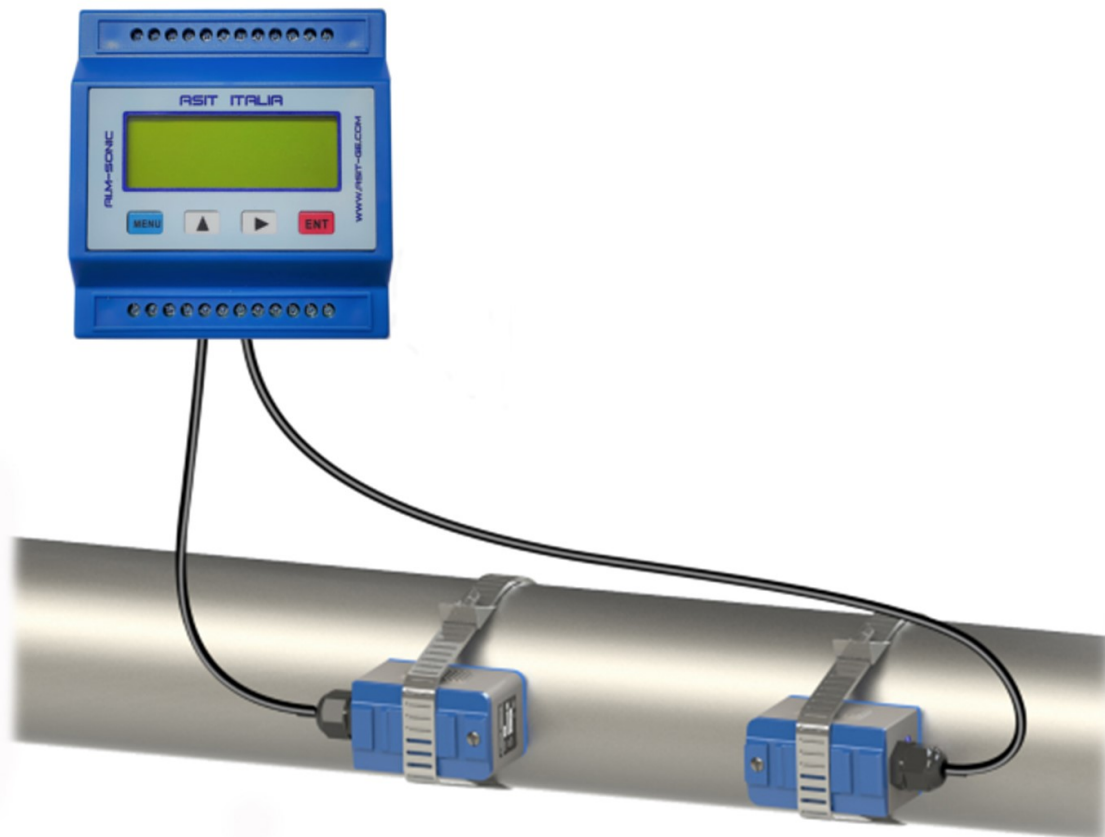


# Compact Ultrasonic Flow Meter

AI.M-SONIC



## GENERAL INFORMATIONS

The AI.M-SONIC flow measurement system is an innovative modular system consisting of a small-sized module including display, DIN RAIL mounting, digital and two clamp-on or insertion ultrasonic transducers. The transit time of a fluid, inside a cylindrical section tube, is the operating principle on which the instrument is based to calculate the instantaneous flow rate value. The digital technology DSP (Digital Signal Processing) guarantees a low sensitivity of the system towards potential disturbing factors. The AI.M-SONIC module can also function as an indicator because it is equipped with hardware capable of reading 4-20 mA analog signals, and as a thermal energy calculator since there are 2 PT100-type temperature signal input slots.

## TRANSIT TIME THEORY

The meter is designed to measure the fluid velocity of the liquid within a closed duct. Clamp on transducers allow an easy installation. The transit time flowmeter uses two ultrasonic transducers that function as both transmitters and receivers. They are blocked on the outside of 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 position Z, (on opposite sides of the tube so that the sound passes through the tube only once ). The choice of the mounting position depends on the pipe and the characteristics of the liquid. The AI.M-SONIC product works by alternately transmitting and receiving a sequence of modulated frequencies of sound energy through the two transducers and measuring the transit time that the sound takes to travel from one transducer to another. The difference in the measured transit time is directly related to the velocity of the liquid in the tube.

