

2022



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Moulded Case Circuit Breakers

VA88 MASTER (MCCB)

The VA88 MASTER moulded case circuit breaker (MCCB) is designed to protect electrical networks from short circuit currents, overload currents, unacceptable voltage drops, as well as for conducting current in normal mode. Three-pole circuit breakers are produced in 5 standard sizes, equipped with a thermomagnetic release for currents from 16 to 800 A and an electronic circuit breaker for currents from 125 to 800 A. The design of the circuit breaker provides for the possibility of self-installation of additional devices at the customer's site.

Complies with the requirements of IEC 60947-2.



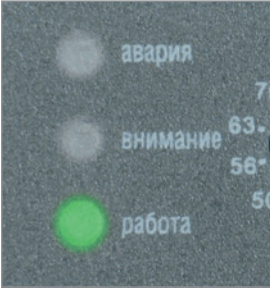
Advantages

- Easy independent installation of additional devices:
 - signal auxiliary contact;
 - auxiliary contact;
 - shunt release;
 - undervoltage release;
 - rotary handle;
 - electric drive;
 - plug-in panel;
 - mechanical locking.
- Installation in any position (vertically/horizontally).
- Fast, reliable tripping at low currents, tripping of the thermomagnetic release at 10 I_n.

Design features



A new design of the thermomagnetic release (a coil) in low current automatic breakers provides for operation of the thermomagnetic circuit breaker at $10 I_n$.



LED indication allows you to track the status of the protected circuit.



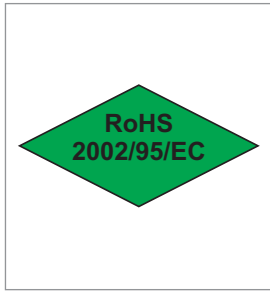
High-melting-point material in soldered joints increase the service life: the mechanical wear resistance is up to 8500 cycles, the switching one is up to 2500 cycles.



Compact size. Installation in any position (vertically/horizontally).



6 modes – for any type of load and ensuring the selectivity of two devices connected in series. They allow to carry out selective protection of networks by setting various time delays: the smallest one for the consumer and increasing for the power source.



Compliance with RoHS Directive 2002/95/EC restricting the content of harmful substances in products.

Selection guide



Circuit breaker type	VA88-32 MASTER	VA88-32 MASTER with electronic release	VA88-35 MASTER
Maximum rated current (basic size) I_{nm}	125	125	250
Overcurrent release	thermal and electromagnetic	electronic	thermal and electromagnetic
Rated current (thermal release set point) I_n , A	16, 25, 32, 40, 50, 63, 80, 100, 125	125	100, 125, 160, 200, 250
Electromagnetic release set point I_n , A	10 I_n 10 I_n	10 I_n 10 · I_n	10 · I_n
Rated operating breaking capacity I_{cs} at 400 V, kA	75%	75%	75%
Rated ultimate breaking capacity I_{cu} at 400 V, kA	25	25	35
Accessories			
Rotary handle type	PRPm-1 125A	PRPm-1e 125A	PRPm-1 250A
Signal auxiliary contact type	AKm-125 (AKm-32)	AKm-125e (AKm-32)	AKm-250 (AKm-35)
Auxiliary contact type	DKm-125 (DKm-32)	DKm-125e (DKm-32)	DKm-250 (DKm-35)
Shunt release type	RNm-125 (RNm-32)	RNm-125e (RNm-32)	RNm-250 (RNm-35)
Undervoltage release type	RMm-125 (RMm-32)	RMm-125e (RNm-32)	RMm-250 (RMm-35)
Type of electric drive	EPm-32	EPm-32e	EPm-35
Type of the mounting panel for plug-in mounting, rear threaded connection	PMm1-125	PMm1-125e	PMm1-250
Mechanical locking type	MBm-125	MBm-125	MBm-250
Output expander type	RVm-125 (RVm-32)	RVm-125e (RVm-32)	RVm-250 (RVm-35)
Terminal cover type		KKm-125e (KKm-32)	
Joint contact	AKDKm-125 (AKDMKm-32)	AKDKm-125e (AKDMKm-32)	AKDKm-250 (AKDMKm-35)



VA88-35 MASTER with electronic release	VA88-37 MASTER	VA88-39 MASTER with electronic release	VA88-40 MASTER	VA88-40 MASTER with electronic release
250	400	630	800	800
electronic	thermal and electromagnetic	electronic	thermal and electromagnetic	electronic
250	250, 320, 400	400, 630	400, 500, 630, 800	800
10 In	10 In	10 In	10 In	10 In
75%	75%	75%	75%	75%
35	35	35	35	35
PRPm-1e 250A	PRPm-1 400A	PRPm-1e 400A/630A	PRPm-1 630/800	PRPm-1e 800A
AKm-250e (AKm-35)	AKm-400 (AKm-37)	AKm-400e/630e (AKm-39)	AKm-630/800 (AKm-40)	AKm-800e (AKm-40)
DKm-250e (DKm-35)	DKm-400 (DKm-37)	DKm-400e/630e (DKm-39)	DKm-630/800 (DKm-40)	DKm-800e (DKm-40)
RNm-250e (RNm-35)	RNm-400 (RNm-37)	RNm-400e/630e (RNm-39)	RNm-630/800 (RNm-40)	RNm-800e (RNm-40)
RMm-250e (RMm-35)	RMm-400 (RMm-37)	RMm-400e/630e (RMm-39)	RMm-630/800 (RMm-40)	RMm-800e (RMm-40)
EPm-35e	EPm-37	EPm-39e	EPm-40	EPm-40e
PMm1-250e	PMm1-400	PMm1-400e/630e	PMm1-630/800	PMm1-800e
MBm-250e	MBm-400	MBm-400e/630e	MBm-630/800	MBm-800e
RVm-250e (RVm-35)	RVm-400 (RVm-37)	RVm-400e (RVm-39) RVm-630e (RVm-39)	RVm-630/800 (RVm-40)	RVm-800e (RVm-40)
KKm-250e (KKm-35)		KKm-400e/630e (KKm-39)		
AKDKm-250e (AKDMKm-35)	AKDKm-400 (AKDMKm-37)	AKDKm-400e/630e (AKDKm-39)	AKDKm-630/800 (AKDMKm-40)	AKDKm-800e (AKDMKm-40)

VA88 MASTER product range

	Name	Rated current, A	Number of poles	Rated ultimate breaking capacity I _n	Quantity in a multiple package, pcs.	Product ID
	VA88-32 3P 12,5A 25kA MASTER	12.5	3	25	6	SVA10-3-0012-02
	VA88-32 3P 16A 25kA MASTER	16	3	25	6	SVA10-3-0016-02
	VA88-32 3P 25A 25kA MASTER	25	3	25	6	SVA10-3-0025-02
	VA88-32 3P 32A 25kA MASTER	32	3	25	6	SVA10-3-0032-02
	VA88-32 3P 40A 25kA MASTER	40	3	25	6	SVA10-3-0040-02
	VA88-32 3P 50A 25kA MASTER	50	3	25	6	SVA10-3-0050-02
	VA88-32 3P 63A 25kA MASTER	63	3	25	6	SVA10-3-0063-02
	VA88-32 3P 80A 25kA MASTER	80	3	25	6	SVA10-3-0080-02
	VA88-32 3P 100A 25kA MASTER	100	3	25	6	SVA10-3-0100-02
	VA88-32 3P 125A 25kA MASTER	125	3	25	6	SVA10-3-0125-02
	VA88-32 3P 125A 35kA MASTER with electronic release	125	3	25	6	SVA11-3-0125-02
	VA88-35 3P 63A 35kA MASTER	63	3	35	6	SVA30-3-0063-02
	VA88-35 3P 80A 35kA MASTER	80	3	35	6	SVA30-3-0080-02
	VA88-35 3P 100A 35kA MASTER	100	3	35	6	SVA30-3-0100-02
	VA88-35 3P 125A 35kA MASTER	125	3	35	6	SVA30-3-0125-02
	VA88-35 3P 160A 35kA MASTER	160	3	35	6	SVA30-3-0160-02
	VA88-35 3P 200A 35kA MASTER	200	3	35	6	SVA30-3-0200-02
	VA88-35 3P 250A 35kA MASTER	250	3	35	6	SVA30-3-0250-02
	VA88-33 3P 160 A 35 kA	160	3	35	16	SVA20-3-0160
	VA88-35 3P 63A 35kA MASTER	63	3	35	6	SVA30-3-0063-02
	VA88-35 3P 80A 35kA MASTER	80	3	35	6	SVA30-3-0080-02
	VA88-35 3P 100A 35kA MASTER	100	3	35	6	SVA30-3-0100-02
	VA88-35 3P 125A 35kA MASTER	125	3	35	6	SVA30-3-0125-02
	VA88-35 3P 160A 35kA MASTER	160	3	35	6	SVA30-3-0160-02
	VA88-35 3P 200A 35kA MASTER	200	3	35	6	SVA30-3-0200-02
	VA88-35 3P 250A 35kA MASTER	250	3	35	6	SVA30-3-0250-02
	VA88-35 3P 250A 35kA MASTER with electronic release	250	3	35	6	SVA31-3-0250-02
	VA88-37 3P 250A 35kA MASTER	250	3	35	1	SVA40-3-0250-02
	VA88-37 3P 320A 35kA MASTER	320	3	35	1	SVA40-3-0320-02
	VA88-37 3P 400A 35kA MASTER	400	3	35	1	SVA40-3-0400-02
	VA88-39 3P 400A 35kA MASTER with electronic release	400	3	35	1	SVA71-3-0400-02
	VA88-39 3P 630A 35kA MASTER with electronic release	630	3	35	1	SVA71-3-0630-02

	Name	Rated current, A	Number of poles	Rated ultimate breaking capacity I _n	Quantity in a multiple package, pcs.	Product ID
	VA88-40 3P 400A 35kA MASTER	400	3	35	1	SVA50-3-0400-02
	VA88-40 3P 500A 35kA MASTER	500	3	35	1	SVA50-3-0500-02
	VA88-40 3P 630A 35kA MASTER	630	3	35	1	SVA50-3-0630-02
	VA88-40 3P 800A 35kA MASTER	800	3	35	1	SVA50-3-0800-02

	VA88-40 3P 800A 35kA MASTER with electronic release	800	3	35	1	SVA51-3-0800-02

Supply scope of VA88 MASTER

Name	MASTER series VA88-32	MASTER series VA88-35	MASTER series VA88-37	MASTER series VA88-40
Switch	1	1	1	1
User Manual	1	1	1	1
Interphase partitions	4	4	4	4
Fasteners for external conductor connection	-	-	1 set	1 set
Fasteners for installation on a mounting plate	1 set	1 set	1 set	1 set
Interphase partitions	+	+	+	+
Screws and nuts for external conductor connection	+	+	+	+
Screws and nuts for installation on a mounting plate	+	+	+	+

Selection table for conductor cross-sections for connection to the terminals of VA88 MASTER MCCBs

Name	Rated current, A	Cross-section of a rigid single-core or multi-core conductor, mm²*		Cross-section of a flexible conductor, mm²*		Cross-section (sizes, mm) of the copper bus, mm²		Cross-section (sizes, mm) of the aluminum bus, mm²	
		minimum	maximum	minimum	maximum	minimum	maximum	minimum	maximum
125	12.5	1 (2)	2.5 (2.5)	0.75 (2)	2.5 (2.5)	-	-	-	-
	16	1.5 (2)	4 (6)	1 (2)	4 (6)	-	-	-	-
	25	2.5 (4)	6 (8)	1.5 (2)	4 (6)	-	-	-	-
	32	2.5 (4)	10 (16)	1.5 (2)	6 (8)	-	-	-	-
	40	4 (6)	16 (25)	2.5 (4)	10 (16)	-	-	-	-
	50	6 (8)	16 (25)	2.5 (4)	10 (16)	-	-	-	-
	63	6 (8)	25 (35)	6 (8)	16 (25)	-	-	-	-
	80	10 (16)	35 (50)	10 (16)	25 (35)	-	-	-	-
	100	16 (25)	50 (70)	16 (25)	35 (50)	-	-	-	-
	125**	25 (35)	70 (70)	25 (35)	50 (70)	-	-	-	-
250	63	6 (8)	25 (35)	6 (8)	16 (25)	-	45 (15×3)	-	45 (15×3)
	80	10 (16)	35 (50)	10 (16)	25 (35)	-	45 (15×3)	-	45 (15×3)
	100	16 (25)	50 (70)	16 (25)	35 (50)	-	45 (15×3)	-	45 (15×3)
	125	25 (35)	70 (70)	25 (35)	50 (70)	-	45 (15×3)	-	45 (15×3)
	160	35 (50)	95 (150)	35 (50)	70 (95)	-	45 (15×3)	45 (15×3)	45 (15×3)
	200	50 (70)	120 (185)	50 (70)	95 (150)	45 (15×3)	60 (20×3)	45 (15×3)	60 (20×3)
	250**	70 (95)	150 (240)	70 (95)	120 (185)	45 (15×3)	60 (20×3)	45 (15×3)	60 (20×3)
400	250	70 (95)	150 (240)	70 (95)	120 (185)	60 (20×3)	120 (30×4)	75 (25×3)	120 (30×4)
	315	95 (150)	240 (400)	95 (150)	185 (300)	75 (25×3)	120 (30×4)	75 (25×3)	120 (30×4)
	400**	-	-	-	-	75 (25×3)	120 (30×4)	75 (25×3)	120 (30×4)
630	250	70 (95)	150 (240)	70 (95)	120 (185)	60 (20×3)	120 (30×4)	75 (25×3)	120 (30×4)
	315	95 (150)	240 (400)	95 (150)	185 (300)	75 (25×3)	120 (30×4)	75 (25×3)	120 (30×4)
	400	-	-	-	-	75 (25×3)	120 (30×4)	75 (25× 3)	120 (30×4)
	630**	-	-	-	-	160 (40×4)	200 (40×5)	160 (40×4)	200 (40×5)
800	630	-	-	-	-	160 (40×4)	200 (40×5)	160 (40×4)	200 (40×5)
	800**	-	-	-	-	160 (40×4)	240 (40×6)	160 (40×4)	200 (40×5)

* The cross section of aluminum conductors is indicated in brackets

** Maximum cross-section for the base dimension and required for the respective panels

Accessories for VA88 MASTER MCCBs

Electric drives EP

The EPm electric drive is designed for remote switching on and off of VA88 MASTER MCCBs. Electric drives are stationary electrical products of general purpose and are designed to complete circuit breakers installed in main switchboards, input-distribution devices, control panels, etc.

Circuit breakers with electric drive can be used to complete devices for automatic transfer switch (ATS).

Specifications

Parameter name	EPm-32	EPm-35	EPm-37	EPm-40
	EPm-32e	EPm-35e	EPm-39e	EPm-40e
Rated operating voltage U_e , V	220 50 Hz			
Operating voltage range U, V	$(0.85 \div 1.15) \times U_e$			
Rated insulation voltage, U_i , V	690			
Maximum output at start, VA	200	200	510	510
Turn on time, c, NMT	0.8			
Turn off time, c, NMT	0.2	0.2	1.5	1.5
Cross-section of connected conductors, mm²	from 1.5 to 4			
Wear resistance, ON-OFF cycles, not less than	8000	5000	5000	2000
Weight, not more than, kg	1.1	1.3	3.8	3.9
Warranty period of operation, years	5			
Service life, years	15			

Product range

	Name	Circuit breaker type	Quantity in a package, pcs.	Product ID
	EPm-32	VA88-32 MASTER	8	SVA10D-EP-02
	EPm-32e	VA88-32 MASTER with electronic release	8	SVA11D-EP-02
	EPm-35	VA88-35 MASTER	8	SVA30D-EP-02
				

	Name	Circuit breaker type	Quantity in a package, pcs.	Product ID
	EPm-35e	VA88-35 MASTER with electronic release	8	SVA31D-EP-02
	EPm-37	VA88-37 MASTER	6	SVA40D-EP-02
	EPm-39e	VA88-39 MASTER with electronic release	6	SVA41D-EP-02
	EPm-40	VA88-40 MASTER	6	SVA70D-EP-02
	EPm-40e	VA88-40 MASTER with electronic release	6	SVA71D-EP-02

Plug-in panel with rear threaded connection

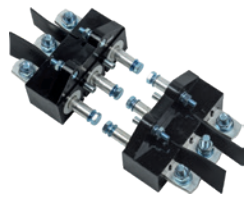
The panels are designed to complete the VA88 MASTER MCCBs, installed in the main switchboards, incoming and distribution switchboards and control panels. They allow quick replacement of circuit breakers and provide a visible break during maintenance work on the line.

Mounting panels are intended for converting a VA88 MASTER stationary MCCB into a plug-in circuit breaker (PMm1).

Specifications

Parameter name	PMm-1 125	PMm-1 250	PMm-1 400	PMm-1 630/800
	PMm-1 125e	PMm-1 250e	PMm-1 400e/630e	PMm-1 800e
Rated operating voltage U _e , V	400			
Operating voltage range U, V	(0.2 ÷ 1.2) U _e			
Rated insulation voltage, U _i , V	690			
Rated network frequency, Hz	50			
Dissipated power, W, NMT	5	5	10	10
Wear resistance, bonds, NLT	6000	6000	6000	6000/5000
Weight, not more than, kg	0.9	1.1	1.2	1.3
Service life, years (from the date of commissioning)	15			

Product range

	Name	Circuit breaker type	Quantity in a package, pcs.	Product ID
	PMm1-125	VA88-32 MASTER	12	SVA10D-PM1-R-02
	PMm1-125e	VA88-32 MASTER with electronic release	12	SVA11D-PM1-R-02
	PMm1-250	VA88-35 MASTER	9	SVA30D-PM1-R-02
	PMm1-250e	VA88-35 MASTER with electronic release	9	SVA31D-PM1-R-02
	PMm1-400	VA88-37 MASTER	9	SVA40D-PM1-R-02
	PMm1-400e/630e	VA88-39 MASTER with electronic release	9	SVA41D-PM1-R-02
	PMm1-630/800	VA88-40 MASTER	6	SVA70D-PM1-R-02
	PMm1-800e	VA88-40 MASTER with electronic release	6	SVA71D-PM1-R-02

Signal auxiliary contact

The AKm signal auxiliary contact is designed to signal the operation of the VA88 MASTER MCCB from:

- overcurrent (overload or short circuit),
- shunt release,
- undervoltage release,
- TEST button.

Specifications

Contact type	Conv. thermal current, A	Rated operating current at supply voltage, A		
		230 V, 50 Hz	400 V, 50 Hz	220 V DC
AKm-125 (AKm-32) AKm-125e (AKm-32) AKm-250 (AKm-35) AKm-250e (AKm-35)	1	0.3	0.3	0.15
AKm-400 (AKm-37) AKm-400e/630e (AKm-39) AKm-630/800 (AKm-40) AKm-800e (AKm-40)	3	1	1	0.2

Product range

	Name	Circuit breaker type	Quantity in a package, pcs.		Product ID
			in multiple package	in transport package	
	AKm-125 (AKm-32)	VA88-32 MASTER	20	180	SVA10D-AK-1-02
	AKm-125e (AKm-32)	VA88-32 MASTER with electronic release	20	180	SVA11D-AK-1-02
	AKm-250 (AKm-35)	VA88-35 MASTER	20	180	SVA30D-AK-1-02
	AKm-250e (AKm-35)	VA88-35 MASTER with electronic release	20	180	SVA31D-AK-1-02
	AKm-400 (AKm-37)	VA88-37 MASTER	10	90	SVA40D-AK-1-02
	AKm-400e/630e (AKm-39)	VA88-39 MASTER with electronic release	10	90	SVA41D-AK-1-02
	AKm-630/800 (AKm-40)	VA88-40 MASTER	10	90	SVA70D-AK-1-02
	AKm-800e (AKm-40)	VA88-40 MASTER with electronic release	10	90	SVA71D-AK-1-02

Auxiliary contact

The DKm auxiliary contact is designed to signal the position of the power contacts of the VA88 MASTER MCCB - on or off.

Specifications

Contact type	Conv. thermal current, A	Rated operating current at supply voltage, A		
		230 V, 50 Hz	400 V, 50 Hz	220 V DC
DKm-125 (DKm-32) DKm-125e (DKm-32) DKm-250 (DKm-35) DKm-250e (DKm-35)	1	0.5	0.5	0.15
DKm-400 (DKm-37) DKm-400e/630e (DKm-39) DKm-630/800 (DKm-40) DKm-800e (DKm-40)	2	1.5	1.5	0.2

Product range

	Name	Circuit breaker type	Quantity in a package, pcs.		Product ID
			in multiple package	in transport package	
	DKm-125 (DKm-32)	VA88-32 MASTER	20	180	SVA10D-DK-1-02
	DKm-125e (DKm-32)	VA88-32 MASTER with electronic release	20	180	SVA11D-DK-1-02
	DKm-250 (DKm-35)	VA88-35 MASTER	20	180	SVA30D-DK-1-02
	DKm-250e (DKm-35)	VA88-35 MASTER with electronic release	20	180	SVA31D-DK-1-02
	DKm-400 (DKm-37)	VA88-37 MASTER	10	90	SVA40D-DK-1-02
	DKm-400e/630e (DKm-39)	VA88-39 MASTER with electronic release	10	90	SVA41D-DK-1-02
	DKm-630/800 (DKm-40)	VA88-40 MASTER	10	90	SVA70D-DK-1-02
	DKm-800e (DKm-40)	VA88-40 MASTER with electronic release	10	90	SVA71D-DK-1-02

Shunt release

The RNm shunt release is designed for remote tripping of the VA88 MASTER MCCB.

Specifications

AC operating voltage Ue at 50 Hz, V	230; 400
Operating voltage range	(0.7 ÷ 1.1) U _e
Power consumption, VA	150

Product range

	Name	Circuit breaker type	Quantity in a package, pcs.		Product ID
			in multiple package	in transport package	
	RNm-125 (RNm-32)	VA88-32 MASTER	20	180	SVA10D-RN-02
	RNm-125e (RNm-32)	VA88-32 MASTER with electronic release	20	180	SVA11D-RN-02
	RNm-250 (RNm-35)	VA88-35 MASTER	20	180	SVA30D-RN-02
	RNm-250e (RNm-35)	VA88-35 MASTER with electronic release	20	180	SVA31D-RN-02
	RNm-400 (RNm-37)	VA88-37 MASTER	10	90	SVA40D-RN-02
	RNm-400e/630e (RNm-39)	VA88-39 MASTER with electronic release	10	90	SVA41D-RN-02
	RNm-630/800 (RNm-40)	VA88-40 MASTER	10	90	SVA70D-RN-02
	RNm-800e (RNm-40)	VA88-40 MASTER with electronic release	10	90	SVA71D-RN-02

Undervoltage release

The RMm undervoltage release is designed to trip the VA88 MASTER MCCB when the phase or line voltage at its input drops to 70% of the rated voltage, and also prevents it from turning on if the voltage in this circuit is less than 85% of the rated voltage.

Specifications

AC operating voltage U_e at 50 Hz, V	230
Operation voltage range, % of the rated one	$(0.35 \div 0.7) U_e$
Seal-in voltage range, % of the rated one	From 0.85 U_e
Power consumption, VA, NMT	10

Product range

	Name	Circuit breaker type	Quantity in a package, pcs.		Product ID
			in multiple package	in transport package	
	RMm-125 (RMm-32)	VA88-32 MASTER	8	72	SVA10D-RM-02
	RMm-125e (RNm-32)	VA88-32 MASTER with electronic release	8	72	SVA11D-RM-02
	RMm-250 (RMm-35)	VA88-35 MASTER	8	72	SVA30D-RM-02
	RMm-250e (RNm-35)	VA88-35 MASTER with electronic release	8	72	SVA31D-RM-02
	RMm-400 (RMm-37)	VA88-37 MASTER	5	45	SVA40D-RM-02
	RMm-400e/630e (RMm-39)	VA88-39 MASTER with electronic release	5	45	SVA41D-RM-02
	RMm-630/800 (RMm-40)	VA88-40 MASTER	5	45	SVA70D-RM-02
	RMm-800e (RMm-40)	VA88-40 MASTER with electronic release	5	45	SVA71D-RM-02

Rotatory handle

The PRPm rotatory handle is designed to convert rotational motion into translational motion to control the VA88 MASTER MCCB. The rotatory handle is mounted on the door of the switchgear to operate the circuit breaker through the door or directly on the circuit breaker.

