

Ultrasonic Flow Meter SL1168



Transmitter:

Flow range: 0 ~ ± 40ft/s (0 ~ ±12m/s)

Accuracy: ±1.0%

Repeatability: 0.2%

Outputs: OCT, 0 - 9999 Hz

SL1168 Ultrasonic Flowmeter uses the latest digital technology and low-voltage broadband pulse transmission. The 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, high reliability, the MPU in the instrument provides unique digital signal processing and a relevant test programs.

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

Simple operation



Designed to be user friendly & easy to operate

Very simple and convenient

Transducers

SL1168 is equipped clamp-on transducers made with SiteLab patented technology, which is suitable for metal, PVC and other pipe materials, or lined pipe. The transducers use robust material with the high performance piezoelectric crystals with high accuracy and good performance during measurement. At the same time, it's easy and convenient to install. Users only need to fix it on the pipe with the pipe straps, and setup the transducer spacing according to the prompt calculation of the meter. It only takes minutes to complete.



Ultrasonic Flow Meter SL1168



Application

SL1168 Ultrasonic Flowmeter targets irrigation applications and features compact design, easy operations, high dynamic response with economical price; also, the meter features intelligent control, fault alarms and self diagnostics, which highly increases the working efficiency.

Features

- Weather-proof robust housing materials: corrosion-resistant, rust-resistant, freeze resistant.
- Designed to be user friendly, easy to operate, installations within just 20 min.
- Suitable for measurement in many different working conditions
- Compact design, easy to install.

SL1168 Ultrasonic Flowmeter

SL 1168 Ultrasonic Flowmeter uses advanced framework configuration with compact design. It consists of five main parts: enclosure, LCD display, power supply board, PCB mainboard and operating panel. This configuration increases the reliability of the product and decreases the cost and maintenance as well.

The convenient digital menu operation can easily be used to setup the pipe size, pipe material, pipe thickness, fluid type, output signal and other parameters.

Flow transmitter



Clamp-on transducers



Installation



Coupling compound



Pipe straps



Specifications

Performance specifications

Flow range: 0 ~ ±40 ft /s (0 ~ ±12 m/s)
 Accuracy: ±1.0%
 Repeatability: 0.2%
 Pipe size: 1 in to 40 in (25mm ~ 1200mm)

Functional specifications

Output: 0~9999Hz, OCT
 Power supply: 10 ~ 36 VDC or 10-24VAC, 1A (max)
 Keypad: 16 (4X4) touch key-press
 Display: 20X2 alphanumeric, backlit LCD
 Temperature range: Transmitter: -10 °C ~ 50 °C
 Transducer: 0 °C ~60 °C
 Humidity: Up to 99% RH, non-condensing

Physical specifications

Transmitter: NEMA 4X (IP65)
 Transducer: IP68
 Weight: Transmitter: approximately 1.5 lb (0.7kg)
 Transducer: approximately 0.9lb (0.4kg)

Flow Systems Universal Flow Computer

Top of the line "Full Function" 32 character dual line Alphanumeric LCD SMART display.

On screen "Easy Prompting and Key Pad entry makes all programming Effortless".

Built in Microcomputer gives instantaneous readouts in velocity, rate, and totalization in virtually all engineering units.



Universal Flow Computer Model C6



Hi-Temp (500°F) industrial flow requires custom heat sinks. Titanium pipe and titanium heat sink with doppler sensor installed. (Example below.)



