- Compact 17.5 mm Wide
- Protects against Phase Loss, Phase Reversal & Phase Asymmetry
 Multi-Voltage: 3 x 208 to 3 x 480 V

- Selectable Under Voltage / Over Voltage & AsymmetryLED Indication for all Faults & for change in settings during run time for better security
- Adjustable Time Delay1 C/O Configuration



Cat. No.			MN21D5	MK21D5	MC21D5	MA21DN			
Parame	ters								
Supply Voltage (中)			208 - 480 VAC, (3 Phase 3 Wire)						
Supply Variation			-12% to + 10% (of 中)						
Frequency			50/60 Hz						
Power Consumption (Max.)			3.5 VA						
	Phase Lo	SS	Yes	Yes	Yes	Yes			
Trip Levels	Phase Se	quence	NA	Yes	Yes	Yes			
	Phase As	ymmetry	NA	NA	30% Fixed	5% to 15%			
Time	ON Delay		500 ms	500 ms	500 ms	5s			
Delay	Trip Tim	e (OFF Delay)	100 ms	100 ms	100 ms	0.5 to 15 s (Selectable)			
	Relay Ou	itput	1 C/O						
	Contact I	Rating	5A @ 250 VAC / 30 VD	C (Resistive)					
Output	Electrica	U	1X10 ⁵						
	Mechani		3X10 ⁶						
		AC = 15		/240 V, Rated Current (Ie): 3.0/	/1.5 A				
Utilizatio	on Category	DC - 13	Ű,	25/250 V, Rated Current (Ie): 2					
		Healthy	Relay LED Continuous	ON					
LED Ind	lication	Phase Reverse	NA	Relay LED Flashing					
		Asymmetry	NA	NA	Relay LED Off (Red	Colour)			
Operatin	ig Temperati	5	- 15° C to +60° C						
-	Temperature		$-20^{\circ} \text{ C to } +70^{\circ} \text{ C}$						
Humidit	y (Non Con	densing)	95% (Rh)						
Enclosu	re	0,	Flame Retardant UL 94-V0						
Dimensi	on (W x H y	(in mm)	17.5 X 90 X 58.5						
	unpacked)	/ 、 /	70 g						
Mountin			Base / DIN rail						
	of Protection	1	IP 20 for Terminal. IP 30	for Enclosure					
U									
Certifica	ltion								
EMI / EMC Harmonic Current Emissions ESD Radiated Susceptibilty Electrical Fast Transients Surges Conducted Susceptibilty Voltage Dips & Interruptions (AC) Conducted Emission Radiated Emission		IEC 61000-3-2 IEC 61000-4-2 IEC 61000-4-3 IEC 61000-4-4 IEC 61000-4-5 IEC 61000-4-6 IEC 61000-4-11 CISPR 14-1 CISPR 14-1	Ed. 3.0 (2005-11) Class A Ed. 1.2 (2001-04) Level III Ed. 3.0 (2006-02) Level III Ed. 2.0 (2004-07) Level IV Ed. 2.0 (2005-11) Level IV Ed. 2.2 (2006-05) Level III Ed. 2.0 (2004-03) Level All Ed. 5.0 (2005-11) Class A Ed. 5.0 (2005-11) Class B	7 Levels					
Environmental Cold Heat Dry Heat Vibration Repetitive Shock Non-Repetitive Shock			IEC 60068-2-1 IEC 60068-2-2 IEC 60068-2-6 IEC 60068-2-27 IEC 60068-2-27	Ed. 6.0 (2007-03) Ed. 5.0 (2007-07) Ed. 7.0 (2007-12) 5g Ed. 4.0 (2008-02) 40g, 6ms Ed. 4.0 (2008-02) 30g, 15m;	S				

Cat. No.	Description
MN21D5	208 - 480 VAC, Phase Loss Monitoring, 1 C/O
MK21D5	208 - 480 VAC, Phase Loss, Phase Sequence Monitoring , 1 C/O
MC21D5	208 - 480 VAC, Phase Loss, Phase Sequence, Phase Asymmetry Monitoring (30% Fixed), 1 C/O
MA21DN	208 - 480 VAC, Phase Loss, Phase Sequence, Phase Asymmetry Monitoring (5% to 15% Variable), 1 C/O

