

PIB-W

PRO-NET Heat meter

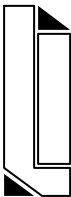
This is the PRO-NET heat meter board. It can be used in a PRO-Net configuration, but may be used stand-alone as well.

The following measured values are available:

- Temperature at the hot and cold side ('Temperature hot side' and 'Temperature cold side' respectively).
- The momentary flow in liters per hour ('Actual flow').
- The volume ('Volume total').
- The volume since the last time this value was read from the meter ('Flow').
- The number of pulses of the flow meter since the last time this value was read from the meter ('Pulse count').
- Energy total ('Energy total').
- Energy since the last time this value was read from the meter ('Energy').
- The power ('Power').
- The hardware setting of the number of pulses from the flow meter ('Liter / pulse constant').

The connections are:

| Connector pin number | Signals on the add-on board: | Signals on the main board: |
|----------------------|---------------------------------|----------------------------|
| 1 | Pt-100 excitation - cold side2 | System 0 V (zwart) |
| 2 | Pt-100 sense- cold side 2 | -15 V input (blue) |
| 3 | Pt-100 sense- cold side 2 | + 15 V input (red) |
| 4 | Pt-100 excitation + cold side 2 | Network loop + (white) |
| 5 | Pt-100 excitation - hot side2 | Network ground (grey) |
| 6 | Pt-100 sense – hot side 2 | Network loop – (purple) |
| 7 | Pt-100 excitation + hot side 2 | |
| 8 | Pt-100 excitation + hot side 2 | |
| 9 | Pt-100 excitation - cold side1 | |
| 10 | Pt-100 sense - cold side 1 | |
| 11 | Pt-100 sense - cold side 1 | +15 V flow meter 2 |
| 12 | Pt-100 excitation + cold side 1 | Pulse flow meter 2 |
| 13 | Pt-100 excitation - hot side1 | 0 V flow meter 2 |
| 14 | Pt-100 sense – hot side 1 | +15 V flow meter 1 |



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| | | |
|----|--------------------------------|--------------------|
| 15 | Pt-100 sense + hot side 1 | Pulse flow meter 1 |
| 16 | Pt-100 excitation + hot side 1 | 0 V flow meter 1 |

Jumper functions:

- A1 Lowest address bit.
- A2 Address.
- A3 Address.
- A4 Address.
- A5 Highest address bit.
- P1 Number of pulses per litre of the flow meter channel 1.
- P2 Number of pulses per litre of the flow meter, channel 2.
- D1 no used
- D2 Position of flow meter, channel 2.
- D3 Position of flow meter, channel 1.
- B Baud rate

Address setting:

| Address / Jumper | A1 | A2 | A3 | A4 | A5 |
|---------------------|----|----|----|----|----|
| 0, not allowed ! | 1 | 1 | 1 | 1 | 1 |
| 1 | 0 | 1 | 1 | 1 | 1 |
| 2 | 1 | 0 | 1 | 1 | 1 |
| 3 | 0 | 0 | 1 | 1 | 1 |
| 4 | 1 | 1 | 0 | 1 | 1 |
| 5 | 0 | 1 | 0 | 1 | 1 |
| 6 | 1 | 0 | 0 | 1 | 1 |
| 7 | 0 | 0 | 0 | 1 | 1 |
| 8 | 1 | 1 | 1 | 0 | 1 |
| 9 | 0 | 1 | 1 | 0 | 1 |
| 10 | 1 | 0 | 1 | 0 | 1 |
| 11 | 0 | 0 | 1 | 0 | 1 |
| 12 | 1 | 1 | 0 | 0 | 1 |
| 13 | 0 | 1 | 0 | 0 | 1 |
| 14 | 1 | 0 | 0 | 0 | 1 |
| 15 | 0 | 0 | 0 | 0 | 1 |
| 16 | 1 | 1 | 1 | 1 | 0 |
| 17 | 0 | 1 | 1 | 1 | 0 |
| 18 | 1 | 0 | 1 | 1 | 0 |
| 19 | 0 | 0 | 1 | 1 | 0 |



