3	1.9	4
AIS80B6	0.55	2.99/1.73	900	220/380	67	0.72	2.3	2	4
AIS80C6	0.75	4.02/2.33	900	220/380	68	0.72	2.3	2	4
AIS80A8	0.18	1.52/0.88	680	220/380	51	0.61	2.3	2.2	2.8
AIS80B8	0.25	1.92/1.11	680	220/380	56	0.61	2.3	2.2	2.7
AIS90S2	1.5	8.76/5.07	2840	220/380	78.5	0.84	2.4	2.2	6
AIS90L2	2.2	8.76/5.07	2840	220/380	81	0.85	2.4	2.2	6
AIS90LB2	3	11.44/6.62	2840	220/380	82.6	0.86	2.4	2.2	6
AIS90S4	1.1	4.8/2.78	1400	220/380	76.2	0.79	2.3	2.2	6
AIS90L4	1.5	6.27/3.63	1400	220/380	78.5	0.8	2.3	2.2	6
AIS90LB4	2.2	8.91/5.16	1400	220/380	81	0.8	2.3	2.2	7
AIS90S6	0.75	3.96/2.29	1110	220/380	69	0.72	2.3	2.2	5.5
AIS90L6	1.1	5.49/3.18	1110	220/380	72	0.73	2.3	2.2	5.5
AIS90S8	0.37	2.45/1.42	680	220/380	63	0.63	2.3	2.2	2.8
AIS90L8	0.55	3.36/1.95	680	220/380	66	0.65	2.3	2.2	3
AIS100L2	3	10.96/6.34	2840	220/380	82.6	0.87	2.3	2.2	7
AIS100LB2	4	14.33/8.3	2850	220/380	84.2	0.87	2.3	2.2	7.5
AIS100L4	2.2	8.8/5.09	1420	220/380	81	0.81	2.3	2.2	7
AIS100LB4	3	11.77/6.81	1420	220/380	82.6	0.81	2.3	2.2	7
AIS100LC4	4	15.2/8.8	1430	220/380	84.2	0.82	2.3	2.2	7
AIS100L6	1.5	07.04/2005	945	220/380	74	0.76	2.3	2.2	6
AIS100L8	0.75	4.45/2.58	710	220/380	66	0.67	2.3	2.2	3.5
AIS100LB8	1.1	5.81/3.36	710	220/380	72	0.69	2.3	2.2	3.5

Name	Rated power P_r , kW	Rated current I_r , A $\Delta/Y220/380$ or $380/660$	Rotation speed n , rpm	Rated voltage U_n , V Δ/Y	Efficiency, %	$\cos \varphi$	Overload capacity M_{max}/M_r	Starting torque ratio M_s/M_r	Starting current ratio I_s/I_r
AIS112M2	4	14.33/8.3	2880	220/380	84.2	0.87	2.3	2.2	7.5
AIS112L2	5.5	19.7/11.41	2880	220/380	85.7	0.88	2.3	2.2	7.5
AIS112M4	4	15.02/8.7	1430	220/380	84.2	0.83	2.3	2.2	7
AIS112L4	5.5	20.29/11.75	1440	220/380	85.7	0.83	2.3	2.2	7
AIS112M6	2.2	9.74/5.64	955	220/380	78	0.76	2.3	2.2	6
AIS112M8	1.5	7.82/4.53	710	220/380	74	0.68	2.3	2.2	4.2
AIS132S2	5.5	19.14/11.08	2900	220/380	85.7	0.88	2.2	2	7.5
AIS132SB2	7.5	25.71/14.88	2920	220/380	87	0.88	2.2	2	7.5
AIS132M2	9.2	30.83/17.85	2930	220/380	88	0.89	2.2	2	7.5
AIS132MB2	11	36.29/21.01	2930	220/380	88.4	0.9	2.2	2	7.5
AIS132S4	5.5	35.49/20.55	1450	220/380	85.7	0.84	2.3	2.2	7
AIS132M4	7.5	27.34/15.83	1450	220/380	87	0.85	2.3	2.2	7
AIS132MB4	9.2	32.46/18.79	1460	220/380	87.5	0.85	2.3	2.2	7.5
AIS132MC4	11	37.97/21.98	1460	220/380	88.4	0.86	2.3	2.2	7.5
AIS132S6	3	13.11/7.59	960	220/380	79	0.76	2.3	2	6.5
AIS132M6	4	17.16/9.93	960	220/380	80.5	0.76	2.3	2	6.5
AIS132MB6	5.5	22.59/13.08	960	220/380	83	0.77	2.3	2	6.5
AIS132S8	2.2	10.84/6.28	720	220/380	75	0.71	2.3	2	5.5
AIS132M8	3	14.01/8.11	720	220/380	77	0.73	2.3	2	5.5
AIS160M2	11	21.01/12.1	2935	380/660	88.4	0.89	2.3	2.2	7.5
AIS160MB2	15	28.01/16.13	2935	380/660	89.4	0.89	2.3	2.2	7.5
AIS160L2	18.5	34.32/19.76	2940	380/660	90	0.9	2.3	2.2	7.5
AIS160M4	11	21.73/12.51	1460	380/660	88.4	0.84	2.3	2.2	7
AIS160L4	15	29.63/17.06	1460	380/660	89.4	0.85	2.3	2.2	7.5
AIS160M6	7.5	16.56/9.54	970	380/660	86	0.77	2.1	2	6.5
AIS160L6	11	24.18/13.92	970	380/660	87.5	0.78	2.1	2	6.5
AIS160M8	4	10.41/5.99	720	380/660	81	0.73	2	1.9	6
AIS160MB8	5.5	13.52/7.79	720	380/660	83	0.74	2	2	6
AIS160L8	7.5	17.88/10.29	720	380/660	85.5	0.75	2	2	6
AIS180M2	22	41.04/23.63	2940	380/660	90.5	0.9	2.3	2	7.5
AIS180M4	18.5	36.32/20.91	1470	380/660	90	0.86	2.3	2.2	7.5
AIS180L4	22	42.95/24.73	1470	380/660	90.5	0.86	2.3	2.2	7.5
AIS180L6	15	31.61/18.2	970	380/660	89	0.81	2.1	2	7
AIS180L8	11	25.13/14.47	730	380/660	87.5	0.76	2	2	6.6
AIS200L2	30	55.41/31.9	2945	380/660	91.4	0.9	2.3	2	7.5
AIS200LB2	37	67.9/39.09	2945	380/660	92	0.9	2.3	2	7.5
AIS200L4	30	57.99/33.39	1470	380/660	91.4	0.86	2.3	2.2	7.2
AIS200L6	18.5	38.56/22.2	975	380/660	90	0.81	2.1	2.1	7
AIS200LB6	22	44.75/25.76	975	380/660	90	0.83	2.1	2.1	7
AIS200L8	15	34.08/19.62	730	380/660	88	0.76	2	2	6.6
AIS225M2	45	82.13/47.29	2950	380/660	92.5	0.9	2.3	2	7.5
AIS225S4	37	70.24/40.44	1475	380/660	92	0.87	2.3	2.2	7.2
AIS225M4	45	84.96/48.92	1475	380/660	92.5	0.87	2.3	2.2	7.2
AIS225M6	30	29.3/34.15	980	380/660	91.5	0.84	2.1	2	7
AIS225S8	18.5	41.09/23.66	730	380/660	90	0.76	2	1.9	6.6
AIS225M8	22	47.35/27.26	730	380/660	90.5	0.78	2	1.9	6.6
AIS250M2	55	99.84/57.48	2965	380/660	93	0.9	2.3	2	7.5
AIS250M4	55	103.28/59.47	1475	380/660	93	0.87	2.3	2.2	7.2
AIS250M6	37	71.05/40.91	980	380/660	92	0.86	2.1	2.1	7
AIS250M8	30	63.4/36.51	730	380/660	91	0.79	2	1.9	6.6

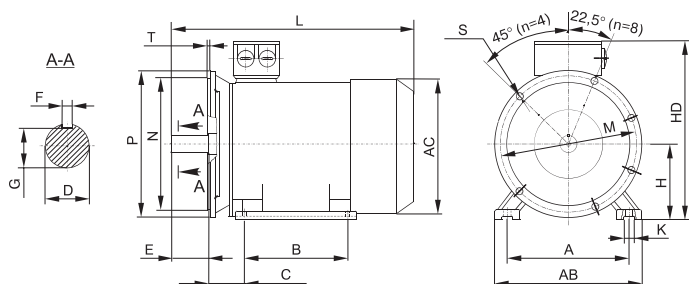
Name	Rated power P_r , kW	Rated current I_r , A $\Delta/Y220/380$ or $380/660$	Rotation speed n , rpm	Rated voltage U_n , V Δ/Y	Efficiency, Cos φ %	Overload capacity M_{max}/M_r	Starting torque ratio M_s/M_r	Starting current ratio I_s/I_r	
AIS280S2	75	135.27/77.88	2965	380/660	93.6	0.9	2.3	2	7.5
AIS280M2	90	160.03/92.14	2965	380/660	93.9	0.91	2.3	2	7.5
AIS280S4	75	139.94/80.57	1485	380/660	93.6	0.87	2.3	2.2	7.2
AIS280M4	90	167.39/96.38	1485	380/660	93.9	0.87	2.3	2.2	7.2
AIS280S6	45	85.95/49.49	980	380/660	92.5	0.86	2	2.1	7
AIS280M6	55	104.71/60.29	980	380/660	92.8	0.86	2	2.1	7
AIS280M8	45	94.07/54.16	735	380/660	92	0.79	2	1.9	6.6
AIS315S2	110	195.39/112.49	2975	380/660	94	0.91	2.2	1.8	7.1
AIS315M2	132	233.22/134.28	2975	380/660	94.5	0.91	2.2	1.8	7.1
AIS315L2	160	279.32/160.82	2975	380/660	94.6	0.92	2.2	1.8	7.1
AIS315LB2	200	348.42/200.61	2975	380/660	94.8	0.92	2.2	1.8	7.1
AIS315S4	110	200.98/115.71	1485	380/660	94.5	0.88	2.2	2.1	6.9
AIS315M4	132	240.41/138.42	1485	380/660	94.8	0.88	2.2	2.1	6.9
AIS315L4	160	287.83/165.72	1485	380/660	94.9	0.89	2.2	2.1	6.9
AIS315LB4	200	359.78/207.15	1485	380/660	94.9	0.89	2.2	2.1	6.9
AIS315S6	75	141.72/81.59	990	380/660	93.5	0.86	2	2	7
AIS315M6	90	169.52/97.6	990	380/660	93.8	0.86	2	2	7
AIS315L6	110	206.74/119.03	990	380/660	94	0.86	2	2	6.7
AIS315LB6	132	244.72/140.9	990	380/660	94.2	0.87	2	2	6.7
AIS355M2	250	433.69/249.7	2980	380/660	95.2	0.92	2.2	1.6	7.1
AIS355L2	315	545.31/313.97	2980	380/660	95.4	0.92	2.2	1.6	7.1
AIS355M4	250	443.33/255.25	1490	380/660	95.2	0.9	2.2	2.1	6.9
AIS355L4	315	558.6/321.62	1490	380/660	95.2	0.9	2.2	2.1	6.9
AIS355M6	160	292.33/168.31	990	380/660	94.5	0.88	2	1.9	6.7
AIS355MB6	200	365.41/210.39	990	380/660	94.5	0.88	2	1.9	6.7
AIS355L6	250	456.76/262.99	990	380/660	94.5	0.88	2	1.9	6.7

OVERALL, INSTALLATION AND CONNECTION DIMENSIONS OF AIS

Dimensions of IM 1081 mounting version motors size 56–160

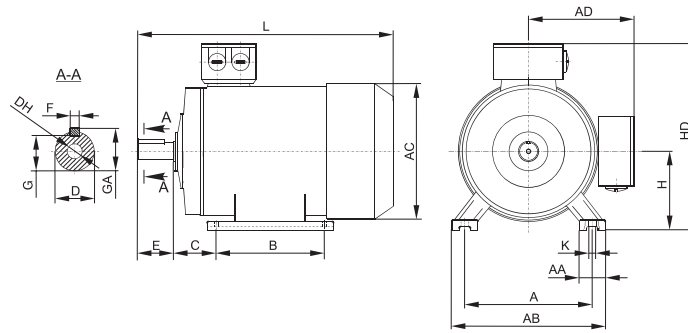


Dimensions of IM 2081 mounting version motors size 56–160

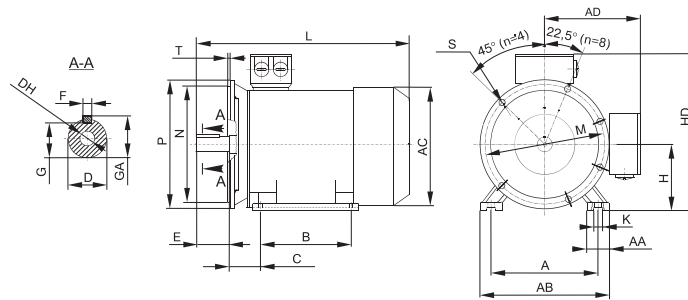


Size	Installation dimensions, mm														Overall dimensions, mm			
	IM 1081, IM 2081									IM 2081								
	A	B	C	D	E	F	G	H	K	M	N	P	S	T	AB	AC	HD	L
56	90	71	36	9	20	3	7.2	56	5.8	100	80	120	7	2.5	110	120	155	195
63	100	80	40	11	23	4	8.5	63	7	115	95	140	10	3.0	120	120	173	215
71	112	90	45	14	30	5	11	71	7	130	110	160	10	3.5	132	130	188	255
80	125	100	50	19	40	6	15.5	80	10	165	130	200	12	3.5	160	157	217	290
90S	140	100	56	24	50	8	20	90	10	165	130	200	12	3.5	175	175	235	335
90L	140	125	56	24	50	8	20	90	10	165	130	200	12	3.5	175	175	235	360
100L	160	140	63	28	60	8	24	100	12	215	180	250	14.5	4.0	200	196	252	386
112M	190	140	70	28	60	8	24	112	12	215	180	250	14.5	4.0	220	220	291	401
112L	190	140	70	28	60	8	24	112	12	215	180	250	14.5	4.0	220	220	291	445
132S	216	140	89	38	80	10	33	132	12	265	230	300	14.5	4.0	270	265	325	475
132M	216	178	89	38	80	10	33	132	12	265	230	300	14.5	4.0	270	265	325	515
160M	254	210	108	42	110	12	37	160	14.5	300	250	350	18.5	5.0	290	320	390	601
160L	254	254	108	42	110	12	37	160	14.5	300	250	350	18.5	5.0	290	320	390	645

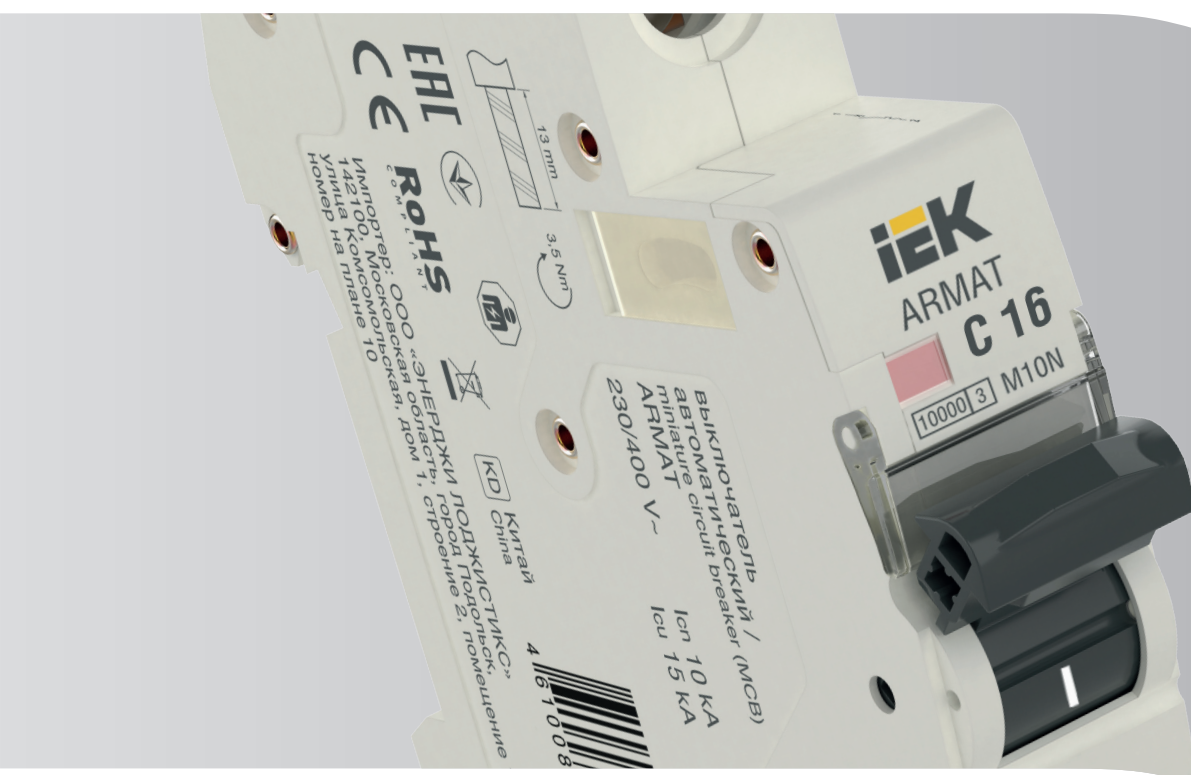
Dimensions of IM 1081 mounting version motors size 180–355



Dimensions of IM 2081 mounting version motors size 180–355



Size	Q-ty of poles	Installation dimensions, mm															Overall dimensions, mm									
		IM 1081, IM 2081										IM 2081														
		A	B	C	D	E	F	G	H	K	M	N	P	S	T	DH	GA	AA	AB	AC	AD	HD	L			
180M	2, 4, 6, 8	279	241	121	48	110	14	42.5	180	14.5	300	250	350	4—φ18,5	5	M16×36	51.5	70	355	380	280	455	690			
180L	2, 4, 6, 8	279	279	121	48	110	14	42.5	180	14.5	300	250	350	4—φ18,5	5	M16×36	51.5	70	355	380	280	455	730			
200L	2, 4, 6, 8	318	305	133	55	110	16	49	200	18.5	350	300	400	4—φ18,5	5	M20×42	59	70	395	420	305	505	760			
225S	4, 8	356	286	149	60	140	18	53	225	18.5	400	350	450	4—φ18,5	5	M20×40	64	75	435	470	335	560	810			
225M	2	356	311	149	55	110	16	49	225	18.5	400	350	450	8—φ18,5	5	M20×40	59	75	435	470	335	560	805			
	4, 6, 8	356	311	149	60	140	18	53	225	18.5	400	350	450	8—φ18,5	5	M20×40	64	75	435	470	335	560	835			
250M	2	406	349	168	60	140	18	53	250	18.5	500	450	550	8—φ18,5	5	M20×42	64	80	490	510	370	615	910			
	4, 6, 8	406	349	168	65	140	18	58	250	24	500	450	550	8—φ18,5	5	M20×42	69	80	490	510	370	615	910			
280S	2	457	368	190	65	140	18	58	280	24	500	450	550	8—φ18,5	5	M20×42	69	85	550	580	410	680	985			
	4, 6, 8	457	368	190	75	140	20	67.5	280	24	500	450	550	8—φ18,5	5	M20×42	79.5	85	550	580	410	680	985			
280M	2	457	419	190	65	140	18	58	280	24	500	450	550	8—φ18,5	5	M20×42	69	85	550	580	410	680	1035			
	4, 6, 8	457	419	190	75	140	20	67.5	280	24	500	450	550	8—φ18,5	5	M20×42	79.5	85	550	580	410	680	1035			
315S	2	508	406	216	65	140	18	58	315	28	600	550	660	8—φ24	6	M20×46	69	116	635	645	530	845	1190			
	4, 6, 8	508	406	216	80	170	22	71	315	28	600	550	660	8—φ24	6	M20×46	85	116	635	645	530	845	1220			
315M	2	508	457	216	65	140	18	58	315	28	600	550	660	8—φ24	6	M20×46	69	116	635	645	530	845	1300			
	4, 6, 8	508	457	216	80	170	22	71	315	28	600	550	660	8—φ24	6	M20×46	85	116	635	645	530	845	1330			
315L	2	508	508	216	65	140	18	58	315	28	600	550	660	8—φ24	6	M20×46	69	116	635	645	530	845	1300			
	4, 6, 8	508	508	216	80	170	22	71	315	28	600	550	660	8—φ24	6	M20×46	85	116	635	645	530	845	1330			
355M	2	610	560	254	75	140	20	67.5	355	28	740	680	800	8—φ24	6	M20×46	79.5	120	730	720	655	1010	1490			
	4, 6, 8	610	560	254	95	170	25	86	355	28	740	680	800	8—φ24	6	M20×46	100	120	730	720	655	1010	1520			
355L	2	610	630	254	75	140	20	67.5	355	28	740	680	800	8—φ24	6	M20×46	79.5	120	730	720	655	1010	1490			
	4, 6, 8	610	630	254	95	170	25	86	355	28	740	680	800	8—φ24	6	M20×46	100	120	730	720	655	1010	1520			



EQUIPMENT FOR SWITCHING AND ELECTRIC DISTRIBUTION

- ARMAT Circuit Breakers
- KARAT Circuit Breakers
- Contactors
- Accessories for contactors

ARMAT series circuit breakers

ARMAT circuit breakers are designed to protect distribution and group circuits with varying loads:

electric appliances, lighting – circuit breakers with B characteristic;

motors with low starting currents (compressor, fan) – circuit breakers with C characteristic;

motors with high starting currents (hoist mechanisms, pumps) – circuit breakers with D characteristic.

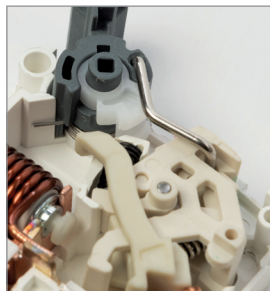
ARMAT circuit breakers are recommended to use in input switching devices for residential and public buildings, as well as in production sector for protection of power supply circuits of production lines, control and alarm circuits.



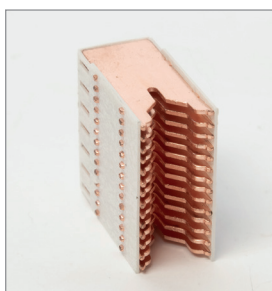
Construction features



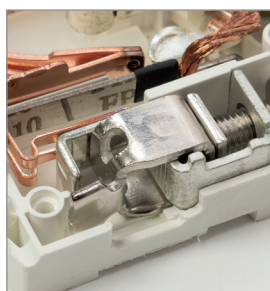
Enlarged silver soldering with increased wearing capacity to short circuit current gives low transfer resistance.



Immediate switching. Maximizes wearing capacity in case of frequent operations. The speed of contact closure is not affected by the speed of rotation of the handle.



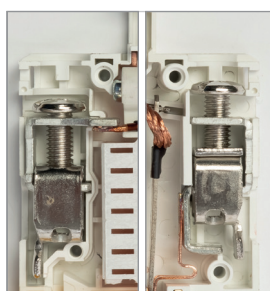
Arc chamber – 14 plates with increased specific quantity of metal for quick and effective arc extinction.



Protection against incorrect connection.



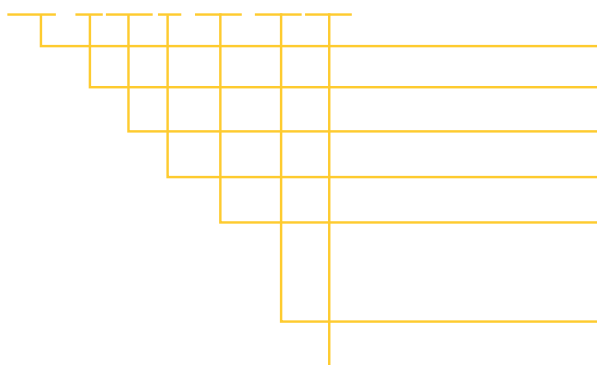
Label space with protective transparent lid.



Possibility of two-way bus connection type FORK

Product ID decoding

AR-MX1N-X2-X3X4



AR – ARMAT series

M (MCB) – circuit breaker

X1 – breaking capacity:

6 or 10 kA N – frame size (module width 18 mm)

X2 – quantity of poles: 1P – one pole, 2P – two poles, 3P – three poles, 4P – four poles

X3 – type of protective characteristic: B,C,D

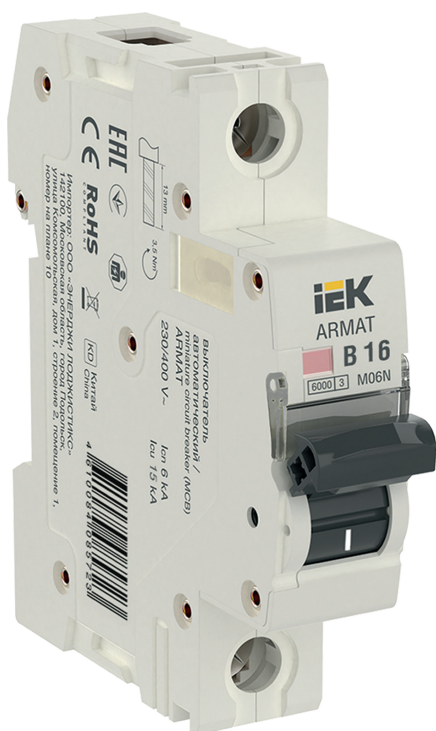
X4 – rated current: 0.5; 1; 1.6; 2; 2.5; 3; 4; 5; 6; 8; 10; 13; 16; 20; 25; 32; 40; 50; 63 A

Entry example for the ARMAT series two-pole circuit breaker with a rated current of 16 A, protective characteristic type B, and breaking capacity of 6 kA: **AR-M06N-2-B016**.

Circuit breakers M06N

M06N circuit breakers are used to protect AC electrical circuits from overloads and short circuits.

The range of models includes devices with B, C and D triggering characteristics, rated currents from 0.5 to 63 A. ARMAT M06N circuit breakers have a rated breaking capacity of 6 kA. The ultimate breaking capacity varies according to the rating, ranging from 10 to 50 kA.



Advantages

- Extended switching life – 10,000 electric cycles.
- Capability to connect FORK bus on any side of an automatic breaker.
- Latching on DIN rail with two fixed positions.
- Maximum terminal tightening torque – up to 5 N·m.
- Label space with transparent lid.
- Full compliance with RoHS directive.
- High response speed, energy limiting class – 3.
- Rated breaking capacity – 6 kA.
- Ultimate switching capacity – from 10 to 50 kA (depending on the rated value).

Specifications

Parameter	Value	
Q-ty of poles	1, 2, 3, 4	
Overcurrent protection	In each pole	
Rated AC voltage U_e , V	Single-pole	230/400
	two-pole	400
	three-pole, four-pole	
Range of rated currents I_n , A	0.5; 1; 1.6; 2; 2.5; 3; 4; 5; 6; 8; 10; 13; 16; 20; 25; 32; 40; 50; 63	
Rated AC frequency, Hz	50	
Rated maximum breaking capacity I_{cn} , A, not less than	6000	
Operating breaking capacity I_{cs} , A, not less than	6000	
Power coefficient of the circuit protected $\cos \varphi$	0.65...0.70	
Rated ultimate short-circuit breaking capacity I_{cu} , A, not less	$0.5 \leq I_n \leq 4$ A	50,000
	$6 \leq I_n \leq 20$ A	15,000
	$25 \leq I_n \leq 63$ A	10,000
Instantaneous trip current ranges	B,C,D	
B range limits	From $3I_n$ to $5I_n$ inclusive	
C range limits	From $5I_n$ to $10I_n$ inclusive	
D range limits	From I_n to $20I_n$ inclusive	
Untripping time at current $1.13I_n$, h, min	1	
Tripping time at current $1.45I_n$, h, max	1	
Tripping time range at current $2.55I_n$, s	$I_n \leq 32$ A	$1 < t < 60$
	$I_n > 32$ A	$1 < t < 120$
Instantaneous trip current ranges	B	$3I_n$
	C	$5I_n$
	D	$10I_n$
Instantaneous trip current ranges	B	$5I_n$
	C	$10I_n$
	D	$20I_n$
Instantaneous trip current ranges	$t < 0.1$ s	
Cross-section of wires to be connected to the terminals, mm ²	1÷25	
Load connection side	Any	
Mechanical wear resistance, On-Off cycles, min	20,000	
Electrical durability, On-Off cycles, min	10,000	
Withstand tightening torque of contact clamps, N·m	5	
Material of external conductors to be connected	Copper	
	Aluminum	
Strength class of screws connecting the external conductors	M5	
Screw thread type of outputs serving to connect the external conductors	Metric	
Bus connection type PIN, FORK	Allowed	
Protection degree	IP20	
Conductor pulling force with a section, N	up to 4 mm ²	50
	up to 6 mm ²	60
	up to 10 mm ²	80
	up to 16 mm ²	90
	up to 25 mm ²	100
Operating temperature range, °C	-5...+40	
Upper limit of operating temperature, °C	70	
Installation height above sea level, m, max.	2000	
Relative air humidity, %, upper value	90	
	50	
Position in space	Any	

[illegible]

M10N circuit breakers are used to protect AC electrical circuits from overloads and short circuits. The range of models includes devices with B, C and D triggering characteristics, rated currents from 0.5 to 63 A. ARMAT M10N circuit breakers have a rated breaking capacity of 10 kA. The ultimate breaking capacity varies according to the rating, ranging from 10 to 50 kA.



- Extended switching life – 10,000 electric cycles.
- Capability to connect FORK bus on any side of an automatic breaker.
- Latching on DIN rail with two fixed positions.
- Maximum terminal tightening torque – up to 5 N·m.

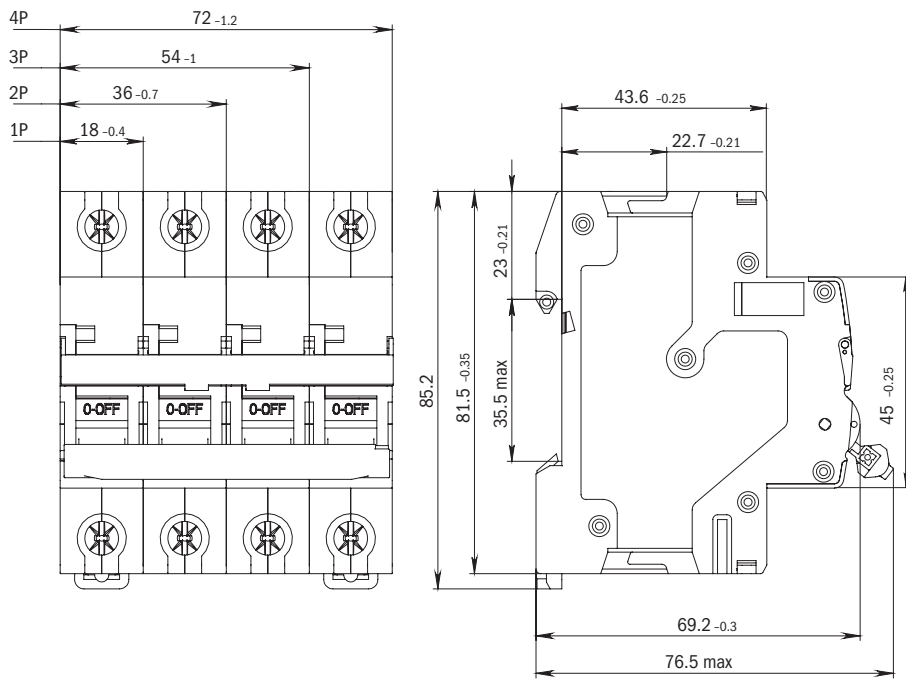
- Label space with transparent lid.
- Full compliance with RoHS directive.
- High response speed, energy limiting class – 3.
- Rated breaking capacity – 10 kA.
- Ultimate switching capacity – from 10 to 50 kA (depending on the rated value).

Specifications

Parameter	Value	
Q-ty of poles	1, 2, 3, 4	
Overcurrent protection	In each pole	
Rated AC voltage U_e , V	Single-pole	230/400
	two-pole	400
	three-pole, four-pole	
Range of rated currents I_n , A	0.5; 1; 1.6; 2; 2.5; 3; 4; 5; 6; 8; 10; 13; 16; 20; 25; 32; 40; 50; 63	
Rated AC frequency, Hz	50	
Rated maximum breaking capacity I_{cn} , A, not less than	10,000	
Operating breaking capacity I_{cs} , A, not less than	7500	
Power coefficient of the circuit protected $\cos \varphi$	0.45...0.50	
Rated ultimate short-circuit breaking capacity I_{cu} , A, not less	$0.5 \leq I_n \leq 4$ A	50,000
	$6 \leq I_n \leq 20$ A	15,000
	$25 \leq I_n \leq 63$ A	10,000
Instantaneous trip current ranges	B,C,D	
B range limits	From $3I_n$ to $5I_n$ inclusive	
C range limits	From $5I_n$ to $10I_n$ inclusive	
D range limits	From $10I_n$ to $20I_n$ inclusive	
Untripping time at current $1.13I_n$, h, min	1	
Tripping time at current $1.45I_n$, h, max	1	
Tripping time range at current $2.55I_n$, s	$I_n \leq 32$ A	$1 < t < 60$
	$I_n > 32$ A	$1 < t < 120$
Instantaneous trip current ranges	B	$3I_n$
	C	$5I_n$
	D	$10I_n$
Instantaneous trip current ranges	B	$5I_n$
	C	$10I_n$
	D	$20I_n$
Cross-section of wires to be connected to the terminals, mm ²	1÷25	
Load connection side	Any	
Mechanical wear resistance, On-Off cycles, min	20,000	
Electrical durability, On-Off cycles, min	10,000	
Withstand tightening torque of contact clamps, N·m	5	
Material of external conductors to be connected	Copper	
	Aluminum	
Strength class of screws connecting the external conductors	M5	
Screw thread type of outputs serving to connect the external conductors	Metric	
Bus connection type PIN, FORK	Allowed	
Protection degree	IP20	
Conductor pulling force with a section, N	up to 4 mm ²	50
	up to 6 mm ²	60
	up to 10 mm ²	80
	up to 16 mm ²	90
	up to 25 mm ²	100
Operating temperature range, °C	-5...+40	
Upper limit of operating temperature, °C	70	
Installation height above sea level, m, max.	2000	
Position in space	Any	
Instant switch-on (contact closing speed is not dependent on operating speed)	Yes	

[illegible]

Overall dimensions, mm



Circuit breakers VA47-60M

BA47-60M circuit breakers are designed for automatic tripping of power supply in case of overcurrent.

Limit switching capacity – 6000 A.

168 versions available for 14 rated currents ranging from 1 to 63 A.

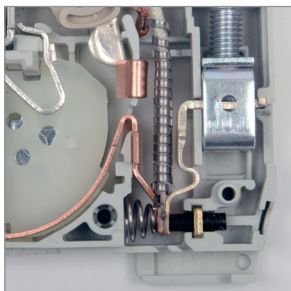


Advantages

- Wide range of time-current characteristics B, C, D (including currents up to 6 A).
- Independent contact position indication.
- Latching on DIN rail with dual fixed positioning.
- Wide operating temperature range: from –40 to +50 °C.
- Wide handle for convenient switching on/off the circuit breaker.
- Enlarged arc chamber.
- Variable connection on FORK/PIN bus and flexible conductor on the output 1 side.
- One-piece panel enhances strength of case.
- Lateral edges provide better cooling for case.

Specifications

Compliant with standards	GOST IEC 60898-1-2020,
Nominal voltage	230/400 with frequency
50 Hz, V	
Rated current, A	1, 2, 3, 4, 5, 6, 10, 16,
	20, 25, 32, 40, 50, 63
Rated breaking capacity – 6000 kA.	
Characteristic time curve	B, C, D Electromagnetic
release device triggering li	
Q-ty of poles	1–4
Circuit breaker protection rating	IP20
Electrical durability, On-Off cycles, min	8000
Mechanical wear resistance, On-Off cycles, min	20 000
Max. cross section of connected conductors, mm ²	
Warranty period of operation – 10 years (from the sale date).	



Contact group made of silver-containing composite improves wear resistance of the circuit breaker.



Notches on contact clamps reduce thermal losses and strengthen mechanical sustainability of connection.



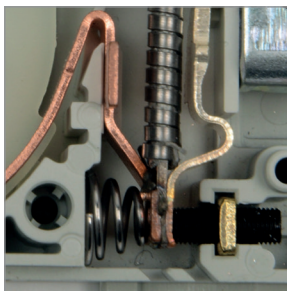
Quick mounting and improved reliability of fastening on a DIN rail.



Lateral edges provide better cooling for case.

