ULTRASONIC FLOWMETER "TRANSIT TIME"

AI.FF.SONIC

DESCRIPTION

The AI.FFsonic flow measurement system consists of a digital converter and two transducers clamp-on or insertion ultrasound. The transit time of a fluid inside a sectional tube cylindrical, is the operating principle on which the instrument is based to calculate the value of the instantaneous flow. DSP (Digital Signal Processing) digital technology guarantees a low sensitivity of the system towards potential disturbing factors.

PRINCIPLE OF OPERATION

Transit Time Theory:
The meter is designed to measure the fluid velocity of the liquid within a closed conduit. Clamp-on type transducers allow for easy installation. The time flow meter transit uses two ultrasound transducers that function as both transmitters and receivers. They are blocked outside a closed tube at a specific distance from each other. They can be mounted in position V (the sound passes through the tube 2 times), in position W (the sound passes through the tube four times) or in the Z position, (on opposite sides of the tube so that the sound passes through the tube only once time). The choice of mounting position depends on the pipe and the characteristics of the liquid.
The AI.FFsonic product works by alternately transmitting and receiving a sequence of frequencies modulated sound energy through the two transducers and measuring the transit time that sound takes to travel from one transducer to the other. The difference in the measured transit time is directly related to the velocity of the liquid in the pipe.

APPLICATION

- water, waste water with suspended solids, sea water
- aqueducts and sewage systems
- electric, hydroelectric and nuclear power plants, thermoelectric and hydroelectric plants
- metallurgical and mining industries
- petroleum and chemical industries
- food, bottling and pharmaceutical industries
- paper mills
- checking for leaks in distribution lines
- energy management and supervision systems
- Agriculture industry; Irrigation systems

TECHNICAL SPECIFICATION

- Pipes: 20mm÷6000mm
- Case protection degree: IP44
- Transducer protection degree: IP68
- Display: 2x20 backlit alphanumeric digits
- Language: ITALIAN-ENGLISH
- Keyboard: 4x4
- Displayed data: instantaneous and total flow rate
- Case: 12/10 Carbon Steel
- Painting: Smooth epoxy powder in cataphoresis
- Wall mounting
- Output: Selection 4÷20mA or 0÷20m ACTIVE-PASSIVE
- Total Accuracy: ±1%
- Repeatability: ±0.2÷0.5%
- Linearity: ±0.5%
- Minimum measurement cycle: 500ms
- Serial port: RS485
- Communication protocol: MODBUS RTU or ASCI
- Programmable frequency output: 0÷9999 Hz OCT
- Output relay: for pulse totalizer or alarms
- Fluid velocity range: ±32m/s
- Operating temperature: -20÷+60°C
- Maximum humidity: 85% RH non-condensing (40°C)
- Sensor process temperature: 0÷160°C
- Sensor Humidity: 98% RH non-condensing (40°C)
- Power supply: 85÷264 Vac 50Hz / 8÷36 Vdc
- Dimensions: 251x192x80mm
- Weight: 3.1Kg
- Interface with sensors of the CLAMP-ON series
- Complete with sensors from DN 20 to DN 6000 5 m of cable

OTHER TECHNICAL FEATURES

- Slot for connecting 2 3-wire PT 100 probes for calculating thermal energy, not included.
- 3 free slots for 3 4.20 mA analog inputs
- 1 RS 485 MODBUS RTU digital output
- 1 Relay output
- 1 OCT Pulse Output Active 12/24Vdc
- 1 Analog retransmission channel 4.20 mA/0-20 mA Active-passive
- Data logger settable for acquisitions from 1 s to 24 h
- 22 Variables that can be stored in the data logger
- Internal data logger for automatic storage of flow values
- High temperature sensors for fluids from -40 to +160 °C
- Internal keyboard for total programming of the instrument
- n.3 sensor kits to choose in order, complete with supports for fixing on the pipe
- galvanic isolation between power supply, input and outputs

