

U1000 V2

Simple in every dimension

Clamp-on ultrasonic flow meter



**Quick and simple initial start-up
without interrupting the piping system
or in the production process.**

Building the lifelines of the world

GF Piping Systems is the global expert for the safe and reliable transportation of water, chemicals, and gas. The maintenance-free and long-lived piping systems made of plastics help implement vital applications of our customers faster, more cost-effectively and more sustainably. GF Piping Systems supports its customers throughout all phases of their projects from planning to commissioning.

+ Maintenance-free plastic

Piping systems made of plastics are maintenance-free, light and very durable. They help reduce repair and overall costs and are suitable for the transport of drinking water, abrasive and aggressive liquids, as well as gas.

+ Partner for digitization

With its advanced automation and digitization solutions, GF Piping Systems allows its customers to optimize their applications and to gain easier access their system data. Digital tools support you in every phase of the project.

+ Complete system solutions

With more than 60,000 products, GF Piping Systems can offer complete system solutions. In addition, custom-made special parts and special series are also possible. Customers benefit from perfectly matched solutions from a single source.

Facts and figures

- **Established:** 1802 (Georg Fischer AG) in Switzerland
- **Locations:** 34 countries with own sales offices
- **Turnover:** 1.821 billion Swiss francs (2018)
- **Employees:** 6852 (2018)

+ Local support

GF Piping Systems has its own sales companies in 34 countries, which means it is always by its customers' side. Our production sites in 23 locations in America, Europe, and Asia ensure sufficient availability and quick, reliable delivery.

+ Service in all project phases

GF Piping Systems supports its customers both in the initial switch from metal to plastic and in retrofits – across all project phases. They benefit from more than 60 years of experience in plastic systems and application knowledge from 100 countries.



The GF Piping Systems plant in Schaffhausen, Switzerland.

Seamless integration through non-contacting measurement

Simple installation within a few minutes – the U1000 V2 in action

The U1000 V2 combines technically sophisticated measurement technology with simplistic mounting, impressive versatility, and minimum maintenance. The result: a measuring device that can be retrofitted and seamlessly integrated without intervention in the piping system or in the production process. After the initial start-up, the U1000 V2 works virtually maintenance-free while providing accurate measurement results for many years.

Non-contacting measurement offers many advantages

To this day, many industrial manufacturing operations, water treatment systems and swimming pools still feature oversized invasive flow meters. They are often installed inside the pipeline by specialists, requiring significant time and money. Direct contact with aggressive or abrasive media exposes them to considerable strain and early wear and tear. Additionally, retrofitting of invasive flow meters requires expensive production downtimes and elaborate installation and set-up measures.

Very simple installation and integration

With the U1000 V2, GF Piping Systems offers a non-contacting alternative, offering precise results and vastly reducing security risks when working with aggressive media. The flow meter is fitted with the convenient clamp-on-design and can

be installed on the pipe in less than two minutes. The device is simply mounted to the outside of the pipe and easily adjusted to its diameter. After a short and intuitive set-up in four steps on the LCD display, the device is ready for use and delivers reliable measurement results to the process control system via the analog or digital interface. Breaking into the piping system is not required.

Lower costs, higher effectiveness

One of the key economic advantages of the U1000 V2 is that it is free from wear and is therefore extremely durable thanks to its non-contacting operational principle. In addition, its installation requires neither specialists nor production downtimes. The device contributes to reducing costs and increasing efficiency in the company.

U1000 V2

The flow meter that always fits



Whether water or aggressive media, metal or plastic, low or high flow rates, the U1000 V2 is suited for exact, non-contacting flow rate measurement across all sectors. It is easy to install and configure. For this reason, it is well suited for numerous applications: from industrial process technology, to chemical-pharmaceutical processes with aggressive media, to municipal drinking water treatment processes in public swimming pools and cooling systems. The U1000 V2 shows its benefits in building and energy technology, too.



+ Simple Installation

The U1000 V2 can be operational in less than two minutes – even during ongoing production. Opening of the piping system, intervention in the production process, or the use of trained specialists is not required.

+ Maintenance-free measurement

After initial start-up, the U1000 V2 works virtually maintenance-free and provides accurate measurement results for many years. Frequent cleaning, readjustment or required calibrations is not necessary.