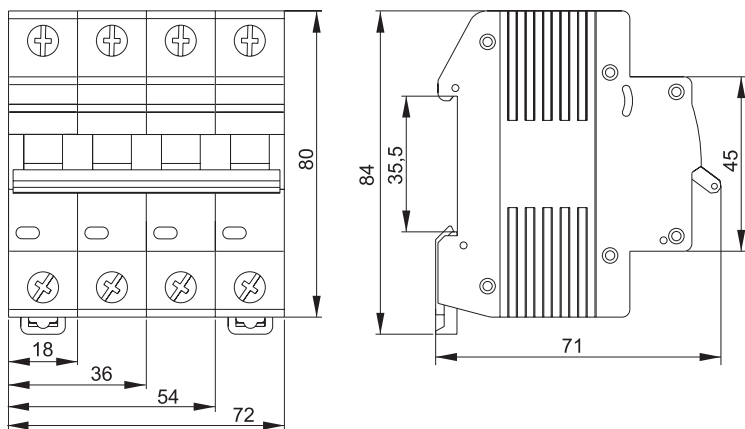


Increased size of a screw head with a universal crest (+, -) facilitates mounting and prevents screws from falling out during installation.



Factory configuration of a thermal release device is protected against alteration using a plexiglass insertion.

Overall dimensions, mm



Product range



Name	Release device triggering characteristic	Rated current, A	Bus type	Quantity in a package, pcs.		Product ID
				Multiple	Transport	
BA 47-60M 1P 1 A char. B	B	1	1P PIN, FORK 100 A	12	180	MVA31-1-001-B
BA 47-60M 1P 2 A char. B	B	2	1P PIN, FORK 100 A	12	180	MVA31-1-002-B
BA 47-60M 1P 3 A char. B	B	3	1P PIN, FORK 100 A	12	180	MVA31-1-003-B
BA 47-60M 1P 4 A char. B	B	4	1P PIN, FORK 100 A	12	180	MVA31-1-004-B
BA 47-60M 1P 5 A char. B	B	5	1P PIN, FORK 100 A	12	180	MVA31-1-005-B
BA 47-60M 1P 6 A char. B	B	6	1P PIN, FORK 100 A	12	180	MVA31-1-006-B
BA 47-60M 1P 10 A char. B	B	10	1P PIN, FORK 100 A	12	180	MVA31-1-010-B
BA 47-60M 1P 16 A char. B	B	16	1P PIN, FORK 100 A	12	180	MVA31-1-016-B
BA 47-60M 1P 20 A char. B	B	20	1P PIN, FORK 100 A	12	180	MVA31-1-020-B
BA 47-60M 1P 25 A char. B	B	25	1P PIN, FORK 100 A	12	180	MVA31-1-025-B
BA 47-60M 1P 32 A char. B	B	32	1P PIN, FORK 100 A	12	180	MVA31-1-032-B
BA 47-60M 1P 40 A char. B	B	40	1P PIN, FORK 100 A	12	180	MVA31-1-040-B
BA 47-60M 1P 50 A char. B	B	50	1P PIN, FORK 100 A	12	180	MVA31-1-050-B
BA 47-60M 1P 63 A char. B	B	63	1P PIN, FORK 100 A	12	180	MVA31-1-063-B



BA 47-60M 2P 1 A char. B	B	1	2P PIN, FORK 100 A	6	90	MVA31-2-001-B
BA 47-60M 2P 2 A char. B	B	2	2P PIN, FORK 100 A	6	90	MVA31-2-002-B
BA 47-60M 2P 3 A char. B	B	3	2P PIN, FORK 100 A	6	90	MVA31-2-003-B
BA 47-60M 2P 4 A char. B	B	4	2P PIN, FORK 100 A	6	90	MVA31-2-004-B
BA 47-60M 2P 5 A char. B	B	5	2P PIN, FORK 100 A	6	90	MVA31-2-005-B
BA 47-60M 2P 6 A char. B	B	6	2P PIN, FORK 100 A	6	90	MVA31-2-006-B
BA 47-60M 2P 10 A char. B	B	10	2P PIN, FORK 100 A	6	90	MVA31-2-010-B
BA 47-60M 2P 16 A char. B	B	16	2P PIN, FORK 100 A	6	90	MVA31-2-016-B
BA 47-60M 2P 20 A char. B	B	20	2P PIN, FORK 100 A	6	90	MVA31-2-020-B
BA 47-60M 2P 25 A char. B	B	25	2P PIN, FORK 100 A	6	90	MVA31-2-025-B
BA 47-60M 2P 32 A char. B	B	32	2P PIN, FORK 100 A	6	90	MVA31-2-032-B
BA 47-60M 2P 40 A char. B	B	40	2P PIN, FORK 100 A	6	90	MVA31-2-040-B
BA 47-60M 2P 50 A char. B	B	50	2P PIN, FORK 100 A	6	90	MVA31-2-050-B
BA 47-60M 2P 63 A char. B	B	63	2P PIN, FORK 100 A	6	90	MVA31-2-063-B



BA 47-60M 3P 1 A char. B	B	1	3P PIN, FORK 100 A	4	60	MVA31-3-001-B
BA 47-60M 3P 2 A char. B	B	2	3P PIN, FORK 100 A	4	60	MVA31-3-002-B
BA 47-60M 3P 3 A char. B	B	3	3P PIN, FORK 100 A	4	60	MVA31-3-003-B
BA 47-60M 3P 4 A char. B	B	4	3P PIN, FORK 100 A	4	60	MVA31-3-004-B
BA 47-60M 3P 5 A char. B	B	5	3P PIN, FORK 100 A	4	60	MVA31-3-005-B
BA 47-60M 3P 6 A char. B	B	6	3P PIN, FORK 100 A	4	60	MVA31-3-006-B
BA 47-60M 3P 10 A char. B	B	10	3P PIN, FORK 100 A	4	60	MVA31-3-010-B
BA 47-60M 3P 16 A char. B	B	16	3P PIN, FORK 100 A	4	60	MVA31-3-016-B
BA 47-60M 3P 20 A char. B	B	20	3P PIN, FORK 100 A	4	60	MVA31-3-020-B
BA 47-60M 3P 25 A char. B	B	25	3P PIN, FORK 100 A	4	60	MVA31-3-025-B
BA 47-60M 3P 32 A char. B	B	32	3P PIN, FORK 100 A	4	60	MVA31-3-032-B
BA 47-60M 3P 40 A char. B	B	40	3P PIN, FORK 100 A	4	60	MVA31-3-040-B
BA 47-60M 3P 50 A char. B	B	50	3P PIN, FORK 100 A	4	60	MVA31-3-050-B
BA 47-60M 3P 63 A char. B	B	63	3P PIN, FORK 100 A	4	60	MVA31-3-063-B



BA 47-60M 4P 1 A char. B	B	1	4P PIN, FORK 100 A	3	45	MVA31-4-001-B
BA 47-60M 4P 2 A char. B	B	2	4P PIN, FORK 100 A	3	45	MVA31-4-002-B
BA 47-60M 4P 3 A char. B	B	3	4P PIN, FORK 100 A	3	45	MVA31-4-003-B
BA 47-60M 4P 4 A char. B	B	4	4P PIN, FORK 100 A	3	45	MVA31-4-004-B
BA 47-60M 4P 5 A char. B	B	5	4P PIN, FORK 100 A	3	45	MVA31-4-005-B
BA 47-60M 4P 6 A char. B	B	6	4P PIN, FORK 100 A	3	45	MVA31-4-006-B
BA 47-60M 4P 10 A char. B	B	10	4P PIN, FORK 100 A	3	45	MVA31-4-010-B
BA 47-60M 4P 16 A char. B	B	16	4P PIN, FORK 100 A	3	45	MVA31-4-016-B
BA 47-60M 4P 20 A char. B	B	20	4P PIN, FORK 100 A	3	45	MVA31-4-020-B
BA 47-60M 4P 25 A char. B	B	25	4P PIN, FORK 100 A	3	45	MVA31-4-025-B
BA 47-60M 4P 32 A char. B	B	32	4P PIN, FORK 100 A	3	45	MVA31-4-032-B
BA 47-60M 4P 40 A char. B	B	40	4P PIN, FORK 100 A	3	45	MVA31-4-040-B
BA 47-60M 4P 50 A char. B	B	50	4P PIN, FORK 100 A	3	45	MVA31-4-050-B
BA 47-60M 4P 63 A char. B	B	63	4P PIN, FORK 100 A	3	45	MVA31-4-063-B



Name	Release device triggering characteristic	Rated current, A	Bus type	Quantity in a package, pcs.		Product ID
				Multiple	Transport	
BA 47-60M 1P 1 A char. C	C	1	1P PIN, FORK 100 A	12	180	MVA31-1-001-C
BA 47-60M 1P 2 A char. C	C	2	1P PIN, FORK 100 A	12	180	MVA31-1-002-C
BA 47-60M 1P 3 A char. C	C	3	1P PIN, FORK 100 A	12	180	MVA31-1-003-C
BA 47-60M 1P 4 A char. C	C	4	1P PIN, FORK 100 A	12	180	MVA31-1-004-C
BA 47-60M 1P 5 A char. C	C	5	1P PIN, FORK 100 A	12	180	MVA31-1-005-C
BA 47-60M 1P 6 A char. C	C	6	1P PIN, FORK 100 A	12	180	MVA31-1-006-C
BA 47-60M 1P 10 A char. C	C	10	1P PIN, FORK 100 A	12	180	MVA31-1-010-C
BA 47-60M 1P 16 A char. C	C	16	1P PIN, FORK 100 A	12	180	MVA31-1-016-C
BA 47-60M 1P 20 A char. C	C	20	1P PIN, FORK 100 A	12	180	MVA31-1-020-C
BA 47-60M 1P 25 A char. C	C	25	1P PIN, FORK 100 A	12	180	MVA31-1-025-C
BA 47-60M 1P 32 A char. C	C	32	1P PIN, FORK 100 A	12	180	MVA31-1-032-C
BA 47-60M 1P 40 A char. C	C	40	1P PIN, FORK 100 A	12	180	MVA31-1-040-C
BA 47-60M 1P 50 A char. C	C	50	1P PIN, FORK 100 A	12	180	MVA31-1-050-C
BA 47-60M 1P 63 A char. C	C	63	1P PIN, FORK 100 A	12	180	MVA31-1-063-C
BA 47-60M 2P 1 A char. C	C	1	2P PIN, FORK 100 A	6	90	MVA31-2-001-C
BA 47-60M 2P 2 A char. C	C	2	2P PIN, FORK 100 A	6	90	MVA31-2-002-C
BA 47-60M 2P 3 A char. C	C	3	2P PIN, FORK 100 A	6	90	MVA31-2-003-C
BA 47-60M 2P 4 A char. C	C	4	2P PIN, FORK 100 A	6	90	MVA31-2-004-C
BA 47-60M 2P 5 A char. C	C	5	2P PIN, FORK 100 A	6	90	MVA31-2-005-C
BA 47-60M 2P 6 A char. C	C	6	2P PIN, FORK 100 A	6	90	MVA31-2-006-C
BA 47-60M 2P 10 A char. C	C	10	2P PIN, FORK 100 A	6	90	MVA31-2-010-C
BA 47-60M 2P 16 A char. C	C	16	2P PIN, FORK 100 A	6	90	MVA31-2-016-C
BA 47-60M 2P 20 A char. C	C	20	2P PIN, FORK 100 A	6	90	MVA31-2-020-C
BA 47-60M 2P 25 A char. C	C	25	2P PIN, FORK 100 A	6	90	MVA31-2-025-C
BA 47-60M 2P 32 A char. C	C	32	2P PIN, FORK 100 A	6	90	MVA31-2-032-C
BA 47-60M 2P 40 A char. C	C	40	2P PIN, FORK 100 A	6	90	MVA31-2-040-C
BA 47-60M 2P 50 A char. C	C	50	2P PIN, FORK 100 A	6	90	MVA31-2-050-C
BA 47-60M 2P 63 A char. C	C	63	2P PIN, FORK 100 A	6	90	MVA31-2-063-C
BA 47-60M 3P 1 A char. C	C	1	3P PIN, FORK 100 A	4	60	MVA31-3-001-C
BA 47-60M 3P 2 A char. C	C	2	3P PIN, FORK 100 A	4	60	MVA31-3-002-C
BA 47-60M 3P 3 A char. C	C	3	3P PIN, FORK 100 A	4	60	MVA31-3-003-C
BA 47-60M 3P 4 A char. C	C	4	3P PIN, FORK 100 A	4	60	MVA31-3-004-C
BA 47-60M 3P 5 A char. C	C	5	3P PIN, FORK 100 A	4	60	MVA31-3-005-C
BA 47-60M 3P 6 A char. C	C	6	3P PIN, FORK 100 A	4	60	MVA31-3-006-C
BA 47-60M 3P 10 A char. C	C	10	3P PIN, FORK 100 A	4	60	MVA31-3-010-C
BA 47-60M 3P 16 A char. C	C	16	3P PIN, FORK 100 A	4	60	MVA31-3-016-C
BA 47-60M 3P 20 A char. C	C	20	3P PIN, FORK 100 A	4	60	MVA31-3-020-C
BA 47-60M 3P 25 A char. C	C	25	3P PIN, FORK 100 A	4	60	MVA31-3-025-C
BA 47-60M 3P 32 A char. C	C	32	3P PIN, FORK 100 A	4	60	MVA31-3-032-C
BA 47-60M 3P 40 A char. C	C	40	3P PIN, FORK 100 A	4	60	MVA31-3-040-C
BA 47-60M 3P 50 A char. C	C	50	3P PIN, FORK 100 A	4	60	MVA31-3-050-C
BA 47-60M 3P 63 A char. C	C	63	3P PIN, FORK 100 A	4	60	MVA31-3-063-C
BA 47-60M 4P 1 A char. C	C	1	4P PIN, FORK 100 A	3	45	MVA31-4-001-C
BA 47-60M 4P 2 A char. C	C	2	4P PIN, FORK 100 A	3	45	MVA31-4-002-C
BA 47-60M 4P 3 A char. C	C	3	4P PIN, FORK 100 A	3	45	MVA31-4-003-C
BA 47-60M 4P 4 A char. C	C	4	4P PIN, FORK 100 A	3	45	MVA31-4-004-C
BA 47-60M 4P 5 A char. C	C	5	4P PIN, FORK 100 A	3	45	MVA31-4-005-C
BA 47-60M 4P 6 A char. C	C	6	4P PIN, FORK 100 A	3	45	MVA31-4-006-C
BA 47-60M 4P 10 A char. C	C	10	4P PIN, FORK 100 A	3	45	MVA31-4-010-C
BA 47-60M 4P 16 A char. C	C	16	4P PIN, FORK 100 A	3	45	MVA31-4-016-C
BA 47-60M 4P 20 A char. C	C	20	4P PIN, FORK 100 A	3	45	MVA31-4-020-C
BA 47-60M 4P 25 A char. C	C	25	4P PIN, FORK 100 A	3	45	MVA31-4-025-C
BA 47-60M 4P 32 A char. C	C	32	4P PIN, FORK 100 A	3	45	MVA31-4-032-C
BA 47-60M 4P 40 A char. C	C	40	4P PIN, FORK 100 A	3	45	MVA31-4-040-C
BA 47-60M 4P 50 A char. C	C	50	4P PIN, FORK 100 A	3	45	MVA31-4-050-C
BA 47-60M 4P 63 A char. C	C	63	4P PIN, FORK 100 A	3	45	MVA31-4-063-C



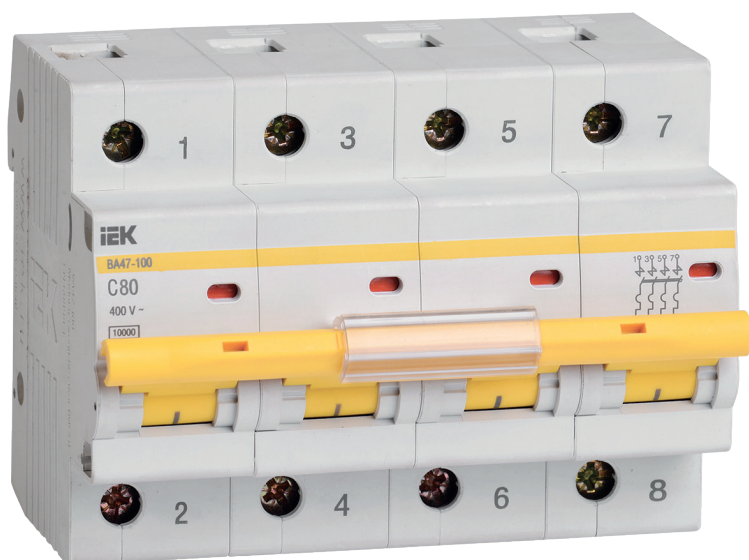
Name	Release device triggering characteristic	Rated current, A	Bus type	Quantity in a package, pcs.		Product ID
				Multiple	Transport	
BA 47-60M 1P 1 A char. D	D	1	1P PIN, FORK 100 A	12	180	MVA31-1-001-D
BA 47-60M 1P 2 A char. D	D	2	1P PIN, FORK 100 A	12	180	MVA31-1-002-D
BA 47-60M 1P 3 A char. D	D	3	1P PIN, FORK 100 A	12	180	MVA31-1-003-D
BA 47-60M 1P 4 A char. D	D	4	1P PIN, FORK 100 A	12	180	MVA31-1-004-D
BA 47-60M 1P 5 A char. D	D	5	1P PIN, FORK 100 A	12	180	MVA31-1-005-D
BA 47-60M 1P 6 A char. D	D	6	1P PIN, FORK 100 A	12	180	MVA31-1-006-D
BA 47-60M 1P 10 A char. D	D	10	1P PIN, FORK 100 A	12	180	MVA31-1-010-D
BA 47-60M 1P 16 A char. D	D	16	1P PIN, FORK 100 A	12	180	MVA31-1-016-D
BA 47-60M 1P 20 A char. D	D	20	1P PIN, FORK 100 A	12	180	MVA31-1-020-D
BA 47-60M 1P 25 A char. D	D	25	1P PIN, FORK 100 A	12	180	MVA31-1-025-D
BA 47-60M 1P 32 A char. D	D	32	1P PIN, FORK 100 A	12	180	MVA31-1-032-D
BA 47-60M 1P 40 A char. D	D	40	1P PIN, FORK 100 A	12	180	MVA31-1-040-D
BA 47-60M 1P 50 A char. D	D	50	1P PIN, FORK 100 A	12	180	MVA31-1-050-D
BA 47-60M 1P 63 A char. D	D	63	1P PIN, FORK 100 A	12	180	MVA31-1-063-D
BA 47-60M 2P 1 A char. D	D	1	2P PIN, FORK 100 A	6	90	MVA31-2-001-D
BA 47-60M 2P 2 A char. D	D	2	2P PIN, FORK 100 A	6	90	MVA31-2-002-D
BA 47-60M 2P 3 A char. D	D	3	2P PIN, FORK 100 A	6	90	MVA31-2-003-D
BA 47-60M 2P 4 A char. D	D	4	2P PIN, FORK 100 A	6	90	MVA31-2-004-D
BA 47-60M 2P 5 A char. D	D	5	2P PIN, FORK 100 A	6	90	MVA31-2-005-D
BA 47-60M 2P 6 A char. D	D	6	2P PIN, FORK 100 A	6	90	MVA31-2-006-D
BA 47-60M 2P 10 A char. D	D	10	2P PIN, FORK 100 A	6	90	MVA31-2-010-D
BA 47-60M 2P 16 A char. D	D	16	2P PIN, FORK 100 A	6	90	MVA31-2-016-D
BA 47-60M 2P 20 A char. D	D	20	2P PIN, FORK 100 A	6	90	MVA31-2-020-D
BA 47-60M 2P 25 A char. D	D	25	2P PIN, FORK 100 A	6	90	MVA31-2-025-D
BA 47-60M 2P 32 A char. D	D	32	2P PIN, FORK 100 A	6	90	MVA31-2-032-D
BA 47-60M 2P 40 A char. D	D	40	2P PIN, FORK 100 A	6	90	MVA31-2-040-D
BA 47-60M 2P 50 A char. D	D	50	2P PIN, FORK 100 A	6	90	MVA31-2-050-D
BA 47-60M 2P 63 A char. D	D	63	2P PIN, FORK 100 A	6	90	MVA31-2-063-D
BA 47-60M 3P 1 A char. D	D	1	3P PIN, FORK 100 A	4	60	MVA31-3-001-D
BA 47-60M 3P 2 A char. D	D	2	3P PIN, FORK 100 A	4	60	MVA31-3-002-D
BA 47-60M 3P 3 A char. D	D	3	3P PIN, FORK 100 A	4	60	MVA31-3-003-D
BA 47-60M 3P 4 A char. D	D	4	3P PIN, FORK 100 A	4	60	MVA31-3-004-D
BA 47-60M 3P 5 A char. D	D	5	3P PIN, FORK 100 A	4	60	MVA31-3-005-D
BA 47-60M 3P 6 A char. D	D	6	3P PIN, FORK 100 A	4	60	MVA31-3-006-D
BA 47-60M 3P 10 A char. D	D	10	3P PIN, FORK 100 A	4	60	MVA31-3-010-D
BA 47-60M 3P 16 A char. D	D	16	3P PIN, FORK 100 A	4	60	MVA31-3-016-D
BA 47-60M 3P 20 A char. D	D	20	3P PIN, FORK 100 A	4	60	MVA31-3-020-D
BA 47-60M 3P 25 A char. D	D	25	3P PIN, FORK 100 A	4	60	MVA31-3-025-D
BA 47-60M 3P 32 A char. D	D	32	3P PIN, FORK 100 A	4	60	MVA31-3-032-D
BA 47-60M 3P 40 A char. D	D	40	3P PIN, FORK 100 A	4	60	MVA31-3-040-D
BA 47-60M 3P 50 A char. D	D	50	3P PIN, FORK 100 A	4	60	MVA31-3-050-D
BA 47-60M 3P 63 A char. D	D	63	3P PIN, FORK 100 A	4	60	MVA31-3-063-D
BA 47-60M 4P 1 A char. D	D	1	4P PIN, FORK 100 A	3	45	MVA31-4-001-D
BA 47-60M 4P 2 A char. D	D	2	4P PIN, FORK 100 A	3	45	MVA31-4-002-D
BA 47-60M 4P 3 A char. D	D	3	4P PIN, FORK 100 A	3	45	MVA31-4-003-D
BA 47-60M 4P 4 A char. D	D	4	4P PIN, FORK 100 A	3	45	MVA31-4-004-D
BA 47-60M 4P 5 A char. D	D	5	4P PIN, FORK 100 A	3	45	MVA31-4-005-D
BA 47-60M 4P 6 A char. D	D	6	4P PIN, FORK 100 A	3	45	MVA31-4-006-D
BA 47-60M 4P 10 A char. D	D	10	4P PIN, FORK 100 A	3	45	MVA31-4-010-D
BA 47-60M 4P 16 A char. D	D	16	4P PIN, FORK 100 A	3	45	MVA31-4-016-D
BA 47-60M 4P 20 A char. D	D	20	4P PIN, FORK 100 A	3	45	MVA31-4-020-D
BA 47-60M 4P 25 A char. D	D	25	4P PIN, FORK 100 A	3	45	MVA31-4-025-D
BA 47-60M 4P 32 A char. D	D	32	4P PIN, FORK 100 A	3	45	MVA31-4-032-D
BA 47-60M 4P 40 A char. D	D	40	4P PIN, FORK 100 A	3	45	MVA31-4-040-D
BA 47-60M 4P 50 A char. D	D	50	4P PIN, FORK 100 A	3	45	MVA31-4-050-D
BA 47-60M 4P 63 A char. D	D	63	4P PIN, FORK 100 A	3	45	MVA31-4-063-D

Circuit breakers VA47-100

BA47-100 circuit breakers are designed to protect distribution and group circuits, subject to active and inductive loads.

They are recommended for utilization in metal assembling case for incoming and distribution switchboards of amenity and industrial electrical units.

80 versions available for 10 rated currents ranging from 6 to 100 A.



Advantages

- Two types of protection against overload and short circuit.
- Comprehensive set of auxiliary devices
 - status indicating contact KS47;
 - status indicating contact KSV47;
 - undervoltage release RMM47;
 - shunt release RN47.
- Independent contact position indication.
- Latching on DIN rail with dual fixed positioning.
- Wide operating temperature range: from -40 to $+50$ °C.
- Improved wider switch handle with an increased contact surface.
- Notches on contact clamps reduce thermal losses and strengthen mechanical sustainability of connection.
- Better switching capacity 10 kA allows to install BA47-100 as incoming circuit breakers.

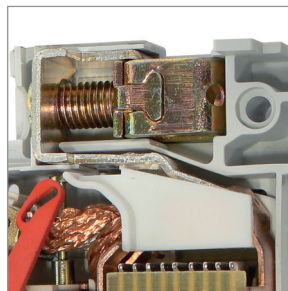
Specifications

Compliant with standards	GOST IEC 60898-1-2020, TU 2000 AGIE.641.235.003
Rated voltage 50 Hz, V	230/400
Rated current I_n , A	6; 10; 16; 20; 25; 32; 35; 40; 50; 63; 80; 100
Rated breaking capacity, A	10,000
DC voltage, V/pole	60
Electromagnetic release device triggering characteristic	C, D
Rated impulse withstand voltage U_{imp} , V	6000
Q-ty of poles	1, 2, 3, 4
Operation Conditions	NF4
Circuit breaker protection rating	IP20
Electrical durability, On-Off cycles, min	6000
Mechanical wear resistance, On-Off cycles, not less than	20,000
Max. cross section of connected conductors, mm ²	35
Precious metal content (silver), g/pole	0,9÷1,2
Possibility of connection to the contact terminals of the busbars	PIN (pin)
Weight of one pole, kg	0.15
Operating temperature range, °C	$-40...+50$
Warranty period of operation, years (from the sale date)	10

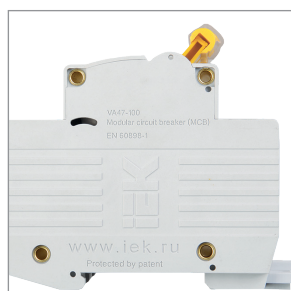
Construction features



State indicator of the main circuit provides accurate information on contact state regardless of position of a handle.



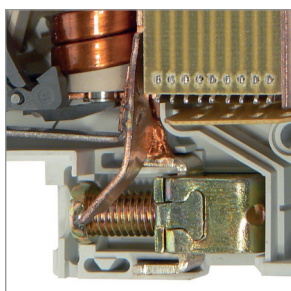
Silver-containing composite soldering increases wear resistance of a contact group and reduced transfer resistance.



Unified case enabling connection of additional devices does not require disassembly – can be connected without any help.



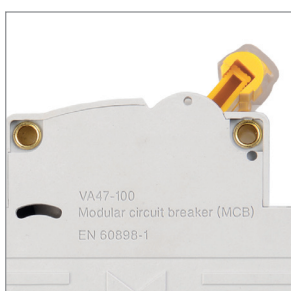
Notches on contact clamps reduce thermal losses and strengthen mechanical sustainability of connection.



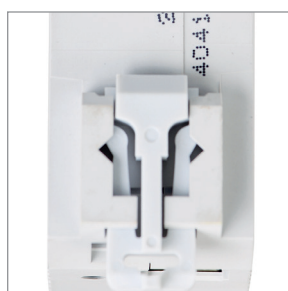
Factory configuration of a thermal release device is protected against alteration using a plexiglass insertion.



Structure of BA 47-100 enables connection of additional devices (RN47, RMM47, KS/KSV47) without screws.



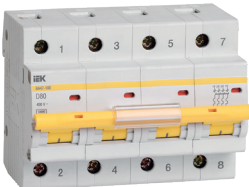
Ergonomic design of ON/OFF handle simplifies switching process.



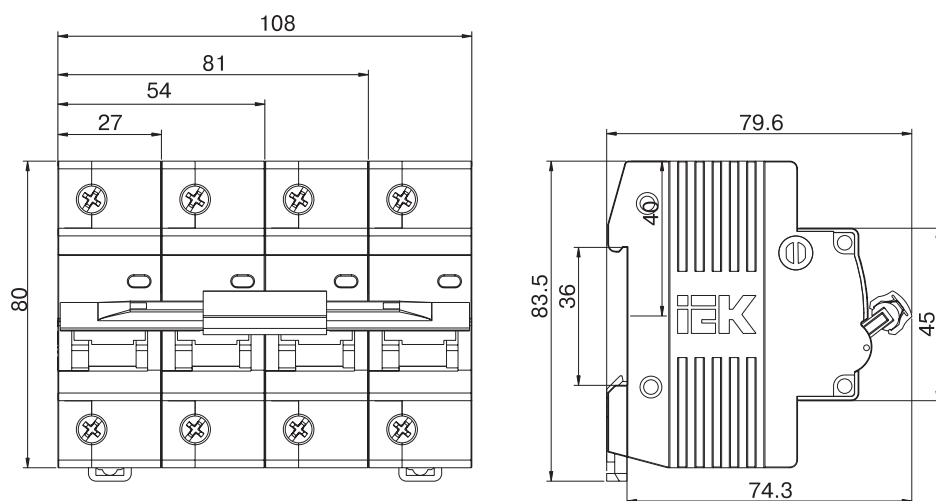
Quick mounting and enhanced reliability of fixation on a DIN rail using a latch with dual fixed positioning.

Product range

	Name	Rated current, A	Release device triggering characteristic	Bus type	Quantity in a package, pcs.		Product ID
					Multiple	Transp.	
	VA47-100 1P 10 A char. C	10	C	1P PIN 100 A pitch 27 mm	12	120	MVA40-1-010-C
	VA47-100 1P 16 A char. C	16	C	1P PIN 100 A pitch 27 mm	12	120	MVA40-1-016-C
	VA47-100 1P 20 A char. C	20	C	1P PIN 100 A pitch 27 mm	12	120	MVA40-1-020-C
	VA47-100 1P 25 A char. C	25	C	1P PIN 100 A pitch 27 mm	12	120	MVA40-1-025-C
	VA47-100 1P 32 A char. C	32	C	1P PIN 100 A pitch 27 mm	12	120	MVA40-1-032-C
	VA47-100 1P 35 A char. C	35	C	1P PIN 100 A pitch 27 mm	12	120	MVA40-1-035-C
	VA47-100 1P 40 A char. C	40	C	1P PIN 100 A pitch 27 mm	12	120	MVA40-1-040-C
	VA47-100 1P 50 A char. C	50	C	1P PIN 100 A pitch 27 mm	12	120	MVA40-1-050-C
	VA47-100 1P 63 A char. C	63	C	1P PIN 100 A pitch 27 mm	12	120	MVA40-1-063-C
	VA47-100 1P 80 A char. C	80	C	1P PIN 100 A pitch 27 mm	12	120	MVA40-1-080-C
	VA47-100 1P 100 A char. C	100	C	1P PIN 100 A pitch 27 mm	12	120	MVA40-1-100-C
	VA47-100 1P 10 A 10 kA char. D	10	D	1P PIN 100 A pitch 27 mm	12	120	MVA40-1-010-D
	VA47-100 1P 16 A 10 kA char. D	16	D	1P PIN 100 A pitch 27 mm	12	120	MVA40-1-016-D
	VA47-100 1P 20 A 10 kA char. D	20	D	1P PIN 100 A pitch 27 mm	12	120	MVA40-1-020-D
	VA47-100 1P 25 A 10 kA char. D	25	D	1P PIN 100 A pitch 27 mm	12	120	MVA40-1-025-D
	VA47-100 1P 32 A 10 kA char. D	32	D	1P PIN 100 A pitch 27 mm	12	120	MVA40-1-032-D
	VA47-100 1P 35 A 10 kA char. D	35	D	1P PIN 100 A pitch 27 mm	12	120	MVA40-1-035-D
	VA47-100 1P 40 A 10 kA char. D	40	D	1P PIN 100 A pitch 27 mm	12	120	MVA40-1-040-D
	VA47-100 1P 50 A 10 kA char. D	50	D	1P PIN 100 A pitch 27 mm	12	120	MVA40-1-050-D
	VA47-100 1P 63 A 10 kA char. D	63	D	1P PIN 100 A pitch 27 mm	12	120	MVA40-1-063-D
	VA47-100 1P 80 A 10 kA char. D	80	D	1P PIN 100 A pitch 27 mm	12	120	MVA40-1-080-D
	VA47-100 1P 100 A 10 kA char. D	100	D	1P PIN 100 A pitch 27 mm	12	120	MVA40-1-100-D
	VA47-100 2P 10 A char. C	10	C	1P PIN 100 A pitch 27 mm	6	60	MVA40-2-010-C
	VA47-100 2P 16 A char. C	16	C	2P PIN 100 A pitch 27 mm	6	60	MVA40-2-016-C
	VA47-100 2P 20 A char. C	20	C	2P PIN 100 A pitch 27 mm	6	60	MVA40-2-020-C
	VA47-100 2P 25 A char. C	25	C	2P PIN 100 A pitch 27 mm	6	60	MVA40-2-025-C
	VA47-100 2P 32 A char. C	32	C	2P PIN 100 A pitch 27 mm	6	60	MVA40-2-032-C
	VA47-100 2P 35 A char. C	35	C	2P PIN 100 A pitch 27 mm	6	60	MVA40-2-035-C
	VA47-100 2P 40 A char. C	40	C	2P PIN 100 A pitch 27mm	6	60	MVA40-2-040-C
	VA47-100 2P 50 A char. C	50	C	2P PIN 100 A pitch 27mm	6	60	MVA40-2-050-C
	VA47-100 2P 63 A char. C	63	C	2P PIN 100 A pitch 27 mm	6	60	MVA40-2-063-C
	VA47-100 2P 80 A char. C	80	C	2P PIN 100 A pitch 27 mm	6	60	MVA40-2-080-C
	VA47-100 2P 100 A char. C	100	C	2P PIN 100 A pitch 27 mm	6	60	MVA40-2-100-C
	VA47-100 2P 10 A 10 kA char. D	10	D	2P PIN 100 A pitch 27 mm	6	60	MVA40-2-010-D
	VA47-100 2P 16 A 10 kA char. D	16	D	2P PIN 100 A pitch 27 mm	6	60	MVA40-2-016-D
	VA47-100 2P 20 A 10 kA char. D	20	D	2P PIN 100 A pitch 27 mm	6	60	MVA40-2-020-D
	VA47-100 2P 25 A 10 kA char. D	25	D	2P PIN 100 A pitch 27 mm	6	60	MVA40-2-025-D
	VA47-100 2P 32 A 10 kA char. D	32	D	2P PIN 100 A pitch 27 mm	6	60	MVA40-2-032-D
	VA47-100 2P 35 A 10 kA char. D	35	D	2P PIN 100 A pitch 27 mm	6	60	MVA40-2-035-D
	VA47-100 2P 40 A 10 kA char. D	40	D	2P PIN 100 A pitch 27mm	6	60	MVA40-2-040-D
	VA47-100 2P 50 A 10 kA char. D	50	D	2P PIN 100 A pitch 27 mm	6	60	MVA40-2-050-D
	VA47-100 2P 63 A 10 kA char. D	63	D	2P PIN 100 A pitch 27 mm	6	60	MVA40-2-063-D
	VA47-100 2P 80 A 10 kA char. D	80	D	2P PIN 100 A pitch 27 mm	6	60	MVA40-2-080-D
	VA47-100 2P 100 A 10 kA char. D	100	D	2P PIN 100 A pitch 27 mm	6	60	MVA40-2-100-D

	Name	Rated current, A	Release device triggering characteristic	Bus type	Quantity in a package, pcs.		Product ID
					Multiple	Transp.	
	VA47-100 3P 10 A char. C	10	C	3P PIN 100 A pitch 27 mm	4	40	MVA40-3-010-C
	VA47-100 3P 16 A char. C	16	C	3P PIN 100 A pitch 27 mm	4	40	MVA40-3-016-C
	VA47-100 3P 20 A char. C	20	C	3P PIN 100 A pitch 27 mm	4	40	MVA40-3-020-C
	VA47-100 3P 25 A char. C	25	C	3P PIN 100 A pitch 27 mm	4	40	MVA40-3-025-C
	VA47-100 3P 32 A char. C	32	C	3P PIN 100 A pitch 27 mm	4	40	MVA40-3-032-C
	VA47-100 3P 35 A char. C	35	C	3P PIN 100 A pitch 27 mm	4	40	MVA40-3-035-C
	VA47-100 3P 40 A char. C	40	C	3P PIN 100 A pitch 27 mm	4	40	MVA40-3-040-C
	VA47-100 3P 50 A char. C	50	C	3P PIN 100 A pitch 27 mm	4	40	MVA40-3-050-C
	VA47-100 3P 63 A char. C	63	C	3P PIN 100 A pitch 27 mm	4	40	MVA40-3-063-C
	VA47-100 3P 80 A char. C	80	C	3P PIN 100 A pitch 27 mm	4	40	MVA40-3-080-C
	VA47-100 3P 100 A char. C	100	C	3P PIN 100 A pitch 27 mm	4	40	MVA40-3-100-C
	VA47-100 3P 10 A 10 kA char. D	10	D	3P PIN 100 A pitch 27 mm	4	40	MVA40-3-010-D
	VA47-100 3P 16 A 10 kA char. D	16	D	3P PIN 100 A pitch 27 mm	4	40	MVA40-3-016-D
	VA47-100 3P 20 A 10 kA char. D	20	D	3P PIN 100 A pitch 27 mm	4	40	MVA40-3-020-D
	VA47-100 3P 25 A 10 kA char. D	25	D	3P PIN 100 A pitch 27 mm	4	40	MVA40-3-025-D
	VA47-100 3P 32 A 10 kA char. D	32	D	3P PIN 100 A pitch 27 mm	4	40	MVA40-3-032-D
	VA47-100 3P 35 A 10 kA char. D	35	D	3P PIN 100 A pitch 27 mm	4	40	MVA40-3-035-D
	VA47-100 3P 40 A 10 kA char. D	40	D	3P PIN 100 A pitch 27 mm	4	40	MVA40-3-040-D
	VA47-100 3P 50 A 10 kA char. D	50	D	3P PIN 100 A pitch 27 mm	4	40	MVA40-3-050-D
	VA47-100 3P 63 A 10 kA char. D	63	D	3P PIN 100 A pitch 27 mm	4	40	MVA40-3-063-D
	VA47-100 3P 80 A 10 kA char. D	80	D	3P PIN 100 A pitch 27 mm	4	40	MVA40-3-080-D
	VA47-100 3P 100 A 10 kA char. D	100	D	3P PIN 100 A pitch 27 mm	4	40	MVA40-3-100-D
	VA47-100 4P 10 A char. C	10	C	4P PIN 100 A pitch 27 mm	3	30	MVA40-4-010-C
	VA47-100 4P 16 A char. C	16	C	4P PIN 100 A pitch 27 mm	3	30	MVA40-4-016-C
	VA47-100 4P 20 A char. C	20	C	4P PIN 100 A pitch 27 mm	3	30	MVA40-4-020-C
	VA47-100 4P 25 A char. C	25	C	4P PIN 100 A pitch 27 mm	3	30	MVA40-4-025-C
	VA47-100 4P 32 A char. C	32	C	4P PIN 100 A pitch 27 mm	3	30	MVA40-4-032-C
	VA47-100 4P 35 A char. C	35	C	4P PIN 100 A pitch 27 mm	3	30	MVA40-4-035-C
	VA47-100 4P 40 A char. C	40	C	4P PIN 100 A pitch 27 mm	3	30	MVA40-4-040-C
	VA47-100 4P 50 A char. C	50	C	4P PIN 100 A pitch 27 mm	3	30	MVA40-4-050-C
	VA47-100 4P 63 A char. C	63	C	4P PIN 100 A pitch 27 mm	3	30	MVA40-4-063-C
	VA47-100 4P 80 A char. C	80	C	4P PIN 100 A pitch 27 mm	3	30	MVA40-4-080-C
	VA47-100 4P 100 A char. C	100	C	4P PIN 100 A pitch 27 mm	3	30	MVA40-4-100-C
	VA47-100 4P 10 A 10 kA char. D	10	D	4P PIN 100 A pitch 27 mm	3	30	MVA40-4-010-D
	VA47-100 4P 16 A 10 kA char. D	16	D	4P PIN 100 A pitch 27 mm	3	30	MVA40-4-016-D
	VA47-100 4P 20 A 10 kA char. D	20	D	4P PIN 100 A pitch 27 mm	3	30	MVA40-4-020-D
	VA47-100 4P 25 A 10 kA char. D	25	D	4P PIN 100 A pitch 27 mm	3	30	MVA40-4-025-D
	VA47-100 4P 32 A 10 kA char. D	32	D	4P PIN 100 A pitch 27 mm	3	30	MVA40-4-032-D
	VA47-100 4P 35 A 10 kA char. D	35	D	4P PIN 100 A pitch 27 mm	3	30	MVA40-4-035-D
	VA47-100 4P 40 A 10 kA char. D	40	D	4P PIN 100 A pitch 27 mm	3	30	MVA40-4-040-D
	VA47-100 4P 50 A 10 kA char. D	50	D	4P PIN 100 A pitch 27 mm	3	30	MVA40-4-050-D
	VA47-100 4P 63 A 10 kA char. D	63	D	4P PIN 100 A pitch 27 mm	3	30	MVA40-4-063-D
	VA47-100 4P 80 A 10 kA char. D	80	D	4P PIN 100 A pitch 27 mm	3	30	MVA40-4-080-D
	VA47-100 4P 100 A 10 kA char. D	100	D	4P PIN 100 A pitch 27 mm	3	30	MVA40-4-100-D

Overall dimensions, mm



Status indicating contacts KS and KSV

KS and KSV receive information about circuit breaker state.

