



Digital panel meter with microprocessor based technology
4½-digit

PV4, PT4, PF4, PW4

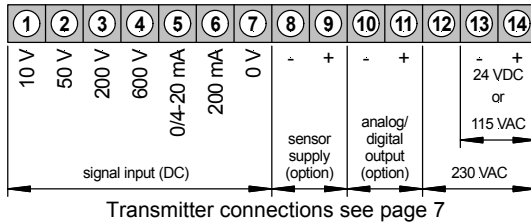
- galvanically insulated
- 8 free scalable setpoints/hysteresis
- optical setpoint indication
- analogue output – galvanically insulated
- sensor supply – galvanically insulated
- interface
- min/max memory

Digital panel meter

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



• Direct voltage, direct current



- Power supply 230/115 VAC
- Power supply 24 VDC
- Power supply 24 VDC (galv. insulated)

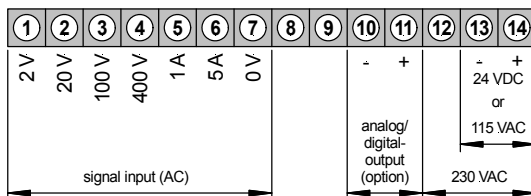
ORDER NUMBER
(without options)

PV 4.001.412B

PV 4.001.432B

PV 4.001.472B

• Alternating voltage, alternating current



- Power supply 230/115 VAC Standard
 - Power supply 24 VDC (galv. insulated) Standard
- True effective value RMS

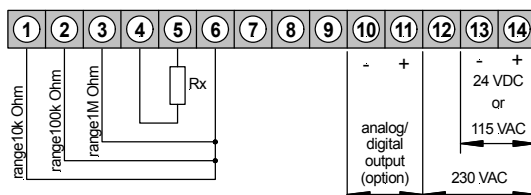
PV 4.004.412B

PV 4.104.412B

PV 4.004.472B

PV 4.104.472B

• Resistance, potentiometer



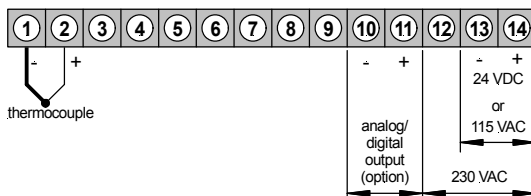
- Power supply 230/115 VAC
- Power supply 24 VDC
- Power supply 24 VDC (galv. insulated)

PV 4.006.412B

PV 4.006.432B

PV 4.006.472B

• Thermocouple L, J, K, S, N



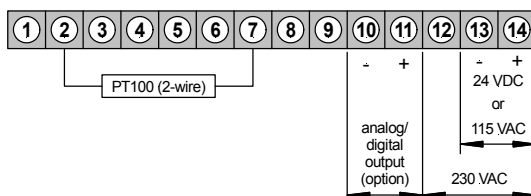
- Power supply 230/115 VAC
- Power supply 24 VDC (galv. insulated)

PT 4.40x.412B

PT 4.40x.472B

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

• PT100 (2-wire)



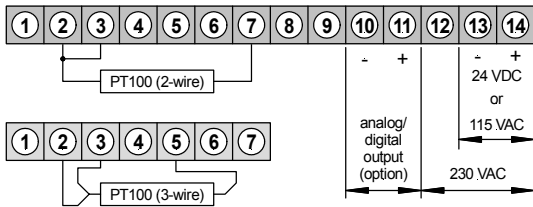
- 2 wire Power supply 230/115 VAC (600°C)
- 2 wire Power supply 24 VDC (galv. insulated) (600°C)

PT 4.206.412B

PT 4.206.472B

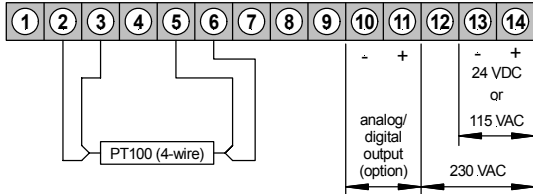
ORDER NUMBER
(without options)