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| | | | | | |
|---------------------|---|---|---|---|---|
| 20 | 1 | 1 | 0 | 1 | 0 |
| 21 | 0 | 1 | 0 | 1 | 0 |
| 22 | 1 | 0 | 0 | 1 | 0 |
| 23 | 0 | 0 | 0 | 1 | 0 |
| 24 | 1 | 1 | 1 | 0 | 0 |
| 25 | 0 | 1 | 1 | 0 | 0 |
| 26 | 1 | 0 | 1 | 0 | 0 |
| 27 | 0 | 0 | 1 | 0 | 0 |
| 28 | 1 | 1 | 0 | 0 | 0 |
| 29 | 0 | 1 | 0 | 0 | 0 |
| 30 | 1 | 0 | 0 | 0 | 0 |
| 31, not allowed! | 0 | 0 | 0 | 0 | 0 |

0 means: do not place jumper. 1 means place jumper.

| Jumper setting / function | P1 | P2 |
|---------------------------|----|----|
| 0.1 liter per puls | 0 | 0 |
| 1 liter per puls | 1 | 0 |
| 10 liter per puls | 0 | 1 |

0 means: do not place jumper. 1 means place jumper.

Set the position of the flow meter:

Jumper D3/D2 placed: flow meter on cold side.

Jumper D3/D2 not placed: flow meter on hot side.

Baud rate setting:

Jumper B placed: baud rate 2400.

Jumper B not placed: baud rate 9600.

Specifications:

Width in TE's:

8

Power supply:

+ 8...15 VDC, 40 mA

Inputs:

4 xPt-100 sensor,
2 x flow meter (open
collector / contact)



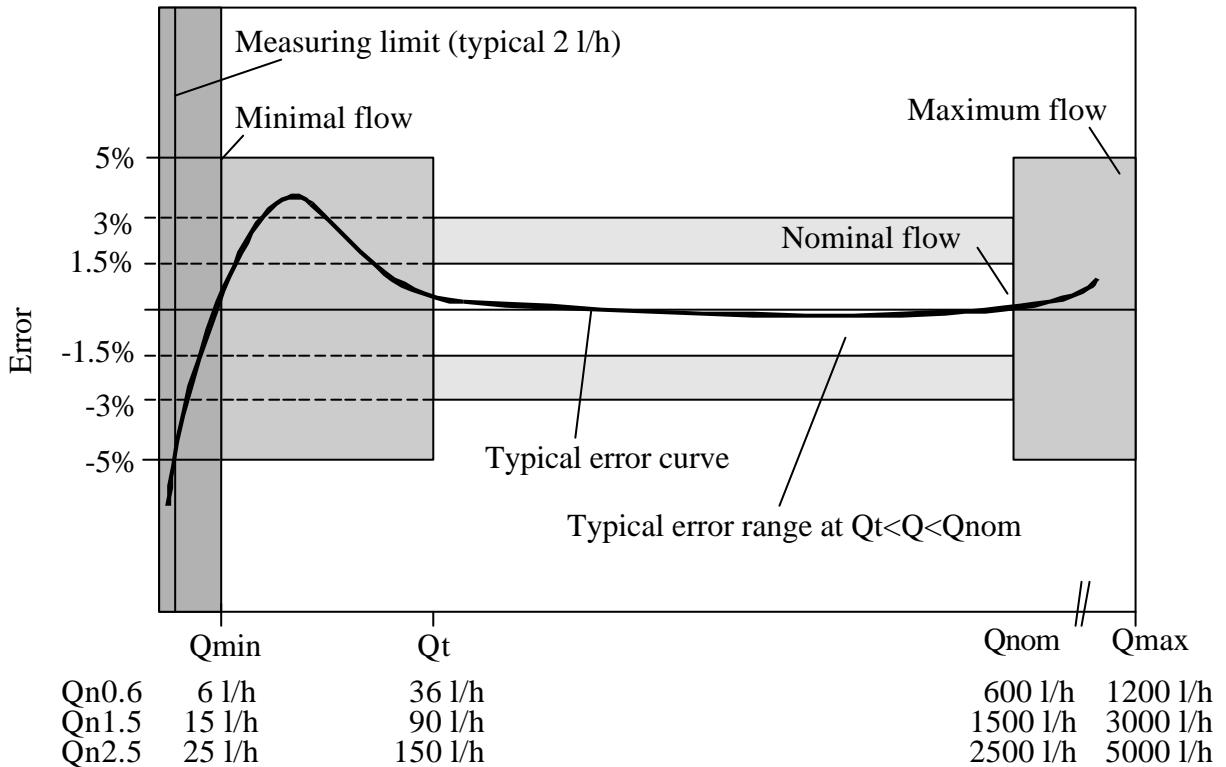
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Range: Delta T: -0...+100°C
 Absolute: -20..200 °C
 Flow: 0...10 p/s
 Accuracy*: with standard temperature sensors
 and flow meter: +/-2.5%
 (delta T > 10°C)
 Temperature range: operating 0...+40°C
 storage -20...+70°C

