



The U1000 V2 is an ultrasonic permanent clamp-on flow metering solution for measuring flow rate. This cost effective device can either be used as a stand-alone meter or as an integral part of a control loop.

The U1000 V2 is very simple to install – clamp it on to the pipe, connect it to power and enter the pipe diameter. No expertise or special tools are required.

The "clamp-on" concept makes the installation of the sensors in running systems possible. The pipe does not have to be opened. Compact, robust and reliable – the U1000 V2 was designed for long-term use in industrial applications.

## Features

- Large, easy to read graphic display with backlighting
- Easy to install without special tools
- "Clamp-on" design
- Expanded size range (  $\frac{3}{4}$  inch to 6 inch)
- Simple to follow programming menu
- Simple quick-start set up procedure
- Compact integral design



## Applications

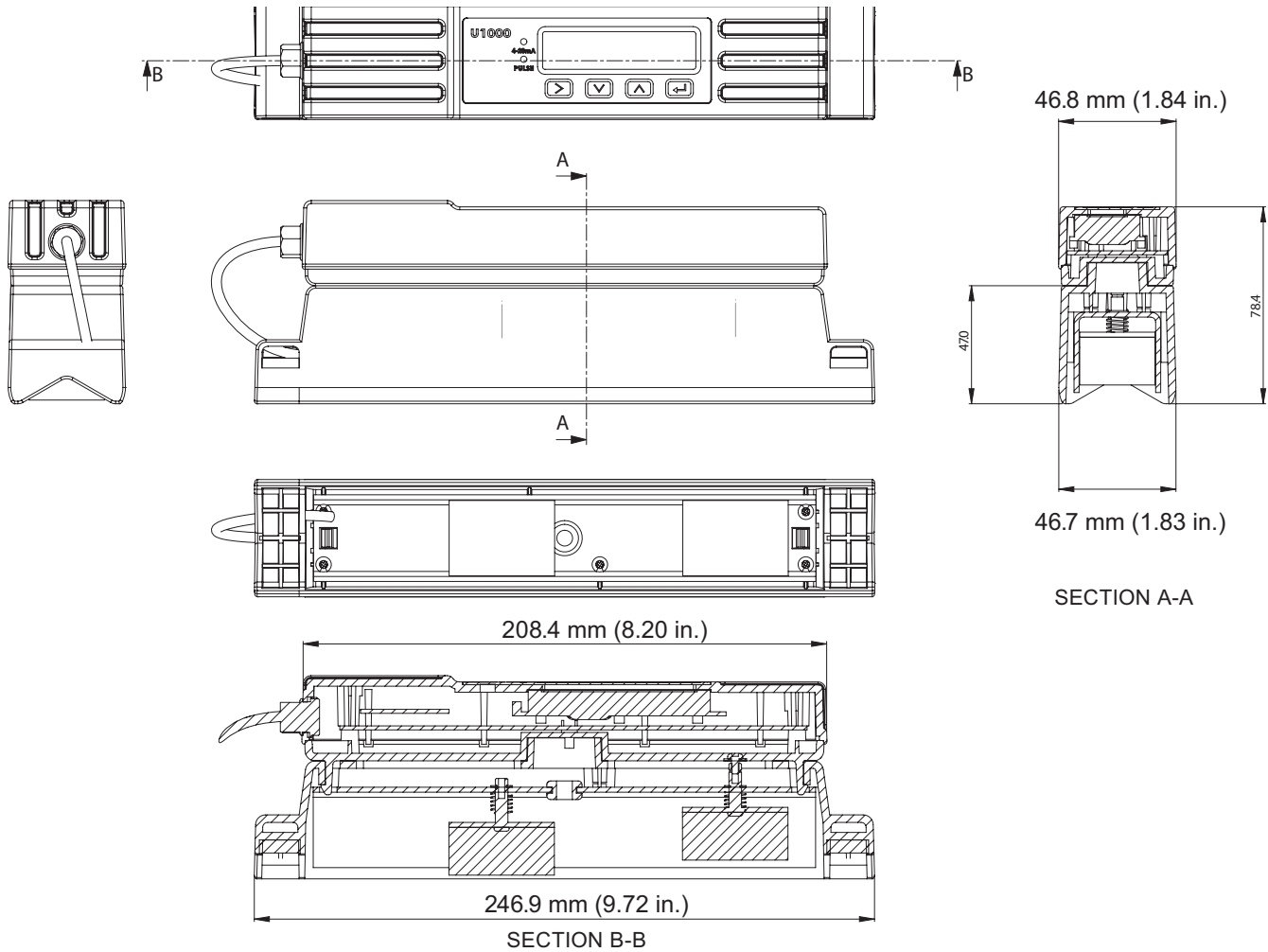
- Ultrapure water measurement
- Flow measurement for heat metering
- Chilled water metering
- Flow measurement for energy metering
- Monitoring of manufacturing processes
- New Water / Glycol Measurement

