

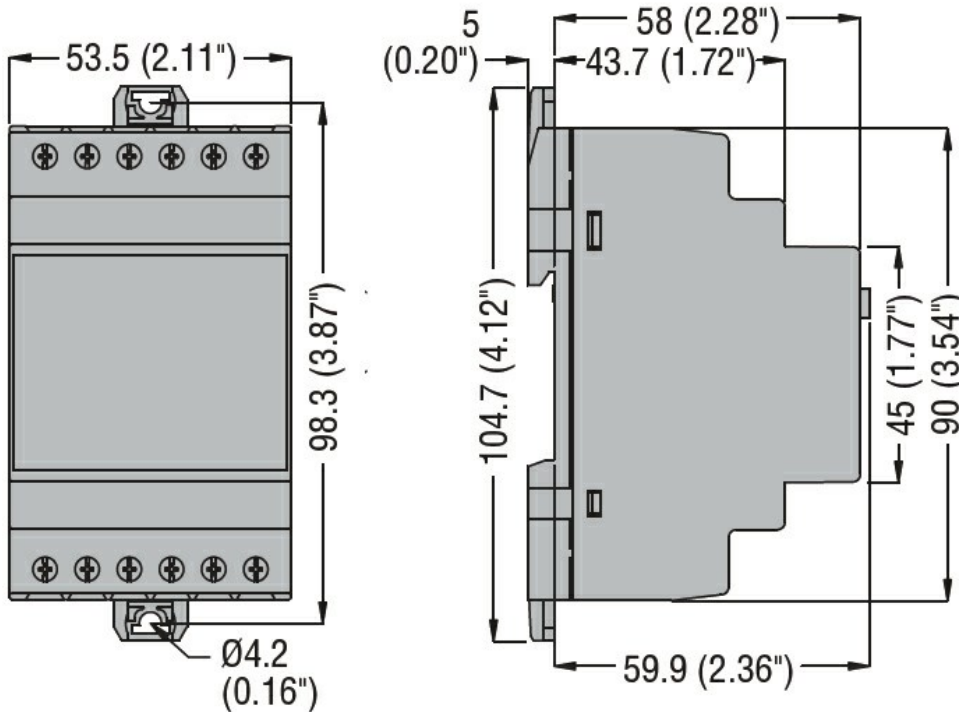


|                                |   |                |   |
|--------------------------------|---|----------------|---|
| Product designation            | Pump protection relays  |                |   |
| Product type designation       | PMA50   |                |   |
| <b>General characteristics</b> |   |                |   |
| 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  |                |   |
| <b>Power supply</b>            |   |                |   |
| Auxiliary supply voltage $U_s$ | 440...480VAC  |                |   |
| Operating voltage range        | 0.85...1.1 $U_s$  |                |   |
| Rated frequency                | Hz  | 50/60 $\pm$ 5% |   |
| Power consumption Max          | VA  | 4.5            |   |
| Power dissipation Max          | W   | 2.3            |   |
| <b>Control circuit</b>         |   |                |   |
| Rated current ( $I_e$ )        | A   | 5 or 16        |   |
| Overload capacity              | 5 $I_e$ for 1s - 160A for 10ms - Constant 16A   |                |   |
| Connection                     | Direct or by current transformer  |                |   |
| Current set-point (% $I_e$ )   | Max   | %              | 10...100                                |
| Minimum cosp $\phi$ set-point  |   |                | 0.1...0.99                              |
| Tripping delay                 |   | s              | 0.1...10                                |
| Automatic resetting delay      |   | min            | OFF...100                               |
| Resetting hysteresis           |   | %              | 3% for overcurrent, 0.03 for cos $\phi$ |
| Inhibition time                |   | s              | 1...60                                  |
| Type of reset                  | Automatic or manual   |                |   |
| External input                 | Consent input for running/resetting   |                |   |
| Repeat accuracy                |   | %              | $\pm$ 1 (with constant parameters)      |
| Tripping time for phase loss   |   | ms             | 60                                      |
| <b>Voltage inputs</b>          |   |                |   |

