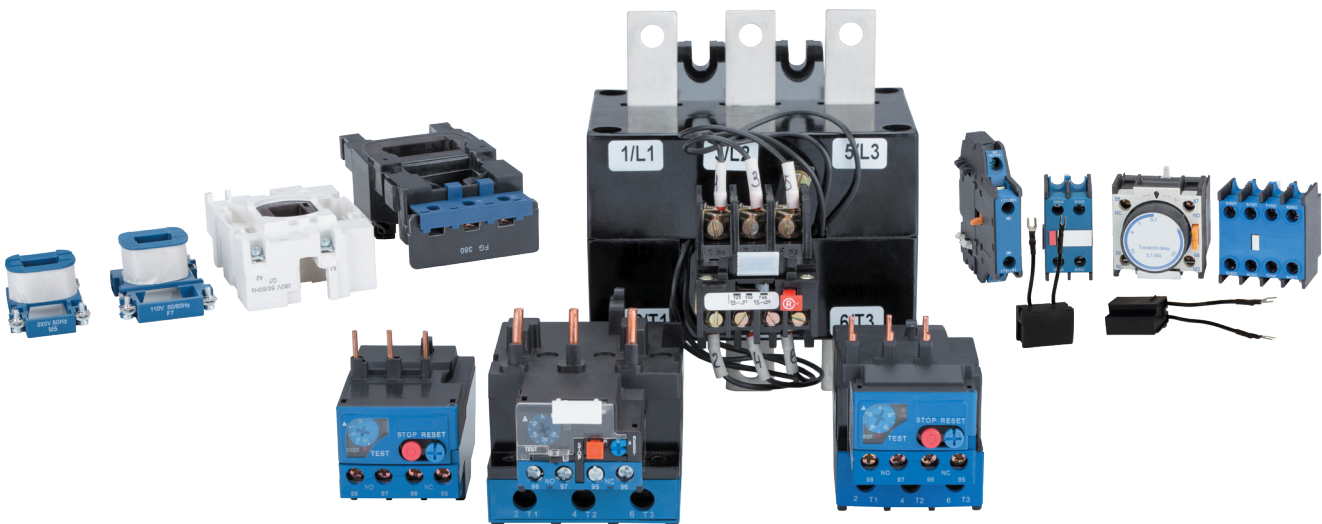


Thermal overload relay RTL and accessories for PML and PM12



Thermal overload relays of RTL series TU3425-041-05758109-2008 are designed to protect AC motors from current overloads of unacceptable duration, including those that occur during the loss of one of the phases, severe starting conditions and jamming of the rotor. They are used in control systems of load-lifting mechanisms (elevators, cranes, etc.), fans, pumps, heat curtains, furnaces, machine tools, lighting, in automatic failover switch systems (ABP).

Contact attachments PKL, PKB TU3425-045-05758109-2008 are designed to increase the number of auxiliary contacts of contactors. The time delay attachments PVL TU3425-045-05758109-2008 enable and disable contactors with a time delay from 0.1 to 180 s.



Benefits

- Implementation of any technical solutions
 - the range of accessories and thermal relays of the RTL series is fully adapted for both the lines of contactors and starters of the PML and PM12 series;
 - a wide range of modern thermal relays for currents up to 500 A;
 - a wide range of control coils, V: 24 to 660 (AC); 24 to 220 (DC).
- Convenience in work
 - possibility to manually stop the motor with the STOP button;
 - selection of the return mode of the RTL relay to work. Automatic (self-return), manual return is carried out by the RESET button;
 - possibility to install thermal relays, both on DIN-rail and on the mounting panel.

Design features



- Presence of temperature compensator.
- Built-in 1 "p" and 1 "z" contacts.
- Choice of return to work: manual or self-return.



Thermal relays of RTL series can be mounted either directly to the contactor, or separately using the KRL Terminal strip (screws or DIN-rail).



- The STOP and RESET control buttons are located on the front panel of the RTL relay.



- Possibility to regulate the current setting.

Designation structure

Thermal overload relay RTL-X₁X₂X₃-X₄-X₅A-(X₆A)-UHL4-KEAZ

Thermal overload relay	- Product group
RTL	- Series
X₁	- Rated relay current: 1 - up to 25 A, 2 - up to 100 A (up to 80 A for I1), 3 - up to 250 A, 4 - up to 510 A
X₂	- Current setting range (conditionally)
X₃	- D - version of the relay with reduced overall dimensions (for rated current of 36 A)
X₄	- Relay return method: 1 - manual, 2 - manual and self-return
X₅	- Rated current, A:
X₆	- Current setting range of the relay, A
UHL4	- Type of a climatic category in accordance with GOST 15150
KEAZ	- Trademark


Example of recording the designation of a relay at a rated current of 100 A with a current setting range of 48-65 A, with self-return, for installation directly on the PML contactor when ordering and in the documentation of another product: Thermal overload relay RTL-2059-2-100A-(48-65A)-UHL4-KEAZ





Terminal strip KRL-X₁X₂-UHL4-KEAZ

Terminal strip	- Product group
KRL	- Letter designation
X₁X₂	- Rated current and relay type: 1 - 25A RTL-1000; 2D - 36A RTL-2000D; 2 - 100A RTL-2000
UHL4	- Type of climatic category and placement category according to GOST 15150
KEAZ	- Trademark

Example of recording the designation of a relay at rated current up to 100 A with a current setting range of 48-65 A, with self-return, for individual installation with a KRL-2 Terminal strip:
Thermal overload relay RTL-2059-2-100A-(48-65A)-UHL4-KEAZ; Terminal strip KRL-2-UHL4-KEAZ.

Technical characteristics of the relay series RTL

Parameter name	Parameter designation															
																
Series	RTL-1001	RTL-1002	RTL-1003	RTL-1004	RTL-1005	RTL-1006	RTL-1006D	RTL-1007	RTL-1008	RTL-1010	RTL-1012	RTL-1014	RTL-1016	RTL-1021	RTL-1022	RTL-1023
Rated current, A	25															
Current setting range, A																
of the relay	0.1-0.16	0.16-0.25	0.25-0.4	0.4-0.63	0.63-1	1-1.6	1.25-2	1.6-2.5	2.5-4	4-6	5.5-8	7-10	9-13	12-18	17-25	23-32
relay version 1	0.1-0.17	0.16-0.26	0.25-0.4	0.38-0.65	0.61-1	0.95-1.6	-	1.5-2.6	2.4-4	3.8-6	5.5-8	7-10	9.5-14	13-19	18-25	-
Designation of the range of the current setting	001	002	003	004	005	006	006Д	007	008	010	012	014	016	021	022	023
Relay return method:																
of the relay	Manual and self return															
relay version 1	Manual						-	Manual						-		
Power consumption by one pole of the relay, W, max	2,5												3,0			
Motor power, kW																
220 V	-	-	-	-	-	-	0.37	0.37	0.75	1.1	1.8	2.2	3.0	4.0	5.5	7.5
380 V	-	-	-	-	-	0.37	0.75	0.75	1.5	2.2	3.0	4.0	5.5	7.5	11	15
660 V	-	-	-	0.37	0.75	1.1	1.5	1.5	3.0	4.0	5.5	7.5	10	15	18.5	22
Rated cross-section of connecting wires, mm ²																
Cu	1.0											1.5	1.5	2.5	4.0	6.0
Al	2.5												4.0	6.0	10.0	
Overall dimensions (HxWxD), mm																
of the relay	66x45x94															
relay version 1	56x44x90						-	56x44x90						-		
Weight, max kg																
of the relay	0,175															
relay version 1	0,125						-	0,125						-		




