Graphic display PM-50 with digital input

WACHENDORFF
Prozesstechnik GmbH & Co. KG

- 3.5" or 4.3" 18-bit color display with resistive touchscreen
- 2-fold counter/tachometer with mathematical function
- Slave display
- WiFi 4 connectivity (ModbusTCP communication)
- Universal input for digital signals
- Modular extensions possible

https://www.wachendorff-prozesstechnik.de/en/PM-50-Digital

Description

The new PM-50 graphic display with its universal digital input can be used with almost all commercially available NPN, PNP sensors, CMOS, TTL, potential-free contacts, permanent magnet sensors, as well as programming, operating and control technologies for many applications. The display can be used as a simple counter or tachometer. The mathematical functions, such as addition and subtraction, allow you to offset the counters/tachometers against each other and display them as counter C or tachometer C on the display. It is available with a 3.5" or 4.3" 18-bit (TFT) color display with resistive touchscreen and allows the user to easily switch between relevant screens by "swiping" to obtain comprehensive operating data for monitoring systems and products. Visual warnings and alarms are shown on the display, but can also be viewed on mobile devices via the PM-50 app. The app is available in the Apple and Google Play Store. A program wizard on the device makes it easy to set up the PM-50, but alternatively the display can also be programmed via the app or a web browser. For remote access to important workflows and process data, the display has an RS485 interface for Modbus RTU communication; Modbus TCP communication takes place via WiFi (4th gen.). Thanks to the possibility of simple modular expansion of the display on site, an RS232 interface for Modbus, an Ethernet connection (RJ45) and an analog output and / or relay output module (2x changeover contacts or 4x NO contacts) can be implemented quickly.

Product details

Entrance areas:	Software configurable input types:
	NPN, PNP sensors, CMOS, TTL, dry contacts, permanent magnet sensors
	Inputs support NPN or PNP logic with configurable input filtering for low frequency signals or switching contact debounce. Not isolated from common sensor input
	Logic: Input trigger level $_{VIL}$ = 1.2 V max.; $_{VIH}$ = 3.75 V min.
	NPN: Internal 7.8 K pull-up resistor to +5 VDC, 0.7 mA max.
	PNP: Internal 3.9 K pull-down resistor; 7.3 mA max. @ 28 VDC, $_{VMAX}$ = 30 VDC
	Magnetic pickup: $_{VIN\_PK}$ = 200 mV; $_{VIN\_HSYS}$ = 100 mV; must also have PNP selection enabled by software. $_{VMAX}$ = ± 40$_{VPEAK}$ or 28 Vrms
	Phase discriminator: If any double counting mode is used, user inputs 1 and/or 2 will accept the second signal of each signal pair. The user inputs do not have the software selection options Logic/Mag, HI/LO Freq and NPN/PNP. The user inputs are a logic input for which no low-frequency filtering is implemented in the software. The user input can only be selected as NPN/PNP via the User input active parameter.
Display:	4.3" or 3.5" color TFT display with analog resistive touchscreen
	3.5" display: Colors: 262,144 K Pixels: 320 x 240 Brightness: 540 cd/m² LED backlight service life: 30,000h*
	4.3" display: Colors: 262,144 K Pixels: 480 x 272 Brightness: 420 cd/m² LED backlight service life: 30,000h*
	*at room temperature (25 °C)