Cat. No.		MD21DF	MG21DH	MG21DF	MGD1DR					
Paramet										
Supply Voltage (中)			208 - 480 VAC, (3 Phase	e 3 Wire)		400 VAC, (3 Phase 3 Wire)				
Supply Variation			-12% to + 10% (of 中)							
Frequency			50/60 Hz							
Power Consumption (Max.)			3.5 VA							
Settable I	Nominal Vol	tage	208 - 220 - 380 - 400 - 41	5 - 440 - 480 VAC		NA				
	Phase Los	s	Yes							
т.	Phase Seq	uence	Yes							
Trip Levels	Phase Asy	mmetry	NA		10% Fixed					
Levels	Under Vol	ltage	-2% to -20% (of 中)		-5% to -25% (of中)					
	Over Volta	age	+2% to $+20%$ (of $rest$)		+5% to $+25%$ (of 中)					
Time	ON Delay		5 s	0.5 to 15 s (Selectable)	5 s	0.5 to 100 s (Selectable)				
Delay	Trip Time (OFF Delay)	0.5 to 15 s (Selectable)	5 s	0.5 to 15 s (Selectable)	0.5 to 15 s (Selectable)				
	Relay Out		1 C/O							
Output	Contact R	•	5A @ 250 VAC / 30 VD	C (Resistive)						
Output	Electrical	Life	$1 \mathrm{X} 10^{5}$							
	Mechanic	al Life	3X10 ⁶							
Utilizatic	on Category	AC - 15	U ()	240 V, Rated Current (Ie): 3.0/						
e tiniLutio	in category	DC - 13	Rated Voltage (Ue): 24/125/250 V, Rated Current (Ie): 2.0/0.22/0.1 A							
		DC - 13	Red LED: Supply Healthy \rightarrow Continuous ON, Phase Reverse \rightarrow Flashing							
		UV	Red LED: Under Voltage \rightarrow Continuous ON							
LED Indi	ication	OV	Red LED: Over Voltage \rightarrow Continuous ON							
		Asymmetry	Red LED: Asymmetry \rightarrow Continuous ON							
		All LED's	Phase Fail \rightarrow Continuous OFF, Blinking \rightarrow Pot changed during running conditions							
	g Temperatu	re	- 15° C to +60° C							
•	Femperature		- 20° C to +70° C							
	(Non Cond	ensing)	95% (Rh)							
Enclosure		\mathbf{D}	Flame Retardant UL 94-V0							
	on (W x H x	D) (in mm)	18 X 90 X 59							
•	unpacked)		70 g							
Mounting	-		Base / DIN rail							
Degree of	f Protection		IP 20 for Terminal, IP 30 for Enclosure							
Certificat	tion									
EMI / EI										
	c Current En	nissions	IEC 61000-3-2	Ed. 3.0 (2005-11) Class A						
ESD Radiated	Susceptibilt	v	IEC 61000-4-2 IEC 61000-4-3	Ed. 1.2 (2001-04) Level III Ed. 3.0 (2006-02) Level III						
	l Fast Transi	•	IEC 61000-4-4	Ed. 2.0 (2004-07) Level IV						
Surges			IEC 61000-4-5	Ed. 2.0 (2005-11) Level IV						
Conducte	ed Susceptib	ilty	IEC 61000-4-6	Ed. 2.2 (2006-05) Level III						
Voltage Dips & Interruptions (AC) Conducted Emission Radiated Emission Environmental		ruptions (AC)	IEC 61000-4-11	Ed. 2.0 (2004-03) Level All	7 Levels					
		CISPR 14-1 CISPR 14-1	Ed. 5.0 (2005-11) Class A Ed. 5.0 (2005-11) Class B							
Cold Hea			IEC 60068-2-1	Ed. 6.0 (2007-03)						
Dry Heat			IEC 60068-2-2	Ed. 5.0 (2007-07) Ed. 7.0 (2007, 12) 5¢						
Vibration			IEC 60068-2-6 Ed. 7.0 (2007-12) 5g							
Repetitiv			IEC 60068-2-27	Ed. 4.0 (2008-02) 40g, 6ms						

Cat. No.	Description
MD21DF	208 - 480 VAC, Under Voltage / Over Voltage, Phase Sequence & Phase Loss Monitoring with Selectable ON Delay, 1 C/O
MG21DH	208 - 480 VAC, Under Voltage / Over Voltage & Single Phasing Preventor with Selectable ON Delay, 1 C/O
MG21DF	208 - 480 VAC, Under Voltage / Over Voltage & Single Phasing Preventor with Selectable OFF Delay, 1 C/O
MGD1DR	208 - 480 VAC, Under Voltage / Over Voltage & Single Phasing Preventor with Selectable ON Delay & OFF Delay, 1 C/O

