

Supply Monitoring Devices [9032]

- SPP includes single phasing, phase sequence and phase unbalance monitoring with auto reset

Voltage Monitoring Relay Series	Type	Supply Monitoring Type	Time delay	Asymmetry	Voltage & Contact Arrangement	Cat. No.	M.R.P. (₹) Per Unit				
 SM 301	SM301 (3Ph, 3W)	Single Phasing Preventor (SPP*) Fail Safe Type	ON Delay 2 sec and OFF Delay 7 sec	65 VAC Asymmetry	415 VAC, 1 C/O	MA51BC	1010				
					415 VAC, 2 C/O	MC21B5	1475				
				40 VAC Asymmetry	415 VAC, 1 C/O	MA51BK	1000				
 SM 500	SM301 (3Ph, 3W)	Phase loss monitoring Non Fail Safe Type	OFF Delay 500 msec and Recover Delay 2 Sec	30% Fixed	415 VAC, 1 C/O	MA59B5	1160				
						Selectable Under Voltage + Selectable Over Voltage	Selectable ON Delay (0 to 15 min)	-	240 VAC, 1 C/O	MD71B9	1515
							Selectable ON Delay (0 to 15 sec)	-		MD71BH	1515
 SM 500 with Neutral Loss Protection	SM500 (3 Ph / 1 Ph, 4W)	Single Phasing Preventor + Selectable Under Voltage + Selectable Over Voltage	Selectable ON Delay (0 to 15 min) & OFF Delay 5 sec	Phase Asymmetry 10% fixed	240 VAC, 2 C/O	MG73B9	1860				
			Selectable ON Delay (0 to 15 sec) & OFF Delay 5 sec	Phase Asymmetry 10% fixed		MG73BH	1860				
			Selectable OFF Delay (0 to 15 sec) & ON Delay 5 sec	Phase Asymmetry 10% fixed		MG73BF	1860				
		SPP + UV/OV, with fixed UV (173 V) & OV (288 V)	Selectable ON (10 Sec) and OFF Delay (5 Sec)	Phase Asymmetry 20% fixed		MG73BR	1860				
		SPP + Selectable UV + Selectable OV with Neutral Loss Protection	ON Delay 5 sec and OFF Delay 5 sec, 500ms-1s for Neutral fail	94 VAC Asymmetry		415 VAC, 3 Ph 4W, 2 C/O	MAC04 D0100	1860			
 SM 501	SM501 (3 Ph, 3W)	SPP + Under Voltage (80% of ϕ) Single Phasing Preventor + Selectable Under Voltage + Selectable Over Voltage	Selectable ON Delay and OFF Delay 15 sec	Selectable Asymmetry (5% to 17%)	415 VAC, 2 C/O	MB53BM	1895				
			Selectable ON Delay 15 sec & OFF Delay 5 sec	Phase Asymmetry 10%		MG53BH	1895				
			Selectable OFF Delay 15 sec & ON Delay 5 sec	Phase Asymmetry 10%		MG53BF	1895				
			ON Delay 5 sec and OFF Delay 5 sec	65 VAC Asymmetry		MG53BI	1785				
			ON Delay 3 min and OFF Delay 5 sec UV 85% of ϕ OV 110% of ϕ	Phase Asymmetry 10%		MG53BO	1785				
 SM 800	SM 800 (3PH/ 3W, 4W)	Single Phasing Preventor+ Selectable Under Voltage + Selectable Over Voltage + Neutral Loss (Applicable for 3P4W).	Power ON Delay (0 to 999 sec) , OFF Delay (0.1 to 999 sec) & ON delay (0.5 to 999 sec)	Voltage: 5 to 99 VAC (Default 60V) , Percentage : 2 to 50% (Default 10%)	145-500 VAC (Line Voltage), 1C/O	DMS110	1865				
					145-500 VAC (Line Voltage), 2C/O	DMS120	1970				
					85-300 VAC/DC (Auxiliary Supply) (P-N), 2 C/O	DMA220	2175				
 SM 600 (MMR)	SM 600 (3P, 3W)	Phase loss+ Phase Sequence +Phase Asymetry + UV + OV+3 phase interruption	Power ON delay (5s Fixed),ON delay (1-30 sec or Fixed), OFF delay (0.1 - 30 sec or Fixed)	Voltage +_ 1% of set value	500V -1000V AC 2 C/O	SMB110	8765				

Note: 3 Ph 3W - 3 Phase 3 Wire system; 3 Ph 4W - 3 Phase 4 Wire system.