User inputs:	Two programmable user inputs Max. Input voltage: 30 VDC **NPN (LO):** Active: $_{VIN}$ < 0.9 VDC Inactive: $_{VIN}$ > 2.4 VDC 20 KOhm pull-up at 3.3 V **PNP (HI):** Active: $_{VIN}$ > 2.4 VDC Inactive: $_{VIN}$ < 0.9 VDC 20 KOhm pull-down	Ambient conditions:	Operating temperature range: -10 °C to +55 °C Storage temperature range: -20 °C to +60 °C Humidity during operation and storage: 0 % to 85 % rH, non-condensing Altitude: Up to 2000 meters
		Vibration and shock:	Vibration: 5-500 Hz, 2 g Shock: 20 g (10 g relay)
SSR outputs (OnBoard):	2 outputs, only NPN or PNP mode synchronous, not separately adjustable. **NPN mode (sink):** Type: Switched DC, N-channel open-drain MOSFET Max: 100 mA VDS ON: 0.3 V @ 100 mA VDS MAX: 30 VDC Current consumption in standby: 0.5 mA max. **PNP mode (source):** Type: Switched DC, P-channel open-source MOSFET Max: 100 mA VDS ON: 0.3 V @ 100 mA VDS MAX: 30 VDC Current consumption in standby: 0.5 mA max.	Dimensions (WxHxD):	**PM500D0301600F00:** Installation dimensions (WxHxD): 44.8 mm x 44.8 mm x 87.17 mm Height without terminal strips Depth specification corresponds to basic device incl. rear cover Installation depth with max. number of modules: 189.47 mm Panel cut-out: DIN 45 x 45 Display/front (WxHxD): 95.09 mm x 82.09 mm x 14.25 mm Rear cover (B): 11 mm **PM500D0400800F00:** Installation dimensions (WxHxD): 91.95 mm x 44.8 mm x 92.20 mm Height without terminal strips Depth specification corresponds to basic device incl. bus connector for PM-50 4.3" Installation depth with max. number of modules: 160.40 mm Panel cut-out: DIN 92 x 45 Display/front (WxHxD): 123.59 mm x 84.91 mm x 14.25 mm Bus connector rear cover (B): 15 mm Max. Sheet thickness: 6.35 mm Min. sheet thickness for NEMA 4X/ IP65 requirements: 1.02 mm
Sensor supply:	24 VDC, ±5%; @max. 50 mA		
RS485 interface (OnBoard):	Uses the Modbus RTU protocol (RS485) Baud rate: Up to 115,200 bit/s Data format: 7 or 8 bit; odd, even or no parity; 1 or 2 stop bits Isolation: 500 Vrms to sensor, user and digital inputs. Not isolated to semiconductor outputs		
Power supply:	10 VDC to 30 VDC; 4.6 W (without modules) Max. Power consumption: 12 W (with modules) Isolation: 500 Vrms for 1 min. to all inputs and outputs.	Housing:	One-piece cover/housing. Flame retardant. Installation seal and installation fastening included
WiFi 4:	Output power up to 20.5 dBm Frequency: 2412 MHz to 2484 MHz Channels: 1 to 13 Note: Channel/frequency limitation is based on the configured country/ region code. Wi-Fi compliance: TCP/IP; 802.11 b/g/n Modbus TCP communication via WiFi 4 possible.	Weight:	3.5" device: approx. 230 g 4.3": device approx. 326 g
		Protection class:	Type 4X for indoor use only IP65 (front) IP20 (rear)
		Certificates:	CE, UKCA, FCC, UL,
Memory:	Non-volatile memory, retains all programmable parameters and display values Memory card: microSD cards up to 32 GB in FAT16/FAT32 format possible.	Scope of delivery:	**PM500D0301600F00:** 1x rear cover 2x 2x locking clip for shock and vibration applications 1x mounting frame **PM500D0400800F00:** 1x empty module 1x Bus connector rear cover for PM-50 4.3" display 2x 2x locking clip for shock and vibration applications 1x mounting frame

Relay output (accessory):	**PMM000I0RL200000:** 2 x changeover contacts; switching capacity: 5 A at 250 VAC or 30 VDC; resistive load **PMM000I0RL400000:** 4 x NO contacts; Switching capacity: For one relay 3 A at 250 VAC or 30 VDC; resistive load When using all relays switching capacity max. 1A/relay	PMA000SP00800000	Protective film for the display of the PM-50; 4.3" display (content 10 pieces)
Analog output (accessory):	**PMM000I0AN000000:** 0/4 mA to 20 mA or 0 VDC to 10 VDC ±10 VDC Effec. Resolution: 16-Bit	PMA000SP01600000	Protective film for the display of the PM-50; 3.5" display (content 10 pieces)
RS232 interface (accessory)	**PMM000CM23200000:** Possible baud rates: 300 to 115,200 bit/s Data bits: 7 or 8 Parity: ungrade, grade or no parity		
Ethernet interface (accessory):	**PMM000CMENT00000:** 10/100 T-Base Auto MDI / MDI-X RJ-45 socket ModbusTCP communication possible.		
AC supply (accessory):	**PMM000PWACP00000:** Input: 85 VAC to 240 VAC; ±10%; 0.16 A to 0.3 A Frequency: 50/60 Hz Output: +15 VDC; ±10%; 0.8 A; max. 12 W Insulation: 3 kV between primary and secondary side Note: The AC supply module must always be mounted in the last position of the communication flow.		
Manufacturer:	Red Lion		

