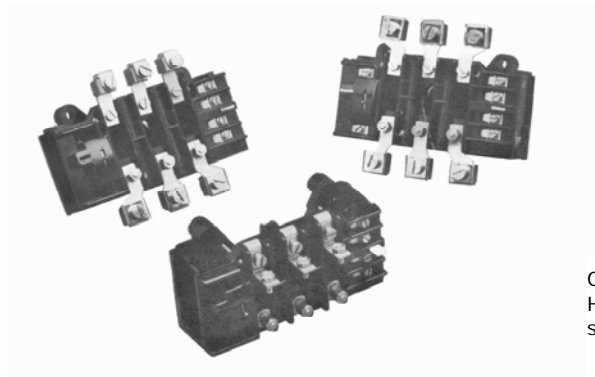


R Type Overload Relay Installation & Servicing Instructions

OLRRM
Hand reset overload relay with loop and platform terminals.



OLRRP
Hand reset overload relay with platform terminals.

OLRRS
Hand reset overload relay with saddle clamp terminals.

General

Triple pole adjustable thermal overload and phase loss protection relay for motor full load currents up to 72 amps.

Specification

The relay is supplied in three direct connected forms: 0,21-27 amps, 27-72 amps with 35 individually rated heaters. Designed to comply with BS 4941, IEC 292, BSEN 60947 and IEC 947.

Calibration in full load current

At 105% of current setting, tripping will not occur in less than two hours starting from the cold state; when current is subsequently raised to 120% of setting, tripping will occur less than two hours later.

Max. Thermal Current I_{th} - 10A Hand reset.

4A Auto Reset & Alarm.

Phase loss protection

Design of heater elements and differential trip mechanism ensures tripping under phase loss conditions, in accordance with BS 4941 IEC 292, BSEN 60947 and IEC 947.

Ambient temperature compensation

Enables relay to operate anywhere within the range -40° to $+70^{\circ}\text{C}$.

Contact Ratings

Voltage AC	Trip Switch I_e AC15	
	Hand Reset	Auto Reset & Alarm Switch
550	1.1A	0.25A
440	1.4A	0.5A
250	2.4A	0.9A
110	5.5A	2.0A
48	10.0A	4.0A

Hand-reset type

This has normally-closed trip contacts and electrically separate normally-open contacts for trip indication, etc. Reset push may also be used as a stop switch and the design of the 'Stop' contact ensures that current making and breaking is independent of the 'trip' contact. This reduces wear of the trip faces and prevents contactor chatter while resetting a live circuit. When tripped the rest push extends forward and displays a red line indicating overload tripped. An alternative model also includes 'Start' switch.

Remote reset type

A clip-on solenoid reset mechanism is available to facilitate remote resetting of hand reset overload relays. The unit has been designed to allow for fitting to existing units without the removal of the relay from the panel.

Auto-reset type

This has changeover trip switch arranged to reset automatically on cooling of bi-metals (Start and Stop pushes not available on this type).

Short circuit protection

For fault protection a circuit breaker or fuses of adequate breaking capacity should form part of the installation. A type "R" overload relay and a correctly selected Short Circuit Protective Device will provide type "C" co-ordination to BS 4941/IEC 292, also type 2 co-ordination to BSEN 60947/IEC 947.

Threads

Metric screw threads used throughout.

Maintenance instructions

Normally not required other than an occasional check that the terminals are tight.

R Type Overload Relay Installation & Servicing Instructions

Direct-connected relays - heater packs

Comprising three heaters with calibration labels.

All heaters have WHITE labels, showing calibrations for line connected relays. Grid and strip type heaters (Ref. YA-SE) also include YELLOW labels giving calibrations for use with phase-connected relays.

Note : For motor protection under star-delta starting, it is normal practice to connect overload heaters in series with the motor winding in both star and delta. YELLOW labels show calibrations in line current values, although heaters are passing motor winding current (phase current).