They are used in alarm electrical installations control systems in residential, public and production buildings.

KS serves as a circuit breaker status indicating contact: on – off.

KSV issues alarms on position of the breaker control mechanism. The contacts are switched by the first control handle actuation and stay in the same position even when the circuit breaker is manually switched off. Contact switching will only happen when the circuit breaker is tripped due to overcurrent (overload or short-circuit). In the upper part of KSV case there is a button, allowing a user to reset the mechanism and contact switching.

KS and KSV are equipped with a group of switching contacts.

Product range

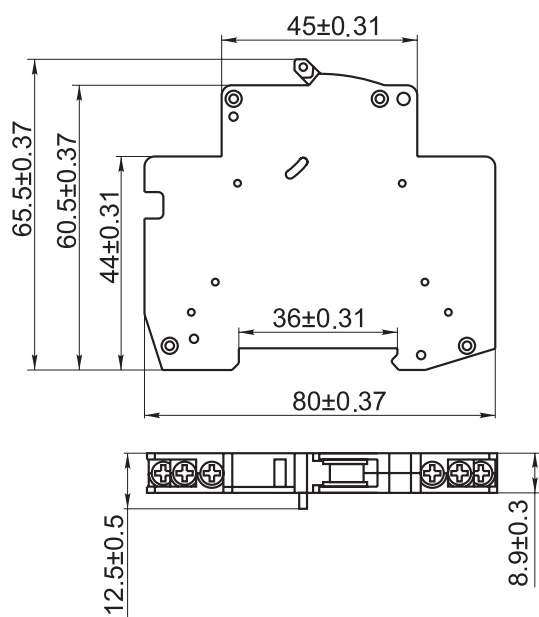
	Name	Rated operating voltage, V	Circuit breaker type	Quantity in a package, pcs.		Product ID
				Multiple	Transport	
	KC47-60M	230	VA47-60M	14	280	MVA31D-KS-1
	KCB47-60M	230	VA47-60M	14	280	MVA31D-AK-1

Specifications

Parameter	Device version	
	KC47- 60M	KCB47- 60M
Rated AC voltage with 50 Hz frequency, V	230	
Rated DC voltage, V	110	
Rated thermal current, A	4	
Rated operating current (usage category AC-15), A	6	
Rated operating current (usage category DC-13), A	1	
Trigger indicator	Yes	Yes
Color of the trigger indicator, ON/OFF	White / Red	White / Red
Test button	No	Yes
Protection class GOST 14254 (IEC 60529)	IP20	
Mechanical wear resistance, On-Off cycles, min	10,000	
Connecting capacity of terminal clamps, mm ²	0.5–2.5	
Screw tightening torque of contact clamps using a screwdriver, N·m	0.5	
Circuit breaker connection side	Left	
Warranty period of operation, years (from the sale date)	7	

Overall dimensions, mm

KC47-60M
KCB47-60M



Under-/over-voltage release RMM. Voltage shunt release RN

Shunt release RN47 is designed for remote tripping of VA47 circuit breakers.

These devices are made in cases with standard width 18 mm with visual appearance close to VA47.

Case of RN47 release contains only a coil of an electromagnetic release, lever of which is thrown into gear with a breaker reset mechanism. When control voltage is remotely supplied to a coil, the breaker control latching mechanism is reset.

The release case is equipped with "Return" flag button. To switch on the breaker once again, it is required to press this button.

Under-/over-voltage release RMM47 is intended for tripping of one-, two-, three- and quadripole circuit breakers VA47 in case of unallowable reduction or increasing of the electric mains voltage.

RMM47 release is integrated with an electronic relay circuit with a time delay. Output of an amplifier is equipped with an electromagnetic release coil, similar to one which is used in differential breakers. When joining with a breaker, release lever is thrown into gear with a breaker reset mechanism. For alerting about breaker tripping due to unallowable voltage drop in the mains, the release case has a "Return" flag button. To switch on the breaker once again, it is required to press this button.

Product range

	Name	Rated operating voltage, V	Circuit breaker type	Quantity in a package, pcs.		Product ID
				Multiple	Transport	
	RN47	230	VA47-100	12	240	MVA01D-RN
	RMM47	230	VA47-100	12	240	MVA01D-RMM
	PH47-60M	230	VA47-60M	12	240	MVA31D-RN-1
	PMMB47-60M	230	VA47-60M	12	240	MVA31D-RMM

RN Specifications

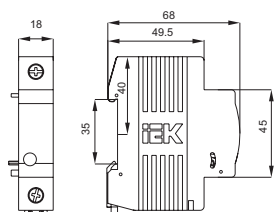
Parameter	Value
Rated operating voltage, V~	230
AC frequency, Hz	50
Operational voltage range, V~	161-253
Cross-section of connected conductors, mm ²	1-2.5
Mechanical wear resistance, On-Off cycles, min	10,000
Protection class according to GOST 14254 (IEC 60529)	IP20
Types of compatible circuit breakers	RN47 VA47-100 PH47-60M VA47-60M
Circuit breaker connection side	VA47-100 - right; VA47-60M - left

RMM Specifications

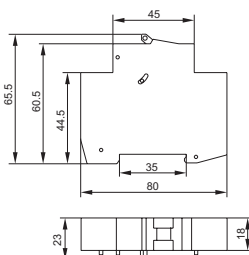
Parameter	Value
Rated operating voltage, V~	230
AC frequency, Hz	50
Tripping voltage, V	Minimum release device 165±10 Maximum release device 265±10
Operational voltage range, V~	50-275
Rated insulation voltage, V	275
Break time, s	At minimum actuation voltage 0.2-0.5 At maximum actuation voltage 0.05-0.15
Cross-section of connected conductors, mm ²	1-2.5
Wear resistance, ON-OFF cycles, not less than	Mechanical 10,000 Electrical 4000
Protection class according to GOST 14254 (IEC 60529)	IP20
Types of compatible circuit breakers	RMM47 VA47-100 RMM47-60M VA47-60M
Circuit breaker connection side	VA47-100 - right; VA47-60M - left

Overall dimensions, mm

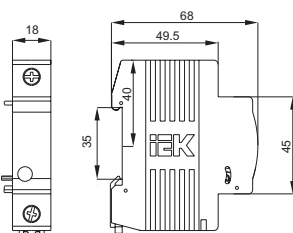
RN47



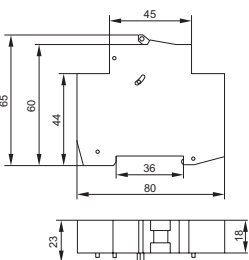
PH47-60



RMM47



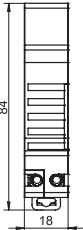
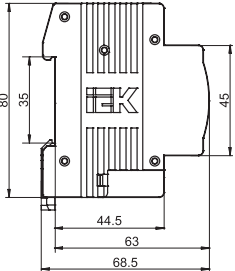
PMM47-60



PH47-60

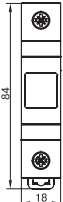
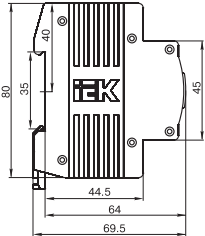
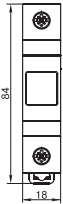
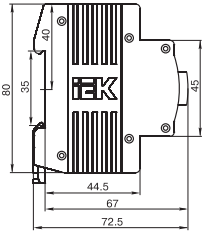
Bell ZD-47

Alerts about an abnormal situation in an involved electric circuit.
Warranty period of operation – 7 years (from the sale date).

Overall dimensions, mm		Name	Rated operating voltage, V	Rated current, mA	Sound intensity, VA dB	Rated power, VA	Q-ty in a package, pcs. multiple/transp.	Product ID
  		ZD-47	230	60	60	1	12/120	MZD10-230

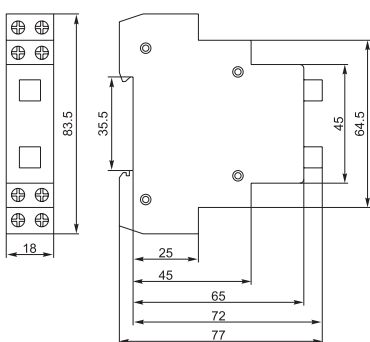
Signal light LS-47 with a neon lamp Signal light LS-47M with an LED matrix

Serve as light alarm on state of an involved electric circuit.
Warranty period of operation – 7 years (from the sale date).

Overall dimensions, mm		Name	Rated operating voltage, V	Rated power, VA	Q-ty in a package, pcs. multiple/transp.	Product ID
  		LS-47 (red)	230	0.5	12/240	MLS10-230-K04
		LS-47 (yellow)	230	0.5	12/240	MLS10-230-K05
		LS-47 (green)	230	0.5	12/240	MLS10-230-K06
		LS-47 (blue)	230	0.5	12/240	MLS10-230-K07
  		LS-47M (red)	230		12/120	MLS20-230-K04
		LS-47M (yellow)	230		12/120	MLS20-230-K05
		LS-47M (green)	230		12/120	MLS20-230-K06
		LS-47M (blue)	230		12/120	MLS20-230-K07

Modular control button KMU11

RMU-11 modular control buttons are intended for real-time control of magnetic starters (contactors), automation relays and other technological equipment in AC electric circuits with voltage up to 230 V. Warranty period of operation is 7 years from the sale date.

Overall dimensions, mm		Name	Rated operating voltage, V	Max. cross section of connected conductors, mm ²	Quantity in a package, pcs. multiple/transp.	Product ID
 		KMU11	110~, 230=	6	12/144	MBD10-11-K51

Specifications

Parameter			Value	
Conditional thermal current outdoors, <i>I</i> _{th} , A			20	
Rated operating voltage, V	AC		230	
	DC		110	
Rated operating current of contacts, A	Utilization category		AC-12	AC-13
	Alternating current, V	230	10	7.5
		120	12.5	10
		48	12.5	10
	Utilization category		DC-12	DC-13
	Direct current, V	110	2.5	0.6
		48	5	1.3
		24	10	2.5
Rated insulation voltage <i>U</i> _i , B			400	
Q-ty of contacts, pcs.	Opening		1	
	Closing		1	
Rated voltage of a neon lamp, V			230	
Consumption current of a neon lamp, mA			0.6	
Overcurrent protection, fuse gG, A			25	
Conditional short-circuit current, A			1000	
Mechanical wear resistance, ON-OFF cycles ×10 ⁶			0.6	
Electrical durability, ON-OFF cycles ×10 ⁶			0.3	
Maximum cross-section of connected conductors, mm			6	
Connection clamps screw torque, H×m			0.4	
Protection degree			IP20	
Unit type			Mounting on a DIN rail 35 mm	

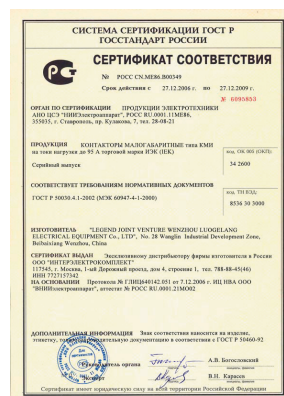
Contactors

KMI series small-sized contactors

Small-sized AC contactors for general industrial use KMI for load current from 9 to 95 A (AS-3) are designed for starting, stopping and reversing asynchronous electric motors with a squirrel-cage rotor for voltage up to 660 V, as well as for remote control of lighting circuits (AS-5a, AS-5b), heating circuits and various low-inductance loads (AS-1), for switching three-phase capacitor banks (AS-6b), primary windings of three-phase low-voltage transformers (AS-6a).

All versions for load current up to 40 A have one group of NO or NC auxiliary contacts. Versions for load current over 40 A – two groups (NO and NC).

The scope of small-sized contactors of the KMI series is the control of fans, pumps, thermal curtains, furnaces, overhead crane, machine tools, lighting, in automatic transfer systems (ATS).



In terms of their design and technical characteristics, KMI small-sized contactors comply with the requirements of international and Russian standards IEC60947-4-1, GOST R50030.4.1.

KMI small-sized contactors passed certification tests and a certificate of conformity ROSS CN.ME86.B00144 was received for their serial production.

Advantages

- Extended product range of KMI series small-sized contactors.
- A wide range of additional devices that are always available in stock (PKI contact attachments, PVI time delay attachments, RTI electrothermal relay).

- Installation on 35 mm DIN rail.
- It is possible to obtain a reverse version using blocking mechanisms.

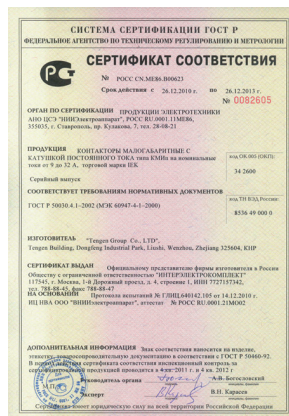
Product range

	Name	Rated operating current, A (AC 3)	Rated voltage of control coils, V	Quantity and type of contacts	Quantity in transp. pack., pcs.	Product ID
	KMI 10910 9 A 24 V/AC 3 1NO IEK	9	24	1 cl.	50	KKM11-009-024-10
	KMI 10910 9 A 36 V/AC 3 1NO IEK	9	36	1 cl.	50	KKM11-009-036-10
	KMI 10910 9 A 110 V/AC 3 1NO IEK	9	110	1 cl.	50	KKM11-009-110-10
	KMI 10910 9 A 230 V/AC 3 1NO IEK	9	230	1 cl.	50	KKM11-009-230-10
	KMI 10910 9 A 400 V/AC 3 1NO IEK	9	400	1 cl.	50	KKM11-009-400-10
	KMI 10911 9 A 110 V/AC 3 1NC IEK	9	110	1 op.	50	KKM11-009-110-01
	KMI 10911 9 A 230 V/AC 3 1NC IEK	9	230	1 op.	50	KKM11-009-230-01
	KMI 10911 9 A 400 V/AC 3 1NC IEK	9	400	1 op.	50	KKM11-009-400-01
	KMI 11210 12 A 24 V/AC 3 1NO IEK	12	24	1 cl.	50	KKM11-012-024-10
	KMI 11210 12 A 36 V/AC 3 1NO IEK	12	36	1 cl.	50	KKM11-012-036-10
	KMI 11210 12 A 110 V/AC 3 1NO IEK	12	110	1 cl.	50	KKM11-012-110-10
	KMI 11210 12 A 230 V/AC 3 1NO IEK	12	230	1 cl.	50	KKM11-012-230-10
	KMI 11210 12 A 400 V/AC 3 1NO IEK	12	400	1 cl.	50	KKM11-012-400-10
	KMI 11211 12 A 110 V/AC 3 1NC IEK	12	110	1 op.	50	KKM11-012-110-01
	KMI 11211 12 A 230 V/AC 3 1NC IEK	12	230	1 op.	50	KKM11-012-230-01
	KMI 11211 12 A 400 V/AC 3 1NC IEK	12	400	1 op.	50	KKM11-012-400-01
	KMI 11810 18 A 24 V/AC 3 1NO IEK	18	24	1 cl.	50	KKM11-018-024-10
	KMI 11810 18 A 36 V/AC 3 1NO IEK	18	36	1 cl.	50	KKM11-018-036-10
	KMI 11810 18 A 110 V/AC 3 1NO IEK	18	110	1 cl.	50	KKM11-018-110-10
	KMI 11810 18 A 230 V/AC 3 1NO IEK	18	230	1 cl.	50	KKM11-018-230-10
	KMI 11810 18 A 400 V/AC 3 1NO IEK	18	400	1 cl.	50	KKM11-018-400-10
	KMI 11811 18 A 230 V/AC 3 1NC IEK	18	230	1 op.	50	KKM11-018-230-01
	KMI 11811 18 A 110 V/AC 3 1NC IEK	18	110	1 op.	50	KKM11-018-110-01
	KMI 11811 18 A 400 V/AC 3 1NC IEK	18	400	1 op.	50	KKM11-018-400-01
	KMI 22510 25 A 24 V/AC 3 1NO IEK	25	24	1 cl.	50	KKM21-025-024-10
	KMI 22510 25 A 36 V/AC 3 1NO IEK	25	36	1 cl.	50	KKM21-025-036-10
	KMI 22510 25 A 110 V/AC 3 1NO IEK	25	110	1 cl.	50	KKM21-025-110-10
	KMI 22510 25 A 230 V/AC 3 1NO IEK	25	230	1 cl.	50	KKM21-025-230-10
	KMI 22510 25 A 400 V/AC 3 1NO IEK	25	400	1 cl.	50	KKM21-025-400-10
	KMI 22511 25 A 110 V/AC 3 1NC IEK	25	110	1 op.	50	KKM21-025-110-01
	KMI 22511 25 A 230 V/AC 3 1NC IEK	25	230	1 op.	50	KKM21-025-230-01
	KMI 22511 25 A 400 V/AC 3 1NC IEK	25	400	1 op.	50	KKM21-025-400-01
	KMI 23210 32 A 36 V/AC 3 1NO IEK	32	36	1 cl.	50	KKM21-032-036-10
	KMI 23210 32 A 110 V/AC 3 1NO IEK	32	110	1 cl.	50	KKM21-032-110-10
	KMI 23210 32 A 230 V/AC 3 1NO IEK	32	230	1 cl.	50	KKM21-032-230-10
	KMI 23210 32 A 400 V/AC 3 1NO IEK	32	400	1 cl.	50	KKM21-032-400-10
	KMI 23211 32 A 110 V/AC 3 1NC IEK	32	110	1 op.	50	KKM21-032-110-01
	KMI 23211 32 A 230 V/AC 3 1NC IEK	32	230	1 op.	50	KKM21-032-230-01
	KMI 23211 32 A 400 V/AC 3 1NC IEK	32	400	1 op.	50	KKM21-032-400-01
	KMI 34012 40 A 36 V/AC 3 1HO 1NC IEK	40	36	1 cl. + 1 op.	20	KKM31-040-036-11
	KMI 34012 40 A 110 V/AC 3 1HO 1NC IEK	40	110	1 cl. + 1 op.	20	KKM31-040-110-11
	KMI 34012 40 A 230 V/AC 3 1HO 1NC IEK	40	230	1 cl. + 1 op.	20	KKM31-040-230-11
	KMI 34012 40 A 400 V/AC 3 1HO 1NC IEK	40	400	1 cl. + 1 op.	20	KKM31-040-400-11
	KMI 35012 50 A 110 V/AC 3 1HO 1NC IEK	50	110	1 cl. + 1 op.	20	KKM31-050-110-11
	KMI 35012 50 A 230 V/AC 3 1HO 1NC IEK	50	230	1 cl. + 1 op.	20	KKM31-050-230-11
	KMI 35012 50 A 400 V/AC 3 1HO 1NC IEK	50	400	1 cl. + 1 op.	20	KKM31-050-400-11
	KMI 46512 65 A 110 V/AC 3 1HO 1NC IEK	65	110	1 cl. + 1 op.	20	KKM41-065-110-11
	KMI 46512 65 A 230 V/AC 3 1HO 1NC IEK	65	230	1 cl. + 1 op.	20	KKM41-065-230-11
	KMI 46512 65 A 400 V/AC 3 1HO 1NC IEK	65	400	1 cl. + 1 op.	20	KKM41-065-400-11
	KMI 48012 80 A 110 V/AC 3 1HO 1NC IEK	80	110	1 cl. + 1 op.	16	KKM41-080-110-11
	KMI 48012 80 A 230 V/AC 3 1HO 1NC IEK	80	230	1 cl. + 1 op.	16	KKM41-080-230-11
	KMI 48012 80 A 400 V/AC 3 1HO 1NC IEK	80	400	1 cl. + 1 op.	16	KKM41-080-400-11
	KMI 49512 95 A 110 V/AC 3 1HO 1NC IEK	95	110	1 cl. + 1 op.	16	KKM41-095-110-11
	KMI 49512 95 A 230 V/AC 3 1HO 1NC IEK	95	230	1 cl. + 1 op.	16	KKM41-095-230-11
	KMI 49512 95 A 400 V/AC 3 1HO 1NC IEK	95	400	1 cl. + 1 op.	16	KKM41-095-400-11

KMIp contactors with a DC coil

Small-sized contactors with a direct current control coil of general industrial use of the KMIp series for a load current from 9 to 95 A (AC 3) are designed for starting, stopping and reversing asynchronous electric motors with a squirrel-cage rotor for voltage up to 660 V, as well as for remote control of lighting circuits (AC 5a, AC 5b), heating circuits and various low-inductance loads (AC 1), for switching three-phase capacitor banks (AC 6b), primary windings of three-phase low-voltage transformers (AC 6a). All versions have one group of NO auxiliary contacts.

The scope of small-sized contactors with a direct current control coil of the KMIp series is the control of machine tools, pumps, fans, thermal curtains, furnaces, cranes, lighting, in automatic transfer systems (ATS), uninterruptible power systems, in automation protection devices, burglar alarms, in control systems of industrial installations; switching of three-phase capacitor banks and primary windings of three-phase low-voltage transformers.



In terms of their design and technical characteristics, KMIp small-sized contactors with a control coil comply with the requirements of international standards IEC 60947-4-1, GOST R50030.4.1.

KMIp small-sized contactors with a control coil passed certification tests and a certificate of conformity ROSS CN.ME86.B00623 was received for their serial production.

Advantages

- A wide range of additional devices that are always available in stock (PKI contact attachments, PVI time delay attachments, RTI electrothermal relay).

- Installation on 35 mm DIN rail.
- Saving electrical energy in the case of using a DC control coil.

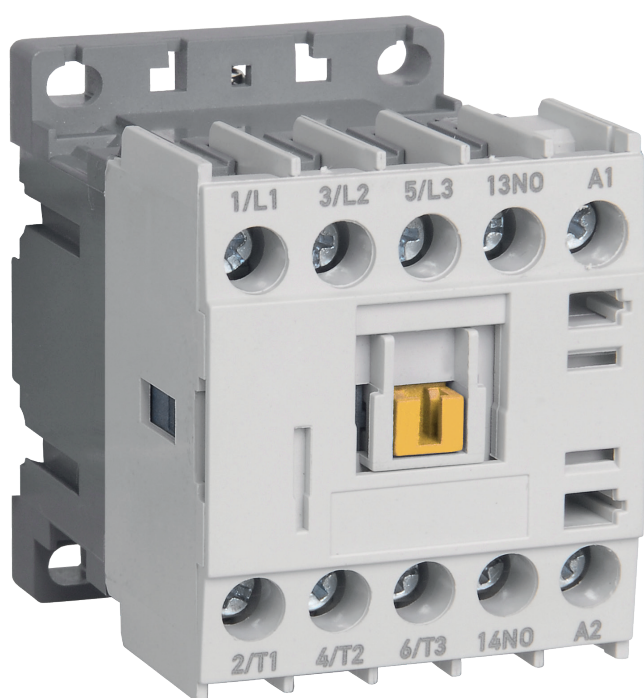
Product range



Name	Rated operating current, A (AC 3)	Rated voltage of control coils, V	Quantity and type of contacts	Quantity in transp. pack., pcs.	Product ID
KMlp-10910 09 A 24 V/AC 3 1NO IEK	9	24	1 cl.	30	KMD11-009-024-10
KMlp-10910 09 A 110 V/AC 3 1NO IEK	9	110	1 cl.	30	KMD11-009-110-10
KMlp-10910 09 A 220 V/AC 3 1NO IEK	9	220	1 cl.	30	KMD11-009-220-10
KMlp-11210 12 A 24 V/AC 3 1NO IEK	12	24	1 cl.	30	KMD11-012-024-10
KMlp-11210 12 A 110 V/AC 3 1NO IEK	12	110	1 cl.	30	KMD11-012-110-10
KMlp-11210 12 A 220 V/AC 3 1NO IEK	12	220	1 cl.	30	KMD11-012-220-10
KMlp-11810 18 A 24 V/AC 3 1NO IEK	18	24	1 cl.	30	KMD11-018-024-10
KMlp-11810 18 A 110 V/AC 3 1NO IEK	18	110	1 cl.	30	KMD11-018-110-10
KMlp-11810 18 A 220 V/AC 3 1NO IEK	18	220	1 cl.	30	KMD11-018-220-10
KMlp-22510 25 A 24 V/AC 3 1NO IEK	25	24	1 cl.	30	KMD21-025-024-10
KMlp-22510 25 A 110 V/AC 3 1NO IEK	25	110	1 cl.	30	KMD21-025-110-10
KMlp-22510 25 A 220 V/AC 3 1NO IEK	25	220	1 cl.	30	KMD21-025-220-10
KMlp-23210 32 A 24 V/AC 3 1NO IEK	32	24	1 cl.	30	KMD21-032-024-10
KMlp-23210 32 A 110 V/AC 3 1NO IEK	32	110	1 cl.	30	KMD21-032-110-10
KMlp-23210 32 A 220 V/AC 3 1NO IEK	32	220	1 cl.	30	KMD21-032-220-10

MKI series electromagnetic mini-contactors

MKI series mini-contactors are used in control circuits with varying loads for AC voltage up to 660 V and frequency 50 Hz. Mini-contactors enable remote switching of power electrical mains in utilization categories AC 3 (controlling electric motors with up to 5 kW power) and AC 1 (heating appliances control). Case of the mini-contactors provides IP20 protection rating according to GOST 14254. Climatic version and utilization category of contactors is NF4 according to GOST 15150.



Advantages

- Control coils with wide range of rated current.
- Compact size.

- Installation on 35 mm DIN rail and a mounting panel.

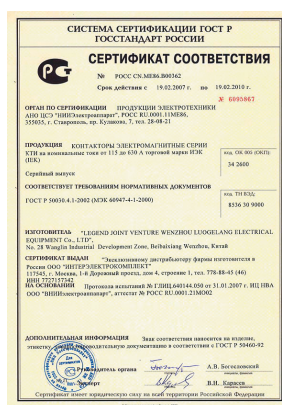
Product range



Name	Rated operating current, A (AC 3)	Rated voltage of control coils, V	Quantity and type of contacts	Quantity in transp. pack., pcs.	Product ID
Mini-contactor MKI-10610 6 A 110 V/AC 3 1NO IEK	6	110	1 cl.	100	KMM11-006-110-10
Mini-contactor MKI-10610 6 A 230 V/AC 3 1NO IEK	6	230	1 cl.	100	KMM11-006-230-10
Mini-contactor MKI-10610 6 A 24 V/AC 3 1NO IEK	6	24	1 cl.	100	KMM11-006-024-10
Mini-contactor MKI-10610 6 A 36 V/AC 3 1NO IEK	6	36	1 cl.	100	KMM11-006-036-10
Mini-contactor MKI-10610 6 A 400 V/AC 3 1NO IEK	6	400	1 cl.	100	KMM11-006-400-10
Mini-contactor MKI-10611 6 A 110 V/AC 3 1NC IEK	6	110	1 op.	100	KMM11-006-110-01
Mini-contactor MKI-10611 6 A 230 V/AC 3 1NC IEK	6	230	1 op.	100	KMM11-006-230-01
Mini-contactor MKI-10611 6 A 400 V/AC 3 1NC IEK	6	400	1 op.	100	KMM11-006-400-01
Mini-contactor MKI-10910 9 A 110 V/AC 3 1NO IEK	9	110	1 cl.	100	KMM11-009-110-10
Mini-contactor MKI-10910 9 A 230 V/AC 3 1NO IEK	9	230	1 cl.	100	KMM11-009-230-10
Mini-contactor MKI-10910 9 A 24 V/AC 3 1NO IEK	9	24	1 cl.	100	KMM11-009-024-10
Mini-contactor MKI-10910 9 A 36 V/AC 3 1NO IEK	9	36	1 cl.	100	KMM11-009-036-10
Mini-contactor MKI-10910 9 A 400 V/AC 3 1NO IEK	9	400	1 cl.	100	KMM11-009-400-10
Mini-contactor MKI-10911 9 A 110 V/AC 3 1NC IEK	9	110	1 op.	100	KMM11-009-110-01
Mini-contactor MKI-10911 9 A 230 V/AC 3 1NC IEK	9	230	1 op.	100	KMM11-009-230-01
Mini-contactor MKI-10911 9 A 400 V/AC 3 1NC IEK	9	400	1 op.	100	KMM11-009-400-01
Mini-contactor MKI-11210 12 A 110 V/AC 3 1NO IEK	12	110	1 cl.	100	KMM11-012-110-10
Mini-contactor MKI-11210 12 A 230 V/AC 3 1NO IEK	12	230	1 cl.	100	KMM11-012-230-10
Mini-contactor MKI-11210 12 A 24 V/AC 3 1NO IEK	12	24	1 cl.	100	KMM11-012-024-10
Mini-contactor MKI-11210 12 A 36 V/AC 3 1NO IEK	12	36	1 cl.	100	KMM11-012-036-10
Mini-contactor MKI-11210 12 A 400 V/AC 3 1NO IEK	12	400	1 cl.	100	KMM11-012-400-10
Mini-contactor MKI-11211 12 A 110 V/AC 3 1NC IEK	12	110	1 op.	100	KMM11-012-110-01
Mini-contactor MKI-11211 12 A 230 V/AC 3 1NC IEK	12	230	1 op.	100	KMM11-012-230-01
Mini-contactor MKI-11211 12 A 400 V/AC 3 1NC IEK	12	400	1 op.	100	KMM11-012-400-01
Mini-contactor MKI-11610 16 A 230 V/AC 3 1NO IEK	16	230	1 cl.	100	KMM11-016-230-10
Mini-contactor MKI-11611 16 A 230 V/AC 3 1NC IEK	16	230	1 op.	100	KMM11-016-230-01
Mini-contactor MKI-11610 16 A 400 V/AC 3 1NO IEK	16	400	1 cl.	100	KMM11-016-400-10
Mini-contactor MKI-11611 16 A 400 V/AC 3 1NC IEK	16	400	1 op.	100	KMM11-016-400-01

KTI series electromagnetic contactors

KTI series electromagnetic contactors are used in control circuits for starting and stopping three-phase asynchronous electric motors with squirrel-cage rotor in electric mains with rated voltage up to 660 V AC. Also KTI series contactors can be used for starting and stopping other electrical installations: lighting, heating units and various inductive loads. Used in fans, pumps, furnaces, cranes and in automatic transfer systems (ATS).



In terms of their design and technical characteristics, KTI contactors comply with the requirements of international and Russian standards IEC 60947-4-1, GOST R50030.4.1. KTI contactors passed certification tests and a certificate of conformity ROSS CN.ME86.B00150 was received for their serial production.

Advantages

- Simple design ensures convenient maintenance of components.
- Foundation is made of aluminium profile, offering increased durability and less weight in comparison to analogs.
- A wide range of additional devices that are always available in stock (PKI contact attachments, PVI time delay attachments relay).
- Extended product range of KTI series electromagnetic contactors.

