



Digital panel meter 4-digit

M1

- red display of -1999...9999 digits (optional green, orange or blue display)
- minimal installation depth: 25 mm without plug-in terminal
- min-/max-value recording
- 10 adjustable setpoints
- display flashing at threshold exceedance / undershooting
- tara-function
- zero point tranquilization
- programming interlock via access code
- protection class IP65 at the front
- plug-in terminal
- accessories: PC-based configuration software PM-TOOL

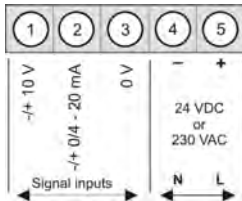
Digital panel meter

- Direct current
- Potentiometer
- Thermocouple
- Direct voltage
- Resistance
- Shunt
- PT100



ORDER NUMBER **EUR**
(without options)

• Direct current, direct voltage



Supply 230 VAC

Supply 24 VDC

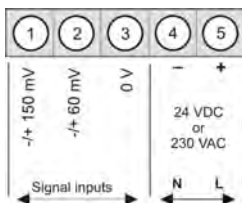
M1-1VR4B.0001.570BD 128,00

M1-1VR4B.0001.770BD 140,00
*For further voltage inputs
please see options!*

Product key options:

| M | 1- | 1 | V | R | 4 | B. | 0 | 0 | 0 | 1. | 5 | 7 | 0 | B | D | EUR | | |
|---|----|---|---|---|---|----|---|---|---|----|---|---|---|---|---|--|---|-------|
| M | 1- | 1 | V | R | 4 | B. | 0 | 0 | 0 | 1. | 7 | 7 | 0 | B | D | | | |
| | | | | | | | | | | | | | | | | S100 to 100 VDC, measuring error 0.5% of final value | 45,00 | |
| | | | | | | | | | | | | | | | | S260 to 50 VDC, measuring error 0.5% of final value | 15,00 | |
| | | | | | | | | | | | | | | | | 1 | Without keypad, operation on the back via interface | 10,00 |
| | | | | | | | | | | | | | | | | B | Blue | 38,00 |
| | | | | | | | | | | | | | | | | G | Green | 9,50 |
| | | | | | | | | | | | | | | | | Y | Orange | 3,00 |

• Direct voltage (Shunt)



Supply 230 VAC

Supply 24 VDC

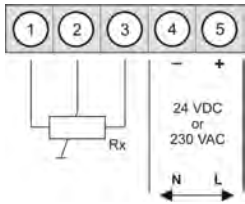
M1-1VR4B.0002.570BD 148,00

M1-1VR4B.0002.770BD 160,00

Product key options:

| M | 1- | 1 | V | R | 4 | B. | 0 | 0 | 0 | 2. | 5 | 7 | 0 | B | D | EUR | | |
|---|----|---|---|---|---|----|---|---|---|----|---|---|---|---|---|-----|---|-------|
| M | 1- | 1 | V | R | 4 | B. | 0 | 0 | 0 | 2. | 7 | 7 | 0 | B | D | | | |
| | | | | | | | | | | | | | | | | 1 | Without keypad, operation on the back via interface | 10,00 |
| | | | | | | | | | | | | | | | | B | Blue | 38,00 |
| | | | | | | | | | | | | | | | | G | Green | 9,50 |
| | | | | | | | | | | | | | | | | Y | Orange | 3,00 |

• **Potentiometer (1 kΩ ... 100 kΩ)**



Supply 230 VAC

M1-1VR4B.0005.570BD 148,00

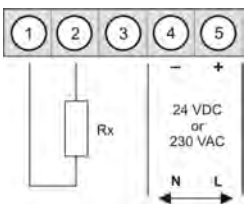
Supply 24 VDC

M1-1VR4B.0005.770BD 160,00

Product key options:

| M | 1- | 1 | V | R | 4 | B. | 0 | 0 | 0 | 5. | 5 | 7 | 0 | B | D | EUR |
|---|----|---|---|---|---|----|---|---|---|----|---|---|---|---|-------|-----|
| M | 1- | 1 | V | R | 4 | B. | 0 | 0 | 0 | 5. | 7 | 7 | 0 | B | D | |
| | | | | | | | | | | | 1 | Without keypad, operation on the back via interface | | | 10,00 | |
| | | | | | | | | | | | B | Blue | | | 38,00 | |
| | | | | | | | | | | | G | Green | | | 9,50 | |
| | | | | | | | | | | | Y | Orange | | | 3,00 | |

