SL3488

High Dynamic Response Ultrasonic Flowmeter

High Dynamic Response Inline Ultrasonic Flowmeter

The model SL3488 inline ultrasonic flowmeter (here in after referred to as SL3488) is a true state-of-the-art transit-time flowmeter designed using PICOFLY technology and 0.01nanosecond (10 picoseconds) resolution; the flow sample rate achieved is 256 discrete flow measurements per second, which provides a true high dynamic response flowmeter. This makes this meter for rapid on/off or pulsating flow applications.

SL3488 is designed using the latest digital technology. This meter features high reliability, low maintenance and no moving parts. Unique digital signal processing and correlation programming from the MPU provide instantaneous meter measurement (no damping needed)

SL3488 has been tested under rigorous field working conditions and has shown steadfast performance, which offers the customer confident worry-free measurement. Compared with other flowmeters and other ultrasonic flowmeters, the SL3488 is characterized by high accuracy, high credibility, superior performance, very rapid response to flow changes, and low cost.

Applications by Industry

- Petrochemical
- Refining
- Steel
- Metallurgy
- Paper
- Coal
- Water supply
- Seawater
- Industrial process water
- Irrigation
- Cooling water
- Oil
- Beverage
- Chemical
- Many others…

Features

- Super Low Flow Rate Measuring
- High dynamic response, real-time flow change tracking
- High reliability
- Long-term stability
- Menu driven operation (no instructions needed)
- High accuracy: 0.5 % of measurement
- Highly stable zero
- PC enclosure (water and corrosion proof)

Liquid Type

Suitable for single-phase liquids (with little suspended solids/air bubble content) in a full pipe.

Parameters

- Dynamic response: 0.04s
- Flow measurement acquisition rate 256/s
- Time resolution:0.00000000001 second (10 picoseconds)
- Cable signal attenuation (1MHz) <-0.9db/100m
- CPU+FPGA system
- When the power supply is interrupted battery backup automatically operates
- Installation validation function

Technical Specifications

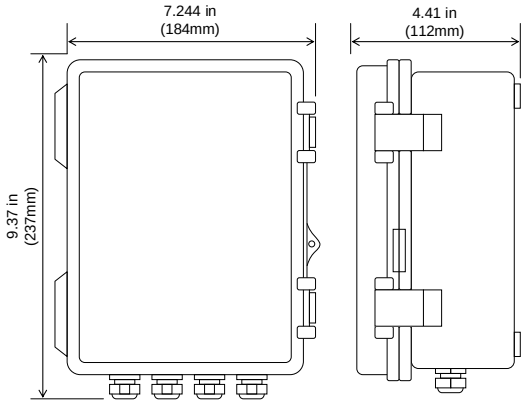
Transmitter

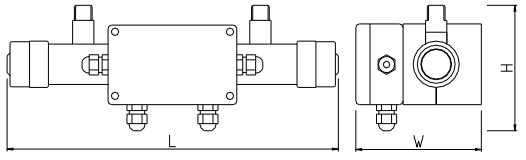
Accuracy: ±0.5% of reading
Repeatability: 0.15%
Velocity range: 0.005~7m/s
Pipe size: DN8-DN250
Ambient temp. rating: -10°C~60°C (-10~140 F)
Serial interface: RS232 (standard)
Output: 4-20mA, OCT pulse output, relay output
Protection rating: IP66
Enclosure: PC Plastic

Carbon steel spool piece with wetted transducers

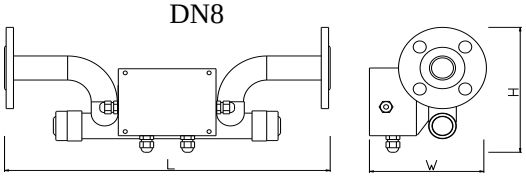
Pipe size: DN8~DN250 (3/8”~10”)
Flow tube (spool) materials: carbon steel + corrosion-resistant coating (NON-TOXIC)
Press rating: PN1.6MPa (232 psig)
Protection rating: IP68
Temperature range: -40 °C~80 °C (-40~176 °F)
Flanges: DIN or ANSI type

Transmitter Dimensions

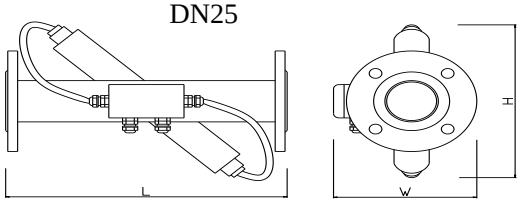




DN8



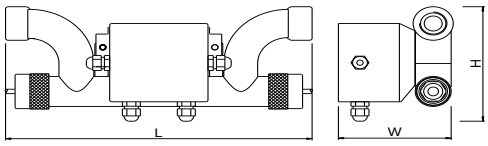
DN25



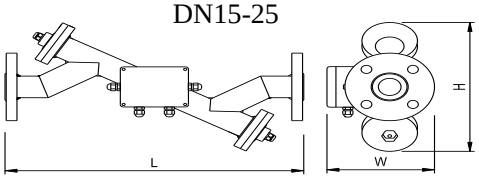
DN65-250

Carbon Steel (Stainless steel) Spool piece:

Pipe size DN(mm)	Dimensions (mm)		
	L	H	W
8	280	105	110
15	290	135	110
25	400	170	145
40	500	300	190
50	500	300	190
65	400	300	205
80	400	300	220
100	400	250	240
150	450	300	300
200	550	350	355
250	600	410	415

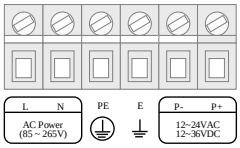


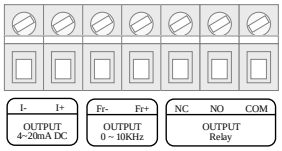
DN15-25

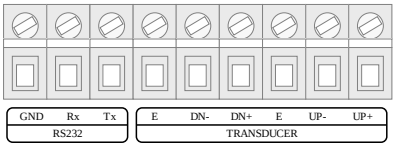


DN40-50

Wiring diagram







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Measurement Site Selection

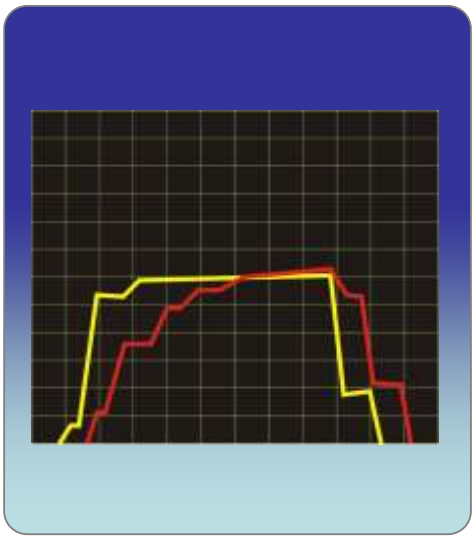
SL3488 inline ultrasonic flowmeter is easy and convenient to install. When the measured pipe size is consistent with the spool piece size, you can select a proper measurement site and install the meter which is ready to use.

When selecting a measurement site, it is important to select an area where the fluid flow profile is fully developed to guarantee a highly accurate measurement. Use the following guidelines to select a proper measurement installation site:

Choose a section of pipe, which is always full of liquid, such as a vertical pipe with flow in the upward direction or a full horizontal pipe.

Generally, it requires at least 10 D (pipe diameters) upstream & 5D (pipe diameters) downstream. If there is a pump, a tee section, control valve, orifice, expansion joint or other element which could cause flow disturbances, the upstream straight pipe required will be greater than 10D.

Ensure that the pipe surface temperature at the measuring point is within the transducer temperature limits.