Product range

	Name	Rated operating current, A AC-3	Rated voltage of control coils, V	Type Number of contacts	Quantity, pcs.		Product ID
					In a pack.	In a transp. box	
	Contactors KTI 5115 115 A 230 V/AC 3 IEK	115	230	1 cl.	1	4	KKT50-115-230-10
	Contactors KTI 5115 115 A 400 V/AC 3 IEK	115	400	1 cl.	1	4	KKT50-115-400-10
	Contactors KTI 5150 150 A 230 V/AC 3 IEK	150	230	1 cl.	1	4	KKT50-150-230-10
	Contactors KTI 5150 150 A 400 V/AC 3 IEK	150	400	1 cl.	1	4	KKT50-150-400-10
	Contactors KTI 5185 185 A 230 V/AC 3 IEK	185	230	1 cl.	1	4	KKT50-185-230-10
	Contactors KTI 5185 185 A 400 V/AC 3 IEK	185	400	1 cl.	1	4	KKT50-185-400-10
	Contactors KTI 5225 225 A 230 V/AC 3 IEK	225	230	1 cl.	1	2	KKT50-225-230-10
	Contactors KTI 5225 225 A 400 V/AC 3 IEK	225	400	1 cl.	1	2	KKT50-225-400-10
	Contactors KTI 5265 265 A 230 V/AC 3 IEK	265	230	1 cl.	1	2	KKT50-265-230-10
	Contactors KTI 5265 265 A 400 V/AC 3 IEK	265	400	1 cl.	1	2	KKT50-265-400-10
	Contactors KTI 5330 330 A 230 V/AC 3 IEK	330	230	1 cl.	1	2	KKT50-330-230-10
	Contactors KTI 5330 330 A 400 V/AC 3 IEK	330	400	1 cl.	1	2	KKT50-330-400-10
	Contactors KTI 6400 400 A 230 V/AC 3 IEK	400	230	1 cl.	1	2	KKT60-400-230-10
	Contactors KTI 6400 400 A 400 V/AC 3 IEK	400	400	1 cl.	1	2	KKT60-400-400-10
	Contactors KTI-6500 500 A 230	500	230	1 cl.	1	2	KKT60-500-230-10
	Contactors KTI-6500 500 A 400 V AC	500	400	1 cl.	1	2	KKT60-500-400-10
	Contactors KTI 7630 630 A 230 V/AC 3 IEK	630	230	1 cl.	1	1	KKT70-630-230-10
	Contactors KTI 7630 630 A 400 V/AC 3 IEK	630	400	1 cl.	1	1	KKT70-630-400-10

	Name	Rated operating current, A AC-3	Rated voltage of control coils, V	Type Number of contacts	Quantity, pcs.		Product ID
					In a pack.	In a transp. box	
	Contactor KTI 51153 reverse 115 A 230 V/AC 3 IEK	115	230	2 cl.	1	1	KKT53-115-230-10
	Contactor KTI 51153 reverse 115 A 400 V/AC 3 IEK	115	400	2 cl.	1	1	KKT53-115-400-10
	Contactor KTI 51503 reverse 150 A 230 V/AC 3 IEK	150	230	2 cl.	1	1	KKT53-150-230-10
	Contactor KTI 51503 reverse 150 A 400 V/AC 3 IEK	150	400	2 cl.	1	1	KKT53-150-400-10
	Contactor KTI 51853 reverse 185 A 230 V/AC 3 IEK	185	230	2 cl.	1	1	KKT53-185-230-10
	Contactor KTI 51853 reverse 185 A 400 V/AC 3 IEK	185	400	2 cl.	1	1	KKT53-185-400-10
	Contactor KTI 52253 reverse 225 A 230 V/AC 3 IEK	225	230	2 cl.	1	1	KKT53-225-230-10
	Contactor KTI 52253 reverse 225 A 400 V/AC 3 IEK	225	400	2 cl.	1	1	KKT53-225-400-10
	Contactor KTI 52653 reverse 265 A 230 V/AC 3 IEK	265	230	2 cl.	1	1	KKT53-265-230-10
	Contactor KTI 52653 reverse 265 A 400 V/AC 3 IEK	265	400	2 cl.	1	1	KKT53-265-400-10
	Contactor KTI 53303 reverse 330 A 230 V/AC 3 IEK	330	230	2 cl.	1	1	KKT53-330-230-10
	Contactor KTI 53303 reverse 330 A 400 V/AC 3 IEK	330	400	2 cl.	1	1	KKT53-330-400-10
	Contactor KTI 64003 reverse 400 A 230 V/AC 3 IEK	400	230	2 cl.	1	1	KKT63-400-230-10
	Contactor KTI 64003 reverse 400 A 400 V/AC 3 IEK	400	400	2 cl.	1	1	KKT63-400-400-10
	Contactor KTI 65003 reverse 500 A 230 V/AC 3 IEK	500	230	2 cl.	1	1	KKT63-500-230-10
	Contactor KTI 65003 reverse 500 A 400 V/AC 3 IEK	500	400	2 cl.	1	1	KKT63-500-400-10
	Contactor KTI 76303 reverse 630 A 230 V/AC 3 IEK	630	230	2 cl.	1	1	KKT73-630-230-10
	Contactor KTI 76303 reverse 630 A 400 V/AC 3 IEK	630	400	2 cl.	1	1	KKT73-630-400-10

Modular contactors KM

Modular contactors KM IEK® are used in AC mains with voltage up to 400 V and frequency 50 Hz and serve for switching low-inductive loads with rated current up to 63 A.

They are used for automation and control of various technological processes, including in lighting, conditioning, ventilation systems, etc.



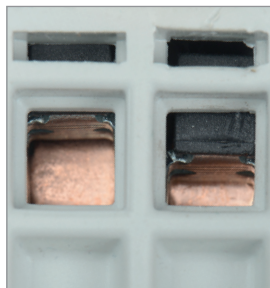
Advantages

- Wide range of contactors with two or four closing contacts.
- Dimension compatibility with products of modular series.
- Universal power supply for control coil – alternating or direct current (except for KM20).
- Visual indication of state of the main contacts.
- Reduced electromagnetic background due to a magnetic structure based on direct current.
- High electrical and mechanical durability.
- Energy efficiency (holding current 5X less than the starting one).
- Quick response (on – 20 ms, off – 30 ms).
- Bridging contacts provide double break in case of opening of the main contacts.
- Low noise level at triggering.
- Compliance with requirements GOST R 51731-2001.
- Warranty period: 7 years.

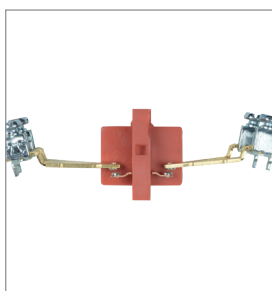
Construction features



Soldering on the contacts are made of silver-containing material, enhancing their service life and reducing transfer resistance and loss.



Terminals enable connection of conductors with cross-section from 1 to 25 mm².



Bridging contact ensures great electrical insulating properties.



Main contact status indication.

Product range

	Name	Rated operating voltage, V	Max. cross section of connected conductors, mm ²	Quantity in a package		Product ID
				Multiple	Transport	
	KM20-11M	230	10	8	120	MKK11-20-11
	KM20-20M	230	10	8	120	MKK11-20-20
	KM40-11M	230	25	6	90	MKK11-40-11
	KM40-20M	230	25	6	90	MKK11-40-20
	KM63-11M	230	25	6	90	MKK11-63-11
	KM63-20M	230	25	6	90	MKK11-63-20
	KM20-22M	400	10	6	90	MKK11-20-22
	KM20-40M	400	10	6	90	MKK11-20-40
	KM25-22M	400	10	6	90	MKK11-25-22
	KM25-40M	400	25	4	60	MKK21-25-40
	KM40-40M	400	25	4	60	MKK21-40-40
	KM63-40M	400	25	4	60	MKK11-63-11



Name	Rated operating voltage, V	Max. cross section of connected conductors, mm ²	Quantity in a package		Product ID
			Multiple	Transport	
KM20-11MP AC KARAT with manual cont.	230	6	8	120	MKK12-20-11
KM20-20MP AC KARAT with manual cont.	230	6	8	120	MKK12-20-20
KM20-22MP AC KARAT with manual cont.	400	6	6	90	MKK12-20-22
KM20-40MP AC KARAT with manual cont.	400	6	6	90	MKK12-20-40



KM25-22MP AC KARAT with manual cont.	400	6	6	90	MKK12-25-22
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KM40-11MP AC KARAT with manual cont.	230	25	6	90	MKK12-40-11
KM40-20MP AC KARAT with manual cont.	230	25	6	90	MKK12-40-20



KM63-11MP AC KARAT with manual cont.	230	25	6	90	MKK12-63-11
KM63-20MP AC KARAT with manual cont.	230	25	6	90	MKK12-63-20

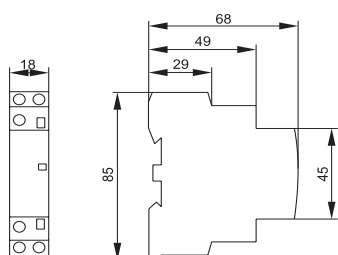
Specifications

KM version		20-20	20-11	40-11	40-20	63-11	63-20	20-22	20-40	25-22	25-40	40-40	63-40
Utilization category		AC-1, AC-7a, AC-7b	AC-1, AC-7a, AC-7b	AC-1, AC-7a									
Number of poles		2						4					
Rated operational voltage U_e , V		230						400					
Rated frequency, Hz		50											
Rated insulation voltage U_i , V		500											
Rated operating current I_e , A	AC-1	20	40	63	20	25	40	63					
	AC-7a	20	40	63	20	25	40	63					
	AC-7b	9	-	-	-	-	-	-					
Rated thermal current I_{th} , A		20	40	63	20	25	40	63					
Dissipated power, W / pole		1	3	6	1	1.2	3	6					
Rated voltage of the control coil U_c , V		230~									230~, 230=*		
Control coil power consumption in making condition, VA, max		14	37	37	88								
Control coil power consumption in hold condition, VA, max		4.5	5	5	3.5								
Control voltage ranges	Close	195...253											
	Open	46...172											
Rated conditional short-circuit current, A		3000											
Max. cross section of connected single-core conductors, mm ²		6	25	6	25								
Mechanical wear resistance, switching cycles		10 ⁶											
Electrical wear resistance, switching cycles		0,15×10 ⁶											
Protection degree		IP20											
Mounting type		Mounting on a DIN rail 35 mm											
Warranty period of operation, years (from the sale date)		7											

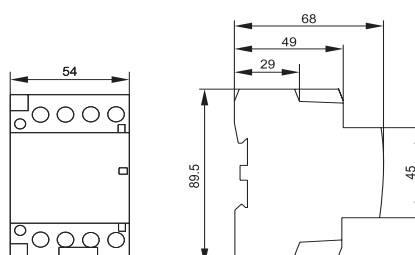
* Control coil circuit is integrated with a rectifier bridge, enabling utilization of the contactors in DC electric circuits with voltage 220 V.

Overall dimensions, mm

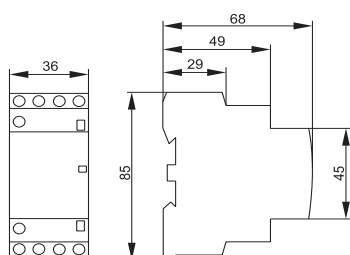
KM20-11M AC, KM20-20M AC



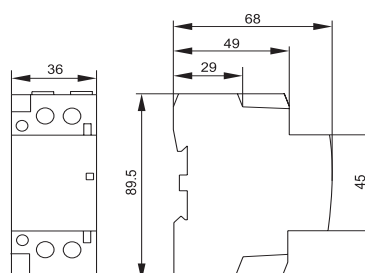
KM25-40M AC/DC, KM40-40M AC/DC, KM63-40M AC/DC



KM20-22M AC, KM25-22M AC, KM20-40M AC



KM63-20M AC, KM63-11M AC, KM40-20M AC, KM40-11M AC

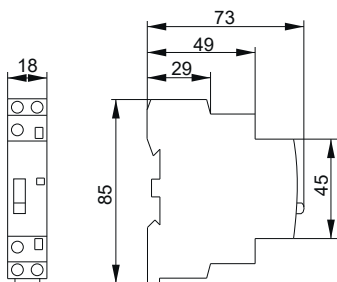


KM version with manual control		20-20	20-11	40-11	40-20	63-11	63-20	20-22	20-40	25-22	25-40	40-40	63-40	
Utilization category		AC-1, AC-7a, AC-7b												
Rated operating current I_e , A	AC-1	20	40		63		20		25		40		63	
	AC-7a	20	40		63		20		25		40		63	
	AC-7b	7	18		25		7		9		18		25	
Conditional thermal current outdoors, I_{th} , A		20	40		63		20		25		40		63	
Dissipated power, W / pole		1	3		6		1		1.2		3		6	
Number of poles		2						4						
Rated operational voltage U_e , V		250						400						
Rated frequency, Hz		50												
Rated insulation voltage U_i , B		500												
Rated impulse withstand voltage U_{imp} , kV		4												
Rated voltage of the control coil U_c , V		230~									230~, 230=*			
Control coil power consumption in making condition, VA, max		14		37						88				
Control coil power consumption in hold condition, VA, max		4.5		5						3.5				
Control voltage ranges	Close	195...253												
	Open	46...172												
Rated conditional short-circuit current, A		3000												
Maximum cross-section of single-core conductors connected to main circuit clamps, mm²		6		25				6		25				
Withstand torque of main circuit outputs, N×m		0.8		2				0.8		2				
Withstand torque of control circuit outputs, N×m		0.8												
Main circuit pulling force, N		80		135				80		135				
Control circuit pulling force, N		80												
Maximum cross-section of single-core wires connected to control clamps, mm²		6												
Mechanical wear resistance, switching cycles		10 ⁶												
Electrical wear resistance, switching cycles		0,15×10 ⁶												
Protection degree		IP20												
Mounting method		On a T-shaped guide of a type TH35 according to GOST IEC 60715												

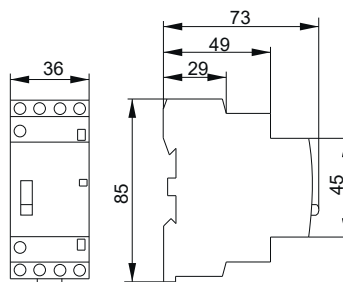
* Control coil circuit is integrated with a rectifier bridge, enabling utilization of the contactors in DC electric circuits with voltage 220 V.

Overall dimensions, mm

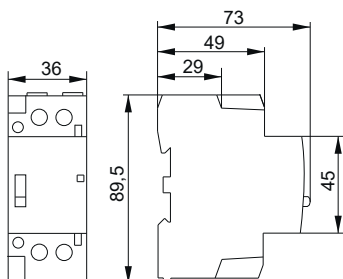
KM20-11 MP AC, KM20-20MP AC



KM20-22MP AC, KM20-40MP AC, KM25-22MP AC



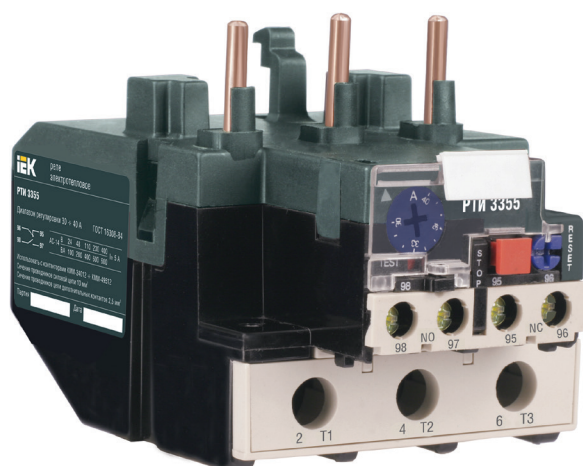
KM40-11 MP AC, KM40-20MP AC, KM63-11 MP AC, KM63-20MP AC



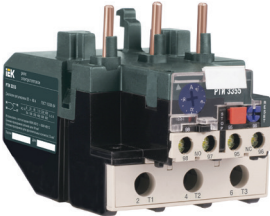
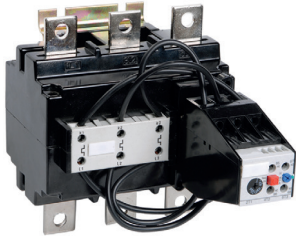
Accessories for contactors

RTI electrothermal relay

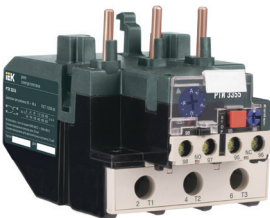
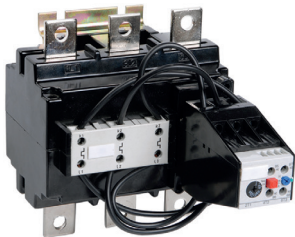
RTI electrothermal relay is designed to protect electric motors from overload, phase asymmetry, delayed start-up and rotor jamming. Mounted directly on the KMI series contactors. For protection against short circuits, fuses or circuit breakers must be provided for the corresponding value of the rated operating current.



Selection guide

	Name	Size	Setting current adjustment limit, A	Version of contactors used with relays
	RTI 1301	1	$0.1 \div 0.16$	KMI-10910, KMI-10911, KMI-11210, KMI-11211,
	RTI 1302	1	$0.16 \div 0.25$	KMI-11810, KMI-11811, KMI-22510, KMI-22511,
	RTI 1303	1	$0.25 \div 0.4$	KMIp-10910, KMIp-11210, KMIp-11810,
	RTI 1304	1	$0.4 \div 0.63$	KMIp-22510, PM12K-01615X, PM12-02510X
	RTI 1305	1	$0.63 \div 1.0$	
	RTI 1306	1	$1.0 \div 1.6$	
	RTI 1307	1	$1.6 \div 2.5$	
	RTI 1308	1	$2.5 \div 4.0$	
	RTI 1310	1	$4.0 \div 6.0$	
	RTI 1312	1	$5.5 \div 8.0$	
	RTI 1314	1	$7.0 \div 10.0$	
	RTI 1316	1	$9.0 \div 13.0$	KMI-11210, KMI-11211, KMI-11810, KMI-11811,
				KMI-22510, KMI-22511, KMIp-11210, KMIp-11810,
	RTI 1321	1	$12.0 \div 18.0$	KMI-11810, KMI-11811, KMI-22510, KMI-22511, KMIp-
	RTI 1322	1	$17.0 \div 25.0$	11810, KMIp-22510, PM12K-01615X, PM12-02510X
	RTI 2355	2	$28.0 \div 36.0$	KMI-22510, KMI-22511, KMIp-22510, PM12-02510X
	RTI 3353	3	$23.0 \div 32.0$	KMI-34012, KMI-35012, KMI-46512, KMI-48012, KMI-
	RTI 3355	3	$30.0 \div 40.0$	49512, PM12K-04015X, PM12-063150
	RTI 3357	3	$37.0 \div 50.0$	KMI-34012, KMI-35012, KMI-46512, KMI-48012, KMI-
	RTI 3359	3	$48.0 \div 65.0$	49512, PM12-063150
	RTI 3361	3	$55.0 \div 70.0$	KMI-35012, KMI-46512, KMI-48012, KMI-49512, PM12-
	RTI 3363	3	$63.0 \div 80.0$	063150
	RTI 3365	3	$80.0 \div 93.0$	KMI-46512, KMI-48012, KMI-49512, PM12-063150
	RTI 5369	5	$55 \div 80$	KMI-46512, KMI-48012, KMI-49512
	RTI 5370	5	$63 \div 90$	KMI-48012; KMI-49512
	RTI 5371	5	$90 \div 120$	KMI-49512
	RTI 5375	5	$120 \div 150$	KTI-5115, KTI-5150, KTI-5185
	RTI 5376	5	$150 \div 180$	KTI-5150, KTI-5185
	RTI 6376	6	$125 \div 200$	KTI-5185
				KTI-5225, KTI-5265, KTI-5225, KTI-5330, KTI-6400

Product range

	Name	Relay set point range, A	Quantity and type of contacts	Amount in a package, pcs.	Product ID
	RTI-1301 electrothermal 0.1 0.16 A IEK	0.1 ÷ 0.16	1 cl. + 1 op.	100	DRT10-D001-C016
	RTI-1302 electrothermal 0.16 0.25 A IEK	0.16 ÷ 0.25	1 cl. + 1 op.	100	DRT10-C016-C025
	RTI-1303 electrothermal 0.25 0.4 A IEK	0.25 ÷ 0.4	1 cl. + 1 op.	100	DRT10-C025-D004
	RTI-1304 electrothermal 0.4 0.63 A IEK	0.4 ÷ 0.63	1 cl. + 1 op.	100	DRT10-D004-C063
	RTI-1305 electrothermal 0.63 1.0 A IEK	0.63 ÷ 1.0	1 cl. + 1 op.	100	DRT10-C063-0001
	RTI-1306 electrothermal 1 1.6 A IEK	-1 ÷ +1.6	1 cl. + 1 op.	100	DRT10-0001-D016
	RTI-1307 electrothermal 1.6 2.5 A IEK	1.6 ÷ 2.5	1 cl. + 1 op.	100	DRT10-D016-D025
	RTI-1308 electrothermal 2.5 4.0 A IEK	2.5 ÷ 4.0	1 cl. + 1 op.	100	DRT10-D025-0004
	RTI-1310 electrothermal 4 6 A IEK	4.0 ÷ 6.0	1 cl. + 1 op.	100	DRT10-0004-0006
	RTI-1312 electrothermal 5.5 8 A IEK	5.5 ÷ 8	1 cl. + 1 op.	100	DRT10-D055-0008
	RTI-1314 electrothermal 7 10 A IEK	7 ÷ 10	1 cl. + 1 op.	100	DRT10-0007-0010
	RTI-1316 electrothermal 9 13 A IEK	9 ÷ 13	1 cl. + 1 op.	100	DRT10-0009-0013
	RTI-1321 electrothermal 12 18 A IEK	12 ÷ 18	1 cl. + 1 op.	100	DRT10-0012-0018
	RTI-1322 electrothermal 17 25 A IEK	17 ÷ 25	1 cl. + 1 op.	100	DRT10-0017-0025
	RTI-2355 electrothermal 28 36 A IEK	28 ÷ 36	1 cl. + 1 op.	50	DRT20-0028-0036
	RTI-3353 electrothermal 23 32 A IEK	23 ÷ 32	1 cl. + 1 op.	50	DRT30-0023-0032
	RTI-3355 electrothermal 30 40 A IEK	30 ÷ 40	1 cl. + 1 op.	50	DRT30-0030-0040
	RTI-3357 electrothermal 37 50 A IEK	37 ÷ 50	1 cl. + 1 op.	50	DRT30-0037-0050
	RTI-3359 electrothermal 48 65 A IEK	48 ÷ 65	1 cl. + 1 op.	50	DRT30-0048-0065
	RTI-3361 electrothermal 55 70 A IEK	55 ÷ 70	1 cl. + 1 op.	50	DRT30-0055-0070
	RTI-3363 electrothermal 63 80 A IEK	63 ÷ 80	1 cl. + 1 op.	50	DRT30-0063-0080
	RTI-3365 electrothermal 80 93 A IEK	80 ÷ 93	1 cl. + 1 op.	50	DRT30-0080-0093
	RTI-5369 electrothermal relay 55-80 A IEK	55 ÷ 80	1 cl. + 1 op.	20	DRT50-0055-0080
	RTI-5370 electrothermal relay 63-90 A IEK	63 ÷ 90	1 cl. + 1 op.	20	DRT50-0063-0090
	RTI-5371 electrothermal relay 90-120 A IEK	90 ÷ 120	1 cl. + 1 op.	20	DRT50-0090-0120
	RTI-5375 electrothermal relay 120-150 A IEK	120 ÷ 150	1 cl. + 1 op.	20	DRT50-0120-0150
	RTI-5376 electrothermal relay 150-180 A IEK	150 ÷ 180	1 cl. + 1 op.	20	DRT50-0150-0180
	RTI-6376 electrothermal relay 125-200 A IEK	125 ÷ 200	1 cl. + 1 op.	4	DRT60-0125-0200

PKI series contact attachments PVI series time delay attachments

PKI contact attachments are designed to expand the possibilities of using contactors in automation systems for technological projects. PVI pneumatic time delay attachments make it possible to obtain a delay in closing or opening the auxiliary circuit from 0.1 to 180 s.

Used in conjunction with contactors of the KMI and KTI series.

Product range

	Name	Quantity and type of contacts	Quantity, pcs.		Product ID
			In a pack.	In a transp. box	
	PKI 04 add. contacts 4 op. IEK	4 op.	1	250	KPK10-04
	PKI 11 add. contacts 1 cl. + 1 op. IEK	1 cl. + 1 op.	1	250	KPK10-11
	PKI 20 add. contacts 2 cl. IEK	2 cl.	1	250	KPK10-20
	PKI 22 add. contacts 2 cl. + 2 op. IEK	2 cl. + 2 op.	1	250	KPK10-22
	PKI 40 add. contacts 4 cl. IEK	4 cl.	1	250	KPK10-40
	PVI 11 Turn-on delay 0.1–30 with 1 cl. + 1 op.	1 cl. + 1 op.	10	200	KPV10-11-1
	PVI 12 Turn-on delay 10–180 with 1 cl. + 1 op.	1 cl. + 1 op.	10	200	KPV10-11-2
	PVI 13 Turn-on delay 0.1–3 with 1 cl. + 1 op.	1 cl. + 1 op.	10	200	KPV10-11-3
	PVI 21 Turn-off delay 0.1–30 with 1 cl. + 1 op.	1 cl. + 1 op.	10	200	KPV20-11-1
	PVI 22 Turn-off delay 10–180 with 1 cl. + 1 op.	1 cl. + 1 op.	10	200	KPV20-11-2
	0.1–3 with 1 cl. + 1 op.	1 cl. + 1 op.	10	200	KPV20-11-3

KMI and KMIp control coils and locking mechanisms for KMI reverse circuit

Coils are used to control contactors by supplying current through the control circuit.

Locking mechanisms are designed for mechanical interlocking of two contactors, excluding their simultaneous activation when creating a reversing circuit.

Product range

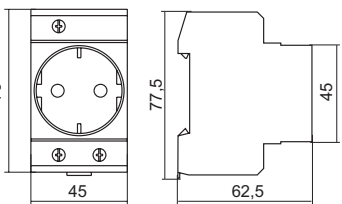
	Name	Rated voltage, V	Quantity, pcs.		Product ID
			In a pack.	In a transp. box	
	Control coil for KMI (09-18 A)	110	8	160	KKM10D-KU-110
	Control coil for KMI (09-18 A)	230	8	160	KKM10D-KU-230
	Control coil for KMI (09-18 A)	24	8	160	KKM10D-KU-024
	Control coil for KMI (09-18 A)	36	8	160	KKM10D-KU-036
	Control coil for KMI (09-18 A)	400	8	160	KKM10D-KU-400
	Control coil for KMI (25-32 A)	110	5	100	KKM20D-KU-110
	Control coil for KMI (25-32 A)	230	5	100	KKM20D-KU-230
	Control coil for KMI (25-32 A)	24	5	100	KKM20D-KU-024
	Control coil for KMI (25-32 A)	36	5	100	KKM20D-KU-036
	Control coil for KMI (25-32 A)	400	5	100	KKM20D-KU-400
	Control coil for KMI (40-95 A)	110	4	80	KKM30D-KU-110
	Control coil for KMI (40-95 A)	230	4	80	KKM30D-KU-230
	Control coil for KMI (40-95 A)	24	4	80	KKM30D-KU-024
	Control coil for KMI (40-95 A)	36	4	80	KKM30D-KU-036
	Control coil for KMI (40-95 A)	400	4	80	KKM30D-KU-400
	Control coil for KMIp (25-32 A)	24	1	54	KMD20D-KU-024
	Control coil for KMIp (09-18 A)	24	1	75	KMB10D-KU-024
	Control coil for KU (115-150 A)	400	1	40	KKT50D-KU-150-400
	Control coil for KU (115-150 A)	230	1	40	KKT50D-KU-150-230
	Control coil for KU (185-225 A)	400	1	40	KKT50D-KU-225-400
	Control coil for KU (185-225 A)	230	1	40	KKT50D-KU-225-230
	Control coil for KU (265-330 A)	400	1	40	KKT50D-KU-330-400
	Control coil for KU (265-330 A)	230	1	40	KKT50D-KU-330-230
	Control coil for KU 400 A	400	1	20	KKT60D-KU-400-400
	Control coil for KU 400 A	230	1	20	KKT60D-KU-400-230
	Control coil for KU 500 A	400	1	20	KKT60D-KU-500-400
	Control coil for KU 500 A	230	1	20	KKT60D-KU-500-230
	Control coil for KU 630 A	400	1	20	KKT70D-KU-630-400
	Control coil for KU 630 A	230	1	20	KKT70D-KU-630-230
	Locking mechanism for KMI (09-32 A)		1	170	KKM10D-MB
	Locking mechanism for KMI (40-95 A)		1	150	KKM30D-MB

Switching and electric distribution accessories

Grounding-type socket RAr10-3-OP

Installed in a distribution board and serves for connection of portable lights or low capacity electric tool during routine and repair maintenance in an electric assembly at the installation site.

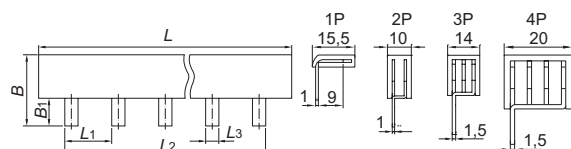
Warranty period of operation – 7 years (from the sale date).

Overall dimensions, mm	Name	Rated operating voltage, V	Rated current, A	Module width, mm	Q-ty in a package, pcs. multiple/transp.	Product ID
 	RAr10-3-OP	250	16	45	5/100	MRD10-16

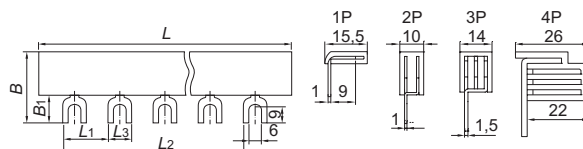
Bridging bars

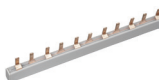
They are used for convenient and safe connection of the following groups: VA (circuit breakers), AD (differential breakers), VD (differential switches), VN (load switches). Bars with a pitch of 18 mm are intended for switching equipment with a width that is a multiple of one module, buses with a pitch of 27 mm are intended for switching products with a width that is a multiple of one and a half modules. Bars designed for a rated current of 100 A can be used with a rated current of 125 A if the input circuit breaker is connected in the center. Side plugs are available for 1.5-module bars.

PIN 63 A

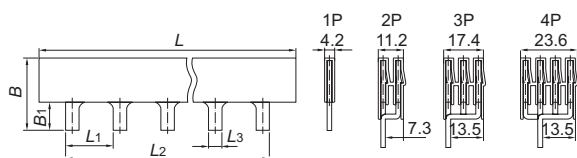


FORK 63 A

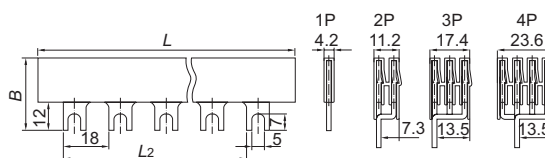


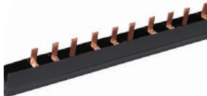
	Name	Rated current, A	Max. quantity of connected devices, pcs.	Dimensions, mm							Product ID
				L	L ₁	L ₂	L ₃	B	B ₁		
	PIN 1P 63 A pitch 18 mm 12 pins IEK	63	12	220	18	204	5.5	13.9	9.5	YNS21-1-063-22-12	
	PIN 3P 63 A pitch 18 mm 12 pins IEK	63	12	220	18	193	5.5	22.3	11.5	YNS21-3-063-22-12	
	PIN 1P 63 A pitch 18 mm IEK	63	54	1000	18	954	4	13.9	9.5	YNS21-1-063	
	PIN 2P 63 A pitch 18 mm IEK	63	54	1000	18	954	4	20.2	11	YNS21-2-063	
	PIN 3P 63 A pitch 18 mm IEK	63	54	1000	18	954	4	22.3	11.5	YNS21-3-063	
	PIN 4P 63 A pitch 18 mm IEK	63	56	1000	18	990	4	28.3	12	YNS21-4-063	
	FORK 1P 63 A pitch 18 mm IEK	63	54	1000	18	954	11	15.4	11	YNS11-1-063	
	FORK 2P 63 A pitch 18 mm IEK	63	54	1000	18	954	11	21.7	12.5	YNS11-2-063	
	FORK 3P 63 A pitch 18 mm IEK	63	54	1000	18	954	11	22.8	11.5	YNS11-3-063	
	FORK 4P 63 A pitch 18 mm IEK	63	52	1000	18	918	12	29.8	13.5	YNS11-4-063	

PIN 100 A



FORK 100 A



	Name	Rated current, A	Max. quantity of connected devices, pcs.	Dimensions, mm							Product ID
				L	L ₁	L ₂	L ₃	B	B ₁		
	PIN 1P 100 A pitch 18 mm IEK	100 (125*)	54	1000	18	954	5	30.5	12	YNS21-1-100	
	PIN 2P 100 A pitch 18 mm IEK	100 (125*)	54	1000	18	954	5	37.5	12	YNS21-2-100	
	PIN 3P 100 A pitch 18 mm IEK	100 (125*)	54	1000	18	954	5	37.5	12	YNS21-3-100	
	PIN 4P 100 A pitch 18 mm IEK	100 (125*)	56	1030	18	990	6	37.5	12	YNS21-4-100	
	PIN 1P 100 A pitch 27 mm IEK	100 (125*)	37	1000	27	972	7.5	38.5	20	YNS51-1-100	
	PIN 2P 100 A pitch 27 mm IEK	100 (125*)	36	1000	27	945	7.5	46.2	12	YNS51-2-100	
	PIN 3P 100 A pitch 27 mm IEK	100 (125*)	36	1000	27	945	7.5	46.2	12	YNS51-3-100	
	PIN 4P 100 A pitch 27 mm IEK	100 (125*)	36	1030	27	945	7.5	46.2	12	YNS51-4-100	
	FORK 1P 100 A pitch 18 mm IEK	100 (125*)	54	1000	18	954	9	30.5	12	YNS11-1-100	
	FORK 2P 100 A pitch 18 mm IEK	100 (125*)	54	1000	18	954	9	37.5	12	YNS11-2-100	
	FORK 3P 100 A pitch 18 mm IEK	100 (125*)	54	1000	18	954	9	37.5	12	YNS11-3-100	
	FORK 4P 100 A pitch 18 mm IEK	100 (125*)	56	1030	18	990	9	37.5	12	YNS11-4-100	
	Plug for PIN 1P 100 A pitch 27 mm IEK									YNK51-1-100	
	Plug for PIN 2P 100 A pitch 27 mm IEK									YNK51-2-100	
	Plug for PIN 3P 100 A pitch 27 mm IEK									YNK51-3-100	
	Plug for PIN 4P 100 A pitch 27 mm IEK									YNK51-4-100	

*Can be used with a rated current of 125 A if the input circuit breaker is connected in the center.

CASES FOR CONTROL CABINETS



- TITAN 5 metal cases with mounting panel
- GARANT series metal cases with mounting panel
- PRO series metal cases with mounting panel
- Metal cases with mounting panel
- Metal cases IEK® with a transparent door
- SMART series collapsible metal assembling cases for incoming and distribution switchboard
- TITAN series all-welded metal assembling cases for incoming and distribution switchboard
- FORMAT electrical cabinets

Metal cases with mounting panel TITAN

Metal case with mounting panel TITAN is a new technological product, manufactured on a modern cutting-edge line of IEK GROUP plant in Tula region.

It is designed to ensure reliable protection of equipment in power distribution systems and automation of technological processes, as well as for placement and protection of various electrical and electronic components from environmental influences.



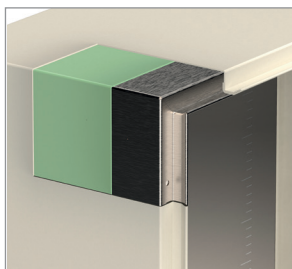
Advantages

- Manufactured on completely automated line – from steel coils to a finished product.
- Resistance to external impact: IP66 protection rating, climatic version NF1.
- Increased corrosion resistance – cases are primed before painting.
- Reversible door.
- Triple latching for cases from 500 mm high.
- Improved package.
- High level of electrical safety.
- Certificates of Conformity.

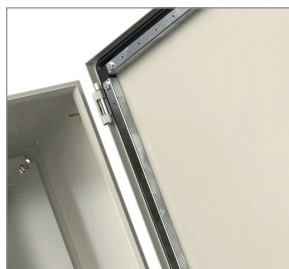
Specifications

Installation type	wall-mounted
Metal thickness case, mm	up to 800 mm high – 1; higher than 800 mm – 1.4
Thickness of the mounting panel, mm	1.5
Rated current	630 A
Cover type	powder, shagreen
Color	RAL 7035
Protection degree	IP66
Climatic version	NF1
Shock resistance	IK10
Door opening angle	105°

Construction features



Increased corrosion resistance – cases are additionally primed before painting.



Reversible door.



New type of hinges. Convenient re-hinging and IP protection.



Triple latching for cases from 500 mm high.



Vertical Z profile for mounting the equipment on a door.



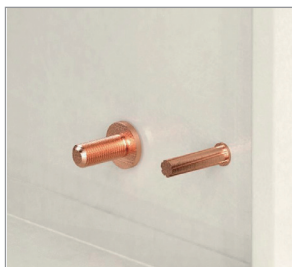
During transportation the door is fixed, preventing excessive indenting of polyurethane by case edge.



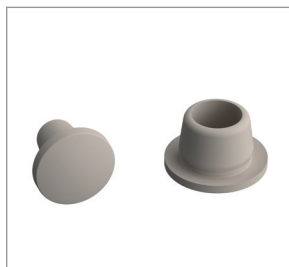
Mounting panel layout



Free access to holes for hanging when a mounting panel is installed.



Grounding studs with increased area for better contact.



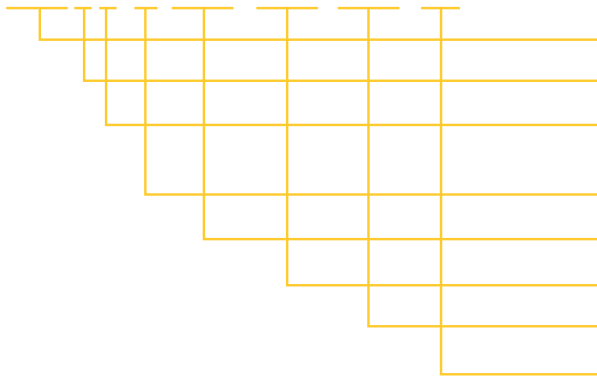
Protection for technical holes.



Cable flange with sealing.

