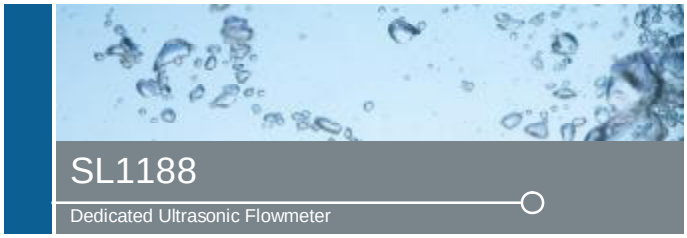


SL1188

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 ±40ft/s (0 to ±12m/s)

Accuracy: ±0.5% o reading

Repeatability: 0.3%

Outputs:

0/4~20mA, maximum 750Ω

OCT pulse, 0~10 KHz

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

Communications: RS232 (standard) RS485 (optional)

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^{o}C to 80^{o}C)

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

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

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

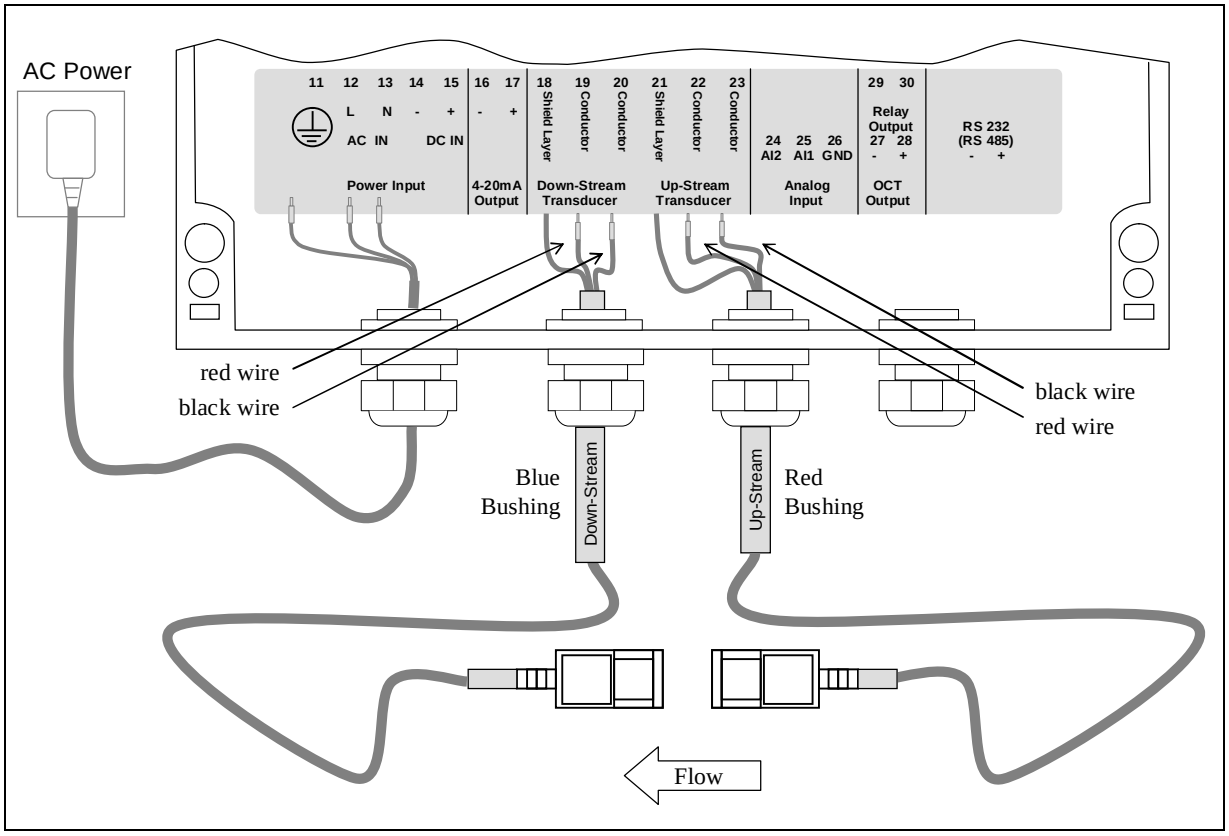
Keypad keystroke life: 20 million times

Converter Program

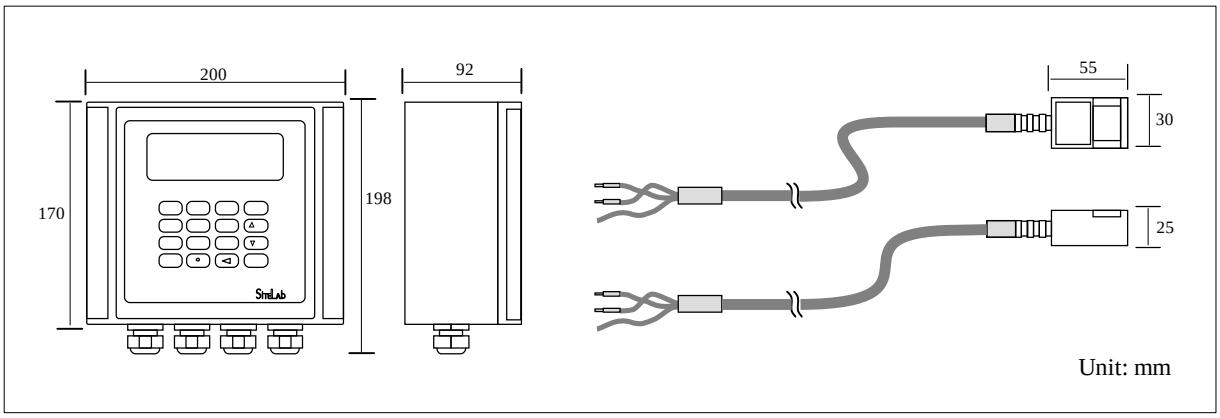
Meter logged data can be downloading and converted to an Excel File from the SD card using Converter software. The user can edit and analyze it as required.