- Protects against Phase Loss, Phase Reversal & Phase Asymmetry
- No Auxiliary Supply neededVoltage Sensing principle

- 1 C/O & 2 C/O Configurations
 Designed to meet Industrial and Agricultural segment applications



Cat. No.		MA51BK		MA51BC	MC21B5			
Paramet	ers							
Supply Voltage (中)		415 VAC						
Frequency		50/60 Hz						
Power Co	onsumption (Max.)	15 VA						
	Phase Loss	Yes		Yes	Yes			
Trip Settings	Phase Sequence	Yes		Yes	Yes			
	Phase Asymmetry	40 V (± 10 V)	1	65 V (± 10V)	65 V (± 10V)			
	Hysteresis	10 to 18 V		10 to 18 V	10 to 18 V			
Time	ON Delay	2 s (± 2 s)		2 s (± 2 s)	< 550 ms			
Delay	Trip Time (OFF Delay)	7 s (± 2 s)		7 s (± 2 s)	< 550 ms			
	Relay Output	1 C/O		1 C/O	2 C/O			
Original	Contact Rating	5A (For 'NO') & 3A (F	or 'NC') @ 250 VA	C / 28 VDC (Resistive)	5A @ 250 VAC / 28 VDC (Resistive			
Output	Electrical Life	1X10 ⁵						
	Mechanical Life	$3X10^{6}$						
T T4:1:4:-	AC - 15	Rated Voltage (Ue): 120)/240 V, Rated Curre	ent (Ie): 3.0/1.5 A				
Utilizatio	DC - 13	Rated Voltage (Ue): 24/	125/250 V, Rated Cu	urrent (Ie): 2.0/0.22/0.1 A				
LED Indi	ication	Red→Relay ON (Health	hy)		See Note 1			
Operating	g Temperature	$-10^{\circ} \text{ C to} + 50^{\circ} \text{ C}$	$-10^{\circ} \text{ C to } \pm 50^{\circ} \text{ C}$					
Storage 7	Temperature	$-20^{\circ} \text{ C to} + 65^{\circ} \text{ C}$						
Humidity	(Non Condensing)	95% (Rh)						
Enclosur	e	Flame Retardant UL 94	Flame Retardant UL 94-V0					
Dimensio	on (W x H x D) (in mm)	36 X 90 X 60						
Weight (1	unpacked)	120 g						
Mounting	1 /	Base / DIN rail						
Degree o	f Protection	IP20 for Terminals, IP 40 for Enclosure						
Certificat	tion	CE RoHS Compliant						
EMI / E	MC c Current Emissions	JEC (1000.2.2	E4 2.0 (2005 11					
ESD	c Current Emissions	IEC 61000-3-2 IEC 61000-4-2	Ed. 3.0 (2005-11) Ed. 1.2 (2001-04					
	Susceptibilty	IEC 61000-4-3	Ed. 3.0 (2006-02	/				
	l Fast Transients	IEC 61000-4-4	Ed. 2.0 (2004-07	/				
Surges		IEC 61000-4-5	Ed. 2.0 (2005-11	/				
	ed Susceptibilty	IEC 61000-4-6	Ed. 2.2 (2006-05	/				
	Dips & Interruptions (AC) ed Emission	IEC 61000-4-11 CISPR 14-1	· · · · · · · · · · · · · · · · · · ·) Level All 7 Levels				
Radiated Emission		CISPR 14-1 CISPR 14-1						
Environmental Cold Heat Dry Heat Vibration								
		IEC 60068-2-1	Ed. 6.0 (2007-03)				
		IEC 60068-2-2	Ed. 5.0 (2007-07					
		IEC 60068-2-6	Ed. 7.0 (2007-12					
Repetitiv	e Shock etitive Shock	IEC 60068-2-27 IEC 60068-2-27	Ed. 4.0 (2008-02 Ed. 4.0 (2008-02					
-			Eu. 4.0 (2008-02	<i>)</i> 50g, 151115				
	RING INFORMATI							
Cat No.		Description						

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

- Protects against Phase Loss, Phase Reversal & Phase Asymmetry
- Can be configured for 3 Phase 4 Wire or 1 Phase system
- Selectable Over Voltage / Under Voltage Trip level
- Selectable Time DelayLED Indications for Power and Fault conditions
- Voltage Sensing principle1 C/O or 2 C/O Configuration



