

UFM-30 | Data Sheet

UFM-30 is a cost-effective clamp-on ultrasonic flowmeter. It uses the latest ultrasonic digital technology and low-voltage broadband pulse transmission. This measurement instrument is tolerant of liquids with small amounts of air bubbles or suspended solids found in most industrial environments. With distinctive features such as high accuracy and high reliability, the flowmeter provides unique digital signal processing and a relevant test programme.

This flow meter provides long-term no-drift measurements and sorts the operating software to adjust parameters according to changing conditions.

Features

- **Available with both low and high temperature type sensors**
- **Compact design, easy to install**
- **Weather-proof robust housing material**
makes it corrosion-resistant, rust-resistant, and freeze resistant.
- **Designed to be user friendly, easy to operate**
You can finish installations within just a few minutes.
- **Bi-directional measurement**
with totalizer function.
- **Cost-effective solution**
for large scale projects.

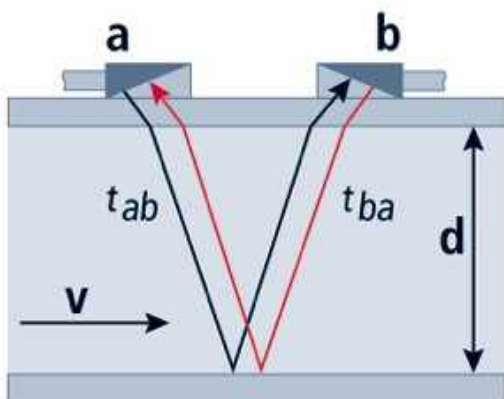


UFM-30 transmitter

The technology behind the measurement

The UFM-30 non-invasive flowmeter works on the transit time ultrasonic principle. This involves sending and receiving ultrasonic pulses from a pair of sensors and examining the time difference in the signal.

U-F-M uses clamp-on transducers that are mounted externally on the surface of the pipe and which generate pulses that pass through the pipe wall.



Sensors a and b work alternately to send and receive ultrasonic pulses. The sound waves ab travelling with the flow move faster than those travelling against it ba.

The flowing liquid within causes time differences in the ultrasonic signals, which are then evaluated by the flowmeter to produce an accurate flow measurement. The key principle of the method applied is that sound waves travelling with the flow will move faster than those travelling against it.

The difference in the transit time of these signals is proportional to the flow velocity of the liquid and consequently the flow rate. Since elements such as flow profile, type of liquid and pipe material will have an effect on the measurement, the flowmeter compensates for and adapts to changes in the medium in order to provide reliable results.

The instruments can be used in a variety of locations and the flowmeters will operate on various pipe materials and diameters over a range of 50 mm to 1200 mm.

Introduction



- UFM-30 is a wall-mount, clamp- on type ultrasonic flowmeter which uses the transfer time technology. Designed using FPGA chip and low-voltage broadband pulse transmission. Both low temperature and high temperature type sensors are available.
- UFM-30 has a 240*128 back lit LCD with 4 line menu display and also the clear, user-friendly menu selections make flow meter more simple and convenient to use. Daily, monthly and yearly totalized flow.
- Parallel operation of positive, negative and net flow totalizes with scale factor (span) and BTU capacity. While the output of totalize pulse and frequency output are transmitted via relay and open collector.

Clamp-on sensors

External clamp-on flowmeter sensors: simple and convenient installation, high flexibility.



IP68 transducers



High temperature sensors PT1000

High and low temperatures

The UFM-30 can be used in conjunction with the RTD module and the PT1000 temperature sensors to become an energy meter for measuring the heat and cold consumption of heating pipelines and air-conditioning refrigeration pipelines. PT1000 sensors use high-temperature resistance lines, imported movements. Also their sensitivity and working conditions durability are much higher than those of domestic PT100.

Technical specifications

Performance

Flow range :	$\pm 0,03 \text{ m/s} \sim \pm 12 \text{ m/s}$
Accuracy :	$\pm 1 \%$ of measured value
Repeatability :	0,2 % of measured value
Pipe Size :	L1 (outer Ø): 50 mm to 1200 mm L4 (inner Ø): DN 15 mm ~ DN 40 mm
Linearity :	$\pm 1 \%$

