

# Voltage Monitoring Series SM 301

- Protects against Phase Loss, Phase Reversal & Phase Asymmetry
- No Auxiliary Supply needed
- Voltage Sensing principle
- 1 C/O & 2 C/O Configurations
- Designed to meet Industrial and Agricultural segment applications





## Ordering Information

Cat. No.	Description
MA51BC	415 VAC, Single Phasing Preventor with 65 VAC Asymmetry, 1 C/O
MA51BK	415 VAC, Single Phasing Preventor with 40 VAC Asymmetry, 1 C/O
MC21B5	415 VAC, Single Phasing Preventor with 65 VAC Asymmetry, 2 C/O

# Voltage Monitoring Series SM 301



Cat. No.		MA51BC	MA51BK	MC21B5
<b>Parameters</b>				
Supply Voltage (⊕)		415 VAC		
Frequency		50/60 Hz		
Power Consumption (Max.)		15 VA		
Trip Settings	Phase Loss	Yes	Yes	Yes
	Phase Sequence	Yes	Yes	Yes
	Phase Asymmetry	65 V (± 10V)	40 V (± 10 V)	65 V (± 10V)
	Hysteresis	10 to 18 V	10 to 18 V	10 to 18 V
Time Delay	ON Delay	2 s (± 2 s)	2 s (± 2 s)	< 550 ms
	Trip Time (OFF Delay)	7 s (± 2 s)	7 s (± 2 s)	< 550 ms
Output	Relay Output	1 C/O	1 C/O	2 C/O
	Contact Rating	5A (For 'NO') & 3A (For 'NC') @ 250 VAC / 28 VDC (Resistive)		5A @ 250 VAC / 28 VDC (Resistive)
	Electrical Life	1X10 <sup>5</sup>		
	Mechanical Life	3X10 <sup>6</sup>		
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 Indication		Red → Relay ON (Healthy), See Note 1		
Operating Temperature		- 15° C to + 50° C		
Storage Temperature		- 20° C to + 65° C		
Humidity (Non Condensing)		95% (Rh)		
Enclosure		Flame Retardant UL 94-V0		
Dimension (W x H x D) (in mm)		36 X 90 X 60		
Weight (unpacked)		120 g		
Mounting		Base / DIN rail		
Degree of Protection		IP20 for Terminals, IP 40 for Enclosure		
Certification		 		

## 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
Conducted Emission	CISPR 14-1
Radiated Emission	CISPR 14-1

## Environmental

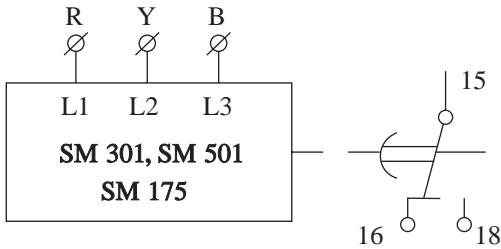
Cold Heat	IEC 60068-2-1
Dry Heat	IEC 60068-2-2
Vibration	IEC 60068-2-6
Repetitive Shock	IEC 60068-2-27
Non-Repetitive Shock	IEC 60068-2-27

Note 1:- ON: Relay ON, OFF: Phase Loss, Blinking: Asymmetry (200 ms, On/Off), Flashing: Phase Sequence (1 s, On/Off)