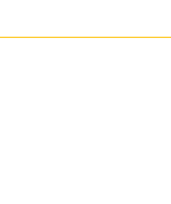
Product range

	Name	Circuit breaker type	Quantity in a package, pcs.		Product ID
			in multiple package	in transport package	
	PRPm-1 125A	VA88-32 MASTER	5	15	SVA10D-PRP-1-1-02
	PRPm-1e 125A	VA88-32 MASTER with electronic release	5	15	SVA11D-PRP-1-1-02
	PRPm-1 250A	VA88-35 MASTER	5	15	SVA30D-PRP-1-1-02
	PRPm-1e 250A	VA88-35 MASTER with electronic release	5	15	SVA31D-PRP-1-1-02
	PRPm-1 400A	VA88-37 MASTER	2	6	SVA40D-PRP-1-1-02
	PRPm-1e 400A/630A	VA88-39 MASTER with electronic release	2	6	SVA41D-PRP-1-1-02
	PRPm-1 630/800	VA88-40 MASTER	2	6	SVA70D-PRP-1-1-02
	PRPm-1e 800A	VA88-40 MASTER with electronic release	2	6	SVA71D-PRP-1-1-02

Mechanical locking

The mechanical interlocking of two VA88 MASTER MCCBs is necessary to exclude the simultaneous activation of two VA88 MASTER in the ATS circuit.

Product range

	Name	MCCB type	Quantity in a package, pcs.		Product ID
			in multiple package	in transport package	
	MBm-125 (MBm-32)	VA88-32 MASTER	-	8	SVA10D-BM-3-0125-02
	MBm-125e	VA88-32 MASTER with electronic release	-	8	SVA11D-BM-3-0125-02
	MBm-250 (MBm-35)	VA88-35 MASTER	-	8	SVA30D-BM-3-0250-02
	MBm-250e	VA88-35 MASTER with electronic release	-	8	SVA31D-BM-3-0250-02
	MBm-400	VA88-37 MASTER	-	8	SVA40D-BM-3-0400-02
	MBm-400e/630e	VA88-39 MASTER with electronic release	-	8	SVA41D-BM-3-0400-02
	MBm-630/800	VA88-40 MASTER	-	8	SVA70D-BM-3-0630-02
	MBm-800e	VA88-40 MASTER with electronic release	-	9	SVA71D-BM-3-0630-02

Tips

	Name	MCCB type	Quantity in a package, pcs.		Product ID
			in multiple package	in transport package	
	Nm-125 (Nm-32)	VA88-32 MASTER	3	100	SVA10D-N-02
	Nm-125e (Nm-32)	VA88-32 MASTER with electronic release	3	100	SVA11D-N-02
	Nm-250 (Nm-35)	VA88-35 MASTER	3	60	SVA30D-N-02
	Nm-250e (Nm-35)	VA88-35 MASTER with electronic release	3	60	SVA31D-N-02

Expanders

	Name	MCCB type	Quantity in a package, pcs.		Product ID
			in multiple package	in transport package	
	RVm-125 (RVm-32)	VA88-32 MASTER	3	100	SVA10D-RV-02
	RVm-125e (RVm-32)	VA88-32 MASTER with electronic release	3	100	SVA11D-RV-02
	RVm-250 (RVm-35)	VA88-35 MASTER	3	60	SVA30D-RV-02
	RVm-250e (RVm-35)	VA88-35 MASTER with electronic release	3	60	SVA31D-RV-02
	RVm-400 (RVm-37)	VA88-37 MASTER	3	30	SVA40D-RV-02
	RVm-400e (RVm-39)	VA88-39 MASTER with electronic release	3	30	SVA41D-RV-02
	RVm-630e (RVm-39)	VA88-39 MASTER with electronic release	3	20	SVA51D-RV-02
	RVm-630/800 (RVm-40)	VA88-40 MASTER	3	12	SVA70D-RV-02
	RVm-800e (RVm-40)	VA88-40 MASTER with electronic release	3	12	SVA71D-RV-02

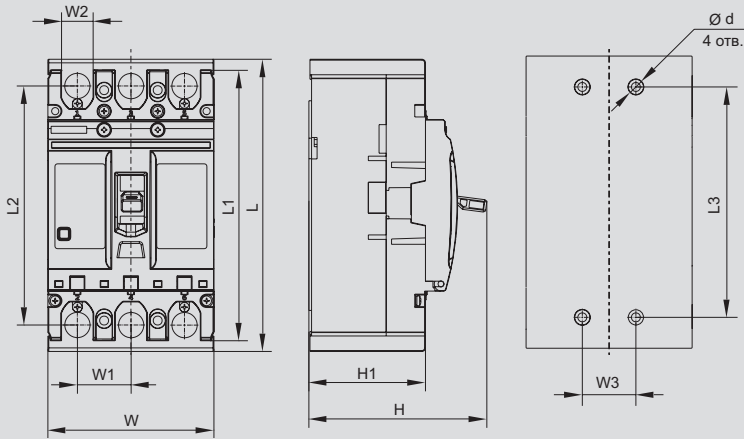
Covers

	Name	MCCB type	Quantity in a package, pcs.		Product ID
			in multiple package	in transport package	
	KKm-125e (KKm-32)	VA88-32 MASTER with electronic release	2	90	SVA11D-KK-02
	KKm-250e (KKm-35)	VA88-35 MASTER with electronic release	2	66	SVA31D-KK-02
	KKm-400e/630e (KKm-39)	VA88-39 MASTER with electronic release	2	36	SVA41D-KK-02

Combined contacts

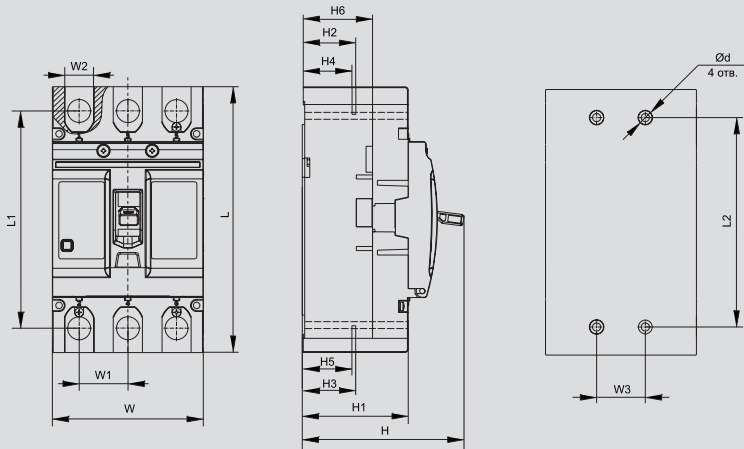
	Name	MCCB type	Quantity in a package, pcs.		Product ID
			in multiple package	in transport package	
	AKDKm-125 (AKDMKm-32)	VA88-32 MASTER	10	90	SVA10D-AK-DK-02
	AKDKm-125e (AKDMKm-32)	VA88-32 MASTER with electronic release	10	90	SVA11D-AK-DK-02
	AKDKm-250 (AKDMKm-35)	VA88-35 MASTER	10	90	SVA30D-AK-DK-02
	AKDKm-250e (AKDMKm-35)	VA88-35 MASTER with electronic release	10	90	SVA31D-AK-DK-02
	AKDKm-400 (AKDKm-37)	VA88-37 MASTER	6	54	SVA40D-AK-DK-02
	AKDKm-400e/630e (AKDKm-39)	VA88-39 MASTER with electronic release	6	54	SVA41D-AK-DK-02
	AKDKm-630/800 (AKDMKm-40)	VA88-40 MASTER	6	54	SVA70D-AK-DK-02
	AKDKm-800e (AKDMKm-40)	VA88-40 MASTER with electronic release	6	54	SVA71D-AK-DK-02

VA88 MASTER



Overall dimensions, mm												
MCCB type	L	L1	L2	L3	W	W1	W2	W3	H	H1	d	
VA88-32	164	150	131	129	92	30	18	30	100	65	4.5	
VA88-35	180	165	146	126	107	35	24	35	100	68	4.5	
VA88-37	285	257	223	194	150	48	33	44	150	100	7	
VA88-40	303	280	243	243	210	70	45	70	150	103	7	

VA88 MASTER with electronic release



Overall dimensions, mm															
MCCB type	L	L1	L2	W	W1	W2	W3	H	H1	H2	H3	H4	H5	H6	d
VA88-32 with electronic release	155	137	134	92.5	30	18	30	116	82	28.5	28.5	25.5	25.5	25	4.5
VA88-35 with electronic release	165	146	126	107	35	24	35	116	85	22.5	22.5	18.5	18.5	60.5	4.5
VA88-39 with electronic release	257	224	194	150	48	33	44	150	100	40.5	41.5	34.5	35.5	47	7
VA88-40 with electronic release	280	243	243	210	70	45	70	155	103	42	46	39	39	70	7

Contactors

KMI series small-sized contactors

Small-sized AC contactors for general industrial use KMI for 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 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 series small-sized contactors comply with the requirements of international standards EN/IEC 60947-1-1.

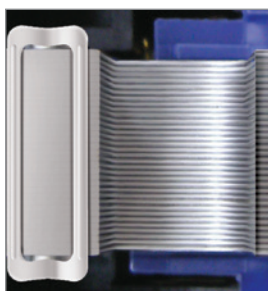
Advantages

- An expanded range of offers of KMI series small-sized contactors in comparison with analogues of domestic manufacturers in the Russian market
- A wide range of additional devices that are always available in stock (PKI contact attachments, PVI time delay attachments, RTI electrothermal relay).
- Possibility of installation on a 35 mm DIN rail (other domestic manufacturers offer a similar mount only on request)
- It is possible to obtain a reverse version using blocking mechanisms.

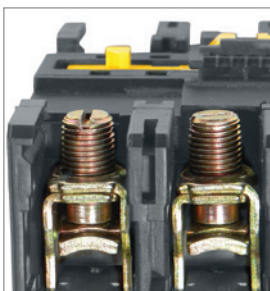
Design features



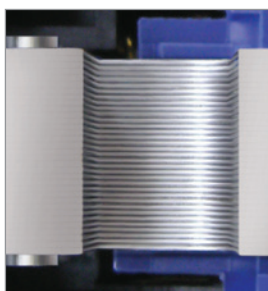
Oval-shaped connecting contacts ensure reliable fixation of conductors:
– for sizes 1 and 2 – with hardened Belleville washers;
– for sizes 3 and 4 – with a clamping bracket that allows the connection of a contact with a larger cross section.



Short-circuited aluminum rings pressed into the pole pieces of the stationary part of the magnetic system are provided to prevent detonation.



Notches on the connecting contacts reduce the heating of the wires due to reliable fixation at the connection points and an increase in the total contact area.



As a result of the use of a unique production technology, the magnetic system in the working position provides an optimal mode of operation (no noise and increased reliability of the contact system).



Built-in auxiliary contacts. Each contactor up to 32 A comes with one built-in auxiliary contact: 1NO and 1NC (NO and NC). Contactors from 40 to 95 A are equipped with two auxiliary contacts: 1NO+1NC



There are two ways to install contactors:

1. Fast mounting on a DIN rail:
KMI from 9 to 32A (size 1 and size 2) – 35 mm;
KMI from 40 to 95A (size 3 and size 4) – 35 and 75 mm.
2. Mounting with screws on a mounting plate or profile.

Product range

	Name	Rated operational current, A (AC-3)	Rated control coil voltage, 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	1NO	50	KKM11-009-024-10
	KMI-10910 9 A 36 V/AC-3 1NO IEK	9	36	1NO	50	KKM11-009-036-10
	KMI-10910 9 A 110 V/AC-3 1NO IEK	9	110	1NO	50	KKM11-009-110-10
	KMI-10910 9 A 230 V/AC-3 1NO IEK	9	230	1NO	50	KKM11-009-230-10
	KMI-10910 9 A 400 V/AC-3 1NO IEK	9	400	1NO	50	KKM11-009-400-10
	KMI-10911 9 A 110 B/AC-3 1NC IEK	9	110	1NC	50	KKM11-009-110-01
	KMI-10911 9 A 230 B/AC-3 1NC IEK	9	230	1NC	50	KKM11-009-230-01
	KMI-10911 9 A 400 B/AC-3 1NC IEK	9	400	1NC	50	KKM11-009-400-01
	KMI-11210 12 A 24 V/AC-3 1NO IEK	12	24	1NO	50	KKM11-012-024-10
	KMI-11210 12 A 36 V/AC-3 1NO IEK	12	36	1NO	50	KKM11-012-036-10
	KMI-11210 12 A 110 V/AC-3 1NO IEK	12	110	1NO	50	KKM11-012-110-10
	KMI-11210 12 A 230 V/AC-3 1NO IEK	12	230	1NO	50	KKM11-012-230-10
	KMI-11210 12 A 400 V/AC-3 1NO IEK	12	400	1NO	50	KKM11-012-400-10
	KMI-11211 12 A 110 V/AC-3 1NC IEK	12	110	1NC	50	KKM11-012-110-01
	KMI-11211 12 A 230 V/AC-3 1NC IEK	12	230	1NC	50	KKM11-012-230-01
	KMI-11211 12 A 400 V/AC-3 1NC IEK	12	400	1NC	50	KKM11-012-400-01
	KMI-11810 18 A 24 V/AC-3 1NO IEK	18	24	1NO	50	KKM11-018-024-10
	KMI-11810 18 A 36 V/AC-3 1NO IEK	18	36	1NO	50	KKM11-018-036-10
	KMI-11810 18 A 110 V/AC-3 1NO IEK	18	110	1NO	50	KKM11-018-110-10
	KMI-11810 18 A 230 V/AC-3 1NO IEK	18	230	1NO	50	KKM11-018-230-10
	KMI-22510 25 A 24 V/AC-3 1NO IEK	25	24	1NO	50	KKM21-025-024-10
	KMI-22510 25 A 36 V/AC-3 1NO IEK	25	36	1NO	50	KKM21-025-036-10
	KMI-22510 25 A 110 V/AC-3 1NO IEK	25	110	1NO	50	KKM21-025-110-10
	KMI-22510 25 A 230 V/AC-3 1NO IEK	25	230	1NO	50	KKM21-025-230-10
	KMI-22510 25 A 400 V/AC-3 1NO IEK	25	400	1NO	50	KKM21-025-400-10
	KMI-22511 25 A 110 V/AC-3 1NC IEK	25	110	1NC	50	KKM21-025-110-01
	KMI-22511 25 A 230 V/AC-3 1NC IEK	25	230	1NC	50	KKM21-025-230-01
	KMI-22511 25 A 400 V/AC-3 1NC IEK	25	400	1NC	50	KKM21-025-400-01
	KMI-23210 32 A 36 V/AC-3 1NO IEK	32	36	1NO	50	KKM21-032-036-10
	KMI-23210 32 A 110 V/AC-3 1NO IEK	32	110	1NO	50	KKM21-032-110-10
	KMI-23210 32 A 230 V/AC-3 1NO IEK	32	230	1NO	50	KKM21-032-230-10
	KMI-23210 32 A 400 V/AC-3 1NO IEK	32	400	1NO	50	KKM21-032-400-10
	KMI-23211 32 A 110 V/AC-3 1NC IEK	32	110	1NC	50	KKM21-032-110-01
	KMI-23211 32 A 230 V/AC-3 1NC IEK	32	230	1NC	50	KKM21-032-230-01
	KMI-23211 32 A 400 V/AC-3 1NC IEK	32	400	1NC	50	KKM21-032-400-01
	KMI-34012 40 A 36 V/AC-3 1NO 1NC IEK	40	36	13+1p	20	KKM31-040-036-11
	KMI-34012 40 A 110 V/AC-3 1NO 1NC IEK	40	110	13+1p	20	KKM31-040-110-11
	KMI-34012 40 A 230 V/AC-3 1NO 1NC IEK	40	230	13+1p	20	KKM31-040-230-11
	KMI-34012 40 A 400 V/AC-3 1NO 1NC IEK	40	400	13+1p	20	KKM31-040-400-11
	KMI-35012 50 A 110 V/AC-3 1NO 1NC IEK	50	110	13+1p	20	KKM31-050-110-11
	KMI-35012 50 A 230 V/AC-3 1NO 1NC IEK	50	230	13+1p	20	KKM31-050-230-11
	KMI-46512 65 A 110 V/AC-3 1NO 1NC IEK	65	110	13+1p	20	KKM41-065-110-11
	KMI-46512 65 A 230 V/AC-3 1NO 1NC IEK	65	230	13+1p	20	KKM41-065-230-11
	KMI-46512 65 A 400 V/AC-3 1NO 1NC IEK	65	400	13+1p	20	KKM41-065-400-11
	KMI-48012 80 A 110 V/AC-3 1NO 1NC IEK	80	110	13+1p	16	KKM41-080-110-11
	KMI-48012 80 A 230 V/AC-3 1NO 1NC IEK	80	230	13+1p	16	KKM41-080-230-11
	KMI-48012 80 A 400 V/AC-3 1NO 1NC IEK	80	400	13+1p	16	KKM41-080-400-11
	KMI-49512 95 A 110 V/AC-3 1NO 1NC IEK	95	110	13+1p	16	KKM41-095-110-11
	KMI-49512 95 A 230 V/AC-3 1NO 1NC IEK	95	230	13+1p	16	KKM41-095-230-11
	KMI-49512 95 A 400 V/AC-3 1NO 1NC IEK	95	400	13+1p	16	KKM41-095-400-11

Technical characteristics of KMI small-sized contactors

Parameters		KMI-10910 KMI-10911	KMI-11210 KMI-11211	KMI-11810 KMI-11811	KMI-22510 KMI-22511	KMI-23210 KMI-23211	KMI-34012	KMI-35012	KMI-46512	KMI-48012	KMI-49512
AC operating voltage U_e , V		230, 400, 660									
Rated insulation voltage U_i , V		660									
Rated impulse voltage U_{imp} , kV		8									
Coordination type		2									
Operating temperature range, °C		−25÷+50									
Climatic modification and environmental class		NF4									
Rated operational current I_e , application category AC-3 ($U_e \leq 400$ V), A		9	12	18	25	32	40	50	65	80	95
Conventional thermal current I_{th} ($t^\circ \leq 40^\circ$), utilization category AC-1, A		25	25	32	40	50	60	80	80	125	125
Rated capacity as per AC-3, kW	230 V	2.2	3	4	5.5	7.5	11	15	18.5	22	25
	400 V	4	5.5	7.5	11	15	18.5	22	30	37	45
	660 V	5.5	7.5	10	15	18.5	30	33	37	45	45
Maximum moment load ($t \leq 1c$), A		162	216	324	450	576	720	900	1170	1440	1710
Conditional short-circuit current I_{sc} , A		1000	1000	3000	3000	3000	3000	3000	3000	5000	5000
Overcurrent protection – fuse gG, A		10	20	25	40	50	50	63	80	100	100
Dissipation power at I_e , W/pole	AC-3	0.2	0.36	0.8	1.25	2	2.4	3.7	4.2	5.1	7.2
	AC-1	1.56	1.56	2.5	3.2	5	5.4	9.6	6.4	12.5	12.5

Technical characteristics of KMI small-sized contactors

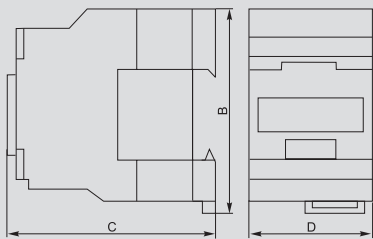
Parameters		KMI-10910 KMI-10911	KMI-11210 KMI-11211	KMI-11810 KMI-11811	KMI-22510 KMI-22511	KMI-23210 KMI-23211	KMI-34012	KMI-35012	KMI-46512	KMI-48012	KMI-49512
Rated voltage of the control coil U_c , W.		24, 36, 110, 230, 400									
Control voltage range	tripping	$(0.8 \div 1.1) U_c$									
	release	$(0.3 \div 0.6) U_c$									
Coil power consumption at U_c , VA	trip. $\cos \varphi = 0,75$	60	60	60	90	90	200	200	200	200	200
	hold $\cos \varphi = 0,3$	7	7	7	7.5	7.5	20	20	20	20	20
Response time, msec	short	12–22	12–22	12–22	15–24	15–24	20–26	20–26	20–26	20–35	20–35
	open	4–19	4–19	4–19	5–19	5–19	8–12	8–12	8–12	6–20	6–20
Switching durability, million cycles	AC-1	0.55	0.7	1.0	1.3	1.3	1.3	1.3	1.4	0.7	1.2
	AC-3	1.7	1.7	1.4	1.4	1.6	1.5	1.4	1.4	1.2	0.9
	AC-4	0.2	0.2	0.2	0.15	0.15	0.12	0.1	0.1	0.1	0.1
Mechanical wear resistance, million cycles		15	15	15	12	10	10	10	10	5	4
Dissipation power, W		2–3	2–3	2–3	2.5–3.5	2.5–3.5	6–10	6–10	6–10	6–10	6–10

Specifications of built-in auxiliary contacts

Rated voltage U_s , V	up to 660	
Rated insulation voltage U_i , V	660	
Thermal stability current ($t^\circ \leq 40^\circ$) I_{th} , A	10	
Minimum making capacity	U_{min} , V	24
	I_{min} , mA	10
Overcurrent protection – fuse gG, A	10	
Maximum moment load ($t \leq 1sec$), A	100	
Insulation resistance, NLT, MOhms	10	

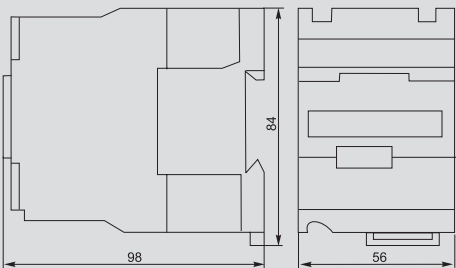
Dimensions and weight

KMI 10910; KMI 10911; KMI 11210; KMI 11211; KMI 11810; KMI 11811 KMI 22510; KMI 22511



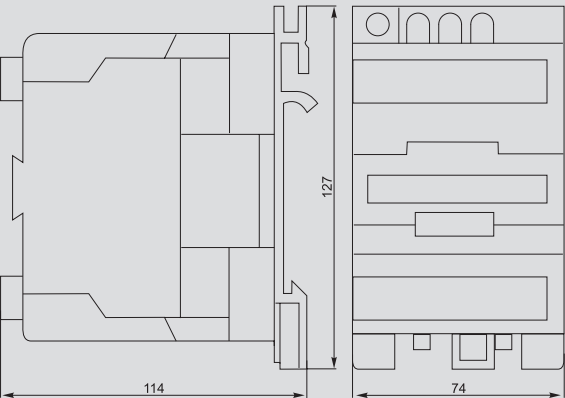
Version	Size, mm			Weight, not more than, kg
	B	C	D	
KMI-10910 KMI-10911	74	80	45	0.34
KMI-11210 KMI-11211	74	80	45	0.345
KMI-11810 KMI-11811	74	85	45	0.365
KMI-22510; KMI-22511	84	93	56	0.400

KMI 23210; KMI 23211



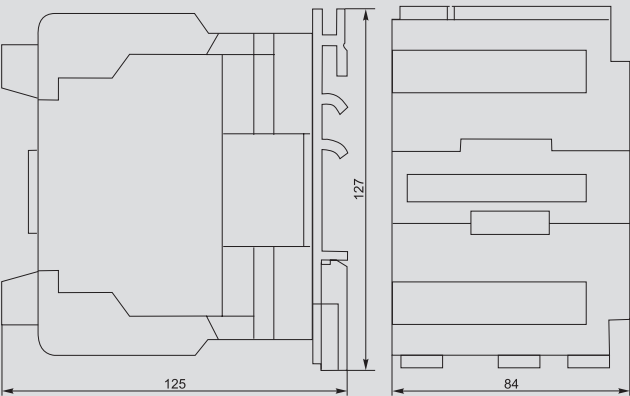
Version	Weight, not more than, kg
KMI-23210; KMI-23211	0.545

KMI 34010; KMI 34011
KMI 35012; KMI 46512



Version	Weight, not more than, kg
KMI-34010; KMI-34011	1.400
KMI-35012	1.400
KMI-46512	1.400

KMI 48012 KMI 49512



Version	Weight, not more than, kg
KMI-48012	1.590
KMI-49512	1.610

KMle series small-sized contactors

Small-sized AC contactors for general industrial use KMle for load current from 9 to 95 A are designed for starting, stopping and reversing asynchronous electric motors with a squirrel-cage rotor for voltage up to 660 V (application category AC-3), as well as for remote control of lighting circuits, heating circuits and various low inductive loads (application category AC-1). 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 KMle series is the control of fans, pumps, thermal curtains, furnaces, overhead crane, machine tools, lighting, in automatic transfer systems (ATS).