+ Assured product quality

Thanks to non-contact measurement, the U1000 V2 neither affects the production process and medium nor the quality of the end product. No pressure loss occurs. No new design of the process or system is necessary.

+ Maximum availability

The U1000 V2 does not come in contact with the flow medium and has no mechanical parts that are subjected to stress during measurement. Hence, maximum availability of the measurement is assured, even in the case of aggressive media, abrasion or high pressures.

+ Suitable for all dimensions

The flow meter is suitable for all dimensions from d22 to d180, and is largely independent of the medium, piping material and installation site.

+ Part of the system solution

The U1000 V2 can be optimally combined with pipelines, fittings, valves and automation technology from GF Piping Systems. It can be integrated smoothly into the entire system and reduces the complexity.



Easy to install with just a few steps

The U1000 V2 is based on non-contact run-time measurement via ultrasonic technology. This makes it largely independent of the characteristics of the medium in the pipe. The inner diameter of the pipe is sufficient to determine the volume flow. The measured value is output through a 4–20 mA or pulse output and, now, also through Modbus. The device is easy to install and set up with a few steps – the only required tool is a screwdriver.

A sensor for the pipe range d22– d180

- Flexible installation
- Quick addition to existing systems

Large display

- Clear, quick presentation of parameters, multiple information types at a single glance
- Simple programming in a few steps



Clamp-on design

- Very quick mounting in less than two minutes
- Convenient installation on the outside of the pipe

Contactless measurement

- Not in contact with the medium
- No pressure loss
- No sensor wear
- Maintenance-free measurement

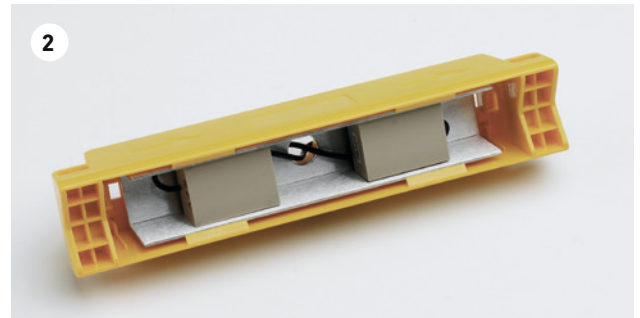
Compact design

- Also perfectly suited for small compact systems

Installation



Use the select buttons to choose the pipe diameter, pipe material and flow medium. The display shows you the correct distance of the sensor elements.



The two sensor elements can be moved sideways. Positioning notches on the top side of the housing allow their correct positioning. Align the sensor elements according to the spacing shown.



Remove the protective foil from the included contact pads and attach them to the elements. To facilitate mounting on the pipeline, you can slightly lower the sensor elements in the housing.



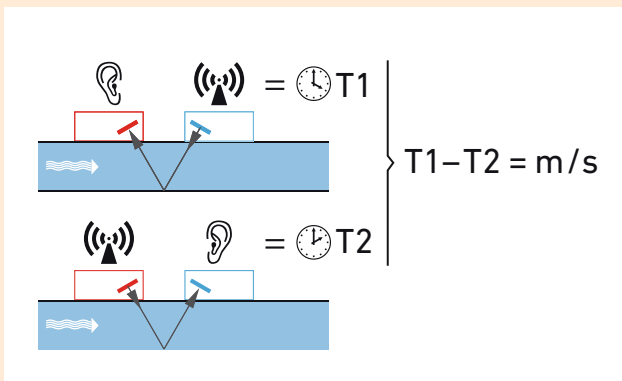
Pull the fastening clips through the sensor unit on both sides. Position them on the pipe and tighten the clips. Removing the safety screws presses the sensor elements to the pipe.



Now integrate the head unit by connecting it to the sensor unit with the connectors. Then place the sensor head onto the sensor unit.



Finally, using a small screw on the housing side, you can firmly connect the sensor head and sensor unit to each other. The U1000 V2 is ready to operate.



The operating principle

Ultrasonic flow rate measurement uses the different flow speeds of acoustic waves in and against the flow direction of a medium. To do this, the flow meter transmits an ultrasonic wave into the pipe, both in and against the flow direction, and calculates the flow-rate volume by capturing the run-time difference and the pipe diameter.