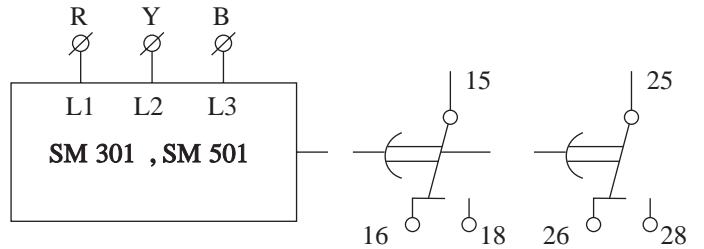
# Voltage Monitoring Series



## CONNECTION DIAGRAM

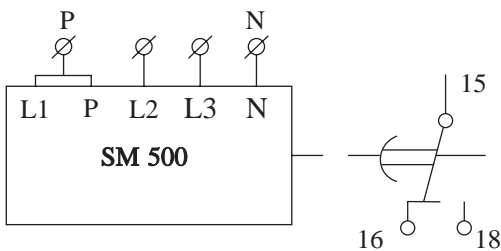


MA51BC, MA51BK, MN21D5, MK21D5, MC21D5  
MA21DN, MD21DF, MG21DH, MG21DF, MGD1DR

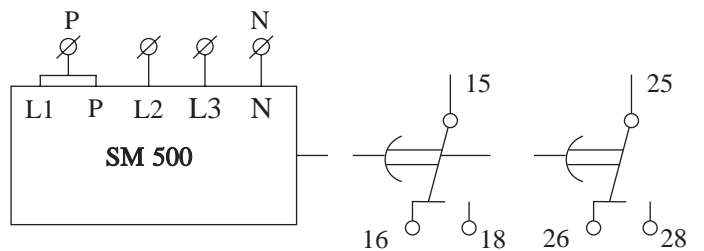


MG53BH, MG53BF, MG63BH, MG63BF  
MG53BI, MG53BO, MB53BM, MC21B5

## SINGLE PHASE

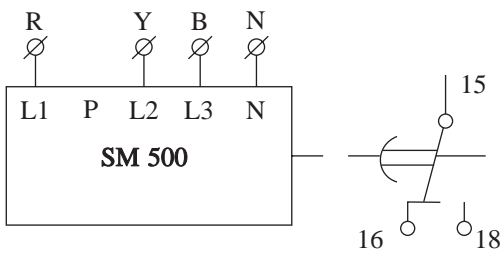


MD71BH, MD71BF, MD71B9

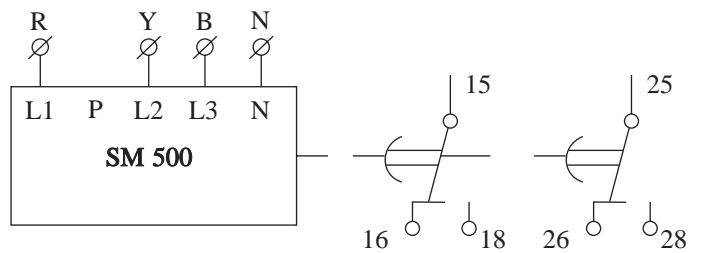


MG73BH, MG73BF, MG73B9

## THREE PHASE

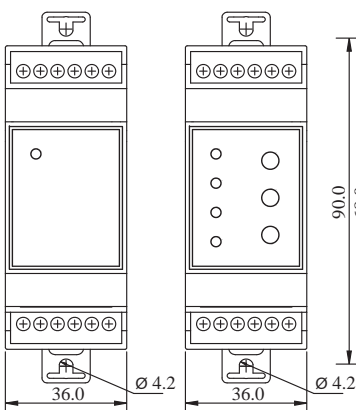


MD71BH, MD71BF, MD71B9



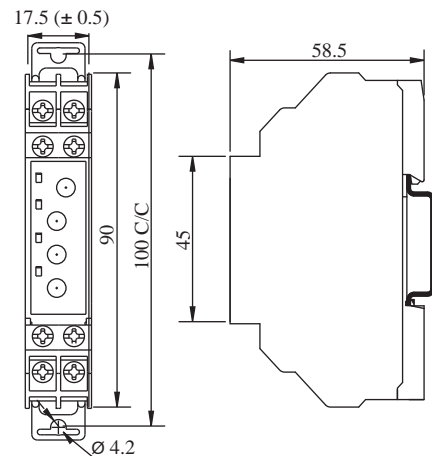
MG73BH, MG73BF, MG73B9, MAC04D0100 (P is not applicable in neutral loss)

## MOUNTING DIMENSION (mm)



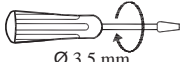

**SM 301**

**SM 500, SM 501**





**SM 175**

## TERMINAL TORQUE & CAPACITY

 Ø 3.5 mm	Torque - 0.54 N.m (5 Lb.in) Terminal screw - M2.6
	Solid Wire - 1 X 0.2...3.3 mm <sup>2</sup>
AWG	1 X 24 to 12

**SM 301, SM 500, SM 501**

 Ø 3.5...5.0 mm	Torque - 0.6 N.m (5.3 Lb.in) Terminal screw - M3.5
	Solid Wire - 2 X 0.2...2.5 mm <sup>2</sup>
AWG	1 X 24 to 10

**SM 175**