Specifications:

Power:

Isolated-Regulated-Module
100-240 VAC @300mA-12VDC

Outputs:

Digital Pulse Train (0-12V)
4-20mA (MAX z1200 ohm)
RS232 via DB9 Port
Hi-Low Limit Alarms *
Batch Control *
* (12VDC @50mA)

Flow Range:

FPS: 0-50 fps
Resolution .1 fps

Pipe ID Range:

0 - 999 Inches
0 - 9999 mm

Accuracy:

1% (function of flow profile)

Linearity:

+/- 0.5%

Repeatability:

+/- 0.1%

Display:

NEMA - 4X hinged IP64
(+4°F to + 140°F)

Dimensions:

7.75 X 4.25 X 2.50 inch

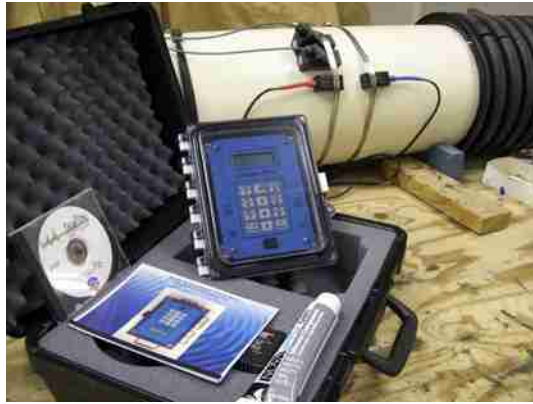
Weight:

4 lbs. -C6D System
8 lbs. -C6P System

Led Indicators:

Green - Power
Yellow - Echo
Red - Hi/Low Alarm

Universal Flow Computer Model C6



Transducer:

POWER: 12VDC- @1 watt/ 80mA
 Submersible 200' Max
 Potted IP68 Non- Metallic
 Temp (-70°F to +185°F)
 500°F - Heat Sink Option

Totalizer:

12 Digit LCD
 Memory Backup 99 yrs +

Rate Meter:

4 Digit LCD
 Digital Bar Graph

Memory:

Nonvolatile 99 yrs +
 All Parameter Inputs

Cable Length:

0 to 5000 ft.
 25 ft. standard

Options:

Wireless Signal 900 mHz
 Data Logger 1- 32 GB
 Flash Drive Internal or Remote

Engineering Units:

English & Metric

Languages:

- English
- French
- Spanish
- Portuguese

Included Equipment:

Dedicated:

1. NEMA 4X display
2. Transducer & 25' cable
3. Sensor Strap Kit
4. Sonic Coupling Gel
5. Operators Manual

Universal Flow Computer Model C6



Portable:

1. All of the above plus:
2. 12V 1.2AH Battery
3. 117 VAC Smart Charger
4. Auxiliary Handle
5. Field Transport Case

Applications:

Flowmeters easily measure these materials flowing inside of PipeLines or in Open Channels:

- Ag Water
- Abrasives
- Acids
- Asphalts
- Caustics
- Chemicals
- Concrete
- Dredge Flows
- Drilling Mud
- Large Contaminates
- Extremely Viscous Substances
- Food Processing's
- Grout
- Hazardous Wastes
- Hydrocarbons
- Liquids
- Municipal Sludges/Wastes
- Oils
- Paper Pulp
- Product Processing
- Plastics
- Rendering Products
- Reservoirs
- Rivers and Streams
- Runoffs
- Sludges
- Slurries
- Suspended Solids
- Tars
- And More!

Ultrasonic Flow Meter SL1188

Dedicated Ultrasonic Flowmeter



Descriptions

Model SL1188 is a Dedicated Ultrasonic Meter. It incorporates data logging, and uses a "Converter" to download and convert the Flow Data easily into an excel file. The User can analyze and edit reports, GPRS wireless data transmissions, lightning resistance, etc.

Specifications

Transmitter:

Flow range: 0 to ± 40 ft/s (0 to ± 12 m/s)

Accuracy: $\pm 0.5\%$ of reading

Repeatability: 0.15% Outputs:

0/4~20mA, maximum 750

OCT pulse, 0~10 KHz

Relay output, 125VAC@1A or 30VDC@2A

Communications: RS232 / RS485

Power consumption:

2W Weight: 4.7lbs (2.15kg)

S type clamp on transducers (standard):

Measurement pipe range: 1" to 200" (25mm to 5000mm)

Enclosure material: Die-cast alloy

Protection rating: IP68

Explosion-proof rating (sensors): Ex ia II BT4

Medium temp.: -40F to 176F (-40°C to C to 80°C)

Transducer cable standard length: 30ft (9m) standard

Weight (1set, including cable): 2.0lbs (0.9kg)

Converter Program

Meter logged data can be downloading and converted to an Excel File from the SD card using Converter software. The user can edit and analyze it as required.