Cat. N	No.		MD71B9		MD71BH	MD71BF		
Paramet	ers							
Supply Voltage (中)			240 VAC (1 Phase & 3 Phase, 4 Wire)					
Frequency			50/60 Hz					
Power Consumption (Max.)			5 VA					
Trip Settings	Phase Loss		Yes		Yes	Yes		
	Phase Seque	ence	N.A		N.A	N.A		
	Phase Asym	metry	N.A		N.A	N.A		
	Under Volta	ge	55% to 95% (of 中)					
	Over Voltag	•	105% to 125% (of 中)					
Time	ON Delay		0 to 15 min (Select	able)	0 to 15 s (Selectable)	5 s		
Delay	Trip Time (OFF Delay)	5 s		5 s	0 to 15 s (Selectable)		
	Relay Outpu		1 C/O					
0	Contact Rat		5A @ 250 VAC / 28 VDC	(Resistive)				
Output	Electrical Li	U	1X10 ⁵	. ,				
	Mechanical		3X10 ⁶					
		AC - 15	Rated Voltage (Ue): 120/2	240 V, Rated	Current (Ie): 3.0/1.5 A			
Utilizatio	on Category	DC - 13	• • •		ed Current (Ie): 2.0/0.22/0.1 A			
LED Indi	ication		Separate indications for Power ON, UV and OV					
	g Temperature Femperature		$-10^{\circ} \text{ C To} + 55^{\circ} \text{ C}$ $-25^{\circ} \text{ C To} + 70^{\circ} \text{ C}$					
Humidity	y (Non Conder	using)	95% (Rh)					
Enclosur	e		Flame Retardant UL 94-V0					
Dimensio	on (W x H x D) (in mm)	36 X 90 X 60					
	unpacked)	/ / /	120 g					
Mountin	· ·		Base / DIN rail					
Degree of	of Protection		IP 20 for Terminals, IP 40 for Enclosure					
Certifica	ition		CE Rolls Compliant					
EMI / EMC Harmonic Current Emissions ESD Radiated Susceptibilty Electrical Fast Transients Surges Conducted Susceptibilty Voltage Dips & Interruptions (AC) Conducted Emission Radiated Emission Environmental Cold Heat Dry Heat Vibration Repetitive Shock Non-Repetitive Shock Note: 1) Voltage setting is with response		IEC 61000-3-2 Ed. 3.0 (2005-11) Class A IEC 61000-4-2 Ed. 1.2 (2001-04) Level II IEC 61000-4-3 Ed. 3.0 (2006-02) Level III IEC 61000-4-4 Ed. 2.0 (2004-07) Level IV IEC 61000-4-5 Ed. 2.0 (2005-11) Level IV IEC 61000-4-6 Ed. 2.2 (2006-05) Level III IEC 61000-4-11 Ed. 2.0 (2004-07) Level IV IEC 61000-4-11 Ed. 2.0 (2005-11) Class A CISPR 14-1 Ed. 5.0 (2005-11) Class A						
		IEC 60068-2-1 IEC 60068-2-2 IEC 60068-2-6 IEC 60068-2-6 IEC 60068-2-27 IEC 60068-2-27 Sect to Neutral. Voltage Settin	Ed. 4.0 (20	07-07) 07-12) 5g 08-02) 40g, 6ms 08-02) 30g, 15ms	ccuracy: ± 10 % of Full Scale			

Cat. No.	Description
MD71B9	240 VAC, Under Voltage / Over Voltage with Selectable ON Delay (0 to 15 min), 1 C/O
MD71BH	240 VAC, Under Voltage / Over Voltage with Selectable ON Delay (0 to 15 sec), 1 C/O
MD71BF	240 VAC, Under Voltage / Over Voltage with Selectable OFF Delay (0 to 15 sec), 1 C/O $$