Parameter name	Parameter designation														
															
Series	RTL-2053D	RTL-2055D	RTL-2053	RTL-2055	RTL-2057	RTL-2059	RTL-2061	RTL-2063	RTL-2064	RTL-3125	RTL-3170	RTL-3270	RTL-4410	RTL-4510	
Rated current, A	36		100 (80)*							250			500		
Current setting range, A															
of the relay	25-32	28-36	23-32	30-40	37-50	48-65	55-70	63-80	80-95	-	-	-	-	-	
relay version 1	-	-	23-32	30-41	38-52	47-64	54-74	63-86	-	74-125	102-170	165-270	250-410	310-510	
Designation of the range of the current setting	053D	055D	053	055	057	059	061	063	064	125	170	270	410	510	
Relay return method:															
of the relay	Manual and self-return									-	-	-	-	-	
relay version 1	-	-	Manual						-	Manual					
Power consumption by one pole of the relay, W, max	2,5	3,5				4,5		6,0		2,5					
Motor power, kW															
220 V	7,5	10	7,5	10	11	15	18,5	22	30	30	45	65	110	140	
380 V	15	18,5	15	18,5	22	25	30	37	59	59	80	110	185	257	
660 V	22	30	22	30	37	45	55	7,6	110	110	140	200	335	445	
Rated cross-section of connecting wires, mm ²															
Cu	6.0	10.0	6.0	10.0	10.0	16.0	25.0	25.0	35.0	50.0	70.0	120	240	2x150	
Al	10.0	16.0	10.0	16.0	16.0	25.0	25.0	35.0	50.0	70.0	120	-	-	-	
Overall dimensions (HxWxD), mm															
of the relay	78x55x94		83x72x117							-	-	-	-	-	
relay version 1	-	-	75x64x116							160x129x176			182x171x210	194x171x210	
Weight, max kg															
of the relay	0,25		0,50							-					
relay version 1	-	-	0,36							-	2,1		3,4	3,8	

* - for overload relay Version 1

Item numbers

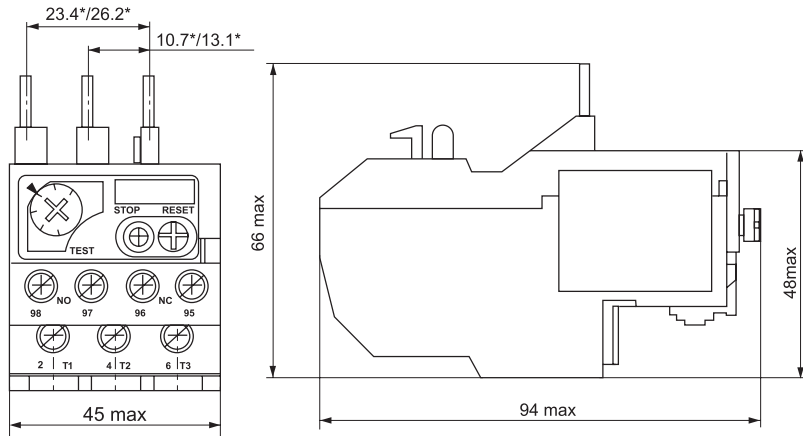
	Name	Rated current, A	Setpoint range, A	Motor power (AC-3) at 380 V 50 Hz, kW			Relay return method	Item number
				220	380	660		
	RTL-1001-2-25A-(0,1-0,16A)-UHL4	25	0.1-0.16	-	-	-	manual and self return	110735
	RTL-1002-2-25A-(0,16-0,25A)-UHL4		0.16-0.25	-	-	-		110736
	RTL-1003-2-25A-(0,25-0,4A)-UHL4		0.25-0.4	-	-	-		110737
	RTL-1004-2-25A-(0,4-0,63A)-UHL4		0.4-0.63	-	-	0.37		110738
	RTL-1005-2-25A-(0,63-1A)-UHL4		0.63-1.0	-	-	0.75		110739
	RTL-1006-2-25A-(1-1,6A)-UHL4		1-1.6	-	0.37	0.75		110740
	RTL-1006Д-2-25A-(1,25-2A)-UHL4		1.25-2	0.37	0.75	1.5		110741
	RTL-1007-2-25A-(1,6-2,5A)-UHL4		1.6-2.5	0.37	0.75	2.2		110742
	RTL-1008-2-25A-(2,5-4A)-UHL4		2.5-4.0	0.75	1.5	3.0		110743
	RTL-1010-2-25A-(4-6A)-UHL4		4.0-6.0	1.1	2.2	4.0		110744
	RTL-1012-2-25A-(5,5-8A)-UHL4		5.5-8.0	1.8	3.0	5.5		110745
	RTL-1014-2-25A-(7-10A)-UHL4		7.0-10	2.2	4.0	7.5		110746
	RTL-1016-2-25A-(9-13A)-UHL4		9.0-13	3.0	5.5	10		110747
	RTL-1021-2-25A-(12-18A)-UHL4		12.0-18	4.0	7.5	15		110748
	RTL-1022-2-25A-(17-25A)-UHL4		17-25	5.5	11	18.5		110749
	RTL-1023-2-25A-(23-32A)-UHL4		23-32	7.5	15	22		110750
	RTL-2053Д-2-36A-(25-32A)-UHL4		25-32	7.5	15	22		110752
	RTL-2055Д-2-36A-(28-36A)-UHL4		28-36	10	18.5	30		110754
	RTL-2053-2-100A-(23-32A)-UHL4		23-32	7.5	15	22		110751
	RTL-2055-2-100A-(30-40A)-UHL4		30-40	10	18.5	30		110753
RTL-2057-2-100A-(37-50A)-UHL4	37-50	11	22	37	110755			
RTL-2059-2-100A-(48-65A)-UHL4	48-65	15	25	45	110756			
RTL-2061-2-100A-(55-70A)-UHL4	55-70	18.5	30	55	110757			
RTL-2063-2-100A-(63-80A)-UHL4	63-80	22	37	7.6	110758			
RTL-2064-2-100A-(80-93A)-UHL4	80-95	30	59	110	110759			
Relay version 1								
	RTL-1001M-1-25A-(0,1-0,17A)-I1-UHL4	25	0.1-0.17	-	-	-	manual	231007
	RTL-1002M-1-25A-(0,16-0,26A)-I1-UHL4		0.16-0.26	-	-	-		231008
	RTL-1003M-1-25A-(0,24-0,4A)-I1-UHL4		0.25-0.4	-	-	-		231009
	RTL-1004M-1-25A-(0,38-0,65A)-I1-UHL4		0.38-0.65	-	-	0.37		231010
	RTL-1005M-1-25A-(0,61-1A)-I1-UHL4		0.61-1.0	-	-	0.75		231011
	RTL-1006M-1-25A-(0,95-1,6A)-I1-UHL4		0.95-1.6	-	0.37	0.75		231012
	RTL-1007M-1-25A-(1,5-2,6A)-I1-UHL4		1.5-2.6	0.37	0.75	2.2		231013
	RTL-1008M-1-25A-(2,4-4A)-I1-UHL4		2.4-4.0	0.75	1.5	3.0		231014
	RTL-1010M-1-25A-(3,8-6A)-I1-UHL4		3.8-6.0	1.1	2.2	4.0		231015
	RTL-1012M-1-25A-(5,5-8A)-I1-UHL4		5.5-8.0	1.8	3.0	5.5		231016
	RTL-1014M-1-25A-(7-10A)-I1-UHL4		7.0-10	2.2	4.0	7.5		231017
	RTL-1016M-1-25A-(9,5-14A)-I1-UHL4		9.5-14	3.0	5.5	10		231018
	RTL-1021M-1-25A-(13-19A)-I1-UHL4		13-19	4.0	7.5	15		231019
	RTL-1022M-1-25A-(18-25A)-I1-UHL4		18-25	5.5	11	18.5		231020
	RTL-2053M-1-80A-(23-32A)-I1-UHL4		23-32	7.5	15	22		231021
	RTL-2055M-1-80A-(30-41A)-I1-UHL4		30-41	10	18.5	30		231022
	RTL-2057M-1-80A-(38-52A)-I1-UHL4		38-52	11	22	37		231023
	RTL-2059M-1-80A-(47-64A)-I1-UHL4		47-64	15	25	45		231024
	RTL-2061M-1-80A-(54-74A)-I1-UHL4		54-74	18.5	30	55		231025
	RTL-2063M-1-80A-(63-86A)-I1-UHL4		63-86	22	37	7.6		231026
RTL-3125-1-250A-(74-125A)-UHL4	74-125	30	59	110	227117			
RTL-3170-1-250A-(102-170A)-UHL4	102-170	45	80	140	227118			
RTL-3270-1-250A-(165-270A)-UHL4	165-270	65	110	200	227119			
RTL-4410-1-500A-(250-410A)-UHL4	250-410	110	185	335	227120			
RTL-4510-1-500A-(310-510A)-UHL4	310-510	140	257	445	227121			