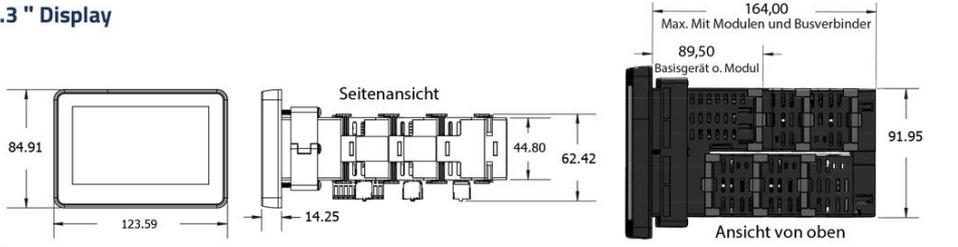| Products Order no.	
PM500D0301600F00	Graphic display PM-50 with digital input, 3.5" display
PM500D0400800F00	Graphic display PM-50 with digital input, 4.3" display

Accessories Order no.	
PMM000CM23200000	RS232 interface module for PM-50
PMM000CMENT00000	Ethernet interface module for PM-50
PMM000I0AN000000	Analog output module for PM-50
PMM000I0RL200000	Relay output module for PM-50; 2x changeover contact
PMM000I0RL400000	Relay output module for PM-50; 4x NC/NO contact
PMM000PWACP00000	AC supply module for PM-50
PMA000CP00800000	Bus connector for PM-50 4.3"
PMA000MK00800000	Adapter kit for PM-50; 92 mm x 75 mm to 96 mm x 48 mm
PMA000MK01600000	Adapter kit for PM-50; 68 mm x 68 mm to 96 mm x 48 mm
PMA000MKMLP00000	Locking clip for shock and vibration applications

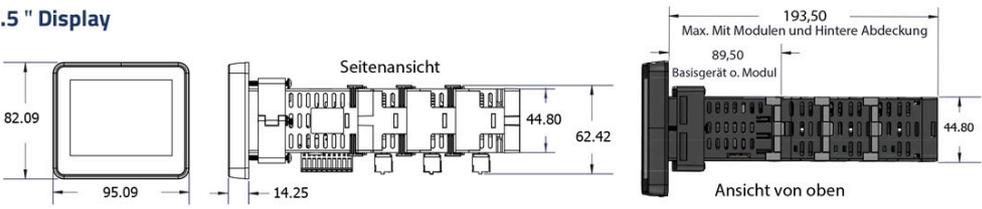## Abmessungen vom PM-50, Modulen, Hintere Abdeckung und Busverbinder

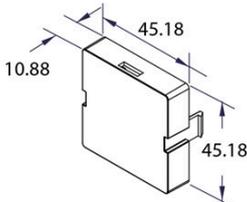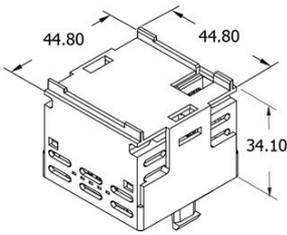### ◢ Abmessungen in mm

