



7 Switching Equipment and Control Devices

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Contactors

KMI AC contactors

KMI AC contactors of general industrial purpose are designed for load currents from 9 to 95 A (AC-3). They are intended for actuating, shutting down and reversing of asynchronous motors equipped with a short-circuited rotor for the applied voltage limited to 660V, remote control of lighting (AC-5a, AC-5b), heating circuits and various low-inductance loads (AC-1), switching three-phase capacitor batteries (AC-6b) and primary windings of three-phase low-voltage transformers (AC-6a).

All unit types per load currents limited to 40 A have a single group of auxiliary NO or NC contacts.

Types per load currents exceeding 40 A have two contact groups (NO and NC).

KMI AC contactors 9-95 A application includes fan, pump, thermal curtain, furnace, overhead-track hoist, unit, lighting and automated load transfer systems control.



Design and technical features of KMI compact contactors meet requirements of international and Russian standards. According to its constructive and technical features, KMI AC contactors meet the requirements of international standards EN 60947-1, EN 60947-4-1, EN 60947-5-1

Advantages

- Broadened range of KMI compact contactors as compared to the similar products from domestic manufacturers on Russian market.
- Wide range of optional devices readily available in the stock (PKI contact attachments, PVI time-delay attachments, RTI thermal relays).

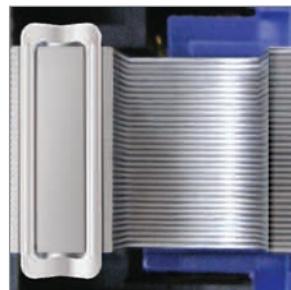
- Installation on 35 mm DIN rail is possible (other domestic manufacturers offer this fixing only as optional feature).
- Reverse version can be obtained using the interlocking mechanism.

Design Features



Special oval terminal contacts ensure a secure conductor fixation:

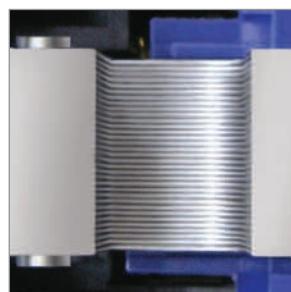
- for dimensions 1 and 2 – with tempered disk spring washers;
- for dimensions 3 and 4 – with a c-clamp allowing connecting a wider section contact.



Short-circuited aluminum rings pressed into polar tips of the magnetic system's stationary part are provided for preventing detonation.



Notches on terminal contacts provide for lowering the wire heating owing to the secure fixation in places of connection and boosting the overall contact area.



As a result of applying a unique manufacturing technology, when being in operation the magnetic system ensures an optimum exploitation (no noise and boosted contact system reliability).



Integrated auxiliary contacts. Each contactor up to 32 A is supplemented with an auxiliary contact: 1 NO or 1 NC. Contactors from 40 up to 95 A are completed with two auxiliary contactors: 1 NO+1 NC.



There are two ways to install the contactors:

1. Fast DIN-rail mounting:
KMI from 9 up to 32 A (dimensions 1 and 2) – 35 mm; KMI from 40 up to 95 A (dimensions 3 and 4) – 35 and 75 mm.
2. Screw installation onto a mounting panel or profile.

Range



Name	Rated operating current, A (AC-3)	Rated control coil voltage, V	Number and type of contacts	Qty in transport package, 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 V/AC-3 1NO IEK	9	110	1NC	50	KKM11-009-110-01
KMI-10911 9 A 230 V/AC-3 1NO IEK	9	230	1NC	50	KKM11-009-230-01
KMI-10911 9 A 400 V/AC-3 1NO 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 1NO IEK	12	110	1NC	50	KKM11-012-110-01
KMI-11211 12 A 230 V/AC-3 1NO IEK	12	230	1NC	50	KKM11-012-230-01
KMI-11211 12 A 400 V/AC-3 1NO 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-11810 18 A 400 V/AC-3 1NO IEK	18	400	1NO	50	KKM11-018-400-10
KMI-11811 18 A 230 V/AC-3 1NO IEK	18	230	1NC	50	KKM11-018-230-01
KMI-11811 18 A 110 V/AC-3 1NO IEK	18	110	1NC	50	KKM11-018-110-01
KMI-11811 18 A 400 V/AC-3 1NO IEK	18	400	1NC	50	KKM11-018-400-01



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 1NO IEK	25	110	1NC	50	KKM21-025-110-01
KMI-22511 25 A 230 V/AC-3 1NO IEK	25	230	1NC	50	KKM21-025-230-01
KMI-22511 25 A 400 V/AC-3 1NO 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 1NO IEK	32	110	1NO	50	KKM21-032-110-01
KMI-23211 32 A 230 V/AC-3 1NO IEK	32	230	1NC	50	KKM21-032-230-01
KMI-23211 32 A 400 V/AC-3 1NO IEK	32	400	1NC	50	KKM21-032-400-01



KMI-34012 40 A 36 V/AC-3 1NO 1NC IEK	40	36	1NO+1NC	20	KKM31-040-036-11
KMI-34012 40 A 110 V/AC-3 1NO 1NC IEK	40	110	1NO+1NC	20	KKM31-040-110-11
KMI-34012 40 A 230 V/AC-3 1NO 1NC IEK	40	230	1NO+1NC	20	KKM31-040-230-11
KMI-34012 40 A 400 V/AC-3 1NO 1NC IEK	40	400	1NO+1NC	20	KKM31-040-400-11
KMI-35012 50 A 110 V/AC-3 1NO 1NC IEK	50	110	1NO+1NC	20	KKM31-050-110-11
KMI-35012 50 A 230 V/AC-3 1NO 1NC IEK	50	230	1NO+1NC	20	KKM31-050-230-11
KMI-35012 50 A 400 V/AC-3 1NO 1NC IEK	50	400	1NO+1NC	20	KKM31-050-400-11



KMI-46512 65 A 110 V/AC-3 1NO 1NC IEK	65	110	1NO+1NC	20	KKM41-065-110-11
KMI-46512 65 A 230 V/AC-3 1NO 1NC IEK	65	230	1NO+1NC	20	KKM41-065-230-11
KMI-46512 65 A 400 V/AC-3 1NO 1NC IEK	65	400	1NO+1NC	20	KKM41-065-400-11
KMI-48012 80 A 110 V/AC-3 1NO 1NC IEK	80	110	1NO+1NC	16	KKM41-080-110-11
KMI-48012 80 A 230 V/AC-3 1NO 1NC IEK	80	230	1NO+1NC	16	KKM41-080-230-11
KMI-48012 80 A 400 V/AC-3 1NO 1NC IEK	80	400	1NO+1NC	16	KKM41-080-400-11
KMI-49512 95 A 110 V/AC-3 1NO 1NC IEK	95	110	1NO+1NC	16	KKM41-095-110-11
KMI-49512 95 A 230 V/AC-3 1NO 1NC IEK	95	230	1NO+1NC	16	KKM41-095-230-11
KMI-49512 95 A 400 V/AC-3 1NO 1NC IEK	95	400	1NO+1NC	16	KKM41-095-400-11

Technical features of KMI AC contactors

Features	KMI-10910	KMI-11210	KMI-11810	KMI-22510	KMI-23210	KMI-34012	KMI-35012	KMI-46512	KMI-48012	KMI-49512	
	KMI-10911	KMI-11211	KMI-11811	KMI-22511	KMI-23211						
Rated operating AC voltage U_e , V	230, 400, 660										
Rated insulation voltage U_i , V	660										
Rated impulse voltage U_{imp} , kV	8										
Rated operating 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} ($t^{\circ} \leq 40^{\circ}$), application category AC-1, A	25	25	32	40	50	60	80	80	125	125	
Rated power for AC-3, kW	230 V 400 V 660 V	2,2 4 5,5	3 5,5 7,5	4 11 10	5,5 18,5 18,5	7,5 15 30	11 18,5 33	15 22 37	18,5 22 37	25 25 45	
Max. short-time load ($t \leq 1$ s), A	162	216	324	450	576	720	900	1170	1440	1710	
Conditional short-circuit current I_{nc} , 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										
Power dissipated at I_e , W/pole	AC-3 AC-1	0,2 1,56	0,36 1,56	0,8 2,5	1,25 3,2	2 5	2,4 5,4	3,7 9,6	4,2 6,4	5,1 12,5	7,2 12,5

Technical features of control circuit of KMI AC contactors

Features	KMI-10910	KMI-11210	KMI-11810	KMI-22510	KMI-23210	KMI-34012	KMI-35012	KMI-46512	KMI-48012	KMI-49512
	KMI-10911	KMI-11211	KMI-11811	KMI-22511	KMI-23211					
Rated control coil voltage U_c , V	24, 36, 110, 230, 400									
Control voltage ranges	tripping release	(0,8÷1,1) U_c (0,3÷0,6) U_c								
Coil power consumption at U_c , VA	tripping $\cos \varphi = 0,75$ hold $\cos \varphi = 0,3$	60 7	60 7	60 7	90 7,5	90 7,5	200 20	200 20	200 20	200 20
Tripping time, ms	closure opening	12–22 4–19	12–22 4–19	12–22 4–19	15–24 5–19	15–24 5–19	20–26 8–12	20–26 8–12	20–26 8–12	20–35 6–20
Switching wear resistance, mln. cycles	AC-1 AC-3 AC-4	0,55 1,7 0,2	0,7 1,7 0,2	1,0 1,4 0,2	1,3 1,4 0,15	1,3 1,6 0,15	1,3 1,5 0,12	1,3 1,4 0,1	1,4 1,4 0,1	0,7 1,2 0,9
Mechanical wear resistance, mln. cycles		15	15	15	12	10	10	10	10	5
Dissipated power, W		2–3	2–3	2–3	2,5–3,5	2,5–3,5	6–10	6–10	6–10	6–10

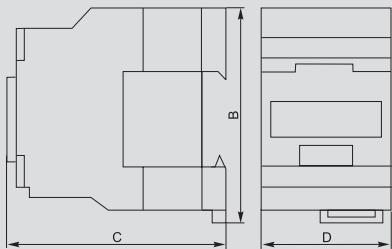
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Technical features of integrated auxiliary contacts

Rated voltage U_n , V	till 660
Rated insulation voltage U_i , V	660
Conventional thermal current ($t^{\circ} \leq 40^{\circ}$) I_{th} , A	10
Min. making capacity	U_{min} , V I_{min} , mA
Overcurrent protection – fuse gG, A	10
Max. short-time load ($t \leq 1$ s), A	100
Insulation resistance, min., mΩ	10

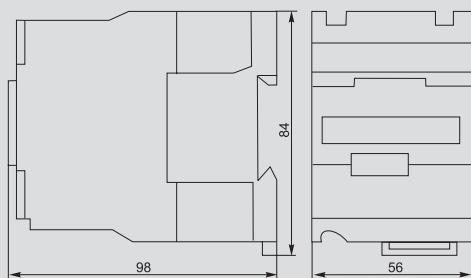
Overall dimensions and weight

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



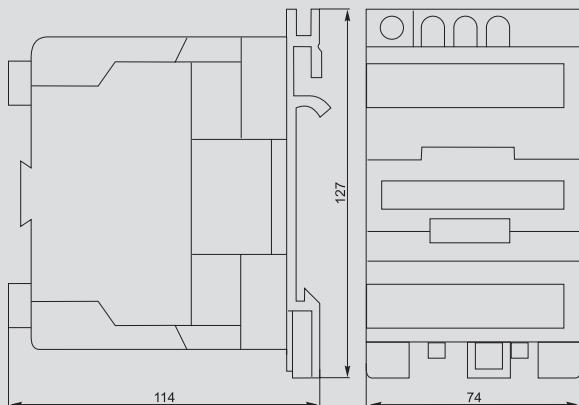
Type	Dimension, mm			Weight max, kg
	B	C	D	
KMI-10910; KMI-10911	74	80	45	0,34
KMI-11210; KMI-11211	74	80	45	0,345
KMI-11810; KMI-11811	74	85	45	0,365
KMI-22510; KMI-22511	84	93	56	0,400

KMI-23210; KMI-23211



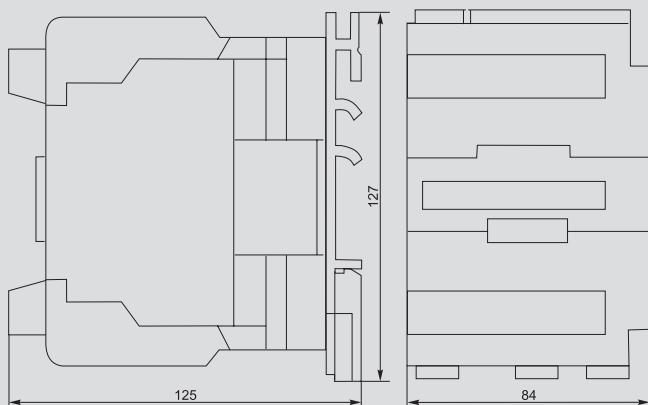
Type	Weight max, kg
KMI-23210; KMI-23211	0,545

KMI-34010; KMI-34011
KMI-35012; KMI-46512



Type	Weight max, kg
KMI-34010; KMI-34011	1,400
KMI-35012	1,400
KMI-46512	1,400

KMI-48012; KMI-49512



Type	Weight max, kg
KMI-48012	1,590
KMI-49512	1,610

KMI AC contactors with thermal electrical relay into protective enclosure

KMI AC contactors with thermal electrical relay into protective enclosure represent a complete device consisting of a compact contactor KMI, RTI thermal electrical relay, enclosure with glands and control buttons. They are intended for remote actuation by means of direct connection to the network and shutting down three-phase asynchronous electric motors with a short-circuited rotor for the applied voltage limited to 400 V as well as for protecting electric motors from overloads of inadmissible duration and overcurrents arising in case of one phase retardation. Applying KMI 10910 ÷ KMI 23211 contactors predetermines the use of a plastic enclosure; KMI 34012 ÷ KMI 49512 are supplemented with a metal one.

Correspond to the requirements of EN 60947-1, EN 60947-4-1, EN 60947-5-1.



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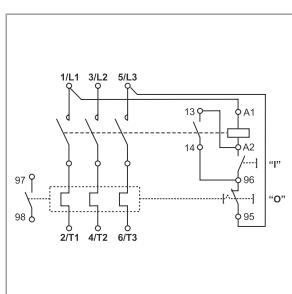
Design Features



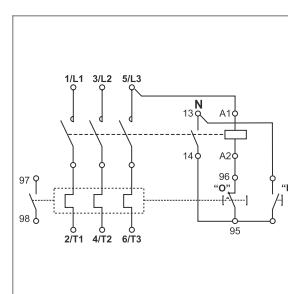
IP54 protection type enclosure provides for using this contactor at construction sites, paint and galvanizing plants (on condition the installations are placed under a weather hood).



Factory control circuit allows avoiding on-site connection faults and reducing the mounting time limited only by connecting linear feeding conductors.



In most cases loads are represented by three-phase asynchronous motors of 400 V. The above mentioned control system is recommended for application in order to reduce the costs and save the working time as the necessity of using the fourth neutral working conductor is excluded.



When managing active loads (heating and lighting circuits) using a neutral conductor, it is recommended to use a 230 V control circuit.

Range

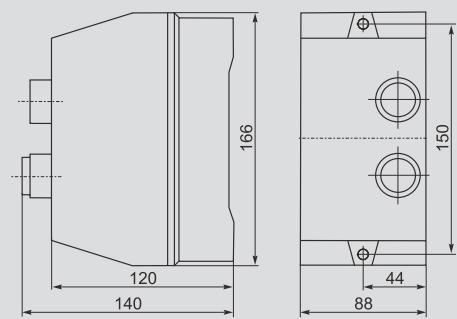
Name	Rated operating current, A (AC-3)	Rated control coil voltage, V	Number and type of contacts	Package amount, pcs.	Product ID	
KMI10960 9 A in I set enclosure 0,1-0,16 A 220 V/AC3 IP54 IEK	0,16	220		20	KKM16-009-D001-220-00	
KMI10960 9 A in I set enclosure 0,1-0,25 A 220 V/AC3 IP54 IEK	0,25	220		20	KKM16-009-C016-220-00	
KMI10960 9 A in I set enclosure 0,25-0,4 A 220 V/AC3 IP54 IEK	0,4	220		20	KKM16-009-C025-220-00	
KMI10960 9 A in I set enclosure 0,4-0,63 A 220 V/AC3 IP54 IEK	0,63	220		20	KKM16-009-D004-220-00	
KMI10960 9 A in I set enclosure 0,63-1,0 A 220 V/AC3 IP54 IEK	1,0	220		20	KKM16-009-C063-220-00	
KMI10960 9 A in I set enclosure 1,0-1,6 A 220 V/AC3 IP54 IEK	1,6	220		20	KKM16-009-0001-220-00	
KMI10960 9 A in I set enclosure 1,6-2,5 A 220 V/AC3 IP54 IEK	2,5	220		20	KKM16-009-D016-220-00	
KMI10960 9 A in I set enclosure 2,5-4,0 A 220 V/AC3 IP54 IEK	4	220		20	KKM16-009-D025-220-00	
KMI10960 9 A in I set enclosure 4-6 A 220 V/AC3 IP54 IEK	6	220		20	KKM16-009-0004-220-00	
 	KMI-10960 9 A in enclosure 220 V/AC-3 IP54 IEK	9	220	20	KKM16-009-220-00	
	KMI-10960 9 A in enclosure 380 V/AC-3 IP54 IEK	9	380	20	KKM16-009-380-00	
 	KMI-12260 12 A in enclosure 220 V/AC-3 IP54 IEK	12	220	20	KKM16-012-220-00	
	KMI-12260 12 A in enclosure 380 V/AC-3 IP54 IEK	12	380	20	KKM16-012-380-00	
 	KMI-11860 18 A in enclosure 220 V/AC-3 IP54 IEK	18	220	20	KKM16-018-220-00	
	KMI-11860 18 A in enclosure 380 V/AC-3 IP54 IEK	18	380	20	KKM16-018-380-00	
 	KMI-22560 25 A in enclosure 220 V/AC-3 IP54 IEK	25	220	16	KKM26-025-220-00	
	KMI-22560 25 A in enclosure 1 380 V/AC-3 IP54 IEK	25	380	16	KKM26-025-380-00	
 	KMI-23260 32 A in enclosure 220 V/AC-3 IP54 IEK	32	220	16	KKM26-032-220-00	
	KMI-23260 32 A in enclosure 380 V/AC-3 IP54 IEK	32	380	16	KKM26-032-380-00	
 	KMI-34062 40 A in enclosure 220 V/AC-3 IP54 IEK	40	220	1p	6	KKM36-040-220-00
	KMI-34062 40 A in enclosure 380 V/AC-3 IP54 IEK	40	380	1p	6	KKM36-040-380-00
	KMI-35062 50 A in enclosure 220 V/AC-3 IP54 IEK	50	220	1p	6	KKM36-050-220-00
	KMI-35062 50 A in enclosure 380 V/AC-3 IP54 IEK	50	380	1p	6	KKM36-050-380-00
	KMI-46562 65 A in enclosure 220 V/AC-3 IP54 IEK	65	220	1p	6	KKM46-065-220-00
	KMI-46562 65 A in enclosure 380 V/AC-3 IP54 IEK	65	380	1p	6	KKM46-065-380-00
	KMI-48062 80 A in enclosure 220 V/AC-3 IP54 IEK	80	220	1p	6	KKM46-080-220-00
	KMI-48062 80 A in enclosure 380 V/AC-3 IP54 IEK	80	380	1p	6	KKM46-080-380-00
	KMI-49562 95 A in enclosure 220 V/AC-3 IP54 IEK	95	220	1p	6	KKM46-095-220-00
	KMI-49562 95 A in enclosure 1 380 V/AC-3 IP54 IEK	95	380	1p	6	KKM46-095-380-00

Technical Features

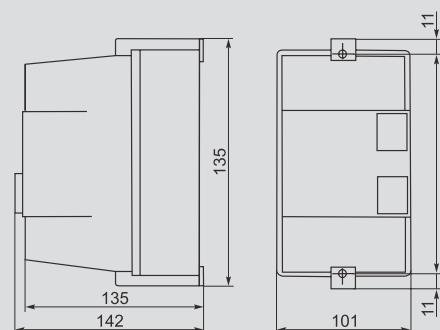
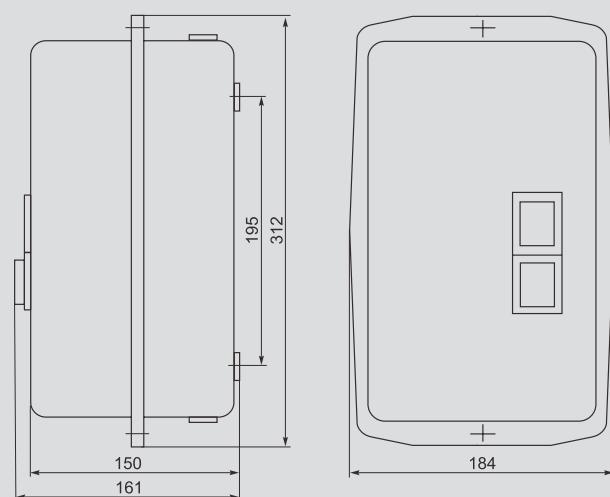
Features	KMI-10960 in enclosure	KMI-11260 in enclosure	KMI-11860 in enclosure	KMI-22560 in enclosure	KMI-23260 in enclosure	KMI-34062 in enclosure	KMI-35062 in enclosure	KMI-46562 in enclosure	KMI-48062 in enclosure	KMI-49562 in enclosure
Rated operating AC voltage U_e , V	230; 400									
Rated insulation voltage U_i , V	660									
Rated impulse voltage U_{imp} , kV	6									
Rated operating current I_e , application category AC-3 ($U_n \leq 400$ V), A	9	12	18	25	32	40	50	65	80	95
Conventional thermal current I_{th} ($t^{\circ} \leq 40^\circ$), application category AC-1, A	25	25	32	40	50	60	80	80	125	125
Rated power for AC-3, kW	230 V 400 V	2,2 4	3 5,5	4 7,5	5,5 11	7,5 15	11 18,5	15 22	18,5 30	22 37
Max. short-time load ($t \leq 1$ s), A	162	216	324	450	576	720	900	1170	1440	1710
Conditional short-circuit current I_{nc} , 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									
Power dissipated at I_e , W/pole	AC-3 AC-1	0,2 1,56	0,36 1,56	0,8 2,5	1,25 3,2	2 5	2,4 5,4	3,7 9,6	4,2 6,4	5,1 12,5
RTI thermal electrical relay	RTI-1314	RTI-1316	RTI-1321	RTI-1322	RTI-2355	RTI-3357	RTI-3359	RTI-3361	RTI-3363	RTI-3365
Relay setting range, A	7÷10	9÷13	12÷18	17÷25	30÷40	37÷50	48÷65	55÷70	63÷80	80÷93
Electric shock hazard protection	II	II	II	II	II	I	I	I	I	I

Overall Dimensions

KMI-10960; KMI-11260; KMI-11860



KMI-22560; KMI-23260

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

KM1p DC contactors with control coil

KM1p DC contactors with control coil for industrial use designed for load current from 9 up to 32 A (AC-3) are intended for actuating, shutting down and reversing of asynchronous electric motors equipped with a short-circuited rotor for the applied voltage limited to 660 V. They can be also applied for remote control of lighting (AC-5a, AC-5b), heating circuits and various low-inductance loads (AC-1), switching three-phase capacitor batteries (AC-6b) and primary windings of three-phase low-voltage transformers

(AC-6a). All unit types have a single group of auxiliary NO contacts.