• **PT100 (3+2 wire)**



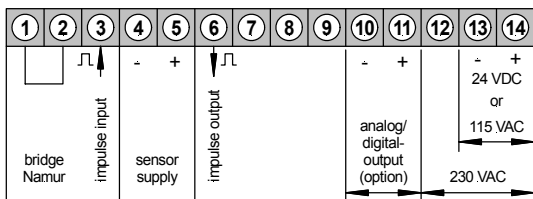
3+2 wire Power supply 230/115 VAC (600°C) **PT 4.306.412B**
 3+2 wire Power supply 24 VDC (600°C) **PT 4.306.472B**
 (galv. insulated)

• **PT100 (4 wire)**



4 wire Power supply 230/115 VAC (600°C) **PT 4.106.412B**
 4 wire Power supply 24 VDC (600°C) **PT 4.106.472B**
 (galv. insulated)

• **Frequency metering**



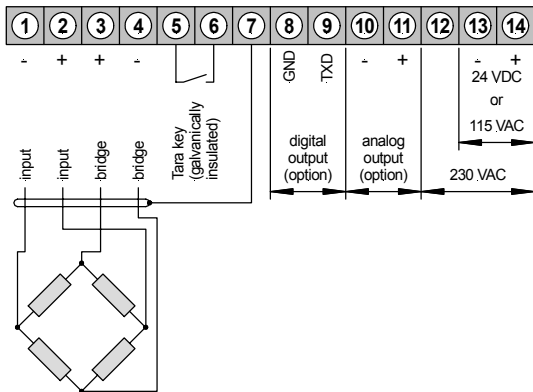
Power supply 230/115 VAC **PF 4.307.412B**
 Power supply 24 VDC **PF 4.307.432B**
 Power supply 24 VDC (galv. insulated) **PF 4.307.472B**

Connection diagram see page 7

• **Weighing technology**

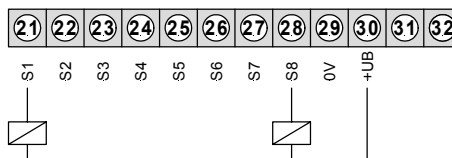
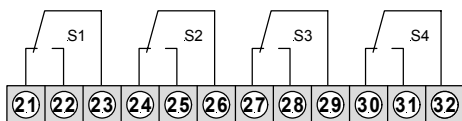


• **Amplifier with tare function (strain gauge)**



Measuring input 1 mV/V
 Power supply 230/115 VAC **PW 4.201.412B**
 Power supply 24 VDC (galv. insulated) **PW 4.201.472B**
Measuring input 2 mV/V
 Power supply 230/115 VAC **PW 4.202.412B**
 Power supply 24 VDC (galv. insulated) **PW 4.202.472B**
Measuring input 3.3 mV/V
 Power supply 230/115 VAC **PW 4.203.412B**
 Power supply 24 VDC (galv. insulated) **PW 4.203.472B**

• **Setpoints and open collector connections (optionally for all types PV..)**



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	Mehrpri s
	EUR							
LED green	x	x	x	x	x	x	x	
Handling behind front pane (IP40 at the front)	x	x	x	x	x	x	x	--
Foil keyboard with protection IP65 at the front	x	x	x	x	x	x	x	10,25
Plug in terminal	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 5 VDC (supply voltage 230/115 VAC)							x	10,25
Sensor supply 24 VDC/50 mA (supply voltage 24 VDC galv. insulated)	x					x		35,80
Sensor supply 10 VDC/20 mA (supply voltage 24 VDC galv. insulated)	x					x		35,80
Sensor supply 24 VDC/100 mA (maximum 3 setpoints) (supply voltage 230/115 VAC and 24 VDC galv. insulated)	x					x		61,35
Sensor supply 10 VDC/120 mA (maximum 3 setpoints) (supply voltage 230/115 VAC and 24 VDC galv. insulated)	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 230/115VAC and 24 VDC)	x	x	x	x	x	x	x	97,15
Analog output 4-20 mA/load 500 Ω (supply voltage 230/115VAC and 24 VDC)	x	x	x	x	x	x	x	97,15
Analog output 0-10 VDC (12 bit) (supply voltage 24 VDC galv. insulated)	x	x	x	x	x	x	x	102,25
Analog output 0-20 mA/load 500 Ω (supply voltage 24 VDC galv. insulated)	x	x	x	x	x	x	x	107,35
Analog output 4-20 mA/load 500 Ω (supply voltage 24 VDC galv. insulated)	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
Dimension per character	x	x	x	x	x	x	x	2,10
TTL input on demand (S49)						x		5,10
Measuring input 0-1 mA (1= Plus and 7 = Minus) - S10	x							15,35
Hold function via connection 3+4 (activation via „0“ key) - S42	x							46,00
Min/max memory permanent/external reset (S72)	x							76,70
20 points linearization (S83)	x							76,70
Reciprocal indication on demand	x							
Other voltage supplies on demand	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
Assembly cut out
Fastening
Housing material
Protective system