Item numbers KRL

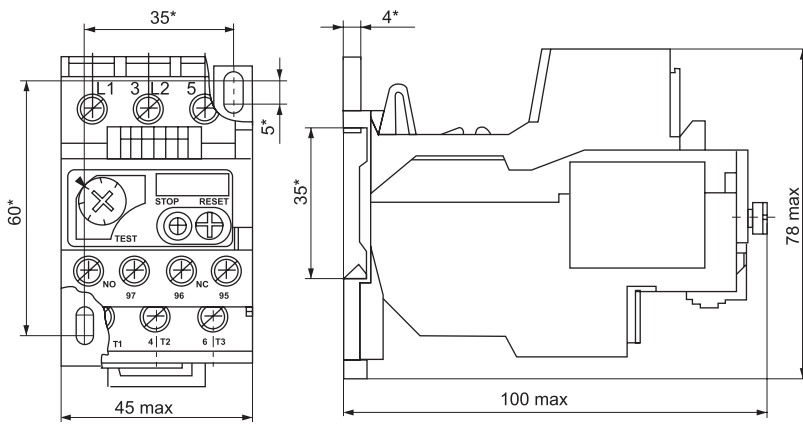
	Name	For thermal overload relays	Item number
	Terminal strip KRL-1-UHL4	RTL-1000	110534
	Terminal strip KRL-2D-UHL4	RTL-2000Д	110536
	Terminal strip KRL-2-UHL4	RTL-2000	110535

Note: not suitable for overload relays Version 1.

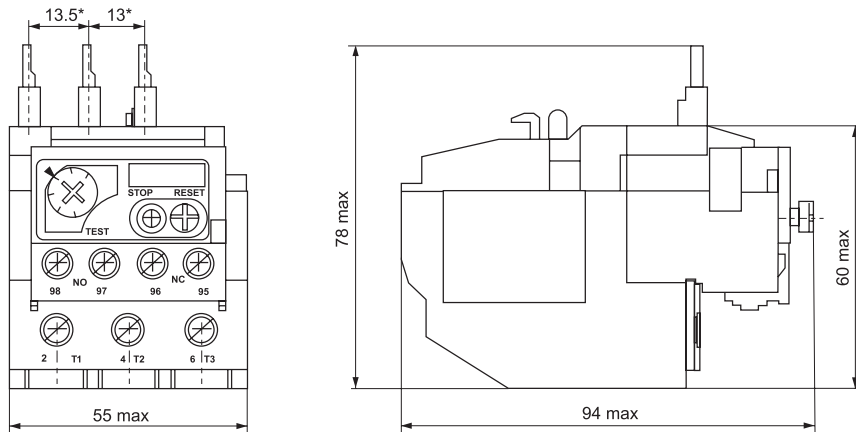
Overall and installation dimensions of the relay series RTL



