



## Digital panel meter with 4½-digit

### PV4, PT4, PF4, PW4

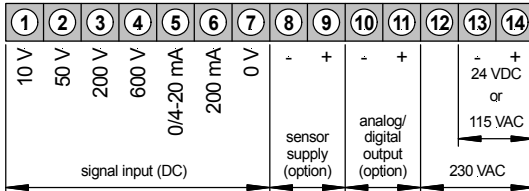
- galvanically insulated
- 8 free scalable setpoints/hysteresis
- optical setpoint indication
- analog output – galvanically insulated
- sensor supply – galvanically insulated
- interface
- min/max memory

# Digital panel meter

- Direct voltage
- Alternating voltage
- Resistance
- PT100
- Direct current
- Alternating current
- Potentiometer
- Thermocouple
- Frequency
- Weighing technology



## • Direct voltage, direct current



Transmitter connections see page 7

Power supply 230/115 VAC

Power supply 24 VDC

Power supply 24 VDC (galv. insulated)

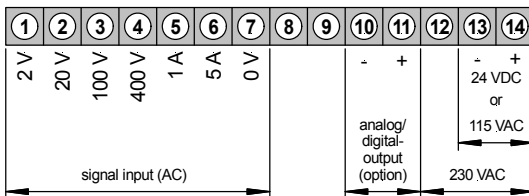
ORDER NUMBER OF TYPE  
(without options)

**PV 4.001.112B**

**PV 4.001.132B**

**PV 4.001.172B**

## • Alternating voltage, alternating voltage



Power supply 230/115 VAC

Power supply 24 VDC  
(galv. insulated)

Standard

True effective value RMS

Standard

True effective value RMS

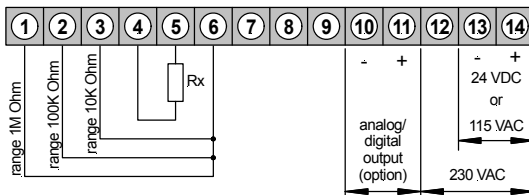
**PV 4.004.112B**

**PV 4.104.112B**

**PV 4.004.172B**

**PV 4.104.172B**

## • Resistance, potentiometer measurement



Power supply 230/115 VAC

Power supply 24 VDC

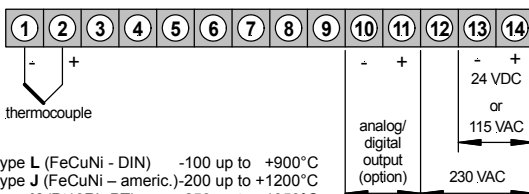
Power supply 24 VDC (galv. insulated)

**PV 4.006.112B**

**PV 4.006.132B**

**PV 4.006.172B**

## • Thermocouple L, J, K, S and N



Power supply 230/115 VAC

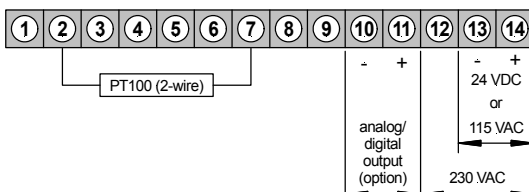
Power supply 24 VDC (galv. insulated)

**PT 4.40x.112B**

**PT 4.40x.172B**

Type L (FeCuNi - DIN) -100 up to +900°C  
 Type J (FeCuNi - americ.) -200 up to +1200°C  
 Type K (Pt10Rh-PT) -250 up to +1350°C  
 Type S (NiCrNi) -50 up to +1750°C  
 Type N (NiCrSi-NiSi) -250 up to +1300°C

## • PT100 (2-wire)



2-wire Power supply 230/115 VAC (600°C)

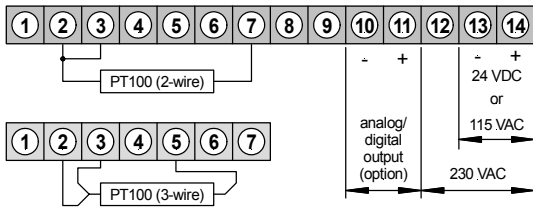
2-wire Power supply 24 VDC (galv. insulated) (600°C)