• **Resistance (1 kΩ, 10 kΩ, 100 kΩ or 1000 kΩ)**



Supply 230 VAC

1 kΩ

M1-1VR4B.0806.570BD 148,00

Supply 24 VDC

1 kΩ

M1-1VR4B.0806.770BD 160,00

Supply 230 VAC

10 kΩ

M1-1VR4B.0506.570BD 148,00

Supply 24 VDC

10 kΩ

M1-1VR4B.0506.770BD 160,00

Supply 230 VAC

100 kΩ

M1-1VR4B.0606.570BD 148,00

Supply 24 VDC

100 kΩ

M1-1VR4B.0606.770BD 160,00

Supply 230 VAC

1000 kΩ

M1-1VR4B.0706.570BD 148,00

Supply 24 VDC

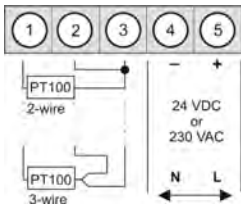
1000 kΩ

M1-1VR4B.0706.770BD 160,00

Product key options:

| M | 1- | 1 | V | R | 4 | B. | 0 | X | 0 | 6. | 5 | 7 | 0 | B | D | EUR |
|---|----|---|---|---|---|----|---|---|---|----|---|---|---|---|-------|-----|
| M | 1- | 1 | V | R | 4 | B. | 0 | X | 0 | 6. | 7 | 7 | 0 | B | D | |
| | | | | | | | | | | | 1 | Without keypad, operation on the back via interface | | | 10,00 | |
| | | | | | | | | | | | B | Blue | | | 38,00 | |
| | | | | | | | | | | | G | Green | | | 9,50 | |
| | | | | | | | | | | | Y | Orange | | | 3,00 | |

• **PT100 (2-/3- wire) -200°C...850°C / -328°F...1562°F**



Supply 230 VAC

M1-1TR4B.030C.570BD 153,00

Supply 24 VDC

M1-1TR4B.030C.770BD 165,00

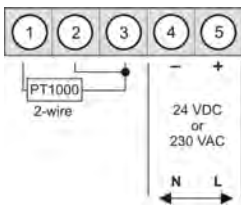
Product key options:

| | | | | | | | | | | | | | | | |
|---|----|---|---|---|---|----|---|---|---|----|---|---|---|---|---|
| M | 1- | 1 | T | R | 4 | B. | 0 | 3 | 0 | C. | 5 | 7 | 0 | B | D |
| M | 1- | 1 | T | R | 4 | B. | 0 | 3 | 0 | C. | 7 | 7 | 0 | B | D |

EUR

| | | |
|---|---|-------|
| 1 | Without keypad, operation on the back via interface | 10,00 |
| B | Blue | 38,00 |
| G | Green | 9,50 |
| Y | Orange | 3,00 |

• **PT1000 (2-wire) -200°C...850°C / -328°F...1562°F**



Supply 230 VAC

M1-1TR4B.060C.570BD 153,00

Supply 24 VDC

M1-1TR4B.060C.770BD 165,00

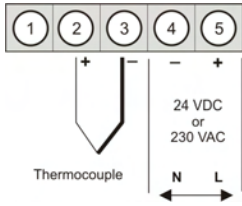
Product key options:

| | | | | | | | | | | | | | | | |
|---|----|---|---|---|---|----|---|---|---|----|---|---|---|---|---|
| M | 1- | 1 | T | R | 4 | B. | 0 | 6 | 0 | C. | 5 | 7 | 0 | B | D |
| M | 1- | 1 | T | R | 4 | B. | 0 | 6 | 0 | C. | 7 | 7 | 0 | B | D |

EUR

| | | |
|---|---|-------|
| 1 | Without keypad, operation on the back via interface | 10,00 |
| B | Blue | 38,00 |
| G | Green | 9,50 |
| Y | Orange | 3,00 |