B144 x H72 x T135 mm, including screw terminal (T=148 mm, including plug in terminal)
138.0^{+0.8} x 68.0^{+0.6} mm
special clamp form B (DIN 43835)
plastics Noryl, colour black
at the front IP40

Weight
Connection

connection IP00
approx. 0,45 kg
via rear side via terminals up to 2.5 mm²

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

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 output
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 galvanical insulation!

Digital output

RS232/RS422 – 9.600 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/350 Ω (other bridge supplies/performances on demand)

PW 4.20x....

Accuracy

For all versions

Resolution

+/-19.999 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 1.000 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 1.000 Hz
Voltage range: +/-0.5% of measuring value, +/-0.07% of final value, +/-1 digit, crest factor 3
1 A range: +/-0.5% of measuring value, +/-0.07% of final value, +/-1 digit, crest faktor 3
5 A range: +/-1% of measuring value, +/-0.07% of final value, +/-1 digit, crest faktor 3

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

PT 4.40x....

PF 4.307....

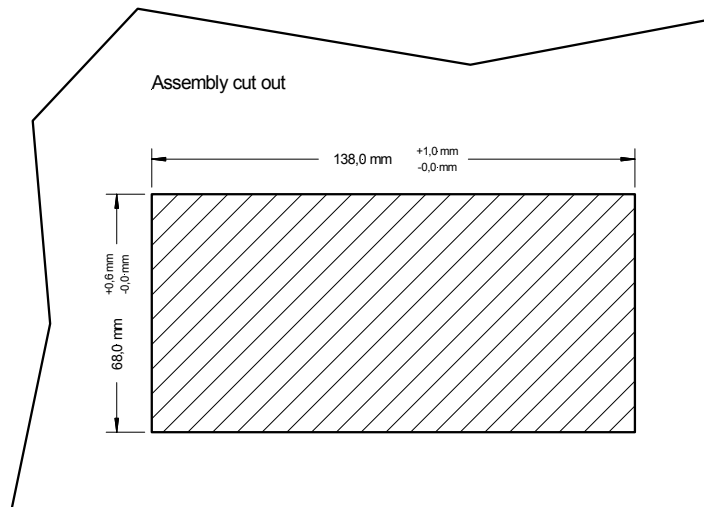
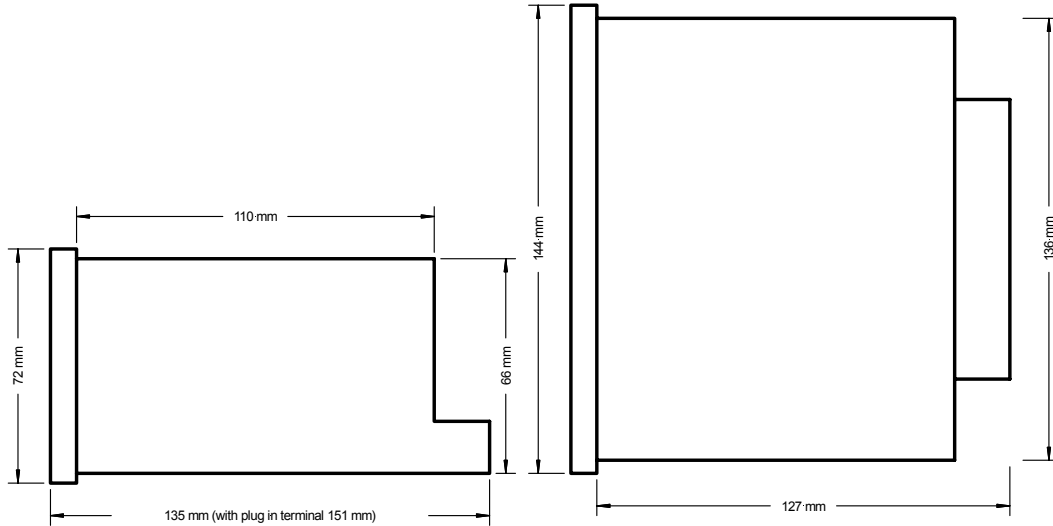
Measuring fault
Measuring fault

