



## EnduroFlow™ Series

# EF10

### WALL-MOUNT ULTRASONIC FLOWMETER

- *No process interruption*
- *Suitable for a wide range of pipe sizes and materials*
- *Easy to install and commission*
- *No moving components, no maintenance*
- *Suitable for outdoor applications*
- *Ideal for ultraclean to dirty liquids*
- *Economical, non-intrusive flow measurement*
- *Transducer options: Clamp-on, Insertion, and Flow-Cell*

EF10 is the latest addition to the EnduroFlow™ Series for accurate flow measurement produced by Spire Metering Technology.

This fixed-installation unit is calibrated with NIST traceability and is designed specifically for municipal and industrial sectors.



- **HVAC/Facility Management**
- **Process Control**
- **Water/Wastewater**
- **Oil/Petrochemical**
- **Chemicals/Solvents**
- **Food/Beverage**

**MEASURE TODAY**  
**ENSURE TOMORROW**

# FEATURES AND BENEFITS

Fully featured and powerful, the EF10 is perfect for challenging industrial applications. With application flexibility in mind, the unit accurately captures flow measurements using three approaches: clamp-on, flow-cell, and insertion. Durable build, weatherproof enclosure and rich communication features ensure the unit will perform at a high level in any environment.

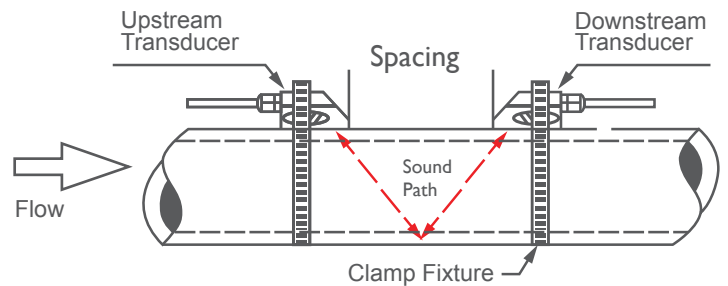
## With SPIRE METERING's EF10, **you can:**

- Lower operational costs over the long run.
- Capture precise readings using ultrasonic transit-time technology via clamp-on, insertion or flow-cell transducers.
- Detect reverse flow.
- Conduct non-invasive liquid flow measurement.
- Cover an extensive pipe range from 3/8" to 120".
- Register accurate readings as air is not measured.
- Reliably integrate into Spire Metering's flow monitoring system.
- Combat environmental elements with a weatherproof enclosure and robust water-tight transducers.
- Control valves or pumps using batch controller and relay.
- Enjoy rich input/output features such as 4-20mA, pulse, Modbus, and wireless.
- Perform measurements independent of fluid conductivity and pressure.



# OPERATING PRINCIPLE

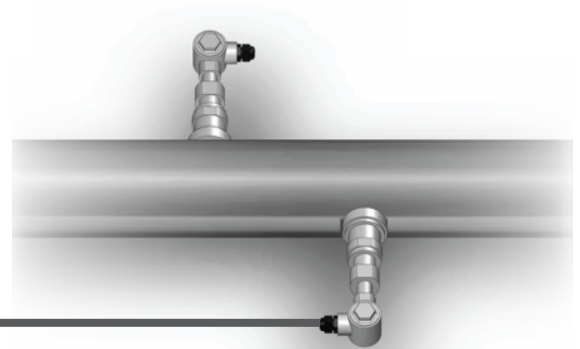
Based on the transit-time principle, the EF10 utilizes a pair of ultrasonic transducers that function as both transmitter and receiver. The transducers are installed on the pipe wall, either clamped on the outside of the pipe or inserted into the pipe. The flowmeter operates by alternately transmitting and receiving a coded burst of sound energy between the two transducers. The liquid velocity is determined by the difference in measured transit-times between beams sent into (downstream) and against (upstream) the direction of liquid flow.



EF10 transmitter can be configured to work with three types of transducers to address any application need.



Clamp-on transducers allow for easy, and most importantly, non-intrusive installation.



Insertion transducers allow for excellent long-term stability and maintenance free operation.



Flow-cell transducers allow for the best accuracy and offer plug and play advantages.

# TECHNICAL SPECIFICATIONS

## Rated Operating Conditions

<b>Flow Velocity :</b> $\pm 10$ m/s ( $\pm 32$ ft/s), Bi-directional	
<b>Accuracy :</b> $\pm 1\%$ of reading, $\pm 0.008$ m/s ( $\pm 0.03$ ft/s) in velocity*	
<b>Repeatability :</b> 0.2%	
<b>Display/Keypad :</b> LCD with backlight, 2 x 20 letters, 4 x 4 keypad	
<b>Physical Quantity :</b> Volumetric flow rate, total flow, velocity, analog inputs	
<b>Totalizers :</b> Totalizers for positive, negative, net, daily and monthly flow One manual totalizer	
<b>Security :</b> Keypad can be locked with password	
<b>Outputs :</b> 0/4-20mA for flow, OCT and Relay for pulse, ON/OFF, alarm, batch control, PLC counter, pump control	
<b>Inputs :</b> One 4-20mA input for temperature /pressure / level transmitter Two optional channels for RTD sensors	
<b>Recording :</b> 512 points of daily flow and 128 points of monthly flow Optional SD data logger (2GB memory)	
<b>Communication Interface :</b> Isolated RS-485/MODBUS Optional RF / GPRS / GSM module	
<b>Telemetry :</b> Compatible with uGalaxy wireless telemetry system	
<b>Enclosure :</b> <b>Standard (EF10-x-A)</b> IP65, Aluminum, power coded 280x190x54mm <sup>3</sup> (11"x7.5"x2.1")	<b>Enhanced (EF10-x-B)</b> IP66, Polycarbonate, UV resistant 305x254x102mm <sup>3</sup> (12"x10"x4")
<b>Environment Temperature :</b> 60°C (140°F)	60°C (140°F)
<b>Power Sources :</b> 12-24 VDC or 90-260VAC	12-24 VDC or 90-260VAC

\*Under reference condition and velocity should be above 0.5 ft/s

## About Spire Metering Technology

Formerly Shenitech, Spire Metering is a global leader in flow and energy management solutions. Through continuous innovation, we transform complex ultrasonic technology into affordable, reliable solutions for accurate flow and energy measurement. Spire Metering offers water, heat, electricity and gas meters as well as AMR/AMI solutions. To find out how we can help today, please tell us about your application.



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