Cat. No.			MG73B9		MG73BH	MG73BF				
Paramet	ters									
Supply Voltage (中)			240 VAC (1 Phase & 3 Phase, 4 Wire)							
Frequence	су		50/60 Hz							
Power C	onsumption (M	lax.)	5 VA							
	Phase Loss		Yes	Yes						
	Phase Sequence		Yes							
Trip Settings	Phase Asym	metry	10% (of 中)							
~	Under Voltag	ge	55% to 95% (of 中)							
	Over Voltage	e	105% to 125% (of 中)							
	Hysterisis		7 V (± 2 V)							
Time	ON Delay		0 to 15 min (Sele	ctable)	0 to 15 s (Selectable)	5 s				
Delay	Trip Time (C	OFF Delay)	5 s		5 s	0 to 15 s (Selectable)				
	Relay Outpu	ıt	2 C/O							
Output	Contact Rati	ng	5A @ 250 VAC / 28 VD	C (Resistive)					
Output	Electrical Li	fe	$1X10^{5}$							
	Mechanical	Life	$3X10^6$							
Utilizatio	on Category	AC - 15	Rated Voltage (Ue): 120/240 V, Rated Current (Ie): 3.0/1.5 A							
Othizutio	Shi Cutegory	DC - 13	Rated Voltage (Ue): 24/125/250 V, Rated Current (Ie): 2.0/0.22/0.1 A							
LED Ind	ication		Separate indications for Power ON, UV and OV; ON: Phase Reverse; BLINK: Phase Asymmetry							
	g Temperature Femperature		-10° C To + 55° C -25° C To + 70° C							
Humidity	y (Non Conden	sing)	95% (Rh)							
Enclosur	e		Flame Retardant UL 94-V0							
Dimensio	on (W x H x D)) (in mm)	36 X 90 X 60							
Weight (unpacked)		120 g							
Mountin	g		Base / DIN rail							
Degree o	of Protection		IP 20 for Terminals, IP 4	0 for Enclos	sure					
Certifica	tion		CE RoHS Compliant							
EMI / EMC Harmonic Current Emissions ESD Radiated Susceptibilty Electrical Fast Transients Surges Conducted Susceptibilty Voltage Dips & Interruptions (AC) Conducted Emission Radiated Emission			IEC 61000-3-2Ed. 3.0 (2005-11) Class AIEC 61000-4-2Ed. 1.2 (2001-04) Level IIIEC 61000-4-3Ed. 3.0 (2006-02) Level IIIIEC 61000-4-4Ed. 2.0 (2004-07) Level IVIEC 61000-4-5Ed. 2.0 (2005-11) Level IVIEC 61000-4-6Ed. 2.2 (2006-05) Level IIIIEC 61000-4-11Ed. 2.0 (2004-03) All 7 LevelsCISPR 14-1Ed. 5.0 (2005-11) Class ACISPR 14-1Ed. 5.0 (2005-11) Class A							
Environmental Cold Heat Dry Heat Vibration Repetitive Shock Non-Repetitive Shock			IEC 60068-2-1 IEC 60068-2-2 IEC 60068-2-6 IEC 60068-2-27 IEC 60068-2-27	Ed. 4.0 (2 Ed. 4.0 (2	·					

Note: 1) Voltage setting is with respect to Neutral. Voltage Setting Accuracy: ± 5 % of Full Scale; Time Setting Accuracy: ± 10 % of Full Scale

Cat. No.	Description
MG73B9	240 VAC, Under Voltage / Over Voltage & Single Phasing Preventor with Selectable ON Delay (0 to 15 min), 2 C/O
MG73BH	240 VAC, Under Voltage / Over Voltage & Single Phasing Preventor with Selectable ON Delay (0 to 15 sec), 2 C/O
MG73BF	240 VAC, Under Voltage / Over Voltage & Single Phasing Preventor with Selectable OFF Delay (0 to 15 sec), 2 C/O

Supply Monitoring Series SM500 - Neutral Loss Protection

• Phase loss (failure) detection.

- Neutral loss detection.
- Phase reverse detection.
- Phase asymmetry.
- Adjustable Over & Under voltage trip level.
- LED indication for all failure conditions.
- Automatic recovery on fault removal.



Cat. I	No.			MAC0	4 D 0100					
Parame	ters									
Supply V	Voltage (中))		415 VAC (Ph-Ph); 3 Ph	ase, 4 Wire				
Frequen	су			50/60 Hz	50/60 Hz					
Power Consumption (Max.)			10 VA							
	Phase I	Loss		Yes						
Taia	Phase Sequence		Yes							
Trip Settings	Phase A	•	•	94V±4V (Ph-Ph)					
bettings	Under			55% to 959						
	Over V	U			25% (of 中)					
	Hyster			7 V (± 2 V	·					
	ON De	elay		5 s ±1 s (F	· ·	T 1 1				
Time	Trip Tir				failure phase tage / Over V		5 s ±1 s (Fix	ed)		
Delay	(OFF D	elay)		For Neutr	•	onage	500 ms -1s			
	Relay (Dutnut		2 C/O			000 110 10			
	Contac	-			VAC / 28 VE	C (Resistive	.)			
Output	Electric		-	1X10 ⁵	10 I D	(/			
	Mecha			3X10 ⁶						
T 14:1:			AC - 15		age (Ue): 120)/240 V, Rate	ed Current (Ie)	: 3.0/1.5 A		
Utilizatio	on Catego	ry	DC - 13	Rated Volt	age (Ue): 24/	125/250 V, F	Rated Current ((Ie): 2.0/0.22/0.1 A		
							dicated by LE	D immediately & Relay will be tripped		
				after specif	fied trip time	only.				
				GREEN LED	RED LED 1	RED LED 2	RED LED 3			
LED		Pow	ver ON	ON	OFF	OFF	OFF			
Indicatio	ons	Pha	se reverse	ON	OFF	OFF	ON			
on front		Asy	mmetry	ON	OFF	OFF	BLINK			
		UV		ON	ON	OFF	OFF			
		OV		ON	OFF	ON	OFF			
			se Fail	BLINK	OFF	OFF	OFF			
			tral Fail	ON	BLINK	BLINK	BLINK			
Storage '	ng Temper Temperatu	ire		-10° C To - -25° C To -						
Humidit	y (Non Co	ondens	ing)	95% (Rh)						
Enclosu				Flame Reta	ardant UL 94	-V0				
	on (W x F		(in mm)	36 X 90 X 60						
0	unpacked)		120 g						
Mountin	0			Base / DIN		10.0 5				
U	of Protecti	on			erminals, IP	tor Enclos	sure			
Certifica				CE 🗸	RoHS Compliant					
EMI / EMC Harmonic Current Emissions ESD Radiated Susceptibilty Electrical Fast Transients Surges Conducted Susceptibilty Voltage Dips & Interruptions (AC) Conducted Emission Radiated Emission		IEC 61000-4-2 Ed. 1.2 () IEC 61000-4-3 Ed. 3.0 () IEC 61000-4-4 Ed. 2.0 () IEC 61000-4-5 Ed. 2.0 () IEC 61000-4-6 Ed. 2.2 () IEC 61000-4-11 Ed. 2.0 () IEC 61000-4-11 Ed. 2.0 ()		2005-11) Class 2001-04) Leve 2006-02) Leve 2004-07) Leve 2005-11) Leve 2006-05) Leve 2006-05) Leve 2004-03) All 7 2005-11) Class 2005-11) Class	el II el III el IV el IV el III V Levels s A					
		IEC 60068 IEC 60068 IEC 60068 IEC 60068 IEC 60068	-2-2 -2-6 -2-27	Ed. 4.0 (2	· · ·					

ORDERING INFORMATION

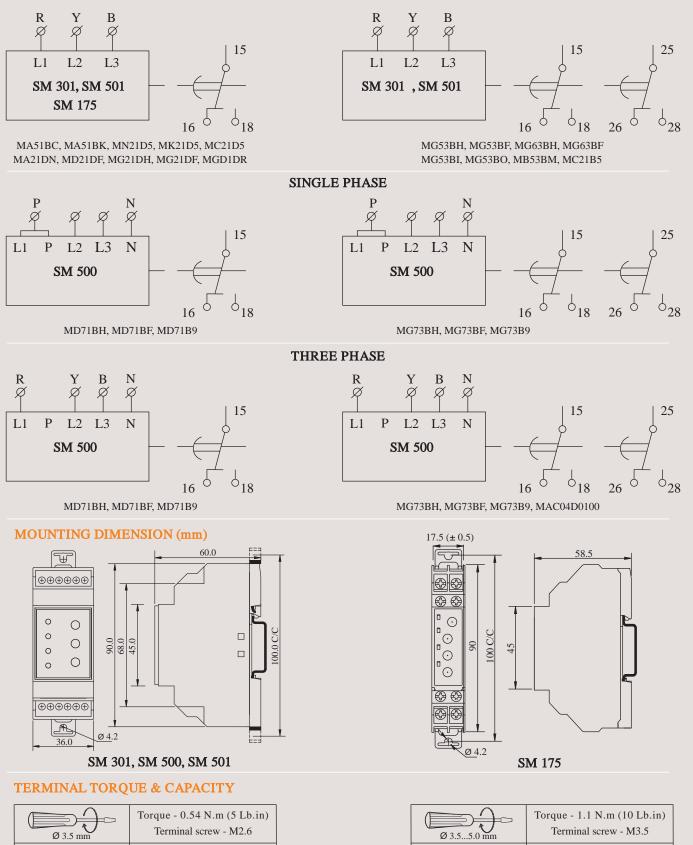
Cat. No.

Description 415V AC, Neutral Loss Protection with Phase and Voltage Control, 2 C/O $\,$

MAC04D0100



CONNECTION DIAGRAM



AWG 1 X 24 to 12 SM 301, SM 500, SM 501

Solid Wire - 1 X 0.2...3.3 mm²

٦

AWG

Solid Wire - 2 X 0.2...2.5 mm²

1 X 24 to 10

SM 175

- Protects against Phase Loss, Phase Reversal & Phase Asymmetry
- Suitable for 3 Phase 3 Wire system
- Selectable Under Voltage / Ovder Voltage Trip level
- Selectable Time Delay
- Models for Selectable Phase Asymmetry
- LED Indications for Power and Fault conditions
- Voltage Sensing Principle
- 2 C/O Configuration



Cat. No.			MG53BH	MG53BF	MG63BH	MG63BF					
Paramet	ters										
Supply V	Voltage (中)		415 VAC (3 Phase, 3 Wire) 220 VAC (3 Phase, 3 Wire)								
Frequency			50/60 Hz								
Power Consumption (Max.)			10 VA		5 VA						
	Phase Loss		Yes								
Trip Settings	Phase Sequence		Yes								
	Phase Asymmetry	у	10% (of 中)								
	Under Voltage		55% to 95% (of 中)								
	Over Voltage		105% to 125% (of 中)								
	Hysterisis		$7 \text{ V} (\pm 2 \text{ V}) \text{ of Trip Voltage}$								
Time	ON Delay		0 to 15 s (Selectable)	5 s	0 to 15 s (Selectable)	5 s					
Delay	Trip Time (OFF I	Delay)	5 s	0 to 15 s (Selectable)	5 s	0 to 15 s (Selectable)					
	Relay Output		2 C/O								
Output	Contact Rating		5A @ 250 VAC / 28 VDC	(Resistive)							
Output	Electrical Life		1X10 ⁵								
	Mechanical Life		$3X10^6$								
Utilizatio	on Category AC	C - 15	Rated Voltage (Ue): 120/240 V, Rated Current (Ie): 3.0/1.5 A								
Othizativ	DC	C - 13	Rated Voltage (Ue): 24/125/250 V, Rated Current (Ie): 2.0/0.22/0.1 A								
LED Ind	lication		Separate indications for Power ON, UV and OV; ON: Phase Reverse; BLINK: Phase Asymmetry								
1	ng Temperature Temperature		-10° C To + 55° C -25° C To + 70° C								
U	y (Non Condensing)	`	95% (Rh)								
Enclosu		,	Flame Retardant UL 94-V0								
Dimensi	on (W x H x D) (in	mm)	36 X 90 X 60								
	unpacked)	,	120 g								
Mountin			Base / DIN rail								
Degree of	of Protection		IP 20 for Terminals, IP 40 for Enclosure								
Certifica	ation										
EMI / E	CMC										
	ic Current Emission	s	IEC 61000-3-2	Ed. 3.0 (2005-11) Class A							
ESD Padiated	1 Susceptibilty		IEC 61000-4-2 IEC 61000-4-3	Ed. 1.2 (2001-04) Level III Ed. 3.0 (2006-02) Level III							
	al Fast Transients		IEC 61000-4-4	Ed. 2.0 (2004-07) Level IV							
Surges			IEC 61000-4-5	Ed. 2.0 (2005-11) Level IV							
	ed Susceptibilty		IEC 61000-4-6	Ed. 2.2 (2006-05) Level III							
Voltage Dips & Interruptions (AC)			IEC 61000-4-11	Ed. 2.0 (2004-03) Level All	7 Levels						
Conducted Emission Radiated Emission			CISPR 14-1 CISPR 14-1	Ed. 5.0 (2005-11) Class A Ed. 5.0 (2005-11) Class B							
Environmental											
Cold Heat			IEC 60068-2-1	Ed. 6.0 (2007-03)							
Dry Hea Vibration			IEC 60068-2-2	Ed. 5.0 (2007-07)							
	n ve Shock		IEC 60068-2-6 IEC 60068-2-27	Ed. 7.0 (2007-12) 5g Ed. 4.0 (2008-02) 40g, 6ms							
1	petitive Shock		IEC 60068-2-27	Ed. 4.0 (2008-02) 40g, 0his Ed. 4.0 (2008-02) 30g, 15m							
	•		+ 5 % of Full Scale: Time Set	(, C ,							

Note: 1) Voltage Setting Accuracy: ± 5 % of Full Scale; Time Setting Accuracy: ± 10 % of Full Scale 2) In the event of Phase Sequence or Phase Loss, OFF Delay is 100 ms

Cat. No.	Description
MG53BH	415 VAC, Under Voltage / Over Voltage & Single Phasing Preventor with Selectable ON Delay (0.5 to 15 sec), 2 C/O
MG53BF	415 VAC, Under Voltage / Over Voltage & Single Phasing Preventor with Selectable OFF Delay (0.5 to 15 sec), 2 C/O
MG63BH	220 VAC, Under Voltage / Over Voltage & Single Phasing Preventor with Selectable ON Delay (0.5 to 15 sec), 2 C/O
MG63BF	220 VAC, Under Voltage / Over Voltage & Single Phasing Preventor with Selectable OFF Delay (0.5 to 15 sec), 2 C/O

Cat. No.		MG53BI		MG53BO	MG53BM			
Paramet	ters							
Supply Voltage (中)			415 VAC (3 Phase, 3 Wire)					
requenc	су		50/60 Hz					
Power Consumption (Max.)		10 VA						
Trip Settings	Phase Loss		Yes		Yes	Yes		
	Phase Sequence		Yes Yes		Yes			
	Phase Asymmetry		94 V 10% 5%		5% to 17%			
	Under Voltage		55% to 95% (of 中) 85% (of 中) Fixed 80% (of 中) Sy		80% (of 中) Symmetrical			
	Over Voltage		105% to 125% (of 中) 110% (of 中) Fixed N		NA			
	Hysterisis		7 V (± 2 V) of Trip V	Voltage	7 V (\pm 2 V) of Trip Voltage	7 V (\pm 2 V) of Input Voltage		
Гime	me ON Delay		5 s		3 min	0.5 to 15 s (Selectable)		
Delay	Trip Time (OFF Delay)		5 s	5 s 5 s		0.5 to 15 s (Selectable)		
Output	Relay Outpu	t	2 C/O					
	Contact Rati	ng	5A @ 250 VAC / 28 VDC (Resistive)					
	Electrical Li	fe		1X10 ⁵				
	Mechanical	Life	$3X10^6$					
Utilization Category AC - 15 DC - 13			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					
ED Ind			Separate indications for Power ON, UV and OV; ON: Phase Reverse; BLINK: Phase Asymmetry					
Operating Temperature Storage Temperature			-10° C To + 55° C -25° C To + 70° C					
Humidity (Non Condensing)		sing)	95% (Rh)					
Inclosur	e		Flame Retardant UL 94-V0					
Dimension (W x H x D) (in mm)) (in mm)	36 X 90 X 60					
Weight (1	unpacked)		120 g					
Mounting	g		Base / DIN rail					
Degree o	of Protection		IP 20 for Terminals, IP 40 for Enclosure					
Certification			CE Victor Compliant					
EMI / EMC Harmonic Current Emissions ESD Radiated Susceptibilty Electrical Fast Transients Surges Conducted Susceptibilty Voltage Dips & Interruptions (AC) Conducted Emission Radiated Emission		IEC 61000-3-2 IEC 61000-4-2 IEC 61000-4-3 IEC 61000-4-4 IEC 61000-4-5 IEC 61000-4-6 IEC 61000-4-11 CISPR 14-1 CISPR 14-1	1000-4-2 Ed. 1.2 (2001-04) Level III 1000-4-3 Ed. 3.0 (2006-02) Level III 1000-4-4 Ed. 2.0 (2004-07) Level IV 1000-4-5 Ed. 2.0 (2005-11) Level IV 1000-4-6 Ed. 2.2 (2006-05) Level III 1000-4-11 Ed. 2.0 (2004-03) Level All 7 Levels 1000-4-11 Ed. 5.0 (2005-11) Class A					
Environmental Cold Heat Dry Heat Vibration Repetitive Shock Non-Repetitive Shock		IEC 60068-2-1 IEC 60068-2-2 IEC 60068-2-6 IEC 60068-2-27 IEC 60068-2-27	Ed. 5.0 (20) Ed. 7.0 (20) Ed. 4.0 (20)	Ed. 6.0 (2007-03) Ed. 5.0 (2007-07) Ed. 7.0 (2007-12) 5g Ed. 4.0 (2008-02) 40g, 6ms Ed. 4.0 (2008-02) 30g, 15ms				

ORDERING INFORMATION

Cat. No.DescriptionMG53BI415 VAC, Under Voltage / Over Voltage & Single Phasing Preventor with 94 V Asymmetry, 2 C/OMG53BO415 VAC, Under Voltage / Over Voltage & Single Phasing Preventor with 3 min ON Delay & 5s OFF Delay, 2 C/OMG53BM415 VAC, Under Voltage & Single Phasing Preventor with Selectable Asymmetry (5% to 17%), 2 C/O