SiteLab

Wiring Diagram



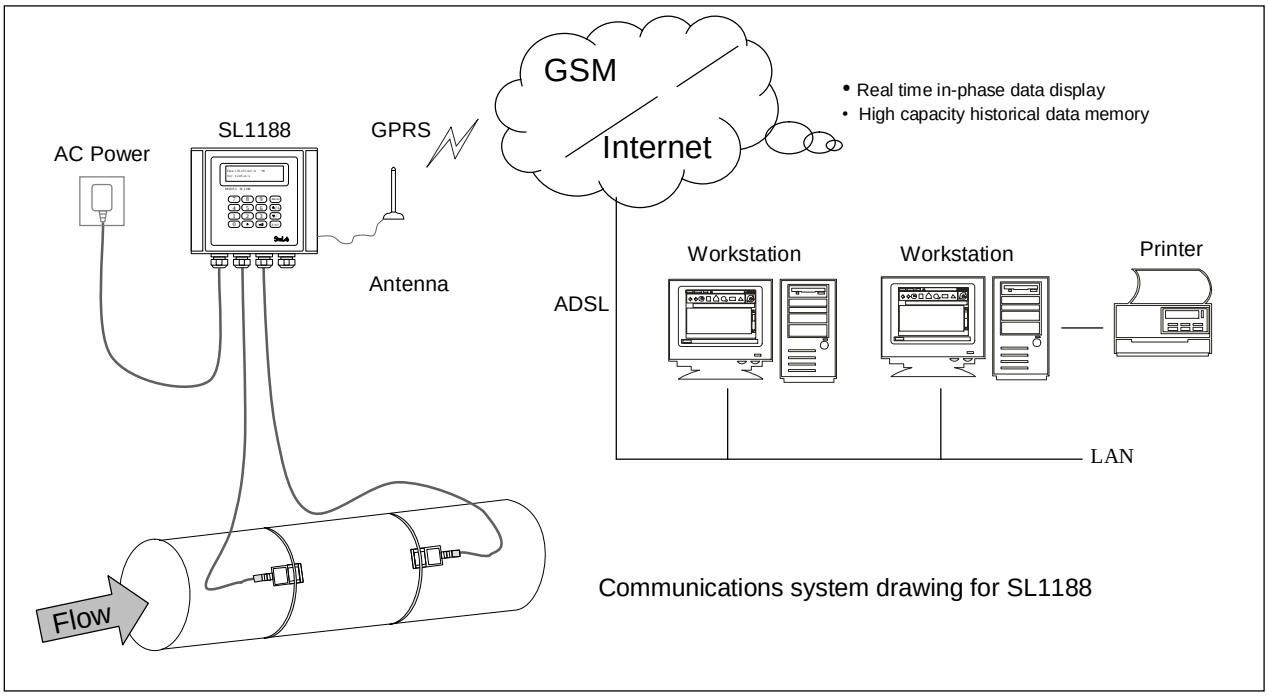
Dimensions



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

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 ±40ft/s (0 to ±12 m/s) Accuracy: 0.5% of measurement; Repeatability: 0.3% 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: RS232 terminal Transducer hazardous area classification: Ex ia II BT4
Code	Output
1	4~20mA, OCT pulse output, relay output, RS232
2	4~20mA, OCT pulse output, relay output, RS485 (No 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^{o}C to +80^{o}C)
*W	Wetted transducer, Operating temperature: -40F to 176F (-40^{o}C to +80^{o}C)
*WS	Wetted transducer (small type), Operating temperature: -40^{o}C to +80^{o}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, RS232, 30ft (9m) cable.	

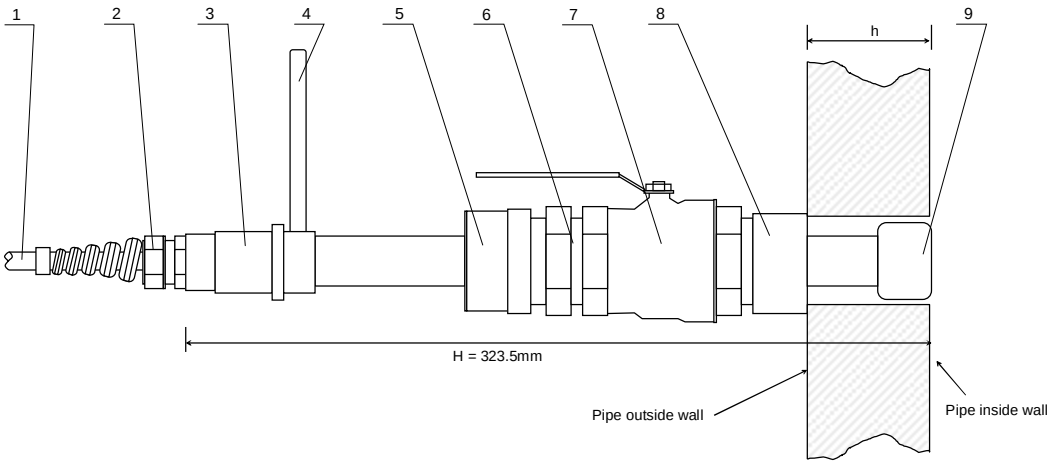
Note:

* 2, Refer to page 19
* W, Refer to page 14
* WS, Refer to page 15

Specifications

To get higher strength signal and best accuracy consider the use of W type transducers. 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^{o}C~80^{o}C)
Transducer cable standard length: 30ft (9m)
Ball valve material: brass body, PTFE bottom seat, 316 stainless steel ball
Bottom seat material: carbon steel, (optional: stainless steel)
Press rating: 232 psig (PN1.6Mpa)
Weight (including cable and ball valve): 16.8lbs (7.6kg)

Dimension



1. Cable
2. Flexible revolving piece
3. Connector
4. Orientation handle
5. Locating sleeve
6. Joint nut
7. Ball valve
8. Mounting base
9. Transducer housing

Specifications

To get higher strength signal and best accuracy consider the use of WS type transducers. 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.

