

## TECHNICAL SPECIFICATION:

Cat. No.:		MAC04D0100					
Function		Phase, Neutral and Voltage Control					
Supply Voltage (㉟)		415 VAC ; 3-Phase 4-Wire					
Frequency		47 to 53 Hz					
Power Consumption		10 VA (Max.)					
Trip Levels	Under Voltage	55% to 95% of ㉟					
	Over Voltage	105% to 125% of ㉟					
	Asymmetry	94 V+/-4 V Ph-Ph.					
	Hysteresis	7 V+/-2 V					
Setting Accuracy		+/- 5% of full scale					
Time Delay	On Delay	5 s +/-1 s (fixed)					
	<b>Trip time for:</b> Phase failure Phase to phase Imbalance Under voltage Over voltage	5 s +/-1 s (fixed)					
	Trip time for neutral failure	500 ms to 1s					
	Product relay will not become on, if the phase sequence is reverse at power on. If the phase sequence is reversed during running condition the product will remain healthy.						
LED Indications on front plate	Respective fault condition will be indicated by LED immediately & Relay will be tripped after specified trip time only.						
		Green	UV	OV	Blink: ASY ON: REV		
	Power ON	ON	OFF	OFF	OFF		
	Phase reverse	ON	OFF	OFF	ON		
	Asymmetry	ON	OFF	OFF	BLINK		
	UV	ON	ON	OFF	OFF		
	OV	ON	OFF	ON	OFF		
	Phase Fail	BLINK	OFF	OFF	OFF		
	Neutral Fail	ON	BLINK	BLINK	BLINK		
Relay Output	Contact Arrangement	2 C/O					
	Contact Rating	5 A (Res.) @ 240 VAC					
	Contact Material	Ag Alloy					
Utilization Category AC-15		Rated Voltage(Ue):230V/125V;Rated Current(Ie):1.3 A/2.5A					
Utilization Category DC-13		Rated Voltage(Ue):250V/120V/24V;Rated Current(Ie):0.1A/0.22A/2A					
Mechanical Life Expectancy		1 x 10 <sup>7</sup> Operations					
Electrical Life Expectancy		1 x 10 <sup>5</sup> Operations					
Operating Temperature		-10 <sup>o</sup> C to +60 <sup>o</sup> C					
Storage Temperature		-10 <sup>o</sup> C to +70 <sup>o</sup> C					
Humidity (Non-Condensing)		95% RH (without condensation)					
Max. Operating Altitude		2000 m					
Degree of Protection		IP-20 for Terminals ; IP-30 for Housing					
Pollution Degree		2					
Housing		Flame Retardant UL 94-V0					
Mounting		Base / Din-Rail (35 mm Symmetrical)					
Dimensions in mm (WxHxD)		36 x 90 x 60					
Weight (Unpacked)		120 g Approx.					
Certifications		CE, RoHS					



## SUPPLY MONITORING DEVICE SERIES SM500 3-Phase 4-Wire

**Cat. No.:**

**MAC04D0100**



### Terminal Details :

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

### 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.

# SUPPLY MONITORING DEVICE SERIES SM500 3-Phase 4-Wire

## MAIN FEATURES:

- Monitors own supply
- Phase loss (failure) detection.
- Neutral loss detection.
- Phase reverse detection.
- Phase asymmetry.
- Adjustable Over & Under voltage trip level
- Fixed Operate Time & Release Time Delay
- 2 C/O Relay output (5 A, Resistive)
- Din rail & base mounting
- LED indication for all failure conditions.
- Automatic recovery on fault removal.

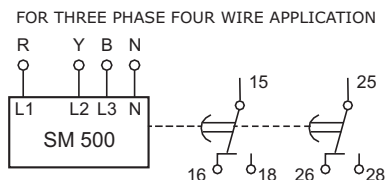
## FUNCTION DESCRIPTION:

### MAC04D0100

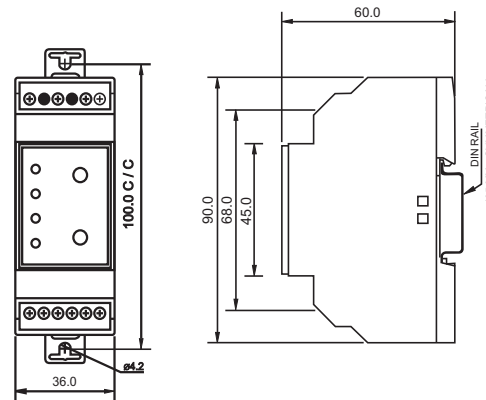
- Output Relay will energize after operate time if following conditions are satisfied:

1. All phases are present and phase voltages are within the over & under voltage trip levels set on the device.
2. Neutral is present.
3. Phase Sequence is ok.
4. Phase to phase asymmetry is less than value mentioned in technical specification.
5. Relay will trip after the release time, if any of the above condition fails.
6. In case of balanced load condition, if neutral is open, virtual neutral is formed at the star point, hence the product will not trip & remain healthy.

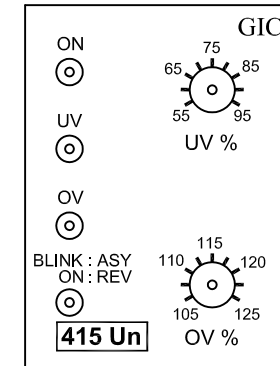
## Connexion Details :



## OVERALL & MOUNTING DIMENSIONS (in mm)



## FRONT FACIA :



## CERTIFICATION :

### 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 III
Radiated Susceptibility	IEC 61000-4-3	Ed. 3.0 (2006-02) Level III
Electrical Fast Transient	IEC 61000-4-4	Ed. 2.0 (2004-07) Level IV
Surge	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)
Conducted Emission	CISPR 14-1	Ed. 5.0 (2005-11) Class A
Radiated Emission	CISPR 14-1	Ed. 5.0 (2005-11) Class A

### Safety:

Test Voltage Between I/P & O/P	IEC 60947-5	Ed. 3.0 (2002-12) 2 kV
Impulse Voltage Between I/P & O/P	IEC 60947-5-1	Ed. 3.0 (2003-11) Level IV
Single Fault	IEC 61010-1	Ed. 2.0 (2001-02)
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) 30g, 15ms