**PT 4.206.112B**

**PT 4.206.172B**

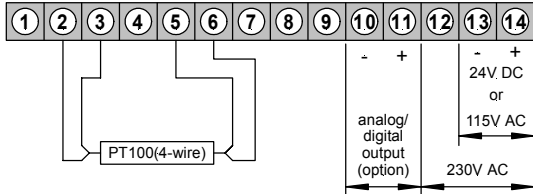
ORDER NUMBER  
(without options)

• **PT100 (3+2 wire)**



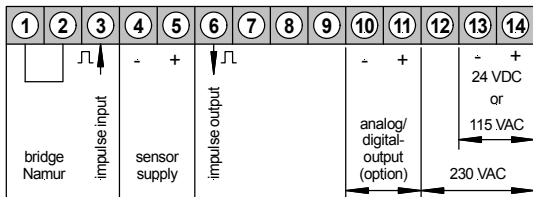
3+2 wire Power supply 230/115 VAC (600°C) **PT 4.306.112B**  
 3+2 wire Power supply 24 VDC (600°C) **PT 4.306.172B**  
 (galv. insulated)

• **PT100 (4 wire)**



4 wire Power supply 230/115 VAC (600°C) **PT 4.106.112B**  
 4 wire Power supply 24 VDC (600°C) **PT 4.106.172B**  
 (galv. insulated)

• **Frequency metering**



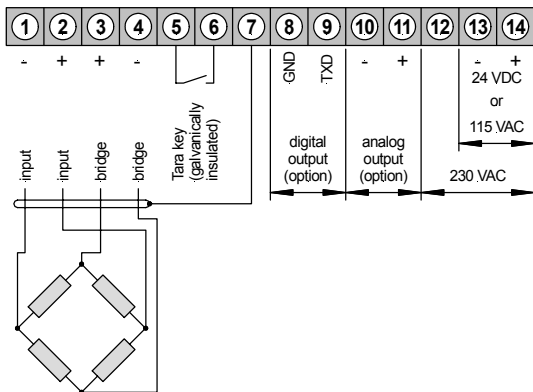
Power supply 230/115 VAC **PF 4.307.112B**  
 Power supply 24 VDC **PF 4.307.132B**  
 Power supply 24 VDC (galv. insulated) **PF 4.307.172B**

Connection diagrams see page 7

• **Weighing technology**

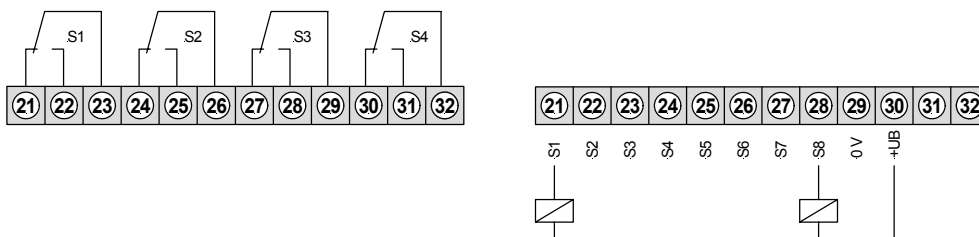


• **Amplifier with tare function (strain gauge)**



**Measuring input 1 mV/V**  
 Power supply 230/115 VAC **PW 4.201.112B**  
 Power supply 24 VDC (galv. insulated) **PW 4.201.172B**  
**Measuring input 2 mV/V**  
 Power supply 230/115 VAC **PW 4.202.112B**  
 Power supply 24 VDC (galv. insulated) **PW 4.202.172B**  
**Measuring input 3.3 mV/V**  
 Power supply 230/115 VAC **PW 4.203.112B**  
 Power supply 24 VDC (galv. insulated) **PW 4.203.172B**