Application area of these contactors includes controlling fan, pump, thermal curtain, furnace, overhead-track hoist, unit, lighting and automated load transfer systems; uninterruptible power systems; automation and security alarm protection devices; industrial unit management systems; switching three-phase capacitor batteries and primary windings of three-phase low-voltage transformers.



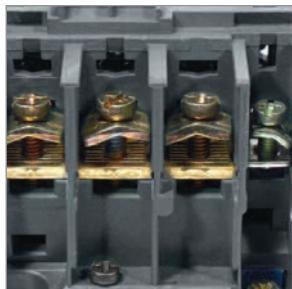
According to its constructive and technical features, KM1p DC contactors with control coil meet the requirements of international standards IEC 60947-4-1.

Advantages

- Extended range of options available at the warehouse (PKI attachments, PVI time-delay attachments, RTI thermal electrical relay).

- 35-mm DIN-rail installation option (other manufacturers provide such option only as customized variants).
- Energy saving in case of applying a DC control coil.

Design Features



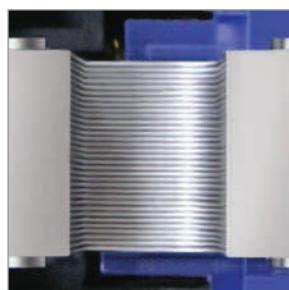
Special oval terminal contacts ensure a secure conductor fixation with tempered disk spring washers.



Integrated auxiliary contacts (NO contact (1NO)).



Magnetic system construction reduces consumption.



When in operating mode, the magnetic system ensures an optimum exploitation (no noise and boosted contact system reliability).



Notches on terminal contacts lower the wire heating owing to the secure fixation in places of connection and boosting the overall contact area.



There are two ways to install the contactors:

- Fast DIN-rail mounting: KMLP from 9 up to 32 A (dimensions 1 and 2) – 35 mm;
- Screw installation onto a mounting panel or profile.

Range



Name	Rated operating current, A (AC-3)	Rated control coil voltage, V	Number and type of contacts	Package amount, pcs.	Product ID
KMLP-10910 09 A 24 V/AC3 1NO IEK	9	24	13	30	KMD11-009-024-10
KMLP-10910 09 A 110 V/AC3 1NO IEK	9	110	13	30	KMD11-009-110-10
KMLP-10910 09 A 220 V/AC3 1NO IEK	9	220	13	30	KMD11-009-220-10
KMLP-11210 12 A 24 V/AC3 1NO IEK	12	24	13	30	KMD11-012-024-10
KMLP-11210 12 A 110 V/AC3 1NO IEK	12	110	13	30	KMD11-012-110-10
KMLP-11210 12 A 220 V/AC3 1NO IEK	12	220	13	30	KMD11-012-220-10
KMLP-11810 18 A 24 V/AC3 1NO IEK	18	24	13	30	KMD11-018-024-10
KMLP-11810 18 A 110 V/AC3 1NO IEK	18	110	13	30	KMD11-018-110-10
KMLP-11810 18 A 220 V/AC3 1NO IEK	18	220	13	30	KMD11-018-220-10
KMLP-22510 25 A 24 V/AC3 1NO IEK	25	24	13	30	KMD21-025-024-10
KMLP-22510 25 A 110 V/AC3 1NO IEK	25	110	13	30	KMD21-025-110-10
KMLP-22510 25 A 220 V/AC3 1NO IEK	25	220	13	30	KMD21-025-220-10
KMLP-23210 32 A 24 V/AC3 1NO IEK	32	24	13	30	KMD21-032-024-10
KMLP-23210 32 A 110 V/AC3 1NO IEK	32	110	13	30	KMD21-032-110-10
KMLP-23210 32 A 220 V/AC3 1NO IEK	32	220	13	30	KMD21-032-220-10

Technical features of KMip DC contactors with control coil

Features	KMip-10910	KMip-11210	KMip-11810	KMip-22510	KMip-23210
Rated operating AC voltage U_e , B	230, 400, 660				
Rated insulation voltage U_i , B	660				
Rated impulse voltage U_{imp} , kB	6				
Rated operating current I_e , application category AC-3 ($U_e \leq 400$ V), A	9	12	18	25	32
Conventional thermal current I_{th} ($t^{\circ} \leq 40^{\circ}$), application category AC-1, A	20	20	32	40	50
Rated power for AC-3, kW	230 V	2,2	3	4	5,5
	400 V	4	5,5	7,5	11
	660 V	5,5	7,5	10	15
Max. short-time load ($t \leq 1$ s), A	162	216	324	450	576
Conditional short-circuit current I_{nc} , A	1000		3000		
Overcurrent protection – fuse gG, A	10	20	25	40	50
Coordination type	2				
Power dissipated at I_e , W/pole	AC-3	0,2	0,36	0,8	1,25
	AC-1	1,56	1,56	2,5	3,2
					5

Technical features of control circuit of KMip DC contactors with control coil

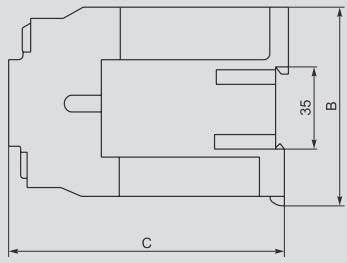
Type	Rated control coil voltage U_c , V=	Control voltage ranges		Coil power consumption at U_c , W		Tripping time, ms		Switching wear resistance, mln. cycles		Mechanical wear resistance, mln. comm. cycles
		tripping	release	tripping	hold	closure	opening	AC-3	AC-1	
KMip-10910 09A 24 V	24	(0,85÷1,1) U_c	(0,1÷1,75) U_c	7	7	70÷80	15÷20	1,7	0,55	10
KMip-10910 09A 110 V	110			7	7			1,7	0,7	10
KMip-10910 09A 220 V	220			7	7			1,4	1,0	10
KMip-11210 12A 24 V	24			7	7			1,4	1,3	8
KMip-11210 12A 110 V	110			10	10	80÷95		1,6	1,3	6
KMip-11210 12A 220 V	220			10	10					
KMip-11810 18A 24 V	24			7	7					
KMip-11810 18A 110 V	110			7	7					
KMip-11810 18A 220 V	220			10	10					
KMip-22510 25A 24 V	24			7	7					
KMip-22510 25A 110 V	110			10	10	80÷95				
KMip-22510 25A 220 V	220			10	10					
KMip-23210 32A 24 V	24			7	7					
KMip-23210 32A 110 V	110			10	10	80÷95				
KMip-23210 32A 220 V	220			10	10					

Technical features of integrated auxiliary contacts

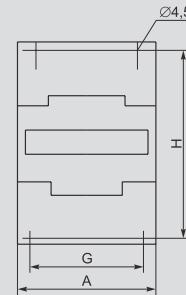
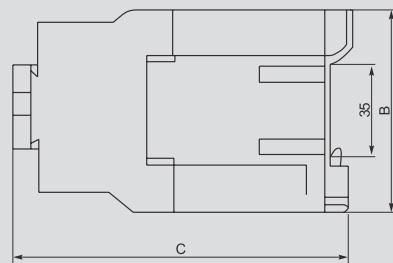
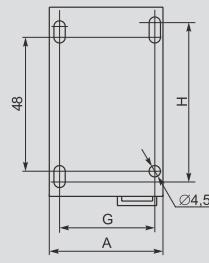
Feature	Value	
Rated voltage U_n , V	AC	≤ 660
	DC	≤ 440
Rated insulation voltage U_i , V	660	
Conventional thermal current ($t \leq 40^\circ\text{C}$) I_{th} , A	10	
Min. making capacity	U_{min} , V	24
	I_{min} , mA	10
Overcurrent protection – fuse gG, A	10	
Max. short-time load ($t \leq 1$ s), A	100	
Insulation resistance, min., mΩ	> 10	

Overall dimensions

KMip-10910; KMip-11210; KMip-11810



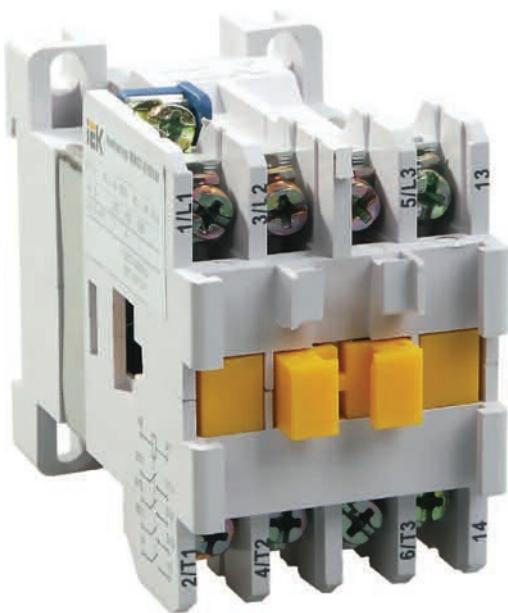
KMip-22510; KMip-23210



Dimensions, mm	KMip-10910	KMip-11210	KMip-11810	KMip-22510	KMip-23210
A	45	45	45	58	58
B	75	75	75	80	80
C	115	115	120	130	136
G	35	35	35	40÷50	40÷50
H	50÷60	50÷60	50÷60	50÷60	50÷60
Weight max, kg	0,57	0,57	0,584	0,845	0,862

PM12 AC contactors

PM12 AC contactors for load currents from 10 to up 63 A (AC-3) are intended for actuating, shutting down and reversing of asynchronous electric motors equipped with a short-circuited rotor for the applied voltage limited to 660 V (AC-3 application category). They can be also used for remote control of lighting, heating circuits and various low-inductance loads (AC-1 application category). All unit types per load currents limited to up 40 A have a single group of auxiliary NO or NC contacts. Types per load currents exceeding 63 A have two contact groups (NO and NC).



Range

	Name	Rated operating current, A (AC-3)	Rated control coil voltage, V	Number and type of contacts	Package amount, pcs.	Product ID
	PM12-010100 110 V IEK	10	110	1NO	80	KKP-010-110-10
	PM12-010100 230 V IEK	10	230	1NO	80	KKP-010-230-10
	PM12-010100 400 V IEK	10	400	1NO	80	KKP-010-400-10
	PM12-010101 230 V IEK	10	230	1NC	80	KKP-010-230-01
	PM12-010101 400 V IEK	10	400	1NC	80	KKP-010-400-01
	PM12K-016150 110 V IEK	16	110	1NO	60	KKP-016-110-10
	PM12K-016150 230 V IEK	16	230	1NO	60	KKP-016-230-10
	PM12K-016150 400 V IEK	16	400	1NO	60	KKP-016-400-10
	PM12K-016151 230 V IEK	16	230	1NC	60	KKP-016-230-01
	PM12K-016151 400 V IEK	16	400	1NC	60	KKP-016-400-01
	PM12-025100 110 V IEK	25	110	1NO	40	KKP-025-110-10
	PM12-025100 230 V IEK	25	230	1NO	40	KKP-025-230-10
	PM12-025100 400 V IEK	25	400	1NO	40	KKP-025-400-10
	PM12-025101 230 V IEK	25	230	1NC	40	KKP-025-230-01
	PM12-025101 400 V IEK	25	400	1NC	40	KKP-025-400-01
	PM12-040150 110 V IEK	40	110	1NO	40	KKP-040-110-10
	PM12-040150 230 V IEK	40	230	1NO	40	KKP-040-230-10
	PM12-040150 400 V IEK	40	400	1NO	40	KKP-040-400-10
	PM12-040151 230 V IEK	40	230	1NC	40	KKP-040-230-01
	PM12-040151 400 V IEK	40	400	1NC	40	KKP-040-400-01
	PM12-063150 110 V IEK	63	110	1NO+1NC	20	KKP-063-110-11
	PM12-063150 230V IEK	63	230	1NO+1NC	20	KKP-063-230-11
	PM12-063150 400 V IEK	63	400	1NO+1NC	20	KKP-063-400-11

Compatibility of PM12 contactors with optional devices

Device type	PM12-01010H	PM12K-01615H	PM12-02510H	PM12-04015H	PM12-063150
PKI auxiliary contact blocks	—	1 NO+1 NC, 2 NO, 2 NC, 4 NO, 4 NC, 2 NO+2 NC	—	—	—
PKL auxiliary contact blocks	1 NO+1 NC, 2 NO, 2 NC, 4 NO, 4 NC, 2 NO+2 NC	—	—	—	—
PVI pneumatic time delay attachments	—	Time delay at switching ON and OFF (1 NO + 1 NC): 0,1-3 s; 0,1-30 s; 10-180 s	—	—	—

Technical characteristics of PM12 contactors

Parameter	PM12-01010(0/1)	PM12K-01615(0/1)	PM12-0250(0/1)	PM12-0405(0/1)	PM12-06350
Rated operating AC voltage U_e , V	230, 400, 660				
Rated insulation voltage U_i , V	660				
Rated impulse voltage U_{imp} , kV	6				
Range of operating temperatures, °C	-25÷+50				
Climatic version and location category according to GOST 15150	UHL4				
Rated operating current I_e , application category AC-3 ($U_e < 400$ V), A	10	16	25	40	63
Conditional short-circuit current I_{nc} , A	1000	1000	3000	3000	3000

Technical characteristics of control circuit of PM12 electromagnetic contactors

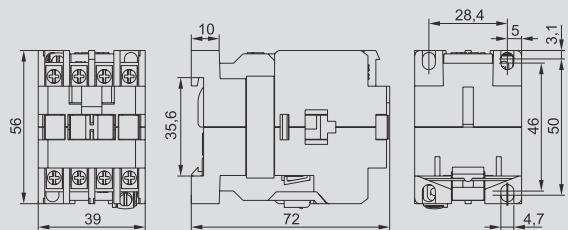
Parameters	PM12-01010(0/1)	PM12K-01615(0/1)	PM12-0250(0/1)	PM12-0405(0/1)	PM12-06350
Rated control coil voltage U_c , V~	110, 230, 400				
Control voltage ranges	pickup release	(0,85÷1,1) U_c (0,3÷0,6) U_c			
Rate of actuation per hour	3600				
Switching endurance AC-3, mln. of cycles	1,2	1,1	1,0	0,8	0,6
Mechanical endurance, mln. of cycles	5	5	5	5	5

Technical characteristics of integrated auxiliary contacts

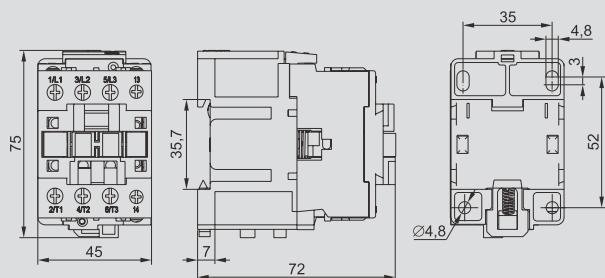
Parameter	Value
Rated voltage U_n , V	≤660
Rated insulation voltage U_i , V	660
Short-time thermal current ($t^o \leq 40^\circ$) I_{th} , A	10
Minimum making capacity	U_{min} , V
	24
	I_{min} , mA
	10
Overcurrent protection: fuse gG, A	10
Maximum short-time load ($t \leq 1$ c), A	100
Insulation resistance, at least, MΩ	>10

Overall dimensions

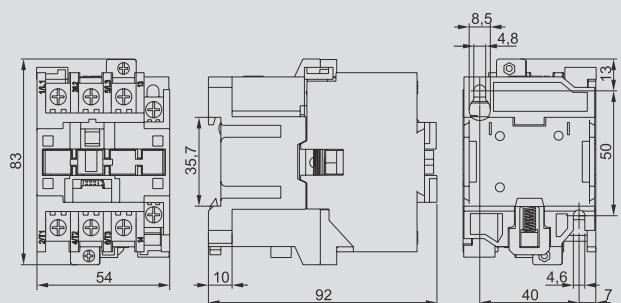
PM12-01010 (0/1)



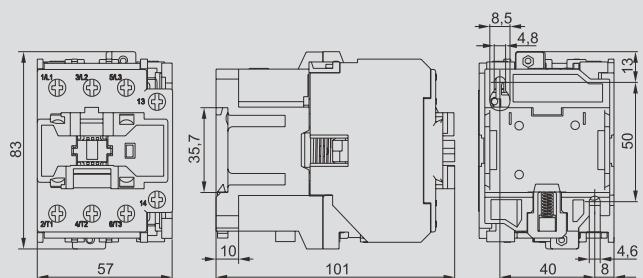
PM12K-01615 (0/1)



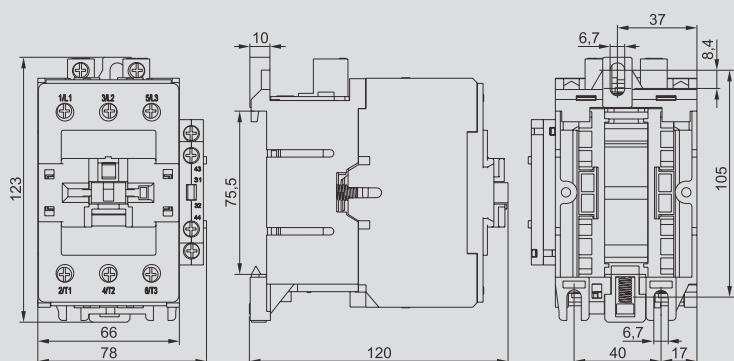
PM12-0250 (0/1)



PM12-0405 (0/1)



PM12-6350



Electromagnetic mini contactors of MKI series

Mini contactors of MKI series are intended for use in control circuits of various loads supplied by AC voltage up to 660 V, 50 Hz. The mini contactors allow for remote switching of power circuits of application categories AC3 (control of motors up to 5 kW) and AC1 (control of heaters). The mini contactors enclosures ensure degree of protection IP20 according to GOST 14254. The climatic version and application category of the contactors is UHL4 according to GOST 15150.



Advantages

- Wide range of control coils rated currents.
- Minimum size

- Can be mounted on 35-mm DIN-rail and installation panel.

Design features



Terminal clamps with hardened plate washers ensure secure fixing of conductors.



There are two ways to install the contactors:
– quick installation on 35-mm DIN rail;
– installation with screws on a mounting panel.