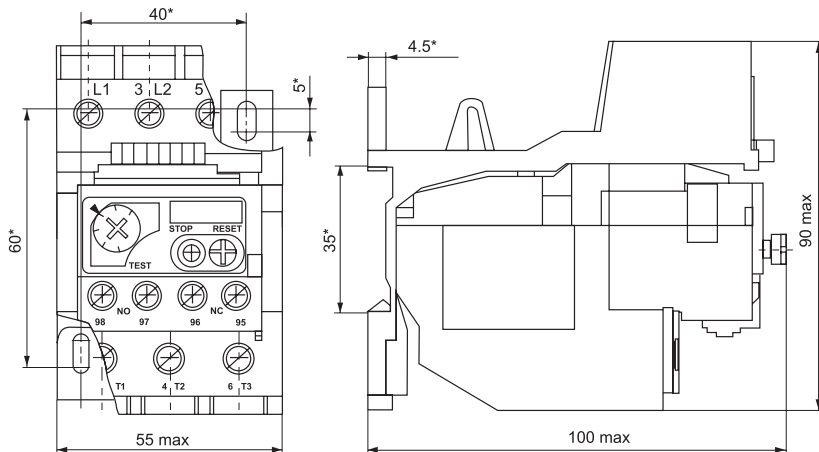
Relay RTL-1000 for connection to the contactor



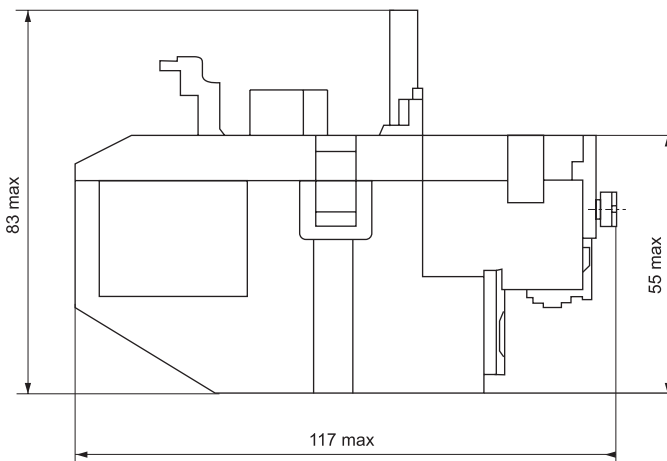
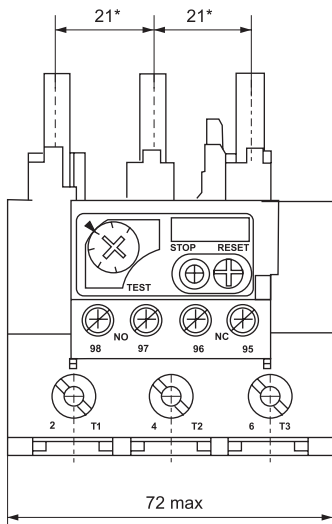
Relay RTL-1000 for individual installation with the Terminal strip KRL-1



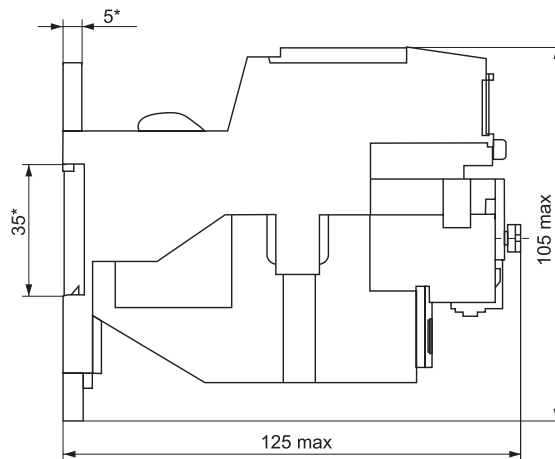
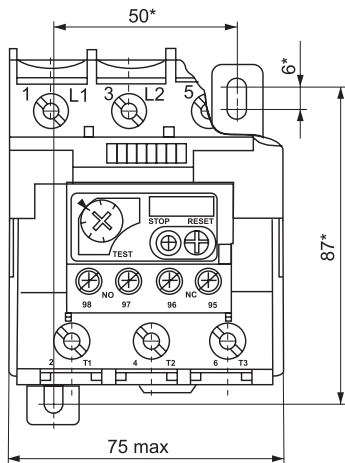
Relay RTL-2000D for connection to the contactor



Relay RTL-2000D for individual installation with the Terminal strip KRL-2D

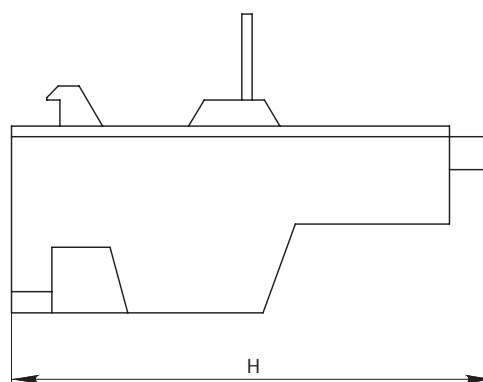
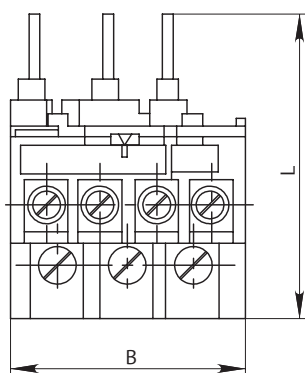


Relay RTL-2000 for connection to the contactor



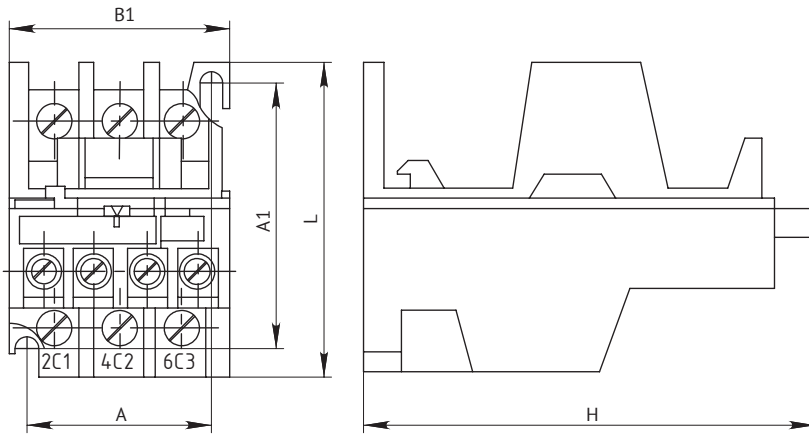
Relay RTL-2000 for individual installation with the Terminal strip KRL-2

