EasyPact TVS thermal



TOR Com. Ref	Possible Imax Calibration	Compatible with Contactor (size 1 & 2) Com. Ref.						
		LC1E06	LC1E09	LC1E12	LC1E18	LC1E25	LC1E32	LC1E38
LRE01	0.10…0.16 A	■	■	■	■	■	■	■
LRE02	0.16…0.25 A	■	■	■	■	■	■	■
LRE03	0.25…0.40 A	■	■	■	■	■	■	■
LRE04	0.40…0.63 A	■	■	■	■	■	■	■
LRE05	0.63…1 A	■	■	■	■	■	■	■
LRE06	1…1.6 A	■	■	■	■	■	■	■
LRE07	1.6…2.5 A	■	■	■	■	■	■	■
LRE08	2.5…4 A	■	■	■	■	■	■	■
LRE10	4…6 A	■	■	■	■	■	■	■
LRE12	5.5…8 A		■	■	■	■	■	■
LRE14	7…10 A		■	■	■	■	■	■
LRE16	9 …13 A			■	■	■	■	■
LRE21	12…18 A				■	■	■	■
LRE22	16…24 A					■	■	■
LRE32	23…32 A					■	■	■
LRE35	30…38 A							■

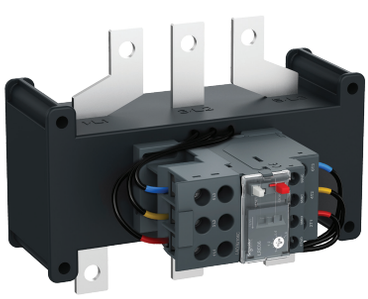
Common characteristics

> Class: 10 A.
> Operating voltage: max. 690 V AC.

overload relays



TOR Com. Ref	Possible Imax Calibration	Compatible with Contactor (size 3 & 4) Com. Ref.				
		LC1E40	LC1E50	LC1E65	LC1E80	LC1E95
LRE322	17…25 A	■	■	■	■	■
LRE353	23…32 A	■	■	■	■	■
LRE355	30…40 A	■	■	■	■	■
LRE357	37…50 A		■	■	■	■
LRE359	48…65 A			■	■	■
LRE361	55…70 A				■	■
LRE363	63…80 A				■	■
LRE365	80…104 A					■



TOR Com. Ref	Possible Imax Calibration	Compatible with Contactor (size 5, 6, 7, 8 & 9) Com. Ref.							
		LC1E120	LC1E160	LC1E200	LC1E250	LC1E300	LC1E400	LC1E500	LC1E630
LRE480	51…81A	■	■	□	□	□	□	□	□
LRE481	62…99A	■	■	□	□	□	□	□	□
LRE482	84…135A	■	■	□	□	□	□	□	□
LRE483	124…198A		□	■	□	□	□	□	□
LRE484	146…234A			□	■	■	■	□	□
LRE485	174…279A			□	■	■	■	□	□
LRE486	208…333A				■	■	■	□	□
LRE487	259…414A					■	■	□	□
LRE488	321…513A						□	■	□
LRE489	394…630A							□	■

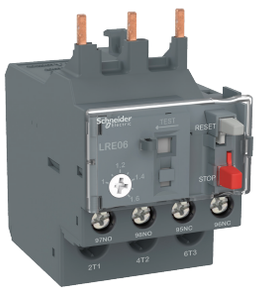
Note:

■ *means the relay can match with contactor both in electrical and mechanical.*

□ *means the relay can match with contactor only in electrical (can not directly mounting).*

EasyPact TVS thermal overload relays

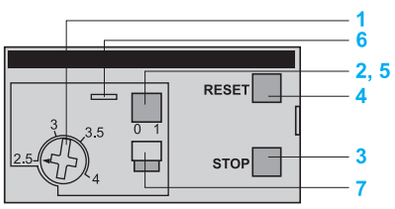
Presentation



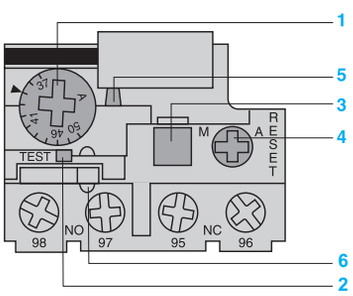
EasyPact TVS thermal overload relays are designed to protect a.c. circuits and motors against:
- overloads
- phase failure
- Long starting time
- prolonged stalled rotor condition.