4.3 " Display

Seitenansicht

164,00
Max. Mit Modulen und Busverbinder

89,50
Basisgerät o. Modul

Ansicht von oben

◢ Abmessungen in mm

3.5 " Display

Seitenansicht

193,50
Max. Mit Modulen und Hintere Abdeckung

89,50
Basisgerät o. Modul

Ansicht von oben

◢ Abmessungen in mm

Module

**Busverbinder
für 4,3 " Display**

**Hintere Abdeckung
für 3,5 " Display**

Kommunikationsfluss
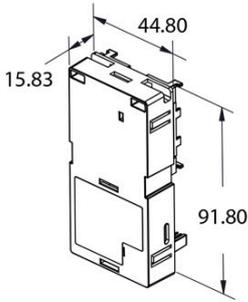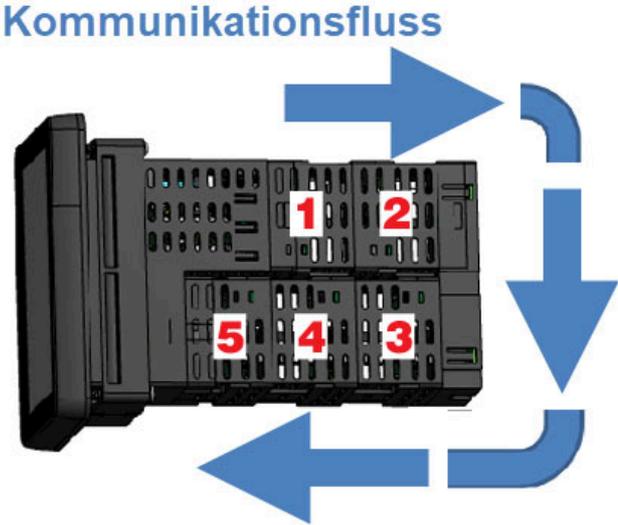
Drawings

CAD file PM-50 3.5"

3.5 Inch Display

3.23 (82.09)

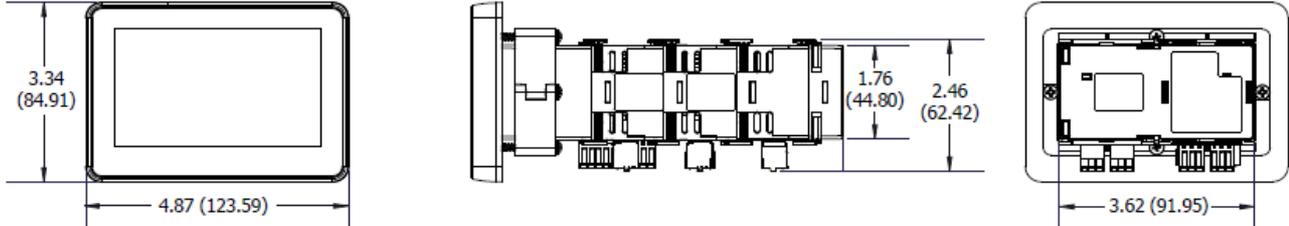3.74 (95.09)

1.76 (44.80) 2.46 (62.42)

1.76 (44.80)
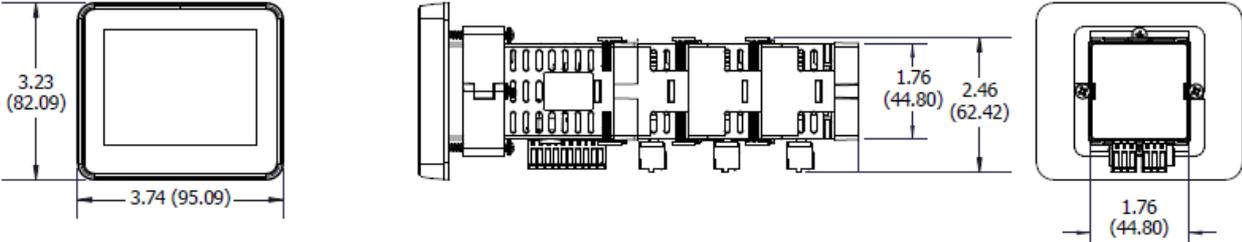
PM-50_3-5-Zoll.dwg

Drawings

 CAD file PM-50 4.3"

4.3 Display

PM-50_4-3-Zoll.dwg

Drawings

Locking clips for shock and vibration applications

PM-50_4-3-Zoll.dwg

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