



## Digital panel meter with processor based technology 4-digit

### PVE4, PTE4, PFE4, PFL4

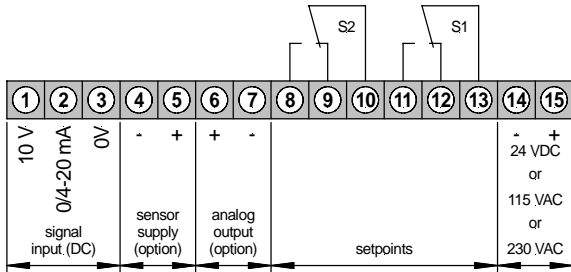
- Galvanic insulated
- 2 free scalable setpoints/hysteresis
- Optical setpoint indication
- Analog output galvanic insulated
- Sensor supply galvanic insulated
- Min/max memory

# Digital panel meter

- Direct voltage
- Alternating voltage
- Resistance
- PT100/PT1000
- Direct current
- Alternating current
- Potentiometer
- Thermocouple
- Shunt
- Frequency



## • Direct voltage, direct current



Transmitter connections see page 17

Power supply 230 VAC

ORDER NUMBER OF TYPE  
(without options)

EUR

**PVE 4.001.3522B**

235,20

Power supply 115 VAC

**PVE 4.001.3422B**

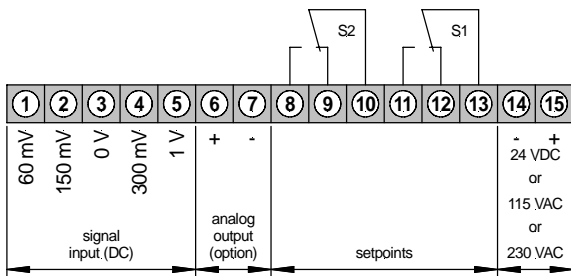
247,00

Power supply 24 VDC (galv. insulated)

**PVE 4.001.3722B**

258,70

## • Direct voltage (Shunt)



Power supply 230 VAC

**PVE 4.002.3522B**

252,80

Power supply 115 VAC

**PVE 4.002.3422B**

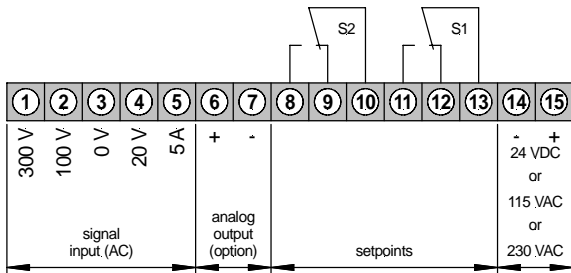
264,60

Power supply 24 VDC (galv. insulated)

**PVE 4.002.3722B**

276,40

## • Alternating voltage, alternating current



Power supply 230 VAC

Standard

**PVE 4.004.3522B**

270,50

True effective value RMS

**PVE 4.104.3522B**

294,00

Power supply 115 VAC

Standard

**PVE 4.004.3422B**

282,20

True effective value RMS

**PVE 4.104.3422B**

305,70

Power supply 24 VDC

Standard

**PVE 4.004.3722B**

294,00

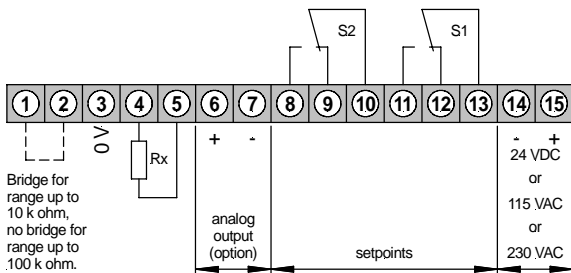
(galv. insulated)

True effective value RMS

**PVE 4.104.3722B**

317,50

## • Resistance, potentiometer



Bridge for range up to 10 k ohm, no bridge for range up to 100 k ohm.