Products' range

Description	Rated operating current, A (AC-3)	Rated control coil voltage, V	No. and type of aux. contacts	Qty in transport package, pcs.	Product ID
MKI-10610 mini contactor 6 A 110 V/ AC3, 1 NO IEK	6A	110	1 NO	100	KMM11-006-110-10
MKI-10610 mini contactor 6 A 230 V/ AC3, 1 NO IEK	6A	230	1 NO	100	KMM11-006-230-10
MKI-10610 mini contactor 6 A 24 V/ AC3, 1 NO IEK	6A	24	1 NO	100	KMM11-006-024-10
MKI-10610 mini contactor 6 A 36 V/ AC3, 1 NO IEK	6A	36	1 NO	100	KMM11-006-036-10
MKI-10610 mini contactor 6 A 400 V/ AC3, 1 NO IEK	6A	400	1 NO	100	KMM11-006-400-10
MKI-10611 mini contactor 6 A 110 V/ AC3, 1 NC IEK	6A	110	1 NC	100	KMM11-006-110-01
MKI-10611 mini contactor 6 A 230 V/ AC3, 1 NC IEK	6A	230	1 NC	100	KMM11-006-230-01
MKI-10611 mini contactor 6 A 400 V/ AC3, 1 NC IEK	6A	400	1 NC	100	KMM11-006-400-01
MKI-10910 mini contactor 9 A 110 V/ AC3, 1 NO IEK	9A	110	1 NO	100	KMM11-009-110-10
MKI-10910 mini contactor 9 A 230 V/ AC3, 1 NO IEK	9A	230	1 NO	100	KMM11-009-230-10
MKI-10910 mini contactor 9 A 24 V/ AC3, 1 NO IEK	9A	24	1 NO	100	KMM11-009-024-10
MKI-10910 mini contactor 9 A 36 V/ AC3, 1 NO IEK	9A	36	1 NO	100	KMM11-009-036-10
MKI-10910 mini contactor 9 A 400 V/ AC3, 1 NO IEK	9A	400	1 NO	100	KMM11-009-400-10
MKI-10911 mini contactor 9 A 110 V/ AC3, 1 NC IEK	9A	110	1 NC	100	KMM11-009-110-01
MKI-10911 mini contactor 9 A 230 V/ AC3, 1 NC IEK	9A	230	1 NC	100	KMM11-009-230-01
MKI-10911 mini contactor 9 A 400 V/ AC3, 1 NC IEK	9A	400	1 NC	100	KMM11-009-400-01
MKI-11210 mini contactor 12 A 110 V/ AC3, 1 NO IEK	12A	110	1 NO	100	KMM11-012-110-10
MKI-11210 mini contactor 12 A 230 V/ AC3, 1 NO IEK	12A	230	1 NO	100	KMM11-012-230-10
MKI-11210 mini contactor 12 A 24 V/ AC3, 1 NO IEK	12A	24	1 NO	100	KMM11-012-024-10
MKI-11210 mini contactor 12 A 36 V/ AC3, 1 NO IEK	12A	36	1 NO	100	KMM11-012-036-10
MKI-11210 mini contactor 12 A 400 V/ AC3, 1 NO IEK	12A	400	1 NO	100	KMM11-012-400-10
MKI-11211 mini contactor 12 A 110 V/ AC3, 1 NC IEK	12A	110	1 NC	100	KMM11-012-110-01
MKI-11211 mini contactor 12 A 230 V/ AC3, 1 NC IEK	12A	230	1 NC	100	KMM11-012-230-01
MKI-11211 mini contactor 12 A 400 V/ AC3, 1 NC IEK	12A	400	1 NC	100	KMM11-012-400-01
MKI-11610 mini contactor 16 A 230 V/ AC3, 1 NO IEK	16A	230	1 NO	100	KMM11-016-230-10
MKI-11611 mini contactor 16 A 230 V/ AC3, 1 NC IEK	16A	230	1 NC	100	KMM11-016-230-01
MKI-11610 mini contactor 16 A 400 V/ AC3, 1 NO IEK	16A	400	1 NO	100	KMM11-016-400-10
MKI-11611 mini contactor 16 A 400 V/ AC3, 1 NC IEK	16A	400	1 NC	100	KMM11-016-400-01

Technical characteristics of MKI electromagnetic mini contactors

Parameter	MKI-1061(0/1)	MKI-1091(0/1)	MKI-1121(0/1)	MKI-1161(0/1)
Rated operating AC voltage U_e , V			230; 400; 690	
Rated insulation voltage U_i , V			690	
Rated impulse voltage U_{imp} , kV			6	
Conditional thermal current I_{th} ($t \leq 40^\circ$), application category AC-1, A			20	
Conditional short-circuit current I_{nc} , A			1000	
Insulation resistance, MΩ			>10	
Rated operating current I_e , application category AC-15, A	230 V 400 V 690 V		6 3 1	
Rated operating current I_e , application category AC-3 ($U_e \leq 400$ V), A	6	9	12	16
Rated power for AC-3, kW	230 V 400 V 690 V	1,5 2,2 3	3 5,5 4	4 7,5 4
Maximum short-time load ($t \leq 0,5$ s), A		60	90	120
Overcurrent protection: fuse gG, A		8	10	20
Dissipated power at I_e , W	AC-3 AC-1	0,11 1,25	0,20 1,25	0,36 0,80
				1,25

Cross-section area of conductors connected to main circuits of contactors and weight

Parameter	Value
Flexible cable without terminal, mm ²	1,0÷4,0
Rigid cable without terminal, mm ²	1,5÷4,0
Tightening torque, N·m	0,8
Contactor weight, kg	0,2

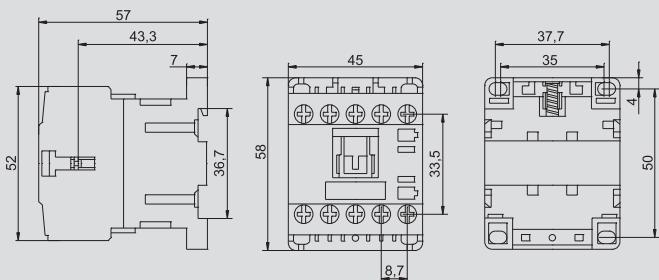
Technical characteristics of control circuit of MKI electromagnetic mini contactors

Parameter	Value
Rated voltage U_n , V	AC up to 690 DC up to 440
Rated insulation voltage U_i , V	690
Short-time thermal current ($t \leq 40^\circ$) I_{th} , A	10
Overcurrent protection: fuse gG, A	10
Maximum short-time load ($t \leq 1,5$ c), A	100
Insulation resistance, MΩ	>10

Rated and limit values of parameters of contactor main circuit

Наименование параметра	MKI-1061(0/1)	MKI-1091(0/1)	MKI-1121(0/1)	MKI-1161(0/1)
Rated operating AC voltage U_e , V			24, 36, 110, 230, 400	
Control voltage ranges	pickup release		(0,85÷1,1) U_c (0,2÷0,75) U_c	
Coil power consumption at U_c , VA	pickup hold		32 6	
Operation time, ms	closing opening		10-20 35-45	
Switching endurance, mln. of cycles			1	
Mechanical endurance, mln. of cycles			12	
Dissipated power, W			3	

Overall and installation dimensions of contactors



Electromagnetic contactors of KTI series

Electromagnetic contactors of KTI series are intended for use in control circuits for start and stoppage of 3-phase squirrel-cage induction motors supplied from mains with rated voltage up to 660 V, and also can be used for switching on/off other electrical units: lighting, heating devices, various inductive loads. They are used with fans, pumps, furnaces, beam cranes and automatic load transfer systems.



For the efficiency of design solutions, high performances and operating reliability, the contactor was awarded with Silver Medal of 15th International Exhibition "Electro-2006" in category "Best electrical equipment".



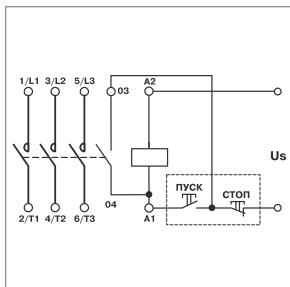
According to its constructive and technical features, KTI AC contactors meet the requirements of international standards EN 60947-1, EN 60947-4-1, EN 60947-5-1.

Advantages

- Simple design provides for easy maintenance of components.
- The base is made from aluminum shape that ensures increased robustness and lesser weight compared with similar designs.

- Wide range of optional devices readily available in the stock (PKI contact attachments, PVI time-delay attachments).
- Broadened range of offered KTI electromagnetic contactors as compared to the similar products from domestic manufacturers on Russian market.

Design Features



There is one NO contact group built in the control coil module in the circuit of every contactor. Owing to the push-button control station, this provides for assembling a simple control circuit.



Checking the contact system operation is performed using a standard box wrench head – 10.



Upper lid is fixed with locking screws. It excludes spontaneous unfastening. Thus, KTI AC contactors can be installed in places with continuous operational vibration.



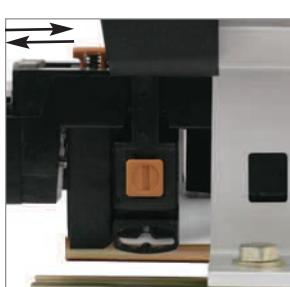
Contact system status indicator is brought to the external panel of side cover. It provides for checking the operation group position without disassembling the contactor.



Indication (factory notches) on the terminals allows determining their wear degree.



Contactors' construction permits installation of two auxiliary add-on devices in any set at the same time.



Improved design of the control coil provides for its dismounting without using a special tool (by means of depressing the plunger).



Factory assembled reverse contactor is supplied with factory buses and mechanical blocking system. Contactors are installed onto two metal rails that ensure high structure rigidity. KTI series reverse contactors represent a separate group in the company's range.



Contact pieces are coated with silver providing for using them in continuous running duty. Welding depositions on the contact pieces are made of silver-based composite materials providing for lowering contact resistance if the temperature rises.

Range

	Name	Rated operating current, A (AC-3)	Rated control coil voltage, V	Number and type of contacts	Package amount, pcs.		Product ID
					multiple	transport	
	KTI-5115 contactor 115 A 230 V/AC-3 IEK	115	230	1NO	1	4	KKT50-115-230-10
	KTI-5115 contactor 115 A 400 V/AC-3 IEK	115	400	1NO	1	4	KKT50-115-400-10
	KTI-5150 contactor 150 A 230 V/AC-3 IEK	150	230	1NO	1	4	KKT50-150-230-10
	KTI-5150 contactor 150 A 400 V/AC-3 IEK	150	400	1NO	1	4	KKT50-150-400-10
	KTI-5185 contactor 185 A 230 V/AC-3 IEK	185	230	1NO	1	4	KKT50-185-230-10
	KTI-5185 contactor 185 A 400 V/AC-3 IEK	185	400	1NO	1	4	KKT50-185-400-10
	KTI-5225 contactor 225 A 230 V/AC-3 IEK	225	230	1NO	1	2	KKT50-225-230-10
	KTI-5225 contactor 225 A 400 V/AC-3 IEK	225	400	1NO	1	2	KKT50-225-400-10
	KTI-5265 contactor 265 A 230 V/AC-3 IEK	265	230	1NO	1	2	KKT50-265-230-10
	KTI-5265 contactor 265 A 400 V/AC-3 IEK	265	400	1NO	1	2	KKT50-265-400-10
	KTI-5330 contactor 330 A 230 V/AC-3 IEK	330	230	1NO	1	2	KKT50-330-230-10
	KTI-5330 contactor 330 A 400 V/AC-3 IEK	330	400	1NO	1	2	KKT50-330-400-10

	KTI-6400 contactor 400 A 230 V/AC-3 IEK	400	230	1NO	1	2	KKT60-400-230-10
	KTI-6400 contactor 400 A 400 V/AC-3 IEK	400	400	1NO	1	2	KKT60-400-400-10
	KTI-6500 contactor 500 A 230 V/AC-3 IEK	500	230	1NO	1	2	KKT60-500-230-10
	KTI-6500 contactor 500 A 400 V/AC-3 IEK	500	400	1NO	1	2	KKT60-500-400-10

	KTI-7630 contactor 630 A 230 V/AC-3 IEK	630	230	1NO	1	1	KKT70-630-230-10
	KTI-7630 contactor 630 A 400 V/AC-3 IEK	630	400	1NO	1	1	KKT70-630-400-10

Description	Rated operating current, A (AC-3)	Rated control coil voltage, V	No. and type of contacts	Qty, pcs		Product ID
				in package	in shipping box	
 KTI-51153 contactor, reverse 115 A 230 V/ AC-3 IEK	115	230	2 NO	1	1	KKT53-115-230-10
KTI-51153 contactor, reverse 115 A 400 V/ AC-3 IEK	115	400	2 NO	1	1	KKT53-115-400-10
KTI-51503 contactor, reverse 150 A 230 V/ AC-3 IEK	150	230	2 NO	1	1	KKT53-150-230-10
KTI-51503 contactor, reverse 150 A 400 V/ AC-3 IEK	150	400	2 NO	1	1	KKT53-150-400-10
KTI-51853 contactor, reverse 185 A 230 V/ AC-3 IEK	185	230	2 NO	1	1	KKT53-185-230-10
KTI-51853 contactor, reverse 185 A 400 V/ AC-3 IEK	185	400	2 NO	1	1	KKT53-185-400-10
KTI-52253 contactor, reverse 225 A 230 V/ AC-3 IEK	225	230	2 NO	1	1	KKT53-225-230-10
KTI-52253 contactor, reverse 225 A 400 V/ AC-3 IEK	225	400	2 NO	1	1	KKT53-225-400-10
KTI-52653 contactor, reverse 265 A 230 V/ AC-3 IEK	265	230	2 NO	1	1	KKT53-265-230-10
KTI-52653 contactor, reverse 265 A 400 V/ AC-3 IEK	265	400	2 NO	1	1	KKT53-265-400-10
KTI-53303 contactor, reverse 330 A 230 V/ AC-3 IEK	330	230	2 NO	1	1	KKT53-330-230-10
KTI-53303 contactor, reverse 330 A 400 V/ AC-3 IEK	330	400	2 NO	1	1	KKT53-330-400-10
	KTI-64003 contactor, reverse 400 A 230 V/ AC-3 IEK	400	230	2 NO	1	KKT63-400-230-10
	KTI-64003 contactor, reverse 400 A 400 V/ AC-3 IEK	400	400	2 NO	1	KKT63-400-400-10
	KTI-65003 contactor, reverse 500 A 230 V/ AC-3 IEK	500	230	2 NO	1	KKT63-500-230-10
	KTI-65003 contactor, reverse 500 A 400 V/ AC-3 IEK	500	400	2 NO	1	KKT63-500-400-10
	KTI-76303 contactor, reverse 630 A 230 V/ AC-3 IEK	630	230	2 NO	1	KKT73-630-230-10
	KTI-76303 contactor, reverse 630 A 400 V/ AC-3 IEK	630	400	2 NO	1	KKT73-630-400-10

Technical features of KTI AC contactors

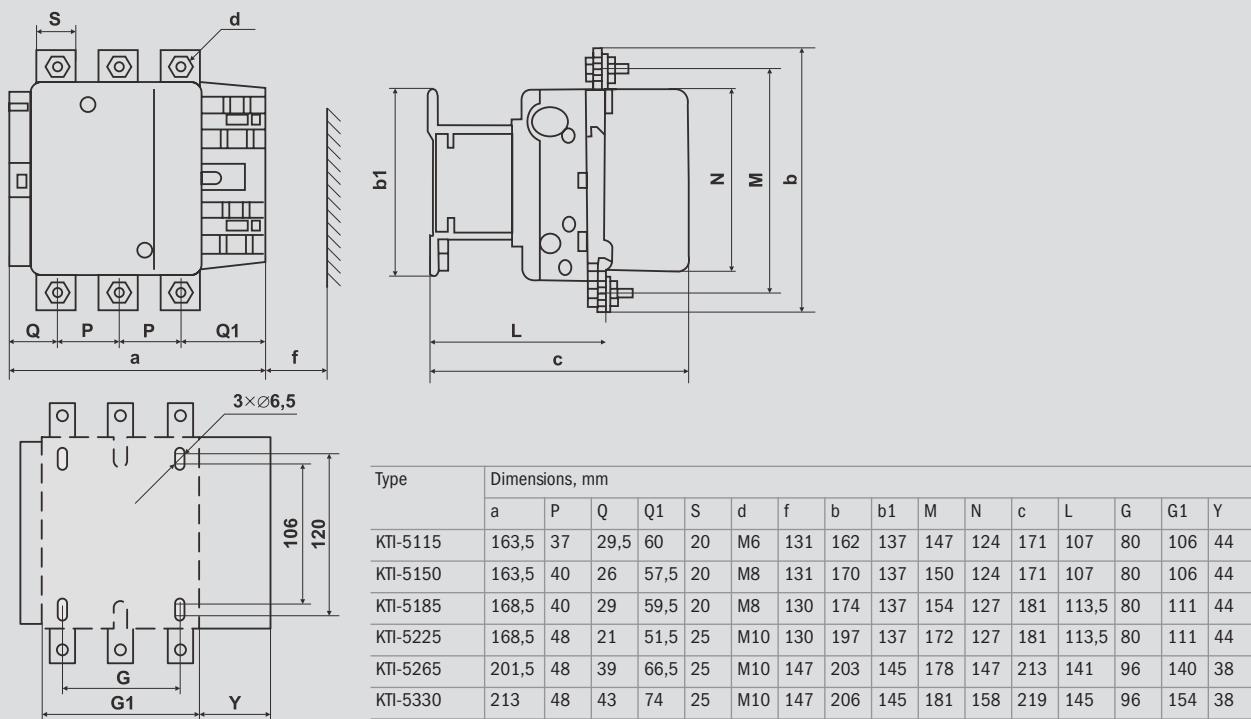
Features	KMI-5115	KMI-5150	KMI-5185	KMI-5225	KMI-5265	KMI-5330	KMI-6400	KMI-6500	KMI-7630
Rated operating AC voltage U_e , V	230; 400; 660								
Rated insulation voltage U_i , V	1000	1000	1000	1000	1000	1000	1000	1000	1000
Rated operating current I_e , application category AC-3 ($U_e \leq 400$ V), A	115	150	185	225	265	330	400	500	630
Conventional thermal current I_{th} ($t^{\circ} \leq 40^{\circ}\text{C}$), 200 application category AC-1, A	250	275	315	350	400	500	700	1000	
Rated power for AC-3, kW	230 V 400 V 660 V	30 55 80	40 75 100	55 90 110	63 110 129	75 132 160	100 160 220	110 200 280	147 250 335
Max. short-time load ($t \leq 1$ s), A	920	1200	1480	1800	2120	2640	3200	4000	5040
Conditional short-circuit current I_{nc} , 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, operation cycles per hour	120	120	120	120	120	120	120	120	120
Power dissipated at I_e , W/pole	AC-3 AC-1	5 15	8 22	12 25	16 32	21 37	31 44	42 65	45 88
									120

Technical features of KTI control circuit

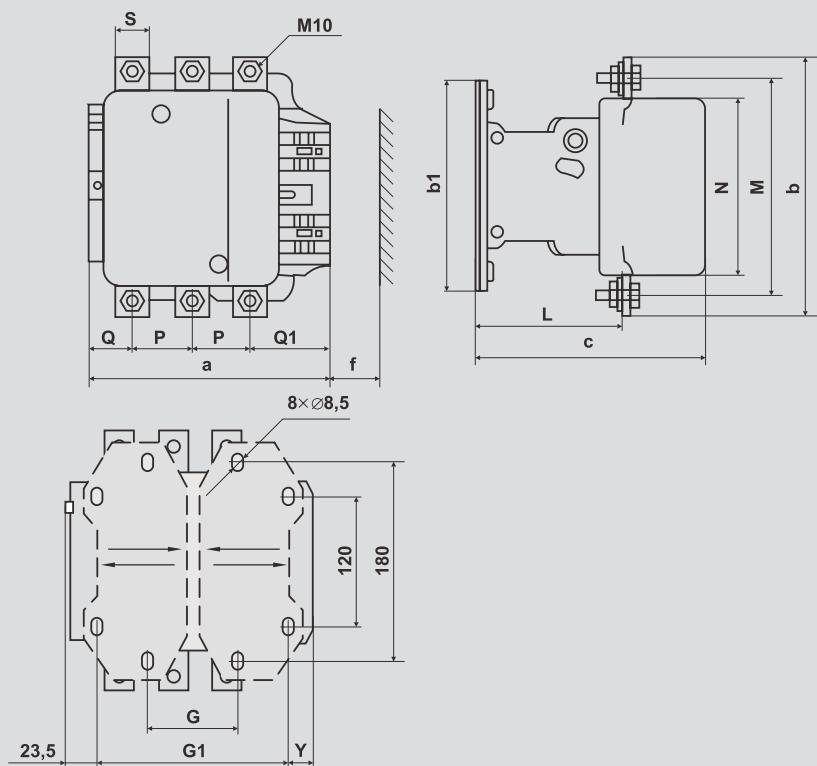
Features	KMI-5115	KMI-5150	KMI-5185	KMI-5225	KMI-5265	KMI-5330	KMI-6400	KMI-6500	KMI-7630
Rated control coil voltage U_c , V-	230; 400								
Control voltage ranges	tripping release	$(0,8 \div 1,1) \cdot U_c$ $(0,35 \div 0,55) \cdot U_c$							
Coil power consumption at U_c , VA	tripping $\cos \varphi = 0,3$ hold $\cos \varphi = 0,75$	550 45	550 45	800 55	800 55	650 10	650 10	1075 15	1100 18
Tripping time, ms	closure opening	23 \div 35 5 \div 15	23 \div 35 5 \div 15	20 \div 35 7 \div 15	20 \div 35 7 \div 15	40 \div 65 100 \div 170	40 \div 65 100 \div 170	40 \div 75 100 \div 170	40 \div 75 100 \div 170
Switching wear resistance, mln. cycles	AC-3 AC-1	0,8 0,5	0,8 0,5	0,8 0,5	0,7 0,4	0,7 0,4	0,6 0,3	0,5 0,3	0,4 0,25
Mechanical wear resistance, mln. comm. cycles		1	1	1	1	1	0,8	0,8	0,8
Dissipated power, W/pole	12 \div 16	12 \div 16	18 \div 24	18 \div 24	8	8	14	18	20