Version 1



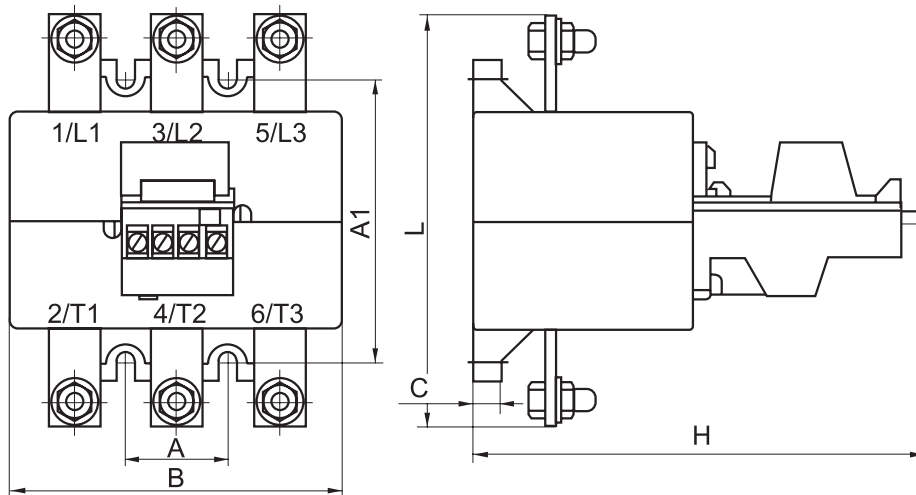
Relay RTL-1000, RTL-2000 for connection to the contactor

Relay Type Designation	Rated current, A	A	A1	B	H	L	Picture	Weight, max kg	Screw for fastening
RTL-1000	25	-	-	44±0,5	90±0,5	56±1	B.8	0,125	M4- 2 pcs.
RTL-2000	80	-	-	63,5±0,5	116±0,5	73±0,5	B.8	0,36	



Relay type
RTL-1000,
RTL-2000 for
individual
installation with the
Terminal strip KRL-1,
KRL-2

Relay Type Designation	Rated current, A	A	A1	B1	H	L	Picture	Weight, max kg	Screw for fastening
RTL-1000	25	35±0,5	50±0,5	44±0,5	90±0,5	61±1	B.7	0,16	M4 - 2 pcs.
RTL-2000	80	50±0,5	50±0,5	75±0,5	116±0,5	76,3±0,5	B.7	0,505	

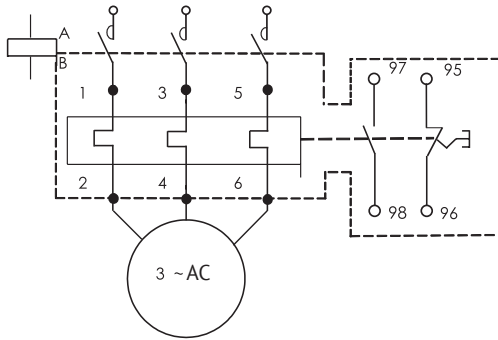


Relay
RTL-3000,
RTL-4000 for
individual
installation

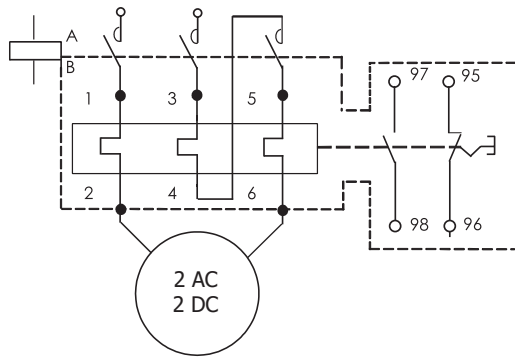
Relay Type Designation	Rated current, A	A	A1	B	H	L	C	Weight, max kg	Screw for relay fastening
RTL-3000	250	40±0,3	110±0,5	129±1	176±1	160±1	11±0,3	2,1	M6 - 4 pcs.
RTL-4410	500	49±0,3	130±0,5	171±1	210±1	182±1	12±0,3	3,4	
RTL-4510						194±1		3,8	

Wiring diagram of the relay in the load circuit

Wiring diagram of the relay in the three-phase load circuit

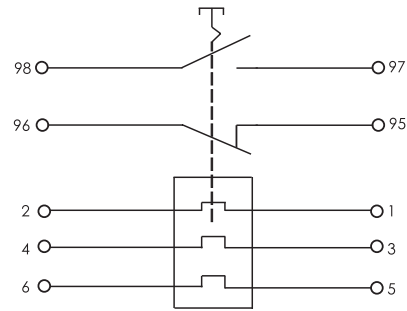


Scheme of connecting the to the two-phase circuit and the DC circuit

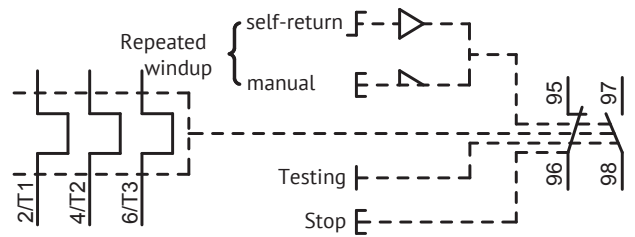


Electrical schematic diagram

Relay Version 1 (with manual return)

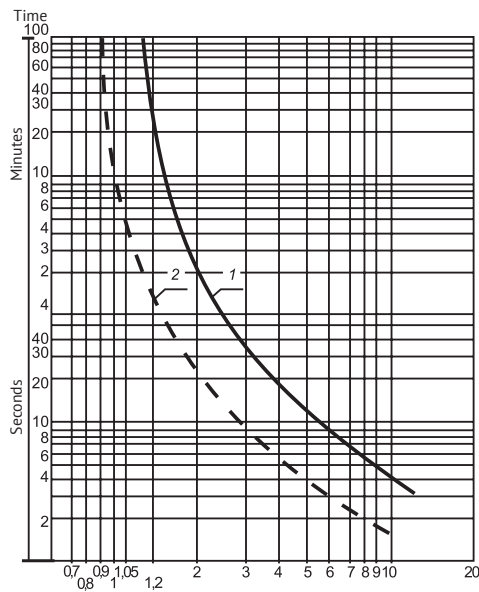


Relay Version 2 (with manual and self-return)



Time-current relay characteristics

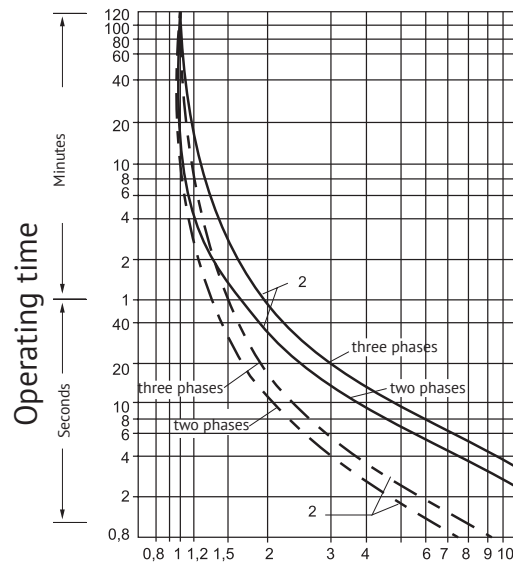
Relay RTL-1000, RTL-2000, RTL-2000D



The current ratio in the circuit in relation to the current setting:

- 1 - when working with a cold state;
- 2 - when working with a hot state;

Relay RTL-3000, RTL-4000

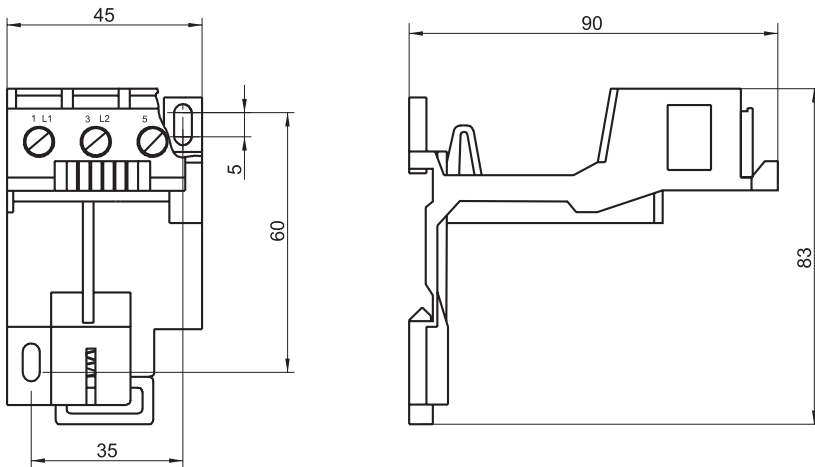


The current ratio in the circuit in relation to the current setting:

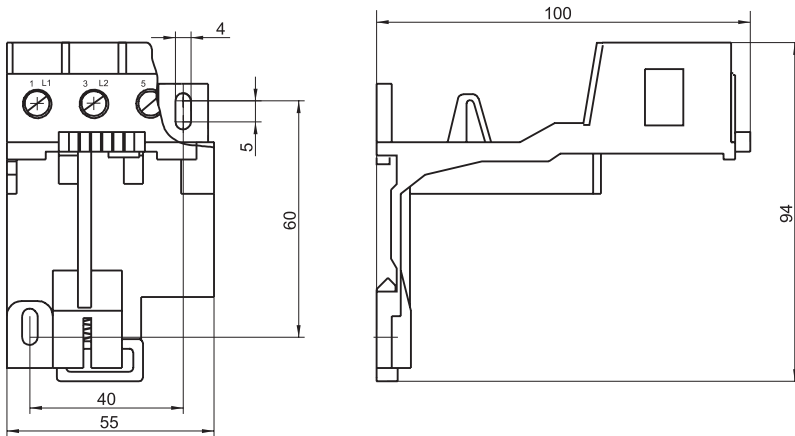
- 1 - during the three-phase operation;
- 2 - during the two-phase operation;

Overall, installation and mounting dimensions of Terminal strips

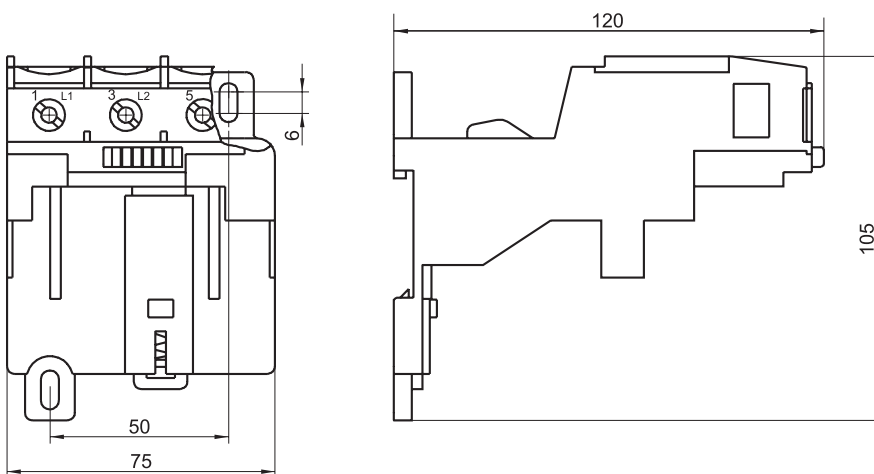
Terminal strip of KRL-1 type



Terminal strip of KRL-2D type



Terminal strip of KRL-2 type



Accessories for PML and PM12

Designation structure

Overvoltage protection RC OPN 1X₁X₂-UHL4-KEAZ

Excess-voltage suppressor	- Product group
RC OPN	- Series
1	- Version by the hardware components: resistive-capacitive (R-C)
X₁	- Version with contactor for currents: 1 - (10-32)A; 2 - (40-100)A
X₂	- Version of the rated voltage and the current of the control circuit: 1 - (24-48) B AC/DC 2 - (100-250) B AC/DC 3 - (380-400) B AC/DC 4 - (200-250) B AC/DC 5 - (100-127) B AC/DC
UHL4	- Climatic category and placement category according to GOST 15150
KEAZ	- Trademark

Contact adapter PKL or PKB-X₁X₂-UHL4-KEAZ

Contact adapter	- Product group
PKL or PKB	- Series
X₁	- Number of closing "3" contacts
X₂	- Number of opening "p" contacts
UHL4	- Type of a climatic category in accordance with GOST 15150
KEAZ	- Trademark



Example of the recording of the designation of the adapter of the contact series PKL with two "" closing and two "p" opening contacts:
Contact adapter PKL-22-UHL4-KEAZ

Time delay adapter PVL-X₁X₂-UHL4-KEAZ

Time delay attachment	- Product group
PVL	- Series
X₁	- Time delay at switching on - 1 - Time delay at switching off - 2
X₂	- Digit indicating the time delay range: 1 - (0.1-3 s); 2 - (10-180 s); 3 - (0.1-30 s)
UHL4	- Type of a climatic category in accordance with GOST 15150
KEAZ	- Trademark





Example of the recording of the designation of the adapter with a time delay at switching on, with a range of time from 0.1 to 30 s: Time delay adapter PVL-13-UHL4-KEAZ

Specifications

Parameter name	Parameter designation					
						
OPN type	RC OPN-111	RC OPN-112	RC OPN-113	RC OPN-123	RC OPN-124	RC OPN-125
Coil voltage (US), V	24-48	100-250	380-400	380-400	200-250	100-127
Rated current of the contactor, A	10, 16, 25, 32			40, 63, 80, 100		
Type of current control circuit	AC/DC					

Note.

