



## Digital panel meter 5-digit

### M2

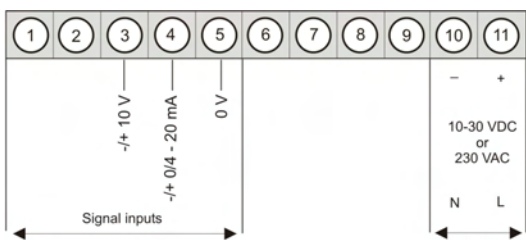
- red display of -19999...99999 digits (optional green, orange, blue or tricolour display)
- minimal installation depth: 70 mm without plug-in terminal
- min-/max-memory
- 30 additional adjustable setpoints (parameter driven)
- display flashing at threshold exceedance / undercut
- zero key for actuation of tara- /hold-function
- permanent min-/max-value recording
- zero point tranquilization
- volume measurement (totaliser)
- arithmetic function
- programming interlock via access code
- protection class IP65 at the front
- plug-in terminal
- two relay outputs optional
- analog output or sensor supply optional
- digital input optional
- accessories: PC-based configuration software PM-TOOL

# Digital panel meter

- Direct current
  - Potentiometer
  - Thermocouple
  - DMS-4-wire
- Direct voltage
  - Resistance
  - Frequency
  - Weighing technology
- Shunt
  - PT100
  - AC-RMS



## • Direct current, direct voltage



Supply 230 VAC

Supply 10-30 VDC

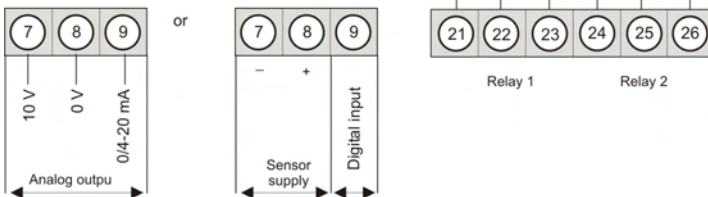
**M2-1VR5B.0001.570AD**

**160,00**

**M2-1VR5B.0001.670AD**

**190,00**

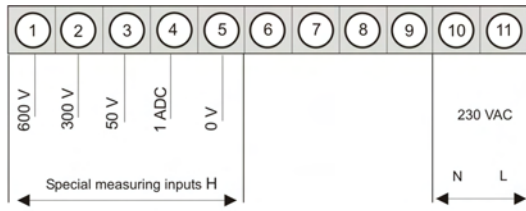
### Options:



### Product key options:

M	2-	1	V	R	5	B.	0	0	0	1.	5	7	0	A	D		EUR	
M	2-	1	V	R	5	B.	0	0	0	1.	6	7	0	A	D			
																2	2 relay outputs	33,00
																1	Without keypad, operation on the back	on demand
															X	Analogue output 0/4-20 mA, 0-10 VDC with 230 VAC	90,00	
																	Analogue output 0/4-20 mA, 0-10 VDC with 10-30 VDC	120,00
																2	Sensor supply 10 VDC / 20 mA incl. digital input with 230 VAC	25,00
																	Sensor supply 10 VDC / 20 mA incl. digital input with 10-30 VDC	55,00
																3	Sensor supply 24 VDC / 50 mA incl. digital input with 230 VAC	25,00
																	Sensor supply 24 VDC / 50 mA incl. digital input with 10-30 VDC	55,00
																I	Digital input	10,00
																B	Blue	44,00
																G	Green	10,00
																Y	Orange	4,00
																T	Tricolour (Red-Green-Orange)	30,00

• **Direct current, direct voltage – Special measuring inputs H**



Supply 230 VAC

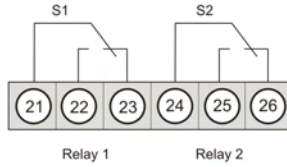
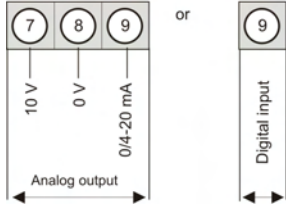
**M2-1VR5B.0H01.570AD**

**160,00**

**Special measuring input**

**600 V, 300 V, 50 V, 1 A**

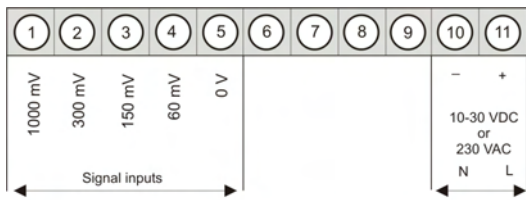
**Options:**



**Product key options:**

M 2- 1 V R 5 B. 0 H 0 1. 5 7 0 A D											EUR		
											2	2 relay outputs	33,00
											1	Without keypad, operation on the back	on demand
											X	Analog output 0/4-20 mA, 0-10 VDC with 230 VAC	90,00
												Analog output 0/4-20 mA, 0-10 VDC with 10-30 VDC	120,00
											I	Digital input	10,00
											B	Blue	44,00
											G	Green	10,00
											Y	Orange	4,00
											T	Tricolour (Red-Green-Orange)	30,00