Product ID decoding

TI5-10-N-060-050-020-66



TI5 – designation of TITAN 5 series

1 – number indicating the standard version, 1 – metal case with mounting panel

0 – indicates modification, 0 – no modifications (standard)

N – mounting type, N – wall-mounted

060 – height, cm (060 – 60 cm)

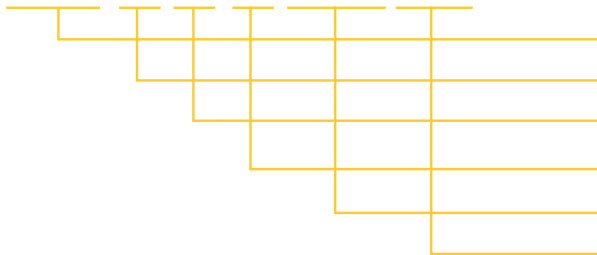
050 – width, cm (050 – 50 cm)

020 – depth, cm (020 – 20 cm)

66 – IP protection class

Explanation of designations

METAL CASE WITH MOUNTING PANEL-60.50.20 NF1 IP66 IEK



Metal case with mounting panel – metal case with mounting panel

60 – height, cm

50 – width, cm

20 – depth, cm

NF1 – climatic version

IP66 – Ingress Protection

Product range

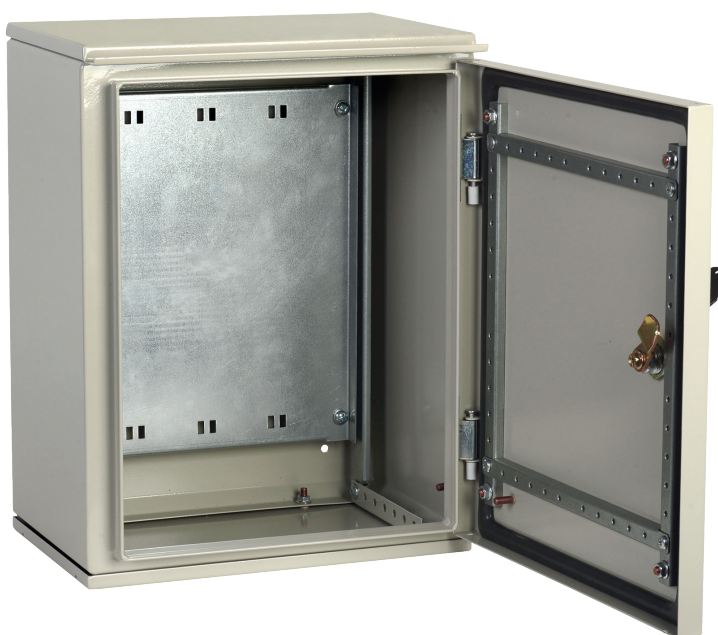
	Name	Overall dimensions, mm			Product ID
		Height	Width	Depth	
	TITAN 5 Metal case with mounting panel-30.30.20 NF1 IP66 IEK	300	300	200	TI5-10-N-030-030-020-66
	TITAN 5 Metal case with mounting panel-40.30.15 NF1 IP66 IEK	400	300	150	TI5-10-N-040-030-015-66
	TITAN 5 Metal case with mounting panel-40.30.20 NF1 IP66 IEK	400	300	200	TI5-10-N-040-030-020-66
	TITAN 5 Metal case with mounting panel-40.40.15 NF1 IP66 IEK	400	400	150	TI5-10-N-040-040-015-66
	TITAN 5 Metal case with mounting panel-40.40.20 NF1 IP66 IEK	400	400	200	TI5-10-N-040-040-020-66
	TITAN 5 Metal case with mounting panel-40.40.25 NF1 IP66 IEK	400	400	250	TI5-10-N-040-040-025-66
	TITAN 5 Metal case with mounting panel-40.60.15 NF1 IP66 IEK	400	600	150	TI5-10-N-040-060-015-66
	TITAN 5 Metal case with mounting panel-40.60.25 NF1 IP66 IEK	400	600	250	TI5-10-N-040-060-025-66
	TITAN 5 Metal case with mounting panel-50.40.15 NF1 IP66 IEK	500	400	150	TI5-10-N-050-040-015-66
	TITAN 5 Metal case with mounting panel-50.40.20 NF1 IP66 IEK	500	400	200	TI5-10-N-050-040-020-66
	TITAN 5 Metal case with mounting panel-50.40.25 NF1 IP66 IEK	500	400	250	TI5-10-N-050-040-025-66
	TITAN 5 Metal case with mounting panel-60.40.40 NF1 IP66 IEK	600	400	400	TI5-10-N-060-040-040-66
	TITAN 5 Metal case with mounting panel-60.50.15 NF1 IP66 IEK	600	500	150	TI5-10-N-060-050-015-66
	TITAN 5 Metal case with mounting panel-60.50.20 NF1 IP66 IEK	600	500	200	TI5-10-N-060-050-020-66
	TITAN 5 Metal case with mounting panel-60.50.25 NF1 IP66 IEK	600	500	250	TI5-10-N-060-050-025-66
	TITAN 5 Metal case with mounting panel-60.60.40 NF1 IP66 IEK	600	600	400	TI5-10-N-060-060-040-66
	TITAN 5 Metal case with mounting panel-70.50.20 NF1 IP66 IEK	700	500	200	TI5-10-N-070-050-020-66
	TITAN 5 Metal case with mounting panel-80.60.25 NF1 IP66 IEK	800	600	250	TI5-10-N-080-060-025-66
	TITAN 5 Metal case with mounting panel-80.60.30 NF1 IP66 IEK	800	600	300	TI5-10-N-080-060-030-66
	TITAN 5 Metal case with mounting panel-80.80.40 NF1 IP66 IEK	800	800	400	TI5-10-N-080-080-040-66
	TITAN 5 Metal case with mounting panel-100.60.30 NF1 IP66 IEK	1000	600	300	TI5-10-N-100-060-030-66
	TITAN 5 Metal case with mounting panel-100.80.30 NF1 IP66 IEK	1000	800	300	TI5-10-N-100-080-030-66
	TITAN 5 Metal case with mounting panel-100.80.40 NF1 IP66 IEK	1000	800	400	TI5-10-N-100-080-040-66
	TITAN 5 Metal case with mounting panel-120.60.30 NF1 IP66 IEK	1200	600	300	TI5-10-N-120-060-030-66
	TITAN 5 Metal case with mounting panel-120.60.40 NF1 IP66 IEK	1200	600	400	TI5-10-N-120-060-040-66
	TITAN 5 Metal case with mounting panel-120.80.30 NF1 IP66 IEK	1200	800	300	TI5-10-N-120-080-030-66
	TITAN 5 Metal case with mounting panel-120.80.40 NF1 IP66 IEK	1200	800	400	TI5-10-N-120-080-040-66
	TITAN 5 Metal case with mounting panel-140.60.30 NF1 IP66 IEK	1400	600	300	TI5-10-N-140-060-030-66

GARANT series metal cases with mounting panel

GARANT series metal cases with mounting panel were specially designed for use in adverse weather and industrial conditions. The cases are used to assemble a variety of electrical panels: power, control, automation. They allow installation of both modular and conventional equipment.

Degree of protection IP65, climatic modification N1 (possibility of installation in the open air).

The GARANT series metal cases with mounting panel IP65 have a seal made of two-component sealant on the door and a dust and moisture-proof lock with protective fittings. The cases also have a protective visor and a protective groove to prevent the ingress of dirt and water when the door is opened. Due to the design features, the equipment is installed on mounting panels, which are adjustable in depth.



Advantages

- Enhanced protection against external influences and adverse factors (degree of protection IP65, climatic version N1).
- Depth adjustment of the mounting panel.
- Possibility of installing blanking plates.
- Profile for the installation of lighting equipment.
- A protective visor and protective channel prevent the ingress of dirt and water when the door is opened.
- Ease of installation due to the increased usable area of the mounting panel.
- Wide range of accessories.
- Dust and moisture proof lock.
- Removable top and bottom case covers provide easy access to equipment during installation.
- High level of electrical safety.
- High quality coating.
- Increased corrosion resistance.
- Complete setup.
- One safety lock.

Specifications

Installation type	wall-mounted
Metal thickness	1.0 mm – first three sizes of metal case with mounting panel 1.4 mm – metal case with mounting panel larger than the 3-rd size
Rated current	up to 630 A
Cover type	powder, shagreen
Color	RAL 7035
Degree of protection	IP65
Door opening angle	105°
Apparatus type	any
Climatic version	N1

Product range

	Name	Dimensions (H×Ω×Δ)	Weight, kg	Product ID
	Metal case with mounting panel-1-0 N1 IP65 GARANT	Case: 395×310×220 Panel: 290×250 Total height of the panels LG/LMA - 350	9	YKM40-01-65
	Metal case with mounting panel-2-0 N1 IP65 GARANT	Case: 500×400×220 Panel: 394×340 Total height of the panels LG/LMA - 450	13	YKM40-02-65
	Metal case with mounting panel-3-0 N1 IP65 GARANT	Case: 650×500×220 Panel: 544×440 Total height of the panels LG/LMA - 600	19	YKM40-03-65
	Metal case with mounting panel-4-0 N1 IP65 GARANT	Case: 800×650×250 Panel: 685×590 Total height of the panels LG/LMA - 750	31.6	YKM40-04-65
	Metal case with mounting panel-5-0 N1 IP65 GARANT	Case: 1000×650×275 Panel: 885×590 Total height of the panels LG/LMA - 950	39	YKM40-05-65
	Metal case with mounting panel-6-0 N1 IP65 GARANT	Case: 1200×650×275 Panel: 1085×590 Total height of the panels LG/LMA - 1150	45.5	YKM40-06-65
	Metal case with mounting panel-7-0 N1 IP65 GARANT	Case: 1400×650×275 Panel: 1285×590 Total height of the panels LG/LMA - 1350	52	YKM40-07-65

Accessories for GARANT metal cases with mounting panel series*

LG panel



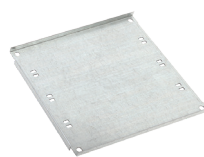
LMA panel



Mounting profile



Mounting panel



Seat angle



Name	Purpose	Place of installation	Number of modules	Overall dimensions, mm	Color	Product ID
LG panel for metal case with mounting panel-1 36 PRO/GARANT (H=50) (set 2 pcs.)	For protection against direct contact with live parts	Inside the case on the mounting profile		50×260×8,5	RAL 7035	Y-PL-G-36-1-0-50
LG panel for metal case with mounting panel-1 36 PRO/GARANT (H=150) (set 2 pcs.)				150×260×8,5	RAL 7035	Y-PL-G-36-1-0-150
LG panel for metal case with mounting panel-1 36 PRO/GARANT (H=200) (set 2 pcs.)				200×260×8,5	RAL 7035	Y-PL-G-36-1-0
LG panel for metal case with mounting panel-2 36 PRO/GARANT (H=150) (set 2 pcs.)				150×350×8,5	RAL 7035	Y-PL-G-36-2-0-150
LG panel for metal case with mounting panel-2 36 PRO/GARANT (H=300) (set 2 pcs.)				300×350×8,5	RAL 7035	Y-PL-G-36-2-0
LG panel for metal case with mounting panel-3 36 PRO/GARANT (H=150) (set 2 pcs.)				150×450×8,5	RAL 7035	Y-PL-G-36-3-0-150
LG panel for metal case with mounting panel-3 36 PRO/GARANT (H=450) (set 2 pcs.)				450×450×8,5	RAL 7035	Y-PL-G-36-3-0
LG panel for metal case with mounting panel-4 (5, 6, 7) 36 PRO/GARANT (H=50) (set 2 pcs.)	To protect against	Inside the case on the mounting profile		50×600×8,5	RAL 7035	Y-PL-G-36-4567-1-0
LG panel for metal case with mounting panel-4 (5, 6, 7) 36 PRO/GARANT (H=150) (set 2 pcs.)				150×600×8,5	RAL 7035	Y-PL-G-36-4567-2-0
LG panel for metal case with mounting panel-4 (5, 6, 7) 36 PRO/GARANT (H=300) (set 2 pcs.)				300×600×8,5	RAL 7035	Y-PL-G-36-4567-3-0
LG panel for metal case with mounting panel-4 (5, 6, 7) 36 PRO/GARANT (H=400) (set 2 pcs.)				400×600×8,5	RAL 7035	Y-PL-G-36-4567-4-0
LG panel for metal case with mounting panel-4 (5, 6, 7) 36 PRO/GARANT (H=500) (set 2 pcs.)				500×600×8,5	RAL 7035	Y-PL-G-36-4567-5-0
LMA panel for metal case with mounting panel-1 36 PRO/GARANT (set 2 pcs.)	For protection against direct contact with live parts	Inside the case on the mounting profile	12	150×260×8,5	RAL 7035	Y-PL-O-36-5-0
LMA panel for metal case with mounting panel-2 36 PRO/GARANT (set 2 pcs.)			17	150×350×8,5	RAL 7035	Y-PL-O-36-6-0
LMA panel for metal case with mounting panel-3 36 PRO/GARANT (set 2 pcs.)			22	150×450×8,5	RAL 7035	Y-PL-O-36-3-0
LMA panel for metal case with mounting panel-4 (5, 6, 7) 36 PRO/GARANT (set 2 pcs.)			27	150×600×8,5	RAL 7035	Y-PL-O-36-4567-0
Mounting profile for metal case with mounting panel-1 GARANT (set 2 pcs.)	For fastening LG and LMA panels and installation of a DIN-rail	Inside of an case on perforated corners welded to the bottom (with adjustable depth)		387×60×32	RAL 7035	Y-PM-U-G-1-0
Mounting profile for metal case with mounting panel-2 GARANT (set 2 pcs.)				492×60×32	RAL 7035	Y-PM-U-G-2-0
Mounting profile for metal case with mounting panel-3 GARANT (set 2 pcs.)				642×60×32	RAL 7035	Y-PM-U-G-3-0
Mounting profile for metal case with mounting panel-4 GARANT (set 2 pcs.)				770×60×32	RAL 7035	Y-PM-U-G-4-0
Mounting profile for metal case with mounting panel-5 GARANT (set 2 pcs.)				970×60×32	RAL 7035	Y-PM-U-G-5-0
Mounting profile for metal case with mounting panel-6 GARANT (set 2 pcs.)				1170×60×32	RAL 7035	Y-PM-U-G-6-0
Mounting profile for metal case with mounting panel-7 GARANT (set 2 pcs.)				1370×60×32	RAL 7035	Y-PM-U-G-7-0
Mounting panel for metal case with mounting panel-1 GARANT (H=150) (set 2 pcs.)	For installation of the equipment	Inside the case, on the seat angle		150×250	galvanized	Y-PM-1-150
Mounting panel for metal case with mounting panel-2 GARANT (H=150) (set 2 pcs.)				150×340	galvanized	Y-PM-2-150
Mounting panel for metal case with mounting panel-3 GARANT (H=150) (set 2 pcs.)				150×440	galvanized	Y-PM-3-150
Mounting panel for metal case with mounting panel-4 (5, 6, 7) GARANT (H=150) (set 2 pcs.)				150×590	galvanized	Y-PM-4567-150
Seat angle for metal case with mounting panel-1 GARANT (set 2 pcs.)**	For fixing the mounting plate	Inside the case on perforated angles welded to the bottom of the case		387×28×23	galvanized	Y-UM-G-1-0
Seat angle for metal case with mounting panel-2 GARANT (set 2 pcs.)**				492×28×23	galvanized	Y-UM-G-2-0
Seat angle for metal case with mounting panel-3 GARANT (set 2 pcs.)**				642×28×23	galvanized	Y-UM-G-3-0
Seat angle for metal case with mounting panel-4 GARANT (set 2 pcs.)**				770×30×23	galvanized	Y-UM-G-4-0
Seat angle for metal case with mounting panel-5 GARANT (set 2 pcs.)**				970×30×23	galvanized	Y-UM-G-5-0
Seat angle for metal case with mounting panel-6 GARANT (set 2 pcs.)**				1170×30×23	galvanized	Y-UM-G-6-0
Seat angle for metal case with mounting panel-7 GARANT (set 2 pcs.)**				1370×30×23	galvanized	Y-UM-G-7-0

* Accessories must be ordered separately. The set of all accessories includes hardware for their installation.

** The seat angle is included in the basic package of the case. Can be ordered additionally as an accessory.

PRO series metal cases with mounting panel

PRO series metal cases with mounting panel are used to assemble a variety of electrical panels: power, control, automation. They allow installation of both modular and conventional equipment.

Welded metal case with removable mounting panel. In IP54 version, climatic version N1 (possibility of installation in the open air). IP 54 PRO series metal cases with mounting panel have a two-component sealant seal and a dust and moisture proof lock on the door. Also, IP54 cases have a protective cover and a protective channel to prevent the ingress of dirt and water when the door is opened.

The case door is locked with a padlock. The lock key has a single cylinder.



Advantages

- Welded case, fully welded seams.
- Possibility of installing blanking plates.
- Protective visor and protective groove in IP54 cases prevent the ingress of dirt and water when opening the door.
- Increased usable mounting area.
- Removable cable glands facilitate entry of conductors into the switchboard.
- Wide range of accessories.
- The visual difference between the PRO metal cases with mounting panel is the faceted angles.
- High level of electrical safety.
- High quality coating.
- Increased corrosion resistance.
- When installing dust and moisture-proof fittings with the possibility of sealing on the lock, the IP54 case reaches the IP65 degree of protection.
- Complete setup.
- One safety lock.

Specifications

Installation type	wall-mounted
Metal thickness	1.0 mm – first three sizes of metal case with mounting panel 1.4 mm – metal case with mounting panel larger than the 3-rd size
Rated current	up to 630 A
Cover type	powder, shagreen
Color	EPK RAL 7035 - for IP31, PPK RAL 7035 - for IP54
Protection degree	IP31, IP54
Opening angle of doors	105°
Apparatus type	any
Climatic version	NF3 for IP31, N1 for IP54

Explanation of designations

Metal case with mounting panel-1-2 N1 IP54 PRO
 Metal case with mounting panel – metal case with mounting panel
 1 – case size
 2 – PRO series modification
 N1 – climatic version according to GOST 15150
 IP54 – protection class according to GOST 14254
 PRO – series name
 Metal case with mounting panel-1-2 36 NF3 IP31 PRO

Metal case with mounting panel – metal case with mounting panel
 1 – case size
 2 – PRO series modification
 3 – cover type: EPR/shagreen
 6 – paint color: RAL 7035
 NF3 – climatic version according to GOST 15150
 IP31 – protection class according to GOST 14254
 PRO – series name

Product range

Metal cases with mounting panel IP31		Name	Specifications	Dimensions (H×Ω×Δ)	Product ID
		Metal case with mounting panel-1-2 36 NF3 IP31 PRO	Number of inputs: 1 hole 171×92 mm (bottom). Weight 6.6 kg. The total height of the panels LG/LMA - 350 mm	Case: 395×310×220. Panel: 370×250×15	YKM42-01-31-P
		Metal case with mounting panel-2-2 36 NF3 IP31 PRO	Number of inputs: 1 hole 171×92 mm (bottom). Weight 9.9 kg. The total height of the panels LG/LMA - 450 mm	Case: 500×400×220. Panel: 475×340×15	YKM42-02-31-P
		Metal case with mounting panel-3-2 36 NF3 IP31 PRO	Number of inputs: 2 holes 171×92 mm (bottom). Weight 14.4 kg. The total height of the panels LG/LMA - 600 mm	Case: 650×500×220. Panel: 625×440×15	YKM42-03-31-P
		Metal case with mounting panel-4-2 36 NF3 IP31 PRO	Number of inputs: 2 holes 171×92 mm (bottom). Weight 23 kg. The total height of the panels LG/LMA - 750 mm	Case: 800×650×250. Panel: 775×585×15	YKM42-04-31-P
		Metal case with mounting panel-5-2 36 NF3 IP31 PRO	Number of inputs: 3 holes 171×92 mm (bottom). (bottom). Weight 29.7 kg. The total height of the panels LG/LMA - 950 mm	Case: 1000×650×285. Panel: 975×585×15	YKM42-05-31-P
		Metal case with mounting panel-6-2 36 NF3 IP31 PRO	Number of inputs: 3 holes 171×92 mm (bottom). (bottom). Weight 38 kg. The total height of the panels LG/LMA - 1150 mm	Case: 1200×650×285. Panel: 1175×585×15	YKM42-06-31-P

Product range

	Name	Specifications	Dimensions (H×W×D)	Product ID
	Metal case with mounting panel-7-2 36 NF3 IP31 PRO	Number of inputs: 3 holes 171×92 mm (bottom). (bottom). Weight 44 kg. The total height of the panels LG/LMA - 1350 mm	Case: 1400×650×285. Panel: 1375×585×15	YKM42-07-31-P
	Metal case with mounting panel-1-2 N1 IP54 PRO	Number of inputs: 1 hole 171×92 mm (bottom).	Case: 395×310×225/232*. Panel: 370×250×15	YKM42-01-54-P
		Weight 7 kg. The total height of the panels LG/LMA - 350 mm		
	Metal case with mounting panel-2-2 N1 IP54 PRO	Number of inputs: 1 hole 171×92 mm (bottom).	Case: 500×400×225/232*. Panel: 475×340×15	YKM42-02-54-P
	Metal case with mounting panel-3-2 N1 IP54 PRO	Number of inputs: 2 holes 171×92 mm (bottom).	Case: 650×500×225/232*. Panel: 625×440×15	YKM42-03-54-P
	Metal case with mounting panel-4-2 N1 IP54 PRO	Number of inputs: 2 holes 171×92 mm (bottom).	Case: 800×650×251/258*. Panel: 775×585×15	YKM42-04-54-P
	Metal case with mounting panel-5-2 N1 IP54 PRO	Number of inputs: 3 holes 171×92 mm (bottom). (bottom). Weight 35 kg. The total height of the panels LG/LMA - 950 mm	Case: 1000×650×286/293*. Panel: 975×585×15	YKM42-05-54-P
	Metal case with mounting panel-6-2 N1 IP54 PRO	Number of inputs: 3 holes 171×92 mm (bottom). (bottom). Weight 41 kg. The total height of the panels LG/LMA - 1150 mm	Case: 1200×650×286/293 Panel: 1175×585×15	YKM42-06-54-P
	Metal case with mounting panel-7-2 N1 IP54 PRO	Number of inputs: 3 holes 171×92 mm (bottom). (bottom). Weight 47 kg. The total height of the panels LG/LMA - 1350 mm	Case: 1400×650×286/293*. Panel: 1375×585×15	YKM42-07-54-P

The depth of the case, including the visor.

Accessories for PRO metal cases with mounting panel*

LG panel

LMA panel

Front panel angle



Name	Purpose	Place of installation	Number of modules	Overall dimensions, mm	Color	Product ID
LG panel for metal case with mounting panel-1 36 PRO/GARANT (H=50) (set 2 pcs.)	For protection against direct contact with live parts	Inside the case on the angles of the front panel		50×260×8,5	RAL 7035	Y-PL-G-36-1-0-50
LG panel for metal case with mounting panel-1 36 PRO/GARANT (H=150) (set 2 pcs.)				150×260×8,5	RAL 7035	Y-PL-G-36-1-0-150
LG panel for metal case with mounting panel-1 36 PRO/GARANT (H=200) (set 2 pcs.)				200×260×8,5	RAL 7035	Y-PL-G-36-1-0
LG panel for metal case with mounting panel-2 36 PRO/GARANT (H=150) (set 2 pcs.)				150×350×8,5	RAL 7035	Y-PL-G-36-2-0-150
LG panel for metal case with mounting panel-2 36 PRO/GARANT (H=300) (set 2 pcs.)				300×350×8,5	RAL 7035	Y-PL-G-36-2-0
LG panel for metal case with mounting panel-3 36 PRO/GARANT (H=150) (set 2 pcs.)				150×450×8,5	RAL 7035	Y-PL-G-36-3-0-150
LG panel for metal case with mounting panel-3 36 PRO/GARANT (H=450) (set 2 pcs.)				450×450×8,5	RAL 7035	Y-PL-G-36-3-0
LG panel for metal case with mounting panel-4 (5, 6, 7) 36 PRO/GARANT (H=50) (set 2 pcs.)				50×600×8,5	RAL 7035	Y-PL-G-36-4567-1-0
LG panel for metal case with mounting panel-4 (5, 6, 7) 36 PRO/GARANT (H=150) (set 2 pcs.)				150×600×8,5	RAL 7035	Y-PL-G-36-4567-2-0
LG panel for metal case with mounting panel-4 (5, 6, 7) 36 PRO/GARANT (H=300) (set 2 pcs.)				300×600×8,5	RAL 7035	Y-PL-G-36-4567-3-0
LG panel for metal case with mounting panel-4 (5, 6, 7) 36 PRO/GARANT (H=400) (set 2 pcs.)				400×600×8,5	RAL 7035	Y-PL-G-36-4567-4-0
LG panel for metal case with mounting panel-4 (5, 6, 7) 36 PRO/GARANT (H=500) (set 2 pcs.)				500×600×8,5	RAL 7035	Y-PL-G-36-4567-5-0
LMA panel for metal case with mounting panel-1 36 PRO/GARANT (set 2 pcs.)	For protection against direct contact with live parts	Inside the case on the angles of the front panel	12	150×260×8,5	RAL 7035	Y-PL-O-36-5-0
LMA panel for metal case with mounting panel-2 36 PRO/GARANT (set 2 pcs.)			17	150×350×8,5	RAL 7035	Y-PL-O-36-6-0
LMA panel for metal case with mounting panel-3 36 PRO/GARANT (set 2 pcs.)			22	150×450×8,5	RAL 7035	Y-PL-O-36-3-0
LMA panel for metal case with mounting panel-4 (5, 6, 7) 36 PRO/GARANT (set 2 pcs.)			27	150×600×8,5	RAL 7035	Y-PL-O-36-4567-0
Angle of the front panel of the metal case with mounting panel-1 PRO (set 2 pcs.)	For fixing the LG and LMA panels (with the ability to adjust the LG and LMA panels in depth)	Studs inside the case		324×49×36	galvanized	Y-PL-U-1-0
Angle of the front panel of the metal case with mounting panel-2 PRO (set 2 pcs.)				424×49×36	galvanized	Y-PL-U-2-0
Angle of the front panel of the metal case with mounting panel-3 PRO (set 2 pcs.)				574×49×36	galvanized	Y-PL-U-3-0
Angle of the front panel of the metal case with mounting panel-4 PRO (set 2 pcs.)				724×49×36	galvanized	Y-PL-U-4-0
Angle of the front panel of the metal case with mounting panel-5 PRO (set 2 pcs.)				924×49×36	galvanized	Y-PL-U-5-0
Angle of the front panel of the metal case with mounting panel-6 PRO (set 2 pcs.)				1124×49×36	galvanized	Y-PL-U-6-0
Angles of the front panel of the metal case with mounting panel-7 PRO (set 2 pcs.)				1324×49×36	galvanized	Y-PL-U-7-0

* Accessories must be ordered separately. The set of all accessories includes hardware for their installation.

Metal cases with mounting panel

Used to assemble a variety of electrical panels: power, control, automation. They allow installation of both modular and conventional equipment.

Welded metal case with removable galvanized mounting panel.

The case door is locked with a padlock. The lock key has a single cylinder.

IP 54 metal cases with mounting panel have a two-component sealant seal and a dust and moisture proof lock on the door.



Advantages

- Increased corrosion resistance.
- High quality coating.
- One safety lock.
- Set of accessories.
- High manufacturability and ease of assembly.
- Ease of installation.
- Several colors of painting.
- High level of electrical safety.
- Certificate of conformity.

Specifications

Installation type	wall-mounting, flush-mounting
Metal thickness	1.0-1.4 mm (depending on size)
Rated current	up to 630 A
Cover type	powder, shagreen
Color	EPK RAL 7035 - for IP31, PPK RAL 7035 - for IP31 PPK RAL 7035 - for IP54
Protection degree	IP31, IP54
Door opening angle	105°
Apparatus type	any
Climatic modification	NF3 for IP31, N2 for IP54

Product range

Metal cases with mounting panel (IP31)		Name	Specifications	Product ID
		Metal case with mounting panel 1 1 36 NF3* IP31	Case, mm 395×310×150. Panel, mm: 330×250. Number of inputs: 3 holes Ø31 mm (bottom). Weight: 5.2 kg	YKM41-01-31
		Metal case with mounting panel 2 1 36 NF3* IP31	Case, mm 500×400×150. Panel, mm: 430×340. Number of inputs: 3 holes Ø31 mm (bottom). Weight: 8.0 kg	YKM41-02-31
		Metal case with mounting panel 3 1 36 NF3* IP31	Case, mm 650×500×150. Panel, mm: 580×440. Number of inputs: 3 holes Ø31 mm (bottom). Weight: 12.2 kg	YKM41-03-31
		Metal case with mounting panel 1 0 36 NF3* IP31	Case, mm 395×310×220. Panel, mm: 330×250. Number of inputs: 3 holes Ø31 mm (bottom). Weight: 6.0 kg	YKM40-01-31
		Metal case with mounting panel 2 0 36 NF3* IP31	Case, mm 500×400×220. Panel, mm: 430×340. Number of inputs: 3 holes Ø31 mm (bottom). Weight: 9.0 kg	YKM40-02-31
		Metal case with mounting panel 3 0 36 NF3* IP31	Case, mm 650×500×220. Panel, mm: 580×440. Number of inputs: 3 holes Ø31 mm (bottom). Weight: 13.5 kg	YKM40-03-31
		Metal case with mounting panel 4 0 36 NF3* IP31	Case, mm 800×650×250. Panel, mm: 730×585. Number of inputs: 4 holes Ø31 mm (bottom). Weight: 20.9 kg	YKM40-04-31
		Metal case with mounting panel 5 0 36 NF3* IP31	Case, mm 1000×650×300. Panel, mm: 930×585. Number of inputs: 5 holes Ø31 mm (bottom). Weight: 26.8 kg	YKM40-05-31
		Metal case with mounting panel 6 0 36 NF3* IP31	Case, mm 1200×750×300. Panel, mm: 1130×685. Number of inputs: 6 holes Ø31 mm (bottom). Weight: 42.0 kg	YKM40-06-31

	Name	Specifications	Product ID
	Metal case with mounting panel 7 0 36 NF3* IP31	Case, mm 1320×750×300. Panel, mm: 1250×690. Number of inputs: 7 holes Ø31 mm (bottom). Weight: 45.8 kg	YKM40-07-31
	Metal case with mounting panel 2.3.1 0 36 NF3* IP31	Case, mm 250×300×150. Panel, mm: 180×230. Number of inputs: 3 holes Ø31 mm (bottom). Weight: 3.0 kg	YKM40-231-31
	Metal case with mounting panel 3.2.1 0 36 NF3 IP31	Case, mm 300×210×150. Panel, mm: 230×140. Number of inputs: 3 holes Ø31 mm (bottom). Weight: 2.7 kg	YKM40-321-31
	Metal case with mounting panel 4.2.1 0 36 NF3 IP31	Case, mm 400×210×150. Panel, mm: 330×140. Number of inputs: 3 holes Ø31 mm (bottom). Weight: 3.4 kg	YKM40-421-31
	Metal case with mounting panel 4.4.1 0 36 NF3 IP31	Case, mm 400×400×150. Panel, mm: 330×330. Number of inputs: 3 holes Ø31 mm (bottom). Weight: 6.6 kg	YKM40-441-31
	Metal case with mounting panel 4.4.2 0 36 NF3 IP31	Case, mm 400×400×250. Panel, mm: 330×330. Number of inputs: 3 holes Ø31 mm (bottom). Weight: 7.9 kg	YKM40-442-31
	Metal case with mounting panel 4.6.1 0 36 NF3 IP31	Case, mm 400×600×150. Panel, mm: 330×530. Number of inputs: 3 holes Ø31 mm (bottom). Weight: 9.4 kg	YKM40-461-31
	Metal case with mounting panel 4.6.2 0 36 NF3 IP31	Case, mm 400×600×250. Panel, mm: 330×530. Number of inputs: 3 holes Ø31 mm (bottom). Weight: 11.0 kg	YKM40-462-31
	Metal case with mounting panel 6.6.1 0 36 NF3* IP31	Case, mm 600×600×150. Panel, mm: 530×530. Number of inputs: 3 holes Ø 31 mm (bottom). Weight: 13.3 kg	YKM40-661-31
	Metal case with mounting panel 6.6.2 0 36 NF3* IP31	Case, mm 600×600×250. Panel, mm: 530×530. Number of inputs: 3 holes Ø31 mm (bottom). Weight: 15.3 kg	YKM40-662-31

	Name	Specifications	Product ID
	Metal case with mounting panel 16.6.4 0 36 NF3* IP31	Case, mm 1600×600×400. Base, mm: 100×600×400. Number of inputs: 1 hole 404×178 mm (bottom). Weight: 55.4 kg	YKM40-1664-31
	Metal case with mounting panel 18.6.4 0 36 NF3* IP31	Case, mm 1800×600×400. Base, mm: 100×600×400. Number of inputs: 1 hole 404×178 mm (bottom). Weight: 58.5 kg	YKM40-1864-31
	Metal case with mounting panel 16.8.4 0 36 NF3* IP31	Case, mm 1600×800×400. Base, mm: 100×800×400. Number of inputs: 1 hole 604×178 mm (bottom). Weight: 66.2 kg	YKM40-1684-31
	Metal case with mounting panel 18.8.4 0 36 NF3* IP31	Case, mm 1800×800×400. Base, mm: 100×800×400. Number of inputs: 1 hole 604×178 mm (bottom). Weight: 69.7 kg	YKM40-1884-31
	Metal case with mounting panel Metal case with mounting panel 1 0 N2 IP54	Case, mm 395×310×220. Panel, mm: 330×250. Number of inputs: 11 holes Ø31 mm (bottom). Weight: 6.5kg	YKM40-01-54
	Metal case with mounting panel METAL CASE WITH MOUNTING PANEL 2 0 N2 IP54	Case, mm 500×400×220. Panel, mm: 430×340. Number of inputs: 11 holes Ø31 mm (bottom). Weight: 9.5 kg	YKM40-02-54
	Metal case with mounting panel METAL CASE WITH MOUNTING PANEL 3 0 N2 IP54	Case, mm 650×500×220. Panel, mm: 580×440. Number of inputs: 13 holes Ø31 mm (bottom). Weight: 13.9 kg	YKM40-03-54
	Metal case with mounting panel METAL CASE WITH MOUNTING PANEL 4 0 N2 IP54	Case, mm 800×650×250. Panel, mm: 730×585. Number of inputs: 1 hole 523×123 mm (bottom). Weight: 27.8 kg	YKM40-04-54
	Metal case with mounting panel METAL CASE WITH MOUNTING PANEL 5 0 N2 IP54	Case, mm 1000×650×285. Panel, mm: 930×585. Number of inputs: 1 hole 523×123 mm (bottom). Weight: 34.8 kg	YKM40-05-54

* The mounting panel, vertical seat angle and other accessories must be ordered separately.

	Name Metal case with mounting panel METAL CASE WITH MOUNTING PANEL 6 0 N2 IP54	Specifications Case, mm 1200×750×300. Panel, mm: 1130×685. Number of inputs: 1 hole 523×123 mm (bottom). Weight: 46.2 kg	Product ID YKM40-06-54
	Metal case with mounting panel METAL CASE WITH MOUNTING PANEL 7 0 N2 IP54	Case, mm 1400×650×285. Panel, mm: 1330×585. Number of inputs: 1 hole 523×123 mm (bottom). Weight: 46.6 kg	YKM40-07-54
	Metal case with mounting panel METAL CASE WITH MOUNTING PANEL 2.3.1 0 N2 IP54	Case, mm 250×300×150. Panel, mm: 180×230. Number of inputs: 6 holes Ø31 mm (bottom). Weight: 3.9 kg	YKM40-231-54
	Metal case with mounting panel METAL CASE WITH MOUNTING PANEL 3.2.1 0 N2 IP54	Case, mm 300×210×150. Panel, mm: 230×140. Number of inputs: 6 holes Ø31 mm (bottom). Weight: 3.4 kg	YKM40-321-54
	Metal case with mounting panel METAL CASE WITH MOUNTING PANEL 4.2.1 0 N2 IP54	Case, mm 400×210×150. Panel, mm: 330×140. Number of inputs: 6 holes Ø31 mm (bottom). Weight: 4.3 kg	YKM40-421-54
	Metal case with mounting panel METAL CASE WITH MOUNTING PANEL 4.4.1 0 N2 IP54	Case, mm 400×400×150. Panel, mm: 330×330. Number of inputs: 6 holes Ø31 mm (bottom). Weight: 8.7 kg	YKM40-441-54
	Metal case with mounting panel METAL CASE WITH MOUNTING PANEL 4.4.2 0 N2 IP54	Case, mm 400×400×250. Panel, mm: 330×330. Number of inputs: 6 holes Ø31 mm (bottom). Weight: 10.6 kg	YKM40-442-54
	Metal case with mounting panel METAL CASE WITH MOUNTING PANEL 4.6.1 0 N2 IP54	Case, mm 400×600×150. Panel, mm: 330×530. Number of inputs: 6 holes Ø31 mm (bottom). Weight: 12.2 kg	YKM40-461-54
	Metal case with mounting panel METAL CASE WITH MOUNTING PANEL 4.6.2 0 N2 IP54	Case, mm 400×600×250. Panel, mm: 330×530. Number of inputs: 6 holes Ø31 mm (bottom). Weight: 14.5 kg	YKM40-462-54
	Metal case with mounting panel METAL CASE WITH MOUNTING PANEL 6.6.1 0 N2 IP54	Case, mm 600×600×150. Panel, mm: 530×530. Number of inputs: 6 holes Ø31 mm (bottom). Weight: 17.2 kg	YKM40-661-54

	Name	Specifications	Product ID
	Metal case with mounting panel METAL CASE WITH MOUNTING PANEL 6.6.2 0 N2 IP54	Case, mm 600×600×250. Panel, mm: 530×530. Number of inputs: 6 holes Ø31 mm (bottom). Weight: 19.9 kg	YKM40-662-54
	Metal case with mounting panel METAL CASE WITH MOUNTING PANEL 16.6.4 0 N2 IP54	Case, mm 1600×600×400. Base, mm: 100×600×400. Number of inputs: 1 hole 404×178 mm (bottom). Weight: 55.4 kg	YKM40-1664-54
	Metal case with mounting panel METAL CASE WITH MOUNTING PANEL 18.6.4 0 N2 IP54	Case, mm 1800×600×400. Base, mm: 100×600×400. Number of inputs: 1 hole 404×178 mm (bottom). Weight: 58.5 kg	YKM40-1864-54
	Metal case with mounting panel METAL CASE WITH MOUNTING PANEL 16.8.4 0 N2 IP54	Case, mm 1600×800×400. Base, mm: 100×800×400. Number of inputs: 1 hole 604×178 mm (bottom). Weight: 66.2 kg	YKM40-1684-54
	Metal case with mounting panel METAL CASE WITH MOUNTING PANEL 18.8.4 0 N2 IP54	Case, mm 1800×800×400. Base, mm: 100×800×400. Number of inputs: 1 hole 604×178 mm (bottom). Weight: 69.7 kg	YKM40-1884-54

Accessories for metal cases with mounting panel-XX.X.4 IPXX

Name	Purpose	Installation place	Dimensions	Scope of Supply Unit of measurement	Product ID
Vertical angle 1560 (galvan.) for metal case with mounting panel 16.X.X	Used for fastening mounting panels, PN panels and strips (to enable adjustment of element positioning in case depth)	Inside the case on Z profiles	1560×35×30	Cabinet	2 YKM40-U-1560X
Vertical angle 1760 (galvan.) for metal case with mounting panel 18.X.X		Inside the case on Z profiles	1760×35×30	Cabinet	2 YKM40-U-1760X
(galvan.) for metal case with mounting panel 16.6.4**	Designed for installation of fuses	Inside the case, on vertical angles (to enable adjustment of element positioning in case depth)	300×545	Cabinet	1 YKM40-PM-300X545
Mounting panel 300×745 (galvan.) for metal case with mounting panel 16.8.4**			300×745	Cabinet	1 YKM40-PM-300X745
Mounting panel 500×545 (galvan.) for metal case with mounting panel 16.6.4**			500×545	Cabinet	1 YKM40-PM-500X545
Mounting panel 500×745 (galvan.) for metal case with mounting panel 16.8.4**			500×745	Cabinet	1 YKM40-PM-500X745
PN panel (galvanized) for metal case with mounting panel 16.6.4**	Used for the installation of single electrical devices or several devices with the same mounting height overall	Inside the case, on vertical angles (to enable adjustment of element positioning in case depth)	140×545	Cabinet	3 YKM40-PN-1664
PN panel (galvanized) for metal case with mounting panel 16.8.4**			140×745	Cabinet	3 YKM40-PN-1684
Bar 30×545 (galvanized) for metal case with mounting panel-16.6.4**			30×545	Cabinet	2 YKM40-P-30X545
Bar 30×745 (galvanized) for metal case with mounting panel-16.8.4**			30×745	Cabinet	2 YKM40-P-30X745

* Accessories must be ordered separately. The set of all accessories includes hardware for their installation.

