

## EESIFLO SONALOK 7S

### Transit Time Ultrasonic Flowmeter



- Ultrasonic flowmeter in IP 66 wall mounted enclosure
- Easy to install clamp-on sensors with no process interruption
- Non-invasive flow measurement of liquids, no pipeline disturbance, no pressure loss
- Suitable for all commonly used pipe materials with pipe diameters from 10 mm to 2.5 m (1/2" to 100")
- Available with 1 or 2 channels

#### Description

The EESIFLO 7S range of non-invasive flowmeters utilises ultrasonic technology for the accurate flow measurement of liquids in full pipes.

The field mounted flow transmitter can be configured via the keypad without any additional programming devices and is available as single channel unit.

The measurement of flow is based on the principle that sound waves are influenced by a flowing medium.

Measurements are made by penetrating the pipe with ultrasound and subsequently time differences, frequency variations and phase shifts of the ultrasonic signals are evaluated. This measuring technique has no effect on the flowing liquid. There is no pressure loss in the pipe and no wear on components of the measuring device.

The ultrasonic sensors are clamped onto the outside of the pipe, thus eliminating the need to dismantle the pipework and interrupt the process. The EESIFLO 7S can be applied to any type of standard pipe carrying clean or dirty liquid.

#### Advantages

- z Low installation effort and costs
- z Measurement is independent of fluid conductivity and pressure
- z No pressure loss, no possibility of leakage
- z Retrospective installation for existing plants possible
- z No cutting of pipes necessary, no interruption of process, no plant shut down
- z No additional fittings for maintenance required
- z Hygienic measurement, no risk of contamination, suitable for ultra clean liquids
- z No contact with medium, no risk of corrosion when used with aggressive media
- z Cost advantages when used with large diameter pipes, high pressure systems, etc.
- z Low stocking costs, nearly all pipe sizes are covered with only 2 types of sensors

## Specifications

### General

Measuring principle	:Ultrasonic time difference correlation principle
Flow velocity range	:0.01 ... 25 m/s
Resolution	:0.025 cm/s
Repeatability	:0.15 % of measured value $\pm$ 0.01 m/s
Accuracy	:Volume flow $\pm$ 1 ... 3 % of measured value depending on application, $\pm$ 0.5 % of measured value with process calibration Flow velocity $\pm$ 0.5 % of measured value
Turn down ratio	:1/100
Gaseous and solid content of medium	:< 10 % of volume

### Flow transmitter

Enclosure	:Wall mounted housing
Degree of protection	:IP 66 according EN 60529
Operating temperature	:-10 ... 60 °C (14 ... 140 °F)
Housing material	:Aluminium, powder coated
Flow channels	:1 or 2
Power supply	:100 ... 240 V AC or 18 ... 36 V DC, specials upon request
Display	:2 x 16 digit LCD, dot matrix, backlit
Dimensions	:H 140 x W 190 x D 70 mm (1 ch) H 140 x W 220 x D 70 mm (2 ch)
Weight	: 1 ch : 1.5 kg, 2 ch : 1.8 kg
Power consumption	:< 10 W
Signal damping	:0 ... 100 s, adjustable
Response time	:1 s
Measuring cycle	:100 ... 1000 Hz, single channel
Operating languages	:Selectable between Danish, English, German, French, Dutch, Norwegian, Polish, Czech, Turkish, Spanish

### Quantity and units of measurement

Volumetric flow rate	:m <sup>3</sup> /h, m <sup>3</sup> /min, m <sup>3</sup> /s, l/h, l/min, l/s, USgph (US gallons per hour), USgpm, USgps, bbl/d (barrels per day), bbl/min, bbl/s
Flow velocity	:m/s, inch/s
Mass flow rate	:g/s, t/h, kg/h, kg/min
Volume	:m <sup>3</sup> , l, gal (US gallons), bbl
Mass	:g, kg, t