Parameters

Flow data storage: 1GB (512 days)

Cable signal attenuation: -0.9dB/100m

Transducer cable tensile strength: 800 Newtons

Mean Time Between Failures (MTBF): 50,000h

Time resolution: 40 picoseconds

Display update rate: 2 times/s

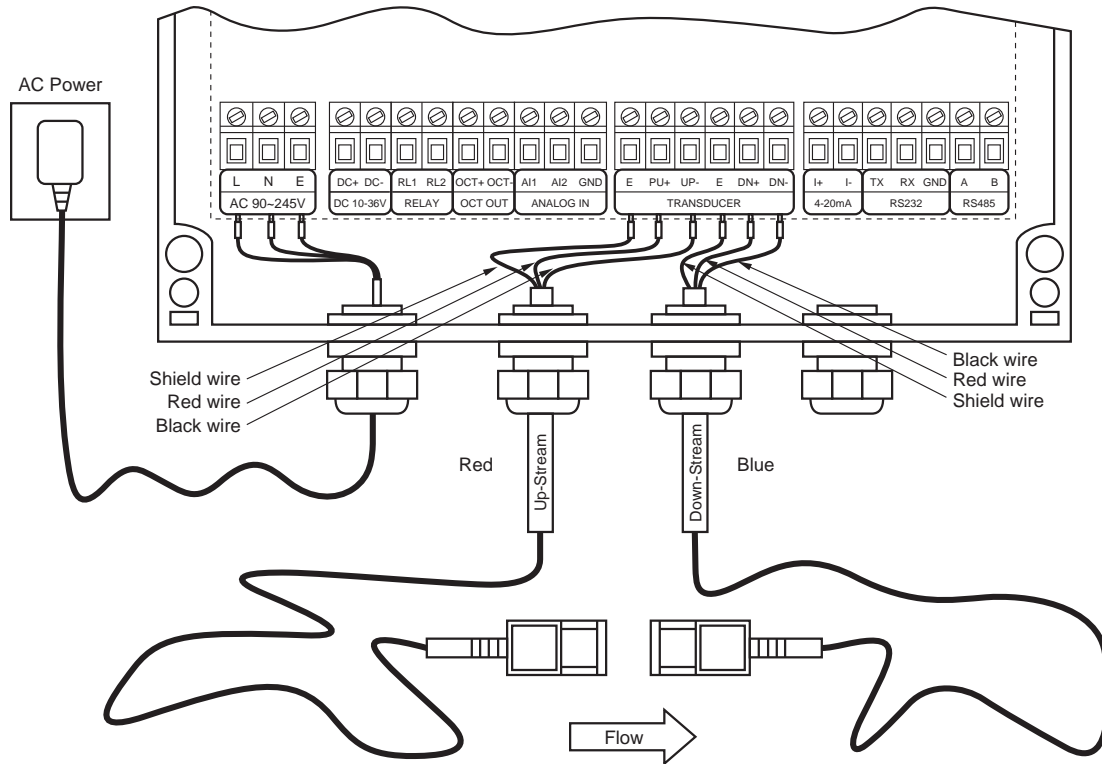
CPU number: 3

Keypad keystroke life: 20 million times

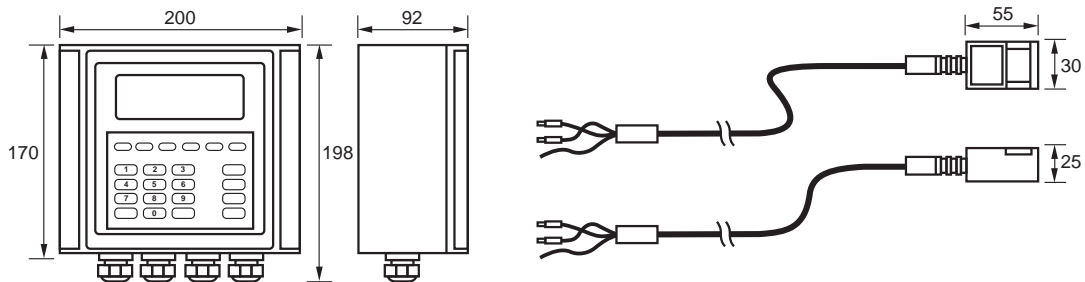
SL1188 Dedicated Ultrasonic Flowmeter

- 
Flow
- 
Bluetooth
- 
High capacity
Memory card
- 
Lightening
proof
- 
Infrared remote
control
- 
GPRS
function
- 
3C certification

Wiring Diagram



Dimensions:



SL1188

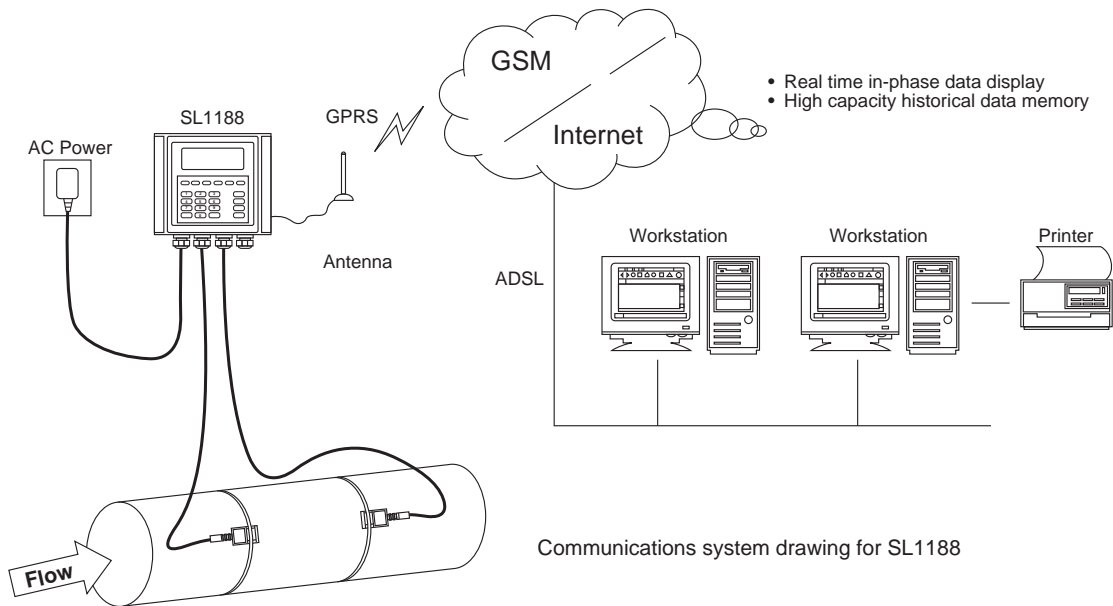
Dedicated Ultrasonic Flowmeter



Application examples

Water distribution networks - water quality monitoring systems

- The SL1188E ultrasonic flowmeter can be used to measure flow and provide water quality data acquisition at the same time. Data for flow, pressure, turbidity, residual chlorine and pH can be collected at the same time. The system is simple, reliable and convenient to use.
- Use GPRS wireless communications for wide coverage and reliable communications. There is no need to install outdoor antennas which greatly shortens project installation and startup time and reduces total project cost greatly.
- The SiteLab Ultrasonic flowmeter can be installed outside of the pipe with clamp on transducers or hot-tapped into the pipe using wetted insertion transducers under pressure without flow interruption, making it very convenient to do network changes.
- Work stations can use SC1000 data acquisition software to extend the data acquisition function. Powerful open data bases can be used to provide other software data, such as: ODBC, DDE, OPC, Active X, etc.
- Powerful reporting functions can be generated on demand to generate daily reports, weekly reports, monthly reports, etc.