• **Thermocouple Type B, E, J, K, L, N, R, S, T**



Supply 230 VAC

Supply 24 VDC

M1-1TR4B.040X.570BD

156,00

M1-1TR4B.040X.770BD

168,00

Product key options:

| | | | | | | | | | | | | | | | |
|---|----|---|---|---|---|----|---|---|---|----|---|---|---|---|---|
| M | 1- | 1 | T | R | 4 | B. | 0 | 4 | 0 | C. | 5 | 7 | 0 | B | D |
| M | 1- | 1 | T | R | 4 | B. | 0 | 4 | 0 | C. | 7 | 7 | 0 | B | D |

EUR

| | | |
|---|---|-------|
| 1 | Without keypad, operation on the back via interface | 10,00 |
| B | Blue | 38,00 |
| G | Green | 9,50 |
| Y | Orange | 3,00 |

• **Accessories**

Parametrisation software
Incl. USB-cable and device adapter
Programming is made via an interface on the back

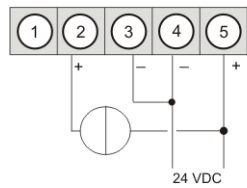
PM-TOOL-MUSB4

89,00

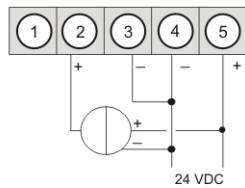
Connection examples

M1 devices with direct current / direct voltage input

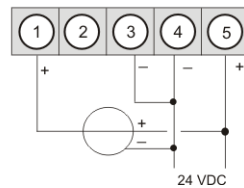
M1 in combination with a 2-wire sensor of 4-20 mA



M1 in combination with a 3-wire sensor of 0/4-20 mA



M1 in combination with a 3-wire sensor of 0-10 V



Technical data

| | | | |
|---|---------------------------------|--|--------------------------------------|
| Dimension | Housing | B96xH48xD25 mm (including plug-in terminal D= 41 mm) | |
| | Panel cut-out | 92.0 ^{+0.8} x 45.0 ^{+0.6} mm | |
| | Fixing | screw elements for insulation thickness up to 3 mm | |
| | Housing material | PC Polycarbonate, black | |
| | Sealing material | EPDM, 65 Shore, black | |
| | Protection class | at the front IP65 standard, back side IP00 | |
| | Weight | approx. 100 g | |
| | Connection | plug-in terminal; line cross-section up to 2.5 mm ² | |
| Display | Display | 4-digit | |
| | Digit height | 14 mm | |
| | Segment colour | Red (standard), optional available in green, blue and orange | |
| | Display range | -1999 to 9999 | |
| | Setpoints | optical display flashing | |
| | Overflow | horizontal bars at the top | |
| | Underflow | horizontal bars at the bottom | |
| | Display time/ Measuring time | 0.1 to 10.0 seconds | |
| Measuring input <i>M1-1VR4B.0001...</i> <i>Direct current /</i> <i>Direct voltage</i> | Span | -12...12 V | / -22...24 mA |
| | Measuring range | 0-10 V | / 0/4-20 mA |
| | Input resistance | Ri at ~100 kΩ | / Ri at ~100 Ω |
| | Measuring fault | 0.1% of measuring range, ± 1 Digit | / 0.1% of measuring range, ± 1 Digit |
| | Temperature drift | 100 ppm/K | |
| | Measuring time | 0.1 ... 10.0 seconds | |
| | Measuring principle | U/F-conversion | |
| | Resolution | approx. 18 Bit at 1s measuring time | |
| Measuring input <i>M1-1VR4B.0002...</i> <i>Shunt</i> | Span | -5...80 mV | / -10...180 mV |
| | Measuring range | 0...60 mV | / 0...150 mV |
| | Input resistance | Ri at ~12 kΩ | / Ri at ~30 Ω |
| | Measuring fault | 0.1% of measuring range, ± 1 Digit | / 0.1% of measuring range, ± 1 Digit |
| | Temperature drift | 100 ppm/K | |
| | Measuring time | 0.1 ... 10.0 seconds | |
| | Measuring principle | U/F-conversion | |
| | Resolution | approx. 18 Bit at 1s measuring time | |
| Measuring input <i>M1-1VR4B.0005...</i> <i>Potentiometer</i> | Span | >1 kΩ ... <1000 kΩ | |
| | Measuring range | 0...100 % | |
| | Measuring fault | 0.1% of measuring range, ± 1 Digit | |
| | Temperature drift | 100 ppm/K | |
| | Measuring time | 0.1 ... 10.0 seconds | |
| | Measuring principle | U/F-conversion | |
| | Resolution | approx. 18 Bit at 1s measuring time | |
| Measuring input <i>M1-1VR4B.0x06...</i> <i>Resistance</i> | Span | 0...1,1 kΩ, 0...11 kΩ, 0...110 kΩ, 0...1100 kΩ | |
| | Measuring range | 0...1 kΩ, 0...10 kΩ, 0...100 kΩ, 0...1000 kΩ | |
| | Measuring fault | 0.1% of measuring range, ± 1 Digit | |
| | Temperature drift | 100 ppm/K | |
| | Measuring time | 0.1 ... 10.0 seconds | |
| | Measuring principle | U/F-conversion | |
| | Resolution | approx. 18 Bit at 1s measuring time | |
| Measuring input <i>M1-1TR4B.030C...</i> <i>PT100</i> | Span | -200...850°C / -328...1562°F | |
| | Measuring fault | 0.1% of measuring range, ± 1 Digit | |
| | Temperature drift | 100 ppm/K | |
| | Measuring time | 0.1 ... 10.0 seconds | |
| | Measuring principle | U/F-conversion | |
| | Resolution | approx. 0.1°C or 0.1°F | |
| Measuring input <i>M1-1TR4B.040C...</i> <i>PT1000</i> | Span | -200...850°C / -328...1562°F | |
| | Measuring fault | 0.2% of measuring range, ± 1 Digit | |
| | Temperature drift | 100 ppm/K | |
| | Measuring principle | U/F-conversion | |
| | Resolution | approx. 0.1°C or 0.1°F | |