Power supply 230 VAC

**PVE 4.006.3522B**

252,80

Power supply 115 VAC

**PVE 4.006.3422B**

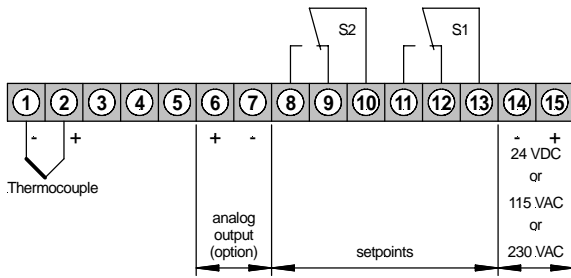
264,60

Power supply 24 VDC (galv. insulated)

**PVE 4.006.3722B**

276,40

• **Thermocouple L, J and K**



ORDER NUMBER OF TYPE  
(without options)

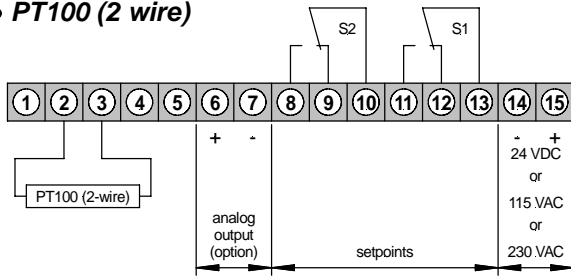
EUR

Power supply 230 VAC	<b>PTE 4.40x.3522B</b>	252,80
Power supply 115 VAC	<b>PTE 4.40x.3422B</b>	264,60
Power supply 24 VDC (galv. insulated)	<b>PTE 4.40x.3722B</b>	285,20

**Version x**

Typ L (FeCuNi - DIN)	-100 up to	+900°C
Typ J (FeCuNi - amerik.)	-200 up to	+1200°C
Typ K (NiCrNi)	-250 up to	+1350°C

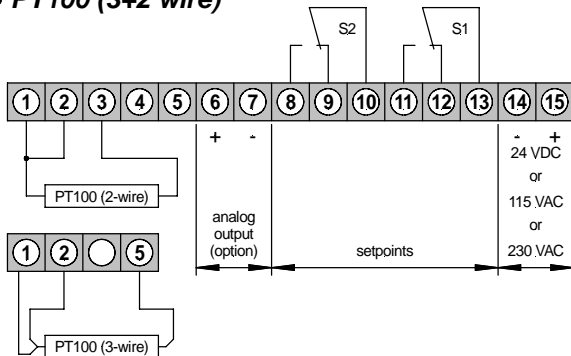
• **PT100 (2 wire)**



2 wire	Power supply 230 VAC	<b>PTE 4.206.3522B</b> (600.0°C)	247,00
2 wire	Power supply 115 VAC	<b>PTE 4.206.3422B</b> (600.0°C)	269,90
2 wire	Power supply 24 VDC (galv. insulated)	<b>PTE 4.206.3722B</b> (600.0°C)	270,50

(Measuring range -200...850°C on request)

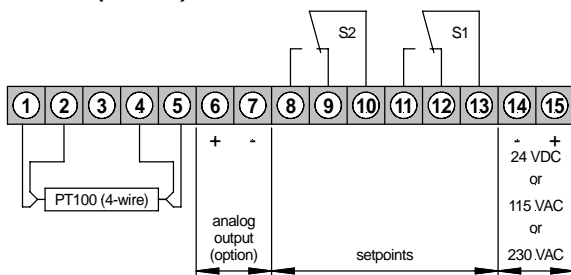
• **PT100 (3+2 wire)**



3+2 wire	Power supply 230 VAC	<b>PTE 4.306.3522B</b> (600.0°C)	270,50
3+2 wire	Power supply 115 VAC	<b>PTE 4.306.3422B</b> (600.0°C)	282,20
3+2 wire	Power supply 24 VDC (galv. insulated)	<b>PTE 4.306.3722B</b> (600.0°C)	294,00

(Measuring range -200...850°C on request)

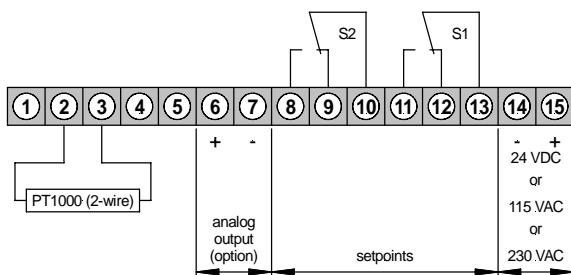
• **PT100 (4 wire)**



4 wire	Power supply 230 VAC	<b>PTE 4.106.3522B</b> (600.0°C)	288,10
4 wire	Power supply 115 VAC	<b>PTE 4.106.3422B</b> (600.0°C)	299,90
4 wire	Power supply 24 VDC (galv. insulated)	<b>PTE 4.106.3722B</b> (600.0°C)	311,70