U1000 V2

Flow measurement in cooling systems



Installation during 24/7 operation

Initial situation

It is important for our clients to precisely measure and document flow rates – both for more efficient use of coolant and to protect the pumps from running dry. They also need to prove to their customers that sufficient cooling is always available – for correct invoicing and for the client's own protection in case of liability questions. Retrofitting had to take place during ongoing production due to the 24/7 operation of the system.

Technical implementation

The compression cooling system operates with ammonia and a water/glycol mixture with a flow rate of 0 to 750 liters per minute in PE pipes with the dimensions d140 and d160. Within a short period of time, four U1000 V2 were installed, one on each of the inflows and outflows of the two cooling units. An adjustment of the cooling process or system design or interruption of the cooling system's operation was not necessary due to the contactless measuring principle. The U1000 V2 units were immediately ready for operation.

The outcome

From the moment of installation, the U1000 V2 offers precise flow rate values and, in combination with temperature measurement, helps the operator efficiently operate the cooling system and protect its components. They reliably prevent dry runs of the system and damage to the pump. This lowers repair and operational costs. The measured values can be combined via the process control system and made available to the customer in analog or digital form for documentation purposes.



Cooling system operated with ultra-pure water

Benefits

- Installation of four U1000 V2 during ongoing production within a short period of time
- Convenient choice of sensors independent of the pipe material and pipe diameter
- No influence on the existing cooling process
- Simple integration into the process control system for documenting the cooling performance
- Continuous project support by local experts of GF Piping Systems