Communications system drawing for SL1188



SL1188 Dedicated Ultrasonic Flowmeter



Wall Mount Ultrasonic Flowmeter

Model	Description
SL1188	Digital Correlation Transit Time Flowmeter Installation method: Wall mount 1GB SD card for high memory data logging, maximum data storage 512 days Flow Range: 0 to ± 40 ft/s (0 to ± 12 m/s) Accuracy: 0.5% of measurement; Repeatability: 0.15% Pipe Size Range: 1" to 200" (25mm to 5000mm) Display: 20*2, alphanumeric, backlit LCD Power supply: 90~245VAC, 48~63 Hz or 10~30V DC@500mA Transmitter enclosure: IP65, die-cast aluminum machined enclosure Outputs: 4~20mADC, OCT pulse output, relay output Communications: RS485 / RS232 terminal Transducer hazardous area classification: Ex ia II BT4
Code	Output
1	4~20mA, OCT pulse output, relay output, RS485/RS232
E	4~20mA, OCT pulse output, relay output, GPRS wireless module (no SIM card and software included, no high capacity data logging)
Code	Transmitter enclosure area classification
1	IP65, die-cast aluminum machined enclosure
*2	Explosion-proof enclosure , Exd II BT4
Code	Type of transducers
S	Clamp on transducer, Operating temperature: -40F to 176F (-40°C to +80°C)
*W	Wetted transducer, Operating temperature: -40F to 176F (-40°C to +80°C)
*WS	Wetted transducer (small type), Operating temperature: -40°C to +80°C apply to the pipe sizes below 16" (400mm)
Code	Transducer Cable Length
030	Standard 30ft (9m)
xxx	Maximum lengthen to 1000ft (305m), per 16ft (5m) is a lengthen unit.
Standard Model: SL1188-1-1-S-030	
Description: standard enclosure with Clamp on transducers, RS485/RS232, 30ft (9m) cable.	

Note:
 * 2, Refer to page 10
 * W, Refer to page 5
 * WS, Refer to page 6

W type Wetted Transducer

Descriptions and Applications



Specifications

To get higher strength signal and better accuracy, W type transducers are recommended. Normally they are used in the following conditions: big pipe sizes, old pipe, heavy corroded pipe, etc.

Measurement Pipe range: 2" to 200" (50mm to 5000mm)

Sensor material: 316 stainless steel

Protection rating: IP68

Explosion-proof rating: EX ia II BT4

Fluid temperature: -40F to 176F (-40°C~80°C)

Transducer cable standard length: 30ft (9m)

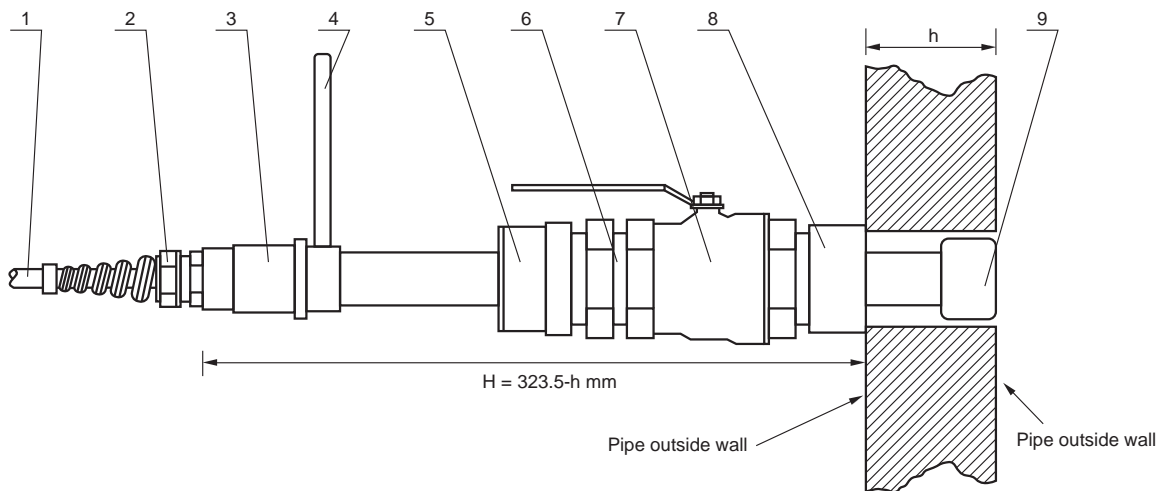
Ball valve material: brass body, PTFE threaded weldolet, 316 stainless steel ball

