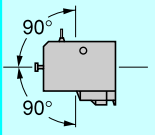
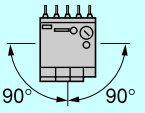
Protection relays
K thermal overload relays, adjustable from 0.11 to 16 A

Environment

Conforming to standards			IEC/EN 60947-4-1, NF C 63-650, VDE 0660
Approvals	Pending		UL, CSA
Protective treatment	Conforming to IEC 68 (DIN 50016)		"TC" (Klimafest, Climateproof)
Degree of protection	Conforming to VDE 0106		Protection against direct finger contact
Ambient air temperature around the device	Storage	°C	- 40...+ 70
	For normal operation (IEC 947)	°C	- 20...+ 55 (without derating)
	Operating limit	°C	- 30...+ 60 (with derating) (1)
Maximum operating altitude	Without derating	m	2000
Operating positions	**Vertical axis**		**Horizontal axis**
			
	Without derating		With derating (1)
Flame resistance	Conforming to UL 94		Self-extinguishing material V1
	Conforming to NF F 16-101 and 16-102		Conforming to requirement 2
Shock resistance, hot state (1/2 sine wave, 11 ms)	Conforming to IEC 68, N/C contact		10 gn
	Conforming to IEC 68, N/O contact		10 gn
Vibration resistance, hot state 5 to 300 Hz	Conforming to IEC 68, N/C contact		2 gn
	Conforming to IEC 68, N/O contact		2 gn
Safe separation of circuits	Conforming to VDE 0106 and IEC 536		VLSV (2), up to 400 V
Cabling Screw clamp terminals			Minimum / Maximum / Maximum to IEC 947
	Solid cable	mm²	1 x 1.5 / 2 x 4 / 1 x 4 + 1 x 2.5
	Flexible cable without cable end	mm²	1 x 0.75 / 2 x 4 / 2 x 2.5
	Flexible cable with cable end	mm²	1 x 0.34 / 1 x 1.5 + 1 x 2.5 / 1 x 1.5 + 1 x 2.5
Tightening torque	Philips head n° 2 - Ø 6	N.m	0.8
Mounting			Directly under the contactor or reversing contactor
Connections	Made automatically when mounted under the contactor, as follows: - contactor terminal A2 connected to overload relay terminal 96 on all products, - contactor terminal 14 connected to overload relay terminal 95 on products with 3 P + N/O. When using 3 P + N/C, or 4 P contactors, or the N/O auxiliary contact marked 13-14, at a voltage other than the coil voltage, break off the link marked 14.		

(1) Please call our Customer information centre on 0870 608 8 608.
(2) Very low safety voltage.

Auxiliary contact characteristics

Number of contacts			1 N/C + 1 N/O						
Conventional thermal current		A	6						
Short-circuit protection	Conforming to IEC 947, VDE 0660. gG fuse or circuit-breaker **GB2-CB●●**	A	6 max.						
Maximum power of the controlled contactor coils (sealed) (Occasional operating cycles of contact 95-96)	a.c.	V	24	48	110	220/230	400	415/440	600/690
		VA	100	200	400	600	600	600	600
	d.c.	V	24	48	110	220	250	–	–
		W	100	100	50	45	35	–	–
Maximum operational voltage	a.c., category AC-15	V	690						
	d.c., category DC-13	V	250						