(Measuring range -200...850°C on request)

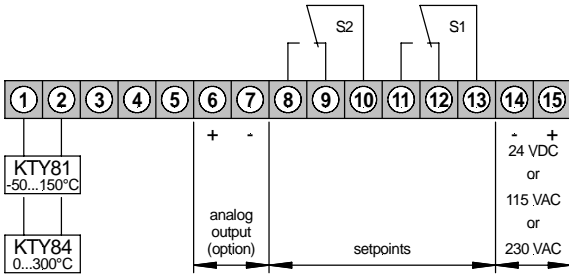
• **PT1000 (2 wire)**



2 wire	Power supply 230 VAC	<b>PTE 4.606.3522B</b> (600.0°C)	247,00
2 wire	Power supply 115 VAC	<b>PTE 4.606.3422B</b> (600.0°C)	258,70
2 wire	Power supply 24 VDC (galv. insulated)	<b>PTE 4.606.3722B</b> (600.0°C)	270,50

(Measuring range -200...850°C on request)

• **KTY81**



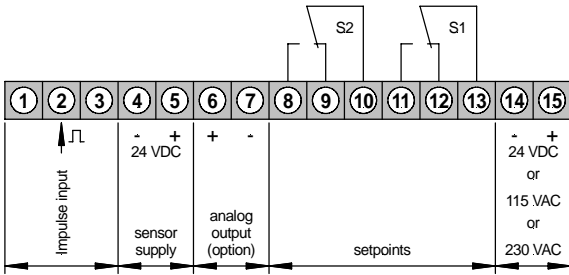
(-50.0...+150.0°C)

Power supply 230 VAC **PTE 4.501.3522B** 247,00  
 Power supply 115 VAC **PTE 4.501.3422B** 258,70  
 Power supply 24 VDC (galv. insulated) **PTE 4.501.3722B** 270,50

(0.0...+300.0°C)

Power supply 230 VAC **PTE 4.504.3522B** 247,00  
 Power supply 115 VAC **PTE 4.504.3422B** 258,70  
 Power supply 24 VDC (galv. insulated) **PTE 4.504.3722B** 270,50

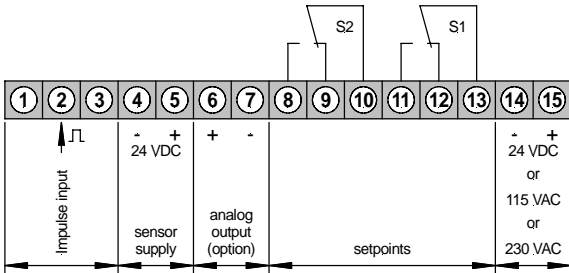
• **Frequency metering 1 Hz – 500 KHz**



Power supply 230 VAC **PFE 4.307.3522B** 235,20  
 Power supply 115 VAC **PFE 4.307.3422B** 247,00  
 Power supply 24 VDC (galv. insulated) **PFE 4.307.3722B** 288,10

Connection diagrams see page 17!

• **Frequency metering 0.01 Hz – 9999 Hz**



Power supply 230 VAC **PFL 4.307.3522B** 252,80  
 Power supply 115 VAC **PFL 4.307.3422B** 264,60  
 Power supply 24 VDC (galv. insulated) **PFL 4.307.3722B** 305,70

Connection diagrams see page 17!

