

TECHNICAL SPECIFICATION:

Cat. No.:		MD71B9	MD71BH	MD71BF	MG73B9	MG73BH	MG73BF	MG73BR	MGH3BH	MGI3BF	MG73BQ	
Function		Phase and Voltage Control										
Reference Supply Voltage (≡) 1-Phase or 3-Phase 4-Wire		240 VAC							220 VAC	230 VAC	120 to 240 settable	
Frequency		47 to 63 Hz										
Power Consumption		4 VA (Max.)										
Trip Levels	Under Voltage	55% to 95% of ≡					173 V ± 10 V	55% to 95% of ≡		80% of ≡		
	Over Voltage	105% to 125% of ≡					288 V ± 10 V	105% to 125% of ≡				
	Asymmetry	N.A.			10%		20% ± 4%, Hyst. 4%±2%)	10%		10 % of ≡ Hyst. 2.7 %		
Setting Accuracy		+/- 5% of full scale (Voltage setting are with respect to neutral)										
Power ON Delay		< 500 msec										
Setting Accuracy ±10% of Full scale	On Delay	0 - 15 min	0.5 - 15 s	5 s fixed	0 - 15 min	0.5 - 15 s	5 s fixed	0.5-10 s ±1s	0.5 - 15 s	5 s fixed		
	Off Delay	5 s fixed	5 s fixed	0 - 15 s	5 s fixed	5 s fixed	0.5 - 15 s	0.5 - 5s	5 s fixed	0 - 15 s		
		Phase Reverse trip time is < 100 ms. For Non-Inductive loads Phase Fail trip time is < 100 ms.										
LED	Condition / Faults	Indications or Status of LED										
ON (Green)	Power ON	Continuous ON										
UV (RED)	Under Voltage	Continuous ON										
OV (RED)	Over Voltage	Continuous ON										
	High Cut OFF	N.A.						Blinking	N.A.	Blinking		
ASY / REV (RED)	Phase Asymmetry	N.A.			Blinking							
	Phase Reverse	N.A.			Continuous ON							
Relay Output	Contact Arrangement	1 C/O			2 C/O (Minimum load of 5mA is recommended)							
	Contact Rating	5 A (Res.) @ 250 VAC / 28 VDC										
	Contact Material	Ag Alloy										
Utilization Category AC-15	Ue Rated Voltage V Ie Rated Current I	120/240V 3.0/1.5A										
Utilization Category DC-13	Ue Rated Voltage V Ie Rated Current I	24/125/250V 2.0/0.22/0.1A										
Mechanical Life Expectancy		3 x 10 ⁶ Operations										
Electrical Life Expectancy		1 x 10 ⁵ Operations										
Operating Temperature		-15°C to +55°C										
Storage Temperature		-25°C to +70°C										
Humidity (Non-Condensing)		95% (Rh)										
Max. Operating Altitude		2000 m										
Degree of Protection		IP-20 for Terminals ; IP-30 for Housing										
Pollution Degree		Type II										
Housing		Flame Retardant UL 94-V0										
Mounting		Base / Din-Rail (35 mm Symmetrical)										
Dimensions in mm (WxHxD)		36 x 60 x 90										
Weight (Unpacked)		120 g Approx.										
Certifications		CE, RoHS										

**SUPPLY MONITORING DEVICE
SERIES SM500
1-PHASE AND 3-PHASE 4-WIRE**



Cat. No.:

**MD71B9
MD71BH
MD71BF
MG73B9
MG73BH
MG73BF
MG73BR
MGH3BH
MGI3BF
MG73BQ**

*All LEDs should off incase of Single Phase Loss, 2 Phase Loss & 3 Phase Loss conditions.

**SUPPLY MONITORING DEVICE
SERIES SM500
1-Phase and 3-Phase 4-Wire**

MAIN FEATURES:

- Adjustable Reference voltage
 - Monitors own supply
 - Phase Loss & Neutral loss detection.
 - Phase Reverse detection
 - Phase Asymmetry 10% (Phase to Phase)
 - Adjustable Over & Under voltage trip level
 - Adjustable Operate Time & Release Time
 - SPDT, DPDT Relay output (5 A, Resistive)
 - Din rail & base mounting
 - LED indications
- Instant trip in case of Interruption, Phase Reverse and Phase Loss

FUNCTION DESCRIPTION:

MD71B9, MD71BH, MD71BF

- Output relay will energize after operate time if all phases are present & Healthy with in the levels set.
- Output relay will de-energize after release time if any of or all phases exceeds OV or UV trip levels.