• **Direct voltage (Shunt)**



Supply 230 VAC

**M2-1VR5B.0002.570AD**

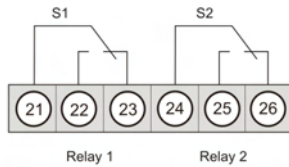
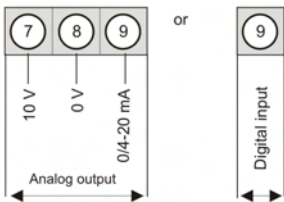
**190,00**

Supply 10-30 VDC

**M2-1VR5B.0002.670AD**

**225,00**

**Options:**



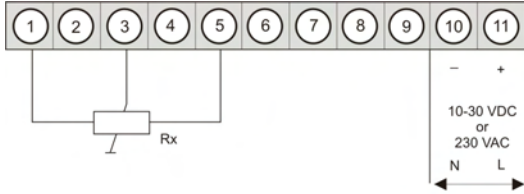
**Product key options:**

M	2-	1	V	R	5	B.	0	0	0	2.	5	7	0	A	D
M	2-	1	V	R	5	B.	0	0	0	2.	6	7	0	A	D

**EUR**

2	2 relay outputs	33,00
1	Without keypad, operation on the back	on demand
X	Analog output 0/4-20 mA, 0-10 VDC with 230 VAC	90,00
	Analog output 0/4-20 mA, 0-10 VDC with 10-30 VDC	120,00
I	Digital input	10,00
B	Blue	44,00
G	Green	10,00
Y	Orange	4,00
T	Tricolour (Red-Green-Orange)	30,00

• **Potentiometer 0-100 % (>1 kΩ ... <1000 kΩ)**



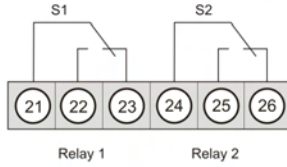
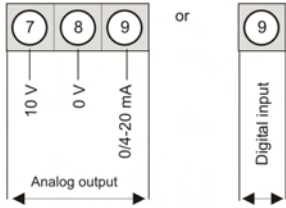
Supply 230 VAC

Supply 10-30 VDC

**M2-1VR5B.0005.570AD** 188,00

**M2-1VR5B.0005.670AD** 218,00

**Options:**



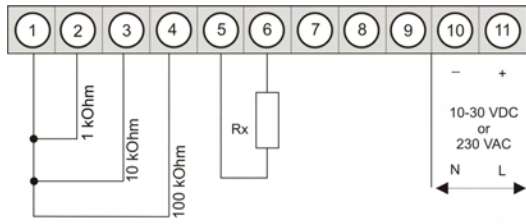
**Product key options:**

M	2-	1	V	R	5	B.	0	0	0	5.	5	7	0	A	D
M	2-	1	V	R	5	B.	0	0	0	5.	6	7	0	A	D

**EUR**

2	2 relay outputs	33,00
1	Without keypad, operation on the back	on demand
X	Analog output 0/4-20 mA, 0-10 VDC with 230 VAC	90,00
	Analog output 0/4-20 mA, 0-10 VDC with 10-30 VDC	120,00
I	Digital input	10,00
B	Blue	44,00
G	Green	10,00
Y	Orange	4,00
T	Tricolour (Red-Green-Orange)	30,00

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



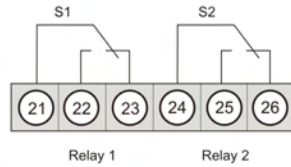
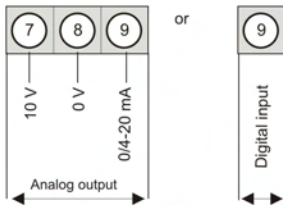
Supply 230 VAC

**M2-1VR5B.0006.570AD** 188,00

Supply 10-30 VDC

**M2-1VR5B.0006.670AD** 225,00

**Options:**



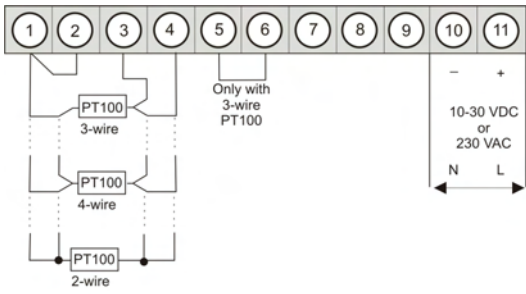
**Product key options:**

M	2-	1	V	R	5	B.	0	0	0	6.	5	7	0	A	D
M	2-	1	V	R	5	B.	0	0	0	6.	6	7	0	A	D

**EUR**

2	2 relay outputs	33,00
1	Without keypad, operation on the back	on demand
X	Analog output 0/4-20 mA, 0-10 VDC with 230 VAC	90,00
	Analog output 0/4-20 mA, 0-10 VDC with 10-30 VDC	120,00
I	Digital input	10,00
B	Blue	44,00
G	Green	10,00
Y	Orange	4,00
T	Tricolour (Red-Green-Orange)	30,00