## OPTIONS PVE, PTE, PFE, PFL

	PVE 4.001... Direct voltage	PVE 4.002... Shunt	PVE 4.004... Alternating voltage	PVE 4.006... Resistance	PTE 4.40x... Thermocouple	PT100/0, KTY81	PFE, PFL 4.307... Frequency	Additional price
	EUR							
Green LED on request	x	x	x	x	x	x	x	
Protection IP 54	x	x	x	x	x	x	x	7,10
Protection IP65	x	x	x	x	x	x	x	11,80
Plug-in terminal	x	x	x	x		x	x	16,50
Sensor supply 24 VDC/20 mA	x							28,20
Sensor supply 10 VDC/20 mA (supply voltage 230/115 VAC)*	x							28,20
Sensor supply 24 VDC/50 mA (supply voltage 24 VDC <b>galv. insulated</b> )	x							41,20
Sensor supply 10 VDC/20 mA (supply voltage 24 VDC <b>galv. insulated</b> )	x							41,20
Sensor supply 10 VDC/20 mA (supply voltage 230/115 VAC)*							x	11,80
Sensor supply 10 VDC/20 mA (supply voltage 24 VDC <b>galv. insulated</b> )							x	11,80
<i>The sensor supply is galv. insulated from the measuring input!</i>								
Analog output 0-10VDC/12Bit (supply voltage 230/115 VAC)*	x	x	x	x	x	x		70,60
Analog output 0-20 mA/load 500 Ω/12 Bit (supply voltage 230/115 VAC)*	x	x	x	x	x	x		88,20
Analog output 4-20 mA/load 500 Ω/12 Bit (supply voltage 230/115 VAC)*	x	x	x	x	x	x		88,20
Analog output 0-10 VDC/12 Bit (supply voltage 24VDC <b>galv. insulated</b> )	x	x	x	x	x	x	x	111,70
Analog output 0-20 mA/load 500 Ω/12 Bit (supply voltage 24 VDC <b>galv. insulated</b> )	x	x	x	x	x	x	x	117,60
Analog output 4-20 mA/load 500 Ω/12 Bit (supply voltage 24 VDC <b>galv. insulated</b> )	x	x	x	x	x	x	x	117,60
<i>The analog output is galv. insulated from the measuring input!</i>								
<b>Measuring input 0-1 mA (S10)!</b>	x							17,70
Dimension strips selectable	x	x	x	x	x	x	x	
<b>Measuring input 1A on demand (S108)!</b>			x					
<b>Other power supplies on demand!</b>	x	x	x	x	x	x	x	

\*Sensor supply and analog output cannot be used together!

