



PTC Thermistor & Single Phasing Preventer Series PD225

- 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

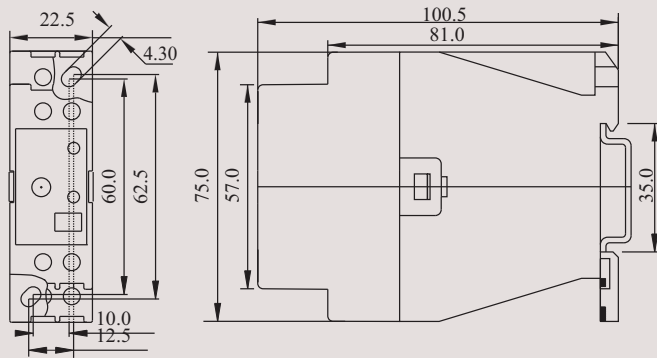


Cat. No.		ML64BS	MLD7BS
Parameters			
Supply Voltage (ϕ)		230 VAC (3 Phase 3 Wire)	400 VAC (3 Phase 3 Wire)
Supply Variation		-15% to + 15% (of ϕ)	-15% to + 15% (of ϕ)
Frequency		50/60 Hz	50/60 Hz
Power Consumption (Max.)		1 VA	2 VA
Trip Settings	Trip Level	1.52 - 3.42 kΩ	
	Reset Level	1.65 k	
	Sensor Short	20Ω, (± 4Ω)	
	Hysteresis	20Ω, (± 4Ω)	
	Sensor Open	20 kΩ, (± 5%)	
Max Cold Res(Ω) of Sensor Chain		< 1.5 kΩ	
Cable Resistance		20 Ω	
Phase Asymmetry		70 VAC (± 10 VAC)	104 VAC (± 10 VAC)
Asymmetrical Phase Loss		110 VAC (± 10 VAC)	220 VAC (± 10 VAC)
Symmetrical Phase Loss		130 VAC (± 10 VAC)	250 VAC (± 10 VAC)
Restart Voltage		145 VAC (± 10 VAC)	265 VAC (± 10 VAC)
Reset Mode		Auto	
Repeat Accuracy		1%	
Time Delay	Operate Time	2s (± 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 NC
	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	(Green)	Continuous ON	Power Supply Healthy
		Continuous OFF	Power Fail
		Flashing	Sensor Open
	(Amber)	Continuous ON	Over Temperature Trip
		Continuous OFF	Thermistor Relay ON
		Flashing	Sensor Short or Cable Short
(Red)	Continuous ON	SPP Relay Trip (For Supply Above Restart Voltage)	
	Continuous OFF	SPP Relay ON	
Flashing	Supply & SPP Fault 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

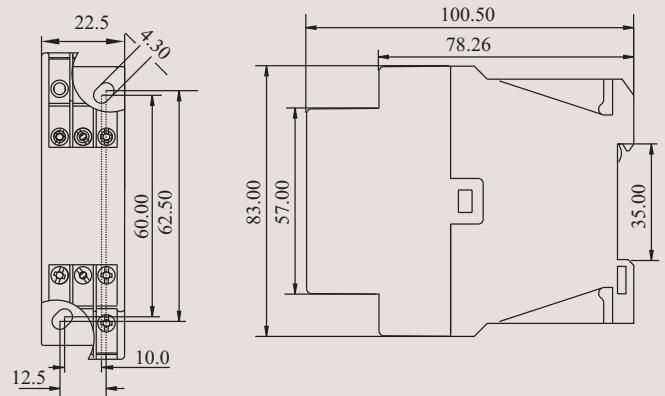
Cat. No.	Description
ML64BS	230 VAC, PTC Thermistor & Single Phasing Preventer, 1 NO + 1 NO
ML67BS	230 VAC, PTC Thermistor & Single Phasing Preventer, 1 NO + 1 NC
MLD4BS	400 VAC, PTC Thermistor & Single Phasing Preventer, 1 NO + 1 NO
MLD7BS	400 VAC, PTC Thermistor & Single Phasing Preventer, 1 NO + 1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

MOUNTING DIMENSION (mm)



