

Combined Phase Failure & Thermistor (PTC) Relay

- Thermistor Relay combined with Protection against Phase Sequence, Phase Loss & Phase Asymmetry Faults
- Monitors and Protects Motors with Integrated PTC Resistor sensors
- Protection against Over heating for Heavy Duty Load, High Switching Frequency, High operating temperature & Insufficient cooling conditions
- LED indications for Healthy, Unhealthy, Sensor Open/Short and Phase Sequence fault conditions



Cat. No.		ML64BS	MLD4BS
Parameters			
Supply Voltage (ϕ)		230 VAC (3 Phase 3 Wire)	400 VAC (3 Phase 3 Wire)
Supply Variation		-15% to + 15% (of ϕ)	-15% to + 15% (of ϕ)
Frequency		50/60 Hz	50/60 Hz
Power Consumption (Max.)		1 VA	2 VA
Trip Settings	Trip Level	1.52 - 3.42 k Ω	
	Reset Level	1.65 k	
	Sensor Short	20 Ω , (\pm 4 Ω)	
	Hysteresis	20 Ω , (\pm 4 Ω)	
	Sensor Open	20 k Ω , (\pm 5%)	
Max Cold Res(Ω) of Sensor Chain		< 1.5 k Ω	
Cable Resistance		20 Ω	
Phase Asymmetry		70 VAC (\pm 10 VAC)	104 VAC (\pm 10 VAC)
Asymmetrical Phase Loss		110 VAC (\pm 10 VAC)	220 VAC (\pm 10 VAC)
Symmetrical Phase Loss		130 VAC (\pm 10 VAC)	250 VAC (\pm 10 VAC)
Restart Voltage		145 VAC (\pm 10 VAC)	265 VAC (\pm 10 VAC)
Reset Mode		Auto	
Repeat Accuracy		1%	
Time Delay	Operate Time	2s (\pm 200 ms)	
	Release Time	360 - 550 ms & 100 ms max for Thermistor Trip & Phase Sequence	
	Reset Time	100 - 500 ms	
Output	Relay Output	1 NO + 1 NO 1 NO + 1 NO	1 NO + 1 N/O
	Contact Rating	5A 'NO' & 3A 'NC' @ 240 VAC / 28 VDC (Resistive)	
	Electrical Life	1 x 10 ⁵	
	Mechanical Life	3 x 10 ⁷	
Utilization Category	AC - 15	Rated Voltage (Ue): 120/240 V, Rated Current (Ie): 3.0/1.5 A	
	DC - 13	Rated Voltage (Ue): 24/125/250 V, Rated Current (Ie): 2.0/0.22/0.1 A	
LED Indications	ϕ LED	Continuous ON \rightarrow Power Supply Healthy, Continuous OFF \rightarrow Supply Fail, Flashing \rightarrow Sensor Open	
	\ominus LED	Continuous ON \rightarrow Over Temperature Trip, Continuous OFF \rightarrow Thermistor Trip, Flashing \rightarrow Sensor Short	
	Ⓢ LED	Continuous ON \rightarrow SPP Relay Trip, Continuous OFF \rightarrow SPP Relay ON, Flashing \rightarrow Supply below restart voltage	
Operating Temperature		- 10° C to +60° C	
Storage Temperature		- 15° C to +70° C	
Humidity (Non Condensing)		95% (Rh)	
Enclosure		Flame Retardant UL94-V0	
Dimension (W x H x D) (in mm)		22.5 X 100.5 X 83	
Weight (unpacked)		150 g	
Mounting		Base / DIN rail	
Certification		 	
Degree of Protection		IP 20 for Terminals, IP 40 for Enclosure	
EMI / EMC			
Harmonic Current Emissions		IEC 61000-3-2	Ed. 3.0 (2005-11) Class A
ESD		IEC 61000-4-2	Ed. 1.2 (2001-04) Level II
Radiated Susceptibility		IEC 61000-4-3	Ed. 3.0 (2006-02) Level III
Electrical Fast Transients		IEC 61000-4-4	Ed. 2.0 (2004-07) Level IV
Surges		IEC 61000-4-5	Ed. 2.0 (2005-11) Level IV
Conducted Susceptibility		IEC 61000-4-6	Ed. 2.2 (2006-05) Level III
Voltage Dips & Interruptions (AC)		IEC 61000-4-11	Ed. 2.0 (2004-03) All 7 Levels
Conducted Emission		CISPR 14-1	Ed. 5.0 (2005-11) Class A
Radiated Emission		CISPR 14-1	Ed. 5.0 (2005-11) Class A
Environmental			
Cold Heat		IEC 60068-2-1	Ed. 6.0 (2007-03)
Dry Heat		IEC 60068-2-2	Ed. 5.0 (2007-07)
Vibration		IEC 60068-2-6	Ed. 7.0 (2007-12) 5g
Repetitive Shock		IEC 60068-2-27	Ed. 4.0 (2008-02) 40g, 6ms
Non-Repetitive Shock		IEC 60068-2-27	Ed. 4.0 (2008-02) 30g, 15ms

ORDERING INFORMATION

Cat. No.	Description
ML64BS	230 VAC, PTC Thermistor & Single Phasing Preventer, 1 NO + 1 NO
ML67BS	230 VAC, PTC Thermistor & Single Phasing Preventer, 1 NO + 1 NC
MLD4BS	400 VAC, PTC Thermistor & Single Phasing Preventer, 1 NO + 1 NO
MLD7BS	400 VAC, PTC Thermistor & Single Phasing Preventer, 1 NO + 1 NC