References: page 2/46 Dimensions: page 2/47 Schemes: page 2/47

Protection relays
K thermal overload relays, adjustable from 0.11 to 16 A

Electrical characteristics of the power circuit

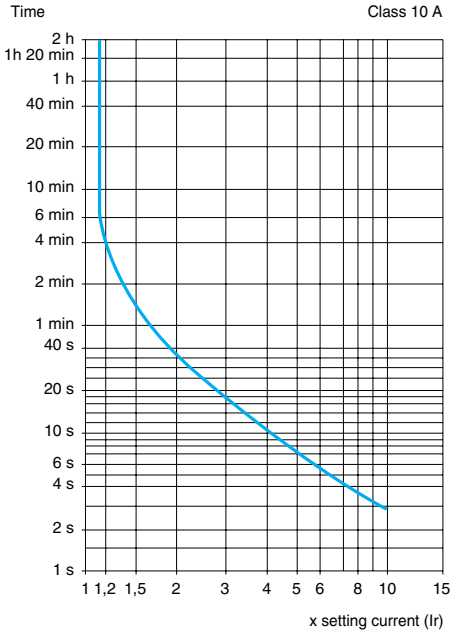
Rated operational voltage (Ue)	Up to	**V**	690
Rated insulation voltage (Ui)	Conforming to IEC/EN 60947-4-1	**V**	690
	Conforming to VDE 0110 group C	**V**	750
	Conforming to CSA C 22-2 n° 14	**V**	600
Rated impulse withstand voltage (Uimp)		**kV**	6
Frequency limits of the operational current		**Hz**	Up to 400
Power dissipated per pole		**W**	2

Operating characteristics

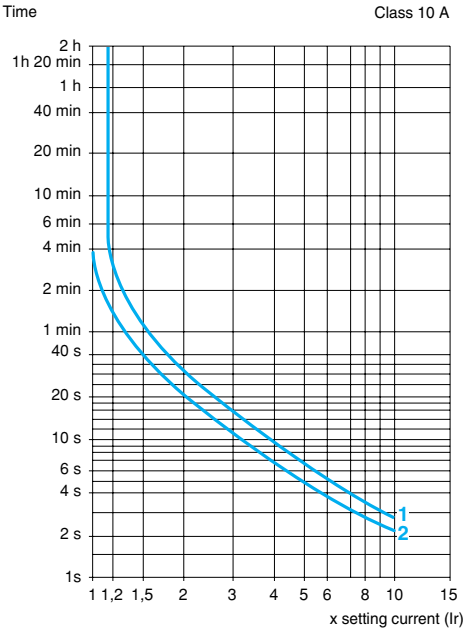
Sensitivity to phase failure	Conforming to IEC 947		Yes
Reset	Manual or automatic		Selected by means of a lockable and sealable switch on the front of the relay
Signalling	On front of relay		Trip indicator
Reset-Stop function			Pressing the Reset-Stop button: - actuates the N/C contact - has no effect on the N/O contact
Test function	By pushbutton		Pressing the Test button enables: - checking of the control circuit wiring - simulation of overload tripping (actuation of both N/C and N/O contacts, and of the trip indicator)
Short-circuit protection			See page 2/46

Tripping curves

Average operating time
related to multiples of the current setting
Class 10 A



Balanced 3-phase operation, from cold state



Balanced operation with 2 phases only, from cold state

1 Setting: at lower end of scale
2 Setting: at upper end of scale

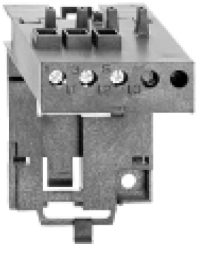
References: page 2/46
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Schemes: page 2/47

Protection relays

K thermal overload relays, adjustable from 0.11 to 16 A



LR2-K0301



LA7-K0064

3-pole relays with screw clamp terminals

These overload relays are designed for the protection of motors. They are compensated and phase failure sensitive. Resetting can either be manual or automatic.
Direct mounting: under the contactor for versions with screw clamp terminals only; pre-wired terminals, see pages 2/44 and 2/47.
Separate mounting: using terminal block LA7-K0064 (see below).
On the front face of the overload relay:
- selection of reset mode: Manual (marked H) or Automatic (marked A),
- red pushbutton: Trip Test function,
- blue pushbutton: Stop and manual Reset,
- yellow trip flag indicator: overload relay tripped.

Protection by fuses or by magnetic circuit-breaker type GV2-LE, see page 3/41.

Relay setting range	Fuses to be used with selected relay Maximum rating Type			Reference	Weight
	aM	gG	BS88		
A	**A**	**A**	**A**		kg
Class 10 A (the standard specifies a tripping time of between 2 and 10 seconds at 7.2 In)					
0.11…0.16	0.25	2	2	**LR2-K0301**	0.145
0.16…0.23	0.25	2	2	**LR2-K0302**	0.145
0.23…0.36	0.5	2	2	**LR2-K0303**	0.145
0.36…0.54	1	4	4	**LR2-K0304**	0.145
0.54…0.8	1	4	4	**LR2-K0305**	0.145
0.8…1.2	2	6	6	**LR2-K0306**	0.145
1.2…1.8	2	6	6	**LR2-K0307**	0.145
1.8…2.6	4	10	10	**LR2-K0308**	0.145
2.6…3.7	4	16	16	**LR2-K0310**	0.145
3.7…5.5	6	16	16	**LR2-K0312**	0.145
5.5…8	8	20	20	**LR2-K0314**	0.145
8…11.5	10	25	20	**LR2-K0316**	0.145
10…14	16	32	25	**LR2-K0321**	0.145
12…16	20	40	32	**LR2-K0322**	0.145

Overload relays for unbalanced loads

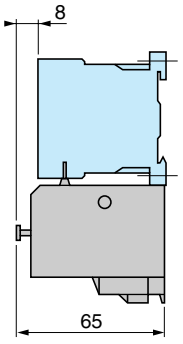
Class 10 A: To order, replace the prefix **LR2** by **LR7** in the references selected from above (only applicable to overload relays LR2-K0305 to LR2-K0322). Example: **LR7-K0308**.

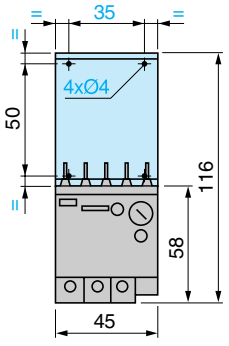
Accessory

Description	Type of connection	Reference	Weight kg
Terminal block for separate clip-on mounting of the overload relay on 35 mm ⌐⎽ rail	Screw clamp	**LA7-K0064**	0.100

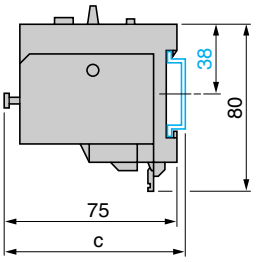
Characteristics: pages 2/44 and 2/45 Dimensions: page 2/47 Schemes: page 2/47

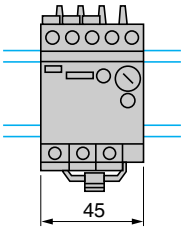
LR2-K
Direct mounting beneath the contactor





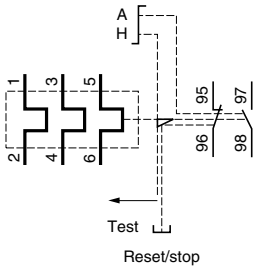
Separate mounting with terminal block **LA7-K0064**
on 35 mm ⎵ rail
(AM1-DP200 or AM1-DE200)



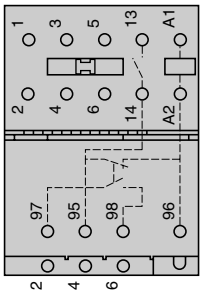


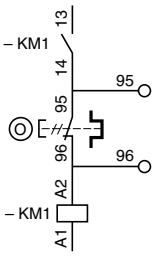
AM1-	c
DP200	78.5
DE200	86

LR2-K

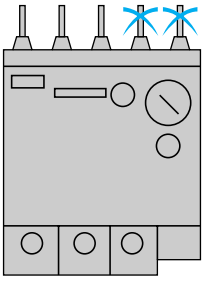


LR2-K + LC●-K
Pre-wiring scheme





Note: If pre-wiring is not required, break off the 2 links located on the thermal overload relay.



Characteristics: pages 2/44 and 2/45
References: page 2/46