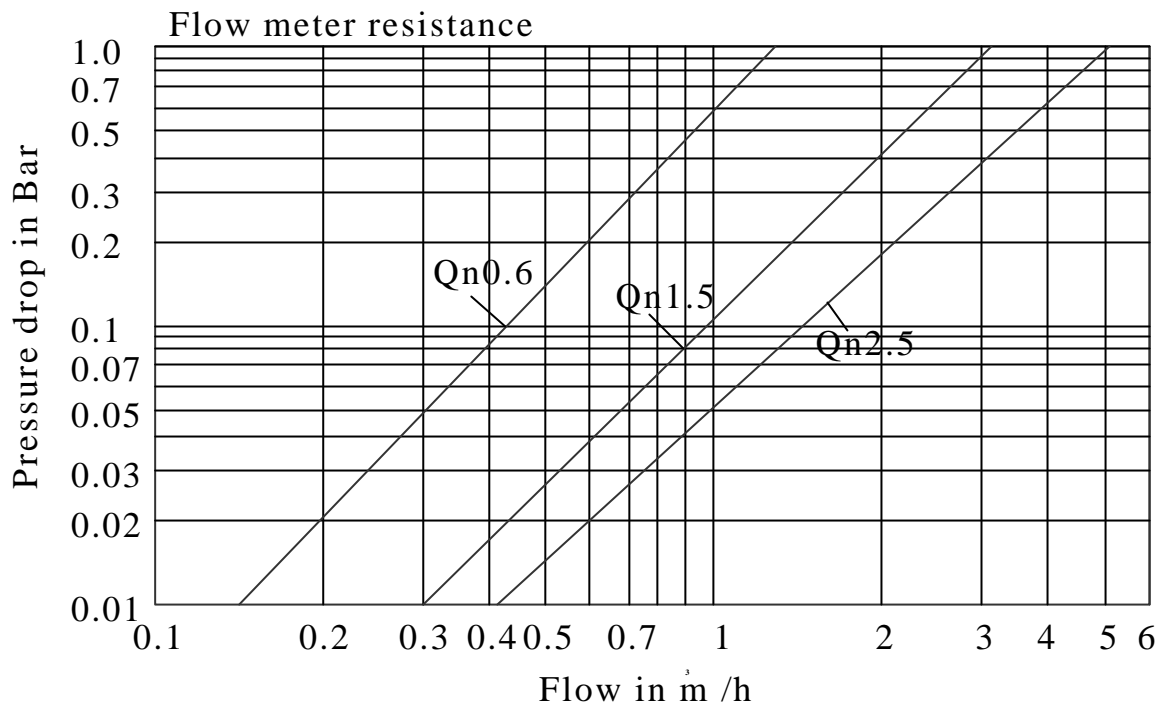
*The accuracy depends on three factors:

- 1) The temperature measurement. Both the accuracy of the absolute temperature and of the temperature difference influence the overall accuracy.
- 2) The flow meter. The accuracy of the flow meter is reflected directly in the final accuracy. The accuracy of the flow measurement depends on the character of the flow (changing or constant, high or low in measuring range, on and off or continuous, etc.)
- 3) The calculations. If the measurements are perfect, there is still an error due to approximations in the calculation of the heat.



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