• **PT100 (4-wire) -200,0°C...850,0°C / -328,0°F...1562,0°F**



Supply 230 VAC

**M2-1TR5B.010C.570AD** 200,00

Supply 10-30 VDC

**M2-1TR5B.010C.670AD** 230,00

Supply 230 VAC

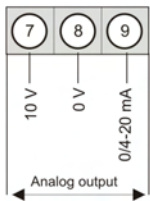
**M2-1TR5B.020C.570AD** 175,00

Supply 10-30 VDC

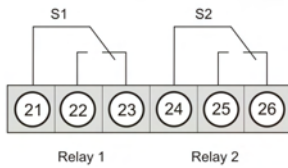
**M2-1TR5B.020C.670AD** 210,00

**Special measuring input: PT100-2-wire**

Options:



or



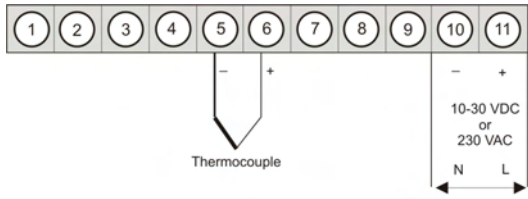
**Product key options:**

M	2-	1	T	R	5	B.	0	X	0	C.	5	7	0	A	D
M	2-	1	T	R	5	B.	0	X	0	C.	6	7	0	A	D

EUR

2	2 relay outputs	33,00
1	Without keypad, operation on the back	on demand
X	Analog output 0/4-20 mA, 0-10 VDC with 230 VAC	90,00
	Analog output 0/4-20 mA, 0-10 VDC with 10-30 VDC	120,00
I	Digital input	10,00
B	Blue	44,00
G	Green	10,00
Y	Orange	4,00
T	Tricolour (Red-Green-Orange)	30,00

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

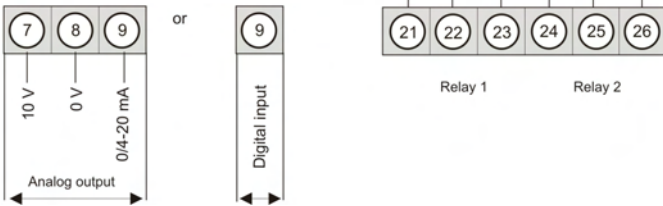


Supply 230 VAC  
Supply 10-30 VDC

**M2-1TR5B.040X.570AD**      **195,00**

**M2-1TR5B.040X.670AD**      **230,00**

**Options:**

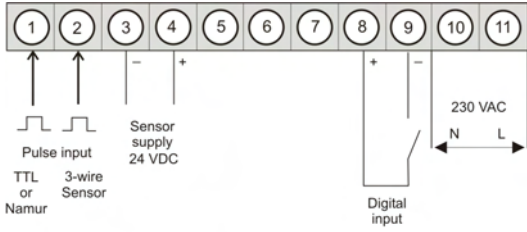


**Product key options:**

M 2- 1 T R 5 B. 0 4 0 X. 5 7 0 A D											EUR							
M	2-	1	T	R	5	B.	0	4	0	X.	5	7	0	A	D	2	2 relay outputs	33,00
M	2-	1	T	R	5	B.	0	4	0	X.	6	7	0	A	D	1	Without keypad, operation on the back	on demand
											X	Analog output 0/4-20 mA, 0-10 VDC with 230 VAC	90,00					
											X	Analog output 0/4-20 mA, 0-10 VDC with 10-30 VDC	120,00					
											I	Digital input	10,00					
											B	Blue	44,00					
											G	Green	10,00					
											Y	Orange	4,00					
											T	Tricolour (Red-Green-Orange)	30,00					



