GF U1000 V2 Ultrasonic Flowmeter and GF U1000 V2 Ultrasonic Heatmeter (HM)

The GF U1000 V2 is an ultrasonic permanent Clamp-On flowmeter. This cost effective device can either be used as a stand-alone meter or as an integral part of a control loop.

The GF U1000 V2 Heatmeter (HM) is an ultrasonic permanent Clamp-On heatmeter / energy meter / BTU meter. Additionally to an ultrasonic flowmeter it is equipped with Pt100 temperature sensors to calculate the energy of a heat exchanging system.

The GF U1000 V2 (HM) 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 GF U1000 V2 (HM) was designed for long-term use in industrial applications.

The GF U1000 V2 (HM) 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.

Features

- **Large, easy to read graphic display with backlighting**
- **Easy to install without special tools**
- **"Clamp-On" design**
- **Expanded size range (¾ inch to 6 inch)**
- **Simple to follow programming menu**
- **Simple quick-start set up procedure**
- **Compact integral design**
- **Automatic energy calculation with integrated Pt100 temperature sensors (HM version)**

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 transit-time 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		liter, gallons, US gallons, m^3	
Menu Languages		EN	
Temperature sensors (Heatmeter models only)			
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
Accuracy		Pt100 Class B 4-wire	
Resolution		0.1 °C (0.2 °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,copper	
Pipe Dimension (OD)		22 mm to 180 mm*	¾ - 7 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	1MΩ at 100 V	
	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	50 ms standard value, 3 – 99 ms user-programmable	
	Max. Voltage	24V DC or 24V AC	
	Max. Current	500 mA	
	Insulation	1MΩ at 100V	
Modbus Output	Format	RTU	
	Baud Rate	1200, 2400, 4800, 9600, 19200, 38400	
	Data-Parity-StopBits	8-None-2, 8-None-1, 8-Odd-2, 8-Even-1	
	Standards	PI–MBUS–300 Rev. J	
	Physical Connection	RS485	
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			
Packaging Dimensions		290 x 280 x 100 mm	11.4 x 11 x 4 inch
Weight		1.4 kg	3 lbs
Volume Weight		1.4 kg	3 lbs
Standards and Approvals			
	CE, RoHS compliant		
	UL Listed		
	Safety	BS EN 61010-1:2010	
	EMC	BS EN 61326-1:2013	BS EN 61326-2-3:2013
	Environment	BS EN 60068-1:2014	
		BS EN 60068-2-1:2007	BS EN 60068-2-2:2007

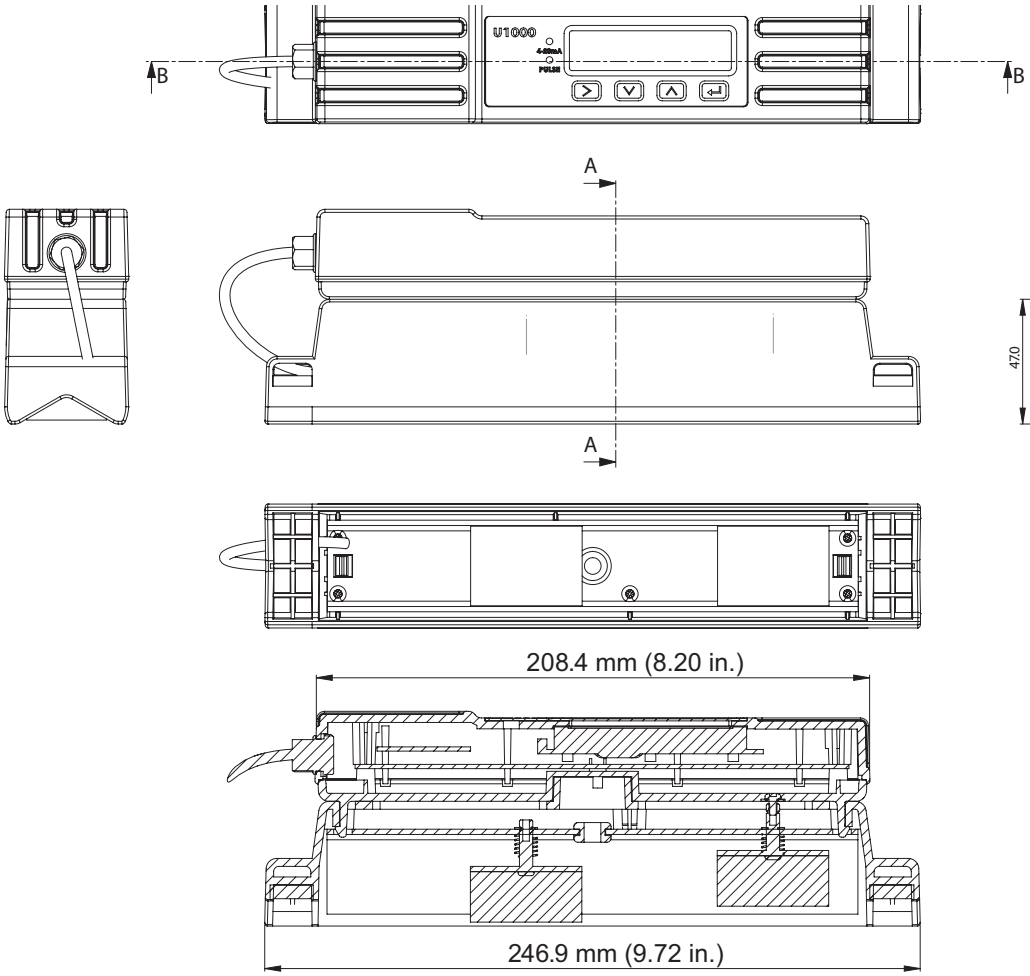
* Measurable pipe sizes are dependent on pipe material and inner pipe diameter.