ULTRASONIC TRANSDUCERS

CLAMP-ON Standard Sensor - 30/+90°C

FFsensor DN300-DN6000/TL1

FFsensor DN 50-DN 700/TM1

FFsensor DN25-DN 100/TS2

CLAMP-ON High Temperature Sensor - 30/+160°C

FFsensorHT DN300-DN6000/TL1

FFsensorHT DN50-DN700/TM1

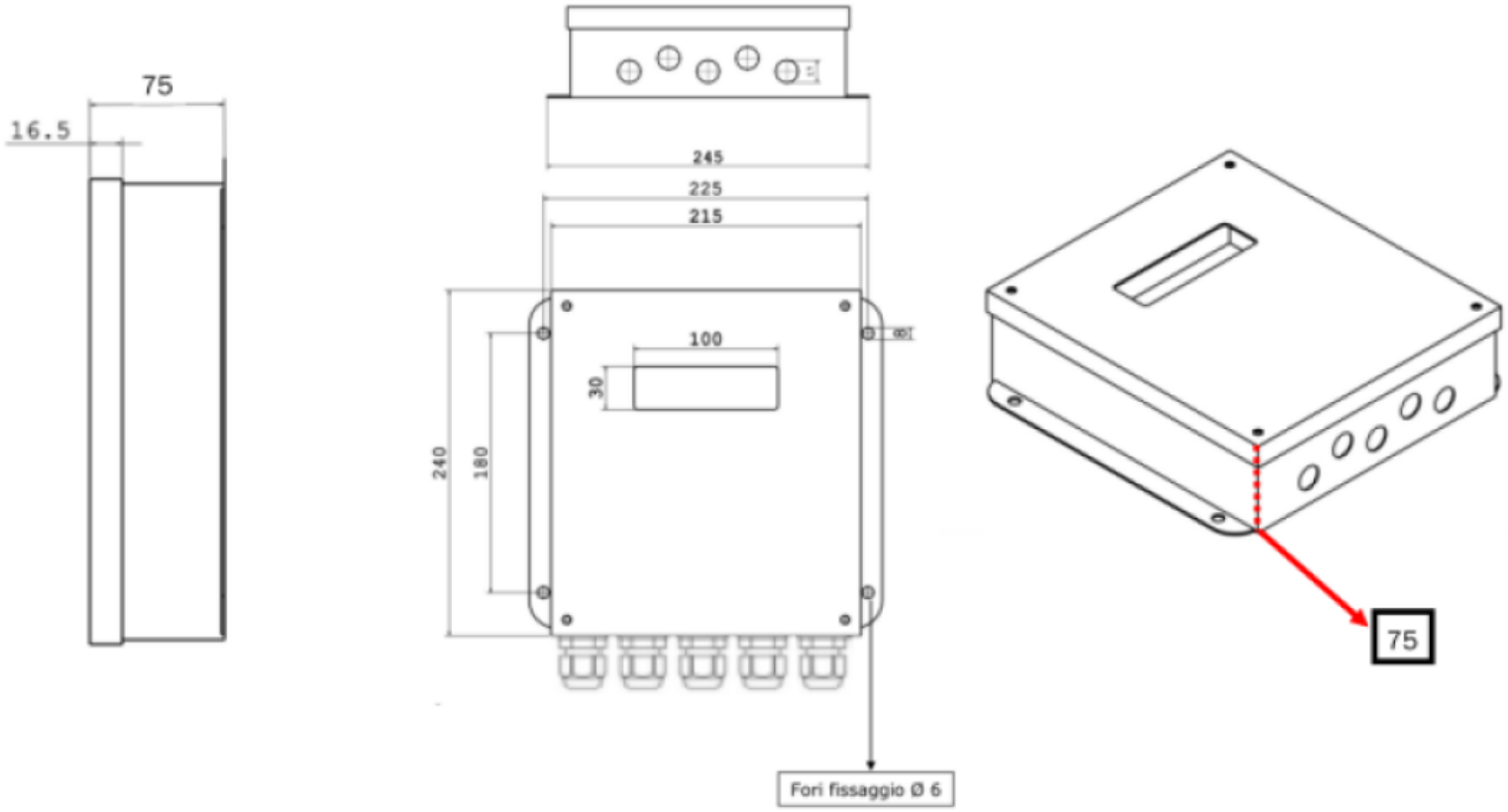
FFsensorHT DN25-DN100/TS2

INSERTION sensors in pipeline

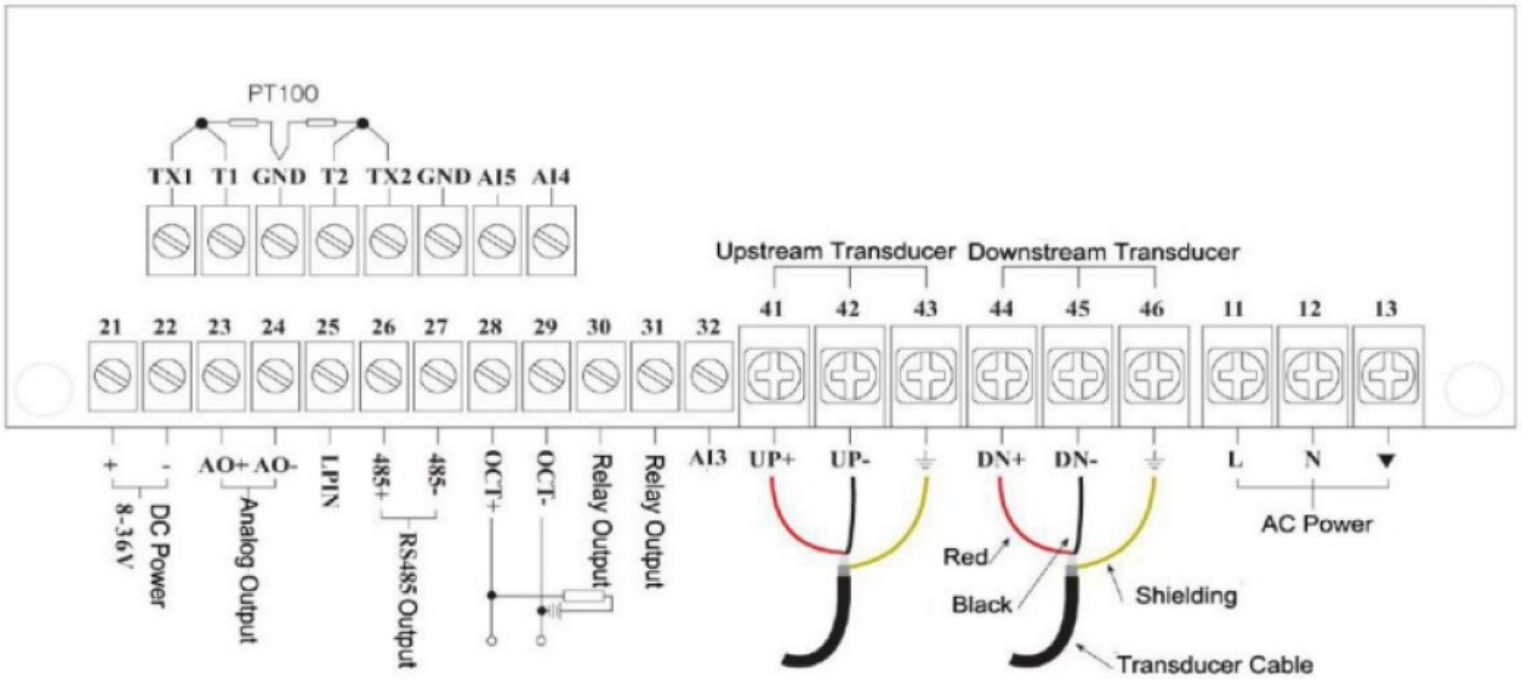
FFsensorIS DN80-DN6000/TC1

FFsensorIS DN80-DN6000/TC2

DIMENSIONS



ELECTRICAL CONNECTIONS



OPTIONAL ACCESSORIES

1. Accessories for direct mounting on sunshield pole
2. Version with photovoltaic panel and GSM module for remote measurements
3. Version with built-in temperature probes for flow rate calculation and thermal energy measurement

Version with probes built-in temperature for flow rate calculation e measure thermal energy

Version with sun canopy for assembly outdoor or indoor with photovoltaic panel e data relay modem: AI.FFsonic.SOLAR

ORDER CODE

AI.FFsonic	Transit time ultrasonic flowmeter

Sensors FF SENSOR choice
DN25-DN100-TS2
DN50-DN700-TM1
DN300-DN6000-TL1
HT-DN25-DN100-TS2
HT-DN50-DN700-TM1
HT-DN300-DN6000-TL1
IS-DN80-DN6000-TC1
IS-DN80-DN6000-TC2

Sensor cable MT.
5: 5 mt
10: 10 mt
X: X mt

Calibration Report — Certificate of traceability ref.17025
0: yes
X: no

SD CARD
SD: yes
X: no

Order code example:

AI.FFsonic	DN25-DN100-TS2	5	0	x

Description Code:
AI.FFsonic transit time ultrasonic flowmeter
DN25-DN100-TS2: CLAMP-ON Sensors Standard - 30/+90°C
5: Standard cable length 5m
0: Calibration Report — Certificate of traceability ref.17025 YES
X: SD Card NO

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