### Communication

Serial interface	:RS 485 optional
------------------	------------------

### Process outputs

Current	:Galvanically isolated from main electronics :0/4 ... 20 mA active ( $R_{ext} < 500$ ohm), 0.1 % of measured value $\pm$ 15 microAmp
Digital (pulse, status)	:Totaliser value 0.01 ... 1000 / unit, width 80 ... 1000 ms, Open-Collector 24 V/4 mA

### Large pipe transducers

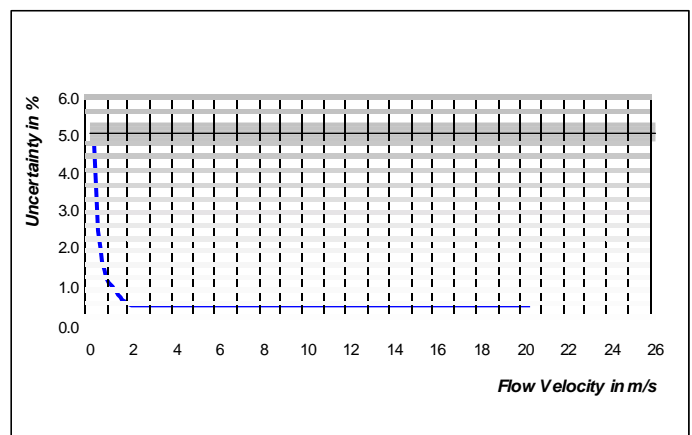
Diameter range	:50 ... 2500 mm
Dimensions	:60 x 30 x 34 mm
Material	:Peek with Stainless steel cap
Temperature range	:-30 ... 80 °C (-22 ... 176 °F) or -30 ... 130 °C (-22 ... 266 °F), higher temperatures upon request
Degree of protection	:IP 65 acc. EN 60529, IP 67 or 68 optional
Cable lengths	:10 m, 20 m, 50 m, special

### Small pipe transducers

Diameter range	:10 ... 250 mm
Dimensions	:43 x 18 x 22 mm
Material	:Peek with Stainless steel cap
Temperature range	:-30 ... 80 °C (-22 ... 176 °F) or -30 ... 130 °C (-22 ... 266 °F), higher temperatures upon request
Degree of protection	:IP 65 acc. EN 60529, IP 67 or 68 optional
Cable lengths	:10 m, 20 m, 50 m, special