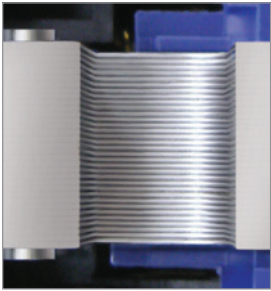
In terms of their design and technical characteristics, KMI small-sized contactors comply with the requirements of international standards EN/IEC 60947-4-1:2000.



Advantages

- High switching wear resistance.
- Low noise level.
- Cost-effective solution.
- Wide range.

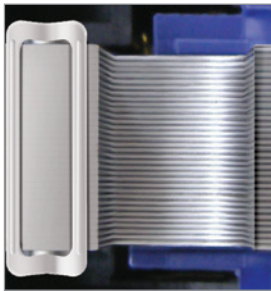
Design features



The magnetic system in the working position provides an optimal mode of operation (no noise and increased reliability of the contact system).



Notches on the connecting contacts reduce the heating of the wires due to reliable fixation at the connection points and an increase in the total contact area.



Short-circuited aluminum rings pressed into the pole pieces of the stationary part of the magnetic system are provided to prevent detonation.



Contactors up to 32 A are equipped with one built-in auxiliary contact: 1NO or 1NC (normal open or normal closed). Contactors from 40 to 95 A are equipped with two auxiliary contacts. 1NO + 1NC.

Product range

	Name	Rated operational current, A (AC-3)	Rated control coil voltage, V	Quantity and type of contacts	Quantity in transp. pack., pcs.	Product ID
	KMle contactors-10910 9A 110V/AC3 1NO	9	110	1NO	50	KKME11-009-110-10
	KMle contactors-10910 9A 230V/AC3 1NO	9	230	1NO	50	KKME11-009-230-10
	KMle contactors-10910 9A 24V/AC3 1NO	9	24	1NO	50	KKME11-009-024-10
	KMle contactors-10910 9A 36V/AC3 1NO	9	36	1NO	50	KKME11-009-036-10
	KMle contactors-10910 9A 400V/AC3 1NO	9	400	1NO	50	KKME11-009-400-10
	KMle contactors-10911 9A 110V/AC3 1NC	9	110	1NC	50	KKME11-009-110-01
	KMle contactors-10911 9A 230V/AC3 1NC	9	230	1NC	50	KKME11-009-230-01
	KMle contactors-10911 9A 24V/AC3 1NC	9	24	1NC	50	KKME11-009-024-01
	KMle contactors-10911 9A 400V/AC3 1NC	9	400	1NC	50	KKME11-009-400-01
	KMle contactors-11210 12A 110V/AC3 1NO	12	110	1NO	50	KKME11-012-110-10
	KMle contactors-11210 12A 230V/AC3 1NO	12	230	1NO	50	KKME11-012-230-10
	KMle contactors-11210 12A 24V/AC3 1NO	12	24	1NO	50	KKME11-012-024-10
	KMle contactors-11210 12A 36V/AC3 1NO	12	36	1NO	50	KKME11-012-036-10
	KMle contactors-11210 12A 400V/AC3 1NO	12	400	1NO	50	KKME11-012-400-10
	KMle contactors-11211 12A 110V/AC3 1NC	12	110	1NC	50	KKME11-012-110-01
	KMle contactors-11211 12A 230V/AC3 1NC	12	230	1NC	50	KKME11-012-230-01
	KMle contactors-11211 12A 400V/AC3 1NC	12	400	1NC	50	KKME11-012-400-01
	KMle contactors-11810 18A 110V/AC3 1NO	18	110	1NO	50	KKME11-018-110-10
	KMle contactors-11810 18A 230V/AC3 1NO	18	230	1NO	50	KKME11-018-230-10
	KMle contactors-11810 18A 24V/AC3 1NO	18	24	1NO	50	KKME11-018-024-10
	KMle contactors-11810 18A 36V/AC3 1NO	18	36	1NO	50	KKME11-018-036-10
	KMle contactors-11810 18A 400V/AC3 1NO	18	400	1NO	50	KKME11-018-400-10
	KMle contactors-11811 18A 110V/AC3 1NC	18	110	1NC	50	KKME11-018-110-01
	KMle contactors-11811 18A 230V/AC3 1NC	18	230	1NC	50	KKME11-018-230-01
	KMle contactors-11811 18A 400V/AC3 1NC	18	400	1NC	50	KKME11-018-400-01

Product range

	Name	Rated operational current, A (AC-3)	Rated control coil voltage, V	Quantity and type of contacts	Quantity in transp. pack., pcs.	Product ID
	KMle contactors-22510 25A 110V/AC3 1NO	25	110	1NO	50	KKME21-025-110-10
	KMle contactors-22510 25A 230V/AC3 1NO	25	230	1NO	50	KKME21-025-230-10
	KMle contactors-22510 25A 24V/AC3 1NO	25	24	1NO	50	KKME21-025-024-10
	KMle contactors-22510 25A 36V/AC3 1NO	25	36	1NO	50	KKME21-025-036-10
	KMle contactors-22510 25A 400V/AC3 1NO	25	400	1NO	50	KKME21-025-400-10
	KMle contactors-22511 25A 110V/AC3 1NC	25	110	1NC	50	KKME21-025-110-01
	KMle contactors-22511 25A 230V/AC3 1NC	25	230	1NC	50	KKME21-025-230-01
	KMle contactors-22511 25A 400V/AC3 1NC	25	400	1NC	50	KKME21-025-400-01
	KMle contactors-23210 32A 110V/AC3 1NO	32	110	1NO	50	KKME21-032-110-10
	KMle contactors-23210 32A 230V/AC3 1NO	32	230	1NO	50	KKME21-032-230-10
	KMle contactors-23210 32A 36V/AC3 1NO	32	36	1NO	50	KKME21-032-036-10
	KMle contactors-23210 32A 400V/AC3 1NO	32	400	1NO	50	KKME21-032-400-10
	KMle contactors-23211 32A 110V/AC3 1NC	32	110	1NC	50	KKME21-032-110-01
	KMle contactors-23211 32A 230V/AC3 1NC	32	230	1NC	50	KKME21-032-230-01
	KMle contactors-23211 32A 400V/AC3 1NC	32	400	1NC	50	KKME21-032-400-01
	KMle contactor-34012 40A 110V/AC3 1NO; 1NC	40	110	1NC+1NO	20	KKME31-040-110-11
	KMle contactor-34012 40A 230V/AC3 1NO; 1NC	40	230	1NC+1NO	20	KKME31-040-230-11
	KMle contactor-34012 40A 36V/AC3 1NO; 1NC	40	36	1NC+1NO	20	KKME31-040-036-11
	KMle contactor-34012 40A 400V/AC3 1NO; 1NC	40	400	1NC+1NO	20	KKME31-040-400-11
	KMle contactor-35012 50A 110V/AC3 1NO; 1NC	50	110	1NC+1NO	20	KKME31-050-110-11
	KMle contactor-35012 50A 230V/AC3 1NO; 1NC	50	230	1NC+1NO	20	KKME31-050-230-11
	KMle contactor-35012 50A 400V/AC3 1NO; 1NC	50	400	1NC+1NO	20	KKME31-050-400-11
	KMle contactor-46512 65A 110V/AC3 1NO; 1NC	65	110	1NC+1NO	20	KKME41-065-110-11
	KMle contactor-46512 65A 230V/AC3 1NO; 1NC	65	230	1NC+1NO	20	KKME41-065-230-11
	KMle contactor-46512 65A 400V/AC3 1NO; 1NC	65	400	1NC+1NO	20	KKME41-065-400-11
	KMle contactor-48012 80A 110V/AC3 1NO; 1NC	80	110	1NC+1NO	10	KKME41-080-110-11
	KMle contactor-48012 80A 230V/AC3 1NO; 1NC	80	230	1NC+1NO	10	KKME41-080-230-11
	KMle contactor-48012 80A 400V/AC3 1NO; 1NC	80	400	1NC+1NO	10	KKME41-080-400-11
	KMle contactor-49512 95A 110V/AC3 1NO; 1NC	95	110	1NC+1NO	10	KKME41-095-110-11
	KMle contactor-49512 95A 230V/AC3 1NO; 1NC	95	230	1NC+1NO	10	KKME41-095-230-11
	KMle contactor-49512 95A 400V/AC3 1NO; 1NC	95	400	1NC+1NO	10	KKME41-095-400-11

Technical characteristics of KMle small-sized contactors

Parameters		KMle-1091 (0/1)	KMle-1121 (0/1)	KMle-1181 (0/1)	KMle-2251 (0/1)	KMle-2321 (0/1)	KMle-34012	KMle-35012	KMle-46512	KMle-48012	KMle-49512
AC operating voltage U_e , V		230; 400; 660									
Rated insulation voltage U_i , V		660									
Rated impulse voltage U_{imp} , kV		6									
Operating temperature range, °C		-25 ÷ +50									
Rated operational current I_e , application category AC-3 ($U_e \leq 400$ V), A		9	12	18	25	32	40	50	65	80	95
Conventional thermal current I_{th} , utilization category AC-1 ($t^\circ \leq 40$ °C), A		20	20	32	40	50	60	80	80	125	125
Rated capacity as per AC-3, kW	230 V	2.2	3	4	5.5	7.5	11	15	18.5	22	25
	400 V	4	5.5	7.5	11	15	18.5	22	30	37	45
	660V	5.5	7.5	10	15	18.5	30	33	37	45	45
Overcurrent protection – fuse gG, A (customer supplied)		10	20	25	40	50	50	63	80	100	100
Maximum moment load ($t \leq 1$ sec), A 162			216	324	450	576	720	900	1170	1440	1710
Conditional short-circuit current I_{nc} , A 1000				3000						5000	
Dissipation power at I_e , NMT W/pole	AC-3	0.2	0.36	0.8	1.25	2	2.4	3.7	4.2	5.1	7.2
	AC-1	1.56	1.56	2.5	3.2	5	5.4	9.6	6.4	12.5	12.5
Reparability		the possibility of replacing the control coil									
Degree of protection		IP20									
Insulation resistance, MOhms, NLT		10									
Service life, years		15									

Main characteristics of the auxiliary circuit

Rated voltage U_n , V	AC voltage to	660
	DC voltage to	440
Rated insulation voltage U_i , V		660
Thermal stability current ($t^\circ \leq 40$ °C) I_{th} , A		10
Overcurrent protection – fuse gG, A		10
Maximum moment load ($t \leq 1$ sec), A		100
Minimum making capacity	U_{min} , V	17
	I_{min} , mA	5
Insulation resistance, MOhms		10

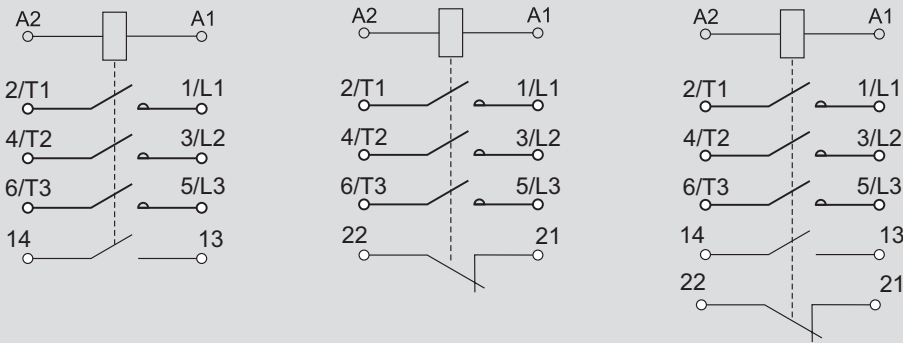
Cross-sections of connected conductors to the main control circuits and to auxiliary circuits

Parameters	KMle-1091 (0/1)	KMle-1121 (0/1)	KMle-1181 (0/1)	KMle-2251 (0/1)	KMle-2321 (0/1)	KMle-34012	KMle-35012	KMle-46512	KMle-48012	KMle-49512
Main contacts										
Flexible cable without a cap, mm²	1.0-2.5	1.0-2.5	1.5-4	1.5-4	2.5-6	6-16	10-25	10-25	16-35	16-35
Rigid cable without a cap, mm²	1.5-4	1.5-4	2.5-6	2.5-6	4-10	10-25	16-35	16-35	25-50	25-50
Screw size	M3.5	M3.5	M3.5	M4	M4	M8	M8	M8	M10	M10
Auxiliary contacts and contacts of the control circuit										
Flexible cable without a cap, mm²	1-4									
Rigid cable without a cap, mm²	1-4									
Screw size	M3.5									

Rated limit values for the parameters of the closing coils of the contactors

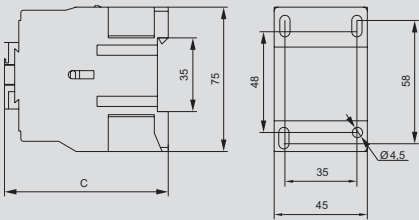
Parameters		KMle-1091 (0/1)	KMle-1121 (0/1)	KMle-1181 (0/1)	KMle-2251 (0/1)	KMle-2321 (0/1)	KMle-34012	KMle-35012	KMle-46512	KMle-48012	KMle-49512
Rated voltage of the control coil U_c , W		24; 36; 110; 230; 400									
Control voltage range	Trip	$(0.8 \div 1.1) U_c$									
	Release	$(0.3 \div 0.6) U_c$									
Coil power consumption at U_c , VA	Trip	70					160				
	Holding	7					15				
Response time, msec	Close	12-22					12-26				
	Open	4-19					4-19				
Electrical durability according to AS-3, million cycles		0.9	0.9	0.9	0.8	0.7	0.7	0.7	0.7	0.6	0.5
Electrical durability according to AS-1, million cycles		0.8	0.8	0.8	0.7	0.7	0.7	0.7	0.7	0.6	0.5
Mechanical wear resistance, million cycles		9	9	9	8	7	7	7	7	4	3
Dissipation power, W		2-3					4-5				

Electrical diagrams of contactors



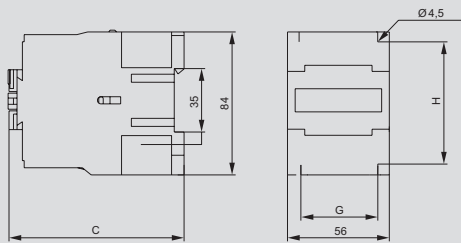
Dimensions and weight

KMle-1091(0/1), KMle-1121(0/1),
KMle-1181(0/1), KMle-2251(0/1)



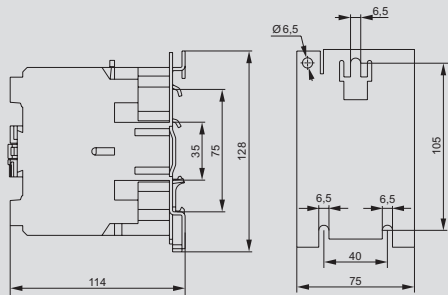
Type	C, mm
KMle-1091 (0/1)	80
KMle-1121 (0/1)	80
KMle-1181 (0/1)	85

KMle-2321(0/1), KMle-2251(0/1)

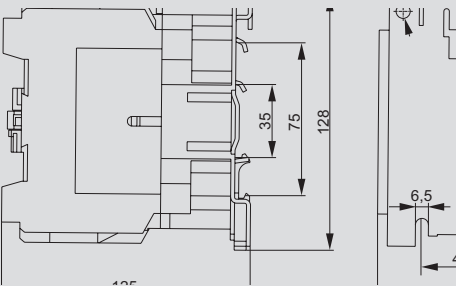


Type	C, mm	G, mm	H, mm
KMle-2251 (0/1)	93	40+50	50+60
KMle-2321 (0/1)	98	40+50	50+60

KMle-34012, KMle35012, KMle-46512



KMle-48012, KMle-49512



KMI contactors with an electrothermal relay in a protective case

KMI contactors assembled with an electrothermal relay in a protective case are a complete device consisting of a KMI small-sized contactor, an RTI thermal relay, a sheath with glands and control buttons. Designed for remote start by direct connection to the network and stop of three-phase asynchronous electric motors with a squirrel-cage rotor for AC voltage up to 400 V, as well as to protect electric motors from overloads of unacceptable duration and overcurrents that occur when one of the phases is broken. When using KMI 10910÷KMI 23211 contactors, a plastic sheath is used, KMI 34012÷KMI 49512 – a metal sheath.



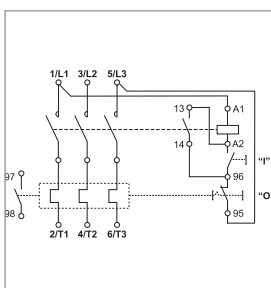
Design features



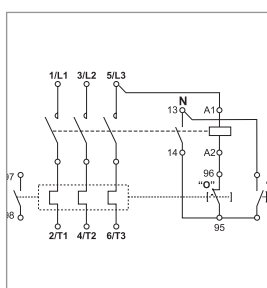
The enclosure with IP54 degree of protection allows the contactor to be used at construction sites, in paint and varnish, thermal and electroplating shops (provided that the equipment is placed under a protective canopy).



The factory control scheme avoids wiring errors on site and reduces installation time, which is only limited by the connection of line supply conductors.



In most cases, asynchronous three-phase motors with a voltage of 400 V act as a load. In order to reduce cash costs and save working time, it is recommended to use this control system, since it eliminates the need to use a fourth neutral working conductor, its cutting and installation.



When controlling active loads (heating circuits, lighting circuits) that use a neutral wire, it is more rational to use a 230 V control circuit.

Product range

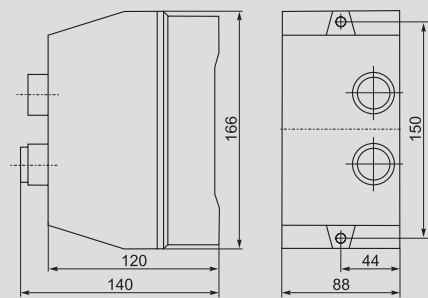
	Name	Rated operational current, A (AC-3)	Rated voltage of the control coil, V	Quantity and type of contacts	Quantity in transp. pack., pcs.	Product ID
	KMI-10960 9 A in casing 220 V/AC-3 IP54	9	220		20	KKM16-009-220-00
	KMI-10960 9 A in casing 380 V/AC-3 IP54	9	380		20	KKM16-009-380-00
	KMI-11260 12 A in casing 220 V/AC-3 IP54	12	220		20	KKM16-012-220-00
	KMI-11260 12 A in casing 380 V/AC-3 IP54	12	380		20	KKM16-012-380-00
	KMI-11860 18 A in casing 220 V/AC-3 IP54	18	220		20	KKM16-018-220-00
	KMI-11860 18 A in casing 380 V/AC-3 IP54	18	380		20	KKM16-018-380-00
	Casing for KMI 9-18 A IP54	—	—	—	20	KKM-1
	KMI-22560 25 A in casing 220 V/AC-3 IP54	25	220		16	KKM26-025-220-00
	KMI-22560 25 A in casing 380 V/AC-3 IP54	25	380		16	KKM26-025-380-00
	KMI-23260 32 A in casing 220 V/AC-3 IP54	32	220		16	KKM26-032-220-00
	KMI-23260 32 A in casing 380 V/AC-3 IP54	32	380		16	KKM26-032-380-00
	Casing for KMI 25-32 A IP54	—	—	—	16	KKM-2
	KMI-34062 40 A in casing 220 V/AC-3 IP54	40	220	1NC	6	KKM36-040-220-00
	KMI-34062 40 A in casing 380 V/AC-3 IP54	40	380	1NC	6	KKM36-040-380-00
	KMI-35062 50 A in casing 220 V/AC-3 IP54	50	220	1NC	6	KKM36-050-220-00
	KMI-35062 50 A in casing 380 V/AC-3 IP54	50	380	1NC	6	KKM36-050-380-00
	KMI-46562 65 A in casing 220 V/AC-3 IP54	65	220	1NC	6	KKM46-065-220-00
	KMI-46562 65 A in casing 380 V/AC-3 IP54	65	380	1NC	6	KKM46-065-380-00
	KMI-48062 80 A in casing 220 V/AC-3 IP54	80	220	1NC	6	KKM46-080-220-00
	KMI-48062 80 A in casing 380 V/AC-3 IP54	80	380	1NC	6	KKM46-080-380-00
	KMI-49562 95 A in casing 220 V/AC-3 IP54	95	220	1NC	6	KKM46-095-220-00
	KMI-49562 95 A in casing 380 V/AC-3 IP54	95	380	1NC	6	KKM46-095-380-00
	Casing for KMI 40-95 A IP54	—	—	—	6	KKM-3

Specifications

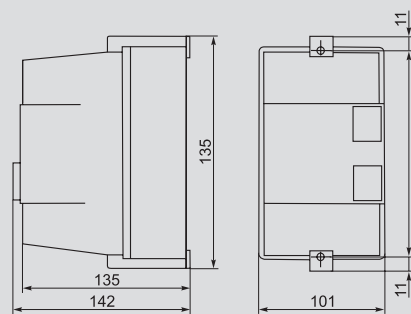
Parameters		KMI-10960 in sheath	KMI-11260 in sheath	KMI-11860 in sheath	KMI-22560 in sheath	KMI-23260 in sheath	KMI-34062 in sheath	KMI-35062 in sheath	KMI-46562 in sheath	KMI-48062 in sheath	KMI-49562 in sheath
AC operating voltage U_e , V		230; 400									
Rated insulation voltage U_i , V		660									
Rated impulse voltage U_{imp} , kV		6									
Operating temperature range, °C		−25 ÷ +50									
Climatic modification and environmental class		NF4									
Rated operational current I_n , application category AC-3 ($U_n < 400$ V), A		9	12	18	25	32	40	50	65	80	95
Conventional thermal current I_{th} ($t^\circ < 40^\circ$), utilization category AC-1, A		25	25	32	40	50	60	80	80	125	125
Rated capacity as per AC-3, kW	230 V	2.2	3	4	5.5	7.5	11	15	18.5	22	25
	400 V	4	5.5	7.5	11	15	18.5	22	30	37	45
Maximum moment load ($t \leq 1$ sec), A		162	216	324	450	576	720	900	1170	1440	1710
Conditional short-circuit current I_{sc} , A		1000	1000	3000	3000	3000	3000	3000	3000	5000	5000
Overcurrent protection – fuse gG, A		10	20	25	40	50	50	63	80	100	100
Coordination type		2									
Dissipation power at I_n , W	AC-3	0.2	0.36	0.8	1.25	2	2.4	3.7	4.2	5.1	7.2
	AC-1	1.56	1.56	2.5	3.2	5	5.4	9.6	6.4	12.5	12.5
RTI electrothermal relay		RTI-1314	RTI-1316	RTI-1321	RTI-1322	RTI-2355	RTI-3357	RTI-3359	RTI-3361	RTI-3363	RTI-3365
Relay set point range, A		7 ÷ 10	9 ÷ 13	12 ÷ 18	17 ÷ 25	30 ÷ 40	37 ÷ 50	48 ÷ 65	55 ÷ 70	63 ÷ 80	80 ÷ 93
Class of human protection against electric shock		II	II	II	II	II	I	I	I	I	I

Dimensions

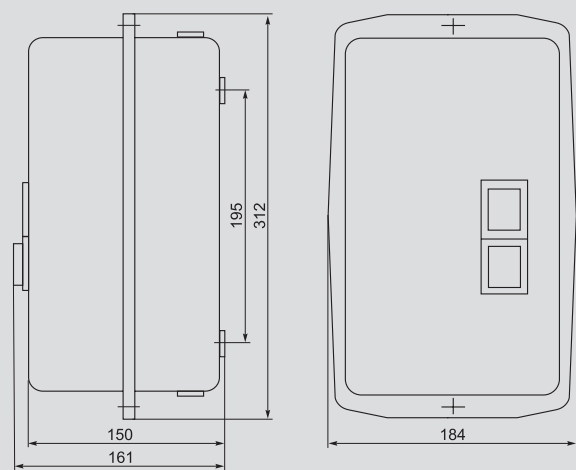
KMI 10960; KMI 11260; KMI 11860



KMI 22560; KMI 23260



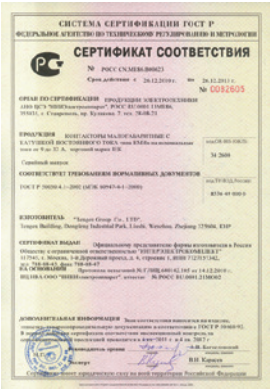
KMI 34062; KMI 35062; KMI 46562; KMI 48062; KMI 49562



KMlp contactors with a AC coil

Small-sized contactors with a direct current control coil of general industrial use of the KMlp series for a load current from 9 to 32 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 KMlp 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.