U1000 V2

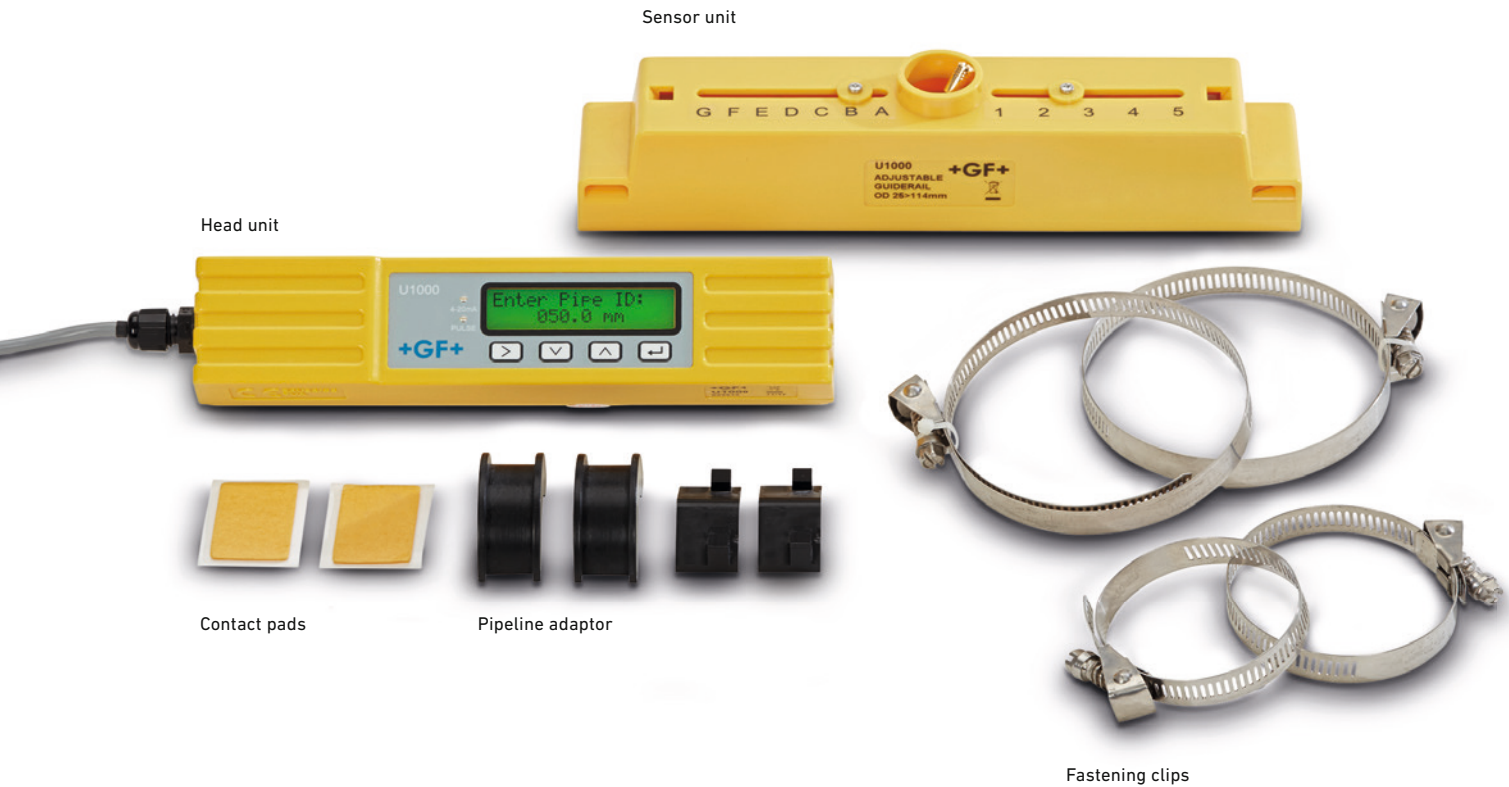
Technical specifications

Specification	Values
Measuring principle	Ultrasound, run time
Flow rate	0.1 – 10 m/s
Accuracy	3% of the measured value
Response time	< 500 ms
Pipe outside diameter [d]	22 – 180 mm*
Pipe material	PVC, ABS, PVDF, PP, PE, PB-INSTAFLEX, steel, metal
Operating temperature	0 – 50 °C
Network voltage	12 – 24 V DC
Output	4 – 20 mA, pulse, Modbus

* Note: Pipe size is dependant on pipe material and inner pipe diameter

Code	Type	Description
159 300 300	U1000 V2	U1000 V2 4-20 mA & pulse d22 – d115
159 300 301	U1000 V2	U1000 V2 4-20 mA & pulse d125 – d180
159 300 302	U1000 V2	U1000 V2 Modbus & pulse d22 – d115
159 300 303	U1000 V2	U1000 V2 Modbus & pulse d125 – d180

Scope of delivery



Services of GF Piping Systems

Optimal planning, installation and operation

The specialists at GF Piping Systems support you throughout all phases of your project. They help you to optimally plan, install and operate your plastic piping system. Therefore, they reduce unnecessary time and material losses for you and keep downtimes and other risks as short as necessary.

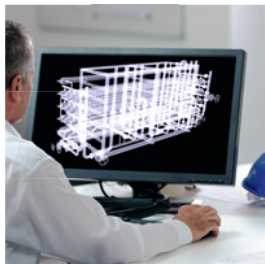


Recommended services



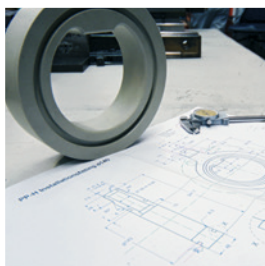
Digital Product Libraries

The digital product libraries by GF Piping Systems allow planning with real-life dimensions and automatically generated parts lists, facilitating digital cooperation. They help reduce planning errors and shorten your project times.



Engineering

We check the design of your piping system, support you with the choice of materials and components as well as with the correct installation. Our 60 years of experience with plastic systems help you to reduce your own risks.



Customizing

Customized special parts and solutions for special tasks are available in all required dimensions. Even unusual applications in challenging installation scenarios can be implemented easily, safely and on time.

Next steps

In this brochure you have received the most important information and technical details. But nothing replaces a personal conversation with an expert from GF Piping Systems. It is all about your needs and how we can support you in your daily business challenges. If you have not already done so, make an appointment today.

On the GF Piping Systems website you will find specialized contact persons in your area. There you will also find further information on the product, including technical data sheets and operating instructions as well as relevant certificates and approvals.

- Appointment with an expert from GF Piping Systems
- Advice on the benefits of the solution for you
- Information on reference applications
- Help with selection and calculations
- Support in all project phases

Find out more
www.gfps.com



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