** Compatible with metal case with mounting panel-18.X.X.

Metal cases IEK® with a transparent door

IP54 metal cases with mounting panel with a transparent door IEK® are designed for the assembly of automation, signaling and control cabinets, power electrical equipment for various purposes in any industry, in agriculture, commercial and private housing construction.

Welded metal case with removable galvanized mounting panel.

The case door is locked with a padlock. The lock key has a single cylinder.

The door has a two-component polyurethane seal and a dust and moisture resistant lock.



Advantages

- Impact resistant tempered glass according to IK08 standard
- Fully robotic welding. Continuous welding of seams.
- Increased corrosion resistance.
- One safety lock.
- High manufacturability and ease of assembly.
- Ease of installation.
- High electrical safety.
- Certificate of conformity.
- Mounting panel 1.5 mm thick.

Specifications

Installation type	wall-mounted
Metal thickness (depending on size)	1.0-1.4 mm
Rated current	up to 630 A
Cover type	powder, shagreen
Color	RAL 7035
Protection degree	IP54
Door opening angle	105°
Apparatus type	any
Climatic version	N2

Construction features



Tempered glass.



Mounting panel 1.5 mm thick.



Reinforced inner glass frame.



Robotic welding.

Explanation of designations

Metal case with mounting panel-1-0 N2 IP54 with transparent door

METAL CASE WITH MOUNTING PANEL -
 metal case with mounting panel
 1 - case size (H×W)
 0 - modification
 N2 - climatic modification
 IP54 - degree of protection
 Transparent door with transparent tempered glass IK08

Scope of Delivery

- Mounting panel
- IP54 lock
- Set of glands for cable entry
- Case mounting kit
- Ground wire
- Electrical safety signs

Product range

	Name	Specifications	Color	Product ID
	Metal case with mounting panel-1-0 N2 IP54 with transparent door	Case, mm 395×310×220. Panel, mm: 330×250. Number of inputs: 11 holes Ø31 mm (bottom). Weight: 6.6 kg	RAL 7035	YKM11-01-54-1
	Metal case with mounting panel-2-0 N2 IP54 with transparent door	Case, mm 500×400×220. Panel, mm: 430×340. Number of inputs: 11 holes Ø31 mm (bottom). Weight: 9.85 kg	RAL 7035	YKM11-02-54-1
	Metal case with mounting panel-3-0 N2 IP54 with transparent door	Case, mm 650×500×220. Panel, mm: 580×440. Number of inputs: 13 holes Ø31 mm (bottom). Weight: 4.3 kg	RAL 7035	YKM11-03-54-1
	Metal case with mounting panel-4-0 N2 IP54 with transparent door	Case, mm 800×650×250. Panel, mm: 730×585. Number of inputs: 1 hole 523×123 mm (bottom). Weight: 28.5 kg	RAL 7035	YKM11-04-54-1
	Metal case with mounting panel-5-0 N2 IP54 with transparent door	Case, mm 1000×650×285. Panel, mm: 930×585. Number of inputs: 1 hole 523×123 mm (bottom). Weight: 35.9 kg	RAL 7035	YKM11-05-54-1
	Metal case with mounting panel-6-0 N2 IP54 with transparent door	Case, mm 1200×750×300. Panel, mm: 1130×685. Number of inputs: 1 hole 523×123 mm (bottom). Weight: 47.5 kg	RAL 7035	YKM11-06-54-1
	Metal case with mounting panel-7-0 N2 IP54 with transparent door	Case, mm 1400×650×285. Panel, mm: 1330×585. Number of inputs: 1 hole 523×123 mm (bottom). Weight: 48 kg	RAL 7035	YKM11-07-54-1

SMART series collapsible metal assembling cases for incoming and distribution switchboard

Metal assembling cases for incoming and distribution switchboards are designed to receive, distribute and meter electricity with a voltage of 400/230 V in three-phase alternating current networks with a frequency of 50 Hz, to protect lines in case of short circuits and overloads, as well as for infrequent operational switching on and off.

SMART IEK® metal assembling cases for incoming and distribution switchboards are used for further assembly on their basis of input-distribution low-voltage complete devices intended for power supply of various objects. On the basis of SMART metal assembling case for incoming and distribution switchboard it is possible to assemble most of the existing LVCD circuits.



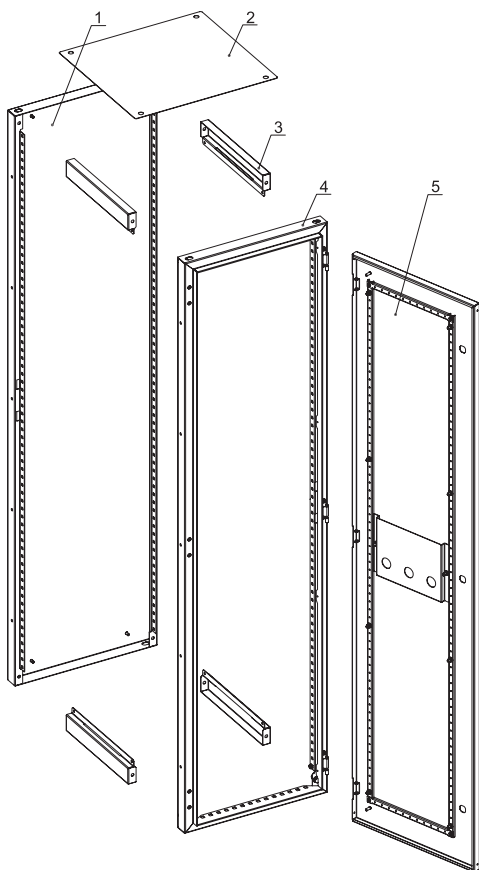
Advantages

- High manufacturability and ease of assembly.
- Possibility of installing blanking plates.
- Convenience of installation, transportation and storage.
- A wide range of accessories, the ability to divide the space into compartments.
- Possibility of installing accessories at different depths (20 mm steps), widths (25 mm steps) and heights (25 mm steps).
- Improved case design provides more efficient use of workspace.
- Removable side panels provide easy access to equipment during installation.
- High quality coating.
- Reversible door.
- Profile on the door for the installation of lighting equipment.
- Increased corrosion resistance.
- Possibility of connecting cases into blocks.
- High level of electrical safety.
- Pocket for documents.
- Ground studs on the door.
- Certificate of conformity.

Specifications

Metal thickness, mm	1.4
Rated current, A	630
Degree of protection	IP31, IP54
Climatic modification	NF3, N2
Degree of protection	IP54
Installation type	floor
Apparatus type	any
Cover type	EPK powder, shagreen
Color	RAL 7035
Door opening angle	120°

Construction features



The total height covered by the LG/LMA panels is equal to the height of the case minus 100 mm.

- 1 – Back wall
- 2 – Roof
- 3 – Coupler - 4 pcs.
- 4 – Front frame
- 5 – Door

Explanation of designations

Metal assembling case for incoming and distribution switchboard 1800x600x450 IP31 SMART

metal assembling case for incoming and distribution switchboard - metal assembling case for incoming and distribution switchboard

1800 – height

600 – width

450 – depth

IP31 - degree of protection

SMART – series name

Scope of Delivery

SMART metal assembling case for incoming and distribution switchboard

- Grounding sign
- Sign "Caution! Electric voltage"
- Product datasheet

Complete set of hardware for assembly

Product range

Metal assembling case for incoming and distribution switchboard SMART IP31



Name	Weight, kg	Overall dimensions (H×W×D), mm	Product ID
Metal assembling case for incoming and distribution switchboard-1800×450×450 IP31 SMART	40.3	1800×450×450	YKM50-1800-450-450
Metal assembling case for incoming and distribution switchboard-1800×600×450 IP31 SMART	54.3	1800×600×450	YKM50-1800-600-450
Metal assembling case for incoming and distribution switchboard-1800×600×600 IP31 SMART	55.8	1800×600×600	YKM50-1800-600-600
Metal assembling case for incoming and distribution switchboard-1800×800×450 IP31 SMART	67.3	1800×800×450	YKM50-1800-800-450
Metal assembling case for incoming and distribution switchboard-1800×800×600 IP31 SMART	69	1800×800×600	YKM50-1800-800-600
Metal assembling case for incoming and distribution switchboard-2000×450×450 IP31 SMART	48.4	2000×450×450	YKM50-2000-450-450
Metal assembling case for incoming and distribution switchboard-2000×600×450 IP31 SMART	59	2000×600×450	YKM50-2000-600-450
Metal assembling case for incoming and distribution switchboard-2000×600×600 IP31 SMART	60.5	2000×600×600	YKM50-2000-600-600
Metal assembling case for incoming and distribution switchboard-2000×800×450 IP31 SMART	73.2	2000×800×450	YKM50-2000-800-450
Metal assembling case for incoming and distribution switchboard-2000×800×600 IP31 SMART	74.8	2000×800×600	YKM50-2000-800-600

Metal assembling case for incoming and distribution switchboard SMART IP54



Metal assembling case for incoming and distribution switchboard-1800 450×450× IP54 SMART	40.3	1800×450×450	YKM50-1800-450-450-54
Metal assembling case for incoming and distribution switchboard-1800 450×600× IP54 SMART	54.3	1800×600×450	YKM50-1800-600-450-54
Metal assembling case for incoming and distribution switchboard-1800 600×600× IP54 SMART	55.8	1800×600×600	YKM50-1800-600-600-54
Metal assembling case for incoming and distribution switchboard-1800×800×450 IP54 SMART	67.3	1800×800×450	YKM50-1800-800-450-54
Metal assembling case for incoming and distribution switchboard-1800 ×800×600 IP54 SMART	69	1800×800×600	YKM50-1800-800-600-54
Metal assembling case for incoming and distribution switchboard-2000 ×450×450 IP54 SMART	48.4	2000×450×450	YKM50-2000-450-450-54
Metal assembling case for incoming and distribution switchboard-2000 ×600×450 IP54 SMART	59	2000×600×450	YKM50-2000-600-450-54
Metal assembling case for incoming and distribution switchboard-2000 ×600×600 IP54 SMART	60.5	2000×600×600	YKM50-2000-600-600-54
Metal assembling case for incoming and distribution switchboard-2000 ×800×450 IP54 SMART	73.2	2000×800×450	YKM50-2000-800-450-54
Metal assembling case for incoming and distribution switchboard-2000 ×800×600 IP54 SMART	74.8	2000×800×600	YKM50-2000-800-600-54

IP31 SMART metal assembling case for incoming and distribution switchboard-2



Name	Weight, kg	Overall dimensions (H×W×D), mm	Product ID
Metal assembling case for incoming and distribution switchboard-2 1800×600×450 IP31 SMART	54.3	1800×600×450	YKM51-1800-600-450-31
Metal assembling case for incoming and distribution switchboard-2 1800×600×600 IP31 SMART	55.8	1800×600×600	YKM51-1800-600-600-31
Metal assembling case for incoming and distribution switchboard-2 1800×800×450 IP31 SMART	67.3	1800×800×450	YKM51-1800-800-450-31
Metal assembling case for incoming and distribution switchboard-2 1800×800×600 IP31 SMART	69	1800×800×600	YKM51-1800-800-600-31
Metal assembling case for incoming and distribution switchboard-2 2000×600×450 IP31 SMART	59	2000×600×450	YKM51-2000-600-450-31
Metal assembling case for incoming and distribution switchboard-2 2000×600×600 IP31 SMART	60.5	2000×600×600	YKM51-2000-600-600-31
Metal assembling case for incoming and distribution switchboard-2 2000×800×450 IP31 SMART	73.2	2000×800×450	YKM51-2000-800-450-31
Metal assembling case for incoming and distribution switchboard-2 2000×800×600 IP31 SMART	74.8	2000×800×600	YKM51-2000-800-600-31

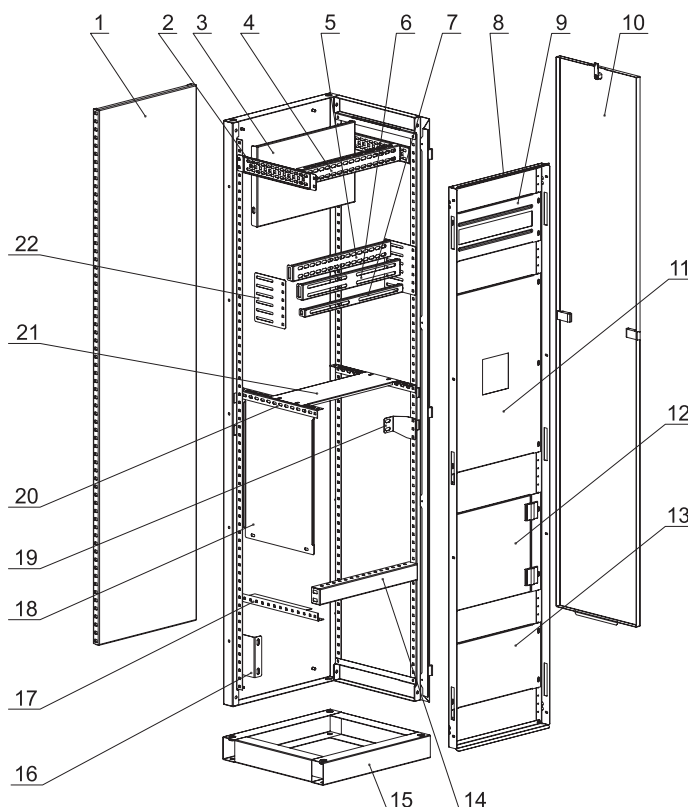
Metal assembling case for incoming and distribution switchboard-2 IP54 SMART



Metal assembling case for incoming and distribution switchboard-2 1800×600×450 IP54 SMART	54.3	1800×600×450	YKM51-1800-600-450-54
Metal assembling case for incoming and distribution switchboard-2 1800×600×600 IP54 SMART	55.8	1800×600×600	YKM51-1800-600-600-54
Metal assembling case for incoming and distribution switchboard-2 1800×800×450 IP54 SMART	67.3	1800×800×450	YKM51-1800-800-450-54
Metal assembling case for incoming and distribution switchboard-2 1800×800×600 IP54 SMART	69	1800×800×600	YKM51-1800-800-600-54
Metal assembling case for incoming and distribution switchboard-2 2000×600×450 IP54 SMART	59	2000×600×450	YKM51-2000-600-450-54
Metal assembling case for incoming and distribution switchboard-2 2000×600×600 IP54 SMART	60.5	2000×600×600	YKM51-2000-600-600-54
Metal assembling case for incoming and distribution switchboard-2 2000×800×450 IP54 SMART	73.2	2000×800×450	YKM51-2000-800-450-54
Metal assembling case for incoming and distribution switchboard-2 2000×800×600 IP54 SMART	74.8	2000×800×600	YKM51-2000-800-600-54

Accessories

The purpose and place of installation of accessories can be found on the website www.iek.ru in the section Installation and Operation Manual for the SMART metal assembling case for incoming and distribution switchboard.



- 1 – Mounting panel XXXX×XXX SMART
- 2 – Side rail for the metal assembling case for incoming and distribution switchboard XXXX×XXX×XXX SMART
- 3 – Mounting panel XXX×XXX SMART
- 4 – Rail XXX for metal assembling case for incoming and distribution switchboard XXXX×XXX×XXX SMART
- 5 – Crossbar XXX for Rail XXX for metal assembling case for incoming and distribution switchboard XXXX×XXX×XXX SMART
- 6 – Double-row crossbar SMART
- 7 – Single-row crossbar SMART
- 8 – Frame for LG/LMA panels Rail XXX for metal assembling case for incoming and distribution switchboard XXXX×XXX×XXX (H = XXX) SMART*
- 9 – LMA panel for metal assembling case for incoming and distribution switchboard--x xx.xx.xx xx TITAN (H = xxx)*
- 10 – Side panel for metal assembling case for incoming and distribution switchboard XXXX.XXX.XXX SMART
- 11 – Panel VA 88-35 to metal assembling case for incoming and distribution switchboard-x xx.xx.xx xx TITAN (H = 550)*
- 12 – Operative rotary panel SMART (H = XXX)*
- 13 – LG Panel for metal assembling case for incoming and distribution switchboard-x xx.xx.xx xx TITAN (H = xxx)*
- 14 – Cross profile XXX Rail XXX for metal assembling case for incoming and distribution switchboard XXXX×XXX×XXX SMART
- 15 – base of metal assembling case for incoming and distribution switchboard xx.xx.xx*
- 16 – Bracket for N/PE busbars SMART
- 17 – Side U-profile Side rail for the metal assembling case for incoming and distribution switchboardXXXX×XXX×XXX SMART
- 18 – Partition 450×XXX Rail XXX for metal assembling case for incoming and distribution switchboard XXXX×XXX×XXX SMART
- 19 – Bracket-xx for DIN-rail SMART
- 20 – Angle for equipment XXX SMART
- 21 – Shelf for metal assembling case for incoming and distribution switchboard XXXX×XXX×XXX (B = XXX) SMART
- 22 – Installation plate SMART

* Accessories are suitable for both metal assembling cases for incoming and distribution switchboards SMART and metal assembling cases for incoming and distribution switchboards TITAN.

Product range

Name	Overall dimensions (H×W×D), mm	Color	Product ID
Side U-profile for metal assembling case for incoming and distribution switchboard XXX×XXX×450 SMART (set 2 pcs.)	343×34×30	galvanized	YKV-BPP-450
Side U-profile for metal assembling case for incoming and distribution switchboard XXX×XXX×600 SMART (set 2 pcs.)	493×34×30	galvanized	YKV-BPP-600
Bracket for N/PE busbars SMART (set 2 pcs.)	127×84×42	galvanized	YKV-K-NPE
Bracket-45 for DIN-rail SMART (set 2 pcs.)	44×56×51	galvanized	YKV-K-DIN-45
Bracket-70 for DIN-rail SMART (set 2 pcs.)	69×80×51	galvanized	YKV-K-DIN-70
Bracket-95 for DIN-rail SMART (set 2 pcs.)	69×106×51	galvanized	YKV-K-DIN-95
Rail 412 for metal assembling case for incoming and distribution switchboard XXX×450×XXX SMART	415×56×27	galvanized	YKV-L-412-450
Rail 562 for metal assembling case for incoming and distribution switchboard XXX×600×XXX SMART	565×56×27	galvanized	YKV-L-562-600
Rail 762 for metal assembling case for incoming and distribution switchboard XXX×800×XXX SMART	765×56×27	galvanized	YKV-L-762-800
Side panel for metal assembling case for incoming and distribution switchboard 1800.XXX.450 SMART (set 2 pcs.)	1702×339×41	RAL 7035	YKV-PB-18-45
Side panel for metal assembling case for incoming and distribution switchboard 1800.XXX.600 SMART (set 2 pcs.)	1702×489×41	RAL 7035	YKV-PB-18-60
Side panel for metal assembling case for incoming and distribution switchboard 2000.XXX.450 SMART (set 2 pcs.)	1902×339×41	RAL 7035	YKV-PB-20-45
Side panel for metal assembling case for incoming and distribution switchboard 2000.XXX.600 SMART (set 2 pcs.)	1902×489×41	RAL 7035	YKV-PB-20-60
Side panel for metal assembling case for incoming and distribution switchboard 1800.XXX.450 IP54 SMART (set 2 pcs.)	1702×339×41	RAL 7035	YKV-PB-18-45-54
Side panel for metal assembling case for incoming and distribution switchboard 1800.XXX.600 IP54 SMART (set 2 pcs.)	1702×489×41	RAL 7035	YKV-PB-18-60-54
Side panel for metal assembling case for incoming and distribution switchboard 2000.XXX.450 IP54 SMART (set 2 pcs.)	1902×339×41	RAL 7035	YKV-PB-20-45-54
Side panel for metal assembling case for incoming and distribution switchboard 2000.XXX.600 IP54 SMART (set 2 pcs.)	1902×489×41	RAL 7035	YKV-PB-20-60-54
Mounting panel 1650×412 TITAN	1653×422×33	galvanized	YKV-PM-1650-412
Mounting panel 1650×562 SMART	1653×572×33	galvanized	YKV-PM-1650-562
Mounting panel 1650×762 SMART	1653×772×33	galvanized	YKV-PM-1650-762
Mounting panel 1850×412 SMART	1853×422×33	galvanized	YKV-PM-1850-412
Mounting panel 1850×562 SMART	1853×572×33	galvanized	YKV-PM-1850-562
Mounting panel 1850×762 SMART	1853×772×33	galvanized	YKV-PM-1850-762
Mounting panel 250×412 SMART (set 2 pcs.)	422×253×36	galvanized	YKV-PM-250-412
Mounting panel 250×562 SMART (set 2 pcs.)	572×253×36	galvanized	YKV-PM-250-562
Mounting panel 250×762 SMART (set 2 pcs.)	772×253×36	galvanized	YKV-PM-250-762
Mounting panel 500×412 SMART (set 2 pcs.)	422×503×36	galvanized	YKV-PM-500-412
Mounting panel 500×562 SMART (set 2 pcs.)	572×503×36	galvanized	YKV-PM-500-562
Mounting panel 500×762 SMART (set 2 pcs.)	772×503×36	galvanized	YKV-PM-500-762
Operative rotary panel SMART (H = 300) 450*	356×305×37	RAL 7035	YKV-POP-300-450
Operative rotary panel SMART (H = 300) 600*	506×305×37	RAL 7035	YKV-POP-300-600
Operative rotary panel SMART (H = 300) 800*	706×305×37	RAL 7035	YKV-POP-300-800
Operative rotary panel SMART (H = 600) 450*	356×605×37	RAL 7035	YKV-POP-600-450
Operative rotary panel SMART (H = 600) 600*	506×605×37	RAL 7035	YKV-POP-600-600
Operative rotary panel SMART (H = 600) 800*	706×605×37	RAL 7035	YKV-POP-600-800
Partition 450×290 for metal assembling case for incoming and distribution switchboard XXX×XXX×450 SMART	464×307×36	RAL 7035	YKV-P-450-290
Partition 450×440 for metal assembling case for incoming and distribution switchboard XXX×XXX×600 SMART	464×457×36	RAL 7035	YKV-P-450-440
Installation plate SMART (set 2 pcs.)	153×134×9	galvanized	YKV-PU
Shelf for metal assembling case for incoming and distribution switchboard XXX×450×450 (H = 340) SMART	424×352×36	RAL 7035	YKV-P-450-450
Shelf for metal assembling case for incoming and distribution switchboard XXX×450×XXX (H = 140) SMART	424×152×36	RAL 7035	YKV-P-450-B140
Shelf for metal assembling case for incoming and distribution switchboard XXX×450×XXX (H = 200) SMART	424×212×36	RAL 7035	YKV-P-450-B200
Shelf for metal assembling case for incoming and distribution switchboard XXX×450×XXX (H = 290) SMART	424×302×36	RAL 7035	YKV-P-450-B290
Shelf for metal assembling case for incoming and distribution switchboard XXX×600×450 (H = 340) SMART	574×352×36	RAL 7035	YKV-P-600-450
Shelf for metal assembling case for incoming and distribution switchboard XXX×600×600 (H = 490) SMART	574×502×36	RAL 7035	YKV-P-600-600
Shelf for metal assembling case for incoming and distribution switchboard XXX×600×XXX (H = 140) SMART	574×152×36	RAL 7035	YKV-P-600-B140
Shelf for metal assembling case for incoming and distribution switchboard XXX×600×XXX (H = 200) SMART	574×212×36	RAL 7035	YKV-P-600-B200
Shelf for metal assembling case for incoming and distribution switchboard XXX×600×XXX (H = 290) SMART	574×302×36	RAL 7035	YKV-P-600-B290
Shelf for metal assembling case for incoming and distribution switchboard XXX×800×450 (H = 340) SMART	774×352×36	RAL 7035	YKV-P-800-450
Shelf for metal assembling case for incoming and distribution switchboard XXX×800×600 (H = 490) SMART	774×502×36	RAL 7035	YKV-P-800-600
Shelf for metal assembling case for incoming and distribution switchboard XXX×800×XXX (H = 140) SMART	774×152×36	RAL 7035	YKV-P-800-B140

* Accessories are suitable for both metal assembling cases for incoming and distribution switchboards SMART and metal assembling cases for incoming and distribution switchboards TITAN.

** Custom items.

Name	Overall dimensions (H×W×D), mm	Color	Product ID
Shelf for metal assembling case for incoming and distribution switchboard XXXX×800×XXX (H = 200) SMART	774×212×36	RAL 7035	YKV-P-800-B200
Shelf for metal assembling case for incoming and distribution switchboard XXXX×800×XXX (B = 290) SMART	774×302×36	RAL 7035	YKV-P-800-B290
Transverse profile 412 for metal assembling case for incoming and distribution switchboard XXXX×450×XXX SMART	415×56×39	galvanized	YKV-PP-412-450
Transverse profile 562 for metal assembling case for incoming and distribution switchboard XXXX×600×XXX SMART	565×56×39	galvanized	YKV-PP-562-600
Transverse profile 762 for metal assembling case for incoming and distribution switchboard XXXX×800×XXX SMART	765×56×39	galvanized	YKV-PP-762-800
Frame for LG/LMA panels for metal assembling case for incoming and distribution switchboard 180×450×XXX (H = 1750) SMART*	1732×46×29	RAL 7035	YKV-RAMA-1800-450
Frame for LG/LMA panels for metal assembling case for incoming and distribution switchboard 1800×600×XXX (H = 1750) SMART*	1732×46×29	RAL 7035	YKV-RAMA-1800-600
Frame for LG/LMA panels for metal assembling case for incoming and distribution switchboard 1800×800×XXX (H = 1750) SMART*	1732×46×29	RAL 7035	YKV-RAMA-1800-800
Frame for LG/LMA panels for metal assembling case for incoming and distribution switchboard 2000×450×XXX (H = 1950) SMART*	1932×46×29	RAL 7035	YKV-RAMA-2000-450
Frame for LG/LMA panels for metal assembling case for incoming and distribution switchboard 2000×600×XXX (H = 1950) SMART*	1932×46×29	RAL 7035	YKV-RAMA-2000-600
Frame for LG/LMA panels for metal assembling case for incoming and distribution switchboard 2000×800×XXX (H = 1950) SMART*	1932×46×29	RAL 7035	YKV-RAMA-2000-800
Double-row crossbar 412 SMART (set 2 pcs.)	415×56×31	galvanized	YKV-RPD-412-450
Double-row crossbar 562 SMART (set 2 pcs.)	565×56×31	galvanized	YKV-RPD-562-600
Double-row crossbar 762 SMART (set 2 pcs.)	765×56×31	galvanized	YKV-RPD-762-800
Side rail for metal assembling case for incoming and distribution switchboard XXXX×XXX×450 SMART (set 2 pcs.)	330×56×21	galvanized	YKV-RB-450
Side rail for metal assembling case for incoming and distribution switchboard XXXX×XXX×600 SMART (set 2 pcs.)	480×56×21	galvanized	YKV-RB-600
Crossbar 412 for metal assembling case for incoming and distribution switchboard XXXX×450×XXX SMART	415×56×29	galvanized	YKV-RP-412-450
Crossbar 562 for metal assembling case for incoming and distribution switchboard XXXX×600×XXX SMART	565×56×29	galvanized	YKV-RP-562-600
Crossbar 762 for metal assembling case for incoming and distribution switchboard XXXX×800×XXX SMART	765×56×29	galvanized	YKV-RP-762-800
Single-row crossbar 412 SMART (set 2 pcs.)	415×31×31	galvanized	YKV-RPO-412-450
Single-row crossbar 562 SMART (set 2 pcs.)	565×31×31	galvanized	YKV-RPO-562-600
Single-row crossbar 762 SMART (set 2 pcs.)	765×31×31	galvanized	YKV-RPO-762-800
Equipment angle 450 SMART (set 2 pcs.)	338×37×37	galvanized	YKV-UO-450
Equipment angle 600 SMART (set 2 pcs.)	488×37×37	galvanized	YKV-UO-600
VA Panel 88-35 to metal assembling case for incoming and distribution switchboard-x xx.45.xx 36 TITAN (H = 550) set 2 pcs.*	550×380×1	RAL 7035	YKV-PVA-36-45-550
VA Panel 88-35 to metal assembling case for incoming and distribution switchboard-x xx.60.xx 36 TITAN (H = 550) set 2 pcs.*	550×530×1	RAL 7035	YKV-PVA-36-60-550
VA Panel 88-35 to metal assembling case for incoming and distribution switchboard-x xx.80.xx 36 TITAN (H = 550) set 2 pcs.*	550×730×1	RAL 7035	YKV-PVA-36-80-550
LG Panel to metal assembling case for incoming and distribution switchboard-x xx.45.xx 36 TITAN (H = 100) set 2 pcs.*	100×380×1	RAL 7035	YKV-PLG-36-45-100
LG Panel to metal assembling case for incoming and distribution switchboard-x xx.45.xx 36 TITAN (H = 150) set 2 pcs.*	150×380×1	RAL 7035	YKV-PL-G-36-45-2-0
LG Panel to metal assembling case for incoming and distribution switchboard-x xx.45.xx 36 TITAN (H = 200) set 2 pcs.*	200×380×1	RAL 7035	YKV-PLG-36-45-200
LG Panel to metal assembling case for incoming and distribution switchboard-x xx.45.xx 36 TITAN (H = 300) set 2 pcs.*	300×380×1	RAL 7035	YKV-PL-G-36-45-3-0
LG Panel to metal assembling case for incoming and distribution switchboard-x xx.45.xx 36 TITAN (H = 400) set 2 pcs.*	400×380×1	RAL 7035	YKV-PL-G-36-45-4-0
LG Panel to metal assembling case for incoming and distribution switchboard-x xx.45.xx 36 TITAN (H = 50) set 2 pcs.*	50×380×1	RAL 7035	YKV-PL-G-36-45-1-0
LG Panel to metal assembling case for incoming and distribution switchboard-x xx.45.xx 36 TITAN (H = 500) set 2 pcs.*	500×380×1	RAL 7035	YKV-PL-G-36-45-5-0
LG Panel to metal assembling case for incoming and distribution switchboard-x xx.45.xx 36 TITAN (H = 600) set 2 pcs.*	600×380×1	RAL 7035	YKV-PLG-36-45-600
LG Panel to metal assembling case for incoming and distribution switchboard-x xx.60.xx 36 TITAN (H = 100) set 2 pcs.*	100×530×1	RAL 7035	YKV-PLG-36-60-100
LG Panel to metal assembling case for incoming and distribution switchboard-x xx.60.xx 36 TITAN (H = 150) set 2 pcs.*	150×530×1	RAL 7035	YKV-PL-G-36-60-2-0
LG Panel to metal assembling case for incoming and distribution switchboard-x xx.60.xx 36 TITAN (H = 200) set 2 pcs.*	200×530×1	RAL 7035	YKV-PLG-36-60-200
LG Panel to metal assembling case for incoming and distribution switchboard-x xx.60.xx 36 TITAN (H = 300) set 2 pcs.*	300×530×1	RAL 7035	YKV-PL-G-36-60-3-0
LG Panel to metal assembling case for incoming and distribution switchboard-x xx.60.xx 36 TITAN (H = 400) set 2 pcs.*	400×530×1	RAL 7035	YKV-PL-G-36-60-4-0
LG Panel to metal assembling case for incoming and distribution switchboard-x xx.60.xx 36 TITAN (H = 50) set 2 pcs.*	50×530×1	RAL 7035	YKV-PL-G-36-60-1-0
LG Panel to metal assembling case for incoming and distribution switchboard-x xx.60.xx 36 TITAN (H = 500) set 2 pcs.*	500×530×1	RAL 7035	YKV-PL-G-36-60-5-0
LG Panel to metal assembling case for incoming and distribution switchboard-x xx.60.xx 36 TITAN (H = 600) set 2 pcs.*	600×530×1	RAL 7035	YKV-PLG-36-60-600
LG Panel to metal assembling case for incoming and distribution switchboard-x xx.80.xx 36 TITAN (H = 100) set 2 pcs.*	100×730×1	RAL 7035	YKV-PLG-36-80-100
LG Panel to metal assembling case for incoming and distribution switchboard-x xx.80.xx 36 TITAN (H = 150) set 2 pcs.*	150×730×1	RAL 7035	YKV-PL-G-36-80-2-0
LG Panel to metal assembling case for incoming and distribution switchboard-x xx.80.xx 36 TITAN (H = 200) set 2 pcs.*	200×730×1	RAL 7035	YKV-PLG-36-80-200
LG Panel to metal assembling case for incoming and distribution switchboard-x xx.80.xx 36 TITAN (H = 300) set 2 pcs.*	300×730×1	RAL 7035	YKV-PL-G-36-80-3-0
LG Panel to metal assembling case for incoming and distribution switchboard-x xx.80.xx 36 TITAN (H = 400) set 2 pcs.*	400×730×1	RAL 7035	YKV-PL-G-36-80-4-0
LG Panel to metal assembling case for incoming and distribution switchboard-x xx.80.xx 36 TITAN (H = 50) set 2 pcs.*	50×730×1	RAL 7035	YKV-PL-G-36-80-1-0
LG Panel to metal assembling case for incoming and distribution switchboard-x xx.80.xx 36 TITAN (H = 500) set 2 pcs.**	500×730×1	RAL 7035	YKV-PL-G-36-80-5-0
LG Panel to metal assembling case for incoming and distribution switchboard-x xx.80.xx 36 TITAN (H = 600) set 2 pcs.**	600×730×1	RAL 7035	YKV-PLG-36-80-600

* Accessories are suitable for both metal assembling cases for incoming and distribution switchboards SMART and metal assembling cases for incoming and distribution switchboards TITAN.

