

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	
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
Protection Class	IP 54	

Shipping Information

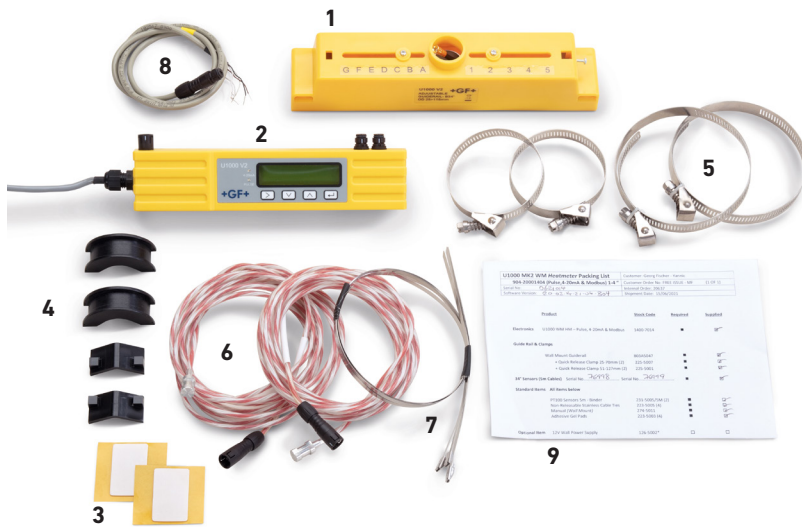
Packaging Dimensions	290 x 280 x 100 mm	11.4 x 11 x 4 inch
Weight	1.4 kg	3 lbs
Volume Weight	1.4 kg	3 lbs

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.

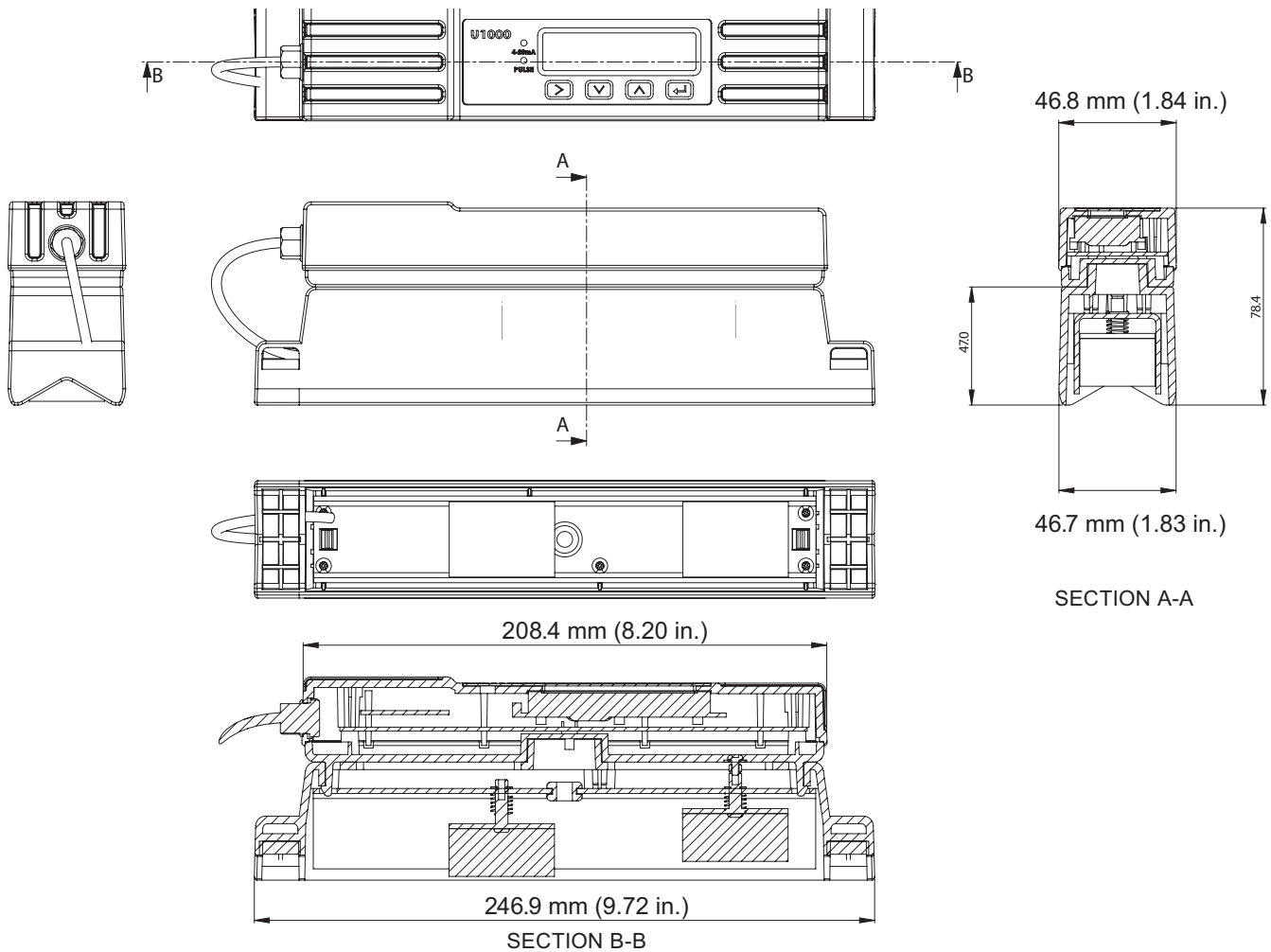
Packaging Content



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)

GF U1000 V2 HM model shown

Dimensions

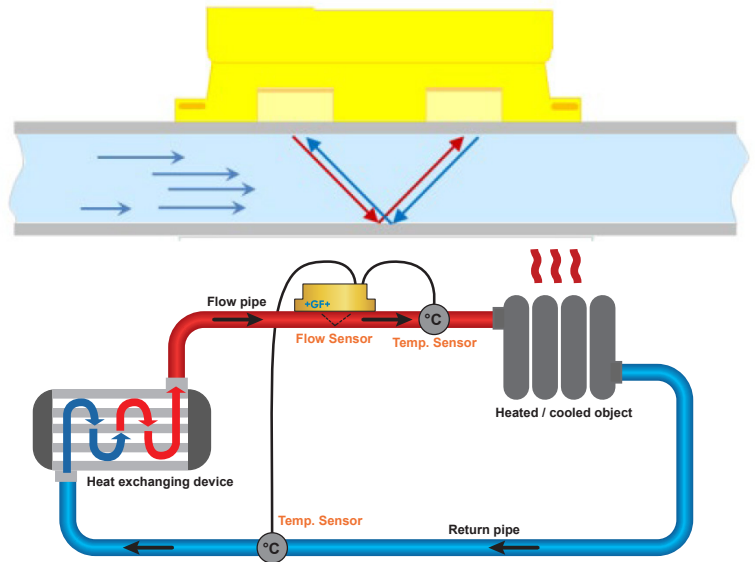


Function

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 d22-d115 Modbus, Pulse
U1000 V2	159300302	GF U1000 V2 Ultrasonic Flowmeter 12-24 VAC d125-d180 4 to 20 mA, 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