• **Setpoints and open collector connections (optionally for all types PV, PT, PF and PW)**



# OPTIONS

	PV 4.001... Direct voltage	PV 4.004... Alternating voltage	PV 4.006... Resistance	PT 4.40x... Thermocouple	PT 4.206... PT100(2,3,4 wire)	PF 4.307... Frequency	PW 4.20x... DMS	Additional price
	EUR							
LED green	x	x	x	x	x	x	x	
Handling behind front pane (IP40)	x	x	x	x	x	x	x	--
Handling behind front pane (IP54)	x	x	x	x	x	x	x	6,15
Foil keyboard with protection IP54	x	x	x	x	x	x	x	6,15
Foil keyboard with protection IP65	x	x	x	x	x	x	x	10,25
Plug in terminal	x	x	x		x	x	x	12,25
Sensor supply 24 VDC/50 mA (supply voltage 230/115 VAC and 24 VDC)	x					x		24,55
Sensor supply 10 VDC/20 mA (supply voltage 230/115 VAC and 24 VDC)	x					x		24,55
Sensor supply 5V DC/50 mA (supply voltage 230/115 VAC)							x	10,25
Sensor supply 24 VDC/50 mA (supply voltage 24 VDC <b>galv. insulated</b> )	x					x		35,80
Sensor supply 10 VDC/20 mA (supply voltage 24 VDC <b>galv. insulated</b> )	x					x		35,80
Sensor supply 24 VDC/100 mA - maximum 3 setpoints (supply voltage 230/115 VAC and 24 VDC <b>galvanically insulated</b> )	x					x		61,35
Sensor supply 10 VDC/120 mA - maximum 3 setpoints (supply voltage 230/115 VAC and 24 VDC <b>galvanically insulated</b> )	x					x	x	61,35
<i>With supply voltage AC and DC (galv. insulated) the sensor supply is galv. insulated from the measuring input.</i>								
Analog output 0-10 VDC/12 bit (supply voltage 230/115 VAC and 24 VDC)	x	x	x	x	x	x	x	92,05
Analog output 0-20 mA/load 500 Ω (supply voltage 230/115 VAC and 24 VDC)	x	x	x	x	x	x	x	97,15
Analog output 4-20 mA/load 500 Ω (supply voltage 230/115 VAC and 24 VDC)	x	x	x	x	x	x	x	97,15
Analog output 0-10 VDC (12 bit) (supply voltage 24 VDC <b>galv. insulated</b> )	x	x	x	x	x	x	x	102,25
Analog output 0-20 mA/load 500 Ω (supply voltage 24 VDC <b>galv. insulated</b> )	x	x	x	x	x	x	x	107,35
Analog output 4-20 mA/load 500 Ω (supply voltage 24 VDC <b>galv. insulated</b> )	x	x	x	x	x	x	x	107,35
Digital output RS422 - (96, N, 8, 1)	x	x	x	x	x	x	x	25,55
Digital output RS232 - (96, N, 8, 1)	x	x	x	x	x	x	x	25,55
1 relay output	x	x	x	x	x	x	x	35,80
2 relay outputs	x	x	x	x	x	x	x	46,00
4 relay outputs	x	x	x	x	x	x	x	66,45
8 open collector outputs	x	x	x	x	x	x	x	46,00
<b>TTL input (S49)</b>						x		5,10
<b>Measuring input 0-1 mA (1= Plus and 7 = Minus) - S10</b>	x							15,35
<b>Hold function via connection 3+4 (activation via „0“ key) - S42</b>	x							46,00
<b>Min/max memory permanent/external reset (S72)</b>	x							76,70
<b>20 points linearization (S83)</b>	x							76,70
<b>Reciprocal indication on demand</b>	x							
<b>Other voltage supplies on demand</b>	x	x	x	x	x	x	x	
Dimension strips selectable	x	x	x	x	x	x	x	