• **Frequency**

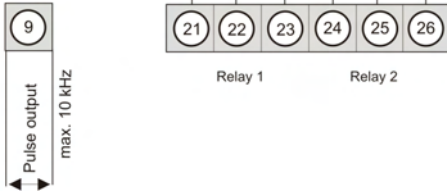


Supply 230 VDC

**M2-1FR5B.0307.570AD**

**185,00**

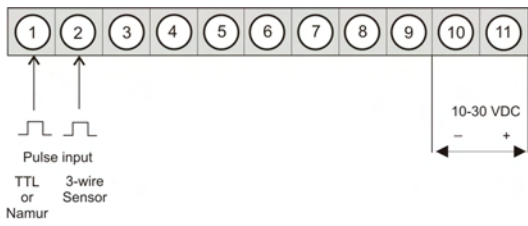
**Options:**



**Product key options:**

M	2-	1	F	R	5	B.	0	3	0	7.	5	7	0	A	D	EUR		
																2	2 relay outputs	33,00
																1	Without keypad, operation on the back	on demand
																X	Analog output 0/4-20 mA, 0-10 VDC with 230 VAC	90,00
																K	Impulsausgang max. 10 kHz	10,00
																B	Blue	44,00
																G	Green	10,00
																Y	Orange	4,00
																T	Tricolour (Red-Green-Orange)	30,00

• **Frequency**

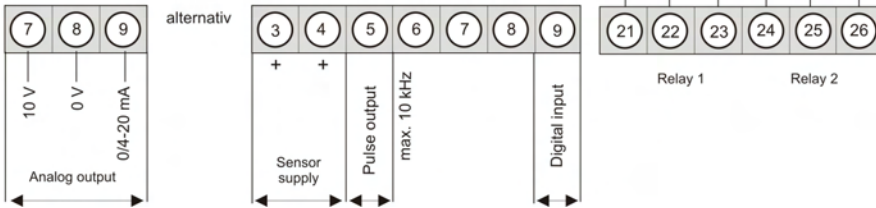


Supply 10-30 VDC

**M2-1FR5B.0007.670AD**

**195,00**

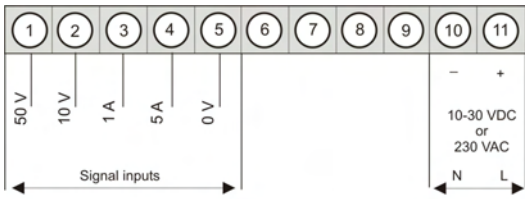
**Optionen:**



**Product key options:**

M 2- 1 F R 5 B. 0 0 0 7. 6 7 0 A D											EUR		
											2	2 relay outputs	33,00
											1	Without keypad, operation on the back	on demand
											X	Analog output 0/4-20 mA, 0-10 VDC	90,00
											2	Sensor supply 10 VDC / 20 mA incl. digital input	55,00
											3	Sensor supply 24 VDC / 50 mA incl. digital input	55,00
											K	Pulse output max. 10 kHz, incl. sensor supply 24 VDC / incl. digital input	65,00
											B	Blue	44,00
											G	Green	10,00
											Y	Orange	4,00
											T	Tricolour (Red-Green-Orange)	30,00

• **AC voltage, alternating current (true RMS)**



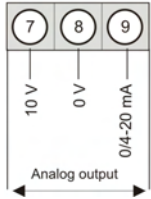
Supply 230 VAC

**M2-1VR5B.0004.570AD** 240,00

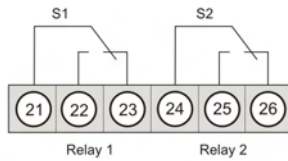
Supply 10-30 VDC

**M2-1VR5B.0004.670AD** 270,00

**Options:**



or



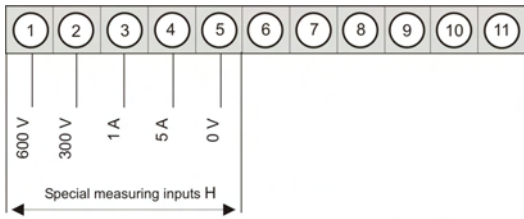
**Product key options:**

M	2-	1	V	R	5	B.	0	0	0	4.	5	7	0	A	D
M	2-	1	V	R	5	B.	0	0	0	4.	6	7	0	A	D

**EUR**

2	2 relay outputs	33,00
1	Without keypad, operation on the back	on demand
X	Analog output 0/4-20 mA, 0-10 VDC with 230 VAC	90,00
	Analog output 0/4-20 mA, 0-10 VDC with 10-30 VDC	120,00
I	Digital input	10,00
B	Blue	44,00
G	Green	10,00
Y	Orange	4,00
T	Tricolour (Red-Green-Orange)	30,00

• **AC voltage, alternating current (true RMS) – special measuring inputs H**

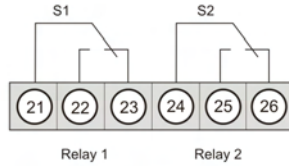
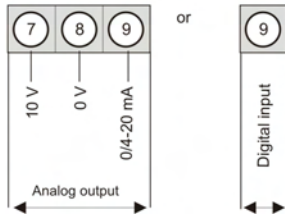