Voltage Monitoring Relay Series	Type	Supply Monitoring Type	Time Delay	Asymmetry	Voltage & Contact Arrangement	Cat. No.	M.R.P. (₹) Per Unit
 SM175 3 Ph, 3W	SM175 (3 Ph, 3W)	Phase loss + Phase Sequence Monitoring	ON Delay 500 msec & OFF Delay 100 msec	-	208 - 480 VAC, 1 C/O (Steps of 208 - 220 - 380 - 400 - 415 - 440 - 480 VAC)	MK21D5	1195
			ON Delay 500 msec & OFF Delay 100 msec	Phase Asymmetry (30% fixed)		MC21D5	1195
			ON Delay 5 sec & OFF Delay 100 msec (0 to 15s Selectable)	Phase Asymmetry (5% to 15% variable)		MA21DN	1560
		Phase Loss + Phase Sequence + Under Voltage + Over Voltage monitoring (UV: -2% to -20% of ϕ , OV: 2% to 20% of ϕ)	ON Delay 5 sec and Selectable OFF Delay (0 to 15 sec)	-		MD21DF	1560
		Phase Loss + Phase Sequence + Under Voltage + Over Voltage (UV: -5% to -25% of ϕ , OV: 5% to 25% of ϕ)	Selectable ON Delay (0.5 to 15 sec) and OFF Delay 5 sec	Phase Asymmetry (10% fixed)		MG21DH	1745
			ON Delay 5s and Selectable OFF Delay (0 to 15 sec)			MG21DF	1745
 SM175 3 Ph, 4W	SM175 (3 Ph, 4W)	Phase loss+ Phase Sequence+ Under Voltage + Over Voltage (UV:-2% to -22% of ϕ , OV: 2% to 22% of ϕ)	Selectable ON delay (0 to 15 Sec), Selectable OFF delay (0 to 15 sec)	Phase Asymmetry (10% fixed)	120 to 277 VAC (3P, 4W), 1 C/O	MAG03D0424	1895
		Phase loss+ Phase Sequence+ Under Voltage + Over Voltage (UV:-5% to -25% of ϕ / 60% of ϕ (Fixed), OV: 5% to 25% of ϕ / 110% of ϕ (Fixed))				MAG03D0425	1895
		Phase loss+ Phase sequence+ Under Voltage + Over Voltage (UV:-5% to -25% / 80% of ϕ (Fixed), OV: 110% of ϕ (Fixed))				Selectable ON delay (0 to 15 sec/min), Selectable OFF delay (0 to 15 sec/min)	Phase Asymmetry (10% fixed/ 5% to 25% Selectable)
SM175 (3 Ph, 3W)	Phase loss Monitoring	ON delay 750 msec & OFF delay 500 msec	Phase Asymmetry (30% fixed)	415 VAC, 1 C/O	MAG03D0427	1270	

Current Monitoring relay (CMR)

- Microprocessor based relay protects against Overload, Phase reverse, Phase loss, Phase unbalance faults
- Auto/ Manual reset selection
- Fail- safe protection with inbuilt CT upto 45A
- Inverse time model with underload, locked rotor protection and selectable trip class (10A, 10, 20, 30)
- Definite time model with underload and selectable start and trip time