## Technical data

for all units of the PV4, PT4, PF4, PW4 series, if not indicated otherwise

### Dimensions

Housing	B96 x H48 x T134 mm, including screw terminal (T=148 mm, including plug in terminal)
Assembly cut out	92.0 <sup>+0.8</sup> x 45.0 <sup>+0.6</sup> mm
Fastening	special quick plastic clamp proper to fix in wall thickness up to 50 mm
Housing material	PC/ABS-blend, colour black, UL94V-0
Protective system	at the front IP40 connection IP00
Weight	approx. 0.45 kg
Connection	via rear side via terminals up to 2.5 mm <sup>2</sup>

### Input

PV 4.001... Direct voltage, direct current	Measuring range	0-10 V, 50 V, 200 V, 600 V, 0-20 mA - 4-20 mA, 0-200 mA All ranges selectable via connection terminal
	Input resistance	Ri with 10 V = ~100 kΩ    600 V = ~5.6 MΩ 50 V = ~500 kΩ    20 mA = ~100 Ω 200 V = ~2.0 MΩ    200 mA = ~10 Ω

PV 4.004... Alternating voltage, Alternating current	Measuring range	0-2 V, 20 V, 100 V, 400 V, 1 A, 5 A All ranges selectable via connection terminal
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# Technical data

PV4.004....

Alternating voltage,  
Alternating current

Input resistance

Ri with    2 V = ~20 kΩ    400 V = ~4 MΩ  
              20 V = ~200 kΩ    1 A = ~276 mΩ  
              100 V = ~1 MΩ    5 A = ~56 mΩ

PV 4.006....

Resistance

Measuring range

≤10 kΩ, ≤100 kΩ, ≤1 MΩ  
All ranges selectable via connection terminal

PT 4.x06....

PT100

Sensor  
Measuring range  
Sensor current  
Linearization

2 wire, 3 wire, 4 wire  
-100.0 up to + 600°C  
approx. 1 mA  
according to DIN IEC 751

PT4.40x....

Thermocouple

**L** FeCuNi (DIN)  
**J** FeCuNi (americ.)  
**K** NiCrNi  
**S** Pt10Rh-Pt  
**N** NiCrSi-NiSi

-100 up to + 900°C  
-200 up to + 1200°C  
-250 up to + 1350°C  
-50 up to + 1750°C  
-250 up to + 1300°C

PF 4.307....

Frequency

Sensor  
Input resistance  
Input frequency

Namur, 3 wire initiator, impulse input  
Ri with    10 V = ~50 kΩ  
High/low level => 7.5 V / <4.5 V  
1 Hz up to 100 kHz

PW 4.20x....

DMS amplifier

Sensor sensitivity

1 mV/V – 2 mV/V – 3.3 mV/V

## Output

For all versions

Relay outputs  
Charge  
Open collector

max. 4 change over contacts  
230 VAC/2 A – 120 VDC/0.5 A  
8 outputs galvanically coupled with the measuring inputs  
supply by customers (UB = 5-50 VDC / I max. = 400 mA)

Analog output

0-10 VDC (12 bit) Ri ~ 100 Ω  
0-20 mA (12 bit) - load 500 Ω  
4-20 mA (12 bit) - load 500 Ω

**With supply voltage AC and DC (galv. insulated) the analog output is separated from measuring input by galvanically insulation!**

Digital output

RS232/RS422 - 9600 baud, no parity, 8 data bits, 1 stop bit

Sensor supply

**(galv. insulated from the measuring input for 230/115 VAC and 24 VDC/DC)**  
24 VDC/50 mA – 10 VDC/20 mA (other sensor supplies/performances on demand)

PV 4.001....

PF 4.307....

Bridge supply

**(galv. insulated from the measuring input for 230/115 VAC and 24 VDC/DC)**  
10 VDC/50 mA (other bridge supplies/performances on demand)

PW 4.20x....

## Accuracy

For all versions

Resolution

+/-19999 digit

PT 4.x06....

