

# PM-50



## Analog Input Graphical Panel Meters

The PM-50 meters are designed to increase operator productivity, expose critical plant floor data, and aid in project scheduling and process improvements. Easily relatable intuitive graphical display. Secondary displays provide even more data. The meters feature on-board Wi-Fi, RS-485/Modbus, and optional Ethernet or RS-232.



### Graphical Display

- Full color touchscreen
- Intuitive screens
- Multiple displays

### Simple Programming

- Start-up Wizard
- Programming App
- Web server

### Alarm Notification

- Display color change
- Push messaging
- Focuses attention

### Data Access

- Wi-Fi
- Modbus/RS485
- Ethernet & RS232

### Modular Construction

- Plug-in play modules
- Upgradeable firmware
- Outputs, power & comms

### Easy Field Replacement

- Use existing wiring
- 4.3" - 1/8 DIN products
- 3.5" - 1/16 DIN products

### Smart Device Capabilities

- Functionality
- Programming
- Connectivity

# PM-50 Ordering Guide and Specifications

## Ordering Guide

### Main Unit

Part Number	Description
PM500A0400800F00	4.3" Analog Input Graphical Panel Meter
PM500A0301600F00	3.5" Analog Input Graphical Panel Meter

### Accessories

Part Number	Description
PMM000CM23200000	RS232 Serial Communications Module
PMM000CM20000000	Ethernet Communications Module
PMM000IOAN0000000	Analog Output Module
PMM000IORL2000000	Dual Setpoint Relay Output Module
PMM000IORL4000000	Quad Setpoint Relay Output Module
PMM000PWACP000000	AC to DC Power Module
PMA000MK008000000	Conversion Panel 92 mm x 75 mm to 1/8 DIN
PMA000MK016000000	Conversion Panel 68 mm x 68 mm to 1/16 DIN
PMA000SP008000000	4.3" Protective Screen Overlay
PMA000SP016000000	3.5" Protective Screen Overlay
SD032G00	MicroSD Card
PMA000CP008000000	Replacement Rear Cover/Bus Board with Spacer Module (4.3" model only)
PMA000MKLP000000	Replacement Module Lock Pins

## Meter Specifications

### Power Requirements

Model	4.3-Inch	3.5-Inch
Input Voltage (Volts)	10-30 VDC	10-30 VDC
Max Power PM-50 only	4.6 W	4.6 W
Max Power PM-50, with modules	12 W	12 W

Host Isolation: 500 Vrms for 1 min. to all inputs and outputs.

### Display

4.3" or 3.5" Color TFT display with resistive analog touch screen

Size	4.3-Inch	3.5-Inch
Type	TFT	TFT
Colors	262,144	262,144
Pixels	480 X 272	320 X 240
Brightness	420 cd/m <sup>2</sup>	540 cd/m <sup>2</sup>
LED Backlight Life*	30,000 HR TYP.	30,000 HR TYP.

\* Lifetime at room temperature (25°C)

### Update Rates

A/D conversion rate: programmable 5 to 200 readings/sec.

### Input Capabilities

Current Input:  $\pm 200 \mu\text{A DC}$ ,  $\pm 2 \text{ mA DC}$ ,  $\pm 20 \text{ mA DC}$ ,  $\pm 200 \text{ mA DC}$ ,  $\pm 2 \text{ A DC}$

Voltage Input:  $\pm 200 \text{ mV DC}$ ,  $\pm 2.0 \text{ V DC}$ ,  $\pm 20 \text{ V DC}$ ,  $\pm 60 \text{ V DC}$

Thermocouple Input: T, E, J, K, R, S, B, N, C (W5/W26)

RTD Input: 100  $\Omega$  Pt alpha = .00385, 100  $\Omega$  Pt alpha = .00392,

120  $\Omega$  Nickel alpha = .00672, 10  $\Omega$  Copper alpha = .00427

Resistance Input: 100  $\Omega$ , 1000  $\Omega$ , 10 K $\Omega$

### Excitation Power

Transmitter Power: +24 VDC,  $\pm 5\%$  @ 50 mA max.