Measuring input

M1-1TR4B.040C...
Thermocouple

| | | |
|----------------------------|--------|----------------------|
| Measuring range | Type L | -200...900°C |
| | Type J | -210...1200°C |
| | Type K | -270...1372°C |
| | Type B | 80...1820°C |
| | Type S | -50...1768°C |
| | Type N | -270...1300°C |
| | Type E | -270...1000°C |
| | Type T | -270...400°C |
| | Type R | -50...1768°C |
| Measuring fault | | 2 K, ± 1 Digit |
| Temperature drift | | 100 ppm/K |
| Measuring time | | 0.1 ... 10.0 seconds |
| Measuring principle | | U/F-conversion |
| Resolution | | 0.1°C |
| Characteristic curve fault | | <± 1 kΩ |
| Reference junction | | Thermistor |

Power pack

| | |
|--------|--|
| Supply | 230 VAC +/- 10 % (typ.3.7 VA; max. 9 VA) |
| | 24 VDC +/- 10 %, galvanic insulated (typ. 0.5 VA; max. 1 VA) |

Memory

| | |
|-----------|-------------|
| EEPROM | |
| Data life | ≥ 100 years |

Ambient conditions

| | |
|---------------------|--|
| Working temperature | 0 to + 60 °C |
| Storing temperature | -20 to + 80 °C |
| Climatic density | relative humidity 0-85% on years average without dew |