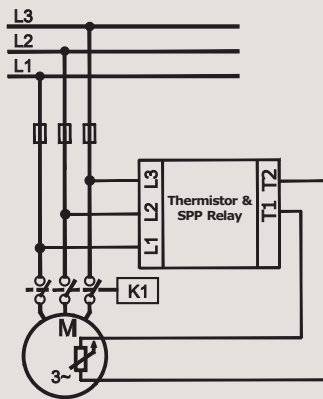
FREQUENCY MONITORING SERIES PD 225

PTC THERMISTOR & SINGLE PHASING PREVENTER SERIES PD 225



PTC THERMISTOR RELAY SERIES PD 225

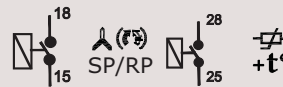
CONNECTION DIAGRAM



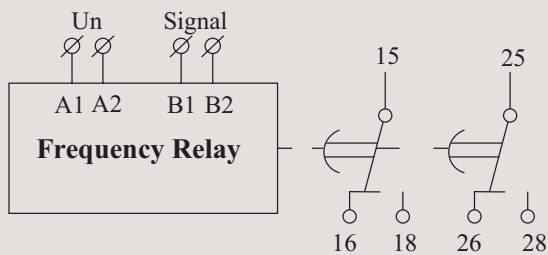
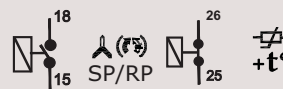
PTC THERMISTOR & SINGLE PHASING PREVENTER SERIES PD 225

CONTACT ARRANGEMENT :

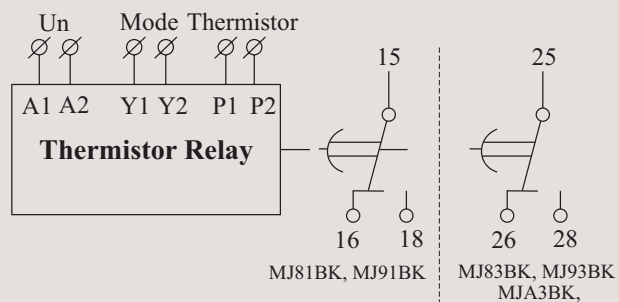
For 1 NO + 1 NO PRODUCT:
ML64BS, MLD4BS



For 1 NO + 1 NC PRODUCT:
ML67BS, MLD7BS



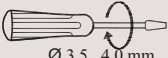

FREQUENCY MONITORING SERIES PD 225



MJ81BK, MJ91BK

MJ83BK, MJ93BK
MJA3BK,

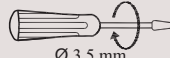

TERMINAL TORQUE & CAPACITY

	Torque - 0.6 N.m (6 Lb.in) Terminal screw - M3
	Solid Wire - 1 X 1...6 mm ²
AWG	1 X 20 to 12

FREQUENCY MONITORING SERIES PD 225

PTC THERMISTOR RELAY SERIES PD 225

PTC THERMISTOR & SINGLE PHASING PREVENTER SERIES PD 225


	Torque - 0.54 N.m (5 Lb.in) Terminal screw - M2.6
	Solid Wire - 1 X 0.2...3.3 mm ²
AWG	1 X 24 to 12

PTC THERMISTOR & PHASE SEQUENCE RELAY

PTC Thermistor Relay Series PD 225

- 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
- Wide Auxiliary Supply Voltage: 24 VAC/DC, 110 - 240 VAC & 220 - 415 VAC
- LED Indications for Healthy, Unhealthy, Sensor Open/Short conditions
- 1 C/O & 2 C/O Configuration
- Reset Options: Auto, Manual and Remote



Cat. No.		MJ81BK	MJ93BK	MJA3BK
Parameters				
Supply Voltage (φ)		110 - 240 VAC	220 - 440 VAC	24 VAC/DC
Supply Variation		-20% to + 10% (of φ)		
Frequency		50/60 Hz		
Power Consumption (Max.)		3 VA		2 VA
Trip Settings	Trip Level	3.6 kΩ, (± 5%)		
	Reset Level	1.6 kΩ, (± 5%)		
	Sensor Short	< 20Ω, (± 4Ω)		
	Hysteresis	20Ω, (± 4Ω)		
	Sensor Open	> 10 kΩ, (± 5%)		
Max Cold Res(Ω) of Sensor Chain		< 1.5 kΩ		
Reset Mode		Auto, Manual, Remote		
Repeat Accuracy		1%		
Time Delay	ON Delay	500 ms		
	OFF Delay	100 ms		
	Reset Time	150 ms		
Output	Relay Output	1 C/O	2 C/O	2 C/O
	Contact Rating	6A (Resistive) @ 250 VAC / 28 VDC		
	Electrical Life	1 x 10 ⁷		
	Mechanical Life	3 x 10 ⁶		
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	Green LED	Continuous ON → Healthy Flashing → Sensor Open		
	Red LED	Continuous ON → Relay ON Flashing → Sensor Short		
	All LEDs OFF	Power Supply Fail		
Operating Temperature		- 15° C to +60° C		
Storage Temperature		- 25° C to +80° C		
Humidity (Non Condensing)		95% (Rh)		
Enclosure		Flame Retardant UL94-V0		
Dimension (W x H x D) (in mm)		22.5 X 83 X 100.5		
Weight (unpacked)		120 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	
Voltage Dips & Interruptions (DC)		IEC 61000-4-29	Ed. 2.0 (2004-03) All 5 Levels	
Conducted Emission		CISPR 14-1	Ed. 5.0 (2005-11) Class B	
Radiated Emission		CISPR 14-1	Ed. 5.0 (2005-11) Class B	
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
MJ81BK	110 - 240 VAC, PTC Thermistor Relay, 1 C/O
MJ91BK	220 - 440 VAC, PTC Thermistor Relay, 1 C/O
MJ83BK	110 - 240 VAC, PTC Thermistor Relay, 2 C/O
MJ93BK	220 - 440 VAC, PTC Thermistor Relay, 2 C/O
MJA3BK	24 VAC/DC, PTC Thermistor Relay, 2 C/O