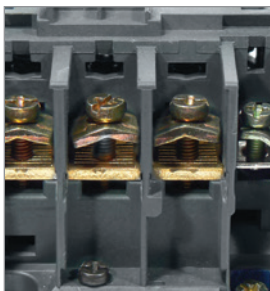


In terms of their design and technical characteristics, KMlp small-sized contactors with a control coil comply with the requirements of international standards EN/IEC 60947-4-1.

Advantages

- A wide range of additional devices that are always available in stock (PKI contact attachments, PVI time delay attachments, RTI electrothermal relay).
- Possibility of installation on a 35 mm DIN rail (other domestic manufacturers offer a similar mount only on request)
- Saving electrical energy in the case of using a DC control coil.

Design features



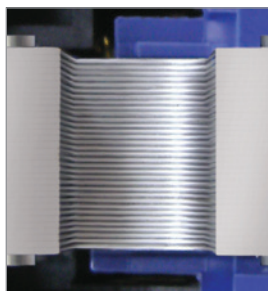
The oval-shaped connecting contacts provide a secure fixation of the conductors with hardened disk washers.



Built-in auxiliary contacts (normal open (1NO)).



The design of the magnetic system allows to reduce the current consumption.



The magnetic system in the working position provides an optimal mode of operation (no noise and increased reliability of the contact system).



Notches on the connecting contacts reduce the heating of the wires due to reliable fixation at the connection points and an increase in the total contact area.



There are two ways to mount the contactors: – fast DIN rail mounting: KMIp from 9 to 32A (size 1 and size 2) – 35 mm; – mounting with screws on a mounting plate or profile.

Product range

	Name	Rated operational current, A (AC-3)	Rated control coil voltage, V	Quantity and type of contacts	Quantity in a transp. box, pcs.	Product ID
	KMIp-10910 09 A 24 V/AC3 1NO	9	24	1NO	30	KMD11-009-024-10
	KMIp-10910 09 A 110 V/AC3 1NO	9	110	1NO	30	KMD11-009-110-10
	KMIp-10910 09 A 220 V/AC3 1NO	9	220	1NO	30	KMD11-009-220-10
	KMIp-11210 12 A 24 V/AC3 1NO	12	24	1NO	30	KMD11-012-024-10
	KMIp-11210 12 A 110 V/AC3 1NO	12	110	1NO	30	KMD11-012-110-10
	KMIp-11210 12 A 220 V/AC3 1NO	12	220	1NO	30	KMD11-012-220-10
	KMIp-11810 18 A 24 V/AC3 1NO	18	24	1NO	30	KMD11-018-024-10
	KMIp-11810 18 A 110 V/AC3 1NO	18	110	1NO	30	KMD11-018-110-10
	KMIp-11810 18 A 220 V/AC3 1NO	18	220	1NO	30	KMD11-018-220-10
	KMIp-22510 25 A 24 V/AC3 1NO	25	24	1NO	30	KMD21-025-024-10
	KMIp-22510 25 A 110 V/AC3 1NO	25	110	1NO	30	KMD21-025-110-10
	KMIp-22510 25 A 220 V/AC3 1NO	25	220	1NO	30	KMD21-025-220-10
	KMIp-23210 32 A 24 V/AC3 1NO	32	24	1NO	30	KMD21-032-024-10
	KMIp-23210 32 A 110 V/AC3 1NO	32	110	1NO	30	KMD21-032-110-10
	KMIp-23210 32 A 220 V/AC3 1NO	32	220	1NO	30	KMD21-032-220-10
	KMIp contactor-34012 40A 24V/AC3 1NO; 1NC	40	24	1NC+1NO	10	KMD31-040-024-11
	KMIp contactor-34012 40A 110V/AC3 1NO; 1NC	40	110	1NC+1NO	10	KMD31-040-110-11
	KMIp contactor-34012 40A 230V/AC3 1NO; 1NC	40	230	1NC+1NO	10	KMD31-040-230-11
	KMIp contactor-35012 50A 24V/AC3 1NO; 1NC	50	24	1NC+1NO	10	KMD31-050-024-11
	KMIp contactor-35012 50A 110V/AC3 1NO; 1NC	50	110	1NC+1NO	10	KMD31-050-110-11
	KMIp contactor-35012 50A 230V/AC3 1NO; 1NC	50	230	1NC+1NO	10	KMD31-050-230-11
	KMIp contactor-46512 65A 24V/AC3 1NO; 1NC	65	24	1NC+1NO	10	KMD41-065-024-11
	KMIp contactor-46512 65A 110V/AC3 1NO; 1NC	65	110	1NC+1NO	10	KMD41-065-110-11
	KMIp contactor-46512 65A 230V/AC3 1NO; 1NC	65	230	1NC+1NO	10	KMD41-065-230-11
	KMIp contactor-48012 80A 24V/AC3 1NO; 1NC	80	24	1NC+1NO	10	KMD41-080-024-11
	KMIp contactor-48012 80A 110V/AC3 1NO; 1NC	80	110	1NC+1NO	10	KMD41-080-110-11
	KMIp contactor-48012 80A 230V/AC3 1NO; 1NC	80	230	1NC+1NO	10	KMD41-080-230-11
	KMIp contactor-49512 95A 24V/AC3 1NO; 1NC	95	24	1NC+1NO	10	KMD41-095-024-11
	KMIp contactor-49512 95A 110V/AC3 1NO; 1NC	95	110	1NC+1NO	10	KMD41-095-110-11
	KMIp contactor-49512 95A 230V/AC3 1NO; 1NC	95	230	1NC+1NO	10	KMD41-095-230-11

KMlp specifications

Parameter name	KMlp 10910	KMlp 11210	KMlp 11810	KMlp 22510	KMlp 23210	KMlp 34012	KMlp 35012	KMlp 46512	KMlp 48012	KMlp 49512	
AC operating voltage U _e , V	230; 400; 660										
Rated insulation voltage U _i , V	660										
Rated impulse voltage U _{imp} , kV	6										
Operating temperature range, °C	−25 ÷ +50										
Climatic modification and environmental class	NF4										
Rated operational current I _e , application category AC-3 (U _e ≤ 400 V), A	9	12	17.5	24	32	40	50	65	80	95	
Conventional thermal current I _{th} , application category AC-1 (t° ≤ 40 °C), A	25	25	32	40	50	60	80	80	125	125	
Rated capacity as per AC-3, kW	230 V	2.2	3	4	5.5	7.5	11	15	18.5	22	25
	400 V	4	5.5	7.5	11	15	18.5	22	30	37	45
	660 V	5.5	7.5	10	15	18.5	30	33	37	45	45
Overcurrent protection – fuse gG, A (customer supplied)	10	20	25	40	50	50	63	80	100	100	
Maximum moment load (t ≤ 1 sec), A	162	216	324	450	576	720	900	1170	1440	1710	
Conditional short-circuit current I _{sc} , A	1000		3000						5000		
Dissipation power at I _e , NMT W/pole	AC-3	0.2	0.36	0.8	1.25	2	2.4	3.7	4.2	5.1	7.2
	AC-1	1.56	1.56	2.5	3.2	5	5.4	9.6	6.4	12.5	12.5
Reparability	the possibility of replacing the control coil										
Degree of protection	IP20										
Insulation resistance, megohm, NLT	10										
Service life, years	15										

Technical characteristics of the KMlp control circuit

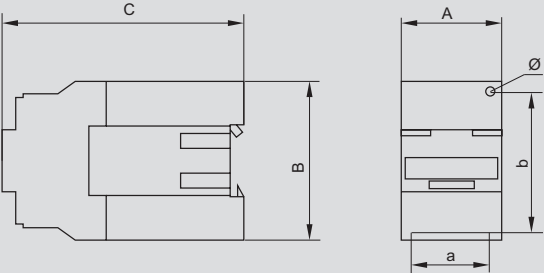
Parameter		KMlp 10910	KMlp 11210	KMlp 11810	KMlp 22510	KMlp 23210	KMlp 34012	KMlp 35012	KMlp 46512	KMlp 48012	KMlp 49512
Rated voltage of the control coil U _c , W		24; 110; 220									
Control voltage range	Trip	(0.85÷1.1) U _c									
	Release	(0.1÷0.75) U _c									
Coil power consumption at U _c , VA	Trip	7					10				
	Holding	7					10				
Response time, msec	Close	70-80					80-95				
	Open	15-20									
Electrical durability according to AS-3, million cycles		0.9	0.9	0.9	0.8	0.7	0.7	0.7	0.7	0.6	0.5
Electrical durability according to AS-1, million cycles		0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.5	0.3
Mechanical durability, million cycles		1									
Dissipation power, W		3	3	3	3.5	3.5	10	10	10	10	10

Specifications of built-in auxiliary contacts

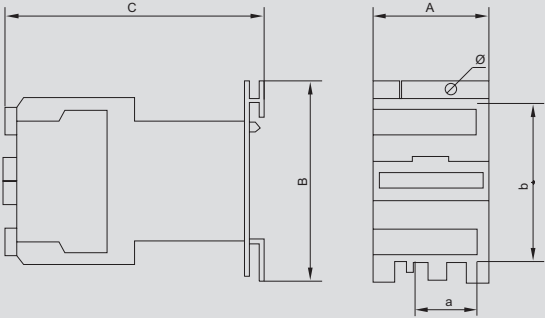
Parameter name		Value
Rated voltage U_n , V	AC	660
	DC	440
Rated insulation voltage U_i , V		660
Thermal stability current ($t^\circ \leq 40\text{ }^\circ\text{C}$) I_{th} , A		10
Overcurrent protection – fuse gG, A		10
Maximum moment load ($t \leq 1\text{ sec}$), A		100
Minimum making capacity	U_{min} , V	17
	I_{min} , mA	5
Insulation resistance, MOhms		10

Dimensions

KMlp-10910, KMlp-11210, KMlp-11810,
KMlp-22510, KMlp-23210



KMlp-34012, KMlp-35012, KMlp-46512,
KMlp-48012, KMlp-49512



Size	KMlp-10910, KMlp-11210	KMlp-11810	KMlp-22510	KMlp-23210	KMlp-34012, KMlp-35012, KMlp-46512	KMlp-48012, KMlp-49512
A	47	47	57	57	79	87
B	76	76	86	86	128	128
C	119	125	135	140	200	215
a	35	35	40	50	40	40
b	50/60	50/60	50/60	50/60	100/110	100/110
Ø	4.5	4.5	4.5	4.5	6.5	6.5

KTI series electromagnetic

Electromagnetic contactors of the KTI series are designed for use in control circuits for starting and stopping three-phase asynchronous electric motors with a squirrel-cage rotor in electrical networks with a rated voltage of up to 660 V AC, and can also be used to turn on and off other electrical installations: lighting, heating installations and various inductive loads. Used in fans, pumps, furnaces, cranes and in automatic transfer systems (ATS).

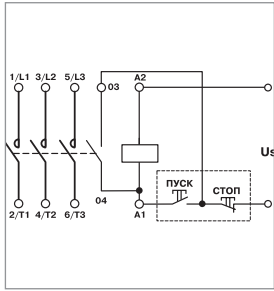


In terms of their design and technical characteristics, KTI contactors comply with the requirements of international standards EN/IEC 60947-4-1.

Advantages

- The simplicity of the design provides ease of maintenance of the components.
- The base is made of aluminum profile, which provides increased strength and less weight compared to analogues.
- A wide range of additional devices that are always available in stock (contact attachments PKI, time delay attachments PVI).
- Expanded range of KTI series electromagnetic contactors in comparison with analogues of domestic manufacturers in the Russian market.

Design features



Each contactor circuit has one set of NO contacts built into the control coil module. This, with a push-button control station, allows you to assemble a simple control circuit.



To check the operation of the contact system, a standard socket wrench with a 10 head is used.



The top cover is secured with locking screws. This eliminates spontaneous unscrewing. Therefore, KTI series contactors can be installed in places where there is constant operating vibration.



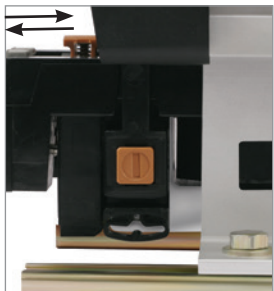
The position indicator of the contact system is located on the external panel of the side cover. This provides for checking the position of the working group of the contact system without disassembling the contactor.



The indication (notches made at the factory) on the contacts provides for determining their degree of wear.



The design of the contactors provides for mounting two additional attachments at the same time in any set.



The improved design of the control coil allows its dismantling without special tools (by recessing the latch into the contactor enclosure).



The factory-assembled reversing contactor is supplied with factory-fitted buses and a mechanical interlock. The contactors are mounted on two metal rails, which ensures high rigidity of the structure. Reversing KTI contactors represent a separate group in the assortment of the company.



The contact parts are coated with a silver coating, which makes it possible to use contactors in continuous operation. Soldering on the contact parts are made of silver-based composites, which makes it possible to reduce the contact resistance with increasing temperature.

Product range

	Name	Rated operational current, A (AC-3)	Rated voltage of control coils, V	Type and Quantity of contacts	Quantity, pcs		Product ID
					in a pack.	in a transp. box	
	Contactor KTI-5115 115 A 230 V/AC-3 IEK	115	230	1NO	1	4	KKT50-115-230-10
	Contactor KTI-5115 115 A 400 V/AC-3 IEK	115	400	1NO	1	4	KKT50-115-400-10
	Contactor KTI-5150 150 A 230 V/AC-3 IEK	150	230	1NO	1	4	KKT50-150-230-10
	Contactor KTI-5150 150 A 400 V/AC-3 IEK	150	400	1NO	1	4	KKT50-150-400-10
	Contactor KTI-5185 185 A 230 V/AC-3 IEK	185	230	1NO	1	4	KKT50-185-230-10
	Contactor KTI-5185 185 A 400 V/AC-3 IEK	185	400	1NO	1	4	KKT50-185-400-10
	Contactor KTI-5225 225 A 230 V/AC-3 IEK	225	230	1NO	1	2	KKT50-225-230-10
	Contactor KTI-5225 225 A 400 V/AC-3 IEK	225	400	1NO	1	2	KKT50-225-400-10
	Contactor KTI-5265 265 A 230 V/AC-3 IEK	265	230	1NO	1	2	KKT50-265-230-10
	Contactor KTI-5265 265 A 400 V/AC-3 IEK	265	400	1NO	1	2	KKT50-265-400-10
	Contactor KTI-5330 330 A 230 V/AC-3 IEK	330	230	1NO	1	2	KKT50-330-230-10
	Contactor KTI-5330 330 A 400 V/AC-3 IEK	330	400	1NO	1	2	KKT50-330-400-10
	Contactor KTI-6400 400 A 230 V/AC-3 IEK	400	230	1NO	1	2	KKT60-400-230-10
	Contactor KTI-6400 400 A 400 V/AC-3 IEK	400	400	1NO	1	2	KKT60-400-400-10
	Contactor KTI-6500 500 A 230 V/AC-3 IEK	500	230	1NO	1	2	KKT60-500-230-10
	Contactor KTI-6500 500 A 400 V/AC-3 IEK	500	400	1NO	1	2	KKT60-500-400-10
	Contactor KTI-7630 630 A 230 V/AC-3 IEK	630	230	1NO	1	1	KKT70-630-230-10
	Contactor KTI-7630 630 A 400 V/AC-3 IEK	630	400	1NO	1	1	KKT70-630-400-10

	Name	Rated operational current, A (AC-3)	Rated voltage of control coils, V	Type and Quantity 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	23	1	1	KKT53-115-230-10
	Contactor KTI-51153 reverse 115 A 400 V/AC-3 IEK	115	400	23	1	1	KKT53-115-400-10
	Contactor KTI-51503 reverse 150 A 230 V/AC-3 IEK	150	230	23	1	1	KKT53-150-230-10
	Contactor KTI-51503 reverse 150 A 400 V/AC-3 IEK	150	400	23	1	1	KKT53-150-400-10
	Contactor KTI-51853 reverse 185 A 230 V/AC-3 IEK	185	230	23	1	1	KKT53-185-230-10
	Contactor KTI-51853 reverse 185 A 400 V/AC-3 IEK	185	400	23	1	1	KKT53-185-400-10
	Contactor KTI-52253 reverse 225 A 230 V/AC-3 IEK	225	230	23	1	1	KKT53-225-230-10
	Contactor KTI-52253 reverse 225 A 400 V/AC-3 IEK	225	400	23	1	1	KKT53-225-400-10
	Contactor KTI-52653 reverse 265 A 230 V/AC-3 IEK	265	230	23	1	1	KKT53-265-230-10
	Contactor KTI-52653 reverse 265 A 400 V/AC-3 IEK	265	400	23	1	1	KKT53-265-400-10
	Contactor KTI-53303 reverse 330 A 230 V/AC-3 IEK	330	230	23	1	1	KKT53-330-230-10
	Contactor KTI-53303 reverse 330 A 400 V/AC-3 IEK	330	400	23	1	1	KKT53-330-400-10
	Contactor KTI-64003 reverse 400 A 230 V/AC-3 IEK	400	230	23	1	1	KKT63-400-230-10
	Contactor KTI-64003 reverse 400 A 400 V/AC-3 IEK	400	400	23	1	1	KKT63-400-400-10
	Contactor KTI-65003 reverse 500 A 230 V/AC-3 IEK	500	230	23	1	1	KKT63-500-230-10
	Contactor KTI-65003 reverse 500 A 400 V/AC-3 IEK	500	400	23	1	1	KKT63-500-400-10
	Contactor KTI-76303 reverse 630 A 230 V/AC-3 IEK	630	230	23	1	1	KKT73-630-230-10
	Contactor KTI-76303 reverse 630 A 400 V/AC-3 IEK	630	400	23	1	1	KKT73-630-400-10

Technical characteristics of KTI series electromagnetic contactors

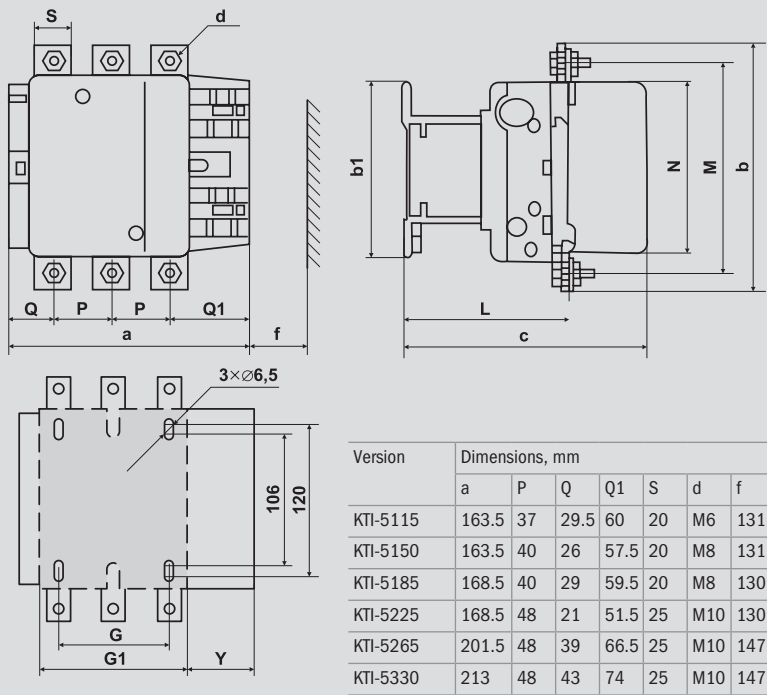
Parameters		KTI-5115	KTI-5150	KTI-5185	KTI-5225	KTI-5265	KTI-5330	KTI-6400	KTI-6500	KTI-7630
AC operating voltage U_e , V		230; 400; 660								
Rated insulation voltage U_i , V		1000	1000	1000	1000	1000	1000	1000	1000	1000
Rated operational current I_n , application category AC-3 ($U_e \leq 400$ V), A		115	150	185	225	265	330	400	500	630
Conventional thermal current I_n ($t^\circ \leq 40^\circ$), utilization category AC-1, A		200	250	275	315	350	400	500	700	1000
Rated load as per AC-3, kW	230 V	30	40	55	63	75	100	110	147	200
	400 V	55	75	90	110	132	160	200	250	335
	660 V	80	100	110	129	160	220	280	335	450
Maximum moment load ($t \leq 1$ sec), A		920	1200	1480	1800	2120	2640	3200	4000	5040
Conditional short-circuit current I_{sc} , A		5000	10 000	10 000	10 000	10 000	18 000	18 000	18 000	18 000
Overcurrent protection – fuse gG, A		200	250	315	315	400	500	500	800	1000
Coordination type		2								
Intermittent duty, operating cycles per hour		120	120	120	120	120	120	120	120	120
Power dissipation at rated current, W/pole	AC-3	5	8	12	16	21	31	42	45	48
	AC-1	15	22	25	32	37	44	65	88	120
Operating temperature range, $^\circ\text{C}$		$-45 \div +55$								
Climatic modification and environmental class		NF4								

Technical characteristics of the control circuit

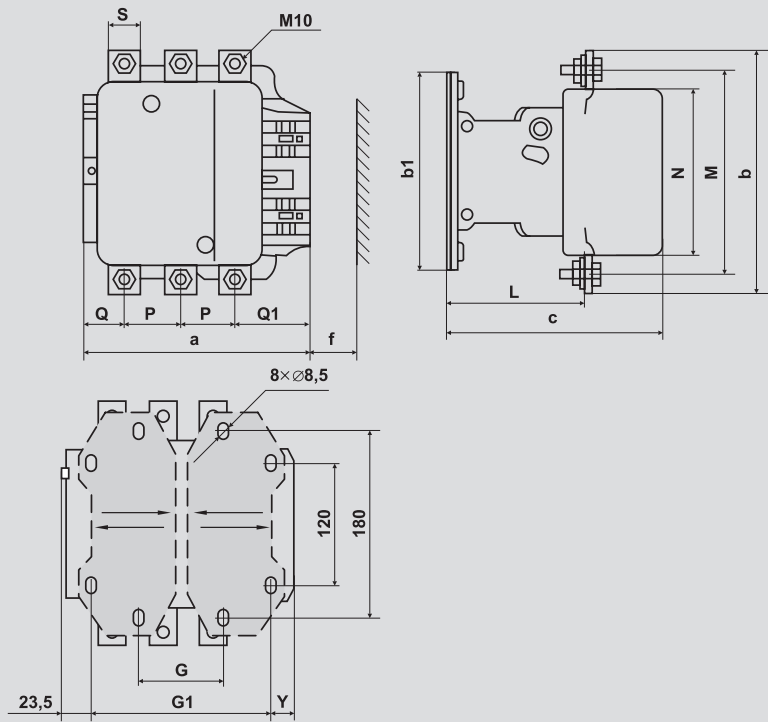
Parameters		KTI-5115	KTI-5150	KTI-5185	KTI-5225	KTI-5265	KTI-5330	KTI-6400	KTI-6500	KTI-7630
Rated voltage of the control coil U_c , V		230; 400								
Control voltage range	trip	$(0.8 \div 1.1) \cdot U_c$								
	release	$(0.35 \div 0.55) \cdot U_c$								
Coil power consumption at U_c , VA	trip $\cos \varphi = 0.3$	550	550	800	800	650	650	1075	1100	1650
	hold $\cos \varphi = 0.75$	45	45	55	55	10	10	15	18	22
Response time, msec	short	$23 \div 35$	$23 \div 35$	$20 \div 35$	$20 \div 35$	$40 \div 65$	$40 \div 65$	$40 \div 75$	$40 \div 75$	$40 \div 80$
	open	$5 \div 15$	$5 \div 15$	$7 \div 15$	$7 \div 15$	$100 \div 170$	$100 \div 170$	$100 \div 170$	$100 \div 170$	$100 \div 200$
Electrical wear resistance, million operat. cycles	AC-3	0.8	0.8	0.8	0.7	0.7	0.6	0.5	0.5	0,4
	AC-1	0.5	0.5	0.5	0,4	0.4	0.3	0.3	0.3	0.25
Mechanical wear resistance, million operat. cycles		1	1	1	1	1	1	0.8	0.8	0.8
Dissipation power, W/pole		$12 \div 16$	$12 \div 16$	$18 \div 24$	$18 \div 24$	8	8	14	18	20