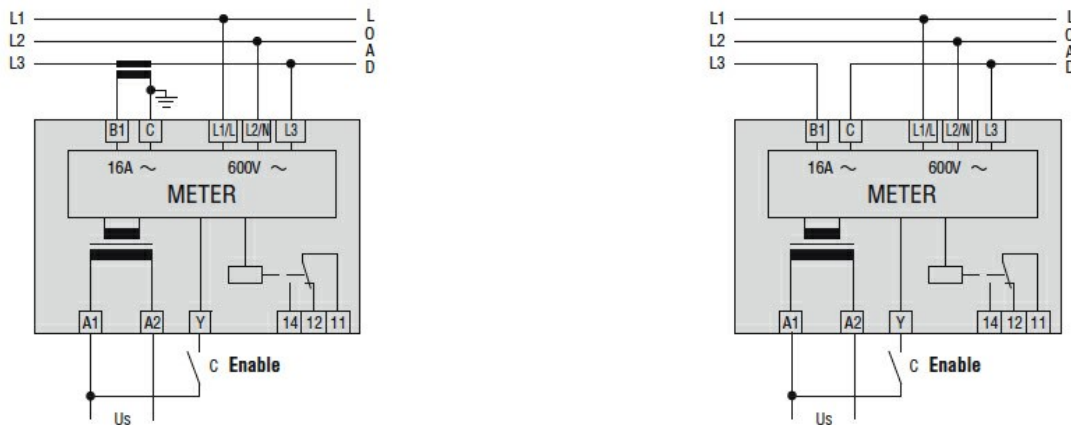
|   |            |   |
|---|------------|---|
| Measurement range   | V          | 80...660VAC   |
| Frequency range   | Hz         | 50/60 $\pm$ 5%  |
| <b>Relay outputs</b>                                      |            |   |
| Number of relays  | Nr.        | 1   |
| Relay state   |            | Normally energised De-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 I <sub>th</sub> | A          | 8   |
| UL/CSA and IEC/EN 60947-5-1 designation                   |            | B300  |
| Electrical life (with rated load)                         | cycles     | 100000  |
| Mechanical life   | cycles     | 30000000  |
| <b>Indications</b>  |            |   |
| Indication  |            | 1 green LED for power on / Inhibition and 2 red LEDs for tripping |
| <b>Connections</b>  |            |   |
| Tightening torque for terminals                           | max<br>max | Nm<br>lbin<br>0.8<br>7  |
| Conductor cross section                                   |            |   |
| AWG/Kcmil   | min<br>Max | AWG<br>AWG<br>24<br>12  |
| IEC   | min<br>Max | mm <sup>2</sup><br>mm <sup>2</sup><br>0.2<br>4                    |
| <b>Insulations</b>  |            |   |
| Rated insulation voltage U <sub>i</sub>                   | V          | 600   |
| Rated impulse withstand voltage U <sub>imp</sub>          | kV         | 6   |
| Operating frequency withstand voltage                     | kV         | 2.5   |
| <b>Ambient conditions</b>                                 |            |   |
| Temperature   |            |   |
| Operating temperature                                     | min<br>max | $^{\circ}$ C<br>$^{\circ}$ C<br>-20<br>+60                        |
| Storage temperature                                       | min<br>max | $^{\circ}$ C<br>$^{\circ}$ C<br>-30<br>+80                        |
| <b>Housing</b>  |            |   |
| Execution (n <sup>o</sup> of modules)                     |            | 3   |
| Material  |            | Self-extinguishing polyamide                                      |
| Mounting  |            | Modular DIN 43880 housing   |
| IEC degree of protection                                  |            | IP40 on front;<br>IP20 at terminals                               |

|                        |    |                     |
|------------------------|----|---------------------|
| Dimensions (W x H x D) | mm | 53.5 x 104.7 x 64.9 |
| Weight                 | g  | 251                 |

**Dimensions**



**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**

cULus  
EAC

**ETIM classification**

ETIM 8.0

EC001440 -  
Current  
monitoring relay