Overall and installation dimensions

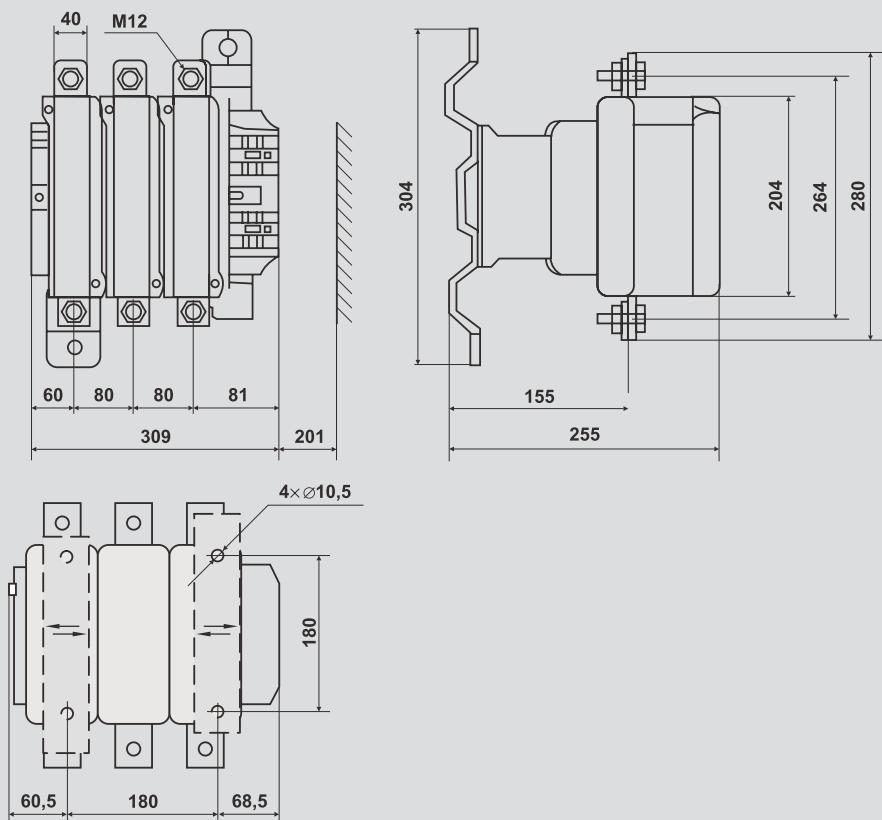
KTI-5115...KTI-5330



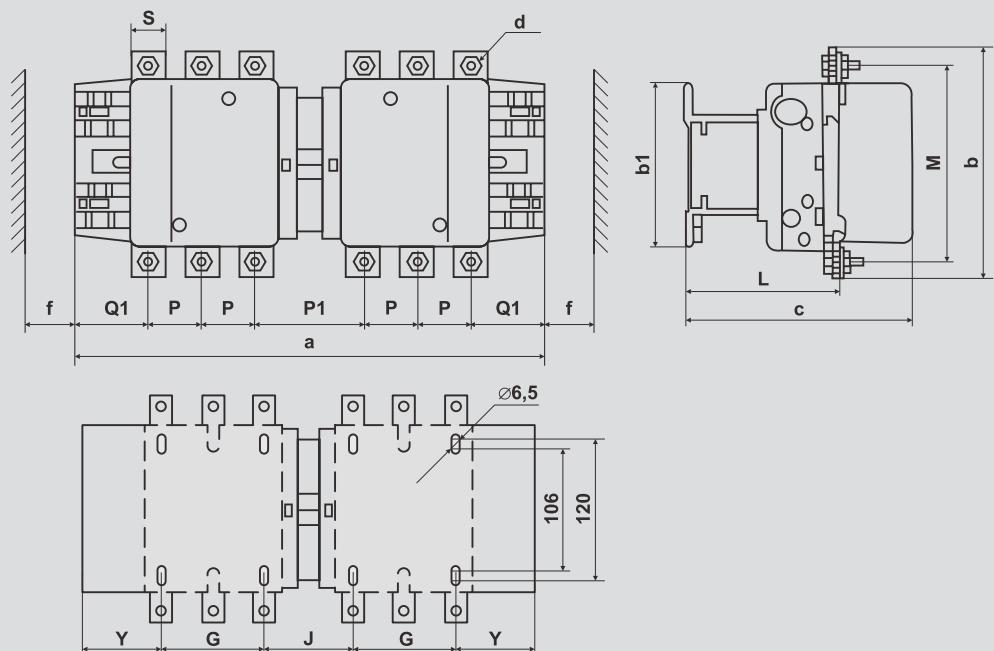
KTI-6400, KTI-6500



KTI-7630

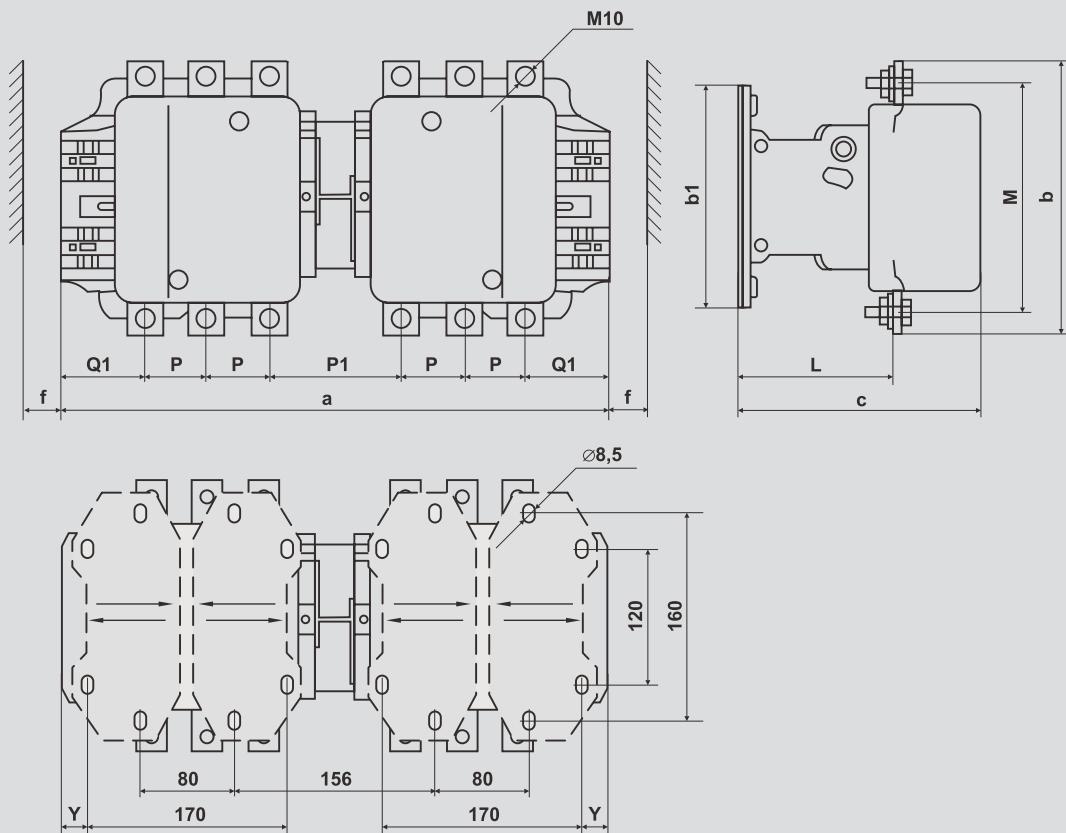


KTI-51153...KTI-53303



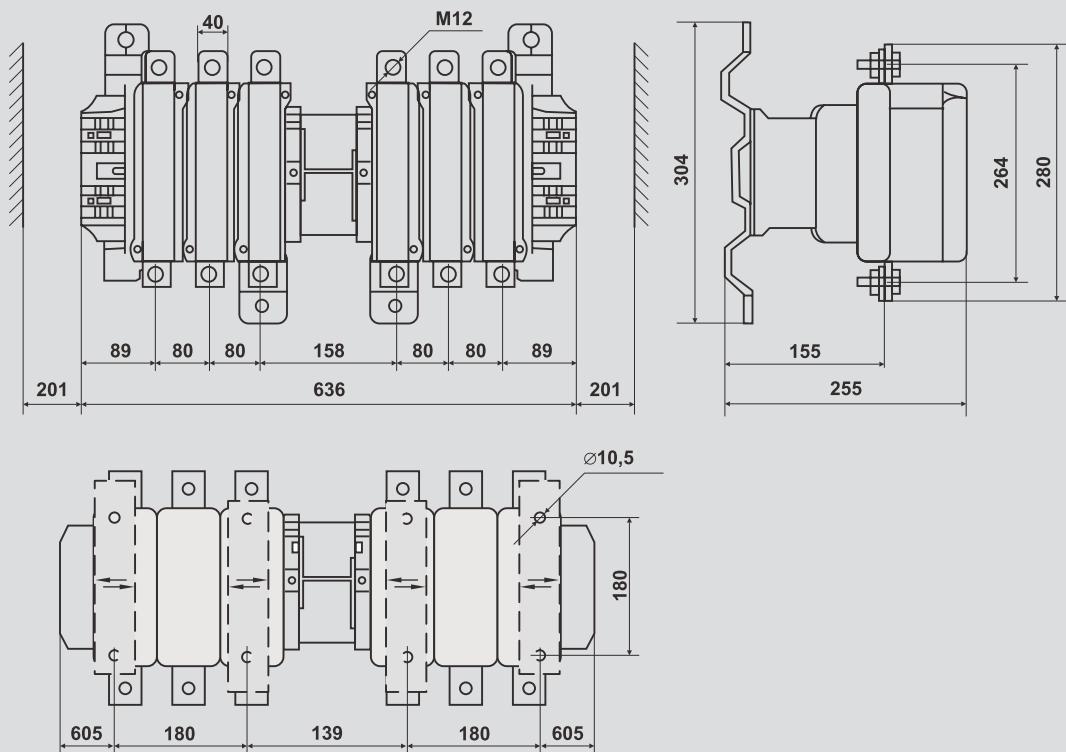
Type	Dimensions, mm														
	a	P	P1	Q1	S	d	f	b	b1	M	c	L	G	J	Y
KTI-51153	346	37	78	60	20	M6	131	162	137	147	171	107	80	72	57
KTI-51503	346	40	72	57,5	20	M8	131	170	137	150	171	107	80	72	57
KTI-51853	357	40	78	59,5	20	M8	130	174	137	154	181	113,5	80	78	59,5
KTI-52253	357	48	62	51,5	25	M10	130	197	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



Type	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



Relay and auxiliary devices for contactors

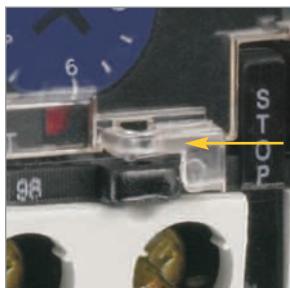
RTI thermal electrical relay

RTI thermal electrical relay is designed for protecting electric motors from overload, phase unbalance, overcrank condition and rotor jamming. It is installed directly onto KMI AC contactors. To ensure short-circuit protection, the unit should be supplied with fuses and modular circuit breakers intended for the correspondent value of rated actuating current.

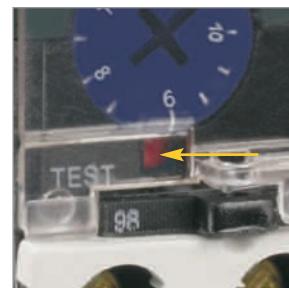
Corresponds to the requirements EN 60947-1, EN 60947-4-1, EN 60947-5-1.



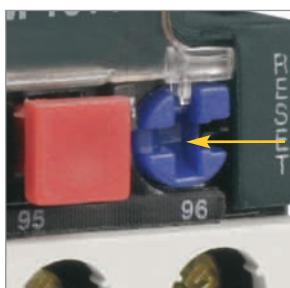
Design Features



Transparent cover sealing protecting the setting adjustment disk excludes unauthorized access to adjusting operation values of the setting current.



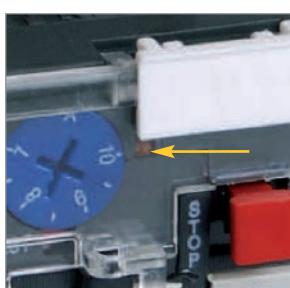
TEST button allows checking the unit's operability before connecting it to the power network.



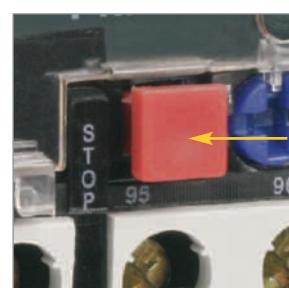
The process of subsequent power off can take place in two modes: manual and auto.



Surface for applying marking provides for making notes concerning the circuit correspondence that facilitates the mounting.



Current state of NO and NC contacts is displayed by the indicator located on the front panel.



Forced shutting down option.

Selection Guide

	Name	Size	Range of current setting adjustment, A	Types of contactors used with relay
	RTI-1301	1	0,1÷0,16	KMI-10910, KMI-10911, KMI-11210, KMI-11211, KMI-11810,
	RTI-1302	1	0,16÷0,25	KMI-11811, KMI-22510, KMI-22511, KMIp-10910, KMIp-11210,
	RTI-1303	1	0,25÷0,4	KMIp-11810, KMIp-22510, PM12K-01615H, PM12-02510H
	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	KMI-11210, KMI-11211, KMI-11810, KMI-11811, KMI-22510, KMI-22511, KMIp-11210, KMIp-11810, KMIp-22510, PM12K-01615H, PM12-02510H
	RTI-1321	1	12,0÷18,0	KMI-11810, KMI-11811, KMI-22510, KMI-22511, KMIp-11810, KMIp-22510, PM12K-01615H, PM12-02510H
	RTI-1322	1	17,0÷25,0	KMI-22510, KMI-22511, KMIp-22510, PM12-02510H
	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-04015H, PM12-063150
	RTI-3355	3	30,0÷40,0	KMI-34012, KMI-35012, KMI-46512, KMI-48012, KMI-49512, PM12-063150
	RTI-3357	3	37,0÷50,0	KMI-46512, KMI-48012, KMI-49512, PM12-063150
	RTI-3359	3	48,0÷65,0	KMI-35012, KMI-46512, KMI-48012, KMI-49512, PM12-063150
	RTI-3361	3	55,0÷70,0	KMI-46512, KMI-48012, KMI-49512
	RTI-3363	3	63,0÷80,0	KMI-48012, KMI-49512
	RTI-3365	3	80,0÷93,0	KMI-49512
	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	KTI-5150, KTI-5185
	RTI-5376	5	150÷180	KTI-5185
	RTI-6376	6	125÷200	KTI-5225, KTI-5265, KTI-5225, KTI-5330 KTI-6400

Range

Name	Relay setting range, A	Number and type of contacts	Package amount, pcs.	Product ID
RTI-1301 thermal electrical 0,1-0,16 A IEK	0,1÷0,16	1NO+1NC	100	DRT10-D001-C016
RTI-1302 thermal electrical 0,16-0,25 A IEK	0,16÷0,25	1NO+1NC	100	DRT10-C016-C025
RTI-1303 thermal electrical 0,25-0,4 A IEK	0,25÷0,4	1NO+1NC	100	DRT10-C025-D004
RTI-1304 thermal electrical 0,4-0,63 A IEK	0,4÷0,63	1NO+1NC	100	DRT10-D004-C063
RTI-1305 thermal electrical 0,63-1,0 A IEK	0,63÷1,0	1NO+1NC	100	DRT10-C063-0001
RTI-1306 thermal electrical 1-1,6 A IEK	1÷1,6	1NO+1NC	100	DRT10-0001-D016
RTI-1307 thermal electrical 1,6-2,5 A IEK	1,6÷2,5	1NO+1NC	100	DRT10-D016-D025
RTI-1308 thermal electrical 2,5-4,0 A IEK	2,5÷4,0	1NO+1NC	100	DRT10-D025-0004
RTI-1310 thermal electrical 4-6 A IEK	4,0÷6,0	1NO+1NC	100	DRT10-0004-0006
RTI-1312 thermal electrical 5,5-8 A IEK	5,5÷8	1NO+1NC	100	DRT10-D055-0008
RTI-1314 thermal electrical 7-10 A IEK	7÷10	1NO+1NC	100	DRT10-0007-0010
RTI-1316 thermal electrical 9-13 A IEK	9÷13	1NO+1NC	100	DRT10-0009-0013
RTI-1321 thermal electrical 12-18 A IEK	12÷18	1NO+1NC	100	DRT10-0012-0018
RTI-1322 thermal electrical 17-25 A IEK	17÷25	1NO+1NC	100	DRT10-0017-0025
RTI-2355 thermal electrical 28-36 A IEK	28÷36	1NO+1NC	50	DRT20-0028-0036
RTI-3353 thermal electrical 23-32 A IEK	23÷32	1NO+1NC	50	DRT30-0023-0032
RTI-3355 thermal electrical 30-40 A IEK	30÷40	1NO+1NC	50	DRT30-0030-0040
RTI-3357 thermal electrical 37-50 A IEK	37÷50	1NO+1NC	50	DRT30-0037-0050
RTI-3359 thermal electrical 48-65 A IEK	48÷65	1NO+1NC	50	DRT30-0048-0065
RTI-3361 thermal electrical 55-70 A IEK	55÷70	1NO+1NC	50	DRT30-0055-0070
RTI-3363 thermal electrical 63-80 A IEK	63÷80	1NO+1NC	50	DRT30-0063-0080
RTI-3365 thermal electrical 80-93 A IEK	80÷93	1NO+1NC	50	DRT30-0080-0093
RTI-5369 thermal electrical 55-80 A IEK	55÷80	1NO+1NC	20	DRT50-0055-0080
RTI-5370 thermal electrical 63-90 A IEK	63÷90	1NO+1NC	20	DRT50-0063-0090
RTI-5371 thermal electrical 90-120 A IEK	90÷120	1NO+1NC	20	DRT50-0090-0120
RTI-5375 thermal electrical 120-150 A IEK	120÷150	1NO+1NC	20	DRT50-0120-0150
RTI-5376 thermal electrical 150-180 A IEK	150÷180	1NO+1NC	20	DRT50-0150-0180
RTI-6376 thermal electrical 125-200 A IEK	125÷200	1NO+1NC	4	DRT60-0125-0200

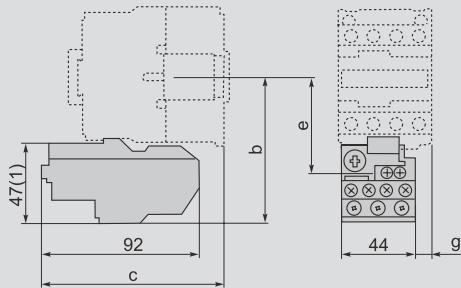
Technical features of power circuit

Features	RTI-1301...RTI-3353	RTI-3355...RTI-3365	RTI-5369...RTI-5376	RTI-5369...RTI-6376
Relay setting range, A	0,1÷32	30÷93	55÷200	55÷200
Rated operating voltage U_e , B~	230, 400, 660	230, 400, 660	230, 400, 660	230, 400, 660
Rated insulation voltage U_i , B	660	660	1000	1000
Rated impulse voltage U_{imp} , kB	6	6	8	8
Frequency, Hz	50	50	0-400	50
Cable size, mm ²	flexible cable without tip flexible cable with tip rigid cable	1,5÷10 1÷4 1÷6	4÷35 4÷35 4÷35	
Torque moment at screw tightening, N·m	2	9	15	28

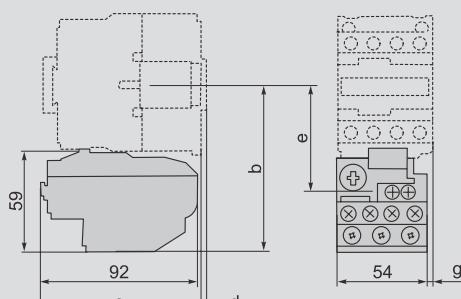
Technical features of integrated auxiliary contacts

Features	RTI-1301...RTI-3353, RTI-3355...RTI-3365	RTI-5369...RTI-5376, RTI-5369...RTI-6376
Conventional thermal current I_{th} , A	5	5
Max. capacity of contactor coil connected to the integrated auxiliary contacts depending on the voltage, VA	110 V 220 V 380 V	400 600 600
Overcurrent protection – fuse gG, A	5	5
Cable size, mm ²	1÷2,5	1÷4
Torque moment at screw tightening, N·m	1,2	1,5

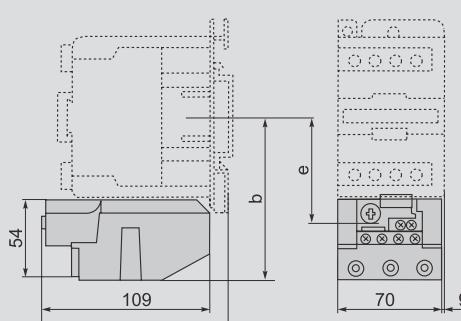
Overall and installation dimensions



Relay type	Contactor type	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	98	50	0
RTI-2355	KMI-23210 KMI-23211	86	108	55	10,7
		86	109	55	8,1

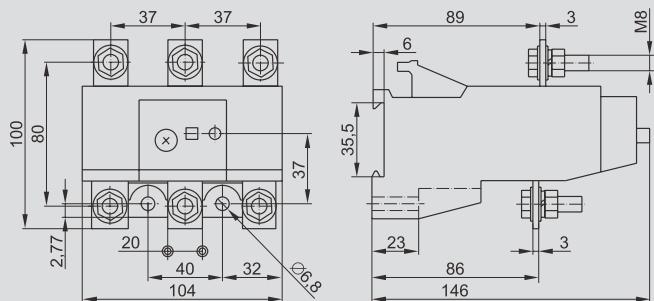


Relay type	Contactor type	Dimensions, mm			
		b	c	e	g
RTI-2355	KMI-23210 KMI-23211	97,5	98	60	0,5

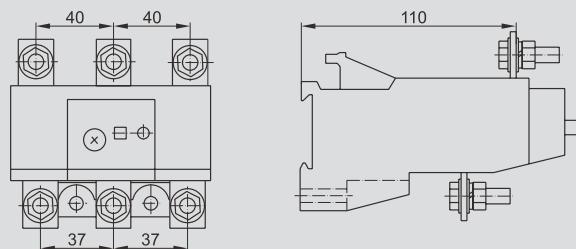


Relay type	Contactor type	Dimensions, mm			
		b	c	e	g
RTI-3353; RTI-3355 RTI-3357; RTI-3359 RTI-3361; RTI-3363 RTI-3365	KMI-34012 KMI-35012 KMI-46512 KMI-48012 KMI-49512	111	119	72,4	4,5
		111	119	72,4	4,5
		111	119	72,4	4,5
		115,5	124	76,9	9,5
		115,5	124	76,9	9,5

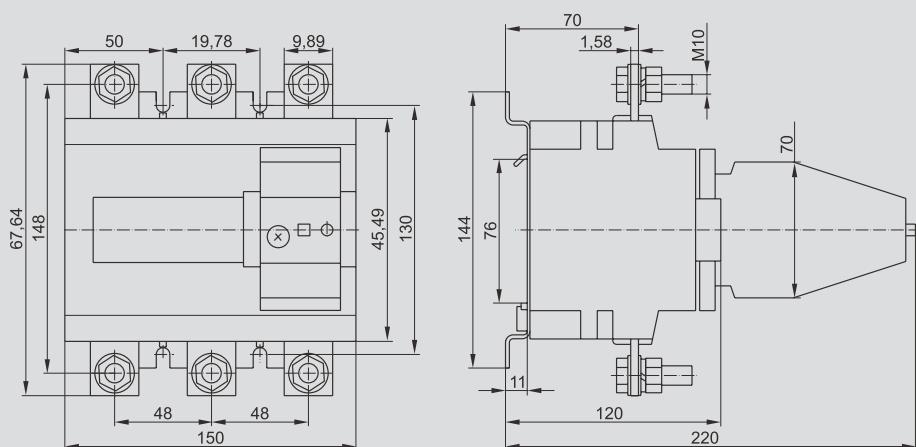
RTI-5369, RTI-5370, RTI-5371, RTI-5375, RTI-5376, var. 1



RTI-5369, RTI-5370, RTI-5371, RTI-5375, RTI-5376, var. 2



RTI-6376



Auxiliary devices for KMI and KTI AC contactors

PKI contact devices PVI time-delay devices

PKI contact devices are intended for expanding the possibilities of contactor application within technology project automation systems. Pneumatic PVI time-delay devices provide for delaying the closing or opening of auxiliary circuits lasting from 0,1 to 180 s. They are used in combination with KMI and KTI series of contactors.