# Technical data

## for all units of the PVE4, PTE4, PFE4, PFL4 Range – if not indicated otherwise

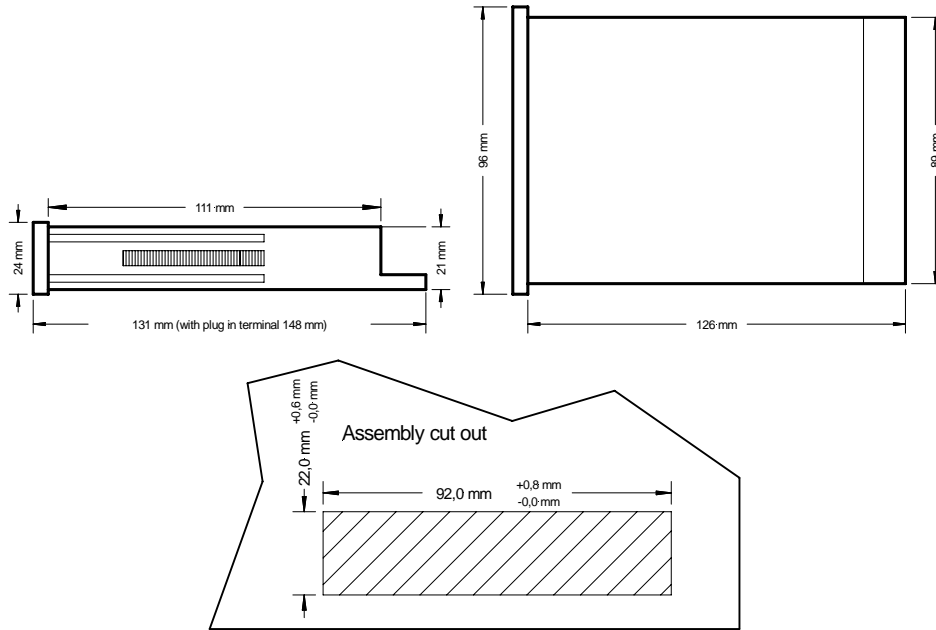
<b>Dimension</b>	Housing Assembly cut out Fastening Housing material Protective system  Weight Connection	W 96 x H 24 x D 134 mm, including screw terminal (D =148 mm, including plug-in terminal) 92.0 <sup>+0.8</sup> x 22.0 <sup>+0.6</sup> mm special quick plastic clamp proper to fix in wall thickness up to 50 mm PC/ABS-blend, colour black, UL94V-0 at the front IP40 connection IP00 approx. 0.29 kg at the rear side via terminals up to 2.5 mm <sup>2</sup>
<b>Input</b>		
PVE4.001.... Direct voltage, direct current	Measuring range Input resistance	0-10 V, 0-20 mA - 4-20 mA – all ranges selectable via connection terminal Ri with 10 V = ~100 kΩ 20 mA = ~100 Ω
PVE4.002.... Direct voltage (Shunt)	Measuring range  Input resistance	0-60 mV, 150 mV, 300 mV, 1 V - all ranges selectable via connection terminal  Ri with 60 mV = ~15 kΩ 300 mV = ~75 kΩ 150 mV = ~39 kΩ 1 V = ~220 kΩ All ranges selectable via connection terminal
PVE4.004.... Alternating voltage, alternating current	Measuring range  Input resistance	20 V, 100 V, 300 V, 5 A - optional 1 A All ranges selectable via connection terminal  Ri with 20 V = ~200 kΩ 1 A = ~276 mΩ 100 V = ~1 MΩ 5 A = ~56 mΩ 300 V = ~4 MΩ
PVE4.006.... Resistance	Measuring range	≤10 kΩ; ≤100 kΩ All ranges selectable via connection terminal
PTE4.x06.... PT100	Sensor Measuring range Resolution Sensor current Linearization	2-wire, 3-wire, 4-wire -99.9 up to + 600.0°C 0.1°C approx. 1 mA according to DIN IEC 751
PT1000	Sensor Measuring range Sensor current Linearization	2-wire -99.9 up to + 600.0°C approx. 0.1 mA according to DIN IEC 751
PTE4.40x.... Thermocouple	<u>L</u> FeCuNi (DIN) <u>J</u> FeCuNi (americ.) <u>K</u> NiCrNi	-100 up to + 900°C -200 up to + 1200°C -250 up to + 1350°C
PTE4.501.... PTE4.504	KTY81-1 KTY84-1	2 wire (-50.0 up to +150.0°C) 2 wire (0.0 up to 300.0°C)
PFE4.307.... Frequency	Signal Input resistance  Input frequency	Impulse input, Namur, 3-wire initiator Ri with: 10 V = ≥ 2 kΩ High/low level ⇒ 10 V/< 6 V 1 Hz up to 500 kHz
<i>For all versions</i>	Relay outputs (Switching cycle)	charge 240 VAC/0.25 A – 24 VDC/1 A, with ohm resistive burden 2 * 10 <sup>5</sup> at max. contact rate 10 * 10 <sup>6</sup> mechanically
PFL4.307.... Frequency	Analog output  Signal Input resistance  Input frequency	0-10 VDC (12 Bit)  Impulse input, Namur, 3-wire initiator Ri with: 10 V = ≥ 2 kΩ High/low level ⇒ 10 V/< 6 V 0.01 Hz up to 9999 Hz
<b>Output</b>		0-20 mA (12 Bit) load max. 500 Ω 4-20 mA (12 Bit) load max. 500 Ω <b>The analog output is galv. insulated from the measuring input!</b>