## APPLICATION

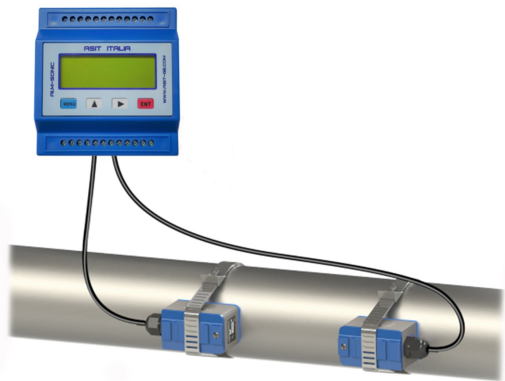
- water, waste water with suspended solids, sea water
- aqueducts and sewer systems
- power plants, hydroelectric and nuclear power plants, thermoelectric and hydroelectric power plants
- metallurgical and mining industries
- petroleum and chemical industries
- food, bottling and pharmaceutical industries
- paper mills
- control of losses in distribution lines
- energy management and supervision systems

## TECHNICAL FEATURES

- Power supply **8-36 Vdc**
- Clamp ON size sensors **DN 20-DN 6000**
- Max operating temperature **160 ° C**
- Accuracy **better then 1%**
- Repeatability of measurement **0.2%**
- **RS485 serial output**
- **4-20 mA analog output.**
- **Double relay output**
- **Possibility of 4-20mA and PT100 input readings**
- **2 × 20 LCD display with dual indication**
- **DIN RAIL mounting**

## TYPE OF INSTALLATION

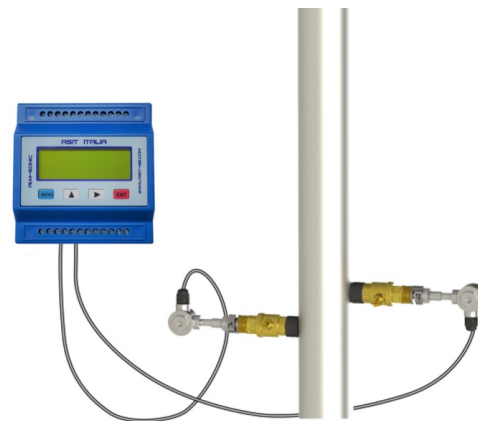
### CLAMP-ON



### PIPE



### INSERTION



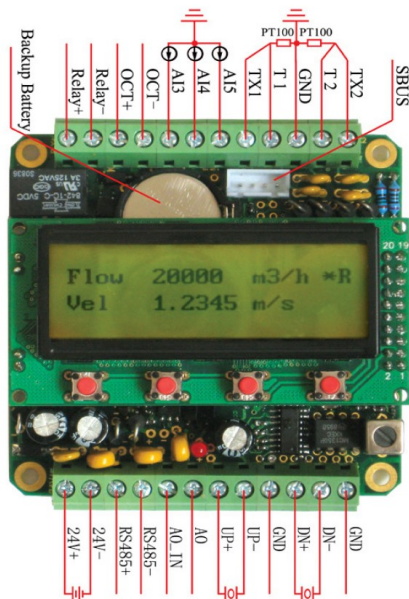
## TYPE OF TRANSDUCERS

TYPE	PICTURE	DIMENSION	MODEL	RANGE	TEMPERATURE	DIMENSION
<b>Clamp-on</b>		Small	TS-2	DN20~DN100	-30~90°C	45×25×32mm
		Medium	TM-1	DN50~DN700	-30~90°C	64×39×44mm
		Large	TL-1	DN300~DN6000	-30~90°C	97×54×53mm
<b>HIGH TEMPERATURE VERSION</b>		Small	TS-2-HT	DN20~DN100	-30~160°C	45×25×32mm
		Medium	TM-1-HT	DN50~DN700	-30~160°C	64×39×44mm
		Large	TL-1-HT	DN300~DN6000	-30~160°C	97×54×53mm
<b>INSERTION TYPE</b>		Standard	TC-1	DN80~DN6000	-30~160°C	190×80×55mm
		Large	TC-2	DN80~DN6000	-30~160°C	335×80×55mm
<b>PIPE MOUNTING</b>		Tiype II	G3	DN15~DN25	-30~160°C	
		Standard	G2	DN32~DN40	-30~160°C	
		Standard	G1	DN50~DN6000	-30~160°C	

# DIMENSIONS, ELECTRICAL CONNECTIONS AND MOUNTING



**Dimensions:** 92X90X34mm  
**LCD Display:** 60X19mm  
**Keyboard:** 4 keys



**DIN RAIL Mounting**

## ORDER CODE

AI.M-SONIC	COMPACT ULTRASONIC FLOW METER
	<b>TRANSDUCER</b>
	TS-2: DN20-DN100
	TM-1: DN50-DN700
	TL-1: DN300-DN6000
	TS-2 HT: DN20-DN100
	TM1-HT: DN50-DN700
	TL-1 HT: DN300-DN6000
	TC-1: DN80-DN6000
	TC-2: DN80-DN6000
	G3: DN15-DN25
	G2: DN32-DN40
	G1: DN50-DN6000
	<b>PIPE MATERIAL</b>
	...
	<b>Mpa PRESSURE</b>
	...
	<b>CABLE LENGHT</b>
	...

**Example:**

AI.M-SONIC	TM-1	DN50	PVC	1.6MPa	10m
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