Supply 230 VAC

**M2-1VR5B.0H04.570AD** 260,00

**Special measuring input:** 600 V, 300 V, 1 A, 5 AAC

**Options:**



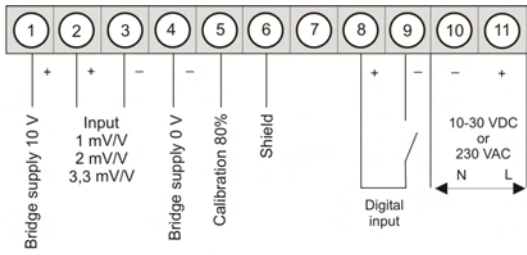
**Product key options:**

M	2-	1	V	R	5	B.	0	H	0	4.	5	7	0	A	D	EUR			
																2	2 relay outputs	33,00	
																1	Without keypad, operation on the back	on demand	
																X	Analog output 0/4-20 mA, 0-10 VDC with 230 VAC	90,00	
																		Analog output 0/4-20 mA, 0-10 VDC with 10-30 VDC	120,00
																I	Digital input	10,00	
																B	Blue	44,00	
																G	Green	10,00	
																Y	Orange	4,00	
																T	Tricolour (Red-Green-Orange)	30,00	

**ORDER NUMBER**  
(without options)

**EUR**

• **DMS-4-wire with calibration**



Supply 230 VAC

Supply 10-30 VDC

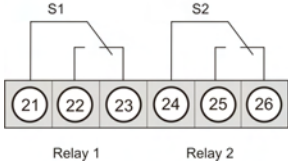
**M2-1MR5B.020X.570AD**

**245,00**

**M2-1MR5B.020X.670AD**

**310,00**

**Options:**



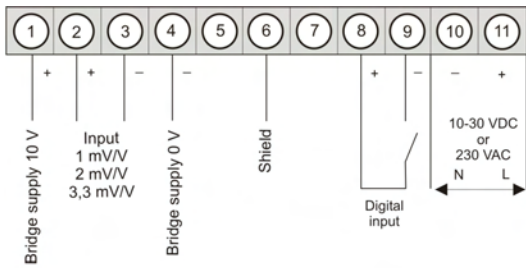
**Product key options:**

M	2-	1	M	R	5	B.	0	2	0	X.	5	7	0	A	D
M	2-	1	M	R	5	B.	0	2	0	X.	6	7	0	A	D

**EUR**

2	2 relay outputs	33,00
1	Without keypad, operation on the back	on demand
B	Blue	44,00
G	Green	10,00
Y	Orange	4,00
T	Tricolour (Red-Green-Orange)	30,00

• **Weighing technology**



Supply 230 VAC

**M2-1WR5B.020X.570AD**

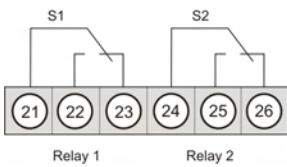
**245,00**

Supply 10-30 VDC

**M2-1WR5B.020X.670AD**

**310,00**

**Options:**



**Product key options:**

M	2-	1	W	R	5	B.	0	2	0	X.	5	7	0	A	D
M	2-	1	W	R	5	B.	0	2	0	X.	6	7	0	A	D

**EUR**

2	2 relay outputs	33,00
1	Without keypad, operation on the back	on demand
B	Blue	44,00
G	Green	10,00
Y	Orange	4,00
T	Tricolour (Red-Green-Orange)	30,00

• **Accessories**

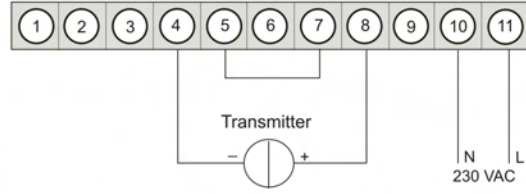
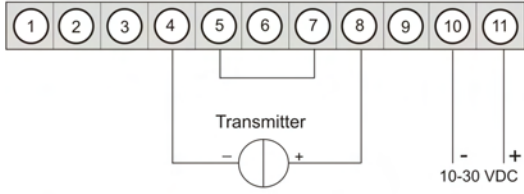
Parametrisation software  
Incl. USB-cable and device adapter  
Programming is made via an interface on the back

**PM-TOOL-MUSB6**

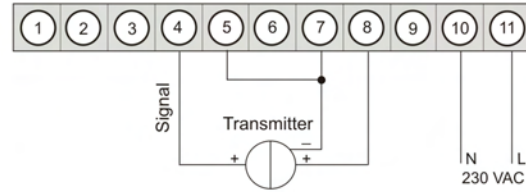
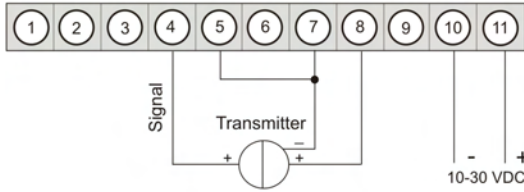
**89,00**