CE-sign

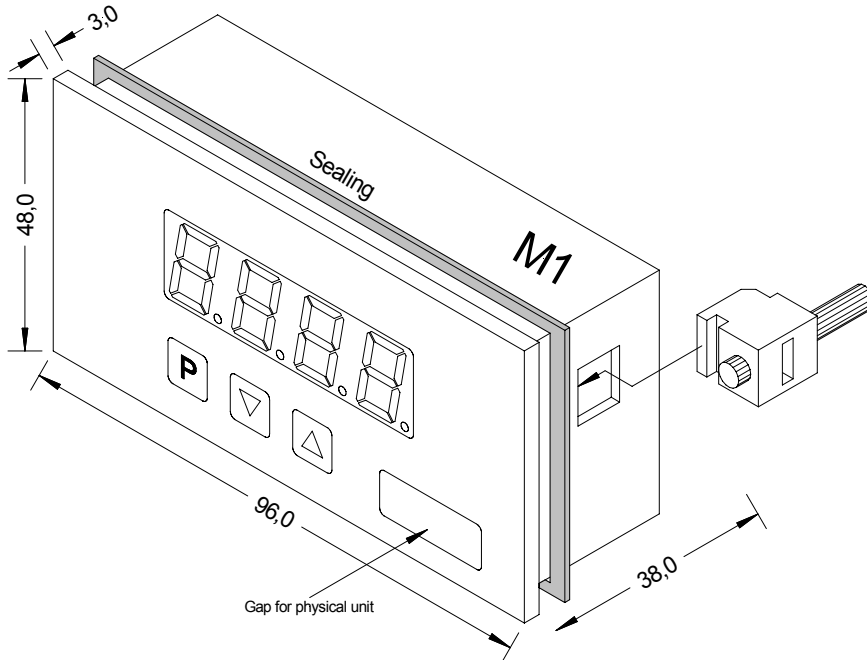
Conformity to directive 2004/108/EG

EMV

EN 61326

Safety standard

EN 61010

Housing:

Ordering code M1

Digital display standard

| | M | 1- | 1 | V | R | 4 | B. | 0 | 0 | 0 | 1. | 7 | 7 | 2 | B | D | |
|---------------------------|---|----|---|---|---|---|----|---|---|---|----|---|---|---|---|---|----------------------------------|
| Basic type M-Line | | | | | | | | | | | | | | | | | Dimension |
| | | | | | | | | | | | | | | | | | D physical unit (free choice) |
| Installation depth | | | | | | | | | | | | | | | | | Version |
| 41 mm incl. | | | | | | | | | | | | | | | | | B B |
| plug-in terminal | | | | | | | | | | | | | | | | | |
| Housing size | | | | | | | | | | | | | | | | | Setpoints |
| 96 x 48 x 25 mm | | | | | | | | | | | | | | | | | 0 no setpoints |
| (BxHxD) | | | | | | | | | | | | | | | | | |
| Display type | | | | | | | | | | | | | | | | | Protection class |
| Temperature | | | | | | | | | | | | | | | | | 7 IP65 / plug-in terminal |
| V, A, Ohm | | | | | | | | | | | | | | | | | |
| Display colours | | | | | | | | | | | | | | | | | Supply voltage |
| Blue | | | | | | | | | | | | | | | | | 5 230 VAC |
| Green | | | | | | | | | | | | | | | | | 7 24 VDC galv. insulated |
| Red | | | | | | | | | | | | | | | | | |
| Red/Green/Yellow | | | | | | | | | | | | | | | | | |
| Yellow | | | | | | | | | | | | | | | | | |
| Number of digits | | | | | | | | | | | | | | | | | Measuring input |
| 4-digit | | | | | | | | | | | | | | | | | 1 Direct current, direct voltage |
| | | | | | | | | | | | | | | | | | 2 Shunt |
| | | | | | | | | | | | | | | | | | 5 Potentiometer |
| | | | | | | | | | | | | | | | | | 6 Resistance |
| | | | | | | | | | | | | | | | | | C PT100 wire 800°C |
| | | | | | | | | | | | | | | | | | X Thermocouple |
| | | | | | | | | | | | | | | | | | type B, E, J, K, L, N, R, S, T |
| Digit height | | | | | | | | | | | | | | | | | Analog output |
| 14 mm | | | | | | | | | | | | | | | | | 0 without |
| Digital input | | | | | | | | | | | | | | | | | Temperature devices |
| without | | | | | | | | | | | | | | | | | 3 PT100-/2- 3-wire |
| | | | | | | | | | | | | | | | | | 4 Thermocouple |
| | | | | | | | | | | | | | | | | | Resistance |
| | | | | | | | | | | | | | | | | | 8 1 kΩ |
| | | | | | | | | | | | | | | | | | 5 10 kΩ |
| | | | | | | | | | | | | | | | | | 6 100 kΩ |
| | | | | | | | | | | | | | | | | | 7 1000 kΩ |
| | | | | | | | | | | | | | | | | | Sensor supply |
| | | | | | | | | | | | | | | | | | 0 without |