The overall and mounting dimension

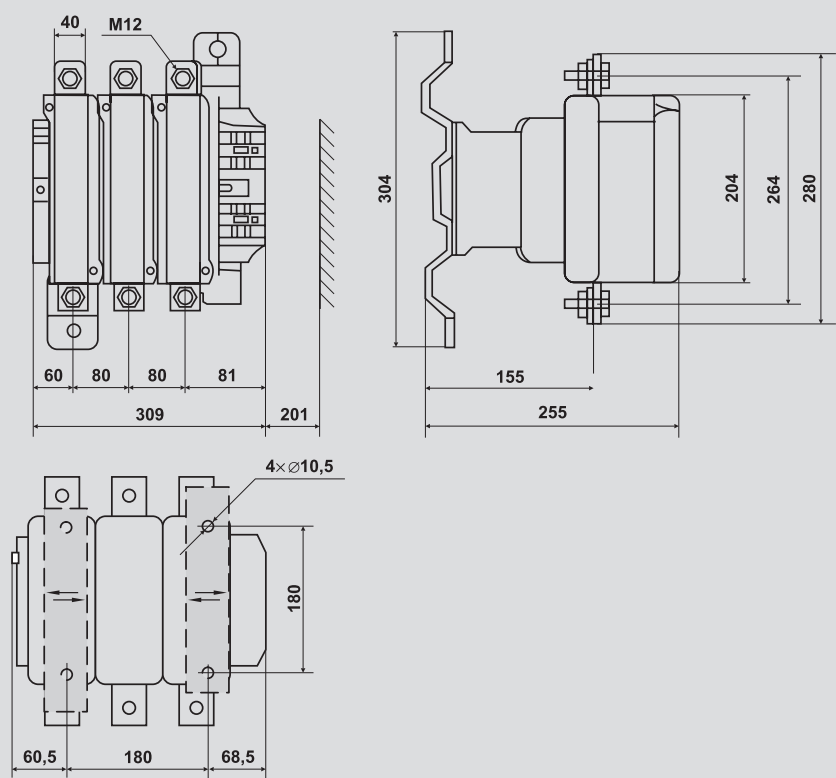
KTI 5115 ... KTI 5330



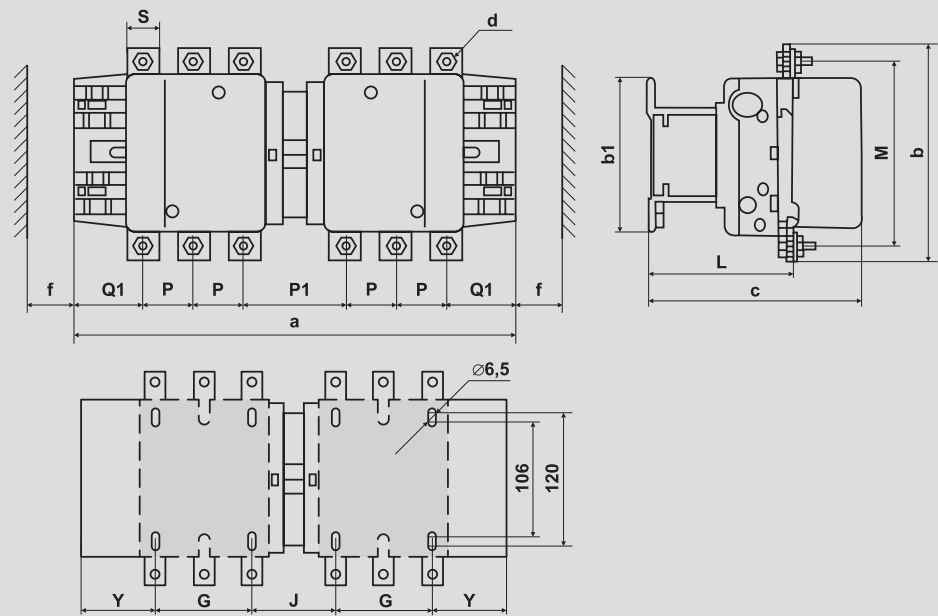
KTI 6400, KTI 6500



KTI 7630

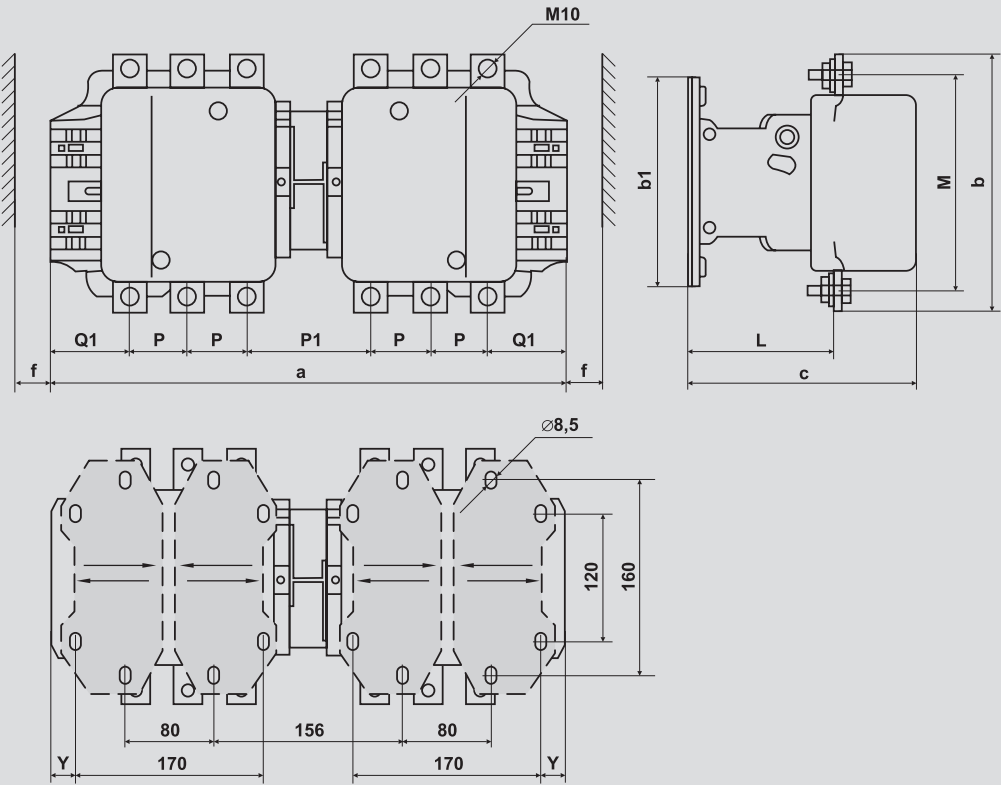


KTI-51153 ... KTI 53303



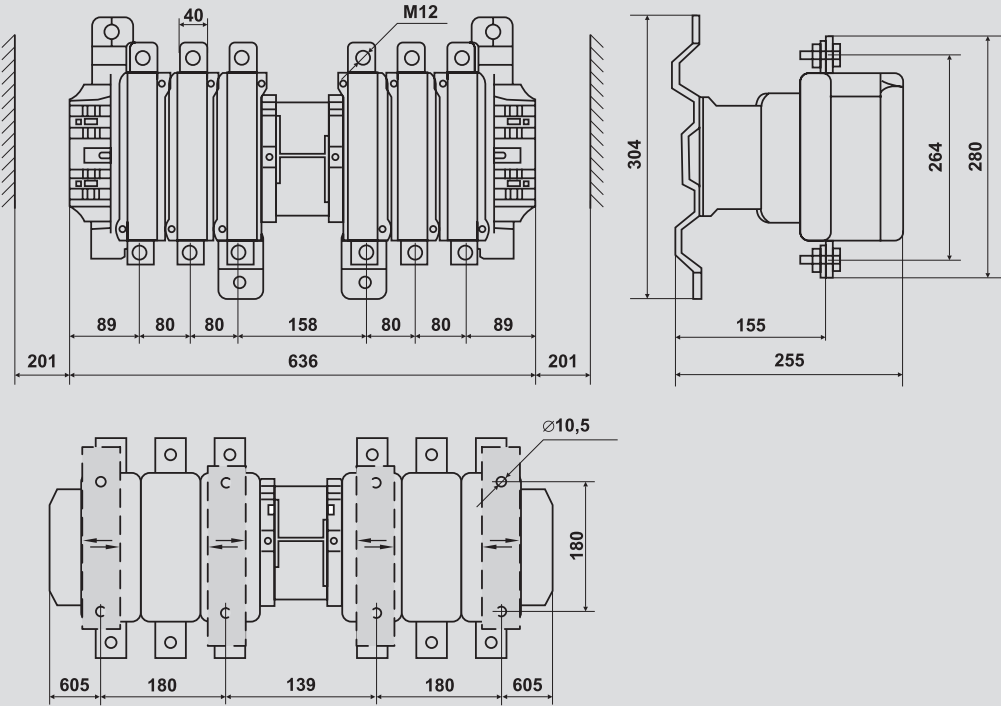
Version	Dimensions, mm															
	a	P	P1	Q1	S	d	f	b	b1	M	c	L	G	J	Y	
KTI 51153	346	37	78	60	20	M6	131	162	137	147	171	107	80	72	57	
KTI 51503	346	40	72	57.5	20	M8	131	170	137	150	171	107	80	72	57	
KTI 51853	357	40	78	59.5	20	M8	130	174	137	154	181	113.5	80	78	59.5	
KTI 52253	357	48	62	51.5	25	M10	130	197	137	172	181	113.5	80	78	59.5	
KTI 52653	424	48	99	66.5	25	M10	147	203	145	178	213	141	96	109	61.5	
KTI 53303	445	48	105	74	25	M10	147	206	145	181	219	145	96	122	65.5	

KTI 64003, KTI 65003



Version	Dimensions, mm											
	a	P	P1	Q1	S	f	b	b1	M	c	L	Y
KTI-64003	445	48	105	74	25	151	206	209	181	219	145	19.5
KTI-65003	485	55	111	77	30	169	238	209	208	232	146	39.5

KTI 76303



KTle series electromagnetic contactors

Electromagnetic contactors of the KTle series are designed for use in control circuits for starting and stopping three-phase asynchronous electric motors with a squirrel-cage rotor in electrical networks with a rated voltage of up to 660 V AC, and can also be used to turn on and off other electrical installations: lighting, heating installations and various inductive loads.

Used in fans, pumps, furnaces, cranes and in automatic transfer systems (ATS).

For the effectiveness of the design solution, high performance and reliability in operation, the contactor was awarded the silver medal of the 15th International Exhibition "Electro-2006" in the nomination "Best Electrical Equipment".

In terms of their design and technical characteristics, KTle contactors comply with the requirements of international standards IEC 60947-4-1:2000. KTle contactors passed certification tests and a certificate of conformity ROSS CN.ME86.B00150 was received for their serial production.



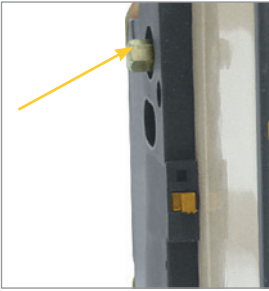
Advantages

- High switching wear resistance.
- Low noise level.
- Cost-effective solution.
- Simplicity of design.

Design features



The contact parts are made of silver-based composites, which makes it possible to reduce the contact resistance with increasing temperature.



Using a standard socket wrench to change the clamping force of the contact system and check the operation of the contact system.



The top cover is secured with locking screws. This eliminates spontaneous unscrewing. Therefore, KTle series contactors can be installed in places where there is constant operating vibration.

Product range

	Name	Rated operational current, A (AC-3)	Rated voltage of control coils, V	Quantity and type of contacts	Quantity in transp. pack., pcs.	Product ID
	Contactor KTle-5115 115A 230V/AC3	115	230	-	4	KKTE50-115-230-10
	Contactor KTle-5115 115A 400V/AC3	115	400	-	4	KKTE50-115-400-10
	Contactor KTle-5150 150A 230V/AC3	150	230	-	4	KKTE50-150-230-10
	Contactor KTle-5150 150A 400V/AC3	150	400	-	4	KKTE50-150-400-10
	Contactor KTle-5170 170A 230V/AC3	170	230	-	4	KKTE50-170-230-10
	Contactor KTle-5170 170A 400V/AC3	170	400	-	4	KKTE50-170-400-10
	Contactor KTle-5200 200A 230V/AC3	200	230	1NO	4	KKTE50-200-230-10
	Contactor KTle-5200 200A 400V/AC3	200	400	1NO	4	KKTE50-200-400-10
	Contactor KTle-5250 250A 230V/AC3	250	230	1NO	2	KKTE50-250-230-10
	Contactor KTle-5250 250A 400V/AC3	250	400	1NO	2	KKTE50-250-400-10

Technical characteristics of KTle series electromagnetic contactors

Parameters		KTle-5115	KTle-5150	KTle-5170	KTle-5200	KTle-5250
AC operating voltage U_e , V		230/400 V 50 Hz				
Rated insulation voltage U_i , V		1000				
Rated impulse voltage U_{imp} , kV		8				
Operating temperature range, °C		-45÷+55				
Rated operational current I_e , application category AC-3 ($U_e \leq 400$ V), A		115	150	170	200	250
Conventional thermal current I_{th} , utilization category AC-1 ($t^\circ \leq 40$ °C), A		200			275	315
Rated load as per AC-3, kW	230 V	30	40	45	55	75
	400 V	55	75	90	110	132
Maximum moment load ($t \leq 1$ sec), A		1100	1400		1500	1800
Conditional short-circuit current I_{nc} , A		5000	10000			
Overcurrent protection – fuse gG, A		200	250		315	
Dissipation power at I_e , NMT W/pole	AC-3	7.9	13.5		12	16
	AC-1	24			25	
Intermittent duty, operating cycles per hour		120				
Insulation resistance, MOhms, NLT		10				
Degree of protection		IP20			IP20 – enclosure IP00 – main circuit terminals	
Climatic modification and environmental class		NF3				
Reparability		non repairable				
Service life, years		15				

Cross-sections of connected conductors to control circuits of contactors and auxiliary circuits

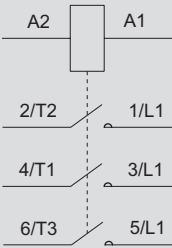
Parameters	KTle-5115	KTle-5150	KTle-5170	KTle-5200	KTle-5250
Cross-section of a flexible cable without a cap, mm²	1-4				
Screw size	M3.5				
Torque, N m	0.8				

Auxiliary circuit specifications (built-in auxiliary contacts)

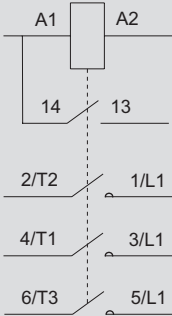
Parameters	KTle-5115	KTle-5150	KTle-5170	KTle-5200	KTle-5250
Contact type	NA			1NO	
AC voltage U_n , V				690	
Rated insulation voltage U_i , V				690	
Thermal stability current ($t^\circ \leq 40$ °C) I_{th} , A				10	
Overcurrent protection – fuse gG, A				10	
Maximum moment load ($t \leq 1$ sec), A				100	
Insulation resistance, MOhms				>10	

Diagrams of electrical contactors and their connections

KTle-5115, KTle-5150,
KTle-5170

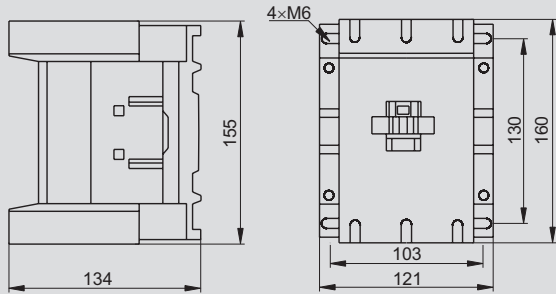


KTle5200, KTle-5250

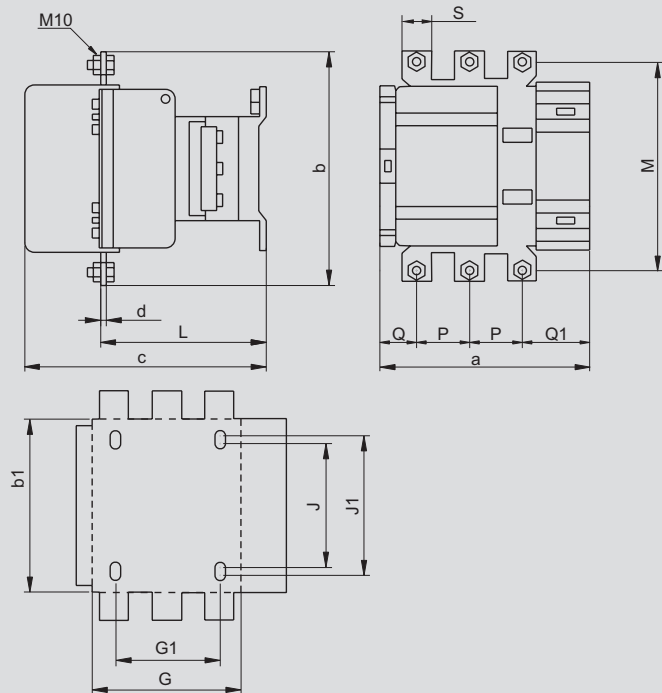


Dimensions of contactors

KTle-5115, KTle-5150, KTle-5170



KTle5200, KTle-5250



Version	Dimensions, mm															
	a	b	b1	c	d	G	G1	J	J1	L	M	P	Q	Q1	S	
KTle-5200	168.5	174	137	181	3	111	80	106	120	113.5	154	40	29	59.5	20	
KTle-5250	168.5	197	137	181	3	111	80	106	120	113.5	172	48	21	51.5	25	

Relay and Accessories for contactors

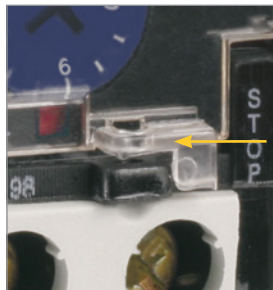
RTI electrothermal relay

The electrothermal relay of the RTI series 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.



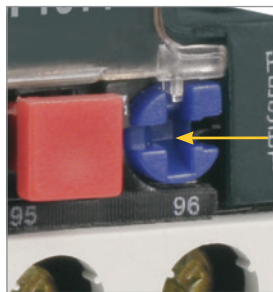
Design features



The sealing of the transparent cover protecting the setpoint adjustment disk excludes unauthorized access to the adjustments of the operating values of the setpoint current.



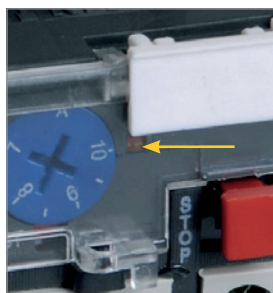
The “TEST” button provides for checking the operability of the device before connecting it to the power circuit.



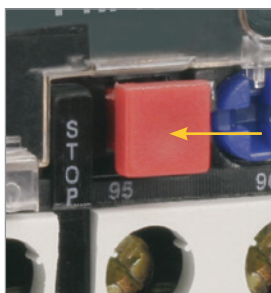
The restart process can take place in two modes: manual and automatic.



A surface for marking provides for making an indication of compliance with the scheme, which simplifies installation.



The indicator on the front panel informs about the current state of NC and NO contacts.



Possibility of forced stop of the contactor.

Selection guide

	Name	Dimensions	Setting current adjustment limit, A	Version of contactors used with relays
	RTI-1301	1	0.1÷0.16	KMI-10910, KMI-10911, KMI-11210, KMI-11211, KMI-11810, KMI-11811, KMI-22510, KMI-22511, KMIp-10910, KMIp-11210, KMIp-11810, KMIp-22510, PM12K-01615X, PM12-02510X
	RTI-1302	1	0.16÷0.25	
	RTI-1303	1	0.25÷0.4	
	RTI-1304	1	0.4÷0.63	
	RTI-1305	1	0.63÷1.0	
	RTI-1306	1	1.0÷1.6	
	RTI-1307	1	1.6÷2.5	
	RTI-1308	1	2.5÷4.0	
	RTI-1310	1	4.0÷6.0	
	RTI-1312	1	5.5÷8.0	
	RTI-1314	1	7.0÷10.0	
	RTI-1316	1	9.0÷13.0	
	RTI-1321	1	12.0÷18.0	
	RTI-1322	1	17.0÷25.0	
	RTI-2355	2	28.0÷36.0	KMI-23210; KMI-23211; KMIp-23210
	RTI-3353	3	23.0÷32.0	KMI-34012, KMI-35012, KMI-46512, KMI-48012, KMI-49512, PM12K-04015X, PM12-063150
	RTI-3355	3	30.0÷40.0	
	RTI-3357	3	37.0÷50.0	
	RTI-3359	3	48.0÷65.0	
	RTI-3361	3	55.0÷70.0	
	RTI-3363	3	63.0÷80.0	
	RTI-3365	3	80.0÷93.0	
	RTI-5369	5	55÷80	KTI-5115, KTI-5150, KTI-5185
	RTI-5370	5	63÷90	
	RTI-5371	5	90÷120	
	RTI-5375	5	120÷150	
	RTI-5376	5	150÷180	
	RTI-6376	6	125÷200	KTI-5225, KTI-5265, KTI-5225, KTI-5330, KTI-6400

Product range

	Name	Relay set point range, A	Quantity and type of contacts	Quantity in a package, pcs.	Product ID
	RTI-1301 electrothermal 0.1-0.16 A IEK	0.1÷0.16	13+1p	100	DRT10-D001-C016
	RTI-1302 electrothermal 0.16-0.25 A IEK	0.16÷0.25	13+1p	100	DRT10-C016-C025
	RTI-1303 electrothermal 0.25-0.4 A IEK	0.25÷0.4	13+1p	100	DRT10-C025-D004
	RTI-1304 electrothermal 0.4-0.63 A IEK	0.4÷0.63	1N0+1NC	100	DRT10-D004-C063
	RTI-1305 electrothermal 0.63-1.0 A IEK	0.63÷1.0	1N0+1NC	100	DRT10-C063-0001
	RTI-1306 electrothermal 1-1.6 A IEK	1÷1.6	1N0+1NC	100	DRT10-0001-D016
	RTI-1307 electrothermal 1.6-2.5 A IEK	1.6÷2.5	1N0+1NC	100	DRT10-D016-D025
	RTI-1308 electrothermal 2.5-4.0 A IEK	2.5÷4.0	1N0+1NC	100	DRT10-D025-0004
	RTI-1310 electrothermal 4-6 A IEK	4.0÷6.0	1N0+1NC	100	DRT10-0004-0006
	RTI-1312 electrothermal 5.5-8 A IEK	5.5÷8	1N0+1NC	100	DRT10-D055-0008
	RTI-1314 electrothermal 7-10 A IEK	7÷10	1N0+1NC	100	DRT10-0007-0010
	RTI-1316 electrothermal 9-13 A IEK	9÷13	1N0+1NC	100	DRT10-0009-0013
RTI-1321 electrothermal 12-18 A IEK	12÷18	1N0+1NC	100	DRT10-0012-0018	
RTI-1322 electrothermal 17-25 A IEK	17÷25	1N0+1NC	100	DRT10-0017-0025	
	RTI-2355 electrothermal 28-36 A IEK	28÷36	1N0+1NC	50	DRT20-0028-0036
	RTI-3353 electrothermal 23-32 A IEK	23÷32	1N0+1NC	50	DRT30-0023-0032
	RTI-3355 electrothermal 30-40 A IEK	30÷40	1N0+1NC	50	DRT30-0030-0040
	RTI-3357 electrothermal 37-50 A IEK	37÷50	1N0+1NC	50	DRT30-0037-0050
	RTI-3359 electrothermal 48-65 A IEK	48÷65	1N0+1NC	50	DRT30-0048-0065
	RTI-3361 electrothermal 55-70 A IEK	55÷70	1N0+1NC	50	DRT30-0055-0070
	RTI-3363 electrothermal 63-80 A IEK	63÷80	1N0+1NC	50	DRT30-0063-0080
	RTI-3365 electrothermal 80-93 A IEK	80÷93	1N0+1NC	50	DRT30-0080-0093
	RTI-5369 electrothermal relay 55-80 A IEK	55÷80	1N0+1NC	20	DRT50-0055-0080
	RTI-5370 electrothermal relay 63-90 A IEK	63÷90	1N0+1NC	20	DRT50-0063-0090
	RTI-5371 electrothermal relay 90-120 A IEK	90÷120	1N0+1NC	20	DRT50-0090-0120
	RTI-5375 electrothermal relay 120-150 A IEK	120÷150	1N0+1NC	20	DRT50-0120-0150
	RTI-5376 electrothermal relay 150-180 A IEK	150÷180	1N0+1NC	20	DRT50-0150-0180
	RTI-6376 electrothermal relay 125-200 A IEK	125÷200	1N0+1NC	4	DRT60-0125-0200
					

