ENERGY AND AUTOMATION

PUMP PROTECTION RELAY FOR SINGLE AND THREE-PHASE SYSTEMS, MAXIMUM AC electric CURRENT AND MINIMUM COSФ. PHASE LOSS AND INCORRECT PHASE SEQUENCE, 5A OR 16A

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Product designation			Pump protection
Product type designation			relays PMA50
General characteristics			1 107 100
Description			Pump protection relay (motor under-load and over-current control) monitoring for max AC current, min cos\(\phi\), phase loss and incorrect phase sequence
Type of system			Single-phase and three-phase
Power supply			
Auxiliary supply voltage Us			440480VAC
Operating voltage range			0.851.1 Us
Rated frequency		Hz	50/60 ±5%
Power consumption Max		VA	4.5
Power dissipation Max		W	2.3
Control circut			
Rated current (le)		A	5 or 16
Rated current (le) Overload capacity		Α	5 or 16 5le for 1s - 160A for 10ms - Constant 16A
		A	5le for 1s - 160A for 10ms -
Overload capacity		A	5le for 1s - 160A for 10ms - Constant 16A Direct or by current
Overload capacity Connection	Max	A %	5le for 1s - 160A for 10ms - Constant 16A Direct or by current
Overload capacity Connection	Max		5le for 1s - 160A for 10ms - Constant 16A Direct or by current transformer 10100 0.10.99
Overload capacity Connection Current set-point (% le)	Max		5le for 1s - 160A for 10ms - Constant 16A Direct or by current transformer
Overload capacity Connection Current set-point (% le) Minimum cosp¢ set-point	Max	%	5le for 1s - 160A for 10ms - Constant 16A Direct or by current transformer 10100 0.10.99 0.110 OFF100
Overload capacity Connection Current set-point (% le) Minimum cospф set-point Tripping delay	Max	% s	5le for 1s - 160A for 10ms - Constant 16A Direct or by current transformer 10100 0.10.99 0.110
Overload capacity Connection Current set-point (% le) Minimum cosp¢ set-point Tripping delay Automatic resetting delay	Max	% s min	5le for 1s - 160A for 10ms - Constant 16A Direct or by current transformer 10100 0.10.99 0.110 OFF100 3% for overcurrent, 0.03
Overload capacity Connection Current set-point (% le) Minimum cospф set-point Tripping delay Automatic resetting delay Resetting hysteresis	Max	% s min %	5le for 1s - 160A for 10ms - Constant 16A Direct or by current transformer 10100 0.10.99 0.110 OFF100 3% for overcurrent, 0.03 for cosф 160 Automatic or manual
Overload capacity Connection Current set-point (% le) Minimum cospф set-point Tripping delay Automatic resetting delay Resetting hysteresis Inhibition time	Max	% s min %	5le for 1s - 160A for 10ms - Constant 16A Direct or by current transformer 10100 0.10.99 0.110 OFF100 3% for overcurrent, 0.03 for cosф 160 Automatic or manual Consent input for running/resetting
Overload capacity Connection Current set-point (% le) Minimum cospф set-point Tripping delay Automatic resetting delay Resetting hysteresis Inhibition time Type of reset External input Repeat accuracy	Max	% s min %	5le for 1s - 160A for 10ms - Constant 16A Direct or by current transformer 10100 0.10.99 0.110 OFF100 3% for overcurrent, 0.03 for cos\(\phi \) 160 Automatic or manual Consent input for running/resetting ±1 (with constant parameters)
Overload capacity Connection Current set-point (% le) Minimum cosp¢ set-point Tripping delay Automatic resetting delay Resetting hysteresis Inhibition time Type of reset External input Repeat accuracy Tripping time for phase loss	Max	% s min % s	5le for 1s - 160A for 10ms - Constant 16A Direct or by current transformer 10100 0.10.99 0.110 OFF100 3% for overcurrent, 0.03 for cosф 160 Automatic or manual Consent input for running/resetting ±1 (with constant
Overload capacity Connection Current set-point (% le) Minimum cospф set-point Tripping delay Automatic resetting delay Resetting hysteresis Inhibition time Type of reset External input Repeat accuracy	Max	% s min % s	5le for 1s - 160A for 10ms - Constant 16A Direct or by current transformer 10100 0.10.99 0.110 OFF100 3% for overcurrent, 0.03 for cos\(\phi \) 160 Automatic or manual Consent input for running/resetting ±1 (with constant parameters)



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Measurement range		V	80660VAC
Frequency range		Hz	50/60 ±5%
Relay outputs			
Number of relays		Nr.	1
			Normally
Delay state			energised De-
Relay state			energises at
			tripping
Contact arrangement			1 changeover
			SPDT each
Rated operational voltage AC (IEC)		VAC	250
Maximum switching voltage		VAC	400
IEC Conventional free air thermal current Ith		Α	8
UL/CSA and IEC/EN 60947-5-1 designation			B300
Electrical life (with rated load)		cycles	100000
Mechanical life		cycles	30000000
Functions			
Modular version			3U
Maximum AC current			Yes
Minimum cosφ for dry running pump protection			Yes
Phase loss			Yes
Incorrect phase sequence			Yes
Indications			
			1 green LED for
			power on /
Indication			Inhibition and 2
			red LEDs for
			tripping
Connections			
Tightening torque for terminals			
	max	Nm	0.8
	max	Ibin	7
Conductor cross section			
AWG/Kcmil			
	min	AWG	24
	Max	AWG	12
IEC			
	min	mm²	0.2
	Max	mm²	4
Insulations			
Rated insulation voltage Ui		V	600
Rated impulse withstand voltage Uimp		kV	6
Operating frequency withstand voltage		kV	2.5
Ambient conditions			
Temperature			
Operating temperature			
- F	min	°C	-20
	max	°C	+60
Storage temperature	711007		
Clorago tomporataro	min	°C	-30
	max	°C	+80
Housing	παλ		. 55
Execution (n° of modules)			3
Exosulon (ii oi moduloo)			•



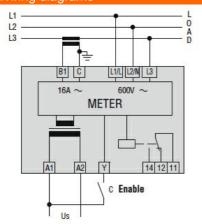
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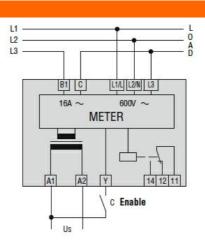
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Material		Self-extinguishing polyamide
Mounting		Modular DIN 43880 housing
IEC degree of protection		IP40 on front; IP20 at terminals
Dimensions (W x H x D)	mm	53.5 x 104.7 x 64.9
Weight Dimensions	g	251

(0.20") ----- 58 (2.28") -43.7 (1.72")-**--** 53.5 (2.11") − Ø4.2 59.9 (2.36") (0.16")

Wiring diagrams





Certifications and compliance

Compliance

CSA C22.2 n° 14

IEC/EN 60255-5

IEC/EN 61000-6-2

IEC/EN 61000-6-3

UL 508

Certificates



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PMA50A480

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cULus
EAC

ETIM classification

ETIM 8.0

EC001440 -Current monitoring relay