Equipment Room Temperature Control Relay

- Provides protection against variations of the ambient temperature (min/max) in equipment or lift rooms
- Suitable for use in Traction and Hydraulic Lift Types
- Supports an External sensor module
- LED Indication for Relay Trip & Power ON



Cat. No.	45A131AR	45A231AR	45D331AR
Parameters			
Supply Voltage (☞)	230 VAC	110 VAC	24 VDC
Supply Variation	± 15%		
Frequency	47Hz - 63Hz		NA
Power Consumption (Max.)	10 VA	5 VA	1.2 W
Device Characteristics			
Accuracy	± 1°C		
Output Control Mode	Relay ON/OFF		
Relay ON Delay	10 sec (Fixed), ± 1sec		
Relay OFF Delay	10 sec (Fixed), ± 1sec		
Hysteresis	1°C		
Trip Level			
High Trip Level	+ 40°C		
Low Trip Level	+ 5°C		
LED Indication	ON - Power ON condition (Green Color) ON - Relay ON condition (Red Color)		
LED indications for errors observed			
Error Condition	Red LED	Green LED	
Sensor Break / Sensor Open	Blink @500ms	OFF	
Model Selection	OFF	Blink @500ms	
Flash Read Error	Blink @500ms	Blink @500ms	
Contact Ratings	Terminal 15 – Pole, Terminal 16 – NC, Terminal 18 – NO, 8 Amp at 250VAC, 1Amp at 30VDC 3 KV Isolation between coil and contact		
Max Power Output Rating of Relay	1840 VA for AC / 30W for DC approx		
Operating Temperature	- 15° C to +60° C		
Storage Temperature	- 20° 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 75 X 100.5		
Weight (unpacked)	100 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	
Surge	IEC 61000-4-5	Ed. 2.0 (2005-11) Level IV for AC Model	
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)	
Conducted Emission	CISPR 14-1	Ed. 5.0 (2005-11) Class B	
Radiated Emission	CISPR 14-1	Ed. 5.0 (2005-11) Class B	
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	