Threaded weldolet material: carbon steel, (optional: stainless steel)

Press rating: 232 psig (PN1.6Mpa)

Weight (including cable and ball valve): 16.8lbs (7.6kg)

Dimensions:



- 1. Cable
- 2. Flexible revolving piece
- 3. Connector

- 4. Orientation handle
- 5. Locating sleeve
- 6. Joint nut

- 7. Ball valve
- 8. Threaded weldolet
- 9. Transducer housing

W type Wetted Transducer

Descriptions and Applications



Specifications

To get higher strength signal and better accuracy, WS type transducers are recommended. Normally they are used in the following conditions: big pipe sizes, old pipe, heavy corroded pipe, and especially in areas where there is limited space for installation.

Pipe size: 2" to 16" (50mm to 400mm)

Sensor material: 316 stainless steel

Protection rating: IP68

Medium temperature: -40F to 176F (-40°C to 80°C)

Transducer cable standard length: 30ft (9m)

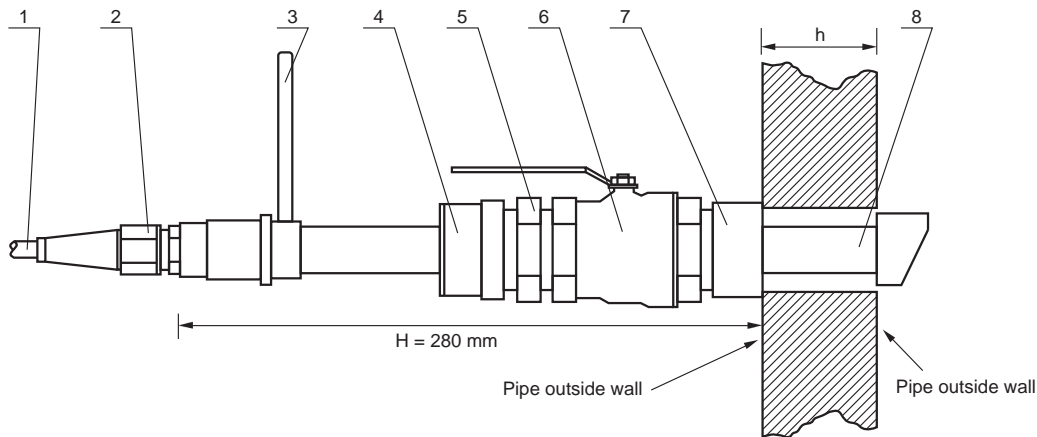
Ball valve material: brass body, PTFE threaded weldolet, 316 stainless steel ball

Threaded weldolet material: carbon steel, (optional: stainless steel)

Press rating: 232 psig (PN1.6Mpa)

Weight (including cable and ball valve): 5.5lbs (2.5kg)

Dimensions:



1. Flexible revolving piece
2. Connector
3. Orientation handle
4. Locating sleeve

5. Joint nut
6. Ball valve
7. Threaded weldolet
8. Transducer housing

W type Wetted Transducer

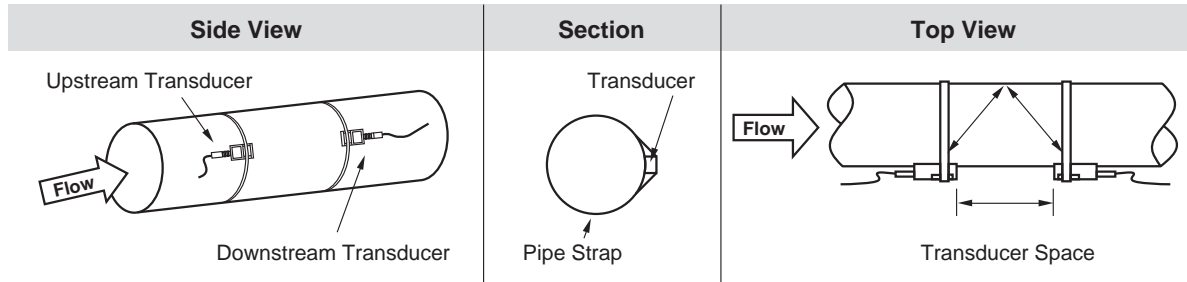
Descriptions and Applications



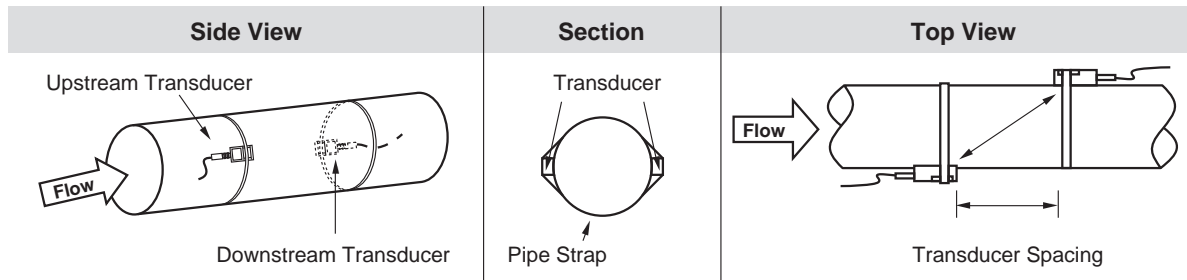
Clamp-on Transducers Installation Methods

Clamp-on Ultrasonic Flow-meters are installed simply by applying coupling compound on the bottom of the transducers and strapping them to the outside of the pipe. SiteLab Clamp-on Ultrasonic Flowmeters are internationally known for their simple and convenient installation and low maintenance characteristics.

V method installation on pipe size: 1" to 16" (25mm to 400mm)



Z method installation on pipe size: 4" to 120" (100mm to 3000mm)