Correspond to the requirements EN 60947-1, EN 60947-4-1, EN 60947-5-1

Range

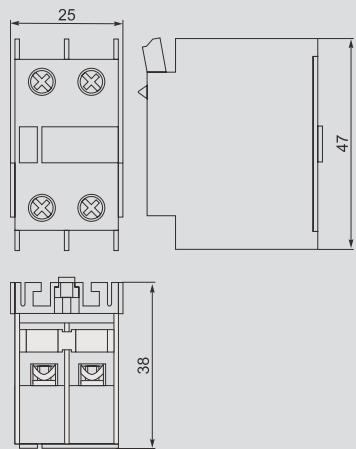
	Description	No. and type of contacts	Qty, pcs in package	Product ID
	PKI-04 auxiliary contacts 4 NC IEK	4 NC	1	KPK10-04
	PKI-11 auxiliary contacts 1 NO + 1 NC IEK	1 NO + 1 NC	1	KPK10-11
	PKI-20 auxiliary contacts 2 NO IEK	2 NO	1	KPK10-20
	PKI-22 auxiliary contacts 2 NO + 2 NC IEK	2 NO + 2 NC	1	KPK10-22
	PKI-40 auxiliary contacts 4 NO IEK	4 NO	1	KPK10-40
	PVI-11 ON delay 0.1-30 s, 1 NO + 1 NC	1 NO + 1 NC	10	KPV10-11-1
	PVI-12 ON delay 10-180 s, 1 NO + 1 NC	1 NO + 1 NC	10	KPV10-11-2
	PVI-13 ON delay 0.1-3 s, 1 NO + 1 NC	1 NO + 1 NC	10	KPV10-11-3
	PVI-21 OFF delay 0.1-30 s, 1 NO + 1 NC	1 NO + 1 NC	10	KPV20-11-1
	PVI-22 OFF delay 10-180 s, 1 NO + 1 NC	1 NO + 1 NC	10	KPV20-11-2
	PVI-23 OFF delay 0.1-3 s, 1 NO + 1 NC	1 NO + 1 NC	10	KPV20-11-3

Technical Features

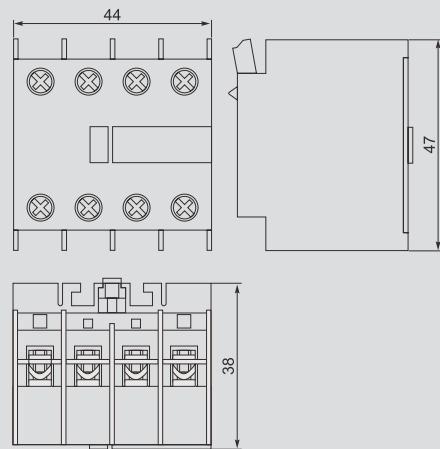
Feature	PKI	PVI
Rated operating AC voltage, V	up to 660	up to 660
Rated operating DC voltage, V	up to 400	up to 400
Rated current, A	10	10
Rated breaking capacity	U_{min}, V	U_{min}, V
	I_{min}, mA	I_{min}, mA
Permitted short-time current, A	24	24
Ambient temperature, °C	10	10
Time delay range, s	-40÷+50	-40÷+50
Weight, kg	-	0,1÷180
Mechanical wear resistance, not less than ops.	0,03; 0,05	0,08
Protection degree	$1,6 \cdot 10^6$	$1,6 \cdot 10^6$
	IP20	IP20

Overall dimensions

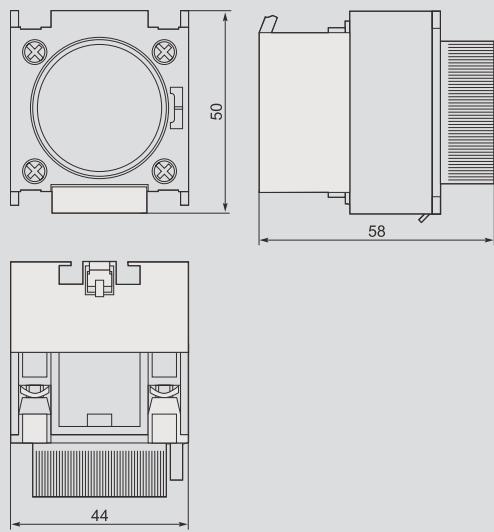
PKI-11, PKI-20



PKI-04, PKI-40



PVI



KMI and KMip control coils and interlocking mechanisms for KMI

Coils serve for managing contactors supplying current to the control circuit.

Interlocking mechanisms are designed for mechanical interlocking of two contactors excluding their simultaneous actuation when creating a reversing scheme.

Range

	Name	Number and type of contacts	Package amount, pcs. multiple	Product ID
	Control coil for KMI (09-18A)	110	8	KKM10D-KU-110
	Control coil for KMI (09-18A)	230	8	KKM10D-KU-230
	Control coil for KMI (09-18A)	24	8	KKM10D-KU-024
	Control coil for KMI (09-18A)	36	8	KKM10D-KU-036
	Control coil for KMI (09-18A)	400	8	KKM10D-KU-400
	Control coil for KMI (25-32A)	110	5	KKM20D-KU-110
	Control coil for KMI (25-32A)	230	5	KKM20D-KU-230
	Control coil for KMI (25-32A)	24	5	KKM20D-KU-024
	Control coil for KMI (25-32A)	36	5	KKM20D-KU-036
	Control coil for KMI (25-32A)	400	5	KKM20D-KU-400
	Control coil for KMI (40-95A)	110	4	KKM30D-KU-110
	Control coil for KMI (40-95A)	230	4	KKM30D-KU-230
	Control coil for KMI (40-95A)	24	4	KKM30D-KU-024
	Control coil for KMI (40-95A)	36	4	KKM30D-KU-036
	Control coil for KMI (40-95A)	400	4	KKM30D-KU-400
	Control coil for KMip (25-32A)	24	1	KMD20D-KU-024
	Control coil for KMip (09-18A)	24	1	KMB10D-KU-024
	KU control coil (115-150A)	400	1	KKT50D-KU-150-400
	KU control coil (115-150A)	230	1	KKT50D-KU-150-230
	KU control coil (185-225A)	400	1	KKT50D-KU-225-400
	KU control coil (185-225A)	230	1	KKT50D-KU-225-230
	KU control coil (265-330A)	400	1	KKT50D-KU-330-400
	KU control coil (265-330A)	230	1	KKT50D-KU-330-230
	KU control coil 400A	400	1	KKT60D-KU-400-400
	KU control coil 400A	230	1	KKT60D-KU-400-230
	KU control coil 500A	400	1	KKT60D-KU-500-400
	KU control coil 500A	230	1	KKT60D-KU-500-230
	KU control coil 630A	400	1	KKT70D-KU-630-400
	KU control coil 630A	230	1	KKT70D-KU-630-230
	Interlocking mechanism for KMI (09-32A)	1	170	KKM10D-MB
	Interlocking mechanism for KMI (40-95A)	1	150	KKM30D-MB

Motor starters, selector switches

Manual push-button motor starters of PRK series and accessories

PRK motor-starters of IEK® trade mark are designed for managing and protecting three-phase asynchronous electric motors from overloads, short-circuit and open-phase operating conditions. They combine the functions of a modular circuit breaker serving for motor protection and a manual starter. These starters are used at industrial sites, agriculture and construction. It is possible to apply them for the local management of separate electric motors as well as residential and administrative building automation.

Application category: AC-3.



Design and technical features of PRK push-button motor-starters meet requirements of Russian and international standards.

According to their constructive and technical features, PRK motor-starters meet the requirements of international standards IEC 60947-4-1, IEC 60947-5-1.

Design Features



PRK32 motor-starter can be locked with a padlock.



Possible joint installation of two DK32 or DK32 and DK/AK32.



Possibility to increase the number of auxiliary contacts.



All parts are protected from direct access.



Saving space and time at the installation. Easy and convenient adjustment of the thermal release setting range. TEST button is intended for checking PRK32 without its connection to the power circuit.



Screw size provides for using one screw driver when dealing with power clamps and control circuit electric terminals.



Auxiliary and emergency contacts joined under one casing DK/AK32.



Protective enclosure with a turn-push button
STOP and a transparent safety cover for a START button ensures IP54 protection degree.

Range

Name	Setting current, A	Package amount, transport	Package amount, multiple	Product ID
PRK32-0,63 starter, $I_n=0,63$ A $I_r=0,4-0,63$ A $U_e=660$ V IEK	0,4÷0,63	50	1	DMS11-C63
PRK32-1 starter, $I_n=1$ A $I_r=0,63-1$ A $U_e=660$ V IEK	0,63÷1,0	50	1	DMS11-001
PRK32-1,6 starter, $I_n=1,6$ A $I_r=1-1,6$ A $U_e=660$ V IEK	1,0÷1,6	50	1	DMS11-D16
PRK32-2,5 starter, $I_n=2,5$ A $I_r=1,6-2,5$ A $U_e=660$ V IEK	1,6÷2,5	50	1	DMS11-D25
PRK32-4 starter, $I_n=4$ A $I_r=2,5-4$ A $U_e=660$ V IEK	2,5÷4,0	50	1	DMS11-004
PRK32-6,3 starter, $I_n=6,3$ A $I_r=4-6,3$ A $U_e=660$ V IEK	4,0÷6,3	50	1	DMS11-D63
PRK32-10 starter, $I_n=10$ A $I_r=6-10$ A $U_e=660$ V IEK	6,0÷10,0	50	1	DMS11-010
PRK32-14 starter, $I_n=14$ A $I_r=9-14$ A $U_e=660$ V IEK	9,0÷14,0	50	1	DMS11-014
PRK32-18 starter, $I_n=18$ A $I_r=13-18$ A $U_e=660$ V IEK	13,0÷18,0	50	1	DMS11-018
PRK32-25 starter, $I_n=25$ A $I_r=20-25$ A $U_e=660$ V IEK	20,0÷25,0	50	1	DMS11-025

Auxiliary devices for PRK motor-starters

Auxiliary contact of transverse installation DKP32

DK32 auxiliary contact

Auxiliary and signal auxiliary contacts in one case DK/AK32

Auxiliary contacts of transverse installation DKP32 and simple auxiliary contacts DK32 are intended for boosting the number of supplementary contacts.

Auxiliary and signal auxiliary contacts in one case DK/AK32 are designed for boosting the number of supplementary contacts and overcurrent tripping alarm PRK32.

Range

Name	Number and type of contacts	Package amount, pcs. multiple	Package amount, transport	Product ID
	Transverse auxiliary contact DKP32-11 IEK 1 NO+1 NC	20	1000	DMS11D-AE11
	Transverse auxiliary contact DKP32-20 IEK 2 NO	20	1000	DMS11D-AE20
	DK32-11 auxiliary contact 1 NO+1 NC	4	200	DMS11D-AU11
	DK32-20 auxiliary contact 2 NO	4	200	DMS11D-AU20
	Signal-auxiliary contact DK/AK32-01 IEK 1 NC	3	150	DMS11D-FA01
	Signal-auxiliary contact DK/AK32-02 IEK 2 NC	3	150	DMS11D-FA02
	Signal-auxiliary contact DK/AK32-11 IEK 1 NO+1 NC	3	150	DMS11D-FA11
	Signal-auxiliary contact DK/AK32-20 IEK 2 NO	3	150	DMS11D-FA20

Technical characteristics PRK

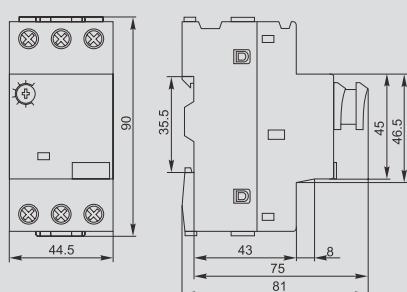
Rated operating voltage U_e , V		230, 400, 660									
Mains rated frequency, Hz		50									
Rated operating current I_e , A	0,63	1,0	1,6	2,5	4,0	6,3	10	14	18	25	
Range of settings for heat release activation, A	0,4÷0,63	0,63÷1,0	1,0÷1,6	1,6÷2,5	2,5÷4,0	4,0÷6,3	6,3÷10	9,0÷14	13÷18	20÷25	
Rated load of AC.3 category, kW	230 V	—	—	—	0,37	0,75	1,1	2,2	3,0	4,0	5,5
	400 V	0,12	0,25	0,37	0,75	1,5	2,2	4,0	5,5	7,5	11
	660 V	0,37	0,55	1,1	1,5	30,0	4,0	7,5	9,0	11,0	18,5
Setting of electromagnetic release, A	8	13	22,5	33,5	51	78	138	170	223	327	
Rated maximum breaking capacity I_{cu} , kA	230 V	100	100	100	100	100	100	100	100	100	50
	400 V	100	100	100	100	100	100	100	15	15	15
	660 V	100	100	100	2,25	2,25	2,25	2,25	2,25	2,25	2,25
aThermal loss, W/pole	2,5										
Electrical endurance, ON-OFF cycles	10 000										
Mechanical endurance, ON-OFF cycles	10 000										
Thermal protection class of release	10 A										
Range of operating temperatures, °C	-25...+55 for PRK without protective enclosure; -25...+40 for PRK with protective enclosure										

Additional devices

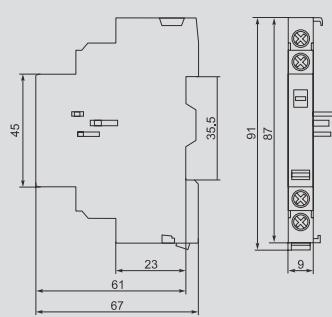
Parameters	DKP32				DK32				DK/AK32			
Rated operating voltage U_e , V	24	48	60	110	230	24	48	110	230	400	660	24
Rated current, A	AC-15	2,0	1,25	—	1,0	0,5	—	6,0	4,5	3,3	2,2	0,6
	DC-13	1,0	0,3	0,15	—	—	6,0	5,0	1,3	0,5	—	—
Conditional thermal current I_{th} , A	aux. contact	2,5				6				6		
	alarm contact	—				—				2,5		
Rated insulation voltage U_i , V	250				690				690			
Wear resistance, ON-OFF cycles, at least	10 000				10 000				10 000			
Visual trip indication	—				—				Indicator of PRK32 trip caused by overcurrent			
Degree of protection	IP20				IP20				IP20			
Cross-section of connected wires, mm ²	0,75÷1,5				0,75÷1,5				0,75÷1,5			
Side of connection to PRK32 motor starter	top, from side of input terminals				left				left			
Weight, kg	not more than 0,1				not more than 0,1				not more than 0,1			
Operating temperature range	-25...+55 without protective enclosure -25...+40 with protective enclosure				-25...+55 without protective enclosure -25...+40 with protective enclosure				-25...+55 without protective enclosure -25...+40 with protective enclosure			

Overall dimensions

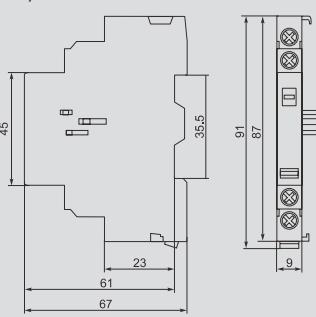
PRK



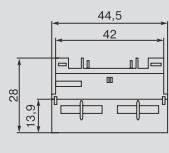
DK32



DK/AK32



DKP32



RN32 low-voltage release RM32 undervoltage release IP54 protective enclosure

RN32 low-voltage release is intended for remote switching PRK32 off.

RM32 undervoltage release is designed for shutting PRK down at lowering of supplying voltage inadmissible for the electric equipment.

Protective enclosure serves for ensuring IP54.

Range

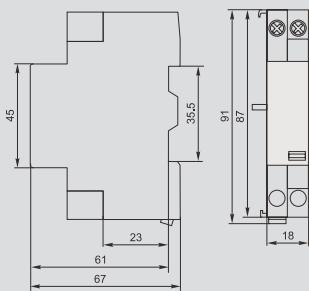
	Name	Operating voltage U_e , V	Package amount multiple	Product ID
	RN32 low-voltage release U_e 110 V IEK	110	2	DMS11D-SH110
	RN32 low-voltage release U_e 230 V IEK	230	2	DMS11D-SH230
	RN32 low-voltage release U_e 400 V IEK	400	2	DMS11D-SH400
	RM32 undervoltage release U_e 110 V IEK	110	2	DMS11D-UV110
	RM32 undervoltage release U_e 230 V IEK	230	2	DMS11D-UV230
	RM32 undervoltage release U_e 400 V IEK	400	2	DMS11D-UV400
	Protective enclosure with "STOP" button IP54 IEK	—	1	20
				DMS11D-PC55

Technical features of RN32 low-voltage release

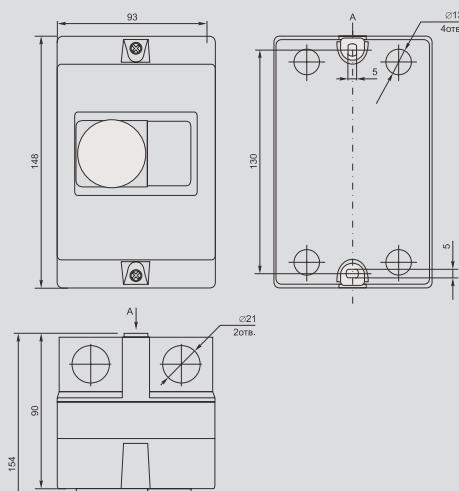
Features	RN32	RM32
Rated operating voltage U_e , V	110; 230; 400	110; 230; 400
Rated frequency, Hz	50	50
Seal-in voltage, V	—	$(0,85 \div 1,1)U_e$
Tripping voltage, V	$(0,7 \div 1,1)U_e$	$(0,35 \div 0,7)U_e$
Pulse power consumption, max. W	3	0,1
Protection degree	IP20	IP20
Wear-resistance, power cycles min.	10 000	10 000
Cable size, mm ²	$0,75 \div 1,5$	$0,75 \div 1,5$
Side of connection to PRK32	right	right
Weight, kg	max. 0,1	max. 0,1

Overall dimensions

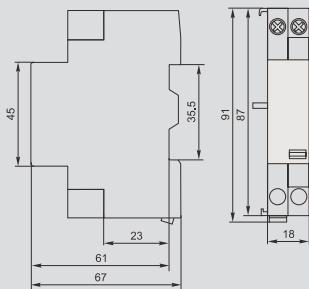
RN32



IP54 protective enclosure



RM32



PKP cam-type switches

PKP cam-type position switches of IEK® brand are mechanical devices without internal consumption intended for installation as switching units. PKP can be used as main or group switches for controlling drives based on the single- or three-phase motors, switching with the required control circuits commutation program, alarm, measuring circuits etc. They are applied in AC electric circuits with voltage under 400 V.



Advantages

- Drive fixation mechanisms guarantee stable switching of moving contacts into separate fixed positions. Drive springs of the fixing mechanism differ depending on the number of commutation elements.
- Cam mechanism represents a modern solution of manual electric circuit commutation ensuring the following advantages:
 - Minimum electric voltage of closed contact;
 - Double break of electric circuit (bridge contact);

- High speed of contacts opening and closing provides for more rapid arc extinction;
- Ensuring different strengths and handle free travel at switching on/off;
- Reaching wider range of commutation circuits when having the same set of details and assembly units that means better unification;
- Longer operational life (number of commutations to the full).

Design Features



Clamps are protected from access and mutual contact (IP20) up to 32 A



Protection degree IP54 ensured for enclosed switches.



PKP switch construction ensures fully operating circuit with ready-installed jumpers.



Control handles with an option of installing a hanging lock.