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
Power unit	Supply voltage	230/115 VAC +/- 10% (50-60 Hz), 24 VDC (18-30 V), 24 VDC (+/-10%) galv. insulated
	Power consumption	max. 5 VA
Indication	Display	LED with 7 segments, 20 mm high, red 4½-digit = indication 19.999
<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 – 10 sec. adjustable
Ambient conditions	Working temperature	0 up to + 60 °C
	Storing temperature	-20 up to + 80 °C

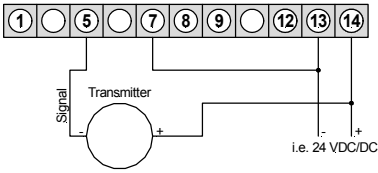
Housing:



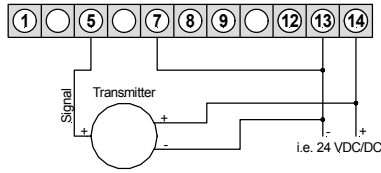
Connection diagrams

PV 4.... instruments without sensor supply

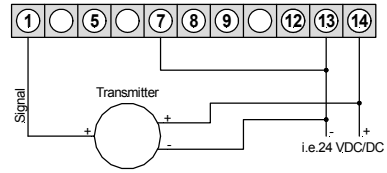
2-wire: 4-20 mA



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

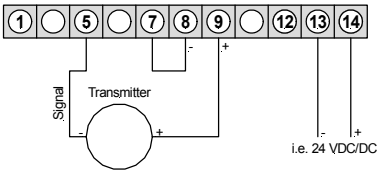


3-wire: 0-10 V / 0-5 V
0-1 V / 1-6 V

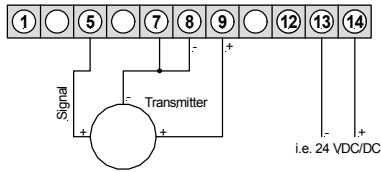


PV 4....instruments with sensor supply as well as current resp. power unit

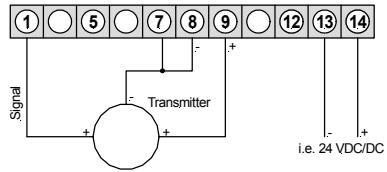
2-wire: 4-20 mA



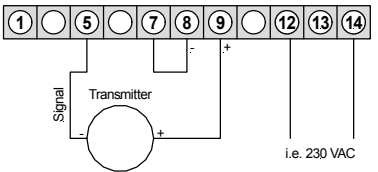
3-wire: 0-20 mA
4-20 mA



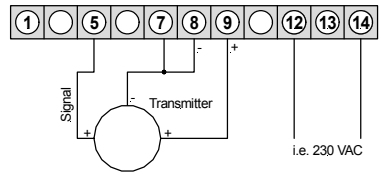
3-wire: 0-10 V / 0-5 V
0-1 V / 1-6 V



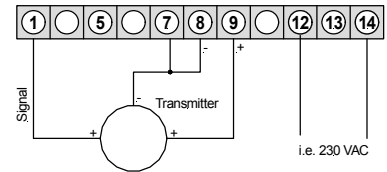
2-wire: 4-20 mA



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