W type Wetted Transducer

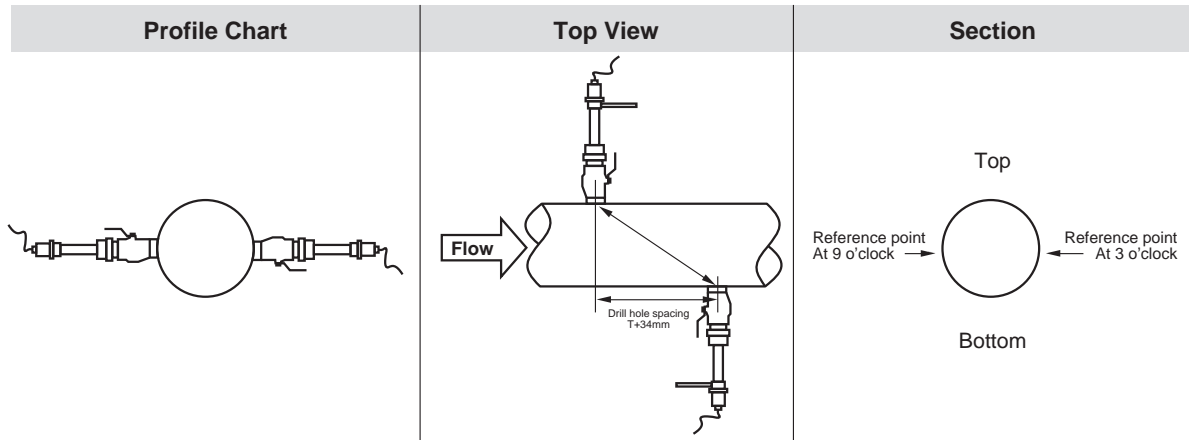
Descriptions and Applications



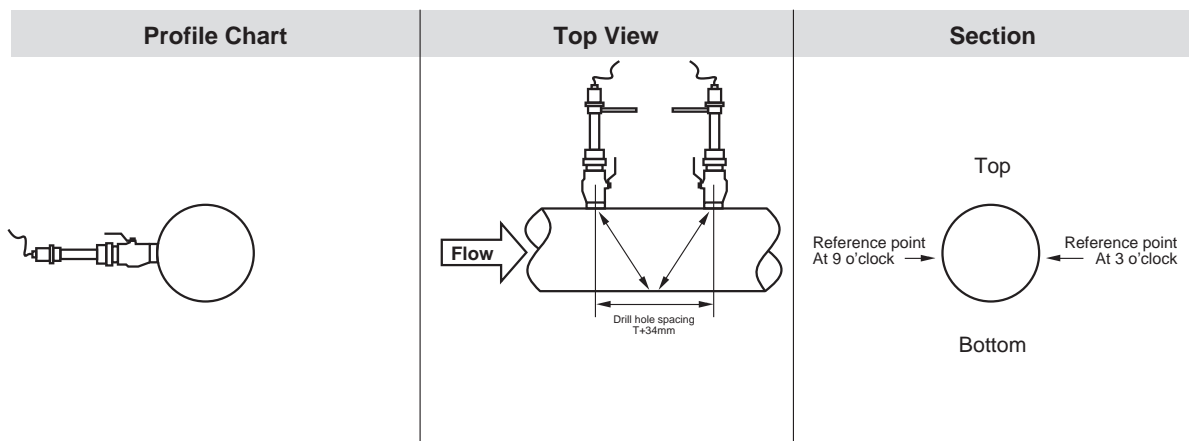
Wetted Transducers Installation Methods

Insertion type (wetted type) transducers can be installed under flow conditions and pressure by hot-tapping them into the pipe via an isolation ball valve. Wetted sensors are used normally on large pipe, concrete pipes, corroded pipes, and old pipe to have direct contact with the liquid to be measured. The speed of sound of the pipe material is eliminated from the calculation of spacing between transducers.

Z method installation



V method installation



Transducer	Spacing(L)	Installation Method and Pipe Size	
W Style	T+34mm	Z 2"~200" (50mm~5000mm)	V 6"~ 20" (150mm ~ 500mm)
W Style	Inner size-10mm	Z 2"~16" (50mm~400mm)	V 4"~10" (100mm~250mm)

W type Wetted Transducer Descriptions and Applications



Installation Site Selection

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 installation site:

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

Ensure enough straight pipe length at least equal to the figure shown below for the upstream and downstream transducers installation.

Name	Straight length of upstream piping	Straight length of downstream piping
90° bend		
Tee		
Diffuser		
Reduce		
Valve		
Pump		

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

Consider the inside condition of the pipe carefully. If possible, select a section of pipe where the inside is free of excessive corrosion or scaling.

Note: D is pipe diameter.

W type Wetted Transducer

Descriptions and Applications



Explosion-proof enclosure (Optional):

If going to place a meter in an explosive atmosphere (hazardous area), the meter's explosion proof enclosure should be installed in a positively vented area. Before connecting the power supply, the user should create positive ventilation more than 5 times the enclosure volume for air exchange. The user must install the meter wiring in a safe area that would not cause sparking or arcing due to short circuiting or wire breakage. Cables and wires should be installed through explosion-proof conduit. Explosion-proof threaded conduit unions should be used between the wired conduits, conduits and junction boxes.

The available thread engagement into the fitting should be more than 5-6 threads. When flexible connections are needed, explosion-proof flexible cable conduits can be used.

Material: Die-cast aluminum

Explosion-proof rating: Exd II BT4

Electrical interface: 4Å-G1/2"

Wmm: 0.15

Ra: 3.2

Dimensions:

