

## ► Brunata Ray compact energy meter

Compact energy meter with electronic counter for measuring and allocating energy consumption.

### Properties

- Meter types:  $q_p = 0,6$  og  $1,5$  m<sup>3</sup>/h
- Dynamic measuring range ( $q_r/q_p$ ) 1:100
- Measuring accuracy according to EN 1434, class 2
- Environmental standard C acc. to EN 1434
- Electronically controlled measurements
- Non-magnetic electronic scanning of impeller
- Optical interface with ZVEI with IEC870-5-1 protocol as standard
- Optional orientation of counter
- Permanently connected temp. sensors
- Possibility of either M-bus interface or pulse output for energy and volume
- User-friendly display with main menu and service menu
- Programmable closing date for accounting
- Non-replaceable lithium battery with a life of ten years

### Further information

Brunata Ray energy meter consists of a calculation unit with battery, sensors with 1.5 m cable, sensor fittings and couplings.

The meter is constructed according to the multi-jet principle, which ensures very high measuring accuracy. Its dimension corresponds to the maximum flow speed in the heating system circuit and it can be ordered for either supply or return flow.



The energy meter is type approved in Denmark for energy accounting according to EN 1434, class 2, with approval number TS 27.01.130.

As standard, the meter is supplied without outputs and with Pt 500 temperature sensors according to DIN IEC 751 (ITS 90). The temperature sensors (5.2 mm diameter) are permanently connected to the counter with 1.5 m cables.

The meter's LCD display has two menus, connected en bloc. The first is the 'main menu' and the second the 'service menu'.

The main menu is programmed to display data for current energy consumption and energy consumption until the closing date. The service menu displays the current data for flow, temperatures, effect, water volume and the next closing date.

*Brunata is a Danish owned company. We have more than 90 years of experience within developing and producing meters, heat cost allocators, consumption accounts, meter services and latest substations. Today meters are often remotely read with access to the internet. We have a quality control system fulfilling DSIEN ISO 9001 and 14001.*

## Technical data

| Counter                                |  |   |           |
|--|--|---|-----------|
| Basic characteristics                  | Accuracy                                       | EN 1434, class 2  |           |
|  | Environmental classification                   | EN 1434, class C  |           |
|  | Protection                                     | IP 54   |           |
|  | Type   | Compact energy meter                                      |           |
|  | Dynamic range $q_i / q_p$                      | 1 : 100   |           |
| Display readings                       | Display  | 7-digit LCD display                                       |           |
|  | Readings                                       | Energy (9999999) · Effect · Flow (9999,999) · Temperature |           |
|  | Unit   | kWh   |           |
| Temperature-input                      | Temperature sensor type                        | Pt 500 / 2-leader   |           |
|  | Max. temperature difference                    | $\Delta T_{\max}$ K                                       | 147       |
|  | Min. temperature difference                    | $\Delta T_{\min}$ K                                       | 3         |
|  | Absolute temperature measuring range           | $^{\circ}$ C  | 0...150   |
| Volume/energy impulse (open collector) | Volume pulse values                            | Follows minimum reading on display                        |           |
|  | Energy puls values                             | 1 kWh/pulse - 1 litre/pulse                               |           |
|  | Frequency max.                                 | Hz  | Approx. 4 |
|  | Pulse width                                    | ms  | 125       |
|  | Pulse interval                                 | ms  | 125       |
|  | Input voltage max                              | V   | 30        |
|  | Max. load                                      | mA  | 100       |
| Power supply                           | Integrated 3V lithium battery. Non-replaceable |   |           |

## Measuring technical data

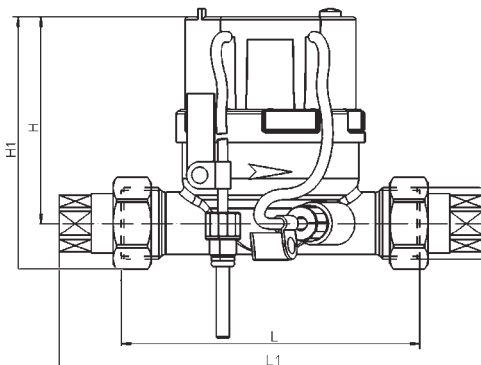
| Measurements and weight |                   |           |           |  |
|-------------------------|-------------------|-----------|-----------|--|
| Type                    |                   | $q_p$ 0,6 | $q_p$ 1,5 |  |
| Maximum flow $q_s$      | m <sup>3</sup> /h | 1,2       | 3         |  |
| Permanent flow $q_p$    | m <sup>3</sup> /h | 0,6       | 1,5       |  |
| Minimum flow $q_i$      | l/h               | 6         | 15        |  |
| Pressure loss at $q_p$  | kPa               | 24        | 24        |  |
| Start flow              | l/h               | 2         | 4         |  |
| Operating pressure      | max. bar          | 16        |           |  |
| Temperature range       | $^{\circ}$ C      | 5-90      |           |  |

## Dimensions

| Measurements and weight |                         |            |           |           |
|-------------------------|-------------------------|------------|-----------|-----------|
| Type                    |                         |            | $q_p$ 0,6 | $q_p$ 1,5 |
| Nominal connection      |                         | DN mm      | 15        | 15        |
| Build length            | L                       | mm         | 110       | 110       |
| Length incl. coupling   | L1*                     | mm         | 188       | 188       |
| Height                  | H                       | mm         | 75        | 75        |
|                         | H1                      | mm         | 95        | 95        |
| Connection meter        |                         | inches (") | G ¾ B     | G ¾ B     |
| Connection coupling     |                         | inches (") | R ½       | R ½       |
| Weight incl. counter    |                         | kg         | 0,90      | 0,90      |
| Installation position   | vertical/<br>horizontal |            |           |           |

\* applies to standard coupling

## Measurement sketch



## Pressure loss graph