# Specifications

| General                    |                      |  |   |
|----------------------------|----------------------|--|---|
| Measuring method           |                      | Ultrasonic runtime measurement   |   |
| Flow range                 |                      | 0.1 m/s – 10 m/s (0.3 ft/s - 32 ft/s), bi-directional                              |   |
| Accuracy                   |                      | ± 3 % of the flow value with a flow rate > 0.3 m/s (1.0 ft/s)                      |   |
| Repeatability              |                      | ±0.5 % of measured value   |   |
| Response Time              |                      | < 500 ms   |   |
| Selectable Flow Units      |                      | Velocity   | m/sec, ft/sec.  |
|                            |                      | Volume   | l/s, l/min, gal/s, gal/min, USgal/s, USgal/min, m3/min, m3/hr |
| Selectable totalizer units |                      | l, m3, gals, USgals  |   |
| Menu Languages             |                      | EN   |   |
| Environmental              |                      |  |   |
| Operating Temperature      |                      | 0 °C to 50 °C  | 32 °F to 122 °F   |
| Storage Temperature        |                      | -10 °C to +60 °C   | 14 °F to 140 °F   |
| Temperature of pipe wall   |                      | 0 °C to 85 °C  | 32 °F to 185 °F   |
| Humidity during operation  |                      | Max. 90 % relative humidity at +50 °C (122 °F)                                     |   |
| Suitable Pipe Types        |                      |  |   |
| Pipe Materials             |                      | PVDF, PP-H, PE, PB, ABS, UPVC, CPVC, construction steel, iron, stainless steel 316 |   |
| Pipe diameter (d)          |                      | d22 - d180 mm*   | 0.86 - 7 inch* (¾ inch to 6 inch)                             |
| Electronics                |                      |  |   |
| Power supply               |                      | 12 to 24 V AC/DC   |   |
| Power Consumption          |                      | Max. 7 VA  |   |
| Outputs                    |                      |  |   |
| Analog Output              | Range                | 4 to 20 mA   |   |
|                            | Resolution           | 0.1 % of measurement range   |   |
|                            | Load max.            | 620 Ω  |   |
|                            | Insulation           | 1500 V optically isolated  |   |
|                            | Alarm Current        | 3.5 mA   |   |
| Pulse Output               | Type                 | Opto-isolated MOSFET volt free contact (NO/NC)                                     |   |
|                            | Pulse sequence       | 1 – 166 pps user-programmable frequency mode max. 200 Hz                           |   |
|                            | Pulse width          | 25 ms standard value, 3 – 99 ms user-programmable                                  |   |
|                            | Max. voltage         | 48 V AC  |   |
|                            | Max. current         | 500 mA   |   |
|                            | Insulation           | 2500 V optically isolated  |   |
| Housing and Display        |                      |  |   |
| Material                   |                      | Polycarbonate  |   |
| Dimensions                 |                      | 250 x 48 x 90 mm   | 9.85 x 1.9 x 3.55 inch  |
| Weight                     |                      | 0.5 kg   | 1.1 lb  |
| Keyboard                   |                      | Keypad with 4 buttons  |   |
| Display                    | Type                 | LCD, 2 lines x 16 characters   |   |
|                            | Viewing Angle        | Min. 30°, Max. 40°   |   |
|                            | Active Area          | 83 x 18.6 mm   | 3.3 x 0.73 inch   |
| Protection class           |                      | IP 54  |   |
| Shipping Information       |                      |  |   |
| Packet dimensions          |                      | 290 x 280 x 100 mm   | 11.4 x 11 x 4 inch  |
| Weight                     |                      | 1.4 kg   | 0.05 lb   |
| Volume Weight              |                      | 1.4 kg   | 0.05 lb   |
| Standards and Approvals    |                      |  |   |
|                            | CE, conforms to RoHS |  |   |
|                            | Security             | BS EN 61010-1:2001   |   |
|                            | EMV                  | BS EN 61326-1:2006   | BS EN 61326-2-3:2006  |
|                            | Environment          | BS EN 60068-1:1995   |   |
|                            |                      | BS EN 60068-2-1:2007   | BS EN 60068-2-2:2007  |

\* Measurable pipe sizes are dependent on pipe material and inner pipe diameter.

## Dimensions

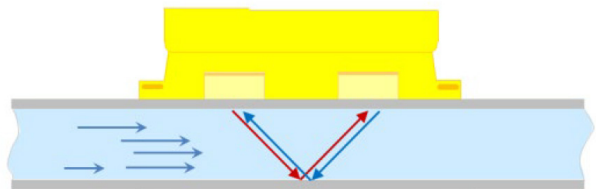


## Function

The U1000 V2 functions, as do all current ultrasonic flow meters, according to the path-time principle of ultrasonic waves.

The device is installed directly on a pipe surface and transmits ultrasonic waves back and forth between the two sound transducers. Depending on the flow, a small time difference arises between the two ultrasonic signals – this is proportional to the flow speed.

The U1000 V2 is especially configured for pure water and can be used on PVDF-ABS, PVC, PP, PE, PB-Instaflex, iron and steel pipes. Processes can be monitored directly by a higher-level system via 4 to 20 mA, Modbus, pulse or frequency output

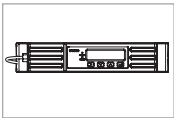


Technical data



| No. | Description          |
|-----|----------------------|
| 1   | Power supply (AC/DC) |
| 2   | Pipe bracket         |
| 3   | Electronics module   |
| 4   | Guide rail           |
| 5   | User interface       |
| 6   | Pipe                 |

Ordering Information



| Mfr. Part No. | Code        | Description  |
|---------------|-------------|--|
| U1000 V2      | 159 300 300 | U1000 V2, 4 to 20 mA & Frequency, d22 - d115 (¾ in. to 4 in.)  |
| U1000 V2      | 159 300 301 | U1000 V2, 4 to 20 mA & Frequency, d125 - d180 (5 in. to 6 in.) |
| U1000 V2      | 159 300 302 | U1000 V2, Modbus & Frequency, d22 - d115 (¾ in. to 4 in.)      |
| U1000 V2      | 159 300 303 | U1000 V2, Modbus & Frequency, d125 - d180 (5 in. to 6 in.)     |