## Connection examples - M2 devices with a direct current /direct voltage input and sensor supply.

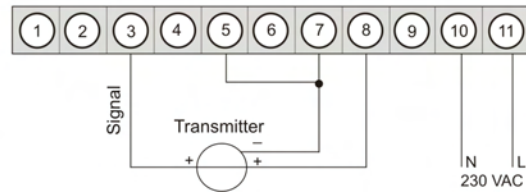
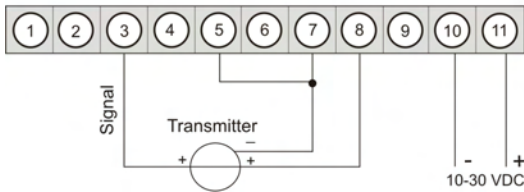
### 2-wire-sensor: 4-20 mA



### 3-wire-sensor: 0-20 mA

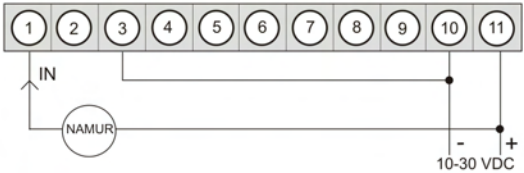


### 3-wire-sensor: 0-10 V

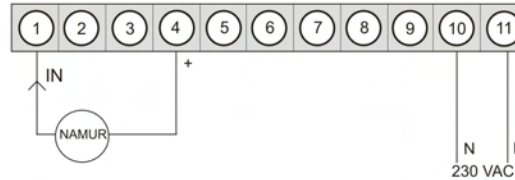


## M2-devices with frequency input / impulse input

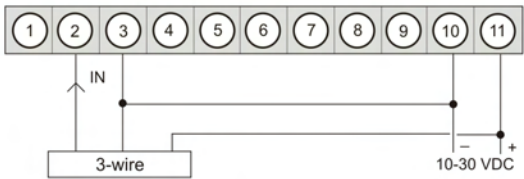
### Namur



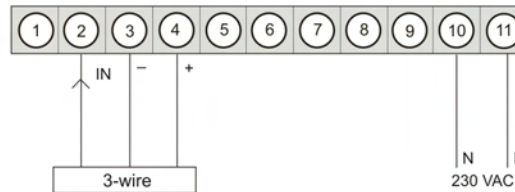
### Namur



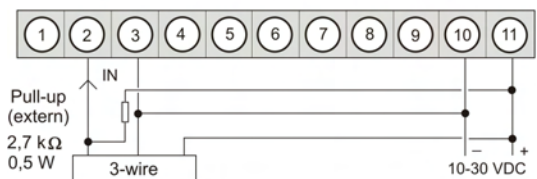
### 3-wire PNP



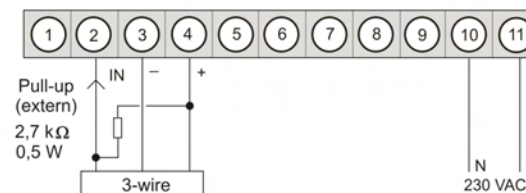
### 3-Leiter PNP



### 3-wire NPN



### 3-wire NPN



# Technical data

<b>Dimension</b>	Housing Panel cut-out Fixing Housing material Sealing material Protection class  Weight Connection	B96 x H48 x D70 mm (including plug-in terminal D= 89 mm) 92.0 <sup>+0.8</sup> x 45.0 <sup>+0.6</sup> mm screw elements for insulation thickness up to 3 mm PC Polycarbonate, black EPDM, 65 Shore, black at the front IP65 standard, back side IP00 approx. 200 g plug-in terminal; line cross-section up to 2.5 mm <sup>2</sup>
<b>Display</b>	Display Digit height Segment colour Display range Setpoints Overflow Underflow Display time	5-digit 14 mm red (standard), optional available in green, blue, orange and tricolour -19999 to 99999 optical display flashing horizontal bars at the top horizontal bars at the bottom 0.1 to 10.0 seconds
<b>Measuring input</b> <i>M2-1VR5B.0001...</i> <i>Direct current /</i> <i>Direct voltage</i>	Span Measuring range Input resistance Measuring fault Temperature drift Measuring time Measuring principle Resolution	-12...12 V / -22...24 mA 0-10 V / 0/4-20 mA Ri at ~200 kΩ / Ri at ~100 Ω 0.1% of measuring range, ± 1 Digit / 0.1% of measuring range, ± 1 Digit 100 ppm/K 0.1 ... 10.0 seconds U/F-conversion approx. 18 Bit at 1 second measuring time
<b>Measuring input</b> <i>M2-1VR5B.0H01...</i> <i>H Direct current /</i> <i>Direct voltage</i>	Span Input resistance Measuring fault Temperature drift Measuring time Measuring principle Resolution	0 – 600 VDC / 0 – 300 VDC / 0 – 50 VDC / 0 – 1 ADC Ri at ~ 2 MΩ / Ri at ~ 1 MΩ / Ri at ~200 kΩ / Ri at ~0,2 Ω 0.5 % of measuring range, ± 1 Digit 100 ppm/K 0.1 ... 10.0 seconds U/F-conversion approx. 18 Bit at 1s measuring time
<b>Measuring input</b> <i>M2-1VR5B.0002...</i> <i>Shunt</i>	Span Measuring range Input resistance Measuring fault Temperature drift Measuring time Measuring principle Resolution	-5...75 mV / -15...180 mV / -30...360 mV / -100...1200 mV 0...60 mV / 0...150 mV / 0...300 mV / 0...1000 mV Ri at ~12 kΩ / Ri at ~60 Ω / Ri at ~30 Ω / Ri at ~200 Ω 0.2% of measuring range, ± 1 Digit / 0.1% of measuring range, ± 1 Digit 100 ppm/K 0.1 ... 10.0 seconds U/F-conversion approx. 18 Bit at 1s measuring time
