## 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



### **Ordering Information**

Cat. No.	Description
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
MJ81BK	110 - 240 VAC, PTC Thermistor Relay, 1 C/O
MJ91BK	220 - 440 VAC, PTC Thermistor Relay, 1 C/O

## PTC Thermistor Relay Series PD 225



Cat. I	No.		MJ83BK	MJ93BK	MJA3BK	
Parame	ters					
Supply '	Voltage (中)		110 - 240 VAC 220 - 440 VAC 24 VAC/DC			
Supply '	Variation		-20% to + 10%(of中)			
Frequer	ncy		50/60 Hz			
Power C	Consumption (	(Max.)	4 VA 2 VA			
Trip Settings	Trip Level		$2.7 \mathrm{k}\Omega,(\pm5\%)$			
	Reset Level		1.71kΩ,(± 5%)			
	Sensor Shor	t	$<20\Omega$ , (±4 $\Omega$ )			
Octurigo	Hysterisis		$40\Omega$ , (± $4\Omega$ )			
	Sensor Oper	n	$> 20 k\Omega$ , (± 5%)			
Max Col	d Res $(\Omega)$ of Se	nsor Chain	$< 1.5 \mathrm{k}\Omega$			
Reset M	1ode		Auto, Manual, Remote			
Repeat	Accuracy		1%			
Time	ON Delay		500 ms			
Delay	OFF Delay		100 ms			
Delay	Reset Time		150 ms			
	Relay Outpu	t	2 C/O	2 C/O	2 C/O	
Output	Contact Rating		5A (Resistive) @ 250 VAC / 28 VDC			
Output	Electrical Life	е	1 x 10 <sup>5</sup>			
	Mechanical Life		3 x 10 <sup>6</sup>			
Utilizatio	on Category	AC - 15	Rated Voltage (Ue): 120/240 V, Rated Current (le): 3.0/1.5 A			
Otmzatic	on oatogory	DC - 13		V, Rated Current (le): 2.0/0.22/0.1 A	4	
LED	Green LI	ED		ashing→ Sensor Open		
בם Indicatio	Red LED		Continuous ON → Relay ON FI	ashing→ Sensor Short		
All LEDs OFF		OFF	Power Supply Fail			
	ng Temperatu Temperature	re	- 15° C to +60° C - 25° C to +80° C			
Humidity (Non Condensing)		nsing)	95% (Rh)			
Enclosure			Flame Retardant UL94-V0			
Dimension (W x H x D) (in mm)		O) (in mm)	22.5 X 83 X 100.5			
Weight (unpacked)			120 g			
Mounting			Base / DIN rail			
Certifica	ation		C C CULUSTED ROLLS Compliant			
Degree	of Protection		IP 20 for Terminals, IP 40 for End	closure		

#### EMI / EMC

Harmonic Current Emissions	IEC 61000-3-2
ESD	IEC 61000-4-2
Radiated Susceptibility	IEC 61000-4-3
Electrical Fast Transients	IEC 61000-4-4
Surges	IEC 61000-4-5
Conducted Susceptibility	IEC 61000-4-6
Voltage Dips & Interruptions (AC)	IEC 61000-4-11
Voltage Dips & Interruptions (DC)	IEC 61000-4-29
Conducted Emission	CISPR 14-1
Radiated Emission	CISPR 14-1