Range



Name	Design	Rated current, A (AC-21)	Number of input lines (poles)	Positions designation	Package amount, pcs.	Product ID
PKP10-44/0 10 A "Uc-O-Ua-Ub" 4P/400 V IEK	0	10	4P	U _C -0-U _A -U _B	100	BCS14-010-4
PKP10-53/0 10 A "Uca-O-Uab-Ubc" 3P/400 V IEK	0	10	3P	U _{CA} -0-U _{AB} -U _{BC}	100	BCS13-010-5
PKP10-63/0 10 A "Ic-O-la-lb" 3P/400 V IEK	0	10	3P	I _C -0-I _A -I _B	100	BCS13-010-6
PKP10-11/0 10 A "0-1" 1P/400 V IEK	0	10	1P	0-1	100	BCS11-010-1
PKP10-12/0 10 A "0-1" 2P/400 V IEK	0	10	2P	0-1	100	BCS12-010-1
PKP10-13/0 10 A "0-1" 3P/400 V IEK	0	10	3P	0-1	100	BCS13-010-1
PKP10-22/0 10 A "1-2" 2P/400 V IEK	0	10	2P	1-2	100	BCS12-010-3
PKP10-33/0 10 A "1-0-2" 3P/400 V IEK	0	10	3P	1-0-2	100	BCS13-010-2
PKP25-44/0 25 A "Uc-O-Ua-Ub" 4P/400 V IEK	0	25	4P	U _C -0-U _A -U _B	100	BCS14-025-4
PKP25-53/0 25 A "Uca-O-Uab-Ubc" 3P/400 V IEK	0	25	3P	U _{CA} -0-U _{AB} -U _{BC}	100	BCS13-025-5
PKP25-63/0 25 A "Ic-O-la-lb" 3P/400 V IEK	0	25	3P	I _C -0-I _A -I _B	100	BCS13-025-6
PKP25-11/0 25 A "0-1" 1P/400 V IEK	0	25	1P	0-1	100	BCS11-025-1
PKP25-12/0 25 A "0-1" 2P/400 V EK	0	25	2P	0-1	100	BCS12-025-1
PKP25-13/0 25 A "0-1" 3P/400 V IEK	0	25	3P	0-1	100	BCS13-025-1
PKP25-22/0 25 A "1-2" 2P/400 V IEK	0	25	2P	1-2	100	BCS12-025-3
PKP25-33/0 25 A "1-0-2" 3P/400 V IEK	0	25	3P	1-0-2	100	BCS13-025-2
PKP32-44/0 32 A "Uc-O-Ua-Ub" 4P/400 V IEK	0	32	4P	U _C -0-U _A -U _B	72	BCS14-032-4
PKP32-53/0 32 A "Uca-O-Uab-Ubc" 3P/400 V IEK	0	32	3P	U _{CA} -0-U _{AB} -U _{BC}	72	BCS13-032-5
PKP32-63/0 32 A "Ic-O-la-lb" 3P/400 V IEK	0	32	3P	I _C -0-I _A -I _B	64	BCS13-032-6
PKP32-11/0 32 A "0-1" 1P/400 V IEK	0	32	1P	0-1	72	BCS11-032-1
PKP32-12/0 32 A "0-1" 2P/400 V IEK	0	32	2P	0-1	72	BCS12-032-1
PKP32-13/0 32 A "0-1" 3P/400 V IEK	0	32	3P	0-1	72	BCS13-032-1
PKP32-22/0 32 A "1-2" 2P/400 V EK	0	32	2P	1-2	72	BCS12-032-3
PKP32-33/0 32 A "1-0-2" 3P/400 V IEK	0	32	3P	1-0-2	64	BCS13-032-2
PKP63-11/0 63 A "0-1" 1P/400 V IEK	0	63	1P	0-1	72	BCS11-063-1
PKP63-12/0 63 A "0-1" 2P/400 V IEK	0	63	2P	0-1	72	BCS12-063-1
PKP63-13/0 63 A "0-1" 3P/400 V IEK	0	63	3P	0-1	64	BCS13-063-1
PKP63-22/0 63 A "1-2" 2P/400 V IEK	0	63	2P	1-2	64	BCS12-063-3
PKP63-33/0 63 A "1-0-2" 3P/400 V IEK	0	63	3P	1-0-2	48	BCS13-063-2
PKP100-11/0 100 A "0-1" 1P/400 V IEK	0	100	1P	0-1	30	BCS11-125-1
PKP100-12/0 100 A "0-1" 2P/400 V IEK	0	100	2P	0-1	30	BCS12-125-1
PKP100-13/0 100 A "0-1" 3P/400 V IEK	0	100	3P	0-1	30	BCS13-125-1
PKP100-22/0 100 A "1-2" 2P/400 V IEK	0	100	2P	1-2	30	BCS12-125-3



Name	Design	Rated current, A (AC-21)	Number of input lines (poles)	Positions designation	Package amount, pcs.	Product ID
PKP10-11/U 10 A "ON-OFF" 1P/400 V IEK	U	10	1P	ON-OFF	100	BCS21-010-1
PKP10-12/U 10 A "ON-OFF" 2P/400 V IEK	U	10	2P	ON-OFF	100	BCS22-010-1
PKP10-13/U 10 A "ON-OFF" 3P/400 V IEK	U	10	3P	ON-OFF	100	BCS23-010-1
PKP10-22/U 10 A "1-2" 2P/400 V IEK	U	10	2P	1-2	100	BCS22-010-3
PKP10-33/U 10 A "1-0-2" 3P/400 V IEK	U	10	3P	1-0-2	100	BCS23-010-2
PKP25-11/U 25 A "ON-OFF" 1P/400 V IEK	U	25	1P	ON-OFF	100	BCS21-025-1
PKP25-12/U 25 A "ON-OFF" 2P/400 V IEK	U	25	2P	ON-OFF	100	BCS22-025-1
PKP25-13/U 25 A "ON-OFF" 3P/400 V IEK	U	25	3P	ON-OFF	100	BCS23-025-1
PKP25-22/U 25 A "1-2" 2P/400 V IEK	U	25	2P	1-2	100	BCS22-025-3
PKP25-33/U 25 A "1-0-2" 3P/400 V IEK	U	25	3P	1-0-2	100	BCS23-025-2
PKP32-11/U 32 A "ON-OFF" 1P/400 V IEK	U	32	1P	ON-OFF	72	BCS21-032-1
PKP32-12/U 32 A "ON-OFF" 2P/400 V IEK	U	32	2P	ON-OFF	72	BCS22-032-1
PKP32-13/U 32 A "ON-OFF" 3P/400 V IEK	U	32	3P	ON-OFF	72	BCS23-032-1
PKP32-22/U 32 A "1-2" 2P/400 V IEK	U	32	2P	1-2	72	BCS22-032-3
PKP32-33/U 32 A "1-0-2" 3P/400 V IEK	U	32	3P	1-0-2	64	BCS23-032-2
PKP63-11/U 63A "ON-OFF" 1P/400 V IEK	U	63	1P	ON-OFF	72	BCS21-063-1
PKP63-12/U 63A "ON-OFF" 2P/400 V IEK	U	63	2P	ON-OFF	72	BCS22-063-1
PKP63-13/U 63A "ON-OFF" 3P/63 V IEK	U	63	3P	ON-OFF	64	BCS23-063-1
PKP63-22/U 63A "1-2" 2P/400 V IEK	U	63	2P	1-2	64	BCS22-063-3
PKP63-33/U 63A "1-0-2" 3P/400 V IEK	U	63	3P	1-0-2	48	BCS23-063-2
PKP100-11/U 100 A "ON-OFF" 1P/400 V IEK	U	100	1P	0-1	30	BCS21-125-1
PKP100-12/U 100 A "ON-OFF" 2P/400 V IEK	U	100	2P	0-1	30	BCS22-125-1
PKP100-13/U 100 A "ON-OFF" 3P/63 V IEK	U	100	3P	0-1	30	BCS23-125-1
PKP100-22/U 100 A "1-2" 2P/400 V IEK	U	100	2P	1-2	30	BCS22-125-3
PKP100-33/U 100 A "1-0-2" 3P/400 V IEK	U	100	3P	1-0-2	18	BCS23-125-2
PKP10-13/K 10 A "ON-OFF" 3P/400 V IP54 IEK	K	10	3P	ON-OFF	30	BCS33-010-1
PKP25-13/K 25 A "ON-OFF" 3P/400 V IP54 IEK	K	25	3P	ON-OFF	30	BCS33-025-1
PKP32-13/K 32 A "ON-OFF" 3P/63 V IP54 IEK	K	32	3P	ON-OFF	30	BCS33-032-1
PKP63-13/K 63 A "ON-OFF" 3P/400 V IP54 IEK	K	63	3P	ON-OFF	18	BCS33-063-1
PKP100-13/K 100 A "0-1" 3P/400 V IP54 IEK	K	63	3P	0-1	8	BCS33-125-1

Technical Features

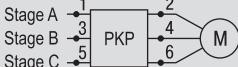
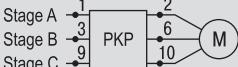
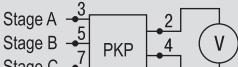
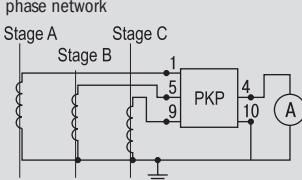
Type		PKP10-../0 PKP10-../U	PKP32-../0 PKP32-../U	PKP100-../0 PKP100-../U	PKP63-../0 PKP63-../U	PKP100-../0 PKP100-../U							
Positions designation	"0"	1 – "0-1" 2 – "1-2" 3 – "1-0-2"	4 – " $U_C-0-U_A-U_B$ " 5 – " $U_{CA}-0-U_{AB}-U_{BC}$ " 6 – " $I_C-0-I_A-I_B$ "										
	"U"	1 – "ON-OFF" 2 – "1-2" 3 – "1-0-2"											
Rated insulation voltage U_i , V		660											
Rated thermal current I_{th} , A		10											
Rated voltage U_e , V		230	400	230	400	230	400	230	400				
Rated operating current I_e within the application category, A	AC-21A, AC-22A	10	10	25	25	32	32	63	63				
	AC-23A	7,5	7,5	22	22	30	30	57	57				
	AC-2	7,5	7,5	22	22	30	30	57	57				
	AC-3	5,5	5,5	15	15	22	22	36	36				
	AC-4	1,75	1,75	6,5	6,5	11	11	15	15				
	AC-15	2,5	1,5	8	5	14	6	–	–				
Rated capacity P within the application category, kW	AC-23A	3/0,8	5/1,7	5,5/3	11/5,5	7,5/4	15/7,5	15/10	30/18,5				
	AC-2	2,5	3,7	5,5	11	7,5	15	18,5	30				
	AC-3	1,5	2,2	4/3	7,5/3,7	5,5/4	11/5,5	11/6	18,5/11				
	AC-4	0,37	0,55	1,5/1,1	3/2,2	2,7/1,5	5,5/3	5,5/2,4	7,5/4				
Rated conditional short-circuit current I_{cn} , A		1000						5000					
Short-current protection - fuse gG, A		12						40					
Max. cable size, mm ²		2,5						6					
Wear-resistance, ths. power cycles	mechanical	100											
	electrical	30											
Protection degree	front panel	IP20											
	contacts	IP00											
Blocking option*		Mechanical with the help of a hanging lock											
Type		PKP10-../K		PKP32-../K		PKP100-../K		PKP63-../K					
Positions designation		"ON-OFF"											
Rated insulation voltage U_i , V		660						1000					
Rated thermal current I_{th} , A		10						25					
Rated voltage U_e , V		230	400	230	400	230	400	230	400				
Rated operating current I_e within the application category, A	AC-21A, AC-22A	10	10	25	25	32	32	50	50				
	AC-23A	7,5	7,5	22	22	30	30	43	43				
	AC-3	5,5	5,5	15	15	22	22	36	36				
Rated capacity P within the application category, kW	AC-23A	1,8	3	4	7,5	7,5	11	11	22				
	AC-3	1,5	2,2	3	5,5	5,5	9,0	11	18,5				
Rated conditional short-circuit current I_{cn} , A		1000						3000					
Short-current protection - fuse gG, A		12						50					
Max. cable size, mm ²		2,5						6					
Wear-resistance, ths. power cycles	mechanical	100											
	electrical	30											
Protection degree		IP54											
Lead-in hole protection		lead-in glands											

* For U-type. Lock is not included in the delivery set.

Commutation programs of switches and number of contact blocks

Switch type	Number of contact blocks	Commutation program																																										
PKP10-11/0; U PKP25-11/0; U PKP32-11/0; U PKP63-11/0; U PKP100-11/0; U	1	<table border="1"> <thead> <tr> <th colspan="2">Contact numbers</th> <th>0</th> <th>1</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>—○—</td> <td>2</td> <td>X</td> </tr> </tbody> </table>	Contact numbers		0	1	1	—○—	2	X																																		
Contact numbers		0	1																																									
1	—○—	2	X																																									
PKP10-12/0; U PKP25-12/0; U PKP32-12/0; U PKP63-12/0; U PKP100-12/0; U	1	<table border="1"> <thead> <tr> <th colspan="2">Contact numbers</th> <th>0</th> <th>1</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>—○—</td> <td>2</td> <td>X</td> </tr> <tr> <td>3</td> <td>—○—</td> <td>4</td> <td>X</td> </tr> </tbody> </table>	Contact numbers		0	1	1	—○—	2	X	3	—○—	4	X																														
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PKP10-13/0; U; K PKP25-13/0; U; K PKP32-13/0; U; K PKP63-13/0; U; K PKP100-13/0; U; K	2	<table border="1"> <thead> <tr> <th colspan="2">Contact numbers</th> <th>0</th> <th>1</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>—○—</td> <td>2</td> <td>X</td> </tr> <tr> <td>3</td> <td>—○—</td> <td>4</td> <td>X</td> </tr> <tr> <td>5</td> <td>—○—</td> <td>6</td> <td>X</td> </tr> </tbody> </table>	Contact numbers		0	1	1	—○—	2	X	3	—○—	4	X	5	—○—	6	X																										
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PKP10-22/0; U PKP25-22/0; U PKP32-22/0; U PKP63-22/0; U PKP100-22/0; U	2	<table border="1"> <thead> <tr> <th colspan="2">Contact numbers</th> <th>1</th> <th>2</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>—●—○—</td> <td>2</td> <td>X</td> </tr> <tr> <td>3</td> <td>—○—</td> <td>4</td> <td>X</td> </tr> <tr> <td>5</td> <td>—●—○—</td> <td>6</td> <td>X</td> </tr> <tr> <td>7</td> <td>—○—</td> <td>8</td> <td>X</td> </tr> </tbody> </table>	Contact numbers		1	2	1	—●—○—	2	X	3	—○—	4	X	5	—●—○—	6	X	7	—○—	8	X																						
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PKP10-33/0; U PKP25-33/0; U PKP32-33/0; U PKP63-33/0; U PKP100-33/0; U	3	<table border="1"> <thead> <tr> <th colspan="2">Contact numbers</th> <th>1</th> <th>0</th> <th>2</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>—●—○—</td> <td>2</td> <td></td> <td>X</td> </tr> <tr> <td>3</td> <td>—●—○—</td> <td>4</td> <td>X</td> <td></td> </tr> <tr> <td>5</td> <td>—○—</td> <td>6</td> <td>X</td> <td></td> </tr> <tr> <td>7</td> <td>—○—</td> <td>8</td> <td>X</td> <td>X</td> </tr> <tr> <td>9</td> <td>—○—</td> <td>10</td> <td>X</td> <td>X</td> </tr> </tbody> </table>	Contact numbers		1	0	2	1	—●—○—	2		X	3	—●—○—	4	X		5	—○—	6	X		7	—○—	8	X	X	9	—○—	10	X	X												
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5	—○—	6	X																																									
7	—○—	8	X	X																																								
9	—○—	10	X	X																																								
PKP10-44/0 PKP25-44/0 PKP32-44/0	2	<table border="1"> <thead> <tr> <th colspan="2">Contact numbers</th> <th>0</th> <th>U_A</th> <th>U_B</th> <th>U_C</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>—○—</td> <td>2</td> <td>X</td> <td></td> <td></td> </tr> <tr> <td>3</td> <td>—○—</td> <td>4</td> <td></td> <td>X</td> <td></td> </tr> <tr> <td>5</td> <td>—○—</td> <td>6</td> <td></td> <td></td> <td>X</td> </tr> <tr> <td>7</td> <td>—○—</td> <td>8</td> <td>X</td> <td>X</td> <td>X</td> </tr> </tbody> </table>	Contact numbers		0	U _A	U _B	U _C	1	—○—	2	X			3	—○—	4		X		5	—○—	6			X	7	—○—	8	X	X	X												
Contact numbers		0	U _A	U _B	U _C																																							
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7	—○—	8	X	X	X																																							
PKP10-53/0 PKP25-53/0 PKP32-53/0	2	<table border="1"> <thead> <tr> <th colspan="2">Contact numbers</th> <th>0</th> <th>U_{CA}</th> <th>U_{BC}</th> <th>U_{AB}</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>—●—○—</td> <td>2</td> <td>X</td> <td></td> <td></td> </tr> <tr> <td>3</td> <td>—●—○—</td> <td>4</td> <td></td> <td>X</td> <td></td> </tr> <tr> <td>5</td> <td>—○—</td> <td>6</td> <td></td> <td>X</td> <td>X</td> </tr> <tr> <td>7</td> <td>—○—</td> <td>8</td> <td>X</td> <td>X</td> <td></td> </tr> </tbody> </table>	Contact numbers		0	U _{CA}	U _{BC}	U _{AB}	1	—●—○—	2	X			3	—●—○—	4		X		5	—○—	6		X	X	7	—○—	8	X	X													
Contact numbers		0	U _{CA}	U _{BC}	U _{AB}																																							
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PKP10-63/0 PKP25-63/0 PKP32-63/0	3	<table border="1"> <thead> <tr> <th colspan="2">Contact numbers</th> <th>0</th> <th>I_A</th> <th>I_B</th> <th>I_C</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>—●—○—</td> <td>2</td> <td>X</td> <td>X</td> <td>X</td> </tr> <tr> <td>3</td> <td>—●—○—</td> <td>4</td> <td>X</td> <td>X</td> <td>X</td> </tr> <tr> <td>5</td> <td>—●—○—</td> <td>6</td> <td>X</td> <td>X</td> <td>X</td> </tr> <tr> <td>7</td> <td>—●—○—</td> <td>8</td> <td></td> <td>X</td> <td>X</td> </tr> <tr> <td>9</td> <td>—●—○—</td> <td>10</td> <td>X</td> <td>X</td> <td>X</td> </tr> <tr> <td>11</td> <td>—○—</td> <td>12</td> <td></td> <td>X</td> <td>X</td> </tr> </tbody> </table>	Contact numbers		0	I _A	I _B	I _C	1	—●—○—	2	X	X	X	3	—●—○—	4	X	X	X	5	—●—○—	6	X	X	X	7	—●—○—	8		X	X	9	—●—○—	10	X	X	X	11	—○—	12		X	X
Contact numbers		0	I _A	I _B	I _C																																							
1	—●—○—	2	X	X	X																																							
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9	—●—○—	10	X	X	X																																							
11	—○—	12		X	X																																							

Switch connection circuits

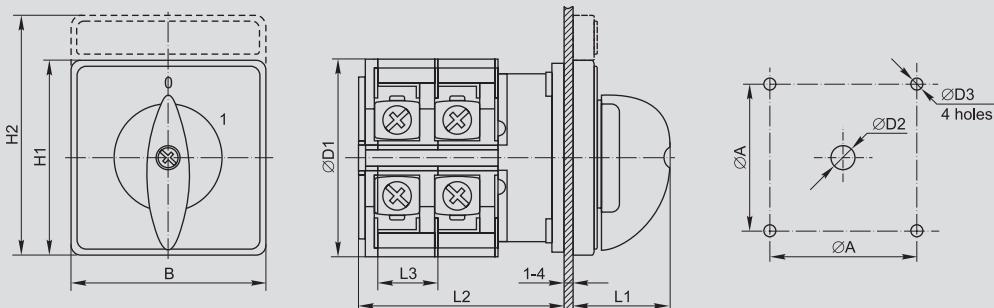
Switch type	Connection circuit
PKP10-13/0; U; K PKP25-13/0; U; K PKP32-13/0; U; K PKP63-13/0; U; K PKP100-13/0; U; K	Electric motor actuation 
PKP10-33/0; U PKP25-33/0; U PKP32-33/0; U PKP63-33/0; U PKP100-33/0; U	Reverse electric motor actuation 
PKP10-44/0 PKP25-44/0 PKP32-44/0	Turning the voltmeter on for phase voltage measuring 
PKP10-53/0 PKP25-53/0 PKP32-53/0	Turning the voltmeter on for phase voltage measuring 
PKP10-63/0 PKP25-63/0 PKP32-63/0	Turning the A-meter on for measuring currents in the three-phase network 

Switch lever position

Design	After 60°	After 90°
"1"	0°	+60°
"2"		0° +90°
"3"	-60° 0°	+60°
"4", "5", "6"		-90° 0° +90° +180°
"ON-OFF"*		-90° 0°

Overall dimensions

"O" design

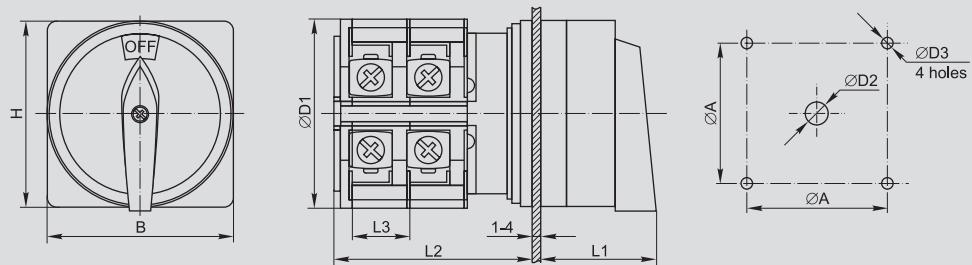


	A	B	D1	D2	D3	H1	H2	L1	L2	L3
PKP10-.../0	$36 \pm 0,5$	48	43	8,5	4,5	48	60	22	$22+9,6n^{**}$	9,6
PKP25-.../0	$36 \pm 0,5$	48	45,2	8,5	4,5	48	60	25	$23+12,8n$	12,8
PKP32-.../0	$48 \pm 0,5$	64	58	10	4,5	64	80	34	$29,2+12,8n$	12,8
PKP63-.../0	$48 \pm 0,5$	64	66	10	4,5	64	80	40	$29,2+21,5n$	21,5
PKP100-.../0	$68 \pm 0,5$	88	84	13	6	88	107	37	$35+26,5n$	26,5

* For PKP of "K" design only.