# Technical data

<b>Output</b>		
PVE4.001.... PFE4.307.... PFL4.307....	Sensor supply for 24 VDC/DC for 115/230 VAC	<b>(galv. insulated from the measuring input)</b> 24 VDC/50 mA – 10 VDC/20 mA (other sensor supplies/performances on demand) 24 VDC/20 mA – 10 VDC/20 mA (other sensor supplies/performances on demand)
<b>Accuracy</b>		
<i>For all versions</i>	Resolution	-999 up to 9999 digit
PTE4.x06.... PTE4.40x.... PTE4.501.... PTE4.504.... PFE4.307.... PFL4.307....		0,1°C 1°C 0.1°C 0.1°C 0 up to 9999 digit 0 up to 9999 digit
<i>For all versions</i>	Measuring fault	+/-0.2% of measuring range, +/-1 digit
PVE4.0x4....	Measuring fault Measuring principle (input) Frequency range	+/-1.0% of final value, +/-1 digit precision rectifier – effective value with sine waveform only nominal precision 40 HZ up to 100 Hz
PVE4.1x4....	Measuring fault Measuring principle (input) Frequency range	+/-0.7%, of final value +/-1 digit, crestfactor 3 true effective value <b>RMS</b> nominal precision 40 Hz up to 1000 Hz
PTE4.40x.... PTE4.x06.... PTE4.606....	Measuring fault Measuring fault Measuring fault	1°C, +/-1Digit 1°C, +/-1Digit $R_L \leq 10 \Omega = +/-2 K$ $R_L > 10 \Omega \leq 20 \Omega = +/-3 K$
PTE4.501.... PTE4.504.... PFE4.307.... PFL4.307....	Measuring fault Measuring fault Measuring fault Measuring fault	1°C, +/- 10 Digit (-20....100°C)/<-20°C max. 6°C +/- 10 Digit/>100°C max. 2°C +/-10 Digit +/-4°C, +/- 5 Digit (0....200°C), +/-7°C, +/- 5 Digit (>200°C) +/-0.04% of the input frequency +/-0.04% of the input frequency
PVE4.001.... PVE4.002.... PVE4.004.... PVE4.006.... PTE4.40x.... PTE4.x06.... PTE4.501.... PTE4.504.... PFE4.307.... PFL4.307....	Temp. drift	~ 100 ppm/K ~ 150 ppm/K <b>I</b> ~ 200 ppm/K / <b>U</b> ~ 100 ppm/K ~ 100 ppm/K ~ 100 ppm/K ~ 100 ppm/K ~ 100 ppm/K ~ 40 ppm/K ~ 40 ppm/K
<i>For all versions</i>	Measuring principle	voltage/frequency converter
PFE4.307.... PFL4.307....	Measuring principle	frequency/pulse width measuring
<b>Power unit</b>		
	Supply voltage Power consumption	230/115 VAC +/-10% (50-60 Hz), 24 VDC (+/-10%) galv. insulated max. 5 VA
<b>Indication</b>		
PTE4.x06....	Display Dimension	LED with 7 segments, 14 mm high, red 4-digit = indication 9999 configurable for °C and °F
<i>For all versions</i>	Overflow Indication time	Indication of 4 transversal bars from 0.1 up to 10 seconds adjustable
PTE4.x06.... PTE4.40x.... PTE4.50x....	Indication time Indication time Indication time	from 0.2 up to 10 seconds adjustable from 0.2 up to 10 seconds adjustable from 0.2 up to 10 seconds adjustable
<b>Ambient conditions</b>		
	Working temperature Storing temperature	0 up to +60°C -20 up to +80°C

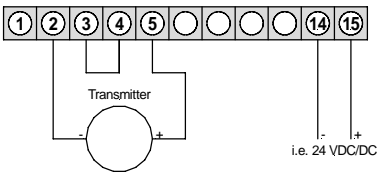
# Connection diagrams

## Housing

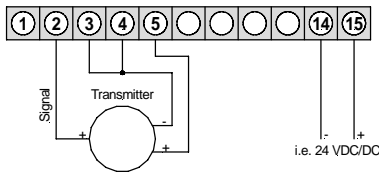


## PVE instruments with voltage / current input

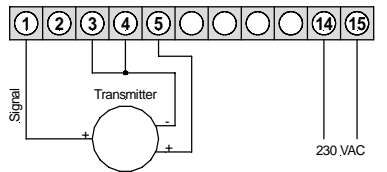
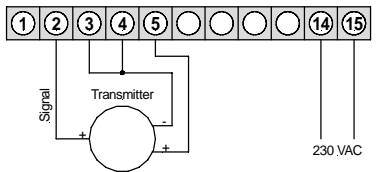
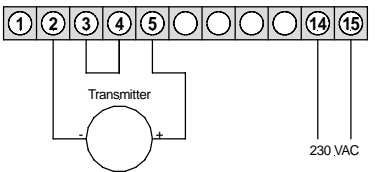
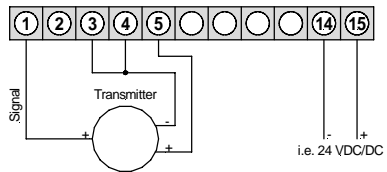
2-wire: 4-20 mA