Current Monitoring relay	Phase	Type	Current & Contact Arrangement	Cat. No.	M.R.P. (₹) Per Unit		
 	3 Phase	Inverse Time Current Monitoring Relay	2 - 5A 1 C/O	17A422CB0	2130		
			3 - 9A, 1 C/O	17A122CB0			
			8 - 24A, 1 C/O	17A222CB0			
			15 - 45A, 1 C/O	17A322CB0			
		Definite Time Current Monitoring Relay	2 - 5A 1 C/O	17B422AA0			
			3 - 9A, 1 C/O	17B122AA0			
			8 - 24A, 1 C/O	17B222AA0			
		Definite Type / Instant Trip	15 - 45A, 1 C/O	17B322AA0			
		1 Phase	Inverse Time Current Monitoring Relay	2 - 5A 1 C/O		17C412EB0	2085
				3 - 9A, 1 C/O		17C112EB0	
8 - 24A, 1 C/O	17C212EB0						
15 - 45A, 1 C/O	17C312EB0						
Definite Time Current Monitoring Relay	2 - 5A 1 C/O		17D412DA0				
	3 - 9A, 1 C/O		17D112DA0				
	8 - 24A, 1 C/O		17D212DA0				
	15 - 45A, 1 C/O		17D312DA0				

Frequency Monitoring Relay Series 	Relay Type	Time Delay	Voltage & Contact Arrangement	Cat. No.	M.R.P. (₹) Per Unit
	Over Frequency Monitoring Relay	ON Delay and OFF Delay of 500 ms (Fixed)	110 - 240 VAC, 1 C/O	MI81BJ	2440
			220 - 440 VAC, 1 C/O	MI91BJ	2440
	Under/Over Frequency Monitoring Relay	ON Delay (Fixed) and OFF Delay Selectable	110 - 240 VAC, 1 C/O	MI81BL	2665
220 - 440 VAC, 1 C/O			MI91BL	2665	

PTC Thermistor Relay Series 	Relay Type	Description	Cat. No.	M.R.P. (₹) Per Unit	
	Thermistor Relay		110 - 240 VAC, 2 C/O	MJ83BK	2070
			220 - 440 VAC, 2 C/O	MJ93BK	2090
			24 VAC/DC, 2 C/O	MJA3BK	2420
			110 - 240 VAC, 1 C/O	MJ81BK	1910
			220 - 440 VAC, 1 C/O	MJ91BK	1910

Electro Mechanical Timers [9107]

EM 1000 	Product Description	Cat. No.	M.R.P. (₹) Per Unit
	EM 1000 ON Delay Auto Reset Synchronous Timer Single Range	B□□□□□	Table-1
	<p>EM 1000 B□□□□□</p> <p>Timing Ranges(SR)</p> <p>B 0.15 - 3.0 sec C 1.5 - 30 sec D 0.15 - 3.0 min E 1.5 - 30 min F 0.15 - 3.0 hrs G 1.5 - 30 hrs H 0.3 - 6.0 sec J 3.0 - 60 sec K 0.3 - 6.0 min L 3.0 - 60 min M 0.3 - 6.0 hrs N 3.0 - 60 hrs P 0.6 - 12 sec Q 6.0 - 120 sec R 0.6 - 12 min S 6.0 - 120 min T 0.6 - 12 hrs V 6 - 120 hrs</p> <p>Timing Ranges (MR)</p> <p>X 0.15 sec - 3.0 hrs Y 0.3 sec - 6.0 hrs Z 0.6 sec - 12.0 hrs</p> <p>Voltage</p> <p>3 110 VAC 50 Hz 4 240 VAC 50 Hz C 110 VAC 60 Hz D 240 VAC 60 Hz</p> <p>Delay</p> <p>1 Standard ON delay 2 With 'NO VOLT'</p> <p>Mounting</p> <p>B Base Mounting F Flush (door) Mtg.</p> <p>Contact</p> <p>1 1 Inst + 1 Del C/O 2 1 Inst + 2 Del C/O</p>		<p>*290</p> <p>*280</p>
			<p>*Add to basic Price. Contact : 240 VAC 6A (Resistive)</p>

Table - 1

Single Range (SR) (In sec/min/hrs)	M.R.P. (₹) Per Unit for Single Range (SR) (In sec/min/hrs)	Multi Range (MR) with 5 Ranges	M.R.P. (₹) Per Unit
0.15 - 3	4665	0.15 sec - 3 hrs	5535
0.3 - 6		0.3 sec - 6 hrs	
0.6 - 12		0.6 sec - 12 hrs	
1.5 - 30			
3.0 - 60			
6.0 - 120			