Motor FLC (A) Line Connected	Heater Ref	Order Code	Max Fuse (A) *	Motor FLC (A) Line Connected	Motor FLC (A) Phase Connected Star/Delta Starter	Heater Ref	Ordering Code	Max Fuse (A) *	
								Std.	Motor
0.21 - 0.25 A	A	OLRHA	2	4.1 - 4.9 A	7.1 - 8.5 A	YA	OLRHYA	16	
0.25 - 0.29 A	B	OLRHB	2	4.8 - 5.8 A	8.5 - 10.0 A	YB	OLRHYB	20	
0.29 - 0.35 A	C	OLRHC	2	5.9 - 7.1 A	10.0 - 12.0 A	YC	OLRHYC	20	
0.32 - 0.38 A	D	OLRHD	2	7.0 - 8.4 A	12.0 - 14.5 A	YD	OLRHYD	25	20M25
0.37 - 0.45 A	F	OLRHF	2	8.4 - 10.0 A	14.5 - 17.5 A	YE	OLRHYE	32	20M32
0.44 - 0.53 A	H	OLRHH	2	10.0 - 12.0 A	17.5 - 21.0 A	ZF	OLRHZF	35	32M35
0.50 - 0.60 A	J	OLRHJ	2	12.0 - 14.5 A	21.0 - 25.0 A	ZG	OLRHZG	35	32M35
0.57 - 0.69A	K	OLRHK	2	14.5 - 17.5A	24.5 - 29.5A	ZH	OLRHZH	40	32M40
0.67 - 0.80 A	L	OLRHL	4	17.0 - 20.5 A	29.0 - 35.0 A	ZJ	OLRHZJ	50	32M50
0.74 - 0.88A	M	OLRHM	4	19.5 - 23.0A	33.5 - 40.0A	ZK	OLRHZK	63	32M63
0.84 - 1.00 A	N	OLRHN	4	22.5 - 27.0 A	39.0 - 47.0 A	ZL	OLRHZL	63	32M63
1.00 - 1.20 A	O	OLRHO	6	27.0 - 32.0 A	46.0 - 56.0 A	SA	OLRHSA	80	63M80
1.20 - 1.40 A	P	OLRHP	6	33.0 - 40.0 A	57.0 - 69.0 A	SB	OLRHSA	80	63M80
1.50 - 1.80 A	R	OLRHR	10	41.0 - 49.0 A	71.0 - 85.0 A	SC	OLRHSC	100	63M100
1.80 - 2.20 A	XP	OLRHXP	10	50.0- 60.0 A	86.0- 104.0 A	SD	OLRHSD	125	100M160
2.10 - 2.50 A	XR	OLRHXR	10	60.0 - 72.0 A	104.0 - 124.0 A	SE	OLRHSE	160	100m160
2.50 - 3.00 A	XS	OLRHXS	16						
3.00 - 3.60 A	XT	OLRHXT	16						
3.60 - 4.30 A	XU	OLRH XU	16						

Heaters Ref. A -XU Wire wound heaters YA-ZL Grid heaters SA-SE Strip heaters

Note

Fuses are maximum values and not necessarily values for a particular full load current, therefore the following procedure should be adopted.

1. Select fuse for a particular full load current from manufacturer 's catalogue -
2. If not greater than listed maximum values then overload is satisfactory protected.
3. Fuse ratings based on short-circuit prospective current of 50kA

Heaters - fitting

Remove heaters from carton and fit to relay as shown n Figs 2, 3 or 4.

On each terminal screws 2, 4 and 6 an 8.8 mm square packer is fitted on all relays supplied loose. This packer should be discarded when a solid connector of 14 s.w.g. or a strip connector of 2.5mm is used. The heater is then fitted **on top** of the connection / connector (see Fig. 2).

N.B. -- It is important that the terminal end of the heater (on which the code letters appear) is 2.5mm above the moulded platform (see Fig. 3).

Ensure that each heater is not twisted when tightened and that its code letters are upright, also ensure that the code letters on the calibration label (supplied with each set of heaters) correspond with those on the heaters.

Fitting calibration label

Discard central cut-out portion of label and peel label off backing paper. Check label wording with that on overload moulding to ensure label is fitted correct way up.

Centralise calibration pointer.

Line up mid-point calibration on the label with pointer, press down on to moulding and smooth away from centre to edge until label is fully in place.

Cabling and terminals

Standard unit has six main terminals (OLRTS), for up to 27 amps rating they are suitable for cables up to 6mm². For ratings between 27 and 72 amps, platform terminals (OLRTP) are suitable for cables up to 25mm². For the latter ratings alternative loop terminals (OLRTL) are available with a maximum cable capacity of 35mm². Auxiliary contact terminals will accept cables up to the equivalent of two 2.5mm².

