GF U1000 V2 WM Ultrasonic Flowmeter and GF U1000 V2 WHM Ultrasonic Heatmeter

The GF U1000 V2 Wallmount (WM) is a permanent ultrasonic clamp-on flowmetering solution with wallmounted head unit. 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 Wallmount Heatmeter (WHM) 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 WM (WHM) 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 WM (WHM) was designed for long-term use in industrial applications.

The GF U1000 V2 WM (WHM) 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

- **Easy to install, compact, robust and reliable - designed for long-term use in industrial applications**
- **Accurate flow measurement on virtually any pipe**
- **Automatic energy calculation with integrated Pt100 temperature sensors (HM version only)**
- **Ready for Industry 4.0 with various communications options. Including: Modbus, 4 to 20 mA, pulse & alarm output**
- **'Clamp-on' flowmetering solution with external wallmount head unit**
- **Large, easy to read graphic display with backlighting**
- **Expanded size range (¾ inch to 8.8 inch)**

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 225 mm*	¾ - 8.8 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

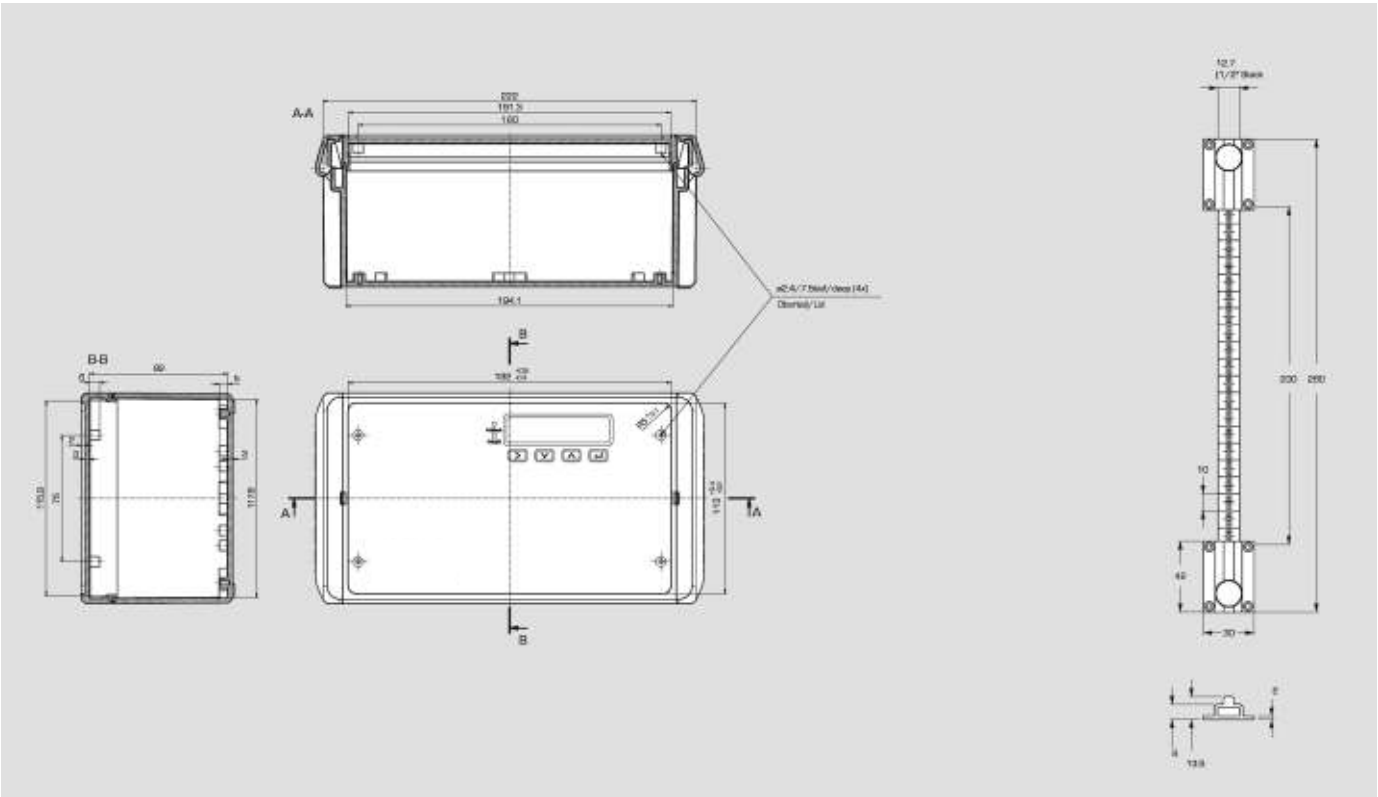
* Measurable pipe sizes are dependent on pipe material and inner pipe diameter.