3-wire: 0-20 mA

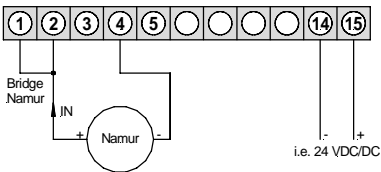


3-wire: 0-10 V / 0.5 V  
0-1 V / 1-6 V

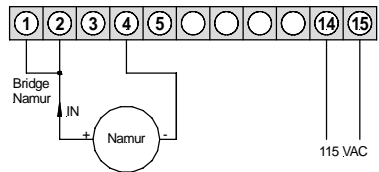


## PFE and PFL instruments with frequency / impulse input

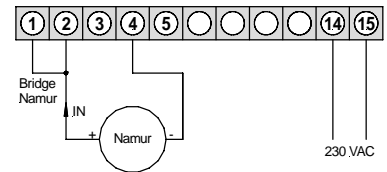
Namur



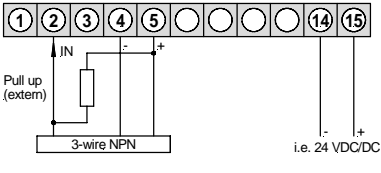
Namur



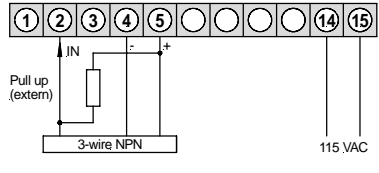
Namur



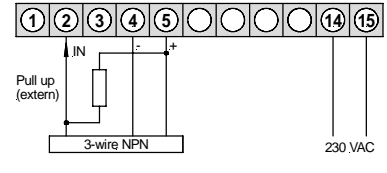
3-wire NPN



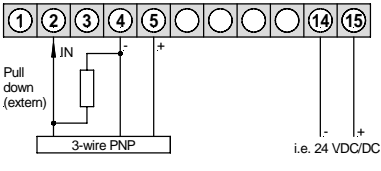
3-wire NPN



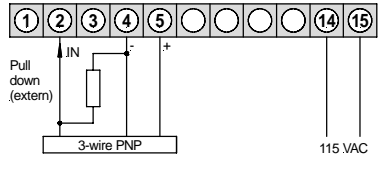
3-wire NPN



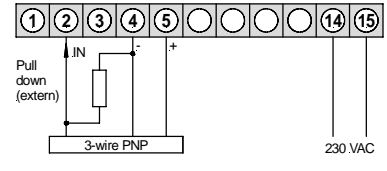
3-wire PNP



3-wire PNP



3-wire PNP



# Ordering code PVE4, PTE4, PFE4, PFL4, PVE5

Digital panel meter with microprocessor based technology and 2 setpoints (standard)

**P V E 4 0 0 1 3 5 2 2 B**

Basic model		Internal Index	
<b>Voltage metering</b>	V	<b>Setpoints (standard)</b>	2 2 relay outputs
<b>Temperature metering</b>	T	<b>Mechanical options</b>	1 Foil keyboard, protection IP65
<b>Frequency metering</b>	F	2 Foil keyboard, protection IP40	4 Foil keyboard, protection IP54
<b>Frequency range</b>		7 Plug-in terminal, foil keyboard, IP65	8 Plug-in terminal, foil keyboard, IP40
Standard index	E	9 Plug-in terminal, foil keyboard, IP54	
Frequency (0.01 Hz – 9999 Hz)	L	<b>Power supply</b>	
<b>Number of digits</b>		4 115 VAC	
4 digits	4	5 230 VAC	
5 digits	5	7 24 VDC (galv. insulated)	
<b>Sensor supply</b>		<b>Size of housing</b>	3 96x24
no sensor supply	0	<b>Measuring input</b>	
10 VDC	2	1 Direct voltage, direct current	
24 VDC	3	2 Direct voltage, shunt measuring	
<b>Temperature device</b>		4 Alternating voltage, current	
PT100 – 2-wire	2	6 Resistance	
PT100 – 3-wire	3	7 Frequency	
PT100 – 4-wire	1	6 Range PT100 (600.0°C) – PTE device	
PT1000 – 2-wire	6	Thermocouple (PTE device)	
Thermocouple	4	x Type L, J, K	
KTY	5	1 KTY81-1xx (PTE device) –50 to 150°C	
<b>Alternating voltage, current</b>		4 KTY84-1xx (PTE device) 0 to 300°C	
Standard	0		
True effective RMS	1		
<b>Outputs</b>			
no output	0		
0-10 V	1		
0-20 mA	2		
4-20 mA	3		