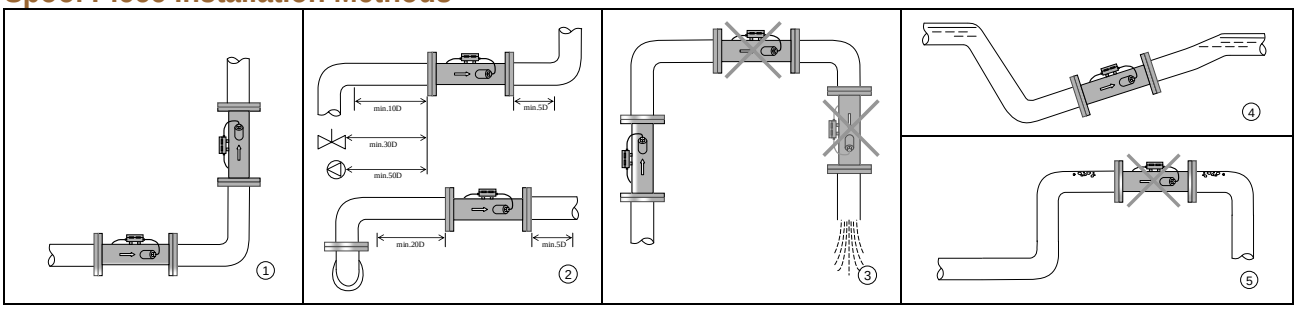


Dynamic flow response curve

SL3488 flow curve (yellow line)
Electromagnetic flow curve (red line)

Note: D is the pipe diameter

Spool Piece Installation Methods



(1)Install the flowmeter on horizontal and vertical pipes
Note: Make sure the pipe is full of liquid

(2)Install the flowmeter after elbows, valves and pumps
Note: Ensure the pipe on both sides of the flowmeter is straight.

(3)Install the flowmeter in a pipe that discharges to atmosphere
Note: Transducers should not be installed on a pipe that discharges to atmosphere unless it is far enough upstream to be sure the pipe is full at the point of installation

(4)For a partially filled pipe section, ensure the pipe section being measured is full of liquid
Note: The flowmeter should be installed in a pipeline that is full of fluid. If the pipe is not full or there is only one free horizontal pipe (discharge), connect the transducer in the lower part of the pipe.

(5)Avoid installing the flowmeter at the upper part of a pipe section like the above
Note: Air pockets or air locks can collect in this type of pipe sections

SL3488 Inline Ultrasonic Flowmeter with Remote Electronics

Model	Description
SL3488	Digital Correlation Transit Time Flowmeter Installation method: inline spool piece with wall mount electronics Velocity Range: 0.005～7m/s Accuracy: 0.5% of measurement; Repeatability: 0.15% Display: 20*2, 20×2 liquid crystal bitmap character Communications: RS232 terminal Transducer: inline spool piece wetted transducer, Material: Carbon Steel + anti-corrosion coating(NON-TOXIC) Power supply: 90～245VAC, 48～63Hz or 12～36VDC, 12～24VAC Outputs: OCT pulse output, relay output, RS-232 Enclosure : IP66，PC/ABS Engineering Plastic enclosure Operation Mode: 16（4X4）key with tactile action
Code	Spool piece Dimensions
DN8	G Thread style, length 270mm, anti-corrosion coating(Epoxy, NON-TOXIC), Carbon steel
DN15	G Thread style, length 290mm, same as above
DN25	PI style, length 400mm, same as above
DN40	PI style, length 450mm, same as above
DN50	PI style, length 500mm, same as above
DN65	Spool piece, length 400mm, same as above
DN80	Spool piece, length 400mm, same as above
DN100	Spool piece, length 400mm, same as above
DN150	Spool piece, length 450mm, same as above
DN200	Spool piece, length 550mm, same as above
DN250	Spool piece, length 600mm, same as above
Code	Flange specifications
ANSI	ANSI 150# Flanges, pressure rating ANSI 150#
DIN	DIN National Flanges, pressure rating PN16
Code	Pipe Material
CS	45 Carbon steel
SS304	304 Stainless steel
SS316	316 Stainless steel
Standard Model: SL3488-DN100-ANSI-CS Description: DN100 pipe size, Carbon steel ANSI flanged ultrasonic flowmeter with wall mount electronics	