Reference Voltage: + 2 VDC,  $\pm 2\%$

Reference Current: 1.05 mADC,  $\pm 2\%$

### User Inputs

Two programmable user inputs

### Totalizer

Time Base: second, minute, hour, or day

Batch: Can accumulate (gate) input display from a user input

Time Accuracy: 0.01% typical

Decimal Point: 0 to 0.0000

Scale Factor: 0.001 to 65,000

Low Signal Cut-out: -199,999 to 999,999

Total: Up to 9 digits

### Custom Linearization

Data Point Pairs: Selectable from 2 to 10

Display Range: -199,999 to 999,999

Decimal Point: 0 to 0.0000

### Memory

Nonvolatile memory retains all programmable parameters and display values

Memory Card: microSD slot accepts up to 32 GB capacity cards in FAT16/FAT32 format

### RS485 Serial Port

Uses Modbus protocol (RTU and ASCII)

Baud Rate: Up to 115,200

Data Format: 7/8 bit; odd, even, or no parity; 1 or 2 stop bits

Isolation: 500 Vrms to sensor, user power and digital inputs. Not isolated to solid state outputs

# PM-50 Specifications Cont. and Module Specifications

## Wi-Fi Capabilities

Wi-Fi: Power output up to 20.5 dBm  
Frequency:

Part Number	Description	Frequencies
Wi-Fi	1-13	2412-2484 MHz

Note: Channel/frequency limitation is enforced based on configured country/region code.  
Wi-Fi Compliance: TCP/IP; 802.11 b/g/n

## On-Board Dual SSR Outputs

Both outputs must be used either in SINKING or in SOURCING mode together

Sinking Mode:

Type: Switched DC, N-channel open drain MOSFET  
Max Sink Current: 100 mA  
 $V_{DS}$  ON: 0.3 V @ 100 mA  
 $V_{DS}$  MAX: 30 VDC  
Offstate Leakage Current: 0.5 mA max.

Sourcing Mode:

Type: Switched DC, P-channel open source MOSFET  
Max Source Current: 100 mA  
 $V_{DS}$  ON: 0.3 V @ 100 mA  
 $V_{DS}$  MAX: 30 VDC  
Offstate Leakage Current: 0.5 mA max.

## Environmental

Operating Temperature Range: -10 to 55 °C  
Storage Temperature Range: -20 to 60 °C  
Operating and Storage Humidity: 0 to 85% max. RH non-condensing  
Vibration to IEC 68-2-6: Operational 5-500 Hz, 2 g  
Shock to IEC 68-2-27: Operational 20 g (10 g relay)

Altitude: Up to 2000 meters  
Installation Category II, Pollution Degree 2 as defined in IEC/EN 60664-1

## Certifications & Compliances

CE Approved  
EN 61326-1 Immunity to Industrial Locations  
Emission CISPR 11 Class A  
IEC/EN 61010-1  
RoHS Compliant  
FCC ID #: 2AC7Z-ESP32WROOM32U  
UL Hazardous: File # E317425  
Type 4X Indoor/IP65 Enclosure rating (Face only) for all models  
IP20 Enclosure rating (Rear of unit)

## Connections

High compression spring-clamp terminal block

## Construction

This unit is rated NEMA 4X/IP65 for indoor use only. IP20 Touch safe. One piece bezel/case. Flame resistant. Panel gasket, module locks, and mounting panel latch included

## Weight

4.3: 11.3 oz (321 g)  
3.5: 7.9 oz (224 g)

## Warranty

2 years on design and manufacturing defects  
Specifications are subject to change  
Visit [www.redlion.net](http://www.redlion.net) for more information

# Module Specifications

Note: All modules are field installable

## RS232 Module

Removable terminal block  
Hardware status LEDs

## Ethernet Module

10/100 Ethernet module  
Auto MDI/MDI-X  
Modbus over TCP/IP

## Analog Output Module

Retransmitted analog output  
0 (4) to 20 mA or 0 to 10 VDC,  $\pm 10$  VDC  
Removable terminal block

## Dual Relay Module

Dual Form C 5 Amp relays  
Up to 250 VAC or 30 VDC  
Removable terminal block

## Quad Relay Module

Up to 250 VAC or 30 VDC  
Removable terminal block  
Quad Form A 2 Amp relays

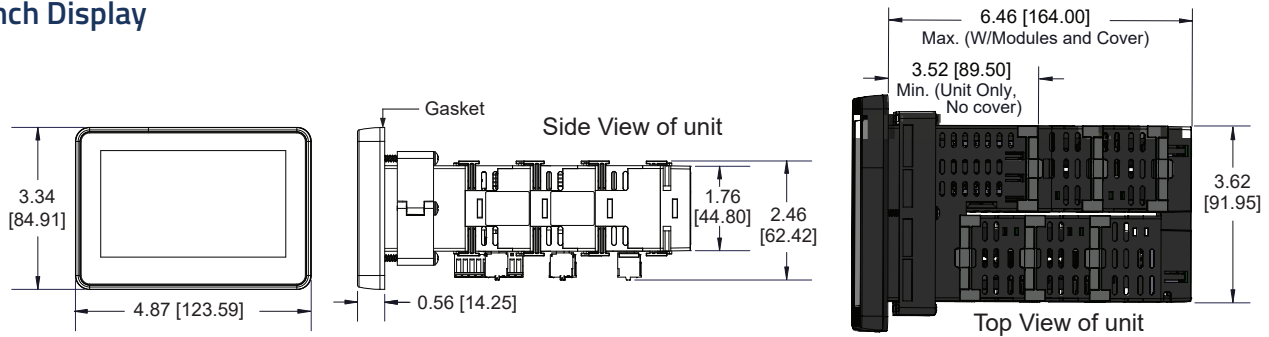
## AC to DC Power Module

Input: 85 VAC to 240 VAC  
Supports 4.3" and 3.5" PM-50 meters  
Removable terminal block

# PM-50 Meter and Module Dimensions

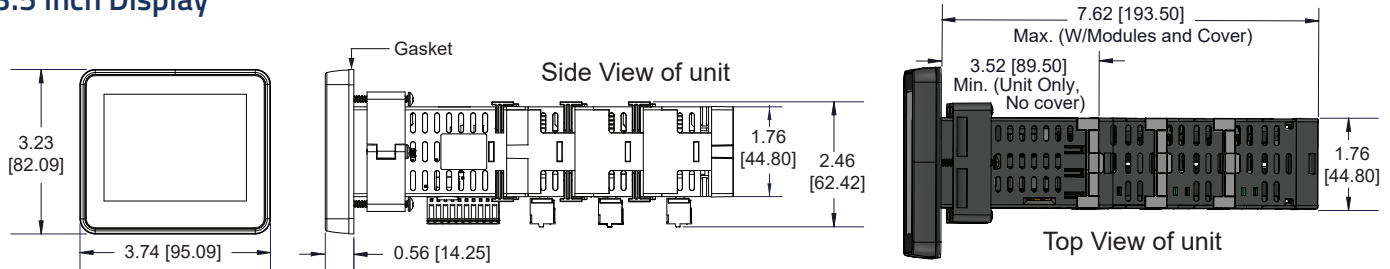
## Dimensions In inches [mm]

### 4.3 Inch Display



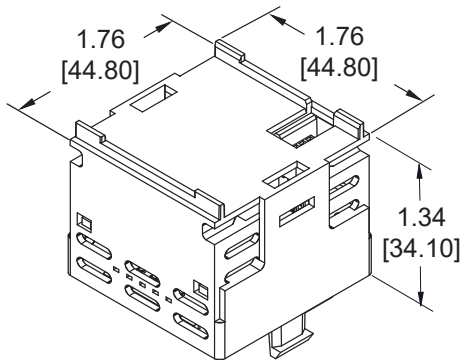
## Dimensions In inches [mm]

### 3.5 Inch Display

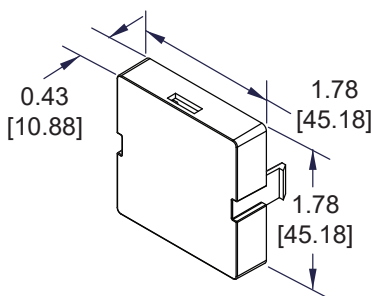


## Dimensions In inches [mm]

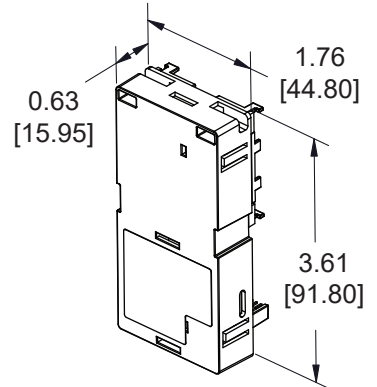
### Module



### Module Rear Cover



### Module Bus Board



[www.redlion.net](http://www.redlion.net)  
[contact us](mailto:contact us)

© 2024 Red Lion Controls, Inc. All Rights Reserved. The terms Red Lion and the Red Lion logo are registered trademarks of Red Lion Controls. All other marks are the property of their respective owners.

LD1001F 05 2024