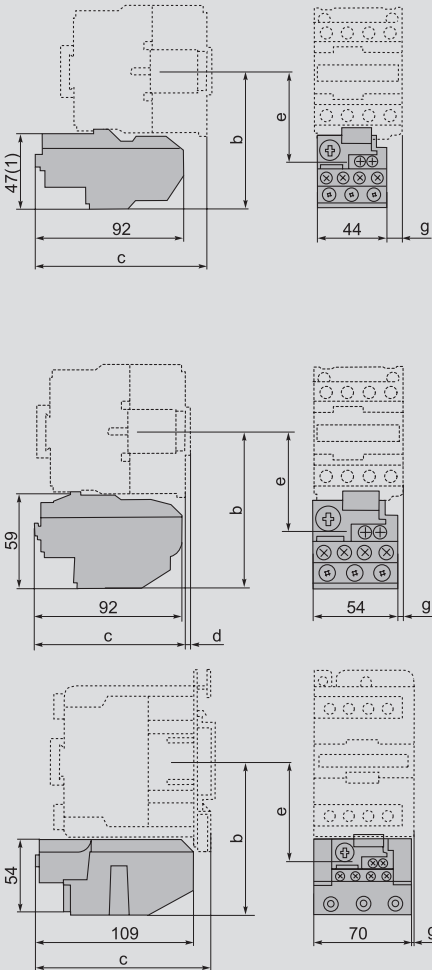
Power circuit specifications

Parameters		RTI-1301...RTI-3353	RTI-3355...RTI-3365	RTI-5369...RTI-5376	RTI-6376
Relay set point range, A		0,1÷32	30÷93	55÷200	125÷200
Rated operating voltage U_e , V~		230, 400, 660	230, 400, 660	230, 400, 660	230, 400, 660
Rated insulation voltage U_i , V		660	660	1000	1000
Rated impulse voltage U_{imp} , kV		6	6	8	8
Frequency, Hz		50	50	0-400	50
Cross section of connected conductors, mm ²	flexible cable without a cap	1.5÷10	4÷35	4÷35	4÷35
	flexible cable with a cap	1÷4	4÷35	4÷35	4÷35
	rigid cable	1÷6	4÷35	4÷35	4÷35
Torque, N·m		2	9	15	28
Operating temperature range, °C		-45 ÷ +55			
Relay trip class		10			
Climatic modification and environmental class		N3			

Specifications of built-in auxiliary contacts

Parameter		RTI-1301...RTI-3353, RTI-3355...RTI-3365	RTI-5369...RTI-5376, RTI-5369...RTI-6376
Thermal stability current I_n , A		5	5
Maximum power of the contactor coil connected to the built-in auxiliary contacts, depending on the voltage, VA	110 V	400	400
	220 V	600	600
	380 V	600	600
Overcurrent protection – fuse gG, A		5	5
Cross section of connected conductors, mm ²		1÷2,5	1÷4
Torque, N·m		1.2	1.5

The overall and mounting dimension

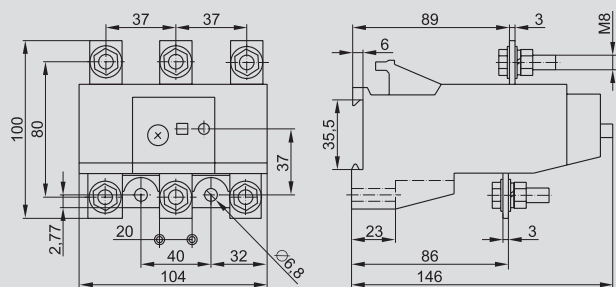


Relay version	Contactor version	Dimensions, mm			
		b	c	e	g
RTI-1301; RTI-1302 RTI-1303; RTI-1304 RTI-1305; RTI-1306 RTI-1307; RTI-1308 RTI-1310; RTI-1312 RTI-1314; RTI-1316 RTI-1321; RTI-1322	KMI-10910 KMI-10911 KMI-11210 KMI-11211 KMI-11810 KMI-11811 KMI-22510 KMI-22511 KMI-23210 KMI-23211	81 86 86	98 108 109	50 55 55	0 10.7 8.1

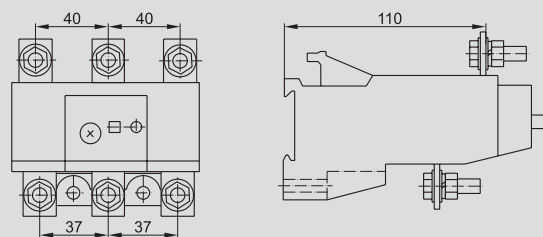
Relay version	Contactor version	Dimensions, mm			
		b	c	e	g
RTI-2355	KMI-23210 KMI-23211	97,5	98	60	0.5

Relay version	Contactor version	Dimensions, mm			
		b	c	e	g
RTI-3353; RTI-3355 RTI-3357; RTI-3359 RTI-3361; RTI-3363 RTI-3365	KMI-34012	111	119	72.4	4.5
	KMI-35012	111	119	72.4	4.5
	KMI-46512	111	119	72.4	4.5
	KMI-48012	115.5	124	76.9	9.5
	KMI-49512	115.5	124	76.9	9.5

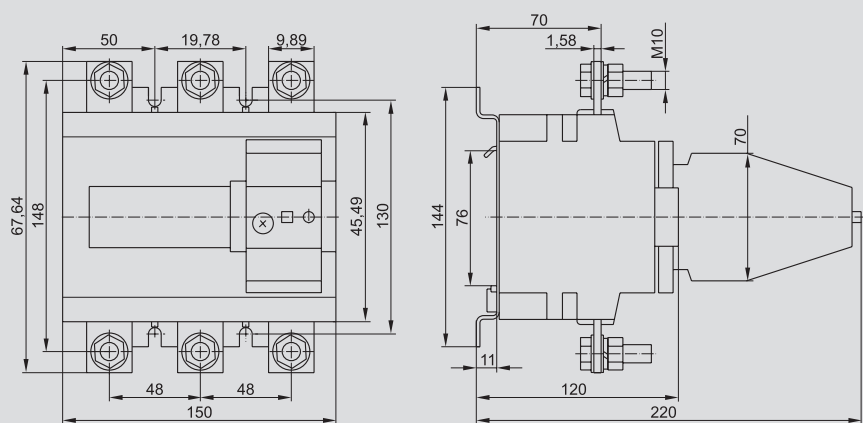
RTI-5369, RTI-5370, RTI-5371, RTI-5375, RTI-5376, option 1



RTI-5369, RTI-5370, RTI-5371, RTI-5375, RTI-5376, option 2



RTI-6376



Accessories for KMI and KTI contactors

- PKB contact attachments
- PKI series contact attachments
- PVI time delay attachments

PKB, 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	
	Additional side contact PKB-11 1NO+1NC	1NO+1NC	1	250	KPK21-11
	Additional side contact PKB-20 2NO	23	1	250	KPK21-20
	PKI-04 attachment auxiliary contacts 4NC	4NC	1	250	KPK10-04
	PKI-11 attachment auxiliary contacts 1NO+1NC	1NO+1NC	1	250	KPK10-11
	PKI-13 attachment auxiliary contacts 1NO+3NC	1NO+3NC	1	300	KPK10-13
	PKI-20 attachment auxiliary contacts 2NO	23	1	250	KPK10-20
	PKI-22 attachment auxiliary contacts 2NO+2NC	2NO+2NC	1	250	KPK10-22
	PKI-31 attachment auxiliary contacts 3NO+1NC	3NO+1NC	1	300	KPK10-31
	PKI-40 attachment auxiliary contacts 4NO	4NO	1	250	KPK10-40
	PVI-11 attachment turn on delay 0.1-30 sec. 1NO+1NC	1NO+1NC	10	200	KPV10-11-1
	PVI-12 attachment turn on delay 10-180 sec. 1NO+1NC	1NO+1NC	10	200	KPV10-11-2
	PVI-13 attachment turn on delay 0,1-3 sec. 1NO+1NC	1NO+1NC	10	200	KPV10-11-3
	PVI-21 attachment turn on delay 0.1-30 sec. 1NO+1NC	1NO+1NC	10	200	KPV20-11-1
	PVI-22 attachment turn on delay 10-180 sec. 1NO+1NC	1NO+1NC	10	200	KPV20-11-2
	PVI-23 attachment turn on delay 0,1-3 sec. 1NO+1NC	1NO+1NC	10	200	KPV20-11-3

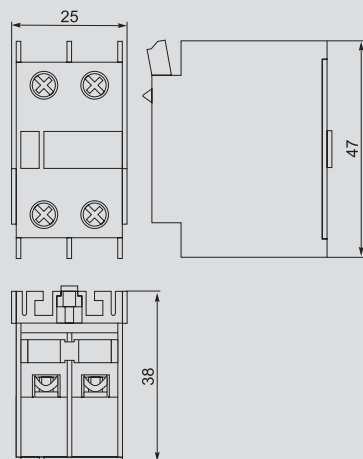
Specifications

Specifications		PKI	PVI
AC operating voltage, V		up to 660	up to 660
DC operating voltage, V		up to 400	up to 400
Rated current, A		10	10
Minimum making capacity	U_{min} , V	24	24
	I_{min} , mA	10	10
Permissible short-term current, A		10	10
Operating temperature range, °C		−40 ÷ +50	−40 ÷ +50
Time delay range, sec		—	−0,1 ÷ +180
Weight, kg		0.03; 0.05	0.08
Mechanical durability, ON-OFF cycles, NLT		$1.6 \cdot 10^6$	$1.6 \cdot 10^6$
Degree of protection		IP20	IP20

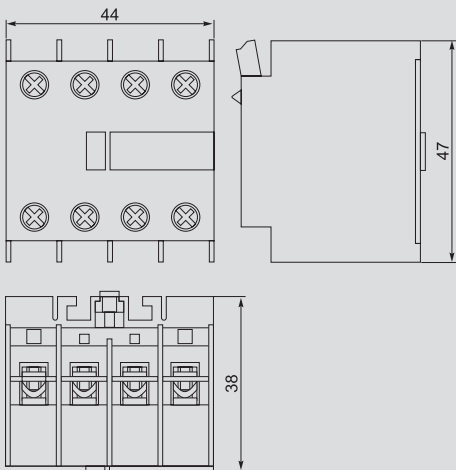
Parameters	Value	
Rated voltage U_r , V	AC	660
	DC	440
Rated insulation voltage U_i , V	690	
Thermal stability current ($t^\circ \leq 40^\circ\text{C}$) I_{th} , A	10	
Maximum moment load ($t \leq 1\text{sec}$), A	100	
Overcurrent protection – fuse gG, A (customer supplied)	10	
Minimum making capacity	U_{min} , V	17
	I_{min} , mA	5
Insulation resistance, MOhms, NLT	10	
Reparability	non repairable	
Service life, years	15	

Dimensions

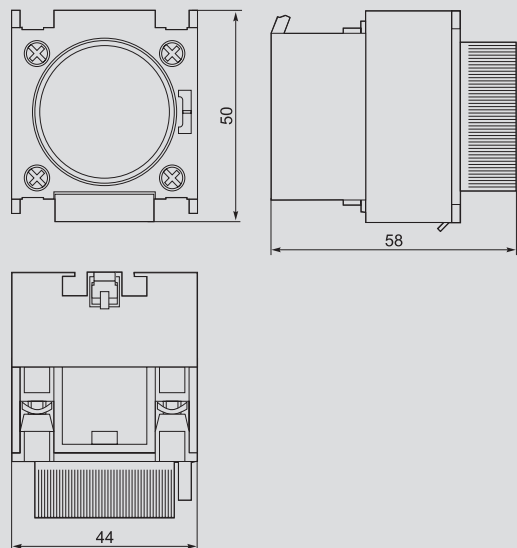
PKI-11, PKI-20



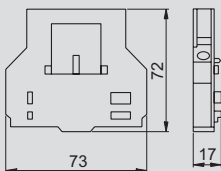
PKI-04, PKI-22, PKI-40



PVI



PKB



KMI and KMlp 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 KMlp (25-32 A)	24	1	54	KMD20D-KU-024
	Control coil for KMlp (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

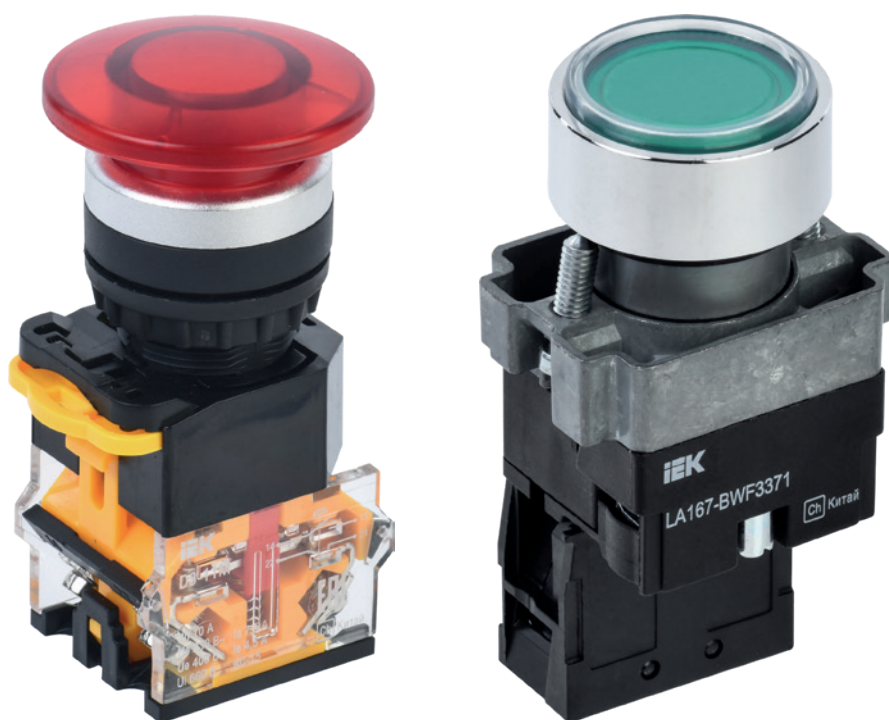
Command and signal devices

Buttons, switches, light signalling hardware

Indicator lights are designed to indicate the state of electrical circuits. Used in electrical panels, industrial equipment and power supply facilities.

Control buttons and switches are designed for operational control of contactors (magnetic starters) and automation relays in electrical circuits of alternating current with a frequency of 50 Hz and voltage up to 660 V or direct current with voltage up to 400 V and other technological processes.

A variety of color options allow the most efficient arrangement of boards and panels. All products consist of two units – a removable head and a contact module. Black contact group – NO (1NO), brown – NC (1NC).



Design features



Removable head allows quick replacement of filters and lamps.



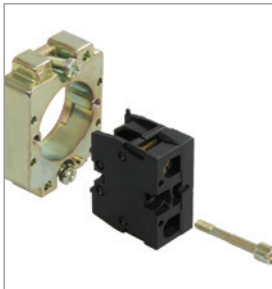
The conductors are connected with screw terminals with disc washers, which provide a secure fixation of the wires.



Indicators for 12, 24, 36, 110 V can be used in DC and AC voltage circuits.



Removable neon lamp and LED matrix have different colors. The matrix is universal for voltage of 12, 24, 36, 110, 230 V both AC and DC. It is possible to replace the neon lamp with an LED matrix.



Auxiliary contact units are mounted using special mounting screws, which ensure the strength of the connection.



Additional NC and additional NO contacts make it possible to expand the possibilities of switching processes.



Rubber sealing rings provide for protection against ingress of foreign objects into the mechanism.



Simplified design allows for quick installation and dismantling of the product on a panel or on a board.



The use of LED matrices as a light source, which have a longer output resource and a brighter glow.



Replaceable normal open (1NO) and normal closed (1NC) additional contacts.

Design features



The ability to quickly change the light source through the use of LED matrices with a BA9s base.



Sealing rubber rings that provide protection against ingress of foreign objects into the mechanism.



The modernized design of the pressure element, excluding spontaneous loss.



The metal base providing the increased resource of operation of a product.



Reliable and convenient system for fastening the product to the mounting plate.



Screw terminals with disc washers provide a secure fixation of the conductors.



Additional NC and NO contacts expand the switching possibilities.



Sealing rubber rings protect against ingress of foreign objects and liquids.



The quick-release head makes it easy to change filters, lamps and controls.

Product range

Indicator lights	Name	Color	Quantity, pcs		Product ID
			in a pack.	in a transp. box	
	AL-22 d22 mm neon/230 V Cylinder.	white	10	300	BLS20-AL-K01
	AL-22 d22 mm neon/230 V Cylinder.	yellow	10	300	BLS20-AL-K05
	AL-22 d22 mm neon/230 V Cylinder.	green	10	300	BLS20-AL-K06
	AL-22 d22 mm neon/230 V Cylinder.	red	10	300	BLS20-AL-K04
	AL-22 d22 mm neon/230 V Cylinder.	transparent	10	300	BLS20-AL-K08
	AL-22 d22 mm neon/230 V Cylinder.	blue	10	300	BLS20-AL-K07
	AL-22TE d22 mm neon/230 V Cylinder.	white	10	300	BLS30-ALTE-K01
	AL-22TE d22 mm neon/230 V Cylinder.	yellow	10	300	BLS30-ALTE-K05
	AL-22TE d22 mm neon/230 V Cylinder.	green	10	300	BLS30-ALTE-K06
	AL-22TE d22 mm neon/230 V Cylinder.	red	10	300	BLS30-ALTE-K04
	AL-22TE d22 mm neon/230 V Cylinder.	transparent	10	300	BLS30-ALTE-K08
	AL-22TE d22 mm neon/230 V Cylinder.	blue	10	300	BLS30-ALTE-K07
	ENR-22 d22 mm neon/230 V Cylinder.	white	10	600	BLS40-ENR-K01
	ENR-22 d22 mm neon/230 V Cylinder.	yellow	10	600	BLS40-ENR-K05
	ENR-22 d22 mm neon/230 V Cylinder.	green	10	600	BLS40-ENR-K06
	ENR-22 d22 mm neon/230 V Cylinder.	red	10	600	BLS40-ENR-K04
	ENR-22 d22 mm neon/230 V Cylinder.	blue	10	600	BLS40-ENR-K07
	AD-22DS matrix d22 mm 12 V AC/DC	white	10	600	BLS10-ADDS-012-K01
	AD-22DS matrix d22 mm 12 V AC/DC	red	10	600	BLS10-ADDS-012-K04
	AD-22DS matrix d22 mm 12 V AC/DC	yellow	10	600	BLS10-ADDS-012-K05
	AD-22DS matrix d22 mm 12 V AC/DC	green	10	600	BLS10-ADDS-012-K06
	AD-22DS matrix d22 mm 12 V AC/DC	blue	10	600	BLS10-ADDS-012-K07
	AD-22DS matrix d22 mm 24 V AC/DC	white	10	600	BLS10-ADDS-024-K01
	AD-22DS matrix d22 mm 24 V AC/DC	red	10	600	BLS10-ADDS-024-K04
	AD-22DS matrix d22 mm 24 V AC/DC	yellow	10	600	BLS10-ADDS-024-K05
	AD-22DS matrix d22 mm 24 V AC/DC	green	10	600	BLS10-ADDS-024-K06
	AD-22DS matrix d22 mm 24 V AC/DC	blue	10	600	BLS10-ADDS-024-K07
	AD-22DS matrix d22 mm 36 V AC/DC	white	10	600	BLS10-ADDS-036-K01
	AD-22DS matrix d22 mm 36 V AC/DC	red	10	600	BLS10-ADDS-036-K04
	AD-22DS matrix d22 mm 36 V AC/DC	yellow	10	600	BLS10-ADDS-036-K05
	AD-22DS matrix d22 mm 36 V AC/DC	green	10	600	BLS10-ADDS-036-K06
	AD-22DS matrix d22 mm 36 V AC/DC	blue	10	600	BLS10-ADDS-036-K07
	AD-22DS matrix d22 mm 110 V AC/DC	white	10	600	BLS10-ADDS-110-K01
	AD-22DS matrix d22 mm 110 V AC/DC	red	10	600	BLS10-ADDS-110-K04
	AD-22DS matrix d22 mm 110 V AC/DC	yellow	10	600	BLS10-ADDS-110-K05
	AD-22DS matrix d22 mm 110 V AC/DC	green	10	600	BLS10-ADDS-110-K06
	AD-22DS matrix d22 mm 110 V AC/DC	blue	10	600	BLS10-ADDS-110-K07
	AD-22DS matrix d22 mm 230 V AC	red	10	600	BLS10-ADDS-230-K04
	AD-22DS matrix d22 mm 230 V AC	green	10	600	BLS10-ADDS-230-K06
	AD-22DS matrix d22 mm 230 V AC	yellow	10	600	BLS10-ADDS-230-K05
	AD-22DS matrix d22 mm 230 V AC	blue	10	600	BLS10-ADDS-230-K07
	AD-22DS matrix d22 mm 230 V AC	white	10	600	BLS10-ADDS-230-K01

	Name	Color	Quantity, pcs		Product ID
			in a pack.	in a transp. box	
	AD16DS matrix d16 mm 12 V AC/DC	white	10	600	BLS10-ADDS-012-K01-16
	AD16DS matrix d16 mm 12 V AC/DC	red	10	600	BLS10-ADDS-012-K04-16
	AD16DS matrix d16 mm 12 V AC/DC	yellow	10	600	BLS10-ADDS-012-K05-16
	AD16DS matrix d16 mm 12 V AC/DC	green	10	600	BLS10-ADDS-012-K06-16
	AD16DS matrix d16 mm 12 V AC/DC	blue	10	600	BLS10-ADDS-012-K07-16
	AD16DS matrix d16 mm 24 V AC/DC	white	10	600	BLS10-ADDS-024-K01-16
	AD16DS matrix d16 mm 24 V AC/DC	red	10	600	BLS10-ADDS-024-K04-16
	AD16DS matrix d16 mm 24 V AC/DC	yellow	10	600	BLS10-ADDS-024-K05-16
	AD16DS matrix d16 mm 24 V AC/DC	green	10	600	BLS10-ADDS-024-K06-16
	AD16DS matrix d16 mm 24 V AC/DC	blue	10	600	BLS10-ADDS-024-K07-16
	AD16DS matrix d16 mm 36 V AC/DC	white	10	600	BLS10-ADDS-036-K01-16
	AD16DS matrix d16 mm 36 V AC/DC	red	10	600	BLS10-ADDS-036-K04-16
	AD16DS matrix d16 mm 36 V AC/DC	yellow	10	600	BLS10-ADDS-036-K05-16
	AD16DS matrix d16 mm 36 V AC/DC	green	10	600	BLS10-ADDS-036-K06-16
	AD16DS matrix d16 mm 36 V AC/DC	blue	10	600	BLS10-ADDS-036-K07-16
	AD16DS matrix d16 mm 110 V AC/DC	white	10	600	BLS10-ADDS-110-K01-16
	AD16DS matrix d16 mm 110 V AC/DC	red	10	600	BLS10-ADDS-110-K04-16
	AD16DS matrix d16 mm 110 V AC/DC	yellow	10	600	BLS10-ADDS-110-K05-16
	AD16DS matrix d16 mm 110 V AC/DC	green	10	600	BLS10-ADDS-110-K06-16
	AD16DS matrix d16 mm 110 V AC/DC	blue	10	600	BLS10-ADDS-110-K07-16
	AD16DS matrix d16 mm 230 V AC/DC	white	10	600	BLS10-ADDS-230-K01-16
	AD16DS matrix d16 mm 230 V AC/DC	red	10	600	BLS10-ADDS-230-K04-16
	AD16DS matrix d16 mm 230 V AC/DC	yellow	10	600	BLS10-ADDS-230-K05-16
	AD16DS matrix d16 mm 230 V AC/DC	green	10	600	BLS10-ADDS-230-K06-16
	AD16DS matrix d16 mm 230 V AC/DC	blue	10	600	BLS10-ADDS-230-K07-16
	LAY5-BU63 matrix d22 mm	green	20	200	BLS50-BU-K06
	LAY5-BU64 matrix d22 mm	red	20	200	BLS50-BU-K04
	LAY5-BU65 matrix d22 mm	yellow	20	200	BLS50-BU-K05
Indicators of the network parameters 	AD127-VAM	red	10	200	BBI40-VAM
	AD127-AM	red	10	200	BBI40-AM
	AD127-VM	red	10	500	BBI40-VM
	AD127-HZ	red	10	500	BBI40-HZ