The limiters are installed on contactors with degree of protection IP00, IP20.

Parameter name	Parameter designation															
																
Series	PKL-02	PKL-20	PKL-11	PKL-22	PKL-04	PKL-40	PKL-13	PKL-31	PKV-11	PVL-11	PVL-12	PVL-13	PVL-21	PVL-22	PVL-23	
Name	Contact adapters								Time delay adapters							
Number of contacts																
closing	0	2	1	2	0	4	1	3	1	1						
opening	2	0	1	2	4	0	3	1	1	1						
Time delay																
Range, s	-								0,1-3	10-180	0,1-30	0,1-3	10-180	0,1-30		
Switching type	-								At switching on			At switching off				
Mechanical wear resistance, million cycles	16								5							
Switching wear resistance, million cycles	1,5															
Operating mode	Intermittent-continuous, continuous, intermittent															
Dimensions																
Overall (HxWxD), mm	48x23x38			48x44x38				70x12x72		50x44x59						
Applicability with contactors for currents	from 10 A to 800 A								to 100 A*		from 10 A to 800 A					
Weight, max kg	0,03			0,06				0,06		0,08						

* For contactors for currents of 80 and 100 A, the installation of the PKB-11 adapter is provided with an adapter.

Item numbers for PML and PM12

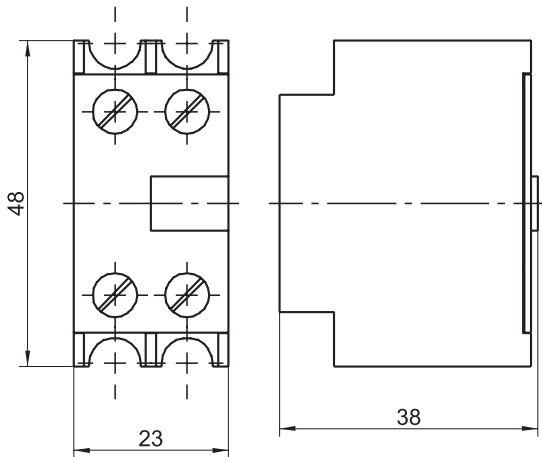
Name	Item number
Overvoltage protection RC OPN-111-UHL4	253247
Overvoltage protection RC OPN-112-UHL4	253249
Overvoltage protection RC OPN-113-UHL4	253250
Overvoltage protection RC OPN-123-UHL4	253251
Overvoltage protection RC OPN-124-UHL4	253252
Overvoltage protection RC OPN-125-UHL4	253248
Set of mechanical interlocks PML-(10-32A)-UHL4	110660
Set of mechanical interlocks PML-(40-63A)-UHL4	110661
Set of mechanical interlocks PML-(80-100A)-UHL4	110662
Time delay adapter PVL-11-UHL4	110663
Time delay adapter PVL-12-UHL4	110664
Time delay adapter PVL-13-UHL4	110665
Time delay adapter PVL-21-UHL4	110666
Time delay adapter PVL-22-UHL4	110667
Time delay adapter PVL-23-UHL4	110668
Contact adapter PKB-11-UHL4	110669
Contact adapter PKL-02-UHL4	110670
Contact adapter PKL-04-UHL4	110671
Contact adapter PKL-11-UHL4	110672
Contact adapter PKL-13-UHL4	110673
Contact adapter PKL-20-UHL4	110674
Contact adapter PKL-22-UHL4	110676
Contact adapter PKL-31-UHL4	110677
Contact adapter PKL-40-UHL4	110678
Coil PML-1-(10-16A)-110AC-UHL4-I1	229791
Coil PML-1-(10-16A)-220AC-UHL4-I1	229792
Coil PML-1-(10-16A)-24AC-UHL4-I1	229793
Coil PML-1-(10-16A)-36AC-UHL4-I1	229794
Coil PML-1-(10-16A)-380AC-UHL4-I1	229795
Coil PML-1-(10-16A)-42AC-UHL4-I1	229796
Coil PML-1-110AC-UHL4	110493
Coil PML-1-220/230AC-UHL4	110495
Coil PML-1-24AC-UHL4	110497
Coil PML-1-36AC-UHL4	110498
Coil PML-1-48AC-UHL4	110504
Coil PML-1-380AC-UHL4	110499
Coil PML-2,3D-(25-40A)-110AC-UHL4-I1	229797
Coil PML-2,3D-(25-40A)-220AC-UHL4-I1	229798
Coil PML-2,3D-(25-40A)-24AC-UHL4-I1	229799
Coil PML-2,3D-(25-40A)-36AC-UHL4-I1	229800
Coil PML-2,3D-(25-40A)-380AC-UHL4-I1	229801
Coil PML-2,3D-(25-40A)-42AC-UHL4-I1	229802
Coil PML-2-110AC-UHL4	110506
Coil PML-2-220/230AC-UHL4	110508
Coil PML-2-24AC-UHL4	110510
Coil PML-2-36AC-UHL4	110511
Coil PML-2-380AC-UHL4	110512
Coil PML-2-42AC-UHL4	110515
Coil PML-3,4,5D-(40-100A)-110AC-UHL4-I1	229803
Coil PML-3,4,5D-(40-100A)-220AC-UHL4-I1	229804
Coil PML-3,4,5D-(40-100A)-24AC-UHL4-I1	229805
Coil PML-3,4,5D-(40-100A)-36AC-UHL4-I1	229806
Coil PML-3,4,5D-(40-100A)-380AC-UHL4-I1	229807
Coil PML-3,4,5D-(40-100A)-42AC-UHL4-I1	229808
Coil PML-3/4/5D-110AC-UHL4	110520
Coil PML-3/4/5D-220/230AC-UHL4	110523
Coil PML-3/4/5D-24AC-UHL4	110525
Coil PML-3/4/5D-36AC-UHL4	110526

* Not all possible versions are presented in the table, you can find a more complete list on our website or by calling us.