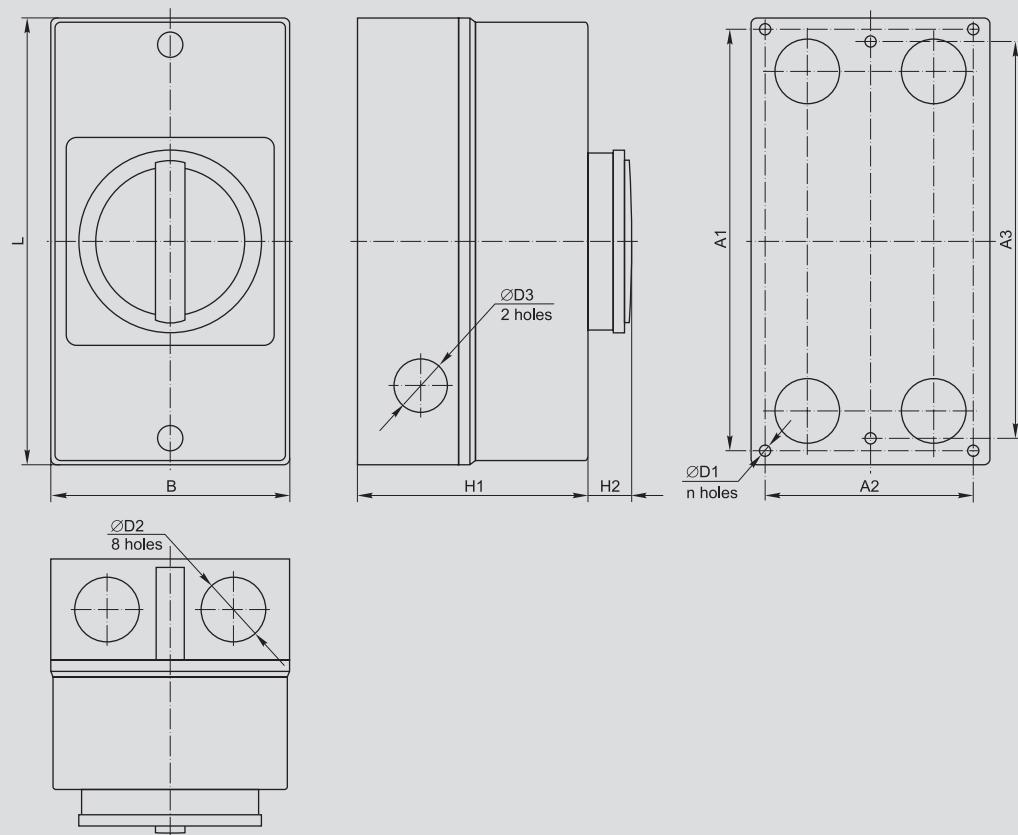
** n - number of contact blocks.

"U" design



	A	B	D1	D2	D3	H	L1	L2	L3
PKP10.../U	$36 \pm 0,5$	48	43	8,5	4,5	48	37	$22 + 9,6n^{**}$	9,6
PKP25.../U	$36 \pm 0,5$	48	45,2	8,5	4,5	48	32	$23 + 12,8n$	12,8
PKP32.../U	$48 \pm 0,5$	64	58	10	4,5	64	42	$29,2 + 12,8n$	12,8
PKP63.../U	$48 \pm 0,5$	64	66	10	4,5	64	42	$29,2 + 21,5n$	21,5
PKP100.../U	$68 \pm 0,5$	88	84	13	6	88	51	$35 + 26,5n$	26,5

"K" design



	A1	A2	A3	B	D1	D2	D3	H1	H2	L	n
PKP10.../K	—	—	$150 \pm 0,5$	85	4	23	19	83	17	160	2
PKP25.../K	—	—	$150 \pm 0,5$	85	4	23	19	83	17	160	2
PKP32.../K	—	—	$150 \pm 0,5$	85	4	23	19	83	17	160	2
PKP63.../K	—	—	$178 \pm 0,5$	100	4	29	23	95	17	190	2
PKP100.../K	$229 \pm 0,5$	$124 \pm 0,5$	—	145	6,5	37,5	23	105	17	250	4

Monitoring and control relay

REK auxiliary relays

REK77 and REK78 auxiliary relays of modular series are intended for transmitting control commands to executive elements by means of commuting their electrical circuits with the help of changeover contacts. Relays are connected to receptacle modular sockets RRM77 and RRM78 installed on a 35 mm DIN-rail.

Sockets host lead terminals of changeover contacts and coils.

Relays are made using silver-containing contacts.



Advantages

- Higher value of contacts rated current as compared to RP-21 auxiliary relay provides for using REK in circuits up to 10 A.
- Any operating position.
- Minimized dimensions of REK series relays provide possibility of more rational device position on the mounting surfaces.

- Applying silver-containing contacts helps boosting durability.
- Relay can be completed with modular receptacle sockets for DIN-rail mounting and screw fastening.
- Indication shown the relay status.

Selection Guide



REK77 auxiliary relay of modular series	REK77/3 REK77/3 with indication	REK77/4 REK77/4 with indication	REK78/3 REK78/3 with indication	REK78/4 REK78/4 with indication
Rated contact current I_n , A	10	10	5	3
Number of changeover contact groups	3	4	3	4
Rated control coil voltage U_c , V	AC 12; 24; 230 DC 12; 24	12; 24; 230 12; 24	12; 24; 230 12; 24	12; 24; 230 12; 24
Connected socket type	RRM77/3	RRM77/4	RRM78/3	RRM78/4



Range

Name	Rated contact current I_n , A	Rated control coil voltage U_c , V	Amount in package	Amount in transp. box	Product ID
RRM77/3 socket for modular REK77/3 IEK			20	200	RRP10D-RRM-3
RRM77/4 socket for modular REK77/4 IEK			20	200	RRP10D-RRM-4
REK77/3 relay 10A 12V DC IEK	10	12	20	500	RRP10-3-10-012D
REK77/3 relay 10A 12V AC IEK	10	12	20	500	RRP10-3-10-012A
REK77/3 relay 10A 24V DC IEK	10	24	20	500	RRP10-3-10-024D
REK77/3 relay 10A 24V AC IEK	10	24	20	500	RRP10-3-10-024A
REK77/3 relay 10A 230V AC IEK	10	230	20	500	RRP10-3-10-220A
REK77/3 relay (LY3) with indication 10A 12V DC IEK	10	12	20	500	RRP10-3-10-012D-LED
REK77/3 relay (LY3) with indication 10A 12V AC IEK	10	12	20	500	RRP10-3-10-012A-LED
REK77/3 relay (LY3) with indication 10A 220V AC IEK	10	230	20	500	RRP10-3-10-220A-LED
REK77/3 relay (LY3) with indication 10A 24V DC IEK	10	24	20	500	RRP10-3-10-024D-LED
REK77/3 relay (LY3) with indication 10A 24V AC IEK	10	24	20	500	RRP10-3-10-024A-LED
REK77/4 relay 10A 12V DC IEK	10	12	20	300	RRP10-4-10-012D
REK77/4 relay 10A 12V AC IEK	10	12	20	300	RRP10-4-10-012A
REK77/4 relay 10A 24V DC IEK	10	24	20	300	RRP10-4-10-024D
REK77/4 relay 10A 24V AC IEK	10	24	20	300	RRP10-4-10-024A
REK77/4 relay 10A 230V AC IEK	10	230	20	300	RRP10-4-10-220A
REK77/4 (LY4) with indication 10A 12V DC IEK	10	12	20	300	RRP10-4-10-012D-LED
REK77/4 (LY4) with indication 10A 12V AC IEK	10	12	20	300	RRP10-4-10-012A-LED
REK77/4 (LY4) with indication 10A 220V AC IEK	10	230	20	300	RRP10-4-10-220A-LED
REK77/4 (LY4) with indication 10A 24V DC IEK	10	24	20	300	RRP10-4-10-024D-LED
REK77/4 (LY4) with indication 10A 24V AC IEK	10	24	20	300	RRP10-4-10-024A-LED

	Name	Rated contact current I _n , A	Rated control coil voltage U _{c, B}	Amount in package	Amount in transp. box	Product ID
	RRM78/3 socket for modular REK78/3 IEK			20	200	RRP20D-RRM-3
	RRM78/4 socket for modular REK78/4 IEK			20	200	RRP20D-RRM-4
	REK78/3 relay 5 A 12 V DC IEK	5	12	20	500	RRP20-3-05-012D
	REK78/3 relay 5 A 12 V AC IEK	5	12	20	500	RRP20-3-05-012A
	REK78/3 relay 5 A 24 V DC IEK	5	24	20	500	RRP20-3-05-024D
	REK78/3 relay 5 A 24 V AC IEK	5	24	20	500	RRP20-3-05-024A
	REK78/3 relay 5 A 230 V AC IEK	5	230	20	500	RRP20-3-05-220A
	REK78/3 relay (MY3) with indication 5 A 12 V DC IEK	5	12	20	500	RRP20-3-05-012D-LED
	REK78/3 relay (MY3) with indication 5 A 12 V AC IEK	5	12	20	500	RRP20-3-05-012A-LED
	REK78/3 relay (MY3) with indication 5 A 220 V AC IEK	5	230	20	500	RRP20-3-05-220A-LED
	REK78/3 relay (MY3) with indication 5 A 24 V DC IEK	5	24	20	500	RRP20-3-05-024D-LED
	REK78/3 relay (MY3) with indication 5 A 24 V AC IEK	5	24	20	500	RRP20-3-05-024A-LED
	REK78/4 relay 3 A 12 V DC IEK	3	12	20	500	RRP20-4-03-012D
	REK78/4 relay 3 A 12 V AC IEK	3	12	20	500	RRP20-4-03-012A
	REK78/4 relay 3 A 24 V DC IEK	3	24	20	500	RRP20-4-03-024D
	REK78/4 relay 3 A 24 V AC IEK	3	24	20	500	RRP20-4-03-024A
	REK78/4 relay 3 A 230 V AC IEK	3	230	20	500	RRP20-4-03-220A
	REK78/4 (MY4) with indication 3 A 12 V DC IEK	3	12	20	500	RRP20-4-03-012D-LED
	REK78/4 (MY4) with indication 3 A 12 V AC IEK	3	12	20	500	RRP20-4-03-012A-LED
	REK78/4 (MY4) with indication 3 A 220 V AC IEK	3	230	20	500	RRP20-4-03-220A-LED
	REK78/4 (MY4) with indication 3 A 24 V DC IEK	3	24	20	500	RRP20-4-03-024D-LED
	REK78/4 (MY4) with indication 3 A 24 V AC IEK	3	24	20	500	RRP20-4-03-024A-LED

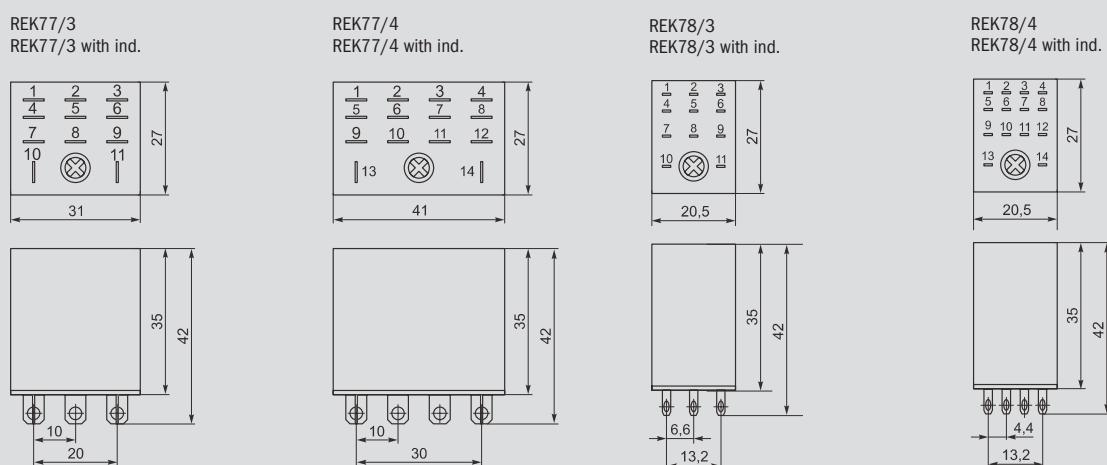
Main electrical and mechanical features of modular series auxiliary relays of REK type

Features		REK77/3 REK77/3 with ind.	REK77/4 REK77/4 with ind.	REK78/3 REK78/3 with ind.	REK78/4 REK78/4 with ind.
Rated contact current I_n , A		10	10	5	3
Rated voltage of contacts circuit, V	AC	230	230	230	230
	DC	24	24	24	24
Rated control coil voltage U_c , V	AC	12; 24; 230	12; 24; 230	12; 24; 230	12; 24; 230
	DC	12; 24	12; 24	12; 24	12; 24
Current consumed by the coil, mA	AC	230 V	8,7	10,9	5,2
		24 V	83,3	104,2	50
		12 V	166,7	208	100
	DC	24 V	58,3	62,5	37,5
		12 V	116,7	125	75
Number of changeover contact groups		3	4	3	4
Contact resistance, mΩ		50	50	50	50
Insulation resistance, mΩ		100	100	100	100
Electrical wear-resistance, min. power cycles		10^5	10^5	10^5	10^5
Mechanical wear-resistance, min. power cycles		10^7	10^7	10^7	10^7
Protection degree		IP40	IP40	IP40	IP40

Technical features of RRM receptacle modular sockets

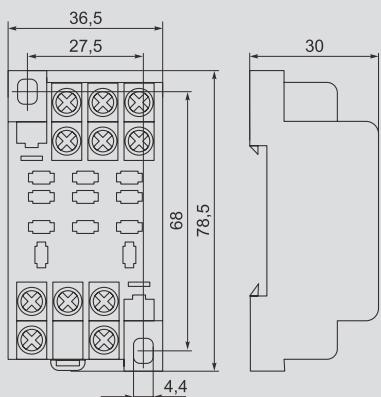
Features	RRM77/3	RRM77/4	RRM78/3	RRM78/4
Number of contacts	11	14	11	14
Rated contact current I_n , A	10	10	5	3
Rated operating voltage, V	AC	230	230	230
	DC	24	24	24
Electrical wear-resistance, min. power cycles		10^5	10^5	10^5
Mechanical wear-resistance, min. power cycles		10^7	10^7	10^7
Protection degree		IP20	IP20	IP20
Connected cables size, mm ²		0,75÷2,5	0,75÷2,5	0,5÷1,5

Overall dimensions of REK series auxiliary relays

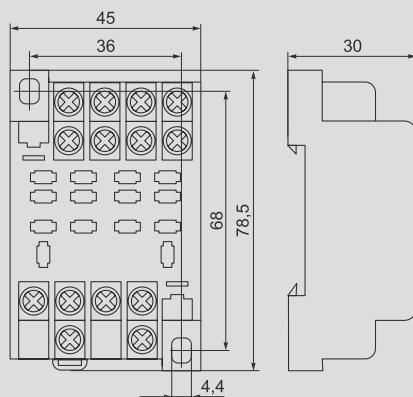


Overall dimensions of RRM77 and RRM78 receptacle modular sockets

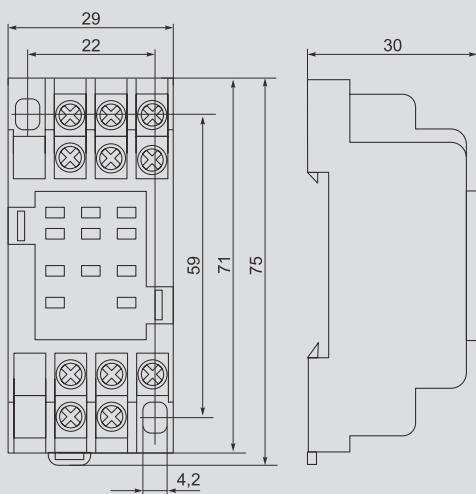
RRM77/3



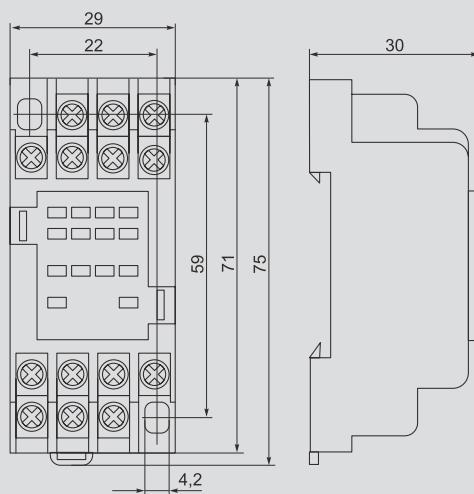
RRM77/4



RRM78/3

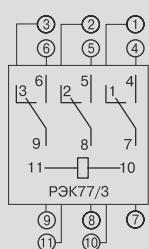


RRM78/4

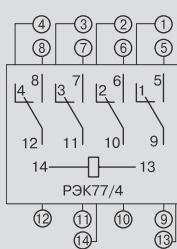


Connection diagrams of RRM77 and RRM78 receptacle modular sockets

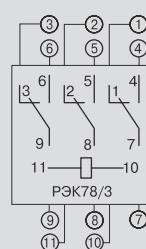
RRM77/3



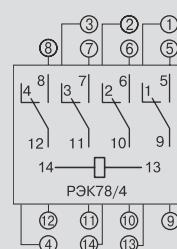
RRM77/4



RRM78/3



RRM78/4



Command and alarm devices

Buttons, switches, indicating lights

Light signaling indicators are intended for indicating the state of electric circuits. They are applied in electric panels, industrial equipment and power supply objects.

Control buttons and switches are designed for an operative management of contactors (automatic tripping contactors) and automatics relay within AC electric circuits of 50 Hz and voltage limited to 600 V or DC circuits limited to 400 V and other technological processes.

Various color variants provide for the most efficient arrangement of panels and boards. All devices consist of two units: removable head and contact module.

Black NO contact block (1NO) and brown NC unit (1NC).



Design Features



Removable head provides for fast changing of lamps and light filters.



Conductors are connected with screw clamps with disk spring washers ensuring stable fixation.



12, 24, 36 and 110 V indicators can be used in AC and DC circuits.



Using different color variants of dismountable light filters provides for more efficient panel and board assembly.



LED matrix employed in the indicators ensures more powerful light luminous flux as compared to a neon lamp and extended service life (6000 hours).



Removable neon lamp and LED matrix have different color arrangement. LED matrix is a universal solution for 12, 24, 36, 110 and 230 V both in AC and DC circuits. Neon lamp can be replaced with a LED matrix.



Convenient mounting of contact block that is connected to the button block at the expense of fixing by means of a plastic flag.



Supplementary making and breaking contacts allow expanding the capabilities of commutation processes.



Rubber O-rings ensure protection from foreign objects.



Simplified constructional solution provides for fast dismounting and installation of this device into a panel or board.

Design Features



Auxiliary contact block are installed using a special mounting screws ensuring the stability of connection.



Using LED matrices as light sources. It has extended operating life and brighter light emission.



Availability of interchangeable making (1m) and breaking (1b) auxiliary contacts.



Rubber O-rings ensure protection from foreign objects.



Option of fast light source changing at the expense of using LED matrices with VA9s base.



Metal base ensures longer service life.



Upgraded press element construction excludes its spontaneous falling-out.



Marking holders ensure identification.



Stable and convenient system of fixation the device onto a mounting panel.