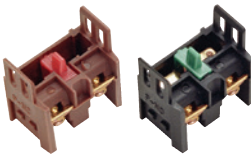
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			in a pack.	in a transp. box	
Control buttons 	ABLF-22 d22 mm neon/230 V 1NO+1NC	white	10	200	BBT10-ABLF-K01
	ABLF-22 d22 mm neon/230 V 1NO+1NC	yellow	10	200	BBT10-ABLF-K05
	ABLF-22 d22 mm neon/230 V 1NO+1NC	green	10	200	BBT10-ABLF-K06
	ABLF-22 d22 mm neon/230 V 1NO+1NC	red	10	200	BBT10-ABLF-K04
	ABLF-22 d22 mm neon/230 V 1NO+1NC	transparent	10	200	BBT10-ABLF-K08
	ABLF-22 d22 mm neon/230 V 1NO+1NC	blue	10	200	BBT10-ABLF-K07
	ABLF-22 d22 mm neon/230 V 1NO+1NC	white	10	200	BBT20-ABLFP-K01
	ABLF-22 d22 mm neon/230 V 1NO+1NC	yellow	10	200	BBT20-ABLFP-K05
	ABLF-22 d22 mm neon/230 V 1NO+1NC	green	10	200	BBT20-ABLFP-K06
	ABLF-22 d22 mm neon/230 V 1NO+1NC	red	10	200	BBT20-ABLFP-K04
	ABLF-22 d22 mm neon/230 V 1NO+1NC	transparent	10	200	BBT20-ABLFP-K08
	ABLF-22 d22 mm neon/230 V 1NO+1NC	blue	10	200	BBT20-ABLFP-K07
	ABLF-22 d22 mm neon/230 V 1NO+1NC	white	10	200	BBT30-ABLFS-K01
	ABLF-22 d22 mm neon/230 V 1NO+1NC	yellow	10	200	BBT30-ABLFS-K05
	ABLF-22 d22 mm neon/230 V 1NO+1NC	green	10	200	BBT30-ABLFS-K06
	ABLF-22 d22 mm neon/230 V 1NO+1NC	red	10	200	BBT30-ABLFS-K04
	ABLF-22 d22 mm neon/230 V 1NO+1NC	transparent	10	200	BBT30-ABLFS-K08
	ABLF-22 d22 mm neon/230 V 1NO+1NC	blue	10	200	BBT30-ABLFS-K07
	AELA-22 "Mushroom" d22 mm neon/230 V 1NO+1NC	yellow	10	200	BBG20-AELA-K05
	AELA-22 "Mushroom" d22 mm neon/230 V 1NO+1NC	green	10	200	BBG20-AELA-K06
	AELA-22 "Mushroom" d22 mm neon/230 V 1NO+1NCK	red	10	200	BBG20-AELA-K04
	AELA-22 "Mushroom" d22 mm neon/230 V 1NO+1NC	blue	10	200	BBG20-AELA-K07
	AEA-22 "Mushroom" d22 mm 1NO+1NC	yellow	10	200	BBG30-AEA-K05
	AEA-22 "Mushroom" d22 mm 1NO+1NC	green	10	200	BBG30-AEA-K06
	AEA-22 "Mushroom" d22 mm 1NO+1NC	red	10	200	BBG30-AEA-K04
	AEA-22 "Mushroom" d22 mm 1NO+1NC	blue	10	200	BBG30-AEA-K07
	AEAL-22 "Mushroom" with fixation d22 mm 230V 1NO+1NC	red	10	200	BBG60-AEAL-K04
	AE-22 "Mushroom" with fixation d22 mm 230V 1NO+1NC	red	10	200	BBG10-AE-K04
	ANE-22 "Mushroom" with fixation d22 mm neon/230V 1NO+1NC	red	10	200	BBG40-ANE-K04

	Name	Color	Quantity, pcs		Product ID
			in a pack.	in a transp. box	
	APBB-22N "I-O" d22 mm neon/230 V 1NO+1NC	red, green	10	200	BBD10-APBB-K51
	APBB-22N "Start-Stor" d22 mm neon/230 V 1NO+1NC	red, green	10	200	BBD11-APBB-K51
	LAY5-BS142 "Mushroom" with a key d22 mm 230 V 1NO+1NC	red	10	200	BBG50-LAY5-K04
	SB-7 "Start" d22 mm/230 V	green	10	500	BBT40-SB7-K06
	SB-7 "Stop" d22 mm/230 V	red	10	500	BBT40-SB7-K04
	PPBB-30N "I-O" d30 mm neon/230 V 1NO+1NC	red, green	10	200	BBD20-PPBB-K51
	PPBB-30N "Start-Stop" d30 mm neon/230 V 1NO+1NC	red, green	10	200	BBD21-PPBB-K51
	LAY5-BA21 with backlight 1NO	black	20	200	BBT60-BA-K02
	LAY5-BA31 without backlight 1NO	green	20	200	BBT60-BA-K06
	LAY5-BA41 without backlight 1NO	red	20	200	BBT60-BA-K04
	LAY5-BA42 without backlight 1NC	red	20	200	BBT61-BA-K04
	LAY5-BA51 without backlight 1NO	yellow	20	200	BBT60-BA-K05
	LAY5-BA61 without backlight 1NO	blue	20	200	BBT60-BA-K07
	LAY5-BC21 "Mushroom" without backlight 1NO	black	20	200	BBG70-BC-K02
	LAY5-BC31 "Mushroom" without backlight 1NO	green	20	200	BBG70-BC-K06
	LAY5-BC41 "Mushroom" without backlight 1NO	red	20	200	BBG70-BC-K04
	LAY5-BC42 "Mushroom" without backlight 1NC	red	20	200	BBG71-BC-K04
	LAY5-BC51 "Mushroom" without backlight 1NO	yellow	20	200	BBG70-BC-K05
	LAY5-BC61 "Mushroom" without backlight 1NO	blue	20	200	BBG70-BC-K07
	LAY5-BL21 without backlight 1NO	black	20	200	BBT70-BL-K02
	LAY5-BL31 without backlight 1NO	green	20	200	BBT70-BL-K06
	LAY5-BL41 without backlight 1NO	red	20	200	BBT70-BL-K05
	LAY5-BL42 without backlight 1NC	red	20	200	BBT71-BL-K04
	LAY5-BL51 without backlight 1NO	yellow	20	200	BBT71-BL-K05
	LAY5-BL61 without backlight 1NO	blue	20	200	BBT70-BL-K07
	LAY5-BS542 "Mushroom" Emergency with fixation, pivot	red	20	200	BBG90-BS-K04
	LAY5-BT42 "Mushroom" Emergency with fixation	red	20	200	BBG80-BT-K04

	Name	Color	Quantity, pcs		Product ID
			in a pack.	in a transp. box	
	LAY5-BW3361 with backlight 1NO	green	20	200	BBT50-BW-K06
	LAY5-BW3461 with backlight 1NO	red	20	200	BBT50-BW-K04
	LAY5-BW3561 with backlight 1NO	yellow	20	200	BBT50-BW-K05
	LAY5-BW8465 "I-O" double with backlight	red/ green	20	200	BBD40-BW-K51
 NEW	LA167-BWF3171 d=22mm RC with backlight 1NO	white	10	200	BBT20-BWF3171-1-12-67-K01
	LA167-BWF3371 d=22mm RC with backlight 1NO	green	10	200	BBT20-BWF3371-1-12-67-K06
	LA167-BWF3472 d=22mm RC with backlight 1NC	red	10	200	BBT20-BWF3472-2-12-67-K04
	LA167-BWF3571 d=22mm RC with backlight 1NO	yellow	10	200	BBT20-BWF3571-1-12-67-K05
	LA167-BWF3671 d=22mm RC with backlight 1NO	blue	10	200	BBT20-BWF3671-1-12-67-K07
 NEW	LA167-BP21 d=22mm 1NO	black	10	200	BBT20-BP21-1-22-67-K02
	LA167-BP31 d=22mm 1NO	green	10	200	BBT20-BP31-1-22-67-K06
	LA167-BP51 d=22mm 1NO	yellow	10	200	BBT20-BP51-1-22-67-K05
	LA167-BP61 d=22mm 1NO	blue	10	200	BBT20-BP61-1-22-67-K07
	LA167-BP42 d=22mm 1NC	red	10	200	BBT20-BP42-2-22-67-K04
	LA167-BP35 d=22mm 1NO+1NC	green	10	200	BBT20-BP35-3-22-67-K06
	LA167-BP45 d=22mm 1NO+1NC	red	10	200	BBT20-BP45-3-22-67-K04
 NEW	LA167-BW3171 d=22mm RC with backlight 1NO	white	10	200	BBT20-BW3171-1-12-67-K01
	LA167-BW3371 d=22mm RC with backlight 1NO	green	10	200	BBT20-BW3371-1-12-67-K06
	LA167-BW3472 d=22mm RC with backlight 1NC	red	10	200	BBT20-BW3472-2-12-67-K04
	LA167-BW3571 d=22mm RC with backlight 1NO	yellow	10	200	BBT20-BW3571-1-12-67-K05
	LA167-BW3671 d=22mm RC with backlight 1NO	blue	10	200	BBT20-BW3671-1-12-67-K07
 NEW	LA167-BAF11 d=22mm 1NO	white	10	200	BBT20-BAF11-1-22-67-K01
	LA167-BAF21 d=22mm 1NO	black	10	200	BBT20-BAF21-1-22-67-K02
	LA167-BAF31 d=22mm 1NO	green	10	200	BBT20-BAF31-1-22-67-K06
	LA167-BAF51 d=22mm 1NO	yellow	10	200	BBT20-BAF51-1-22-67-K05
	LA167-BAF61 d=22mm 1NO	blue	10	200	BBT20-BAF61-1-22-67-K07
	LA167-BAF22 d=22mm 1NC	black	10	200	BBT20-BAF22-2-22-67-K02
	LA167-BAF42 d=22mm 1NC	red	10	200	BBT20-BAF42-2-22-67-K04
	LA167-BAF35 d=22mm 1NO+1NC	green	10	200	BBT20-BAF35-3-22-67-K06
	LA167-BAF45 d=22mm 1NO+1NC	red	10	200	BBT20-BAF45-3-22-67-K04

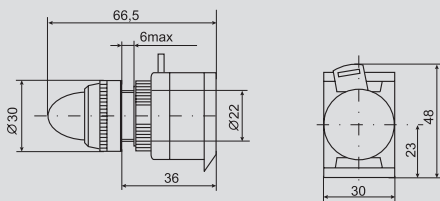
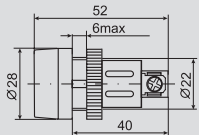
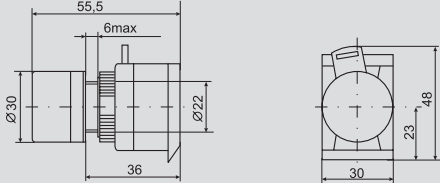
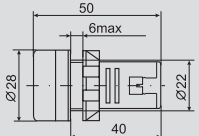
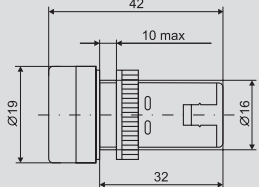
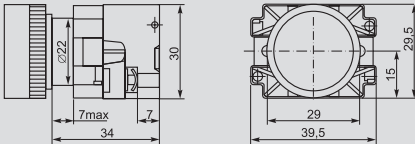
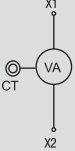
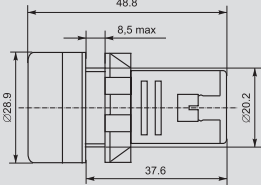
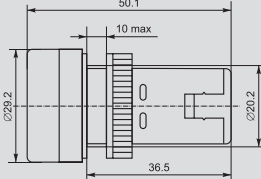
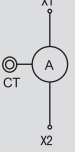
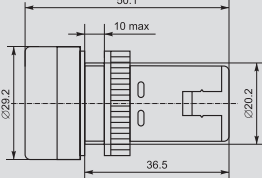
	Name	Color	Quantity, pcs		Product ID
			in a pack.	in a transp. box	
 NEW	D8-11 d=22mm 1NO+1NC	white	10	200	BBT30-11-3-22-K01
	D8-11 d=22mm 1NO+1NC	black	10	200	BBT30-11-3-22-K02
	D8-11 d=22mm 1NO+1NC	green	10	200	BBT30-11-3-22-K06
	D8-11 d=22mm 1NO+1NC	red	10	200	BBT30-11-3-22-K04
	D8-11 d=22mm 1NO+1NC	yellow	10	200	BBT30-11-3-22-K05
	D8-11 d=22mm 1NO+1NC	blue	10	200	BBT30-11-3-22-K07
 NEW	D8-11T d=22mm with fixation 1NO+1NC	white	10	200	BBT30-11T-3-21-K01
	D8-11T d=22mm with fixation 1NO+1NC	black	10	200	BBT30-11T-3-21-K02
	D8-11T d=22mm with fixation 1NO+1NC	green	10	200	BBT30-11T-3-21-K06
	D8-11T d=22mm with fixation 1NO+1NC	red	10	200	BBT30-11T-3-21-K04
	D8-11T d=22mm with fixation 1NO+1NC	yellow	10	200	BBT30-11T-3-21-K05
	D8-11T d=22mm with fixation 1NO+1NC	blue	10	200	BBT30-11T-3-21-K07
 NEW	D8-11D d=22mm with backlight 1NO+1NC	green	10	200	BBT30-11D-3-12-K06
	D8-11D d=22mm with backlight 1NO+1NC	red	10	200	BBT30-11D-3-12-K04
	D8-11D d=22mm with backlight 1NO+1NC	yellow	10	200	BBT30-11D-3-12-K05
	D8-11D d=22mm with backlight 1NO+1NC	blue	10	200	BBT30-11D-3-12-K07
	D8-11D d=22mm with backlight 1NO+1NC	white	10	200	BBT30-11D-3-12-K01
 NEW	D8-11M "Mushroom" d=22mm 1NO+1NC	green	10	200	BBG30-11M-3-22-K06
	D8-11M "Mushroom" d=22mm 1NO+1NC	red	10	200	BBG30-11M-3-22-K04
 NEW	D8-11MD "Mushroom" d=22mm with backlight 1NO+1NC	green	10	200	BBG30-11MD-3-12-K06
	D8-11MD "Mushroom" d=22mm with backlight 1NO+1NC	red	10	200	BBG30-11MD-3-12-K04
 NEW	D8-11NOS "Mushroom" d=22mm pivot with fixation 1NO+1NC	green	10	200	BBG30-11NOS-3-23-K06
	D8-11NOS "Mushroom" d=22mm pivot with fixation 1NO+1NC	red	10	200	BBG30-11NOS-3-23-K04

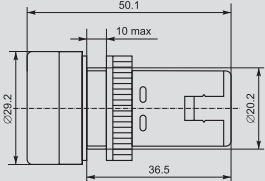
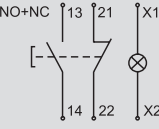
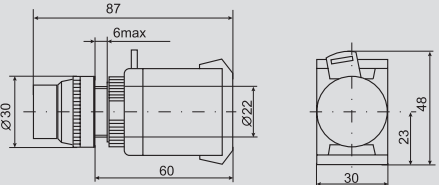
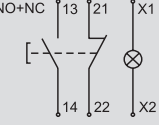
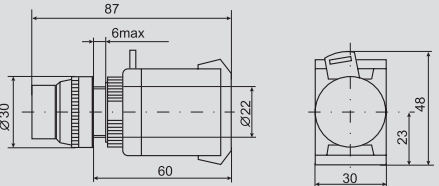
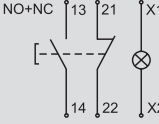
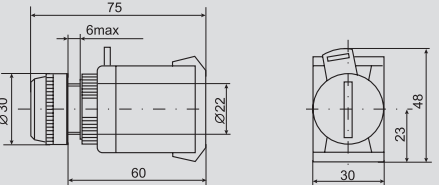
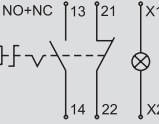
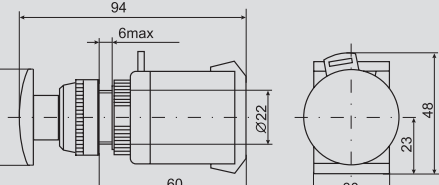
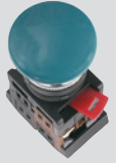
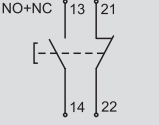
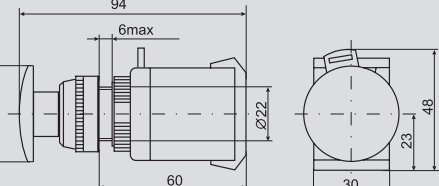
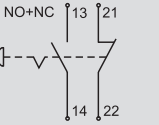
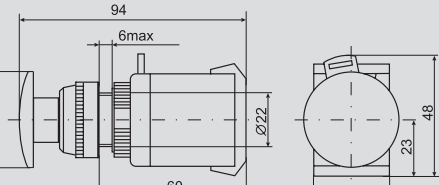
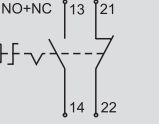
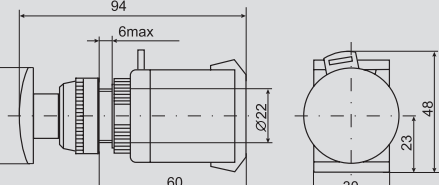
	Name	Color	Quantity, pcs		Product ID
			in a pack.	in a transp. box	
Switches 	AKS-22 with key for 2 fixed positions I-O 1NO+1NC	black	10	200	BSW10-AKS-2-K02
	ALCLR-22 for 3 fixed positions I-O-II 1NO+1NC	black	10	200	BSW10-ALCLR-3-K02
	ALC-22 for 2 fixed positions with long handle I-O 1NO+1NC	black	10	200	BSW10-ALC-2-K02
	AC-22 for 2 fixed positions I-O 1NO+1NC	black	10	200	BSW10-AC-2-K02
	ANC-22-2 for 2 fixed positions neon/230 V I-O 1NO+1NC	red	10	200	BSW10-ANC-2-K04
	ANC-22-2 for 2 fixed positions neon/230 V I-O 1NO+1NC	green	10	200	BSW10-ANC-2-K06
	ANCLR-22-3 for 3 fixed positions neon/230V I-O-II 1NO+1NC	red	10	400	BSW10-ANCLR-3-K04
	ANCLR-22-3 for 3 fixed positions neon/230 V I-O-II 1NO+1NC	green	10	400	BSW10-ANCLR-3-K06
	LAY5-BG45 for 2 positions with a key without fixation	black	20	200	BSW80-BG-2-K02
	LAY5-BG25 for 2 positions with a key without fixation	black	20	200	BSW80-BG-4-K02
	LAY5-BD25 2 fixedpositions "I-O" stand. handle	black	20	200	BSW60-BD-2-K02
	LAY5-BD33 3 fixed positions "I-O-II" stand. handle	black	20	200	BSW60-BD-3-K02
	LAY5-BJ25 2 fixedpositions "I-O" long handle	black	20	200	BSW70-BJ-2-K02
	LAY5-BJ33 3 fixed positions "I-O-II" long handle	black	20	200	BSW70-BJ-3-K02

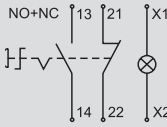
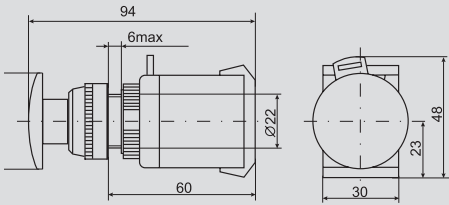
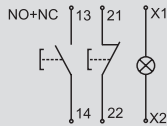
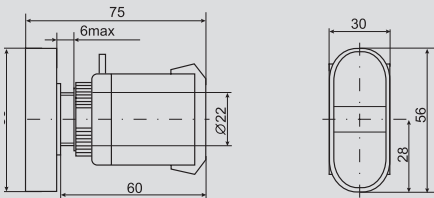
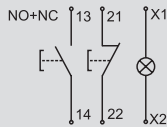
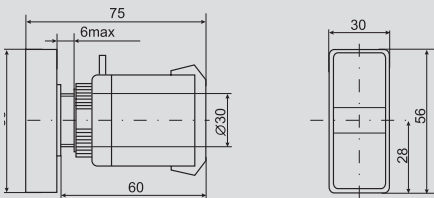
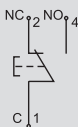
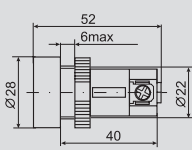
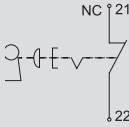
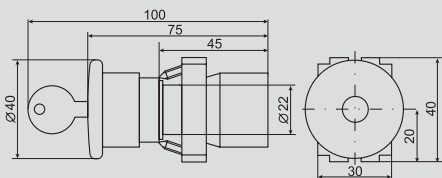
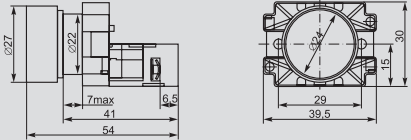
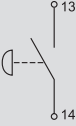
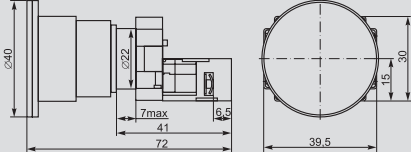
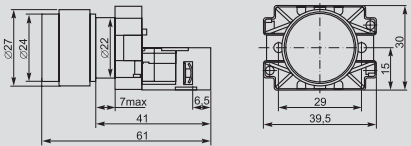
	Name	Color	Quantity, pcs		Product ID
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	LAY5-BK2365 2 fixed positions with backlight	green	20	200	BSW90-BK-2-K06
	LAY5-BK2465 2 fixed positions with backlight	red	20	200	BSW90-BK-2-K04
	LAY5-BK2565 2 fixed positions with backlight	yellow	20	200	BSW90-BK-2-K05
 NEW	LA167-PA12 2 positions with fixation 2NO	black	10	100	BBJ20-PA12-5-21-2-K02
	LA167-PA22 2 positions without fixation 2NO	black	10	100	BBJ20-PA22-4-22-2-K02
 NEW	LA167-PA14 4 positions with fixation 4NO	black	10	100	BBJ20-PA14-6-21-4-K02
	LA167-PA24 4 positions without fixation 4NO	black	10	100	BBJ20-PA24-6-22-4-K02
 NEW	LA167-BDF21 2 positions 1NO	black	10	200	BSW20-BDF21-1-24-67-2-K02
	LA167-BDF25 2 positions 1NO+1NC	black	10	200	BSW20-BDF25-3-24-67-2-K02
	LA167-BDF41 2 positions 1NO	black	10	200	BSW20-BDF41-1-24-67-2-K02
	LA167-BDF45 2 positions 1NO+1NC	black	10	200	BSW20-BDF45-3-24-67-2-K02
	LA167-BDF33 3 positions 2NO	black	10	200	BSW20-BDF33-4-24-67-3-K02
	LA167-BDF53 3 positions 2NO	black	10	200	BSW20-BDF53-4-24-67-3-K02
 NEW	D8-11X2 2 positions 1NO+1NC	black	10	200	BSW30-11X2-3-24-2-K02
	D8-11X22 2 positions 1NO+1NC	black	10	200	BSW30-11X22-3-24-2-K02
	D8-20X3 3 positions 2NO	black	10	200	BSW30-20X3-4-24-2-K02
	D8-20X33 3 positions 2NO	black	10	200	BSW30-20X33-4-24-2-K02
 NEW	D8-11XD2 2 positions with backlight 1NO+1NC	green	10	200	BSW30-11XD2-3-14-2-K06
	D8-11XD2 2 positions with backlight 1NO+1NC	red	10	200	BSW30-11XD2-3-14-2-K04
	D8-11XD2 2 positions with backlight 1NO+1NC	yellow	10	200	BSW30-11XD2-3-14-2-K05
	D8-11XD2 2 positions with backlight 1NO+1NC	blue	10	200	BSW30-11XD2-3-14-2-K07
Accessories for indicator lights, control buttons, switches 	Aux. contact for light signaling hardware 1NC	brown	4	2000	BDK10
	Aux. contact for light signaling hardware 1NO	black	4	2000	BDK20
	Aux. contact for light signaling hardware 1NO for D8 series	orange	25	500	BDK30-1
	Aux. contact for light signaling hardware 1NC for D8 series	orange	25	500	BDK30-2