Name	Item number
Coil PML-3/4/5D-380AC-UHL4	110527
Coil PML-3/4/5D-42AC-UHL4	110530
Coil PML-5-110AC-UHL4	238398
Coil PML-5-220AC-UHL4	112910
Coil PML-5-380AC-UHL4	112911
Coil PML-6-220AC-UHL4	112897
Coil PML-6-380AC-UHL4	112898
Coil PML-7-220AC-UHL4	112899
Coil PML-7-380AC-UHL4	112900
Coil PML-8-220AC-UHL4	112901
Coil PML-8-380AC-UHL4	112902

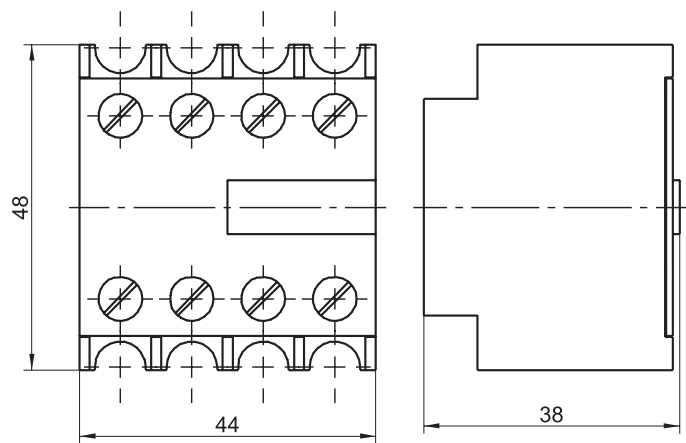
Overall and installation dimensions of the PKL, PVL and PKB adapters

Contact adapters PKL-02, PKL-20, PKL-11



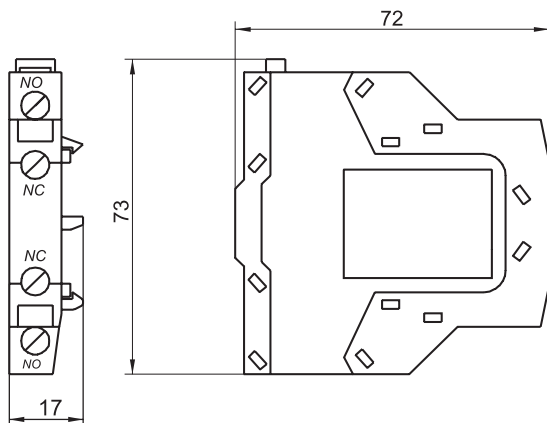
Adapter weight, max, kg - 0,03

Contact adapters PKL-22, PKL-04, PKL-40, PKL-13, PKL-31



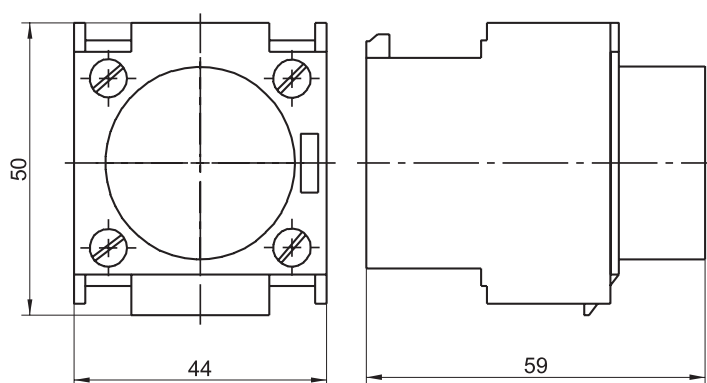
Adapter weight, max, kg - 0,06

Contact adapters PKB - 11

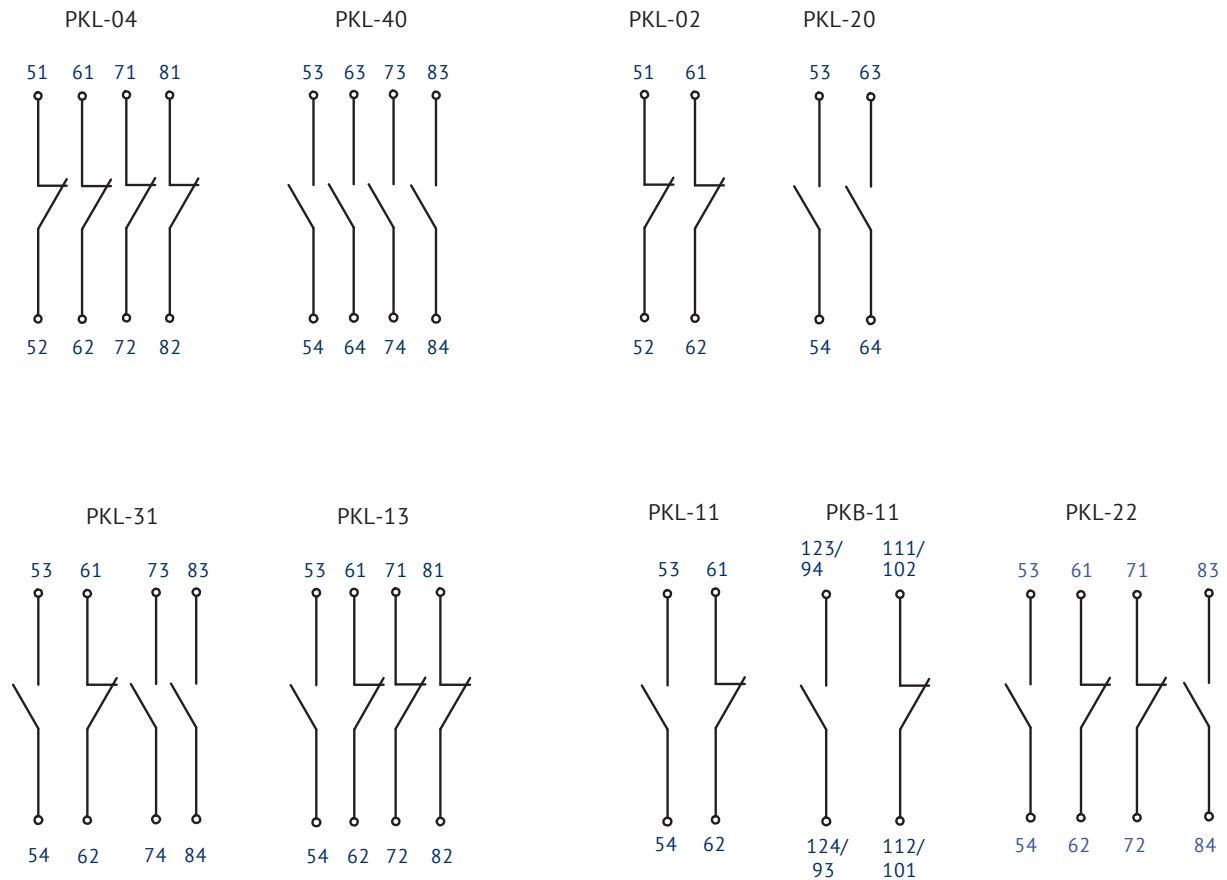


Adapter weight, max, kg - 0,06

Time delay adapters PVL



Electrical circuit diagrams of PKL, PKB adapters



Electrical circuit diagrams of PVL adapters