The thermal relay controls permanently the current driven by the motor. When this current exceeds the setting it's auxiliary contacts will change state, causing the motor to stop.

Description



LRE●●, LRE48●



LRE3●●

1 Adjustment dial Ir.
2 Test button.
Operation of the Test button allows:
- checking of control circuit wiring,
- simulation of relay tripping (actuates both the N/O and N/C contacts).
3 Stop button. Actuates the N/C contact; does not affect the N/O contact.
4 Reset button.
5 Trip indicator.
6 Setting locked by sealing the cover.
7 Selector for manual or automatic reset.

LRE relays are supplied with the selector in the manual position, protected by a cover.
Deliberate action is required to move it to the automatic position.

EasyPact TVS thermal overload relays

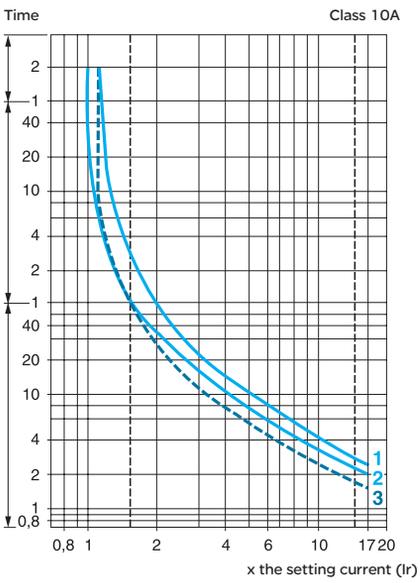
Power circuit characteristics												
Relay type		**Ref.**	**LRE 01...21**	**LRE 22...35**	**LRE 322...365**	**LRE 480…482**	**LRE 483**	**LRE 484**	**LRE 485…487**	**LRE 488**	**LRE 489**
		Size	**1**		**2**	**3**				**4**	
Tripping class	Conforming to IEC 60947-4-1		10 A								
Rated insulation voltage	Conforming to IEC 60947-4-1	**V**	690								
Rated impulse withstand voltage (Uimp)		**kV**	6								
Frequency limits	Of the operating current	**Hz**	50...60								
Setting range	Depending on model	**A**	0.1...18	16...38	17...104	51...630					
Power circuit connections											
Connection by screw clamp terminals			**Minimum/maximum c.s.a.**								
	Flexible cable without cable end 1 conductor	**mm²**	1.5...6	2.5...10	4...35	-					
	Flexible cable with cable end 1 conductor		1...4	1.5...6	4...35	-					
	Solid cable without cable end 1 conductor		1...6	2.5...10	4...35	-					
	Tightening torque	**N.m**	1.7	2.5	9	-					
Connection by bars or lugs											
Pitch	Without spreaders	**mm**	-			34.8	40	48	48	55	80
Bars or cables with lugs	Cross section		-			3X18	3X20	3X25	4X25	5x30	6X40
Screws	Type		-			M8	M8	M10	M10	M10	M12
	Tightening torque	**N.m**	-			27.5	27.5	35	35	35	58
Auxiliary contact characteristics											
Conventional thermal current		**A**	5								
Max. sealed consumption of the operating coils of controlled contactors (Occasional operating cycles of contact 95-96)	a.c. supply	**V**	110	120	220	240	380	480	500	600	
		A	3.27	3	1.63	1.5	0.95	0.75	0.72	0.12	
Protection against short-circuits	By gG, maximum rating or by GB2	**A**	5								
Connection by screw clamp terminals			Minimum/maximum c.s.a.								
	Flexible cable without cable end 1 conductor	**mm²**	2 x 1...2.5								
	Flexible cable with cable end 1 conductor		2 x 1...2.5								
	Solid cable without cable end 1 conductor		2 x 1...2.5								
	Tightening torque	**N.m**	1.7								
Environment											
Conforming to standard			IEC 60947-4-1, IEC 60947-5-1								
Product certifications			EAC								
Degree of protection	Conforming to IEC 60529		IP2X			IP00					
Protective treatment	Conforming to IEC 60068		"TH"								
Ambiant air temperature	Storage	**°C**	-60...+80								
	Normal operation without derating (IEC 60947-4-1)		-20...+60								
	Minimum/maximum operating temperature (with derating) (1)		-20...+70								
Operating positions without derating	In relation to normal vertical mounting plane		Any position								
Flame resistance	Conforming to IEC 60068-2-1	**°C**	850								
Shock resistance	Permissive acceleration conforming to IEC 60068-2-7		6 gn - 11 ms								
Vibration resistance	Permissive acceleration conforming to IEC 60068-2-6		3 gn								
Dielectric strenght at 50 Hz	Conforming to IEC 60255-5	**kV**	6								
Surge withstand	Conforming to IEC 60801-5		6								
Operating characteristics											
Temperature compensation		**°C**	-20...+60								
Tripping threshold	Conforming to IEC 60947-4-1	**A**	1.14 ± 0.06 Ir								
Sensitivity to phase failure	Conforming to IEC 60947-4-1		Tripping current 130 % of Ir on two phase, the last one at 0								

(1) *Contact your regional sales.*

EasyPact TVS thermal overload relays

Tripping curves

Average operating time related to multiples of the setting current



1 Balanced operation, 3-phase, without prior current flow (cold state).
2 2-phase operation, without prior current flow (cold state).
3 Balanced operation, 3-phase, after a long period at the set current (hot state).

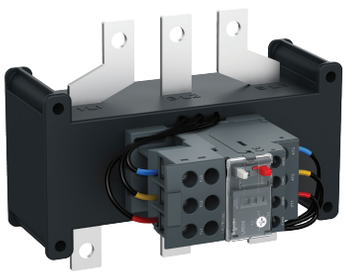
EasyPact TVS thermal overload relays
3-pole thermal overload relays



LRE●●



LRE3●●



LRE48●

Differential thermal overload relays
for use with fuses or magnetic circuit-breakers GV2 L and GV3 L

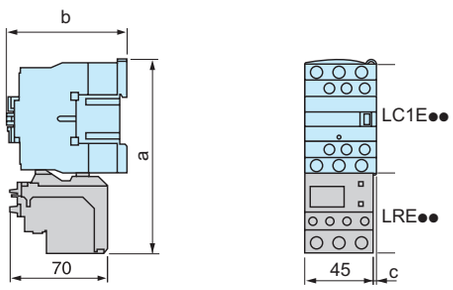
- Compensated relays with manual or automatic reset,
- with relay trip indicator,
- for a.c.

Relay setting range (A)	Fuses to be used with selected relay		For use with contactor LC1	Reference	Weight kg
	aM (A)	gG (A)			
Class 10 A (1) for connection by screw clamp terminals					
0.10…0.16	0.25	2	E06…E38	**LRE01**	0.130
0.16…0.25	0.5	2	E06…E38	**LRE02**	0.130
0.25…0.40	1	2	E06…E38	**LRE03**	0.130
0.40…0.63	1	2	E06…E38	**LRE04**	0.130
0.63…1	2	4	E06…E38	**LRE05**	0.130
1…1.6	2	4	E06…E38	**LRE06**	0.130
1.6…2.5	4	6	E06…E38	**LRE07**	0.130
2.5…4	6	10	E06…E38	**LRE08**	0.130
4…6	8	16	E06…E38	**LRE10**	0.130
5.5…8	12	20	E09…E38	**LRE12**	0.130
7…10	12	20	E09…E38	**LRE14**	0.130
9…13	16	25	E12…E38	**LRE16**	0.130
12…18	20	35	E18…E38	**LRE21**	0.130
16…24	25	50	E25…E38	**LRE22**	0.130
23…32	40	63	E25…E38	**LRE32**	0.130
30…38	40	80	E38	**LRE35**	0.130
17...25	25	50	E40…E95	**LRE322**	0.470
23...32	40	63	E40…E95	**LRE353**	0.470
30...40	40	100	E40…E95	**LRE355**	0.470
37...50	63	100	E50…E95	**LRE357**	0.460
48...65	63	100	E65…E95	**LRE359**	0.460
55...70	80	125	E80…E95	**LRE361**	0.480
63...80	80	125	E80…E95	**LRE363**	0.480
80...104	80	160	E95	**LRE365**	0.520
Class 10 A (1) directly connected by connector					
51...81	100	125	E120...E160	**LRE480**	2.2
62...99	125	160	E120...E160	**LRE481**	2.2
84...135	160	200	E120...E160	**LRE482**	2.2
124...198	200	250	E200	**LRE483**	2.1
146...234	250	315	E250...E400	**LRE484**	2.2
174...279	315	315	E250...E400	**LRE485**	2.2
208...333	400	400	E250...E400	**LRE486**	2.2
259…414	400	500	E300...E400	**LRE487**	2.4
321…513	500	800	E500	**LRE488**	3.2
394…630	630	1000	E630	**LRE489**	3.9

(1) Standard IEC 60947-4-1 specifies a tripping time for 7.2 times the setting current I_R : class 10 A: between 2 and 10 seconds.

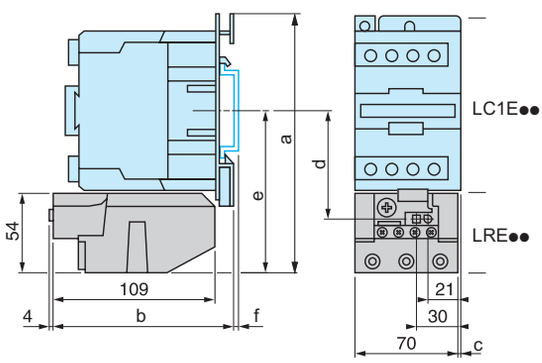
EasyPact TVS thermal overload relays
Direct connection to LRE contactors

LRE01...E35
Direct mounting under LC1E06...38 contactors with screw clamp connections



With contactor	LC1E06...E18	LC1E25	LC1E32/E38
a	128	137	137
b	84	92	92
c	0	0	11

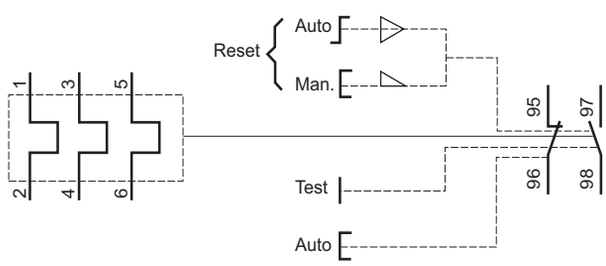
LRE3●●
Direct mounting under LC1E06...38 contactors with screw clamp connections



With contactor on DIN rail	AM1-DL201	AM1-DL200
f	7	17

With contactor	LC1E40	LC1E50	LC1E65	LC1E80	LC1E95
a	175	175	175	180	180
b	119	119	119	124	124
c	4.5	4.5	4.5	9.5	9.5
d	72.4	72.4	72.4	76.9	76.9
e	111	111	111	115.5	115.5

Electrical diagram all relays

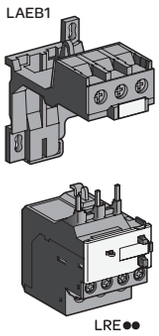


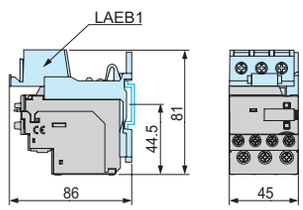
EasyPact TVS thermal overload relays
Connection to a terminal block

LRE01...E35 connected to LAEB1 terminal block

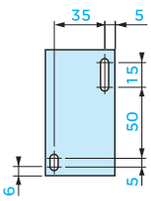
Independent mounting on 50 mm centres; or on rail AM1 DP200 or DE200

Independent mounting on 110 mm centres





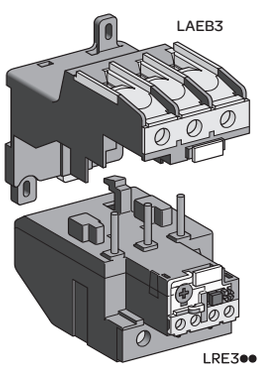
Mounting on DIN rail AM1D●●●

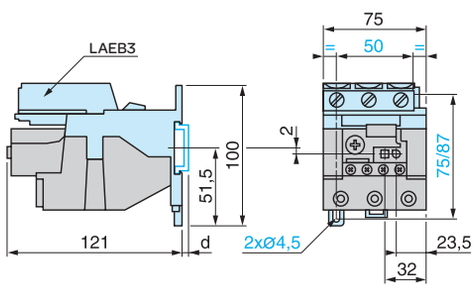


Mounting customer back plate

LRE322...E365, connected to LAEB3 terminal block

Independent mounting on 50 mm centres; or on rail AM1 DP200 or DE200





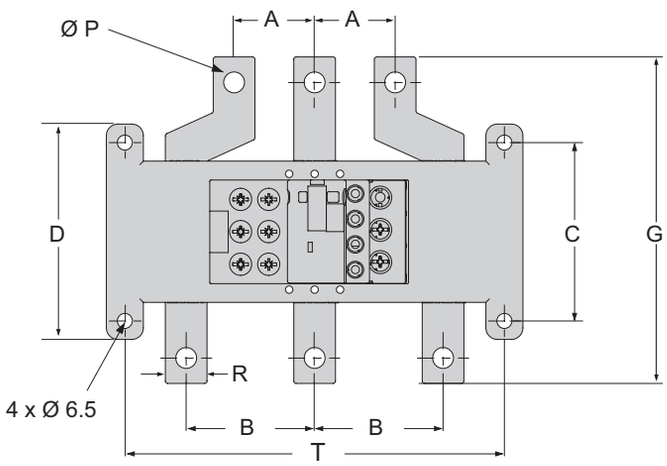
Mounting on DIN rail AM1D●●●

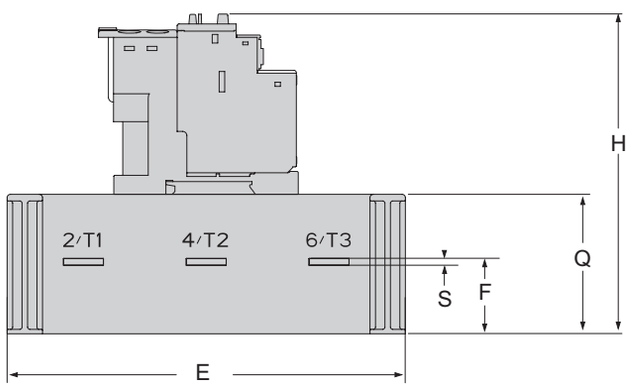
	AM1-DP200	AM1-DE200
d	2	9.5

EasyPact TVS thermal overload relays
Independant mounting and connection

LRE48●
Independent mounting on mounting plate

LRE48●: with direct mounting under contactors LC1E120...630 or separate mounting (without accessory).





(mm)

