



## ETG CLAMP ON

Sensor for measuring the water flow rate in a pipeline



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### PRODUCT DESCRIPTION

The Clamp On ultrasound flow rate measurement system consists of a transmitter and its measurement sensors. All components are available in different versions designed and developed to meet the various application needs. The transmitter powers the measurement sensors. The electronics and software contained in the transmitter prepare, process and analyse the signals transmitted by the sensors and convert the measurement signal into the desired output variables.

### OPERATION

Clamp On works based on the principle of difference of transit time. An acoustic (ultrasonic) signal is transmitted in both directions by one sensor to the other.

The propagation velocity of the acoustic waves in the flow direction is greater than that in the opposite direction and, as a result, a difference in transit time is calculated. The difference is directly proportionate to the flow velocity.

Clamp On calculates the flow rate of the pipe section and the difference of the measured transit time.

In addition to the volumetric flow rate, this system also measures the velocity of sound in the fluid. Sound velocity serves to distinguish different fluids or to indicate the quality of the fluid.

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## MAIN FEATURES

### Installation on pre-existing pipes:

installation can also be performed on pre-existing pipes simply, quickly and economically.

### Easy maintenance:

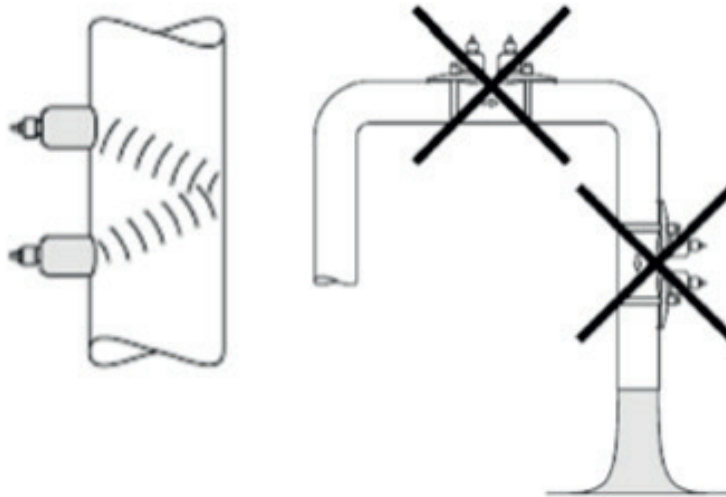
the benefits that our pluviometric sensor offers are not limited to precision, but also include simple and quick maintenance due to the engineering of the sensor that simplifies the phases.

### Sturdy and reliable construction:

lastly makes it an instrument with a long lifetime, which safeguards the customer's investment.

## INSTALLATION

Clamp On sensors are installed outside pre-existing pipes.



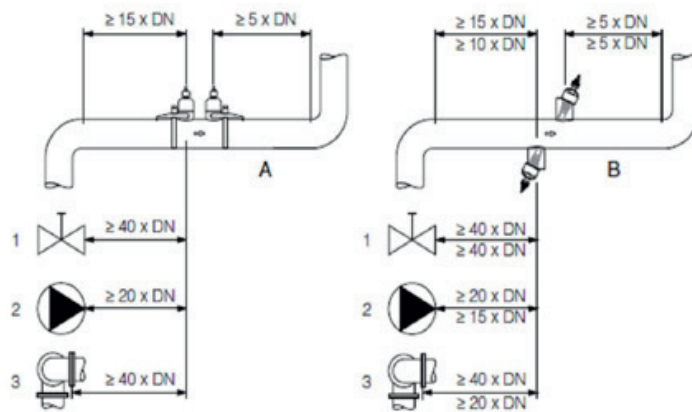
The transmitter permits various configurations: they are available from 1 to 2 crossmembers, depending on the type of installation.

The recommended installation for Clamp On sensors is the 2 crossmember configuration. This type of installation is the simplest and most convenient assembly system. It allows the measurement device to be installed even if the pipe is only laterally accessible.

To be able to take a correct measurement, the pipe has to be full. Avoid installations in the following positions:

- **At the highest point of the pipe due to the risk of air bubbles forming;**
- **Directly upstream of a free drain of a vertical pipe.**

If possible, install the sensor away from sources of disturbance such as valves, T junctions, elbows, etc. To guarantee measurement precision, it is recommended to consider the following requirements for the rectilinear inflow and outflow sections.



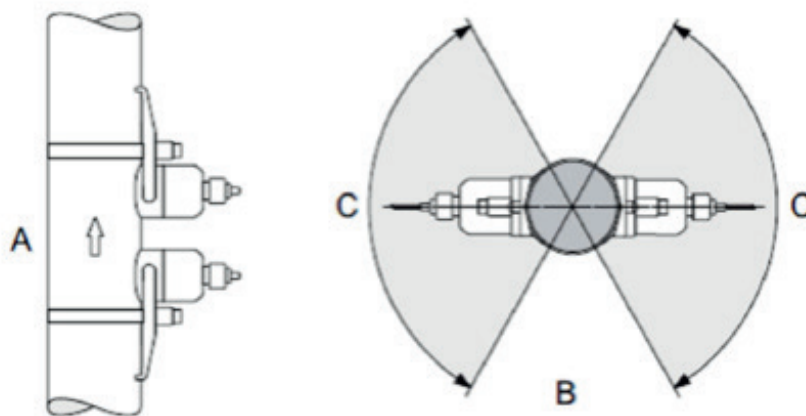
As regards orientation, we recommend:

## VERTICAL

Orientation recommended with upward flow (View A). Solid particles deposit on the bottom. When the product is at rest, any gas bubbles move away from the sensor zone. The pipes can be completely emptied and protected in order to prevent deposits from accumulating.

## HORIZONTAL

If the installation position recommended for the horizontal pipeline (View B) is observed, any accumulations of gas and air near the top and the deposits of solids at the bottom of the pipe will have less impact on the measurement.



C= Recommended installation range max. 120 ° (applies to all sensor versions)

## COMPONENTS THAT CAN BE ADDED OR BE BUILT INTO THE PRODUCT

The transmitter of this sensor can easily be connected to control units, PLCs and RTUs. To this regard, the RTU made by ETG, the iLogger model, can naturally be integrated with this sensor.

By connecting this sensor to the control units just listed, it will be possible to send the flow rate data directly to a control centre using a GPRS transmission model integrated in the above-mentioned RTUs.

## TECHNICAL SPECIFICATIONS

| SPECIFICATIONS                     |                              |
|------------------------------------|------------------------------|
| Transmitter                        | 16-62 Vcc                    |
| Measurement sensors                | Powered by the transmitter   |
| Absorbed power                     | <5 W (INCL. SENSORS)         |
| Blackout                           | Data saved in HistoROM/T-DAT |
| OPERATING CONDITIONS OF REFERENCE  |                              |
| Fluid temperature range            | + 22°C 2K                    |
| ENVIRONMENTAL OPERATING CONDITIONS |                              |
| Environment temperature range      | -20... +60°C                 |
| Loss of head                       | None                         |
| <b>Protection rating</b>           | IP 67                        |

## CERTIFICATIONS AND PROTOCOLS

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|-------------------------------|----------------------|
| Electromagnetic Compatibility | 16-62 Vdc            |
| EMC (Part 1)                  | EN 301 489-1 V.1.4.1 |
| EMC (Part 3)                  | EMC (Part 3)         |