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Pipe size: 2” to 16” (50mm to 400mm)

Sensor material: 316 stainless steel

Protection rating: IP68

Medium temperature: -40F to 176F (-40^{o}C to 80^{o}C)

Transducer cable standard length: 30ft (9m)

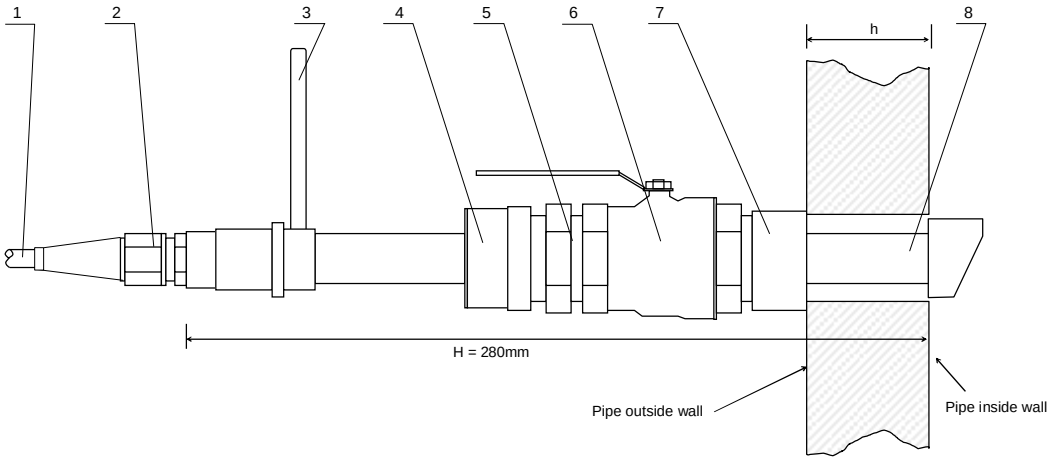
Ball valve material: brass body, PTFE bottom seat, 316 stainless steel ball

Bottom seat material: carbon steel, (optional: stainless steel)

Press rating: 232 psig (PN1.6Mpa)

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

Dimensions

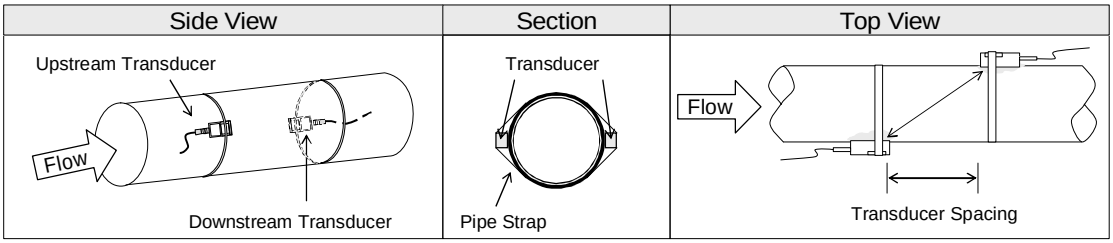


1. Flexible revolving piece
2. Connector
3. Orientation handle
4. Locating sleeve
5. Joint nut
6. Ball valve
7. Mounting base
8. Transducer housing