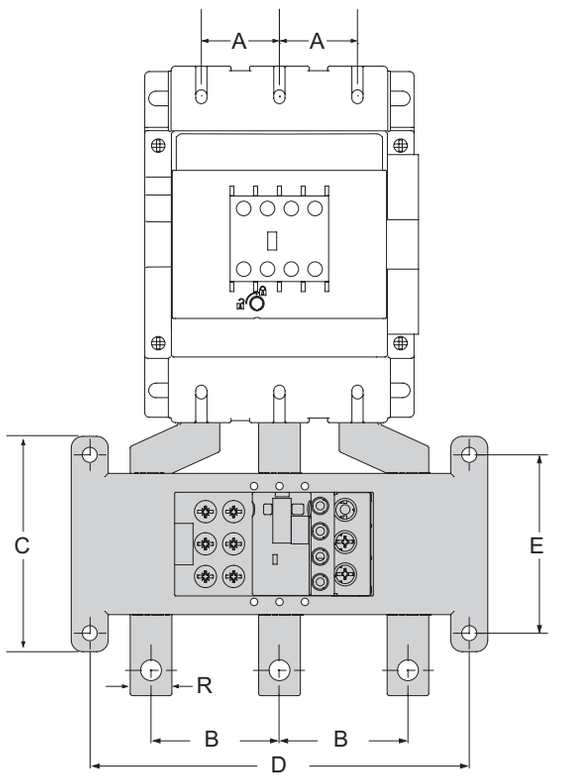
Dimensions and mounting

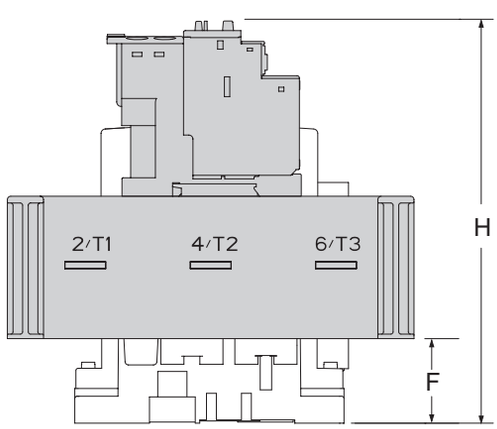
Range (A)		A	B	C	D	E	F	G	H	P	Q	R	S	T
LRE480	51…81	34.8	55.5	77	93	180	32	141	134	9	63	18	3	164
LRE481	62...99													
LRE482	84...135													
LRE483	124...198	40						131		10		20		
LRE484	146...234	48						134		12		25		
LRE485	174...279						32.5					25	4	
LRE486	208...333													
LRE487	259...414													
LRE488	321...513	55	76			242	43	140	148	14	77	30	5	222
LRE489	394...630	80	80				43.5	150				40	6	

EasyPact TVS thermal overload relays
Independant mounting and connection

LRE48●
Independent mounting on mounting plate

LRE48●: with direct mounting.





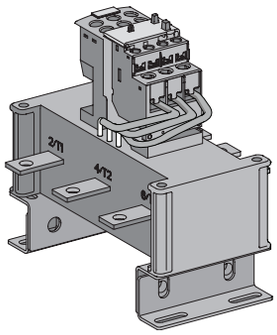
(mm)

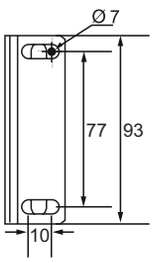
Dimensions and mounting

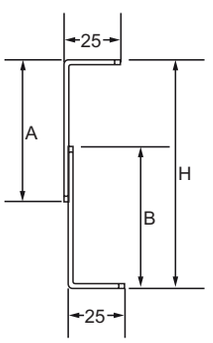
Range (A)		A	B	C	D	E	F	H
LRE480	51…81	34.8	55.5	93	164	77	38	180
LRE481	62...99							
LRE482	84...135							
LRE483	124...198	40					82	223
LRE484	146...234	48					113	255
LRE485	174...279							
LRE486	208...333							
LRE487	259...414							
LRE488	321...513	55	76		222			264
LRE489	394...630	80	80				125	279

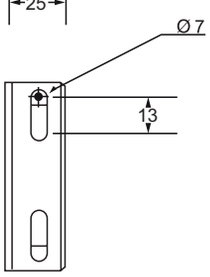
EasyPact TVS thermal overload relays
Independant mounting and connection

CDB500412









Accessories for LRE48X Thermal Overload Relay			
Relay mounting with Contactor directly			
Relay	Contactor	Mounting support	
		cat No.	weight (Kg)
LRE480	LC1E120...160	LAES1	0.32
LRE481	LC1E120...160	LAES1	0.32
LRE482	LC1E120...160	LAES1	0.32
LRE483	LC1E200	LAES2	0.45
LRE484	LC1E250...300	LAES2	0.45
LRE485	LC1E250...300	LAES2	0.45
LRE486	LC1E250...300	LAES2	0.45

Dimension	LAES1	LAES2	
A (mm)	34	70	
B (mm)	30	70	
C (mm)	34-42	75-90	107-122