External Cable Connections

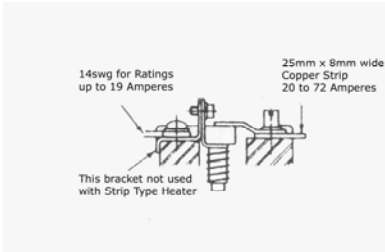
SA	6/10 mm ²
SB	6/10 mm ²
SC	16/35 mm ²
SD & SE	16/35 mm ²

R Type Overload Relay Installation & Servicing Instructions

Alternative Heater And Connection Arrangements

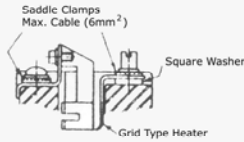
Top & bottom solid copper connectors

Fig. 2 For wiring to adjacent components.



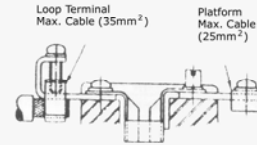
Top & bottom terminal arrangement

Fig. 3 For ratings 0.21 to 27 amps using OLRTS terminals.



Typical top & bottom terminal arrangement

Fig. 4 For ratings 27 to 72 amps using OLRTP or OLRTL terminals.



Heaters

Wire wound 0.21 to 4.8 amps
Grid type 4.1 to 27 amps

Bottom terminals

Cable fitted over heater connection.

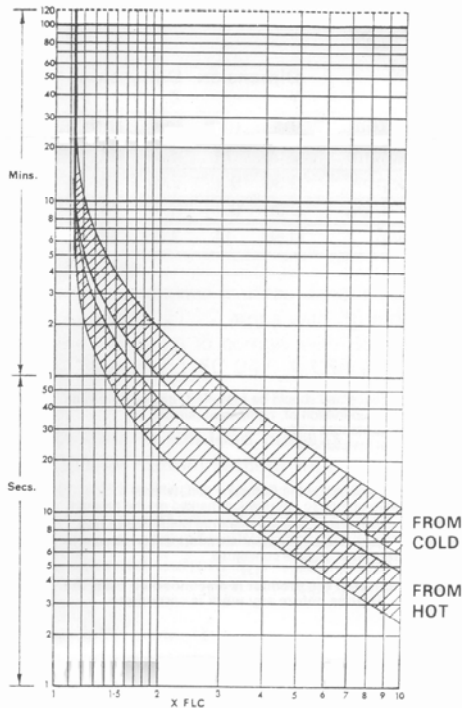
Strip type heaters only

Discard square washer from bottom terminals if supplied. All heaters can be used with this arrangement; wire wound heater illustrated.

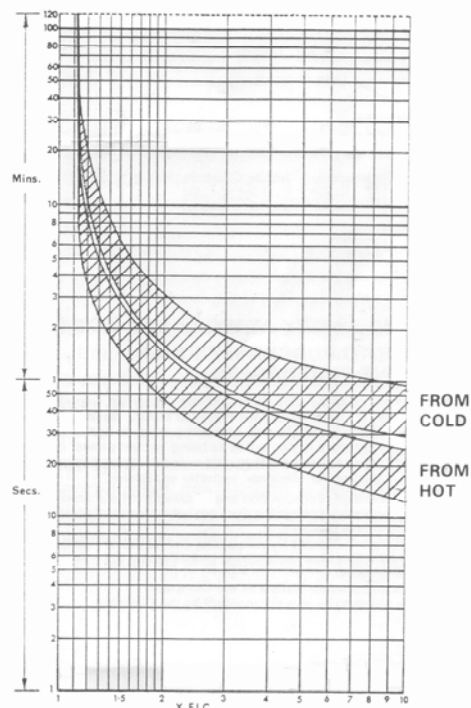
Note : For ratings 0.21 to 27 amps the square washer on the bottom terminal only, Fig. 3, can be replaced by either loop or platform terminals

Relay characteristics

The time/current curves shown below are typical curves only and are derived from an average of the individual heater performance curves. Specific heater curves available on request.



Curve 1 Direct-connected relays
0.21 - 72 Amps



Curve 2 CT operated relays