** Custom items.

Name	Number of modules	Overall dimensions (H×W×D), mm	Color	Product ID
LMA Panel to metal assembling case for incoming and distribution switchboard-x xx.45.xx 36 TITAN (H = 200) set 2 pcs.	17	200×380×1	RAL 7035	YKV-PL-0-36-45-200
LMA Panel to metal assembling case for incoming and distribution switchboard-x xx.45.xx 36 TITAN (H = 300) set 2 pcs.	17	300×380×1	RAL 7035	YKV-PL-0-36-45-300
LMA Panel to metal assembling case for incoming and distribution switchboard-x xx.45.xx 36 TITAN set 2 pcs.**	17	150×380×1	RAL 7035	YKV-PL-0-36-45-0
LMA Panel to metal assembling case for incoming and distribution switchboard-x xx.60.xx 36 TITAN (H = 200) set 2 pcs.	26	200×530×1	RAL 7035	YKV-PL-0-36-60-200
LMA Panel to metal assembling case for incoming and distribution switchboard-x xx.60.xx 36 TITAN (H = 300) set 2 pcs.	26	300×530×1	RAL 7035	YKV-PL-0-36-60-300
LMA Panel to metal assembling case for incoming and distribution switchboard-x xx.60.xx 36 TITAN set 2 pcs.**	26	150×530×1	RAL 7035	YKV-PL-0-36-60-0
LMA Panel to metal assembling case for incoming and distribution switchboard-x xx.80.xx 36 TITAN (H = 200) set 2 pcs.	37	200×730×1	RAL 7035	YKV-PL-0-36-80-200
LMA Panel to metal assembling case for incoming and distribution switchboard-x xx.80.xx 36 TITAN (H = 300) set 2 pcs.	37	300×730×1	RAL 7035	YKV-PL-0-36-80-300
LMA Panel to metal assembling case for incoming and distribution switchboard-x xx.80.xx 36 TITAN set 2 pcs.**	37	150×730×1	RAL 7035	YKV-PL-0-36-80-0
Base of metal assembling case for incoming and distribution switchboard xx.45.45 IP31 TITAN**		450×423×70	RAL 7035	YKV10-TS-450-450-31
Base of metal assembling case for incoming and distribution switchboard xx.60.45 IP31 TITAN**		600×423×70	RAL 7035	YKV10-TS-600-450-31
Base of metal assembling case for incoming and distribution switchboard xx.60.60 IP31 TITAN**		600×573×70	RAL 7035	YKV10-TS-600-600-31
Base of metal assembling case for incoming and distribution switchboard xx.80.45 IP31 TITAN**		800×423×70	RAL 7035	YKV10-TS-800-450-31
Base of metal assembling case for incoming and distribution switchboard xx.80.60 IP31 TITAN**		800×573×70	RAL 7035	YKV10-TS-800-600-31
Base of metal assembling case for incoming and distribution switchboard xx.45.45 IP54 TITAN**		450×423×70	RAL 7035	YKV10-TS-450-450-54
Base of metal assembling case for incoming and distribution switchboard xx.60.45 IP54 TITAN**		600×423×70	RAL 7035	YKV10-TS-600-450-54
Base of metal assembling case for incoming and distribution switchboard xx.60.60 IP54 TITAN**		600×573×70	RAL 7035	YKV10-TS-600-600-54
Base of metal assembling case for incoming and distribution switchboard xx.80.45 IP54 TITAN**		800×423×70	RAL 7035	YKV10-TS-800-450-54
Base of metal assembling case for incoming and distribution switchboard xx.80.60 IP54 TITAN**		800×573×70	RAL 7035	YKV10-TS-800-600-54

Applicability table of the metal assembling case for incoming and distribution switchboard SMART accessories

Accessory name	Metal assembling case for incoming and distribution switchboard 1800 SMART					Metal assembling case for incoming and distribution switchboard 2000 SMART					Product ID
	450×450	600×450	800×450	600×600	800×600	450×450	600×450	800×450	600×600	800×600	
Side U-profile for metal assembling case for incoming and distribution switchboard XXXX×XXX×450 SMART (set 2 pcs.)	+	+	+			+	+	+			YKV-BPP-450
Side U-profile for metal assembling case for incoming and distribution switchboard XXXX×XXX×600 SMART (set 2 pcs.)				+	+				+	+	YKV-BPP-600
Bracket for N/PE busbars SMART (set 2 pcs.)	+	+	+	+	+	+	+	+	+	+	YKV-K-NPE
Bracket 45 for DIN-rail SMART (set 2 pcs.)	+	+	+	+	+	+	+	+	+	+	YKV-K-DIN-45
Bracket 70 for DIN-rail SMART (set 2 pcs.)	+	+	+	+	+	+	+	+	+	+	YKV-K-DIN-70
Bracket 95 for DIN-rail SMART (set 2 pcs.)	+	+	+	+	+	+	+	+	+	+	YKV-K-DIN-95
Rail 412 for metal assembling case for incoming and distribution switchboard XXXX×450×XXX SMART	+					+					YKV-L-412-450
Rail 562 for metal assembling case for incoming and distribution switchboard XXXX×600×XXX SMART		+		+			+		+		YKV-L-562-600
Rail 762 for metal assembling case for incoming and distribution switchboard XXXX×800×XXX SMART			+		+			+		+	YKV-L-762-800
Side panel for metal assembling case for incoming and distribution switchboard 1800. XXX.450 SMART (set 2 pcs.)	+	+	+								YKV-PB-18-45
Side panel for metal assembling case for incoming and distribution switchboard 1800. XXX.600 SMART (set 2 pcs.)				+	+						YKV-PB-18-60
Side panel for metal assembling case for incoming and distribution switchboard 2000. XXX.450 SMART (set 2 pcs.)						+	+	+			YKV-PB-20-45
Side panel for metal assembling case for incoming and distribution switchboard 2000. XXX.600 SMART (set 2 pcs.)									+	+	YKV-PB-20-60
VA Panel 88-35 to metal assembling case for incoming and distribution switchboard-x xx.45.xx 36 TITAN (H = 550) set 2 pcs.	+					+					YKV-PVA-36-45-550
VA Panel 88-35 to metal assembling case for incoming and distribution switchboard-x xx.60.xx 36 TITAN (H = 550) set 2 pcs.		+		+			+		+		YKV-PVA-36-60-550
VA Panel 88-35 to metal assembling case for incoming and distribution switchboard-x xx.80.xx 36 TITAN (H = 550) set 2 pcs.			+		+			+		+	YKV-PVA-36-80-550
LG Panel to metal assembling case for incoming and distribution switchboard-x xx.45.xx 36 TITAN (H = 50) set 2 pcs.	+					+					YKV-PL-G-36-45-1-0
LG Panel to metal assembling case for incoming and distribution switchboard-x xx.45.xx 36 TITAN (H = 100) set 2 pcs.	+					+					YKV-PL-G-36-45-100
LG Panel to metal assembling case for incoming and distribution switchboard-x xx.45.xx 36 TITAN (H = 150) set 2 pcs.	+					+					YKV-PL-G-36-45-2-0
LG Panel to metal assembling case for incoming and distribution switchboard-x xx.45.xx 36 TITAN (H = 200) set 2 pcs.	+					+					YKV-PL-G-36-45-200
LG Panel to metal assembling case for incoming and distribution switchboard-x xx.45.xx 36 TITAN (H = 300) set 2 pcs.	+					+					YKV-PL-G-36-45-3-0
LG Panel to metal assembling case for incoming and distribution switchboard-x xx.45.xx 36 TITAN (H = 400) set 2 pcs.	+					+					YKV-PL-G-36-45-4-0
LG Panel to metal assembling case for incoming and distribution switchboard-x xx.45.xx 36 TITAN (H = 500) set 2 pcs.	+					+					YKV-PL-G-36-45-5-0
LG Panel to metal assembling case for incoming and distribution switchboard-x xx.45.xx 36 TITAN (H = 600) set 2 pcs.	+					+					YKV-PL-G-36-45-600
LG Panel to metal assembling case for incoming and distribution switchboard-x xx.60.xx 36 TITAN (H = 50) set 2 pcs.		+		+			+		+		YKV-PL-G-36-60-1-0
LG Panel to metal assembling case for incoming and distribution switchboard-x xx.60.xx 36 TITAN (H = 100) set 2 pcs.		+		+			+		+		YKV-PL-G-36-60-100

Accessory name	Metal assembling case for incoming and distribution switchboard 1800 SMART					Metal assembling case for incoming and distribution switchboard 2000 SMART					Product ID
	450×450	600×450	800×450	600×600	800×600	450×450	600×450	800×450	600×600	800×600	
LG Panel to metal assembling case for incoming and distribution switchboard-x xx.60. xx 36 TITAN (H = 150) set 2 pcs.		+		+			+		+		YKV-PL-G-36-60-2-0
LG Panel to metal assembling case for incoming and distribution switchboard-x xx.60. xx 36 TITAN (H = 200) set 2 pcs.		+		+			+		+		YKV-PLG-36-60-200
LG Panel to metal assembling case for incoming and distribution switchboard-x xx.60. xx 36 TITAN (H = 300) set 2 pcs.		+		+			+		+		YKV-PL-G-36-60-3-0
LG Panel to metal assembling case for incoming and distribution switchboard-x xx.60. xx 36 TITAN (H = 400) set 2 pcs.		+		+			+		+		YKV-PL-G-36-60-4-0
LG Panel to metal assembling case for incoming and distribution switchboard-x xx.60. xx 36 TITAN (H = 500) set 2 pcs.		+		+			+		+		YKV-PL-G-36-60-5-0
LG Panel to metal assembling case for incoming and distribution switchboard-x xx.60. xx 36 TITAN (H = 600) set 2 pcs.		+		+			+		+		YKV-PLG-36-60-600
LG Panel to metal assembling case for incoming and distribution switchboard-x xx.80. xx 36 TITAN (H = 50) set 2 pcs.			+		+			+		+	YKV-PL-G-36-80-1-0
LG Panel to metal assembling case for incoming and distribution switchboard-x xx.80. xx 36 TITAN (H = 100) set 2 pcs.			+		+			+		+	YKV-PLG-36-80-100
LG Panel to metal assembling case for incoming and distribution switchboard-x xx.80. xx 36 TITAN (H = 150) set 2 pcs.			+		+			+		+	YKV-PL-G-36-80-2-0
LG Panel to metal assembling case for incoming and distribution switchboard-x xx.80. xx 36 TITAN (H = 200) set 2 pcs.			+		+			+		+	YKV-PLG-36-80-200
LG Panel to metal assembling case for incoming and distribution switchboard-x xx.80. xx 36 TITAN (H = 300) set 2 pcs.			+		+			+		+	YKV-PL-G-36-80-3-0
LG Panel to metal assembling case for incoming and distribution switchboard-x xx.80. xx 36 TITAN (H = 400) set 2 pcs.			+		+			+		+	YKV-PL-G-36-80-4-0
LG Panel to metal assembling case for incoming and distribution switchboard-x xx.80. xx 36 TITAN (H = 500) set 2 pcs.			+		+			+		+	YKV-PL-G-36-80-5-0
LG Panel to metal assembling case for incoming and distribution switchboard-x xx.80. xx 36 TITAN (H = 600) set 2 pcs.			+		+			+		+	YKV-PLG-36-80-600
LMA Panel to metal assembling case for incoming and distribution switchboard-x xx.45. xx 36 TITAN set 2 pcs.	+					+					YKV-PL-0-36-45-0
LMA Panel to metal assembling case for incoming and distribution switchboard-x xx.45. xx 36 TITAN (H = 200) set 2 pcs.	+					+					YKV-PL-0-36-45-200
LMA Panel to metal assembling case for incoming and distribution switchboard-x xx.45. xx 36 TITAN (H = 300) set 2 pcs.	+					+					YKV-PL-0-36-45-300
LMA Panel to metal assembling case for incoming and distribution switchboard-x xx.60. xx 36 TITAN set 2 pcs.		+		+			+		+		YKV-PL-0-36-60-0
LMA Panel to metal assembling case for incoming and distribution switchboard-x xx.60. xx 36 TITAN (H = 200) set 2 pcs.		+		+			+		+		YKV-PL-0-36-60-200
LMA Panel to metal assembling case for incoming and distribution switchboard-x xx.60. xx 36 TITAN (H = 300) set 2 pcs.		+		+			+		+		YKV-PL-0-36-60-300
LMA Panel to metal assembling case for incoming and distribution switchboard-x xx.80. xx 36 TITAN set 2 pcs.			+		+			+		+	YKV-PL-0-36-80-0
LMA Panel to metal assembling case for incoming and distribution switchboard-x xx.80. xx 36 TITAN (H = 200) set 2 pcs.			+		+			+		+	YKV-PL-0-36-80-200
LMA Panel to metal assembling case for incoming and distribution switchboard-x xx.80. xx 36 TITAN (H = 300) set 2 pcs.			+		+			+		+	YKV-PL-0-36-80-300
Mounting panel 1650×412 TITAN	+										YKV-PM-1650-412
Mounting panel 1650×562 SMART		+		+							YKV-PM-1650-562
Mounting panel 1650×762 SMART			+		+						YKV-PM-1650-762
Mounting panel 1850×412 SMART						+					YKV-PM-1850-412
Mounting panel 1850×562 SMART							+		+		YKV-PM-1850-562
Mounting panel 1850×762 SMART								+		+	YKV-PM-1850-762
Mounting panel 250×412 SMART (set 2 pcs.)	+					+					YKV-PM-250-412
Mounting panel 250×562 SMART (set 2 pcs.)		+		+			+		+		YKV-PM-250-562
Mounting panel 250×762 SMART (set 2 pcs.)			+		+			+		+	YKV-PM-250-762
Mounting panel 500×412 SMART (set 2 pcs.)	+					+					YKV-PM-500-412
Mounting panel 500×562 SMART (set 2 pcs.)		+		+			+		+		YKV-PM-500-562
Mounting panel 500×762 SMART (set 2 pcs.)			+		+			+		+	YKV-PM-500-762
Operative rotary panel SMART (H = 300) 450	+					+					YKV-POP-300-450
Operative rotary panel SMART (H = 300) 600		+		+			+		+		YKV-POP-300-600
Operative rotary panel SMART (H = 300) 800			+		+			+		+	YKV-POP-300-800
Operative rotary panel SMART (H = 600) 450	+					+					YKV-POP-600-450
Operative rotary panel SMART (H = 600) 600		+		+			+		+		YKV-POP-600-600
Operative rotary panel SMART (H = 600) 800			+		+			+		+	YKV-POP-600-800
Partition 450×290 for metal assembling case for incoming and distribution switchboard XXXX×XXX×450 SMART	+	+	+			+	+	+			YKV-P-450-290
Partition 450×440 for metal assembling case for incoming and distribution switchboard XXXX×XXX×600 SMART				+	+				+	+	YKV-P-450-440
Installation plate SMART (set 2 pcs.)	+	+	+	+	+	+	+	+	+	+	YKV-PU
Shelf for metal assembling case for incoming and distribution switchboard XXXX×450×450 (H = 340) SMART	+					+					YKV-P-450-450
Shelf for metal assembling case for incoming and distribution switchboard XXXX×450×XXX (H = 140) SMART	+					+					YKV-P-450-B140
Shelf for metal assembling case for incoming and distribution switchboard XXXX×450×XXX (H = 200) SMART	+					+					YKV-P-450-B200

Accessory name	Metal assembling case for incoming and distribution switchboard 1800 SMART					Metal assembling case for incoming and distribution switchboard 2000 SMART					Product ID
	450 × 450	600 × 450	800 × 450	600 × 600	800 × 600	450 × 450	600 × 450	800 × 450	600 × 600	800 × 600	
Shelf for metal assembling case for incoming and distribution switchboard XXX×450×XXX (H = 290) SMART	+					+					YKV-P-450-B290
Shelf for metal assembling case for incoming and distribution switchboard XXX×600×450 (H = 340) SMART		+					+				YKV-P-600-450
Shelf for metal assembling case for incoming and distribution switchboard XXX×600×600 (H = 490) SMART				+					+		YKV-P-600-600
Shelf for metal assembling case for incoming and distribution switchboard XXX×600×XXX (H = 140) SMART		+		+			+		+		YKV-P-600-B140
Shelf for metal assembling case for incoming and distribution switchboard XXX×600×XXX (H = 200) SMART		+		+			+		+		YKV-P-600-B200
Shelf for metal assembling case for incoming and distribution switchboard XXX×600×XXX (H = 290) SMART		+		+			+		+		YKV-P-600-B290
Shelf for metal assembling case for incoming and distribution switchboard XXX×800×450 (H = 340) SMART			+					+			YKV-P-800-450
Shelf for metal assembling case for incoming and distribution switchboard XXX×800×600 (H = 490) SMART					+					+	YKV-P-800-600
Shelf for metal assembling case for incoming and distribution switchboard XXX×800×XXX (H = 140) SMART			+		+			+		+	YKV-P-800-B140
Shelf for metal assembling case for incoming and distribution switchboard XXX×800×XXX (H = 200) SMART			+		+			+		+	YKV-P-800-B200
Shelf for metal assembling case for incoming and distribution switchboard XXX×800×XXX (B = 290) SMART			+		+			+		+	YKV-P-800-B290
Transverse profile 412 for metal assembling case for incoming and distribution switchboard XXX×450×XXX SMART	+					+					YKV-PP-412-450
Transverse profile 562 for metal assembling case for incoming and distribution switchboard XXX×600×XXX SMART		+		+			+		+		YKV-PP-562-600
Transverse profile 762 for metal assembling case for incoming and distribution switchboard XXX×800×XXX SMART			+		+			+		+	YKV-PP-762-800
Frame for LG/LMA panels for metal assembling case for incoming and distribution switchboard 1800×450×XXX (H=1750) SMART	+										YKV-RAMA-1800-450
Frame for LG/LMA panels for metal assembling case for incoming and distribution switchboard 1800×600×XXX (H=1750) SMART		+		+							YKV-RAMA-1800-600
Frame for LG/LMA panels for metal assembling case for incoming and distribution switchboard 1800×800×XXX (H=1750) SMART			+		+						YKV-RAMA-1800-800
Frame for LG/LMA panels for metal assembling case for incoming and distribution switchboard 2000×450×XXX (H=1950) SMART						+					YKV-RAMA-2000-450
Frame for LG/LMA panels for metal assembling case for incoming and distribution switchboard 2000×600×XXX (H=1950) SMART							+		+		YKV-RAMA-2000-600
Frame for LG/LMA panels for metal assembling case for incoming and distribution switchboard 2000×800×XXX (H=1950) SMART								+		+	YKV-RAMA-2000-800
Side rail for metal assembling case for incoming and distribution switchboard XXX×XXX×450 SMART (set 2 pcs.)	+	+	+			+	+	+			YKV-RB-450
Side rail for metal assembling case for incoming and distribution switchboard XXX×XXX×600 SMART (set 2 pcs.)				+	+				+	+	YKV-RB-600
Crossbar 412 for metal assembling case for incoming and distribution switchboard XXX×450×XXX SMART	+					+					YKV-RP-412-450
Crossbar 562 for metal assembling case for incoming and distribution switchboard XXX×600×XXX SMART		+		+			+		+		YKV-RP-562-600
Crossbar 762 for metal assembling case for incoming and distribution switchboard XXX×800×XXX SMART			+		+			+		+	YKV-RP-762-800
Double-row crossbar 412 SMART (set 2 pcs.)	+					+					YKV-RPD-412-450
Double-row crossbar 562 SMART (set 2 pcs.)		+		+			+		+		YKV-RPD-562-600
Double-row crossbar 762 SMART (set 2 pcs.)			+		+			+		+	YKV-RPD-762-800
Single-row crossbar 412 SMART (set 2 pcs.)	+					+					YKV-RPO-412-450
Single-row crossbar 562 SMART (set 2 pcs.)		+		+			+		+		YKV-RPO-562-600
Single-row crossbar 762 SMART (set 2 pcs.)			+		+			+		+	YKV-RPO-762-800
Equipment angle 450 SMART (set 2 pcs.)	+	+	+			+	+	+			YKV-UO-450
Equipment angle 600 SMART (set 2 pcs.)				+	+				+	+	YKV-UO-600
Base of metal assembling case for incoming and distribution switchboard xx.45.45 IP31 TITAN	+					+					YKV10-TS-450-450-31
Base of metal assembling case for incoming and distribution switchboard xx.60.45 IP31 TITAN		+					+				YKV10-TS-600-450-31
Base of metal assembling case for incoming and distribution switchboard xx.60.60 IP31 TITAN				+					+		YKV10-TS-600-600-31
Base of metal assembling case for incoming and distribution switchboard xx.80.45 IP31 TITAN			+					+			YKV10-TS-800-450-31
Base of metal assembling case for incoming and distribution switchboard xx.80.60 IP31 TITAN					+					+	YKV10-TS-800-600-31
Base of metal assembling case for incoming and distribution switchboard xx.45.45 IP54 TITAN	+					+					YKV10-TS-450-450-54
Base of metal assembling case for incoming and distribution switchboard xx.60.45 IP54 TITAN		+					+				YKV10-TS-600-450-54
Base of metal assembling case for incoming and distribution switchboard xx.60.60 IP54 TITAN				+					+		YKV10-TS-600-600-54
Base of metal assembling case for incoming and distribution switchboard xx.80.45 IP54 TITAN			+					+			YKV10-TS-800-450-54
Base of metal assembling case for incoming and distribution switchboard xx.80.60 IP54 TITAN					+					+	YKV10-TS-800-600-54

TITAN series all-welded metal assembling cases for incoming and distribution switchboard

Metal assembling cases for incoming and distribution switchboard are designed to receive, distribute and meter electricity with a voltage of 400/230 V in three-phase alternating current networks with a frequency of 50 Hz, to protect lines from short-circuit currents and overloads, as well as for infrequent operational switching on and off.

The TITAN metal assembling cases for incoming and distribution switchboard IEK® is an all-welded frame made of sheet steel with increased corrosion resistance (base in the complete set). Due to special production technologies, all-welded cases have rigidity and mechanical strength that are unique for the modern LVE market.

The area of application of the metal assembling cases for incoming and distribution switchboard is civil construction and industrial enterprises.



**Made
in Russia**

Advantages

- Application of modern technologies - additional rigidity of the structure.
- Available in the range of cases with a degree of protection IP54.
- Large selection of additional accessories made of galvanized steel.
- Increased functionality.
- Wide range.
- Possibility of re-hanging the door.
- Increased corrosion resistance.
- High level of electrical safety.
- High manufacturability and ease of assembly.
- Certificate of conformity.

Specifications

Installation type	on-floor
Metal thickness	1.4 mm
Protection degree	IP31, IP54
Rated current	up to 1000 A
Cover type	powder, shagreen
Color	EPK RAL 7035 - for IP31, PPK RAL 7035 - for IP54
Climatic version	NF3 – for IP31, N2 – for IP54
Door opening angle	130°
Input of conductors	bottom

Construction features



Possibility to adjust the installation depth of the mounting panel.



Moving the door to either side.



In the metal assembling case for incoming and distribution switchboard IP54, there is the possibility of convenient cable entry. A special removable panel is installed in the lower wall (bottom) of the metal assembling case for incoming and distribution switchboard.



Pocket on the door for storing documents.



Eyebolts allow slinging of the product.



The set of all accessories includes hardware for installation in the case.



The total height covered by the LG/LMA panels is equal to the height of the frame (H) minus 50 mm.

Explanation of designations

Full-weld floor cabinet of metal assembling case for incoming and distribution switchboard-1 20.80.60 IP31 TITAN

Metal assembling case for incoming and distribution switchboard – metal assembling case for incoming and distribution switchboard

1 – version with one door

20 – height 2000 mm (excluding the base - 70 mm)

80 – width 800 mm

60 – depth 600 mm

IP31 – protection class according to GOST 14254

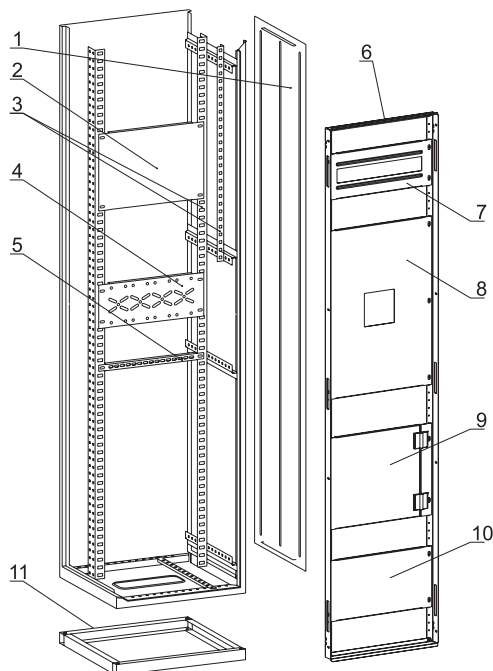
TITAN – series name

Scope of Delivery

- TITAN metal assembling case for incoming and distribution switchboard
- Grounding sign
- Sign "Caution! Electric voltage"
- Product datasheet
- Ground wire with fasteners
- Base

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Accessories for TITAN* metal assembling cases for incoming and distribution switchboard



- 1 – Side panel
- 2 – mounting panel
- 3 – Vertical angle
- 4 – PN panel
- 5 – Bar
- 6 – Frame for LG/LMA panels for metal assembling cases for incoming and distribution switchboard
- 7 – LMA panel for metal assembling cases for incoming and distribution switchboard
- 8 – VA 88-35 panel for metal assembling cases for incoming and distribution switchboard
- 9 – Operative rotary panel SMART
- 10 – LG panel for metal assembling cases for incoming and distribution switchboard
- 11 – Base

Selection table of accessories for TITAN metal assembling cases for incoming and distribution switchboard

Name	Purpose	Installation place	Overall dimensions, mm	Scope of Supply unit of measurement	Product ID pcs.
Side panel for metal assembling case for incoming and distribution switchboard 18.XX.45 IP31 TITAN	Closes the side openings of the metal assembling case for incoming and distribution switchboard frames, provides electrical safety and prevents the penetration of foreign objects into the shield	Metal assembling case for incoming and distribution switchboard 18.XX.45	1800×450×1	Cabinet	2 YKV10-PB-1845-31
Side panel for metal assembling case for incoming and distribution switchboard 18.XX.60 IP31 TITAN		Metal assembling case for incoming and distribution switchboard 18.XX.60	1800×600×1	Cabinet	2 YKV10-PB-1860-31
Side panel for metal assembling case for incoming and distribution switchboard 20.XX.45 IP31 TITAN		Metal assembling case for incoming and distribution switchboard 20.XX.45	2000×450×1	Cabinet	2 YKV10-PB-2045-31
Side panel for metal assembling case for incoming and distribution switchboard 20.XX.60 IP31 TITAN		Metal assembling case for incoming and distribution switchboard 20.XX.60	2000×600×1	Cabinet	2 YKV10-PB-2060-31
Side panel for metal assembling case for incoming and distribution switchboard 18.XX.45 IP54 TITAN		Metal assembling case for incoming and distribution switchboard 18.XX.45	1800×450×1	Cabinet	2 YKV10-PB-1845-54
Side panel for metal assembling case for incoming and distribution switchboard 18.XX.60 IP54 TITAN		Metal assembling case for incoming and distribution switchboard 18.XX.60	1800×600×1	Cabinet	2 YKV10-PB-1860-54
Side panel for metal assembling case for incoming and distribution switchboard 20.XX.45 IP54 TITAN (set)		Metal assembling case for incoming and distribution switchboard 20.XX.45	2000×450×1	Cabinet	2 YKV10-PB-2045-54
Side panel for metal assembling case for incoming and distribution switchboard 20.XX.60 IP54 TITAN		Metal assembling case for incoming and distribution switchboard 20.XX.60	2000×600×1	Cabinet	2 YKV10-PB-2060-54
Mounting panel 250×265 TITAN	For the installation of various electrical devices	Metering compartment of the metal assembling case for incoming and distribution switchboard-3	250×265×1,5	Cabinet	2 YKV10-PM-250-265
Mounting panel 250×365 TITAN		Cabinet 450 mm wide, input compartment of the metal assembling case for incoming and distribution switchboard-3	250×365×1,5	Cabinet	2 YKV10-PM-250-365
Mounting panel 250×530 TITAN		600 mm wide cabinet	250×530×1,5	Cabinet	2 YKV10-PM-250-530
Mounting panel 250×730 TITAN		Cabinet 800 mm wide	250×730×1,5	Cabinet	2 YKV10-PM-250-730
Mounting panel 500×265 TITAN		Metering compartment of the metal assembling case for incoming and distribution switchboard-3	500×265×1,5	Cabinet	2 YKV10-PM-500-265
Mounting panel 500×365 TITAN		Cabinet 450 mm wide	500×365×1,5	Cabinet	2 YKV10-PM-500-365
Mounting panel 500×530 TITAN		600 mm wide cabinet	500×530×1,5	Cabinet	2 YKV10-PM-500-530
Mounting panel 500×730 TITAN		Cabinet 800 mm wide	500×730×1,5	Cabinet	2 YKV10-PM-500-730
Panel PN-365 TITAN	For installation of fuse holders	Cabinet 450 mm wide	142×365×1,5	Cabinet	3 YKM40-PN-365
Panel PN-530 TITAN		600 mm wide cabinet	142×530×1,5	Cabinet	3 YKM40-PN-530
Panel PN-730 TITAN		Cabinet 800 mm wide	142×730×1,5	Cabinet	3 YKM40-PN-730
Bar 265 TITAN	For the installation of single electrical devices or several devices with the same mounting height overall	Metering compartment of the metal assembling case for incoming and distribution switchboard-3	23×265×1,5	Cabinet	2 YKM40-P-265
Bar 365 TITAN		Cabinet 450 mm wide	23×365×1,5	Cabinet	2 YKM40-P-365
Bar 530 TITAN		600 mm wide cabinet	23×530×1,5	Cabinet	2 YKM40-P-530
Bar 730 TITAN		Cabinet 800 mm wide	23×730×1,5	Cabinet	2 YKM40-P-730

Name	Purpose	Installation place	Overall dimensions, mm	Scope of Supply unit of measurement	pcs.	Product ID
Vertical angle 600 TITAN	For installing strips, mounting panels	Metal assembling case for incoming and distribution switchboard-1 (for devices with small mass) Input compartment of the metal assembling case for incoming and distribution switchboard-2 1800 mm high Input compartment of the metal assembling case for incoming and distribution switchboard-2/3 2000 mm high	600×25×25	Cabinet	2	YKV10-UV-600
Vertical angle 700 TITAN			700×25×25	Cabinet	2	YKV10-UV-700
Vertical angle 900 TITAN			900×50×34	Cabinet	2	YKV10-UV-900
Vertical angle 1100 TITAN			1100×50×34	Cabinet	2	YKV10-UV-1100
Vertical angle 1550 TITAN			1550×50×34	Cabinet	2	YKV10-UV-1550
Vertical angle 1750 TITAN			1750×50×34	Cabinet	2	YKV10-UV-1750
VA Panel 88-35 to metal assembling case for incoming and distribution switchboard-x xx.45.xx 36 TITAN (H = 550) set 2 pcs.	For protection against direct contact with live parts	On the frame under the LG/LMA panels	550×380×1	Cabinet	2	YKV-PVA-36-45-550
VA Panel 88-35 to metal assembling case for incoming and distribution switchboard-x xx.60.xx 36 TITAN (H = 550) set 2 pcs.			550×530×1	Cabinet	2	YKV-PVA-36-60-550
VA Panel 88-35 to metal assembling case for incoming and distribution switchboard-x xx.80.xx 36 TITAN (H = 550) set 2 pcs.			550×730×1	Cabinet	2	YKV-PVA-36-80-550
Operative rotary panel SMART (H = 300) 450	For protection against direct contact with live parts	On the frame under the LG/LMA panels	356×305×37	Pcs	1	YKV-POP-300-450
Operative rotary panel SMART (H = 300) 600			506×305×37	Pcs	1	YKV-POP-300-600
Operative rotary panel SMART (H = 300) 800			706×305×37	Pcs	1	YKV-POP-300-800
Operative rotary panel SMART (H = 600) 450			356×605×37	Pcs	1	YKV-POP-600-450
Operative rotary panel SMART (H = 600) 600			506×605×37	Pcs	1	YKV-POP-600-600
Operative rotary panel SMART (H = 600) 800			706×605×37	Pcs	1	YKV-POP-600-800
LG Panel to metal assembling case for incoming and distribution switchboard-x xx.45.xx 36 TITAN (H = 100) set 2 pcs.	For protection against direct contact with live parts	On the frame under the LG/LMA panels	100×380×1	Cabinet	2	YKV-PLG-36-45-100
LG Panel to metal assembling case for incoming and distribution switchboard-x xx.45.xx 36 TITAN (H = 150) set 2 pcs.			150×380×1	Cabinet	2	YKV-PL-G-36-45-2-0
LG Panel to metal assembling case for incoming and distribution switchboard-x xx.45.xx 36 TITAN (H = 200) set 2 pcs.			200×380×1	Cabinet	2	YKV-PLG-36-45-200
LG Panel to metal assembling case for incoming and distribution switchboard-x xx.45.xx 36 TITAN (H = 300) set 2 pcs.			300×380×1	Cabinet	2	YKV-PL-G-36-45-3-0
LG Panel to metal assembling case for incoming and distribution switchboard-x xx.45.xx 36 TITAN (H = 400) set 2 pcs.			400×380×1	Cabinet	2	YKV-PL-G-36-45-4-0
LG Panel to metal assembling case for incoming and distribution switchboard-x xx.45.xx 36 TITAN (H = 500) set 2 pcs.			500×380×1	Cabinet	2	YKV-PL-G-36-45-5-0
LG Panel to metal assembling case for incoming and distribution switchboard-x xx.45.xx 36 TITAN (H = 600) set 2 pcs.			600×380×1	Cabinet	2	YKV-PLG-36-45-600
LG Panel to metal assembling case for incoming and distribution switchboard-x xx.60.xx 36 TITAN (H = 100) set 2 pcs.			100×530×1	Cabinet	2	YKV-PLG-36-60-100
LG Panel to metal assembling case for incoming and distribution switchboard-x xx.60.xx 36 TITAN (H = 150) set 2 pcs.			150×530×1	Cabinet	2	YKV-PL-G-36-60-2-0
LG Panel to metal assembling case for incoming and distribution switchboard-x xx.60.xx 36 TITAN (H = 200) set 2 pcs.			200×530×1	Cabinet	2	YKV-PLG-36-60-200
LG Panel to metal assembling case for incoming and distribution switchboard-x xx.60.xx 36 TITAN (H = 300) set 2 pcs.			300×530×1	Cabinet	2	YKV-PL-G-36-60-3-0
LG Panel to metal assembling case for incoming and distribution switchboard-x xx.60.xx 36 TITAN (H = 400) set 2 pcs.			400×530×1	Cabinet	2	YKV-PL-G-36-60-4-0
LG Panel to metal assembling case for incoming and distribution switchboard-x xx.60.xx 36 TITAN (H = 500) set 2 pcs.			500×530×1	Cabinet	2	YKV-PL-G-36-60-5-0
LG Panel to metal assembling case for incoming and distribution switchboard-x xx.60.xx 36 TITAN (H = 600) set 2 pcs.			600×530×1	Cabinet	2	YKV-PLG-36-60-600
LG Panel to metal assembling case for incoming and distribution switchboard-x xx.80.xx 36 TITAN (H = 100) set 2 pcs.			100×730×1	Cabinet	2	YKV-PLG-36-80-100
LG Panel to metal assembling case for incoming and distribution switchboard-x xx.80.xx 36 TITAN (H = 150) set 2 pcs.			150×730×1	Cabinet	2	YKV-PL-G-36-80-2-0
LG Panel to metal assembling case for incoming and distribution switchboard-x xx.80.xx 36 TITAN (H = 200) set 2 pcs.			200×730×1	Cabinet	2	YKV-PLG-36-80-200
LG Panel to metal assembling case for incoming and distribution switchboard-x xx.80.xx 36 TITAN (H = 300) set 2 pcs.			300×730×1	Cabinet	2	YKV-PL-G-36-80-3-0
LG Panel to metal assembling case for incoming and distribution switchboard-x xx.80.xx 36 TITAN (H = 400) set 2 pcs.			400×730×1	Cabinet	2	YKV-PL-G-36-80-4-0
LG Panel to metal assembling case for incoming and distribution switchboard-x xx.80.xx 36 TITAN (H = 500) set 2 pcs.			500×730×1	Cabinet	2	YKV-PL-G-36-80-5-0
LG Panel to metal assembling case for incoming and distribution switchboard-x xx.80.xx 36 TITAN (H = 600) set 2 pcs.			600×730×1	Cabinet	2	YKV-PLG-36-80-600