PT 4.40x....

PF 4.307....

0.1°C  
1°C  
65536

For all versions

Measuring fault

+/-0.1% of measuring range, +/-0.05% of final value, +/-1 digit

PV 4.004....

Frequency range  
Measuring fault

Nominal precision 40 Hz up to 1000 Hz  
Voltage range: +/-0.5% of measuring value, +/-0.07% of final value, +/-1 digit  
1 A range: +/-0.5% of measuring value, +/-0.07% of final value, +/-1 digit  
5 A range: +/-1% of measuring value, +/-0.07% of final value, +/-1 digit

*Measuring principle (input)* Via rectifier – (effective value with sine waveform only)

PV 4.104....

Frequency range  
Measuring fault

Nominal precision 40 Hz up to 1000 Hz  
Voltage range: +/-0.5% of measuring value, +/-0.07% of final value, +/-1 digit, crestfactor 3  
1 A range: +/-0.5% of measuring value, +/-0.07% of final value, +/-1 digit, cestfaktor 3  
5 A range: +/-1% of measuring value, +/-0.07% of final value, +/-1 digit, cestfaktor 3

*Measuring principle (input)* True effective value **RMS**

PT 4.x06....

PT 4.40x....

PF 4.307....

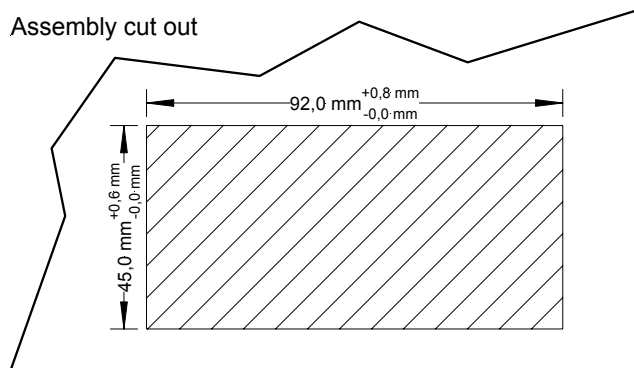
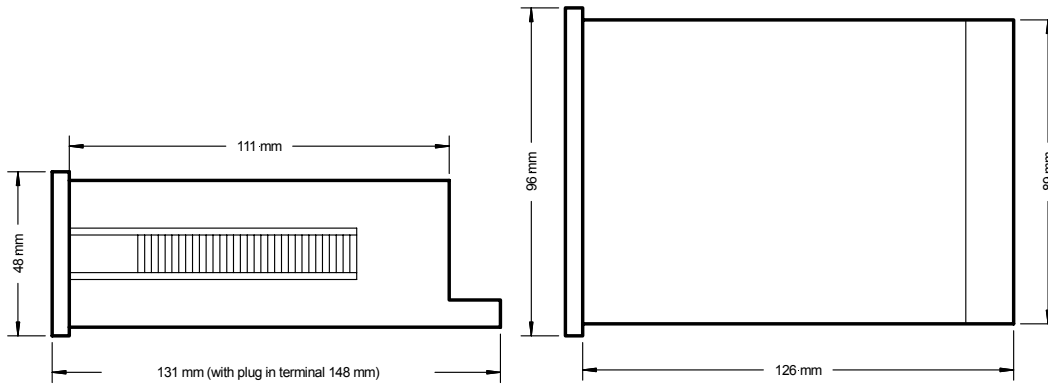
Measuring fault  
Measuring fault  
Measuring fault

+/-0.1% of measuring value, +/-0.05% of final value  
max. 1°Kelvin, +/-1 digit  
+/-0.04% of input frequency, +/- 1 digit