Range

Light signaling indicators	Name	Color	Package amount, pcs.		Product ID
			in package	in transp. box	
	AL-22 d22 mm neon/230 V cylind.	white	10	300	BLS20-AL-K01
	AL-22 d22 mm neon/230 V cylind.	yellow	10	300	BLS20-AL-K05
	AL-22 d22 mm neon/230 V cylind.	green	10	300	BLS20-AL-K06
	AL-22 d22 mm neon/230 V cylind.	red	10	300	BLS20-AL-K04
	AL-22 d22 mm neon/230 V cylind.	transparent	10	300	BLS20-AL-K08
	AL-22 d22 mm neon/230 V cylind.	blue	10	300	BLS20-AL-K07
	AL-22TE d22 mm neon/230 V cylind.	white	10	300	BLS30-ALTE-K01
	AL-22TE d22 mm neon/230 V cylind.	yellow	10	300	BLS30-ALTE-K05
	AL-22TE d22 mm neon/230 V cylind.	green	10	300	BLS30-ALTE-K06
	AL-22TE d22 mm neon/230 V cylind.	red	10	300	BLS30-ALTE-K04
	AL-22TE d22 mm neon/230 V cylind.	transparent	10	300	BLS30-ALTE-K08
	AL-22TE d22 mm neon/230 V cylind.	blue	10	300	BLS30-ALTE-K07
	ENR-22 d22 mm neon/230 V cylind.	white	10	600	BLS40-ENR-K01
	ENR-22 d22 mm neon/230 V cylind.	yellow	10	600	BLS40-ENR-K05
	ENR-22 d22 mm neon/230 V cylind.	green	10	600	BLS40-ENR-K06
	ENR-22 d22 mm neon/230 V cylind.	red	10	600	BLS40-ENR-K04
	ENR-22 d22 mm neon/230 V cylind.	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/DC	red	10	600	BLS10-ADDS-230-K04
	AD-22DS matrix d22 mm 230 V AC/DC	green	10	600	BLS10-ADDS-230-K06
	AD-22DS matrix d22 mm 230 V AC/DC	yellow	10	600	BLS10-ADDS-230-K05
	AD-22DS matrix d22 mm 230 V AC/DC	blue	10	600	BLS10-ADDS-230-K07
	AD-22DS matrix d22 mm 230 V AC/DC	white	10	600	BLS10-ADDS-230-K01



Name	Color	Package amount, pcs.		Product ID
		in package	in 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	white	10	600	BLS10-ADDS-230-K01-16
AD16DS matrix d16 mm 230 V AC	red	10	600	BLS10-ADDS-230-K04-16
AD16DS matrix d16 mm 230 V AC	yellow	10	600	BLS10-ADDS-230-K05-16
AD16DS matrix d16 mm 230 V AC	green	10	600	BLS10-ADDS-230-K06-16
AD16DS matrix d16 mm 230 V AC	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

Control buttons

ABL-22 d22 mm neon/230 V 1NO+1NC	white	10	200	BBT10-ABL-22-K01
ABL-22 d22 mm neon/230 V 1NO+1NC	yellow	10	200	BBT10-ABL-22-K05
ABL-22 d22 mm neon/230 V 1NO+1NC	green	10	200	BBT10-ABL-22-K06
ABL-22 d22 mm neon/230 V 1NO+1NC	red	10	200	BBT10-ABL-22-K04
ABL-22 d22 mm neon/230 V 1NO+1NC	transparent	10	200	BBT10-ABL-22-K08
ABL-22 d22 mm neon/230 V 1NO+1NC	blue	10	200	BBT10-ABL-22-K07



ABLFP-22 d22 mm neon/230 V 1NO+1NC	white	10	200	BBT20-ABLFP-22-K01
ABLFP-22 d22 mm neon/230 V 1NO+1NC	yellow	10	200	BBT20-ABLFP-22-K05
ABLFP-22 d22 mm neon/230 V 1NO+1NC	green	10	200	BBT20-ABLFP-22-K06
ABLFP-22 d22 mm neon/230 V 1NO+1NC	red	10	200	BBT20-ABLFP-22-K04
ABLFP-22 d22 mm neon/230 V 1NO+1NC	transparent	10	200	BBT20-ABLFP-22-K08
ABLFP-22 d22 mm neon/230 V 1NO+1NC	blue	10	200	BBT20-ABLFP-22-K07



Name	Color	Amount, pcs. in package	Amount, pcs. in transp. box	Product ID
ABLFS-22 d22 mm neon/230 V 1NO+1NC	white	10	200	BBT30-ABLFS-K01
ABLFS-22 d22 mm neon/230 V 1NO+1NC	yellow	10	200	BBT30-ABLFS-K05
ABLFS-22 d22 mm neon/230 V 1NO+1NC	green	10	200	BBT30-ABLFS-K06
ABLFS-22 d22 mm neon/230 V 1NO+1NC	red	10	200	BBT30-ABLFS-K04
ABLFS-22 d22 mm neon/230 V 1NO+1NC	transparent	10	200	BBT30-ABLFS-K08
ABLFS-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+1NC	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 230 V 1NO+1NC	red	10	200	BBG60-AEAL-K04
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AE-22 "Mushroom" with fixation d22 mm 230 V 1NO+1NC	red	10	200	BBG10-AE-K04
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ANE-22 "Mushroom" with fixation d22 mm neon/230 V 1NO+1NC	red	10	200	BBG40-ANE-K04
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APBB-22N "I-O" d22 mm neon/230 V 1NO+1NC	red, green	10	200	BBD10-APBB-K51
APBB-22N "ON-OFF" d22 mm neon/230 V 1NO+1NC	red, green	10	200	BBD11-APBB-K51



LAY5-BS142 "Mushroom" with key d22 mm 230 V 1NO+1NC	red	10	200	BBG50-LAY5-K04
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Name	Color	Amount, pcs. in package	Amount, pcs. in transp. box	Product ID
				
SB-7 "Start" d22 mm/230 V	green	10	500	BBT40-SB7-K06
	red	10	500	BBT40-SB7-K04
				
PPBB-3ON "I-O" d30 mm neon/230 V 1NO+1NC	red, green	10	200	BBD20-PPBB-K51
PPBB-3ON "ON-OFF" d30 mm neon/230 V 1NO+1NC	red, green	10	200	BBD21-PPBB-K51
				
LAY5-BA21 without bias lighting 1NO	black	20	200	BBT60-BA-K02
LAY5-BA31 without bias lighting 1NO	green	20	200	BBT60-BA-K06
LAY5-BA41 without bias lighting 1NO	red	20	200	BBT60-BA-K04
LAY5-BA42 without bias lighting 1NC	red	20	200	BBT61-BA-K04
LAY5-BA51 without bias lighting 1NO	yellow	20	200	BBT60-BA-K05
LAY5-BA61 without bias lighting 1NO	blue	20	200	BBT60-BA-K07
				
LAY5-BC21 without bias lighting 1NO	black	20	200	BBG70-BC-K02
LAY5-BC31 without bias lighting 1NO	green	20	200	BBG70-BC-K06
LAY5-BC41 without bias lighting 1NO	red	20	200	BBG70-BC-K04
LAY5-BC42 without bias lighting 1NC	red	20	200	BBG71-BC-K04
LAY5-BC51 without bias lighting 1NO	yellow	20	200	BBG70-BC-K05
LAY5-BC61 without bias lighting 1NO	blue	20	200	BBG70-BC-K07
				
LAY5-BL21 without bias lighting 1NO	black	20	200	BBT70-BL-K02
LAY5-BL31 without bias lighting 1NO	green	20	200	BBT70-BL-K06
LAY5-BL41 without bias lighting 1NO	red	20	200	BBT70-BL-K05
LAY5-BL42 without bias lighting 1NC	red	20	200	BBT71-BL-K04
LAY5-BL51 without bias lighting 1NO	yellow	20	200	BBT71-BL-K05
LAY5-BL61 without bias lighting 1NO	blue	20	200	BBT70-BL-K07
				
LAY5-BS542 "Mushroom" turn alarm with fixation	red	20	200	BBG90-BS-K04
LAY5-VT42 "Mushroom" turn alarm with fixation	red	20	200	BBG80-BT-K04
				
LAY5-BW3361 with bias lighting 1NO	green	20	200	BBT50-BW-K06
LAY5-BW3461 with bias lighting 1NO	red	20	200	BBT50-BW-K04
LAY5-BW3561 with bias lighting 1NO	yellow	20	200	BBT50-BW-K05
				
LAY5-BW8465 "I-O" double with bias lighting	red/green	20	200	BBD40-BW-K51

Switches	Name	Color	Amount, pcs. in package	in transp. box	Product ID
	AKS-22 with key for 2 fixed positions I-O 1NO+1NC	black	10	200	BSW10-AKS-2-K02
	ALCLR-22 for 2 fixed positions I-O-II 1NO+1NC	black	10	200	BSW10-ALCLR-3-K02
	ALC-22 for 2 fixed positions with a 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/230 V I-O-II 1NO+1NC	red	10	400	BSW10-ANCLR-3-K04
	ANC-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 key without fixation	black	20	200	BSW80-BG-2-K02
	LAY5-BG25 for 2 positions with key without fixation	black	20	200	BSW80-BG-4-K02
	LAY5-BD25 2 positions "I-O" standard handle black	black	20	200	BSW60-BD-2-K02
	LAY5-BD33 3 positions "I-O-II" standard handle black	black	20	200	BSW60-BD-3-K02
	LAY5-BJ25 2 positions "I-O" long handle	black	20	200	BSW70-BJ-2-K02
	LAY5-BJ33 3 positions "I-O-II" long handle	black	20	200	BSW70-BJ-3-K02
	LAY5-BK2365 2 positions	green	20	200	BSW90-BK-2-K06
	LAY5-BK2465 2 positions	red	20	200	BSW90-BK-2-K04
	LAY5-BK2565 2 positions	yellow	20	200	BSW90-BK-2-K05

Accessories for light signaling indicators, control buttons and switches

Name	Color	Amount, pcs. in package	Amount, pcs. in transp. box	Product ID
Auxiliary contact for light signaling hardware 1NC	brown	4	2000	BDK10
Auxiliary contact for light signaling hardware 1NO	black	4	2000	BDK20



Contact block 1m for LAY5 series IEK	green	4	800	BDK21
Contact block 1b for LAY5 series IEK	red	4	800	BDK11



Changeable lamp LED matrix/12 V AC/DC	green	1	50	BMS10-012-K06
Changeable lamp LED matrix/12 V AC/DC	red	1	50	BMS10-012-K04
Changeable lamp LED matrix/12 V AC/DC	yellow	1	50	BMS10-012-K05
Changeable lamp LED matrix/12 V AC/DC	blue	1	50	BMS10-012-K07
Changeable lamp LED matrix/24 V AC/DC	green	1	50	BMS10-024-K06
Changeable lamp LED matrix/24 V AC/DC	red	1	50	BMS10-024-K04
Changeable lamp LED matrix/24 V AC/DC	yellow	1	50	BMS10-024-K05
Changeable lamp LED matrix/24 V AC/DC	blue	1	50	BMS10-024-K07
Changeable lamp LED matrix/36 V AC/DC	green	1	50	BMS10-036-K06
Changeable lamp LED matrix/36 V AC/DC	red	1	50	BMS10-036-K04
Changeable lamp LED matrix/36 V AC/DC	yellow	1	50	BMS10-036-K05
Changeable lamp LED matrix/36 V AC/DC	blue	1	50	BMS10-036-K07
Changeable lamp LED matrix/48 V AC/DC	green	1	50	BMS10-048-K06
Changeable lamp LED matrix/48 V AC/DC	red	1	50	BMS10-048-K04
Changeable lamp LED matrix/230 V AC/DC	green	1	50	BMS10-220-K06
Changeable lamp LED matrix/230 V AC/DC	red	1	50	BMS10-220-K04
Changeable lamp LED matrix/230 V AC/DC	yellow	1	50	BMS10-220-K05
Changeable lamp LED matrix/230 V AC/DC	blue	1	50	BMS10-220-K07
Changeable lamp neon/230 V	green	100	1000	BMS20-240-K06
Changeable lamp neon/230 V	red	100	1000	BMS20-240-K04

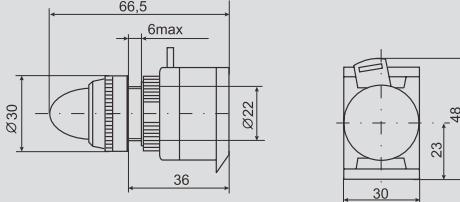
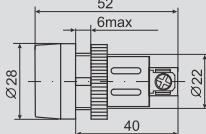
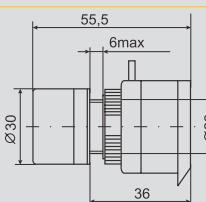
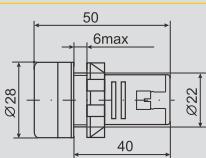
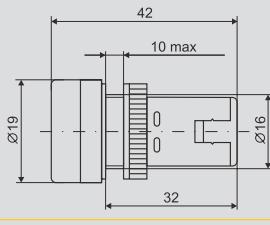
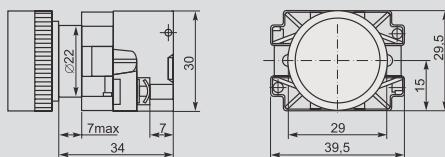
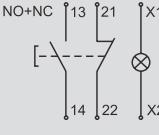
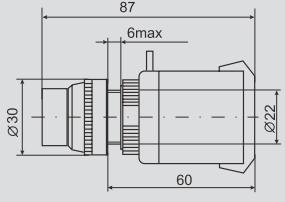
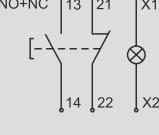
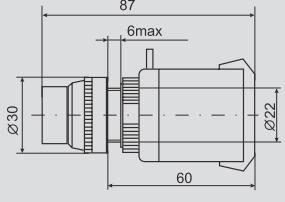


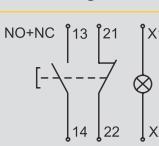
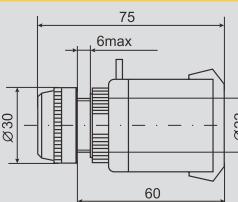
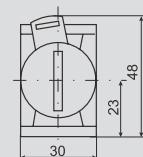
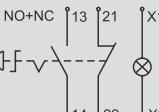
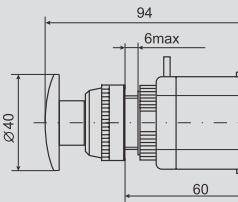
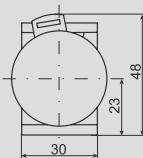
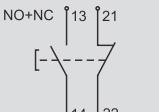
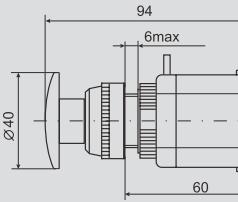
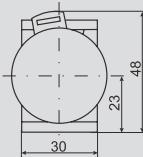
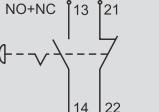
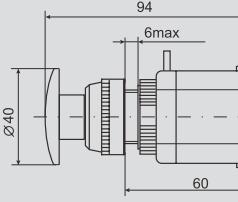
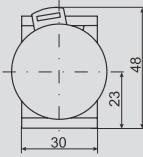
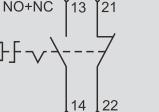
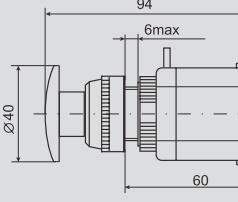
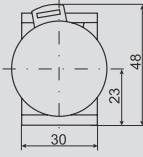
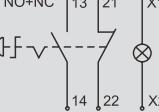
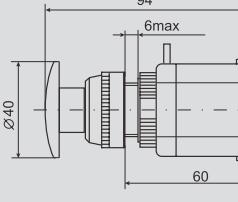
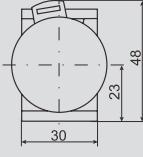
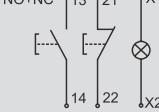
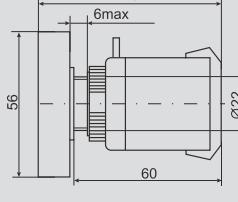
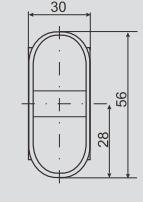
Changeable cap for AL-22	green	10	4000	BLS20D-KS-AL-K06
Changeable cap for AL-22	red	10	4000	BLS20D-KS-AL-K04
Changeable cap for AL-22TE	green	10	4000	BLS30D-KS-ALTE-K06
Changeable cap for AL-22TE	red	10	4000	BLS30D-KS-ALTE-K04



Marking holder DM 11×25	black	100	2500	DM11x25
Marking holder DM 18×25	black	100	2500	DM18x25

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

Name	Electrical diagram	Overall dimensions
AL-22		
ENR-22		
AL-22TE		
AD-22DS		
AD-16DS		
LAY5-BU63, LAY5-BU64, LAY5-BU65		
ABL-22		
ABLFP-22		

Name	Electrical diagram	Overall dimensions
ABLFS-22		 
AELA-22		 
AEA-22		 
AEAL-22		 
AE-22		 
ANE-22		 
APBB-22N		 



Name	Electrical diagram	Overall dimensions
PPBB-30N		



SB-7 "Start" SB-7 "Stop"		
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LAY5-BS142		
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LAY5-BA21 LAY5-BA31 LAY5-BA41 LAY5-BA51 LAY5-BA61		
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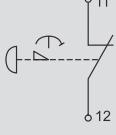
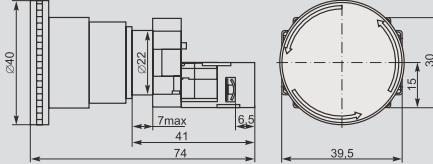
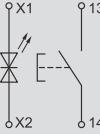
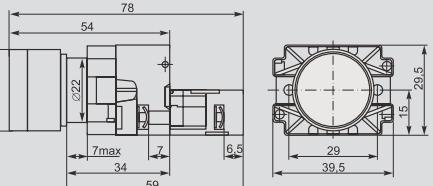
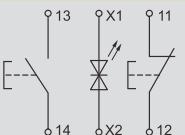
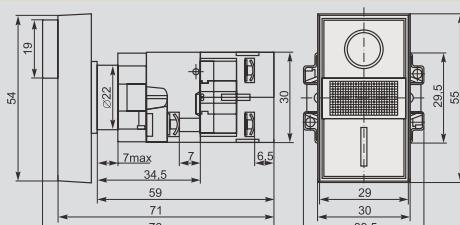
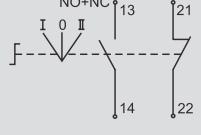
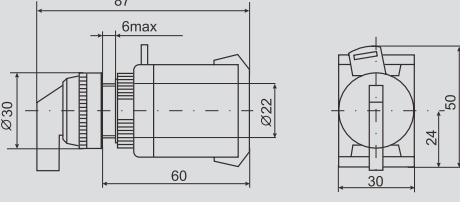
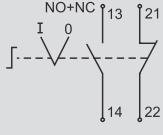
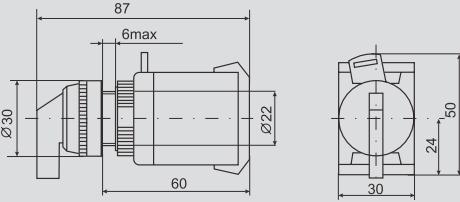
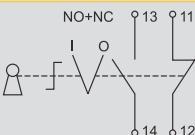
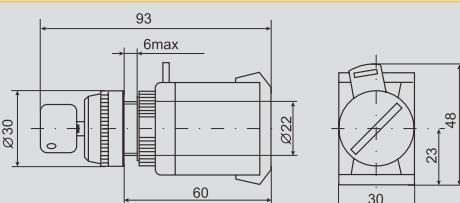
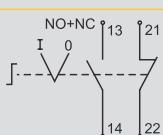
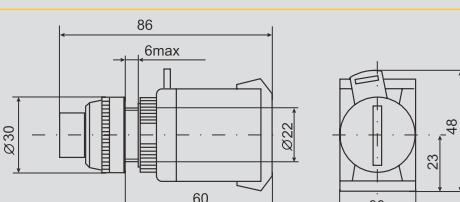
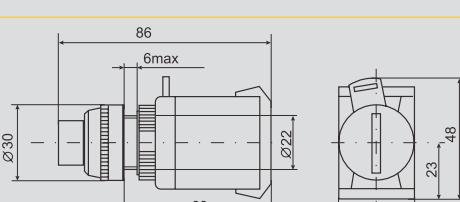
LAY5-BC21 LAY5-BC31 LAY5-BC41 LAY5-BC51 LAY5-BC61		
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LAY5-BL21 LAY5-BL31 LAY5-BL41 LAY5-BL51 LAY5-BL61		
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LAY5-BT42		
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Name	Electrical diagram	Overall dimensions
LAY5-BS542		
LAY5-BW3361 LAY5-BW3461 LAY5-BW3561		
LAY5-BW8465		
ALCLR-22		
ALC-22		
AKS-22		
AC-22		
ANC-22-2		

Name	Electrical diagram	Overall dimensions
ANC-22-3		
LAY5-BG45		
LAY5-BD25		
LAY5-BJ25		
LAY5-BD33		
LAY5-BJ33		
LAY5-BK2365 LAY5-BK2465 LAY5-BK2565		
Marking holder		

Main electrical and mechanical features of control buttons and switches

Features	Current type												
	AC					DC							
Rated operating voltage, V	660 400 230 120 48					440 220 110 48 24							
Rated operating contact current, A	AC-12 application category 2,5 4,5 7,5 10 10 DC-12 application category AC-15 application category 1,5 2,5 4,5 6 6 DC-13 application category 0,6 1,3 2,5 5 10												
Electrical wear-resistance, power cycles $\times 10^3$	ABL, ABLFP, AEA – 300; ABLFS, PPBB-30N, APBB-22N – 100; ALCLR, AKS – 10												
Mechanical wear-resistance, power cycles $\times 10^3$	600 – for all devices; 100 – buttons with key and fixation												
Protection degree of buttons and switches mechanism	IP 40					IP 40							
Permitted commutation frequency (power cycles/hour)	300 1200 3600					300 1200 3600							
% of contact load according to the current depending on the operating value	40 25 15					40 25 15							
Operating temperature range, °C	from –10 to +40					from –10 to +40							
Ambient humidity	40-90% without condensate formation												

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
Lever position*	–45°	+45°	–45° +0° +45° –45° +45°
Switching correspondence	0 I	I 0 II	0 I
NO contact	×	×	
NC contact		×	×

Main electrical and mechanical characteristics of light warning devices

Version		AL-22	AL-22TE	ENR-22	LAY5-BU6X	AD-16DS (LED)	AD-22DS (LED)		
Rated operating voltage, V	DC and AC	–				12; 24; 36; 110			
	AC	230							
Lamp type		neon bulb, socket BA9S, detachable			LED matrix 230 VAC, BA9S**	non-detachable LED matrix			
Current consumption, mA, not more		1				20			
Installation diameter, mm		22				16	22		
Color of light filter		white, red, yellow, green, blue			red, yellow, green	white, red, yellow, green, blue			
Degree of protection according to GOST 14254 at panel installation		IP44							
Range of operating temperatures, °C		from –25 to +40							

* Can be replaced by detachable LED matrices for voltages 12, 24, 36, 48, 110 VAC and/or VDC or 230 VAC, to be ordered separately;

** Can be replaced by detachable LED matrices for voltages 12, 24, 36, 48, 110 VAC and/or VDC or neon bulb 230 VAC, socket BA9S, to be ordered separately.

PKT series Push-button control desk

Push-button control desk is intended for commuting electric circuits controlling hoisting mechanisms. They represent a sealed casing made of thermal-resistant ABS-plastic with buttons.

To ensure sealing of the cable lead-in a protective gland is provided. There is an O-ring mounted between the casing and the keyboard.

According to its constructive and technical features, PKT series talfer button keyboards meet the requirements of IEC 60947-5-1.



Advantages

- Option of installing 2, 4 or 6 buttons.
- PKT casing is made of ABS-plastic being a non-flammable material.

- Protective gland at the cable lead-in excludes dust and moisture ingress.



Name	Amount, pcs.	Product ID
	in package	in transp. box
PKT per 2 buttons IP54	1	60 BPU10-2



PKT per 4 buttons IP54	1	40	BPU10-4
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PKT per 6 buttons IP54	1	30	BPU10-6
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Technical Features

Feature	Type		
	PKT-61	PKT-62	PKT-63
Number of control buttons	2	4	6
Rated frequency, Hz	50	50	50
Rated operating voltage U_e , V	110; 230; 400		
Application category AC-14 – managing low-powered electromagnets (under 72 W):			
Rated operating current at I_e at U_e , A	230 V 0,75 400 V –	0,75	0,75
Application category AC-15 – managing high-powered electromagnets (over 72 W):			
Rated operating current at I_e at U_e , A	230 V 3 400 V 1,5	3 1,5	3 1,5
Protection degree	IP54		

Overall dimensions