<b>Measuring input</b> <i>M2-1VR5B.0005...</i> <i>Potentiometer</i>	Span Measuring range Measuring fault Temperature drift Measuring time Measuring principle Resolution	>1 kΩ ... <1000 kΩ 0...100 % 0.1% of measuring range, ± 1 Digit 100 ppm/K 0.1 ... 10.0 seconds U/F-conversion approx. 18 Bit at 1s measuring time
<b>Measuring input</b> <i>M2-1VR5B.0x06...</i> <i>Resistance</i>	Span Measuring range Measuring fault Temperature drift Measuring time Measuring principle Resolution	0...1.1 kΩ / 0...11 kΩ / 0...110 kΩ 0...1 kΩ / 0...10 kΩ / 0...100 kΩ 0.1% of measuring range, ± 1 Digit 100 ppm/K 0.1 ... 10.0 seconds U/F-conversion approx. 18 Bit at 1s measuring time
<b>Measuring input</b> <i>M2-1TR5B.030C...</i> <i>PT100</i>	Span Measuring fault Temperature drift Measuring time Measuring principle Resolution	-200,0...850,0°C / -328,0...1562,0°F 0.1% of measuring range, ± 1 Digit 100 ppm/K 0.1 ... 10.0 seconds U/F-conversion 0.1°C or 0.1°F



**Measuring input**

<i>M2-1TR5B.040C...</i> <i>Thermocouple</i>	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 K
	Reference junction	thermistor

**Measuring input**

<i>M2-1FR5B.0007...</i> <i>Frequency</i>	Signal	impulse input, TTL, Namur, 3-wire initiator PNP/NPN
	Input resistance	Ri at 24 V / 4 kΩ High/Low level >10 V / < 6 V High/Low TTL level >4.6 V / <1.9 V
	Input frequency	0.01 Hz selectable up to 999.99 kHz
	Measuring fault	0.005% of measuring range

**Measuring input**

<i>M2-1VR5B.0004...</i> <i>AC voltage</i>	Measuring range	50 VAC / 10 VAC / 5 AAC / 1 AAC
	Input resistance	Ri at ~200 kΩ / Ri at ~40 kΩ / Ri at ~0.05 Ω / Ri at ~200 Ω
	Measuring fault	0.5% of measuring range at 50 Hz...1 kHz up to crestfactor 4 for input signals of 1...100% of final value
	Temperature drift	100 ppm/K
	Measuring time	0.1 ... 10.0 seconds
	Measuring principle	U/F-conversion
	Resolution	approx. 18 Bit at 1 second measuring time

**Measuring input**

<i>M2-1VR5B.0H04...</i> <i>H AC voltage</i>	Measuring range	600 VAC / 300 VAC / 5 AAC / 1 AAC
	Input resistance	Ri at ~2 MΩ / Ri at ~1 MΩ / Ri at ~0.05 Ω / Ri at ~200 Ω
	Measuring fault	0.5% of measuring range at 50 Hz...1 kHz up to crestfactor 4 for input signals of 1...100% of final value
	Temperature drift	100 ppm/K
	Measuring time	0.1 ... 10.0 seconds
	Measuring principle	U/F-conversion
	Resolution	approx. 18 Bit at 1 second measuring time

**Measuring input**

<i>M2-1MR5B.020X...</i> <i>M2-1WR5B.020X...</i>	Sensor sensitivity	1 mV/V, 2 mV/V, 3.3 mV/V
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**Output**