# Technical data

PV4.001....	Temp. drift	~ 100 ppm/K
PV4.004....		I ~ 200 ppm/K / U ~ 100 ppm/K
PV4.006....		~ 100 ppm/K
PT4.40x....		~ 100 ppm/K
PT4.x06....		~ 100 ppm/K
PF4.307....		~ 40 ppm/K
PW4.20x....		~ 100 ppm/K
<i>For all versions</i>	Measuring principle	Dual Slope Integration
PF 4.307....	Measuring principle	Frequency/pulse width measuring
<b>Power unit</b>	Supply voltage	230/115 VAC +/- 10% (50-60 Hz), 24 VDC (18-30 V), 24 VDC (+/-10%) galv. insulated
	Power consumption	max. 5 VA
<b>Indication</b>	Display	LED with 7 segments, 14 mm high, red 4½-digit = indication 19999
<i>For all versions</i>	Overflow	Indication of 4 transversal bars
PT 4.40x....	Line break	Indication of 4 transversal bars
PW 4.201....		
<i>For all versions</i>	Indication time	0.1 - 10sec. adjustable
<b>Ambient conditions</b>	Working temperature	0 up to + 60 °C
	Storing temperature	-20 up to + 80 °C

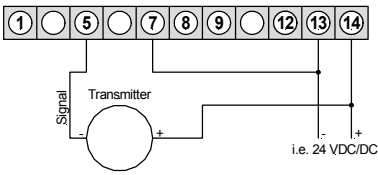
## Housing:



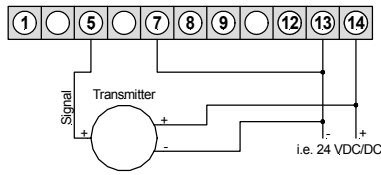
# Connection diagrams

## PV 4.... instruments without sensor supply

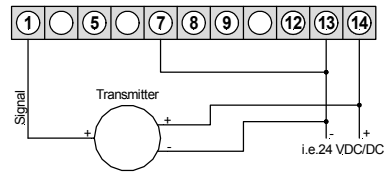
2-wire: 4-20 mA



3-wire: 0-20 mA  
4-20 mA

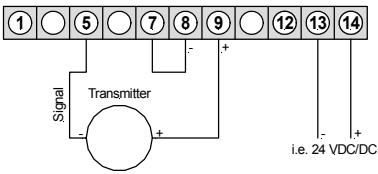


3-wire: 0-10 V / 0-5 V  
0-1 V / 1-6 V

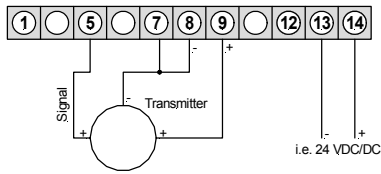


## PV 4....instruments with sensor supply

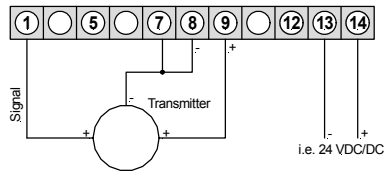
2-wire: 4-20 mA



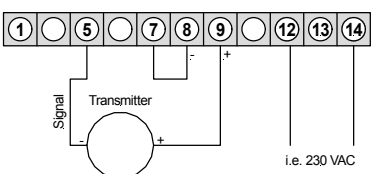
3-wire: 0-20 mA  
4-20 mA



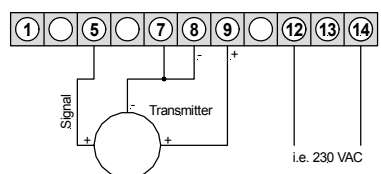
3-wire: 0-10 V / 0-5 V  
0-1 V / 1-6 V



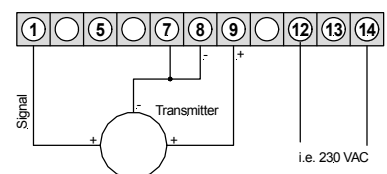
2-wire: 4-20 mA



3-wire: 0-20 mA  
4-20 mA



3-wire: 0-10 V / 0-5 V  
0-1 V / 1-6 V



## PF 4.307....instruments with frequency, impulse input