Packaging Content

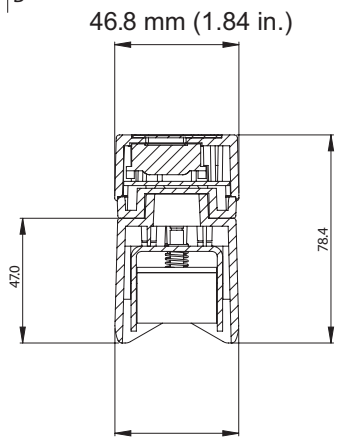
GF U1000 V2 HM model shown

1. Guide rail
2. GF U1000 V2 (HM) head-unit incl. cable (5 m length)
3. Gel pads
4. Pipe adapters
5. S/steel hose-clips for guide rail
6. Pt100 temperature probes incl. cable (3 m length) (HM models only)
7. S/steel hose-clips for temperature probes (HM models only)
8. Modbus cable (Modbus models only)
9. Product documentation(Quick-start guide & factory assembly certificate)

Dimensions



SECTION B-B



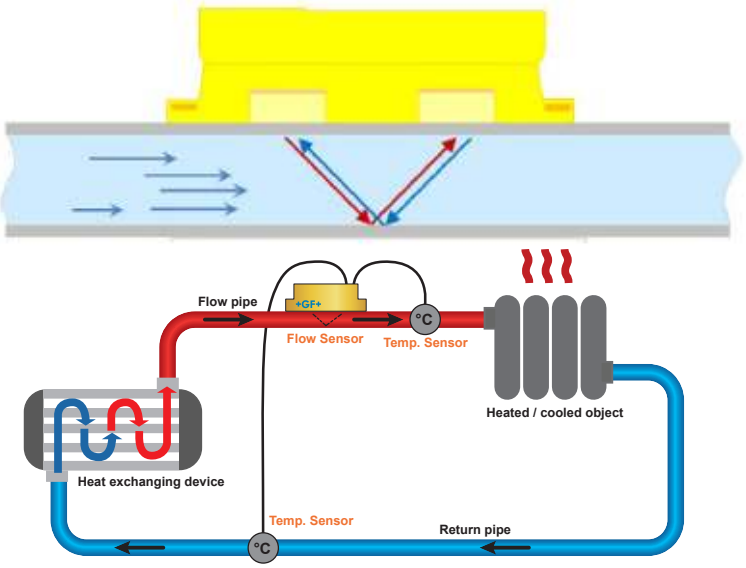
SECTION A-A

Function

The GF U1000 V2 (HM) functions, as do all current ultrasonic flowmeters, 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.

By measuring the temperature change between the flow and return pipe of the heat exchanging system with the integrated Pt100 sensors the GF U1000 V2 (HM) is additionally calculating its thermal energy (in BTU, J or kWh).



Ordering Information

Mfr. Part No.	Code	Description
U1000 V2	**159300300**	GF U1000 V2 | Ultrasonic Flowmeter | 12-24 VAC | d22-d115 | 4 to 20 mA, Pulse
U1000 V2	**159300301**	GF U1000 V2 | Ultrasonic Flowmeter | 12-24 VAC | d125-d180 | 4 to 20 mA, Pulse
U1000 V2	**159300302**	GF U1000 V2 | Ultrasonic Flowmeter | 12-24 VAC | d22-d115 | Modbus, Pulse
U1000 V2	**159300303**	GF U1000 V2 | Ultrasonic Flowmeter | 12-24 VAC | d125-d180 | Modbus, Pulse
U1000 V2 HM	**159300304**	GF U1000 V2 HM | Ultrasonic Heatmeter | 12-24 VAC | d22-d115 | Modbus, Pulse
U1000 V2 HM	**159300305**	GF U1000 V2 HM | Ultrasonic Heatmeter | 12-24 VAC | d125-d180 | Modbus, Pulse

Spare Parts and Accessories

Mfr. Part No.	Code	Description
-	**159300088**	Ultrasonic Flowmeter | Spare parts | Transducer gel pads (2 pcs)
-	**159300038**	Ultrasonic Flowmeter | Spare parts | Superlube coupling grease (85 g)
-	**159300089**	Ultrasonic Flowmeter | GF U1000 V2 | Spare parts | Guide rail incl. transducers