#### Environmental

 Cold Heat
 IEC 60068-2-1

 Dry Heat
 IEC 60068-2-2

 Vibration
 IEC 60068-2-6

 Repetitive Shock
 IEC 60068-2-27

 Non-Repetitive Shock
 IEC 60068-2-27

# 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



### **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





Cat. No.			ML64BS	MLD7BS			
Parame	eters						
Supply	Voltage (	(中)	230 VAC (3 Phase 3 Wire)	400 VAC (3 Phase 3 Wire)			
Supply	Variation		-15% to + 15% (of 中)	-15% to + 15% (of 中)			
Freque			50/60 Hz	50/60 Hz			
	•	otion (Max.)	15 VA	24 VA			
	Trip Le	, ,	2.7 kΩ, (± 5%)	· · · · · · · · · · · · · · · · · · ·			
Trip Settings	Reset L	_evel	1.71 k $\Omega$ , (± 5%)				
	Sensor	Short	$<20\Omega$ , $(\pm4\Omega)$				
	Hysteri		$40\Omega, (\pm 4\Omega)$				
	Sensor		$> 20 \text{ k}\Omega, (\pm 5\%)$				
Max Co		of Sensor Chain	<1.5kΩ				
	Resistanc		20Ω				
	Asymmet		70 VAC (± 10 VAC)	104 VAC (± 10 VAC)			
	•	hase Loss	110 VAC (± 10 VAC)	220 VAC (± 10 VAC)			
			130 VAC (± 10 VAC)	240 VAC (± 10 VAC)			
•		ase Loss	` ,	` ,			
	Voltage		145 VAC (± 10 VAC)	265 VAC (± 10 VAC)			
Reset N			Auto				
Repeat Accuracy			1%				
Time	Operate		< 350 ms	Fault & 100ms (max.) for Phase Sequence, Thermistor T			
Delay	Reset 1		100 - 750 ms	rault & 100ms (max.) for Friase Sequence, memistor			
	Relay C		1 NO (SPP) + 1 NO (PTC Thermistor)	1 NO (SPP) + 1 NC (PTC Thermistor)			
Output		t Rating	5A 'NO' & 3A 'NC' @ 240 VAC / 28 VDC (Resistive)				
Output	Electric	al Life	1 x 10 <sup>5</sup>				
	Mechar	nical Life	3 x 10 <sup>7</sup>				
Utilization Category AC - 15			Rated Voltage (Ue): 120/240 V, Rated Current (Ie): 3.0/1.5 A				
		DC - 13 Continuous ON	Rated Voltage (Ue): 24/125/250 V, Rated Current	t (le): 2.0/0.22/0.1 A			
	中	Continuous OFF	Power Fail	Power Supply Healthy  Power Fail			
	(Green)	Flashing	Sensor Open				
LED	- <del></del>	Continuous ON	Over Temperature Trip				
Indi-	+t°	Continuous OFF	Thermistor Relay ON				
cations (Amber) Flashing		Flashing	Sensor Short or Cable Short				
		Continuous ON	SPP Relay Trip (For Supply Above Restart Voltage)				
	<b>(4.2)</b>	Continuous OFF	SPP Relay ON (After ensuring the input Voltage of 5V above the Restart Voltage)				
(Red) Flashing			Supply & SPP Fault below restart voltage				
Operating Temperature			- 10° C to +60° C				
Storage Temperature			- 15° C to +70° C				
Humidity (Non Condensing)		ondensing)	95% (Rh)				
Enclosure		5) (1	Flame Retardant UL94-V0				
Dimension (W x H x D) (in mm)		, , ,	22.5 X 83 X 100.5				
Weight (unpacked)		ed)	150 g				
Mountir	ng		Base / DIN rail				
Certifica	ation		CE ROBE Compliant				
Degree	of Prote	ction	IP 20 for Terminals, IP 40 for Enclosure				
3							

<b>EMI</b>	1	ΕM	C

Harmonic Current Emissions IEC 61000-3-2 **ESD** IEC 61000-4-2 Radiated Susceptibility IEC 61000-4-3 **Electrical Fast Transients** IEC 61000-4-4 IEC 61000-4-5 Surges Conducted Susceptibility
Voltage Dips & Interruptions (AC) IEC 61000-4-6 IEC 61000-4-11 CISPR 14-1 Conducted Emission **CISPR 14-1** Radiated Emission

#### Environmental

 Cold Heat
 IEC 60068-2-1

 Dry Heat
 IEC 60068-2-2

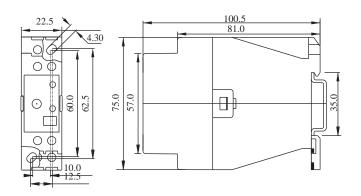
 Vibration
 IEC 60068-2-6

 Repetitive Shock
 IEC 60068-2-27

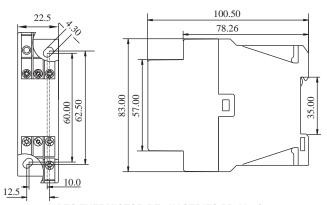
 Non-Repetitive Shock
 IEC 60068-2-27

# Frequency Monitoring & PTC Thermistor Relay Series PD225

#### **MOUNTING DIMENSION (mm)**

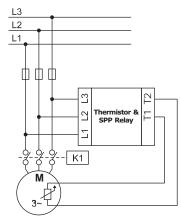


FREQUENCY MONITORING SERIES PD 225



PTC THERMISTOR RELAY SERIES PD 225 &
PTC THERMISTOR & SINGLE PHASING PREVENTER SERIES PD 225

#### **CONNECTION DIAGRAM**



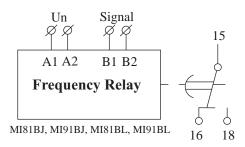
PTC THERMISTOR & SINGLE PHASING PREVENTER SERIES PD 225

#### **CONTACT ARRANGEMENT:**

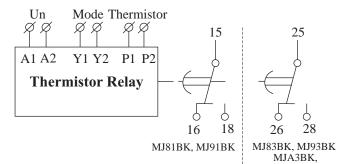
For 1 NO + 1 NO PRODUCT: ML64BS, MLD4BS



For 1 NO + 1 NC PRODUCT: ML67BS, MLD7BS



FREQUENCY MONITORING SERIES PD 225



PTC THERMISTOR RELAY SERIES PD 225

#### **TERMINAL TORQUE & CAPACITY**

Ø 3.54.0 mm	Torque - 0.6 N.m (6 Lb.in) Terminal screw - M3
	Solid Wire - 1 X 16 mm <sup>2</sup>
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