Function

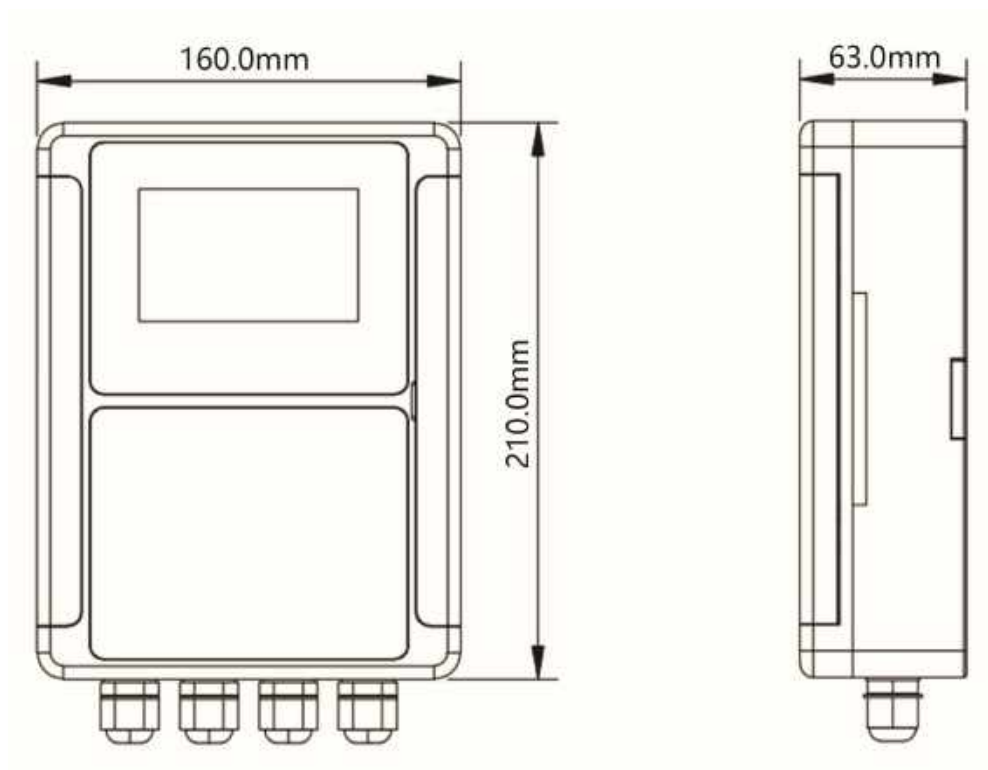
Outputs :	4~20 mA (max. load 750Ω) - 0~10 KHz (open collector) - Relay - Modbus
Power Supply :	10 ~ 36VDC or AC90 ~ 245V
Communication :	RS232 or RS485 Modbus
Display :	240 x 128 backlit LCD
Temperature :	Transmitter: $-20^{\circ}\text{C} \sim +60^{\circ}\text{C}$ Transducers 01: $-40^{\circ}\text{C} \sim +80^{\circ}\text{C}$ Transducers 03/05: $-40^{\circ}\text{C} \sim +130^{\circ}\text{C}$
Humidity :	Up to 99% RH, non-condensing

Physical

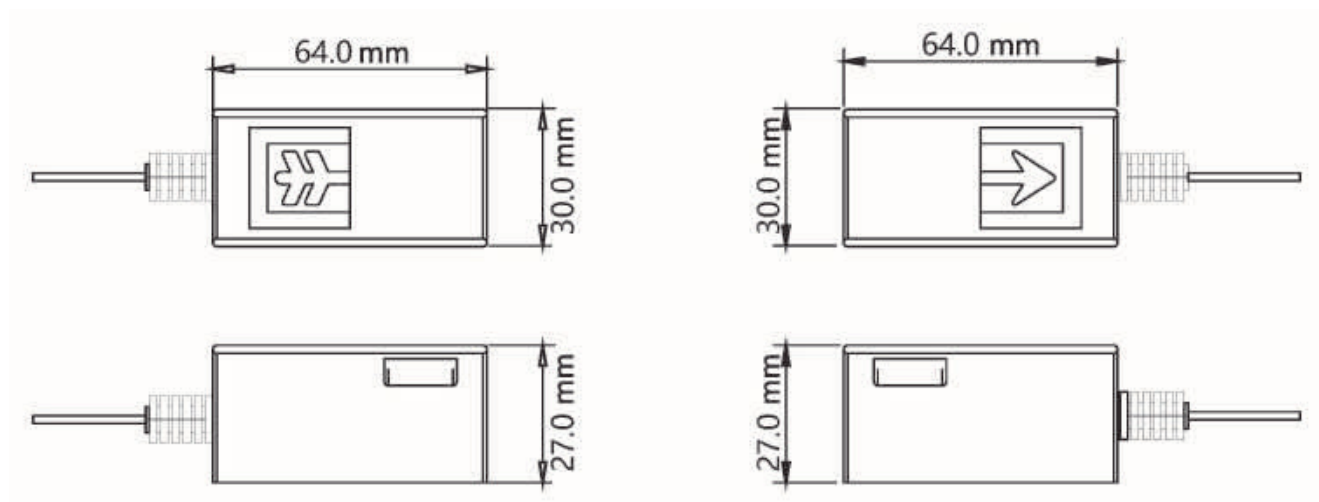
Transmitter :	PC/ABS, IP65
Transducer :	IP68 (encapsulated design), double shielded cable
Cable Length :	Standard / maximum : 9 m / 300 m
Weight :	Transmitter: $\pm 0,96 \text{ kg}$ Transducers: $\pm 1 \text{ kg}$

Dimensions

Transmitter



Transducers



Summary

Model	Transmitter
UFM-30	Ultrasonic flowmeter Wall mount Flow range: $\pm 0,03$ m/s ~ ± 12 m/s Accuracy: $\pm 1\%$ of the measured value Repeatability: 0.2% of the measured value Display: 240 x 128 backlit LCD Power supply: 10 ~ 36VDC or AC90 ~ 245V Transmitter enclosure: IP65, ABS (Temp.: -20°C ~ 60 °C) Output: OCT pulse 0~10 KHz, Relay 4 ~ 20mA optional Communication: RS232 or RS485 Modbus
Code	Output
1	OCT, Relay, RS232/RS485, 4 ~ 20mA
2	OCT, Relay, RS232/RS485, 4 ~ 20mA, RTD
Code	Transducer
01	Clamp-on, IP68. Operating temp.: -40°C ~ +80°C
03	Clamp-on, IP68. Operating temp.: -40°C ~ +130°C
05	Insertion, IP68. Operating temp.: -40°C ~ +130°C
Code	Transducer cable length
030	Standard length: 30 ft / 9 m
XXX	Max. length: ~ 1000 ft / 300 m
Code	Temperature sensor
PT1000	PT1000 temperature sensor + RTD module (selection)
Code	Memory
SD	SD card (8 G) + SD card module (selection)