Relay	with change-over contact 250 V / 2 AAC, 30 V / 2 ADC
Switching cycle	0.5 * 10 <sup>5</sup> at max. contact load 5 * 10 <sup>5</sup> mechanically Separation in accordance with DIN EN 50178 / Specifications in accordance with DIN EN 60255
Impulse output	max. 10 kHz (only for frequency metering devices)
Analog output	0-10 VDC, 0/4-20 mA (16 Bit) switchable
Sensor supply	24 VDC / 50 mA 10 VDC / 20 mA
Bridge supply	10 VDC / 20-40 mA / 250-500 Ω

**Digital input**

Input	< 2.4 OFF; > 10 V ON; max. 30 VDC Ri at ~ 5 kΩ
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**Power pack**

Supply	230 VAC +/- 10 % (max. 10 VA) 10-30 VDC, galvanic insulated (max. 4 VA)
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**Memory**

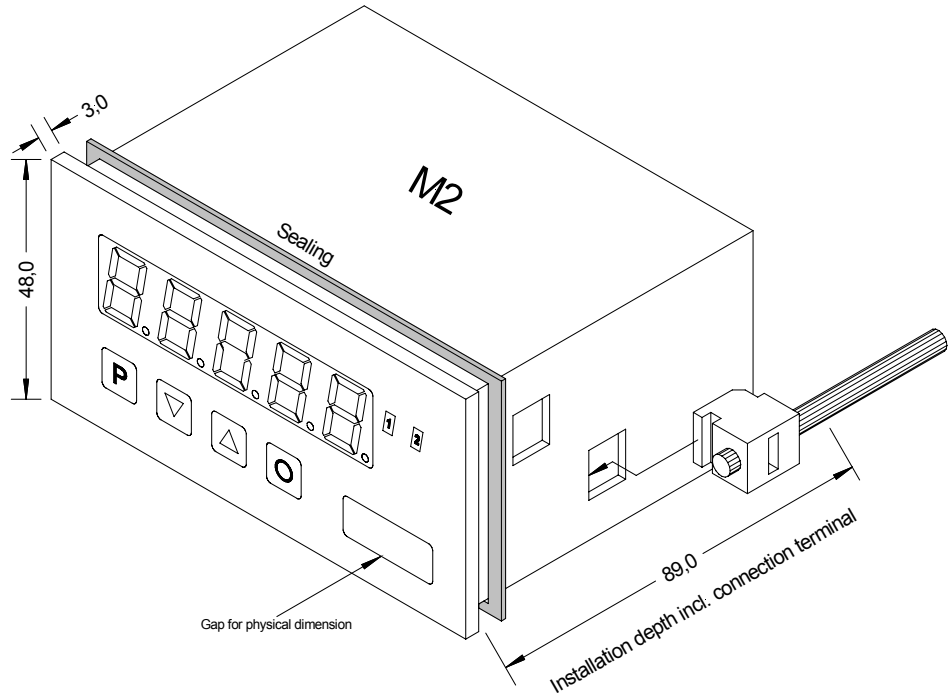
EEPROM	
Data life	≥ 100 years

**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 M2 - Digital display standard

	M	2-	1	V	R	5	B.	0	0	0	1.	6	7	0	A	D
<b>Basic type M-Line</b>																
<b>Installation depth</b> 89 mm (incl. plug-in terminal)			2													
<b>Housing size</b> 96x48x70 mm (BxHxD)			1													
<b>Display type</b> DMS Frequency Temperature V, A, Ohm Weighing technology	M															
<b>Display colours</b> Blue Green Red Red/Green/Orange Orange																
<b>Number of digits</b> 5-digit																
<b>Digit height</b> 14 mm																
<b>Digital input</b> without 1x, incl. sensor supply																
<b>DC devices</b> 100 VDC, 600 VDC, 200 mA, 1 ADC																
<b>AC devices</b> 300 VAC, 600 VAC 1 A, 5 AAC																
<b>Temperature devices</b> PT100-4-wire PT100-2-wire Thermocouple																
<b>Resistance</b> 1 MΩ																
<b>Dimension</b> D physical unit																
<b>Version</b> A																
<b>Setpoints</b> 0 no setpoints 2 2 relay outputs																
<b>Protection class</b> 1 Without keypad, operation on the back 7 IP65 / plug-in terminal																
<b>Supply voltage</b> 4 115 VAC plus 10,25€ 5 230 VAC 6 10-30 VDC galv. insulated																
<b>Measuring input</b> 1 Direct current, direct voltage 2 Shunt 4 AC, true RMS 5 Potentiometer 6 Resistance 7 Frequency C PT100 up to 800°C X Thermocouple type B,E,J,K,L,N,R,S,T X DMS/Weighing technology 1-3.3mV																
<b>Analog output</b> 0 without X 0-10 VDC, 0/4-20 mA																
<b>Sensor supply</b> 0 without 2 10 VD / 20 mA incl. digital input 3 24 VDC / 50 mA incl. digital input K 24 VDC / 50 mA incl. digital input and impulse output (10 kHz only for frequency metering devices)																