Name	Purpose	Installation place	Number of modules	Overall dimensions, mm	Scope of Supply unit of measurement	pcs.	Product ID
LMA Panel to metal assembling case for incoming and distribution switchboard-xx.45.xx 36 TITAN (H = 200) set 2 pcs.	For protection against direct contact with live parts	On the frame under the LG/LMA panels	17	200×380×1	Cabinet	2	YKV-PL-0-36-45-200
LMA Panel to metal assembling case for incoming and distribution switchboard-xx.45.xx 36 TITAN (H = 300) set 2 pcs.			17	300×380×1	Cabinet	2	YKV-PL-0-36-45-300
LMA Panel to metal assembling case for incoming and distribution switchboard-xx.45.xx 36 TITAN (H = 150) set 2 pcs.			17	150×380×1	Cabinet	2	YKV-PL-0-36-45-0
LMA Panel to metal assembling case for incoming and distribution switchboard-xx.60.xx 36 TITAN (H = 200) set 2 pcs.			26	200×530×1	Cabinet	2	YKV-PL-0-36-60-200
LMA Panel to metal assembling case for incoming and distribution switchboard-xx.60.xx 36 TITAN (H = 300) set 2 pcs.			26	300×530×1	Cabinet	2	YKV-PL-0-36-60-300
LMA Panel to metal assembling case for incoming and distribution switchboard-xx.60.xx 36 TITAN (H = 150) set 2 pcs.			26	150×530×1	Cabinet	2	YKV-PL-0-36-60-0
LMA Panel to metal assembling case for incoming and distribution switchboard-xx.80.xx 36 TITAN (H = 200) set 2 pcs.			37	200×730×1	Cabinet	2	YKV-PL-0-36-80-200
LMA Panel to metal assembling case for incoming and distribution switchboard-xx.80.xx 36 TITAN (H = 300) set 2 pcs.			37	300×730×1	Cabinet	2	YKV-PL-0-36-80-300
LMA Panel to metal assembling case for incoming and distribution switchboard-xx.80.xx 36 TITAN (H = 150) set 2 pcs.			37	150×730×1	Cabinet	2	YKV-PL-0-36-80-0
	For fixing LG, LMA, VA panels and swivel panels	Metal assembling case for incoming and distribution switchboard-1 18.45.45		1732×46×29	Pcs	1	YKV-RAMA-1800-450
Frame for LG/LMA panels for metal assembling case for incoming and distribution switchboard 1800×600×XXX (H = 1750) SMART		Metal assembling case for incoming and distribution switchboard 1 18.60.XX		1732×46×29	Pcs	1	YKV-RAMA-1800-600
Frame for LG/LMA panels for metal assembling case for incoming and distribution switchboard 1800×800×XXX (H = 1750) SMART		Metal assembling case for incoming and distribution switchboard 1 20.60.XX		1732×46×29	Pcs	1	YKV-RAMA-1800-800
Frame for LG/LMA panels for metal assembling case for incoming and distribution switchboard 2000×450×XXX (H = 1950) SMART		Metal assembling case for incoming and distribution switchboard-1 20.45.45		1932×46×29	Pcs	1	YKV-RAMA-2000-450
Frame for LG/LMA panels for metal assembling case for incoming and distribution switchboard 2000×600×XXX (H = 1950) SMART		Metal assembling case for incoming and distribution switchboard 1 20.60.XX		1932×46×29	Pcs	1	YKV-RAMA-2000-600
Frame for LG/LMA panels for metal assembling case for incoming and distribution switchboard 2000×800×XXX (H=1950) SMART		Metal assembling case for incoming and distribution switchboard 1 20.80.XX		1932×46×29	Pcs	1	YKV-RAMA-2000-800
Frame for LG/LMA panels for metal assembling case for incoming and distribution switchboard XXXX×450×XXX (H=600) SMART		Metering compartment of the metal assembling case for incoming and distribution switchboard-2 450 mm wide		608×40×25	Pcs	1	YKV-RAMA2-600-450
Frame for LG/LMA panels for metal assembling case for incoming and distribution switchboard XXXX×600×XXX (H=600) SMART		Metering compartment of the metal assembling case for incoming and distribution switchboard-2 600 mm wide, metal assembling case for incoming and distribution switchboard-3 20.60.45		608×40×25	Pcs	1	YKV-RAMA2-600-600
Frame for LG/LMA panels for metal assembling case for incoming and distribution switchboard XXXX×800×XXX (H=600) SMART*		Metering compartment of the metal assembling case for incoming and distribution switchboard-2 800 mm wide		746×40×25	Pcs	1	YKV-RAMA2-600-800
Frame for LG/LMA panels for metal assembling case for incoming and distribution switchboard 1800×450×XXX (H = 1100) SMART		Input compartment of the metal assembling case for incoming and distribution switchboard-2 18.45.45		1082×40×25	Pcs	1	YKV-RAMA1-1800-450
Frame for LG/LMA panels for metal assembling case for incoming and distribution switchboard 1800×600×XXX (H = 1100) SMART		Input compartment of the metal assembling case for incoming and distribution switchboard-2 18.60.XX		1082×40×25	Pcs	1	YKV-RAMA1-1800-600
Frame for LG/LMA panels for metal assembling case for incoming and distribution switchboard 1800×800×XXX (H=1100) SMART		Input compartment of the metal assembling case for incoming and distribution switchboard-2 18.80.XX		1082×40×25	Pcs	1	YKV-RAMA1-1800-800
Frame for LG/LMA panels for metal assembling case for incoming and distribution switchboard 2000×450×XXX (H=1300) SMART		Input compartment of the metal assembling case for incoming and distribution switchboard-2 20.45.45		1282×40×25	Pcs	1	YKV-RAMA1-2000-450
Frame for LG/LMA panels for metal assembling case for incoming and distribution switchboard 2000×600×XXX (H = 1300) SMART		Input compartment of the metal assembling case for incoming and distribution switchboard-2 20.60.XX metal assembling case for incoming and distribution switchboard-3 20.60.45		1282×40×25	Pcs	1	YKV-RAMA1-2000-600
Frame for LG/LMA panels for metal assembling case for incoming and distribution switchboard 2000×800×XXX (H = 1300) SMART		Input compartment of the metal assembling case for incoming and distribution switchboard-2 20.80.XX		1282×40×25	Pcs	1	YKV-RAMA1-2000-800
Base of metal assembling case for incoming and distribution switchboard xx.45.45 IP31 TITAN	Convenient installation of the case and cable entry	Metal assembling case for incoming and distribution switchboard xx.45.45 IP31		450×423×70	Cabinet	1	YKV10-TS-450-450-31
Base of metal assembling case for incoming and distribution switchboard xx.60.45 IP31 TITAN		Metal assembling case for incoming and distribution switchboard xx.60.45 IP31		600×423×70	Cabinet	1	YKV10-TS-600-450-31
Base of metal assembling case for incoming and distribution switchboard xx.60.60 IP31 TITAN		Metal assembling case for incoming and distribution switchboard xx.60.60 IP31		600×573×70	Cabinet	1	YKV10-TS-600-600-31
Base of metal assembling case for incoming and distribution switchboard xx.80.45 IP31 TITAN		Metal assembling case for incoming and distribution switchboard xx.80.45 IP31		800×423×70	Cabinet	1	YKV10-TS-800-450-31
Base of metal assembling case for incoming and distribution switchboard xx.80.60 IP31 TITAN		Metal assembling case for incoming and distribution switchboard xx.80.60 IP31		800×573×70	Cabinet	1	YKV10-TS-800-600-31
Base of metal assembling case for incoming and distribution switchboard xx.45.45 IP54 TITAN		Metal assembling case for incoming and distribution switchboard xx.45.45 IP54		450×423×70	Cabinet	1	YKV10-TS-450-450-54
Base of metal assembling case for incoming and distribution switchboard xx.60.45 IP54 TITAN		Metal assembling case for incoming and distribution switchboard xx.60.45 IP54		600×423×70	Cabinet	1	YKV10-TS-600-450-54
Base of metal assembling case for incoming and distribution switchboard xx.60.60 IP54 TITAN		Metal assembling case for incoming and distribution switchboard xx.60.60 IP54		600×573×70	Cabinet	1	YKV10-TS-600-600-54
Base of metal assembling case for incoming and distribution switchboard xx.80.45 IP54 TITAN		Metal assembling case for incoming and distribution switchboard xx.80.45 IP54		800×423×70	Cabinet	1	YKV10-TS-800-450-54
Base of metal assembling case for incoming and distribution switchboard xx.80.60 IP54 TITAN		Metal assembling case for incoming and distribution switchboard xx.80.60 IP54		800×573×70	Cabinet	1	YKV10-TS-800-600-54

Electrical cabinets FORMAT

FORMAT electrical cabinets have a frame structure based on closed profiles, perforated in two planes, which allows flexible placement of equipment and components, as well as enables convenient coupling of cabinets in a row when used without side panels.

These cabinets are used in indoor power and automation equipment.



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Advantages

- Fully symmetrical profile allows installation of panels and doors in any lateral plane.
- Collapsible construct – ease of installation, transportation and storage.
- Convenient coupling of cases
- Compatibility with equipment from all manufacturers.
- Unified fasteners
- Assembly of a high level of complexity with a maximum partitioning of 3b up to 4000 A and 4b up to 6300 A.
- High load carrying performance Load on the frame (on internal rails) – up to 1600 kg.
- Universal interchangeable accessories

Specifications

Installation type	on-floor
Metal thickness	1.5+3.0 mm
Rated current	up to 4000 A
Cover type	powder, shagreen
Color	RAL 7035
Protection degree	IP54
Apparatus type	any
Climatic version	N2

Construction features



The prefabricated structure based on a frame made of closed-section profiles provides a high load capacity of the cabinet.



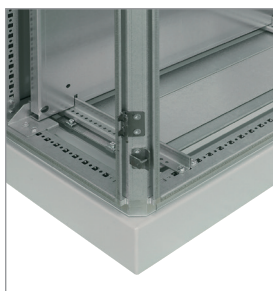
Doors can be installed both on the right and on the left. If necessary, doors with glass and/or with a ventilation grill can be ordered.



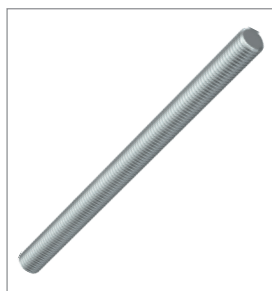
All walls are equipped with M8 earthing rods.



The bottom panel is made in the form of three movable plugs. The bottom panel of the frame can be removed together with the plugs, which will allow you to obtain a cable gland with dimensions along the perimeter of the base of the cabinet.



The cabinet can be equipped with a mounting panel that can be fixed at any required depth. The advantage: the panel can be installed in the extreme position of the rear of the cabinet (flush with the frame), optimizing utilization of usable space.

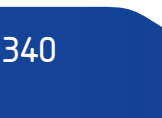


The components of the cabinet to be grounded are equipped with M8 studs to allow the earthing connection to the frame at the most optimal locations.

Product range

	Name	Overall dimensions, mm	Specifications	Scope of Delivery	Product ID
	Roof and base IP54 FORMAT	400×600 (W×D)	The main supporting element of the frame, which ensures the rigidity of the structure. Material: sheet steel	Roof, base, fasteners	YKM40D-FO-KO-040-060-54
		400×800 (W×D)			YKM40D-FO-KO-040-080-54
		600×600 (W×D)			YKM40D-FO-KO-060-060-54
		600×800 (W×D)			YKM40D-FO-KO-060-080-54
		800×600 (W×D)			YKM40D-FO-KO-080-060-54
		800×800 (W×D)			YKM40D-FO-KO-080-080-54
		1000×400 (W×D)			YKM40D-FO-KO-100-040-54
		1000×600 (W×D)			YKM40D-FO-KO-100-060-54
	Vertical rack 2000 FORMAT	2000 mm (height)	Closed design. Perforation pitch – 25 mm in two planes, which provides flexible options for equipment installation. Material: sheet steel	4 racks, fasteners	YKM40D-FO-ST-200
	Base angle 100 IP54 FORMAT	100 mm (height)	Material: sheet steel	4 angles, fasteners	YKM40D-FO-KC-010-54
	Base panel IP54 FORMAT	400 (W or D)	Panel type: solid	Base side panel, fixing elements	YKM40D-FO-PC-010-040-54
		600 (W or D)	Material: sheet steel		YKM40D-FO-PC-010-060-54
		800 (W or D)	Height: 99 mm.		YKM40D-FO-PC-010-080-54
		1000 (W or D)	Removing the panels and replacing them is allowed when the cabinet is loaded.		YKM40D-FO-PC-010-100-54
	Rear panel IP54 FORMAT	2000×600 (W×D)	Material: sheet steel.	Rear panel, fasteners	YKM40D-FO-FP-200-040-54
		2000×800 (W×D)	The panel is equipped with a rubber seal to protect it from dust and moisture.		YKM40D-FO-FP-200-060-54
		2000×1000 (W×D)			YKM40D-FO-FP-200-080-54
			A built-in M8 stud is provided for fixing the grounding cable.		YKM40D-FO-FP-200-100-54
	Side panel IP54 FORMAT	2000×400 (W×D)	Material: sheet steel	Side walls (2 pcs.), fasteners	YKM40D-FO-SP-200-040-54
		2000×600 (W×D)	The panel is equipped with a rubber seal to protect it from dust and moisture.		YKM40D-FO-SP-200-060-54
		2000×800 (W×D)			YKM40D-FO-SP-200-080-54
		2000×1000 (W×D)	A built-in M8 stud is provided for fixing the grounding cable.		YKM40D-FO-SP-200-100-54

	Name	Overall dimensions, mm	Specifications	Scope of Delivery	Product ID
	Mounting panel FORMAT		Material: galvanized sheet steel	Mounting panel, standard brackets with a choice of mounting position along the cabinet depth, fasteners	YKM40D-FO-MP-200-040 YKM40D-FO-MP-200-060 YKM40D-FO-MP-200-080 YKM40D-FO-MP-200-100
	Guide rails of the FORMAT mounting panel for a 600 mm deep cabinet		Material: galvanized sheet steel	Guide rails (2 pcs.), fasteners.	YKM40D-FO-VRN-060
	Guide rails of the FORMAT mounting panel for 800 mm deep cabinet		Material: galvanized sheet steel	Guide rails (2 pcs.), fasteners.	YKM40D-FO-VRN-080
	Partial mounting panel FORMAT	100×1000 (W×D) 100×600 (W×D) 100×800 (W×D) 150×1000 (W×D) 150×600 (W×D) 150×800 (W×D) 200×1000 (W×D) 200×600 (W×D) 200×800 (W×D) 250×1000 (W×D) 250×600 (W×D) 250×800 (W×D) 350×1000 (W×D) 350×600 (W×D) 350×800 (W×D) 450×1000 (W×D) 450×600 (W×D) 450×800 (W×D) 550×1000 (W×D) 550×600 (W×D) 550×800 (W×D) 750×1000 (W×D) 750×600 (W×D) 750×800 (W×D)	Enables installation of heavy equipment and sectioning of elements inside of the case	Mounting panel – 1 pcs. (set of fasteners)	YKM40D-FO-MP-010-100 YKM40D-FO-MP-010-060 YKM40D-FO-MP-010-080 YKM40D-FO-MP-015-100 YKM40D-FO-MP-015-060 YKM40D-FO-MP-015-080 YKM40D-FO-MP-020-100 YKM40D-FO-MP-020-060 YKM40D-FO-MP-020-080 YKM40D-FO-MP-025-100 YKM40D-FO-MP-025-060 YKM40D-FO-MP-025-080 YKM40D-FO-MP-035-100 YKM40D-FO-MP-035-060 YKM40D-FO-MP-035-080 YKM40D-FO-MP-045-100 YKM40D-FO-MP-045-060 YKM40D-FO-MP-045-080 YKM40D-FO-MP-055-100 YKM40D-FO-MP-055-060 YKM40D-FO-MP-055-080 YKM40D-FO-MP-075-100 YKM40D-FO-MP-075-060 YKM40D-FO-MP-075-080
	Additional vertical racks FORMAT	2000	Applied for fastening internal blanking plates. Enable sectioning of a cabinet into compartments	Rack - 2 pcs. (without fasteners)	YKM40D-FO-STD-200
	Internal blanking solid plate FORMAT	50×1000 (W×D) 50×600 (W×D) 50×800 (W×D) 100×1000 (W×D) 100×600 (W×D) 100×800 (W×D) 150×1000 (W×D) 150×600 (W×D) 150×800 (W×D) 200×1000 (W×D) 200×600 (W×D) 200×800 (W×D) 250×1000 (W×D) 250×600 (W×D) 250×800 (W×D) 300×1000 (W×D) 300×600 (W×D) 300×800 (W×D) 400×1000 (W×D) 400×600 (W×D) 400×800 (W×D) 500×1000 (W×D) 500×600 (W×D) 500×800 (W×D) 600×1000 (W×D) 600×600 (W×D) 600×800 (W×D) 800×1000 (W×D) 800×600 (W×D) 800×800 (W×D)	Intended for sectioning and visual partitioning of electrical cabinets space into units	Blanking plate – 2 pcs. (without fasteners)	YKM40D-FO-PVS-005-100 YKM40D-FO-PVS-005-060 YKM40D-FO-PVS-005-080 YKM40D-FO-PVS-010-100 YKM40D-FO-PVS-010-060 YKM40D-FO-PVS-010-080 YKM40D-FO-PVS-015-100 YKM40D-FO-PVS-015-060 YKM40D-FO-PVS-015-080 YKM40D-FO-PVS-020-100 YKM40D-FO-PVS-020-060 YKM40D-FO-PVS-020-080 YKM40D-FO-PVS-025-100 YKM40D-FO-PVS-025-060 YKM40D-FO-PVS-025-080 YKM40D-FO-PVS-030-100 YKM40D-FO-PVS-030-060 YKM40D-FO-PVS-030-080 YKM40D-FO-PVS-040-100 YKM40D-FO-PVS-040-060 YKM40D-FO-PVS-040-080 YKM40D-FO-PVS-050-100 YKM40D-FO-PVS-050-060 YKM40D-FO-PVS-050-080 YKM40D-FO-PVS-060-100 YKM40D-FO-PVS-060-060 YKM40D-FO-PVS-060-080 YKM40D-FO-PVS-080-100 YKM40D-FO-PVS-080-060 YKM40D-FO-PVS-080-080

	Name	Overall dimensions, mm	Specifications	Scope of Delivery	Product ID
	Internal blanking compensating solid plate FORMAT	25×1000 (W×D)	Compensates space on the top and on the bottom of blanking plates block as part of internal sectioning.	Blanking plate – 2 pcs. (without fasteners)	YKM40D-FO-PVSK-001-100
		25×600 (W×D)			YKM40D-FO-PVSK-001-060
		25×800 (W×D)			YKM40D-FO-PVSK-001-080
	Lateral partitioning panel FORMAT	100×600 (W×D)	for sectioning of internal space. Prevents from arc distribution between functional blocks and protects against accidental contact with conductive parts of an electrical installation	Lateral partitioning panel – 2 pcs. (set of fasteners)	YKM40D-FO-VSS-010-060
		100×800 (W×D)			YKM40D-FO-VSS-010-080
		200×600 (W×D)			YKM40D-FO-VSS-020-060
		200×800 (W×D)			YKM40D-FO-VSS-020-080
		400×600 (W×D)			YKM40D-FO-VSS-040-060
		400×800 (W×D)			YKM40D-FO-VSS-040-080
		600×600 (W×D)			YKM40D-FO-VSS-060-060
		600×800 (W×D)			YKM40D-FO-VSS-060-080
	Partitioning shelf FORMAT	1000×400 (W×D)	Applied for sectioning of internal space in electrical cabinets	Shelf – 1 pc. (without fasteners)	YKM40D-FO-VS-100-040
		1000×600 (W×D)			YKM40D-FO-VS-100-060
		1000×800 (W×D)			YKM40D-FO-VS-100-080
		600×400 (W×D)			YKM40D-FO-VS-060-040
		600×600 (W×D)			YKM40D-FO-VS-060-060
		600×800 (W×D)			YKM40D-FO-VS-060-080
		800×400 (W×D)			YKM40D-FO-VS-080-040
		800×600 (W×D)			YKM40D-FO-VS-080-060
		800×800 (W×D)			YKM40D-FO-VS-080-080
	Rail type A FORMAT for cabinet depth or width 400 mm		Material: sheet steel	Mounting rail (without fasteners)	YKM40D-FO-VRA-040
					YKM40D-FO-VRA-060
	Rail type A FORMAT for cabinet depth or width 600 mm				YKM40D-FO-VRA-080
					YKM40D-FO-VRA-100
	Rail type A FORMAT for cabinet depth or width 800 mm				
	Rail type A FORMAT for cabinet depth or width 1000 mm				
	Rail type B FORMAT for cabinet depth or width 400 mm		Material: sheet steel	Mounting rail (without fasteners)	YKM40D-FO-VRB-040
					YKM40D-FO-VRB-060
	Rail type B FORMAT for cabinet depth or width 600 mm				YKM40D-FO-VRB-080
					YKM40D-FO-VRB-100
	Rail type B FORMAT for cabinet depth or width 800 mm				
	Rail type B FORMAT for cabinet depth or width 1000 mm				
	Cabinet connection kit IP54 FORMAT		It is used to connect frames when placing cabinets in a row.	Frame connector – type A – 4 pcs. YKM40D-FO-JK-200-54 Frame connector – type B – 2 pcs.	
	Self-tapping bolt M6 x 16 FORMAT Screw with a captive nut M616 FORMAT		Self-tapping bolts M6x16 are used to fasten the mounting rails to the frame, as well as to connect them to each other.	Set – 20 pcs.	YKM40D-FO-BTS-006-016
					YKM40D-FO-VTS-006-017

FORMAT doors



Name	Overall dimensions, mm	Specifications	Scope of Delivery	Product ID
Solid metal door FORMAT	2000×400 (W×D)	Material: sheet steel stiffening ribs around the perimeter of the door - galvanized profiles with holes for mounting accessories; for doors with glass – tempered brown tinted glass; for a door with ventilation – plastic ventilation grilles (degree of protection IP 54)	Door with a lock (without a handle, with a key insert with two teeth); fasteners.	YKM40D-F0-DM-200-040
	2000×600 (W×D)			YKM40D-F0-DM-200-060
	2000×800 (W×D)			YKM40D-F0-DM-200-080



Metal door double-leaf solid (leaf 1) FORMAT	2000×1000 (W×D)			YKM40D-F0-DM-200-100
Solid double-leaf metal door (leaf 2) FORMAT				YKM40-F0-DMD-200-100



Metal door with glass FORMAT	2000×600 (W×D)			YKM40D-F0-DG-200-060
	2000×800 (W×D)			YKM40D-F0-DG-200-080



Metal door with glass and two ventilation grilles	2000×600 (W×D)			YKM40D-F0-DGI-200-060
	2000×800 (W×D)			YKM40D-F0-DGI-200-080



STANDARD ONI SOLUTIONS FOR CONTROL SYSTEM AUTOMATION

Requirements to comprehensive systems for industrial equipment control are continuously growing. Nowadays consumers require reliability, safety, energy efficiency and optimization of expenses on implementation and ownership of equipment during its entire service life.

Solutions powered by ONI® products are being successfully integrated on many Russian and foreign enterprises, providing guaranteed quality, reliability and high service level.



Every element of solutions powered by ONI® products passes rigorous verification in our labs. Using special benches and system prototypes, our best engineers constantly improve solutions powered by ONI® products to help you implement them quickly and effectively leverage all functionality. Utilization of cutting-edge devices with low energy consumption, as well as optimized performance of solutions powered by ONI® products help maximize their energy efficiency.

AUTOMATIC LOAD TRANSFER ONI®

Automatic load transfer (AVR) ONI® helps quickly recover power supply in emergency situations.

AVR system provides uninterruptible power supply from two independent power supply units.

Energy continuity is supported by switching consumers from the primary power supply to the backup ones in the following scenarios:

- fault of one of the phases in supply mains;
- overvoltage of supply mains;
- undervoltage of supply mains;
- voltage unbalance of phases in the supply mains;
- incorrect phase sequence.

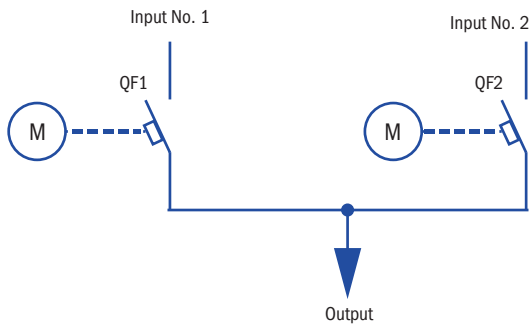


APPLICATIONS

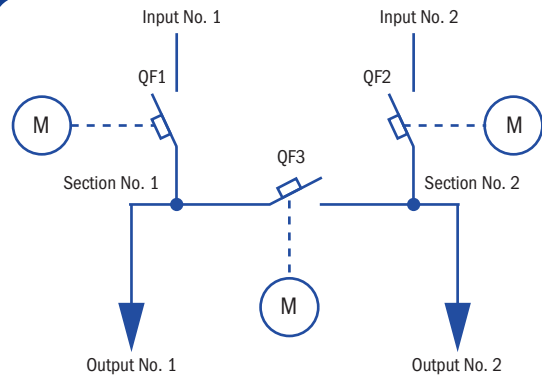
- Electrical substations.
- Commercial real estate.
- Residential and social construction.
- Industry.

DESIGN OPTIONS

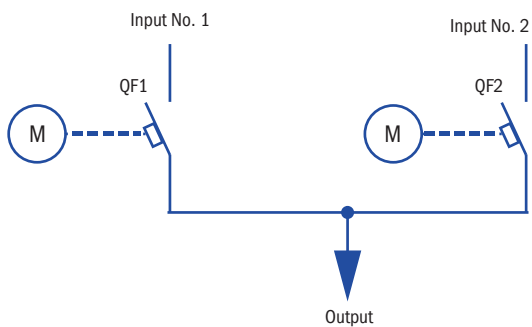
2 INPUTS, 1 CONSUMER, 220 V AC



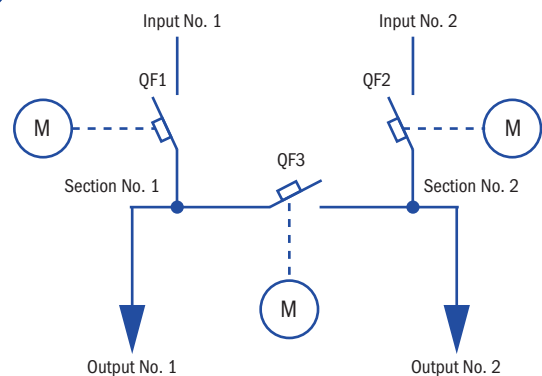
2 INPUTS, 2 CONSUMERS, 220 V AC



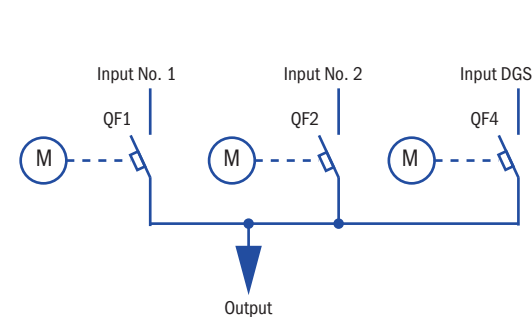
2 INPUTS, 1 CONSUMER, 24 V DC



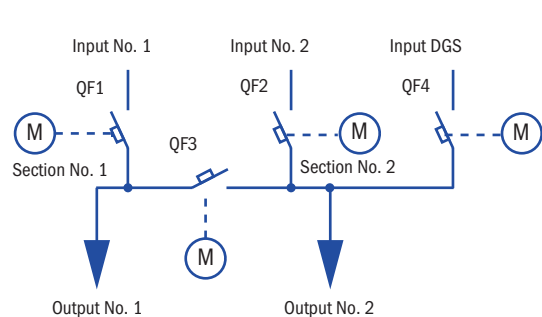
2 INPUTS, 2 CONSUMERS, 24 V DC



1 OR 2 INPUTS AND DGS, 1 CONSUMER



2 INPUTS AND DGS, 2 CONSUMERS



ONI SOLUTION FOR AUTOMATION OF SUPPLY AND EXHAUST VENTILATION SYSTEMS

ONI® solution for heating, ventilation and air conditioning (HVAC) systems is a software and hardware suite, designed for convenient control of ventilation equipment and helping address up to 80 % of tasks in supply and exhaust ventilation system automation as part of a single offer. This solution is based on a concept, enabling creation of high-performance automation systems within a short period of time, keeping an optimal cost. One of key principles of our system is scalability and flexibility of the applied solutions.



APPLICATIONS

- Industry.
- Residential and social construction.
- Commercial real estate.

DESIGN OPTIONS

- Control program configurator allows a user to implement up to 8,000 various options of supply and exhaust ventilate systems.
- Sensors and actuating mechanisms of the system can be reconnected to the required inputs and outputs of the programmable logic controller, creating a configuration that is comfortable to design.

The solution for automation of supply and exhaust ventilation includes:

- program configurator ONI® HVAC;
- programmable logic controller ONI® HVAC;
- frequency converters ONI® A150;
- temperature sensors: channel, immersion, room, exterior, frost-protection;
- pressure sensors;
- air seal drives;
- plastic or metal cabinet with solid or transparent door;
- contactors;
- circuit breakers.

FEATURES



Configuration of a required control program



Automatic generation of specifications



Changing a layout of sensors and mechanisms connection



Out-of-the-box electrical and wiring schemes



More than 8,000 control system options



Easy integration with BMS system



Changing parameters and indication on LED display



Special debugging mode



Communication with fire-fighting system



Faster development and start-up

ONI SOLUTION FOR REPRESSURING STATIONS

Out-of-the-box solutions for control over repressuring pump stations enable uninterrupted and even flow in water pipelines regardless of number of storeys in a building.

Contents of standard ONI solutions:

- schematic circuit and mounting diagrams in a format of the most common design packages with an option of editing and integration into project;
- operation instructions in an editable format;
- programs for operator panels;
- list of parameters for frequency converters, used in the solutions;
- specifications for ordering the components and assembling the repressuring pump station control systems.

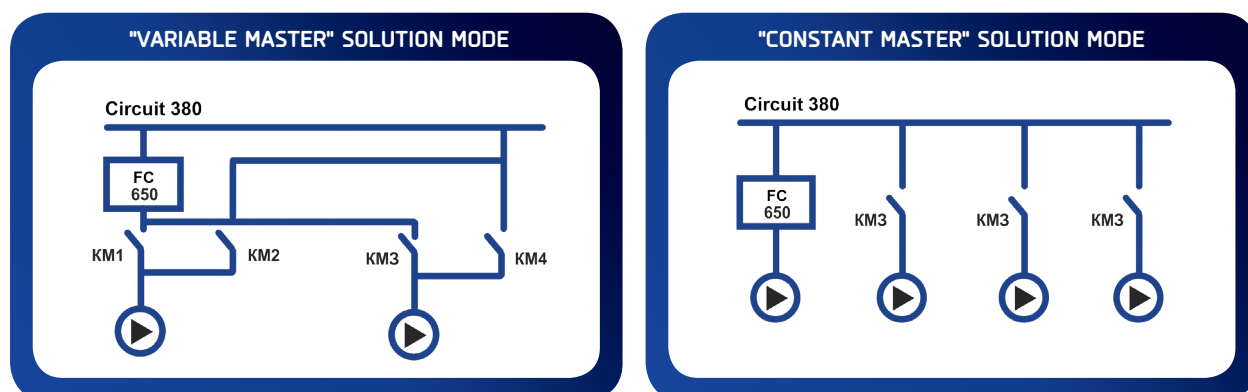
All solutions for repressuring pump stations are developed so that they are easy to assemble, integrate, start-up, operate and maintain.



APPLICATIONS

- Residential and social construction.
- Commercial real estate.
- Industry.
- Agriculture.

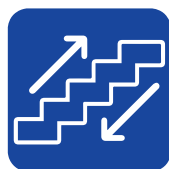
DESIGN OPTIONS



FEATURES



Faster development and start-up



Automatic cascade control over pumps in case of insufficient performance



Protection of the pump against dry run.



Controlling operating time of motors and quantity of starts



Operation in "constant" or "variable master" modes



Intuitive interface and settings



Configuration of "day/night" mode



Possible to change operation logic and integrate new functions into the control system



Building operation schedules



Error and emergency log



Remote dispatching and control



Increasing time to maintenance and uniformity of pump wear



Distinguished access to parameters

ONI SOLUTIONS FOR SEWAGE PUMPING STATION AUTOMATION

Control cabinet for sewage pumping stations is intended for dispatching and protecting pumps in liquid filling or draining installations. The cabinet enables automatic and manual modes of the sewage pumping stations operation.

Cabinet is integrated with all the required features:

- cascade start-up of pumps;
- protection of pumps against short-circuit or overcurrent;
- balanced pump running time;
- power mains control.



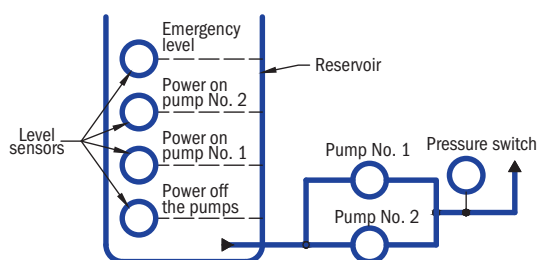
APPLICATIONS

- Industry.
- Residential and social construction.
- Agriculture.
- Commercial real estate.

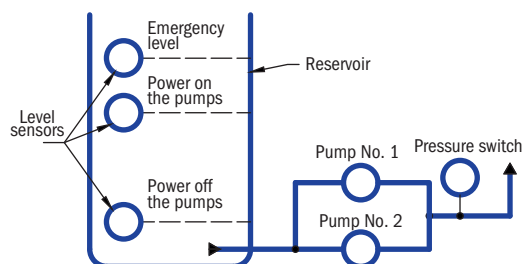
DESIGN OPTIONS

DIRECT START" SOLUTION DIAGRAMS

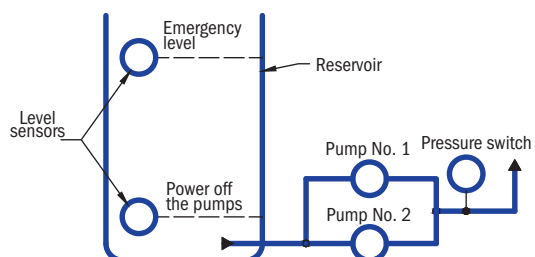
4 FLOAT SENSORS



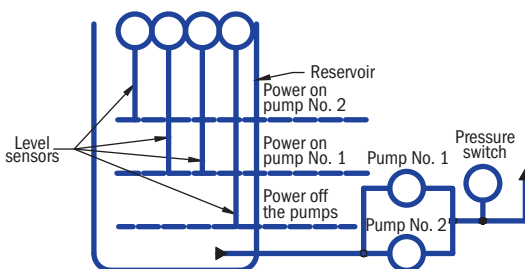
3 FLOAT SENSORS



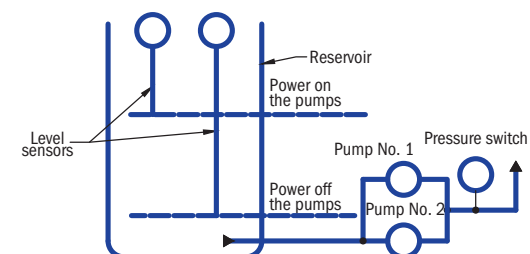
2 FLOAT SENSORS



4 CONDUCTIVITY SENSORS



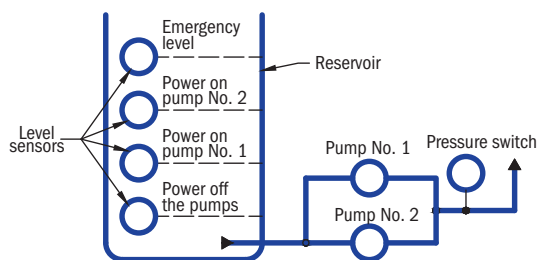
2 CONDUCTIVITY SENSORS



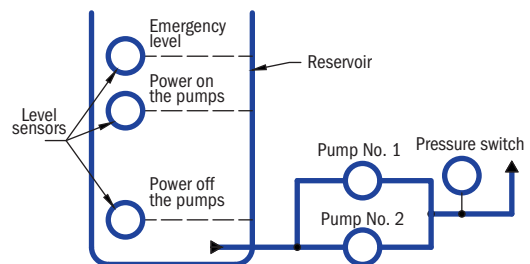
DESIGN OPTIONS

"SOFT START" SOLUTION DIAGRAMS

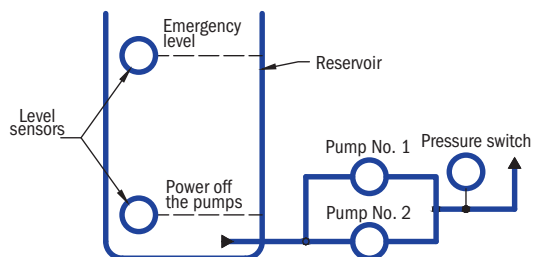
4 FLOAT SENSORS



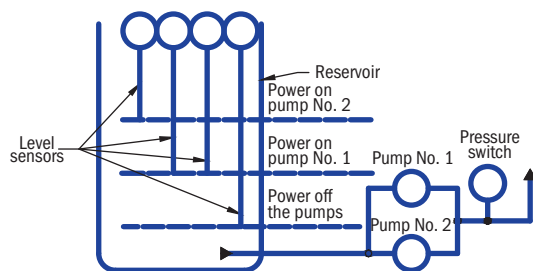
3 FLOAT SENSORS



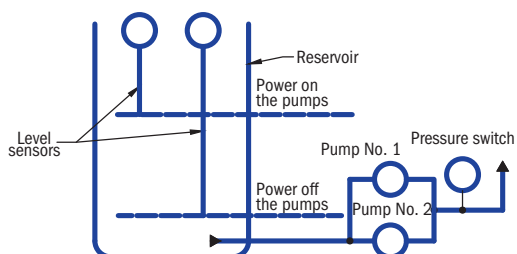
2 FLOAT SENSORS



4 CONDUCTIVITY SENSORS



2 CONDUCTIVITY SENSORS





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