Packaging Content

GF U1000 V2 WHM model shown

1. GF U1000 V2 WM (WHM)
2. Flow sensors / transducers incl. cable (5 m length)
3. Gel pads
4. Ruled guide rail
5. S/steel hose-clips for flow sensors
6. Pt100 temperature probes incl. cable (3 m length) (HM models only)
7. S/steel hose-clips for temperature probes (HM models only)
8. Power supply (optional)
9. Product documentation (User manual & factory assembly certificate)

Dimensions

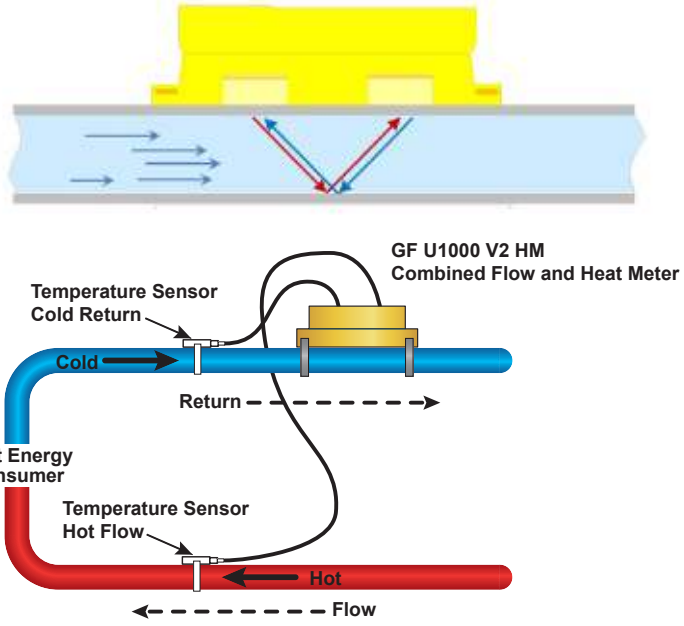


Function

The GF U1000 V2 WM (WHM) 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 WHM is calculating its thermal energy (in BTU, J or kWh).



Ordering Information

Mfr. Part No.	Code	Description
U1000 V2 WM	**159 300 310**	GF U1000 V2 WM | Ultrasonic Flowmeter | 12-24 VAC | d22-d115 | 4-20 mA, Pulse
U1000 V2 WM	**159 300 311**	GF U1000 V2 WM | Ultrasonic Flowmeter | 12-24 VAC | d22-d115 | Modbus, Pulse
U1000 V2 WM	**159 300 312**	GF U1000 V2 WM | Ultrasonic Flowmeter | 12-24 VAC | d22-d115 | Modbus, 4-20 mA, Pulse
U1000 V2 WM	**159 300 313**	GF U1000 V2 WM | Ultrasonic Flowmeter | 12-24 VAC | d125-d225 | 4-20 mA, Pulse
U1000 V2 WM	**159 300 314**	GF U1000 V2 WM | Ultrasonic Flowmeter | 12-24 VAC | d125-d225 | Modbus, Pulse
U1000 V2 WM	**159 300 315**	GF U1000 V2 WM | Ultrasonic Flowmeter | 12-24 VAC | d125-d225 | Modbus, 4-20 mA, Pulse
U1000 V2 WHM	**159 300 316**	GF U1000 V2 WHM | Ultrasonic Heatmeter | 12-24 VAC | d22-d115 | Modbus, 4-20 mA, Pulse
U1000 V2 WHM	**159 300 317**	GF U1000 V2 WHM | Ultrasonic Heatmeter | 12-24 VAC | d125-d225 | Modbus, 4-20 mA, Pulse

Spare Parts and Accessories

Mfr. Part No.	Code	Description
-	**159 300 088**	Ultrasonic Flowmeter | Transducer gel pads (2 pcs)
-	**159 300 038**	Ultrasonic Flowmeter | Superlube coupling grease (85 mg)
-	**159 300 406**	Ultrasonic Flowmeter | GF U1000 V2 WM/WHM | GF U1000 V2 WM Guide rail incl. transducers
	159 300 413	Ultrasonic Flowmeter | 12V external power supply (incl. US, Euro, UK adaptors)