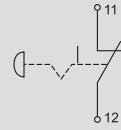
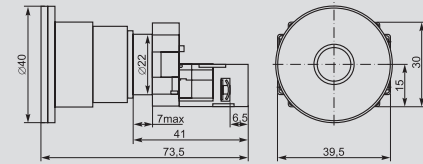
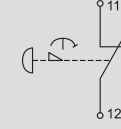
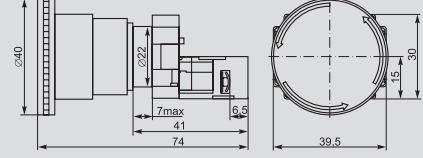
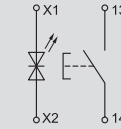
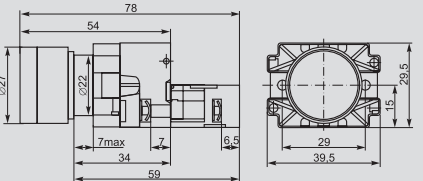
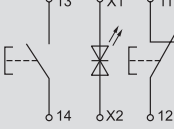
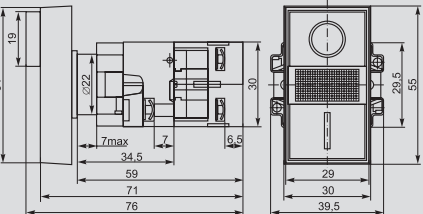
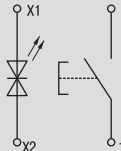
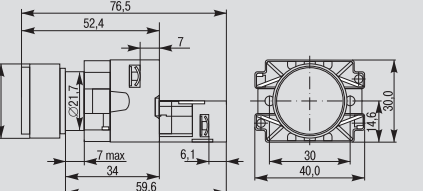
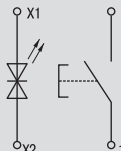
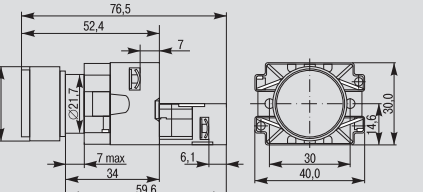
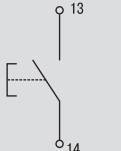
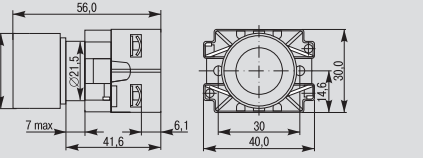
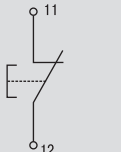
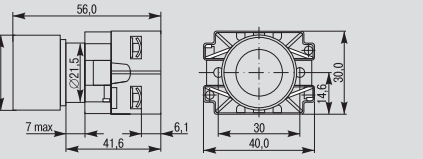
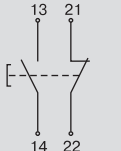
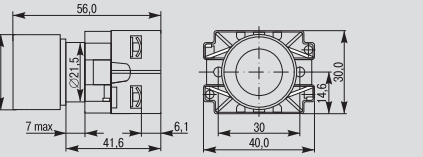
	Name	Color	Quantity, pcs		Product ID
			in a pack.	in a transp. box	
	Contact unit 1NO for LAY5 series IEK	green	4	800	BDK21
	Contact unit 1NC for LAY5 series IEK	red	4	800	BDK11
	Change lamp LED matrix/12 V AC/DC	green	1	50	BMS10-012-K06
	Change lamp LED matrix/12 V AC/DC	red	1	50	BMS10-012-K04
	Change lamp LED matrix/12 V AC/DC	yellow	1	50	BMS10-012-K05
	Change lamp LED matrix/12 V AC/DC	blue	1	50	BMS10-012-K07
	Change lamp LED matrix/24 V AC/DC	green	1	50	BMS10-024-K06
	Change lamp LED matrix/24 V AC/DC	red	1	50	BMS10-024-K04
	Change lamp LED matrix/24 V AC/DC	yellow	1	50	BMS10-024-K05
	Change lamp LED matrix/24 V AC/DC	blue	1	50	BMS10-024-K07
	Change lamp LED matrix/36 V AC/DC	green	1	50	BMS10-036-K06
	Change lamp LED matrix/36 V AC/DC	red	1	50	BMS10-036-K04
	Change lamp LED matrix/36 V AC/DC	yellow	1	50	BMS10-036-K05
	Change lamp LED matrix/36 V AC/DC	blue	1	50	BMS10-036-K07
	Change lamp LED matrix/48 V AC/DC	green	1	50	BMS10-048-K06
	Change lamp LED matrix/48 V AC/DC	red	1	50	BMS10-048-K04
	Change lamp LED matrix/230 V AC	green	1	50	BMS10-230-K06
	Change lamp LED matrix/230 V AC	red	1	50	BMS10-230-K04
	Change lamp LED matrix/230 V AC	yellow	1	50	BMS10-230-K05
	Change lamp LED matrix/230 V AC	blue	1	50	BMS10-230-K07
	Change lamp neon /230V	green	100	1000	BMS20-240-K06
	Change lamp neon /230V	red	100	1000	BMS20-240-K04
	Change cap for AL-22	green	10	4000	BLS20D-KS-AL-K06
	Change cap for AL-22	red	10	4000	BLS20D-KS-AL-K04
	Change cap for AL-22TE	green	10	4000	BLS30D-KS-ALTE-K06
	Change cap for AL-22TE	red	10	4000	BLS30D-KS-ALTE-K04
	Protective cap IP67 for sunk key (SB-7, LAY5-BAXX)	white	100	5000	AD22-S
	Protective cap IP67 for extended key (LAY5-BLXX/BWXX)	white	100	5000	AD22-B
	Protective cap IP 65 for rectangular double button (LAY5-BW8465)	white	100	5000	AD22-D1
	Protective cap IP 65 for oval double button (APBB-22N)	white	100	5000	AD22-D2
	Marking holder DM 11×25	black	100	2500	DM11x25
	Marking holder DM 18×25	black	100	2500	DM18x25

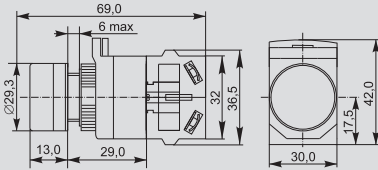
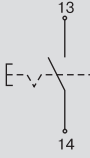
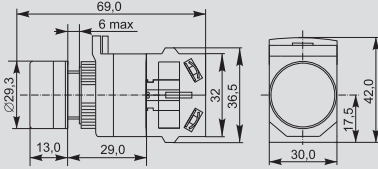
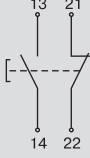
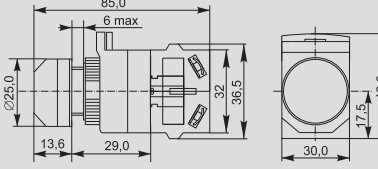
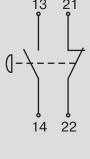
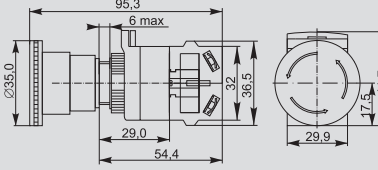
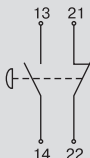
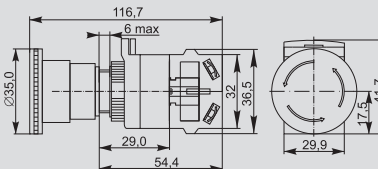
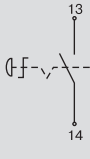
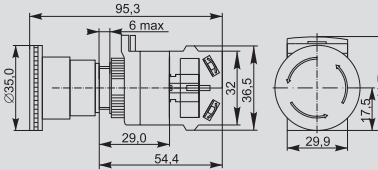
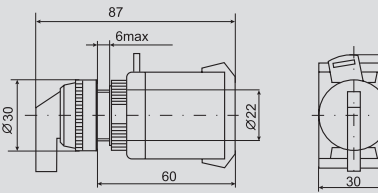
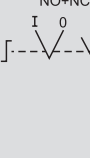
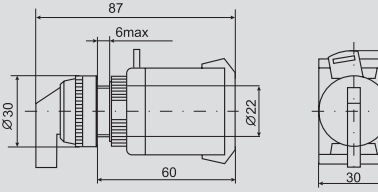
Overall and installation dimensions of light signal indicators, control buttons and switches

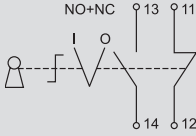
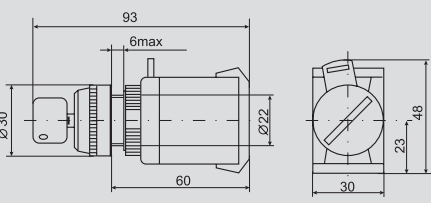
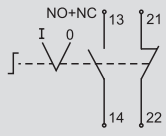
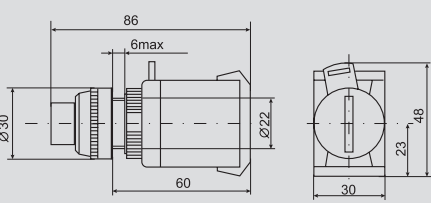
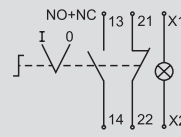
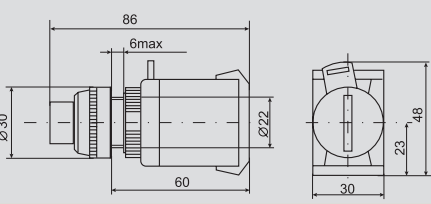
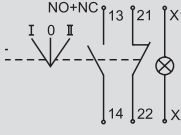
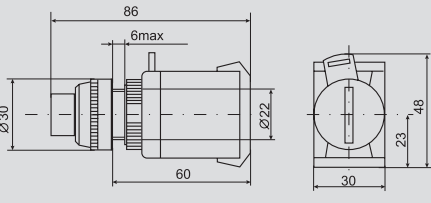
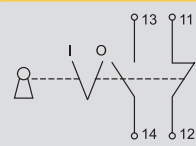
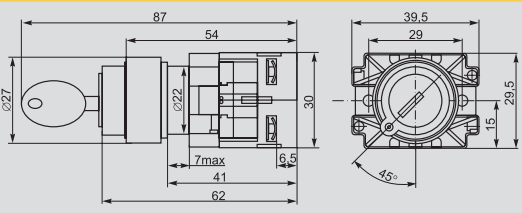
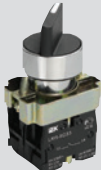
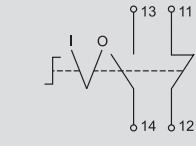
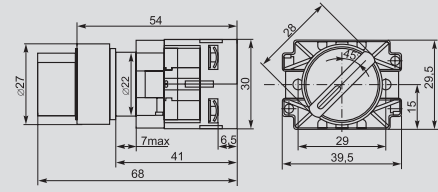
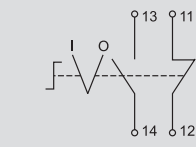
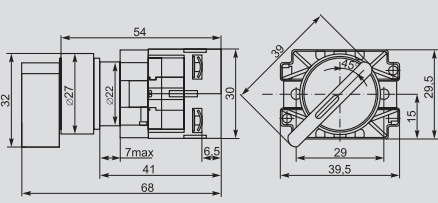
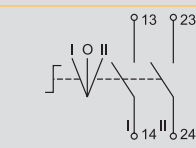
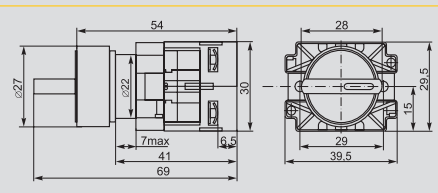
	Name	Electric diagram	Dimensions
	AL-22		
	ENR-22		
	AL-22TE		
	AD-22DS		
	AD-16DS		
	LAY5-BU63, LAY5-BU64, LAY5-BU65		
	AD127-VAM		
	AD127-VM		
	AD127-AM		

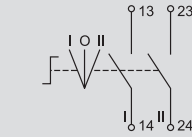
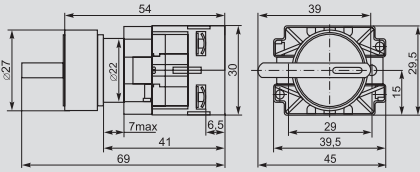
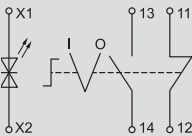
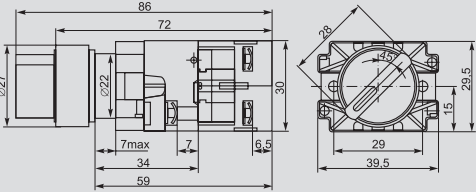
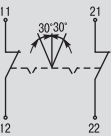
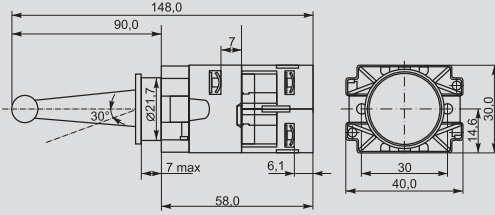
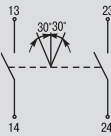
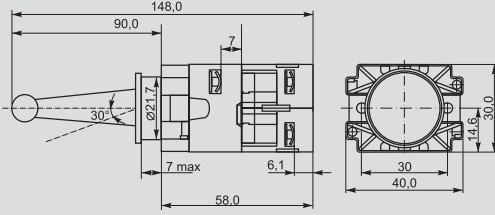
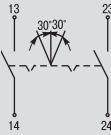
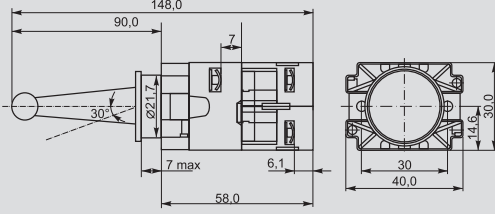
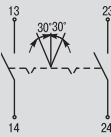
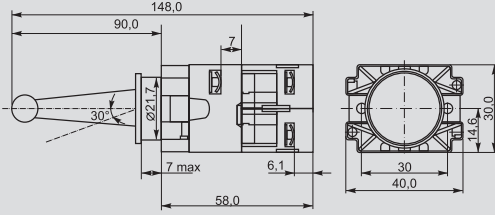
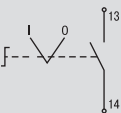
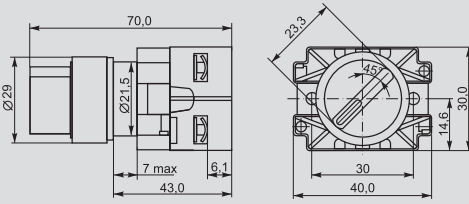
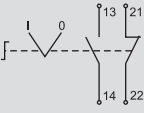
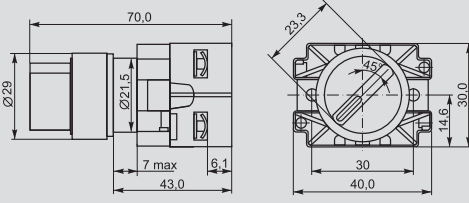
	Name	Electric diagram	Dimensions
	AD127-HZ		
	ABLF-22		
	ABLFP-22		
	ABLFS-22		
	AELA-22		
	AEA-22		
	AEAL-22		
	AE-22		

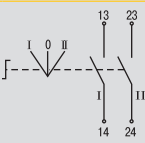
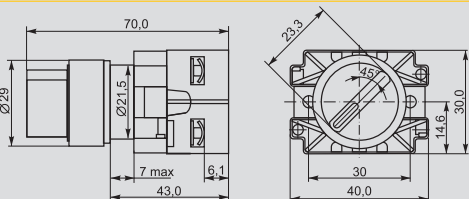
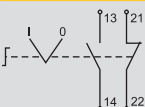
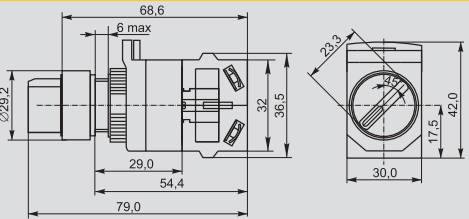
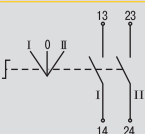
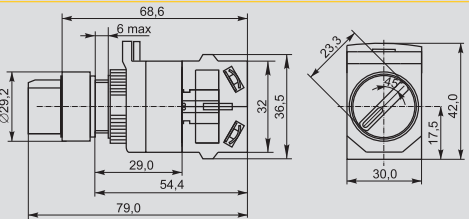
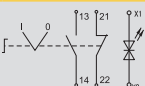
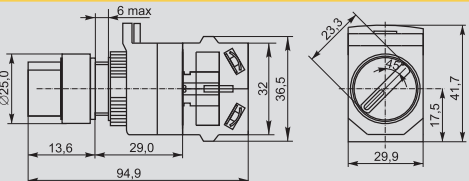
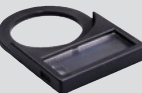
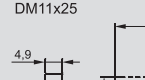
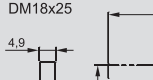
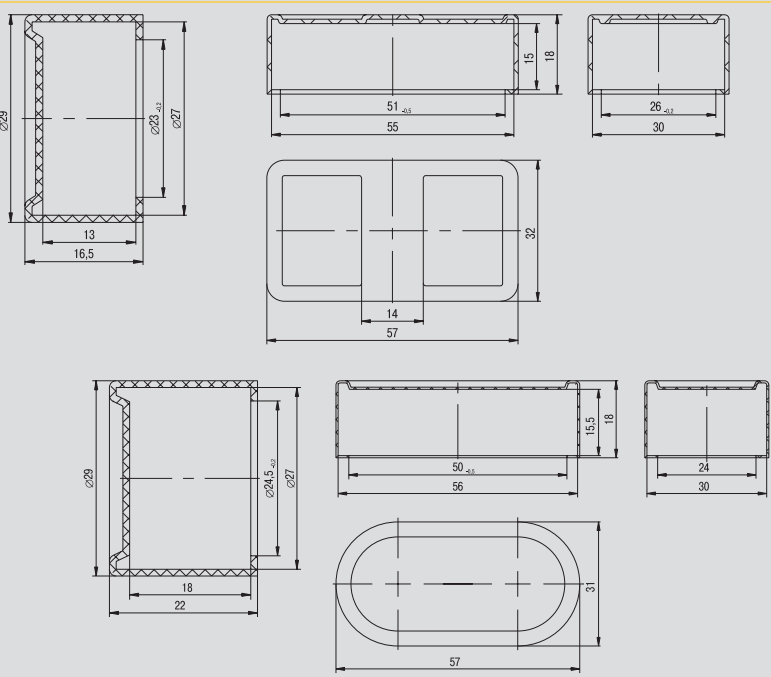
	Name	Electric diagram	Dimensions
	ANE-22		
	APBB-22N		
	PPBB-30N		
	SB-7 "Start" SB-7 "Stop"		
	LAY5-BS142		
	LAY5-BA21 LAY5-BA31 LAY5-BA41 LAY5-BA51 LAY5-BA61		
	LAY5-BC21 LAY5-BC31 LAY5-BC41 LAY5-BC51 LAY5-BC61		
	LAY5-BL21 LAY5-BL31 LAY5-BL41 LAY5-BL51 LAY5-BL61		

	Name	Electric diagram	Dimensions
	LAY5-BT42		
	LAY5-BS542		
	LAY5-BW3361 LAY5-BW3461 LAY5-BW3561		
	LAY5-BW8465		
	LA167-BWF3171 LA167-BWF3371 LA167-BWF3571 LA167-BWF3671 LA167-BW3171 LA167-BW3671 LA167-BW3571 LA167-BW3371		
	LA167-BWF3472 LA167-BW3472		
	LA167-BP21 LA167-BP31 LA167-BP51 LA167-BP61 LA167-BAF11 LA167-BAF21 LA167-BAF31 LA167-BAF51 LA167-BAF61		
	LA167-BP42 LA167-BAF22 LA167-BAF42		
	LA167-BP35 LA167-BP45 LA167-BAF35 LA167-BAF45		

	Name	Electric diagram	Dimensions
	D8-11		
	D8-11		
	D8-11		
	D8-11		
	D8-11		
	D8-11T		
	D8-11T		
	D8-11T		
	D8-11T		
	D8-11T		
	D8-11D		
	D8-11D		
	D8-11D		
	D8-11D		
	D8-11D		
	D8-11M		
	D8-11M		
	D8-11MD		
	D8-11MD		
	D8-11NOS		
	D8-11NOS		
	ALCLR-22		
	ALC		

	Name	Electric diagram	Dimensions
	AKS-22		
	AC-22		
	ANC-22-2		
	ANC-22-3		
	LAY5-BG45		
	LAY5-BD25		
	LAY5-BJ25		
	LAY5-BD33		

	Name	Electric diagram	Dimensions
	LAY5-BJ33		
	LAY5-BK2365 LAY5-BK2465 LAY5-BK2565		
	LA167-PA12		
	LA167-PA22		
	LA167-PA14		
	LA167-PA24		
	LA167-BDF21 LA167-BDF41		
	LA167-BDF25 LA167-BDF45		

Name	Electric diagram	Dimensions
 LA167-BDF33 LA167-BDF53		
 D8-11X2 D8-11X22		
 D8-20X3 D8-20X33		
 D8-11XD2		
 Marking holder	DM11x25 	DM18x25 
 Protective caps		

Basic electrical and mechanical characteristics
of control buttons and switches

Certificate of Conformity No. ROSS CN.AYA46.V46701.

Parameters	Current									
	AC					DC				
Rated operating voltage, V	660	400	230	120	48	440	220	110	48	24
Rated operating current of contacts, A	Utilization category AC-12					Utilization category DC-12				
	2.5	4.5	7.5	10	10	0.6	1.3	2.5	5	10
	Utilization category AC-15					Utilization category DC-13				
	1.5	2.5	4.5	6	6	0.1	0.3	0.6	1.3	2.5
Electrical durability, ON-OFF cycles×10 ³	ABLF, ABLFP, AEA – 300; ABLFS, PPBB-30N, APBB-22N – 100; ALCLR, AKS – 10									
Mechanical durability, ON-OFF cycles×10 ³	600 – for all devices; 100 – keyed and latching buttons									
The degree of protection of the mechanism of buttons and switches	IP40					IP40				
Permissible switching frequency (On-Off cycles/h)	300	1200	3600			300	1200	3600		
% load of contacts by current from the operating value	40	25	15			40	25	15		
Operating temperature range, °C	from -10 to +40					from -10 to +40				
Ambient humidity range	45–90% w/o condensate									

Switching diagrams

Name	AC-22; ANC-22-2; ALC-22; LAY5-BJ25; LAY5-BK2565; LAY5-BD25		ALCLR-22; ANCLR-22; LAY5-BD33; LAY5-BJ33			AKS-22	
Handle position*	–45°	+45°	–45°	+0°	+45°	–45°	+45°
Switching compliance	0	I	I	0	II	0	I
NC Contact	×		×			×	
NO Contact	×		×			×	

Basic electrical and mechanical characteristics of light signaling hardware

Version		AL-22	AL-22TE	ENR-22	LAY5-BU6X	AD-16DS (LED)	AD-22DS (LED)
Rated operating voltage, V	AC and DC	—				12; 24; 36; 110	
	AC	230					
Lamp type		neon lamp base BA9S, removable*			LED matrix 230V~, BA9S**	non-removable LED matrix	
Current consumption, NMT mA		1				20	
Installation diameter, mm		22				16	22
Filter color		white, red, yellow, green, blue			red, yellow, green	white, red, yellow, green, blue	
Degree of protection when installed in switchboard equipment		IP44					
Operating temperature range, °C		from -25 to +40					

* It is possible to replace with removable LED matrix for voltage 12, 24, 36, 48, 110 V AC and (or) DC or 230 V AC, ordered separately.

** It is possible to replace with removable LED matrix for voltage 12, 24, 36, 48, 110 V AC and (or) DC or neon lamp 230 V~, BA9S base, ordered separately.

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