### Uncertainty specification

#### EESIFLO 7S series Ultrasonic Flowmeters

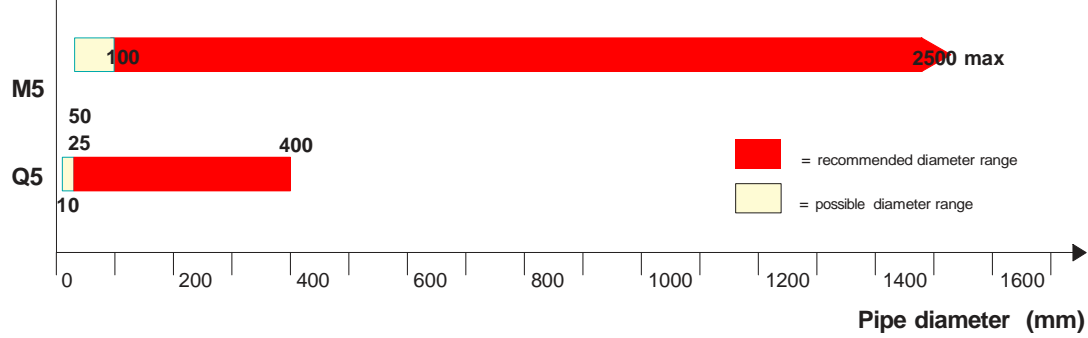


### Diameter Range of the Flow Transducers

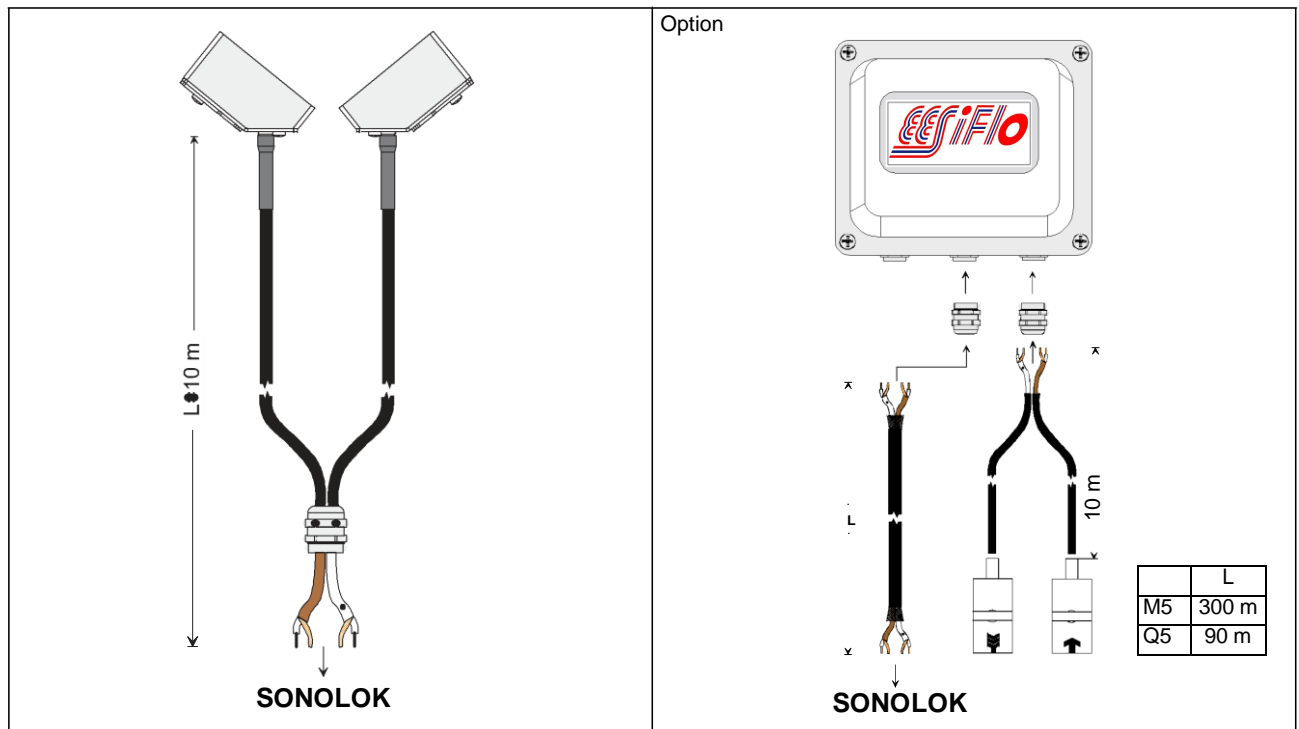
The recommended diameter range is the diameter range covered by a transducer under normal measuring conditions (signal damping mainly through fluid, no gas or solid in the fluid).

The possible diameter range is the diameter range covered by a transducer under good measuring conditions.