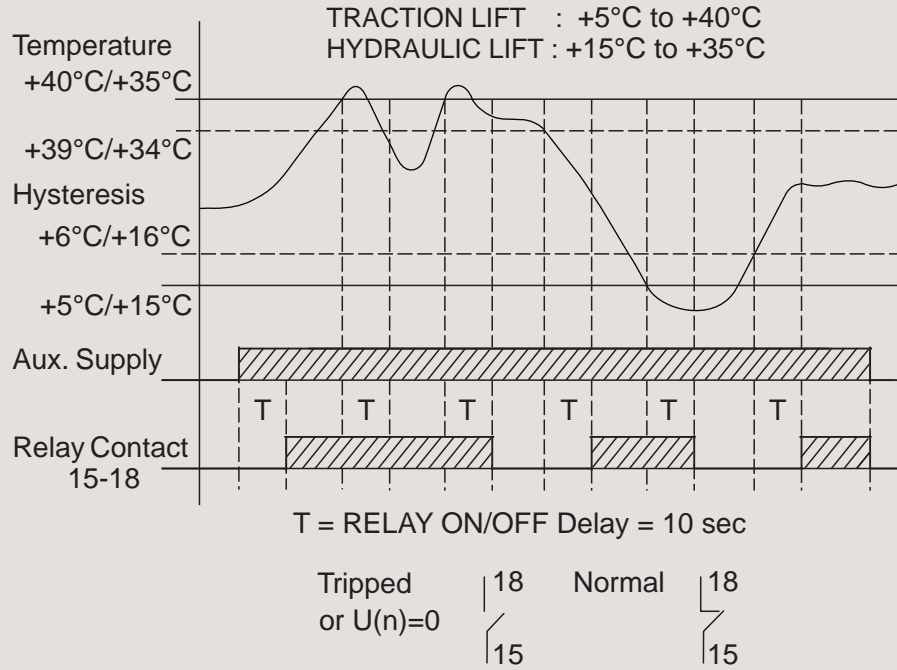
ORDERING INFORMATION

Cat. No.	Description
45A131AR	5°C to 40°C (Traction lift type), 230V AC, 1NO, External NTC two wire sensor. Base/DIN
45A231AR	5°C to 40°C (Traction lift type), 110V AC, 1NO, External NTC two wire sensor. Base/DIN
45D331AR	5°C to 40°C (Traction Lift Type), 24V DC, 1NO, External NTC two wire sensor. Base/DIN
45A131BR	15°C to 35°C (Hydraulic Lift Type), 230V AC, 1NO, External NTC two wire sensor. Base/DIN
45A231BR	15°C to 35°C (Hydraulic Lift Type), 110V AC, 1NO, External NTC two wire sensor. Base/DIN
45D331BR	15°C to 35°C (Hydraulic Lift Type), 24V DC, 1NO, External NTC two wire sensor. Base/DIN

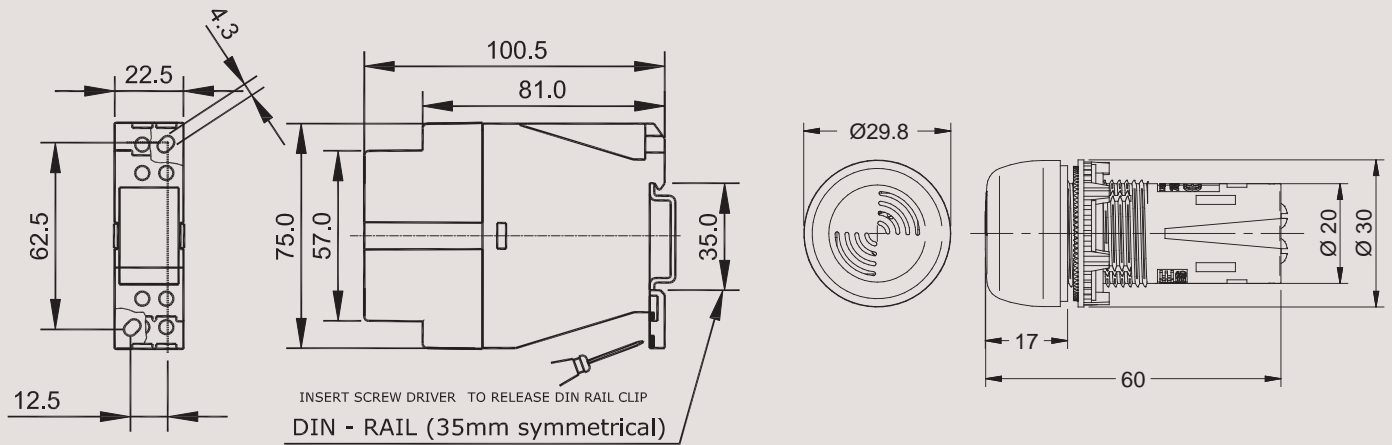
Equipment Room Temperature Control Relay



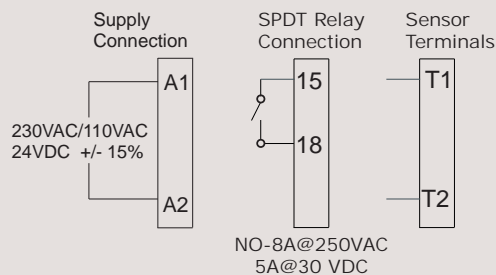
FUNCTION DIAGRAM



MOUNTING DIMENSIONS (mm)



CONNECTION DIAGRAM



TERMINAL TORQUE & CAPACITY

For 8 and 12 terminal 225

Ø3.5.....4.0mm	0.6 Nm(7 lb.in)
	1 x 1...4mm ² solid wire/single wire ferrule
	2 x 0.5 ... 2.5 mm ² insulated twin type ferrule
AWG	1 x 17 to 11