MG73B9, MG73BH, MG73BF, MG73BR

Rated voltage - 240 VAC Un (PH - N)
MGH3BH - Rated voltage - 220 VAC Un (PH - N)
MG13BF - Rated voltage - 230 VAC Un (PH - N)

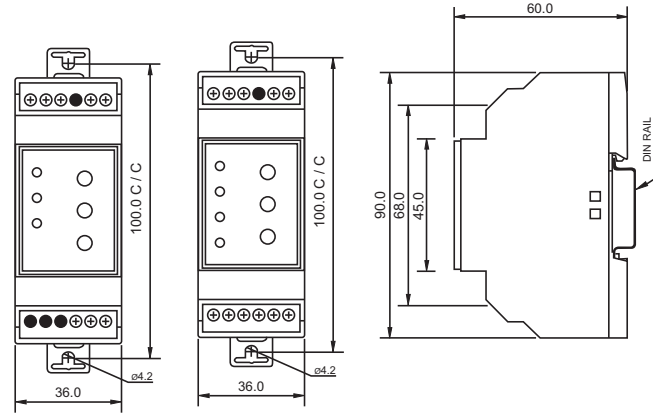
- Output Relay will energize after operate time if following conditions are within limit:
 1. All phases are present and phase voltages are within the over & under voltage trip levels set on the device.
 2. If Phase Sequence is ok.
 3. If Phase to phase asymmetry is less than value mentioned in technical specification.
- Relay will trip after release time if any of Phase exceeds over voltage and under voltage trip levels.
- Relay will be trip in <100ms if any phase fail, Line interruption or phase Reverse.

MG73BQ

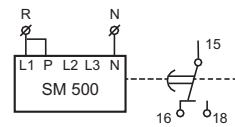
Rated voltage ranges 120/220/230/240 VAC Un(PH - N) selectable
 Output Relay will energize after operate time if following conditions are within limit:

1. All phases are present and phase voltages are within the over & under voltage trip levels set on the device.
2. If Phase Sequence is ok.
3. If Phase to phase asymmetry is less than value mentioned in technical specification.

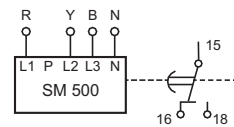
Relay will trip after release time if any of Phase exceeds over voltage and under voltage trip levels.
 Relay will be trip in <100ms if any phase fail, Line interruption or phase Reverse.



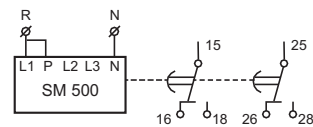
FOR SINGLE PHASE APPLICATION



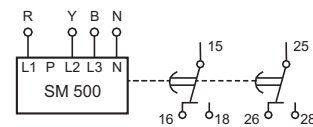
FOR THREE PHASE APPLICATION



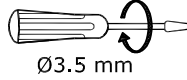

FOR SINGLE PHASE APPLICATION



FOR THREE PHASE APPLICATION



Terminal Details :

 Ø3.5 mm	0.54 N.m (5 Lb.in) Terminal screw - M2.6
	1 x 0.2...3.3 mm ² Solid Wire
AWG	1 x 24 to 12

OPERATING MODES:

All products operates in Single Phase as well as Three Phase Mode.

Three Phase Mode:

Connect three phases at L1, L2, L3 and Neutral at N terminal. Keep P terminal open.

Single Phase Mode:

Connect a link between L1 & P and Neutral at N terminal. L2 & L3 connections are don't care. In single phase mode, device monitors only L1 phase for UV & OV condition.

Note :

The technical information provided in this document is correct at the time of going to the press. Product innovation being a continuous process, we reserve the right to alter specifications without any prior notice.

CERTIFICATION :

EMI/EMC :		
Harmonic Current Emissions	IEC 61000-3-2	Ed. 3.2 (2009-04) Class A
ESD	IEC 61000-4-2	Ed. 2.0 (2008-12) Level III
Radiated Susceptibility	IEC 61000-4-3	Ed. 3.2 (2010-04) Level III
Electrical Fast Transient	IEC 61000-4-4	Ed. 3.0 (2012-04) Level IV
Surge	IEC 61000-4-5	Ed. 2.0 (2005-11) Level IV
Conducted Susceptibility	IEC 61000-4-6	Ed. 3.0 (2008-10) Level III
Voltage Dips & Interruptions(AC)	IEC 61000-4-11	Ed. 2.0 (2004-03)
Conducted Emission	CISPR 14-1	Ed. 5.2 (2011-11) Class A
Radiated Emission	CISPR 14-1	Ed. 5.2 (2011-11) Class A
Safety:		
Test Voltage Between I/P & O/P	IEC 60947-5-1	Ed. 3.1 (2009-07) 2 kV
Impulse Voltage Between I/P & O/P	IEC 60947-5-1	Ed. 3.1 (2009-07) Level IV
Single Fault	IEC 61010-1	Ed. 3.0 (2010-06) Level IV
Insulation Resistance	UL 508	Ed. 17 (1999-01) >50 kΩ
Leakage Current	UL 508	Ed. 17 (1999-01) <3.5mA
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) 5 g
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) 30 g, 15ms