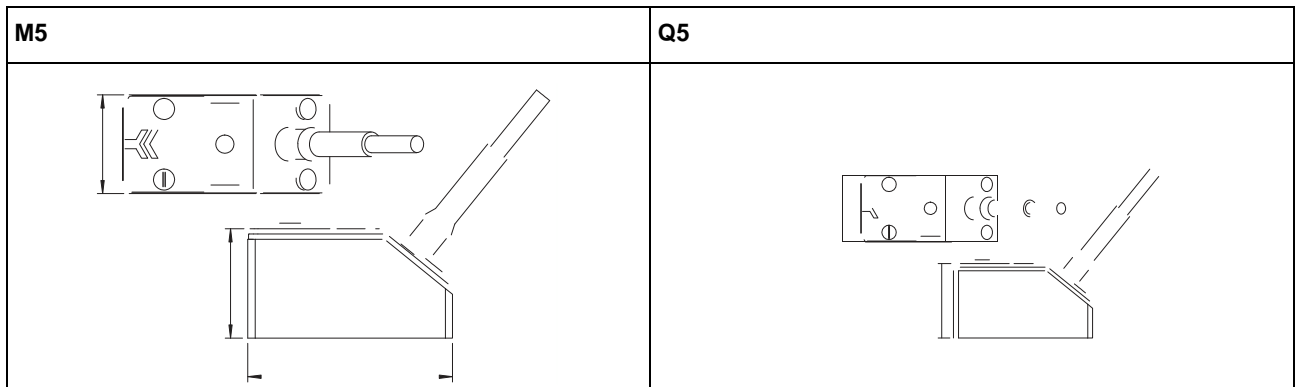
#### Transducer type



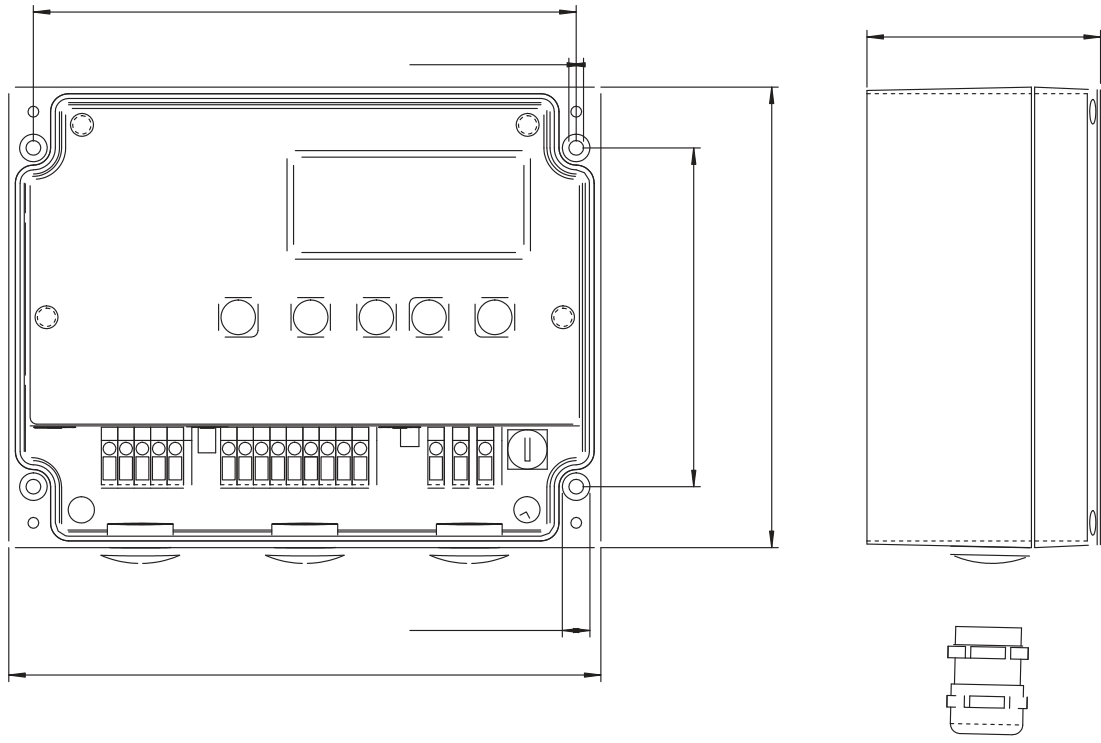
### Connection of the Transducers



### Dimensions of the Transducers (in mm)



**Dimensions of the Housing of EESIFLO SONALOK 5000 Series Single Channel (in mm)**



**Dimensions of the Housing of EESIFLO SONALOK 5000 Series Dual Channel (in mm)**