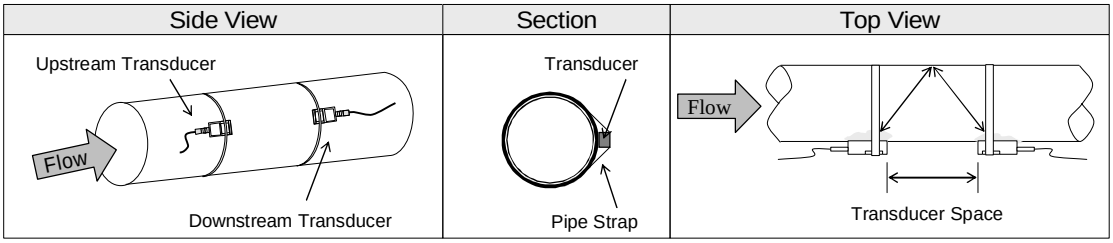
Clamp-on Transducers Installation Methods

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.

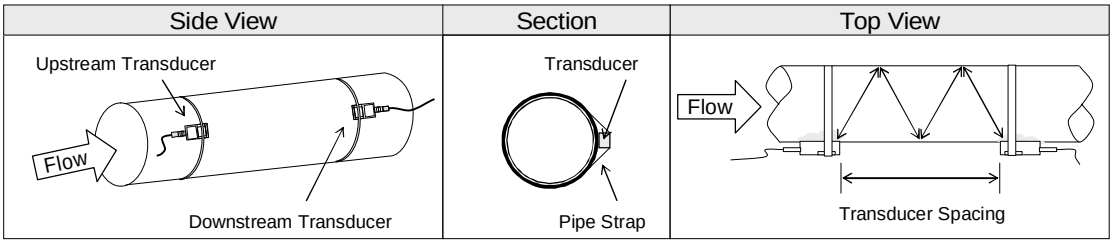
Z method installation on pipe size: 4” to 200” (100mm to 5000mm)



V method installation on pipe size: 1” to 20” (25mm to 500mm)

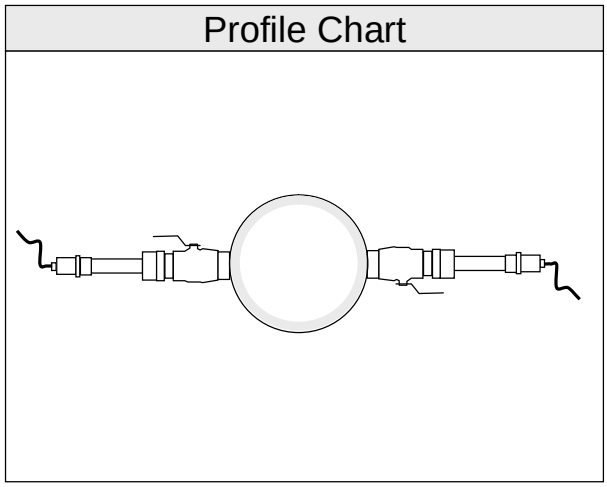


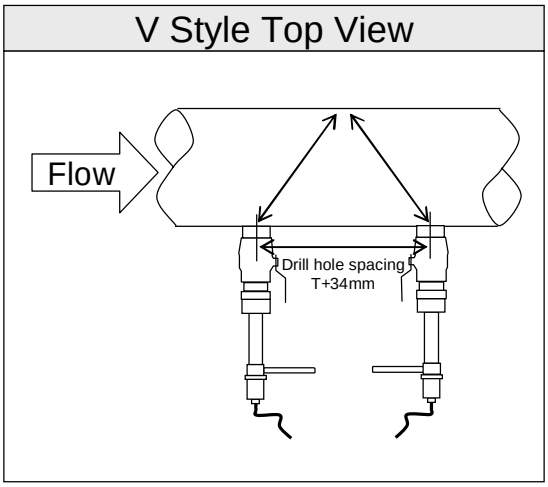
W method installation on pipe size: 1” to 4” (25mm to 100mm)

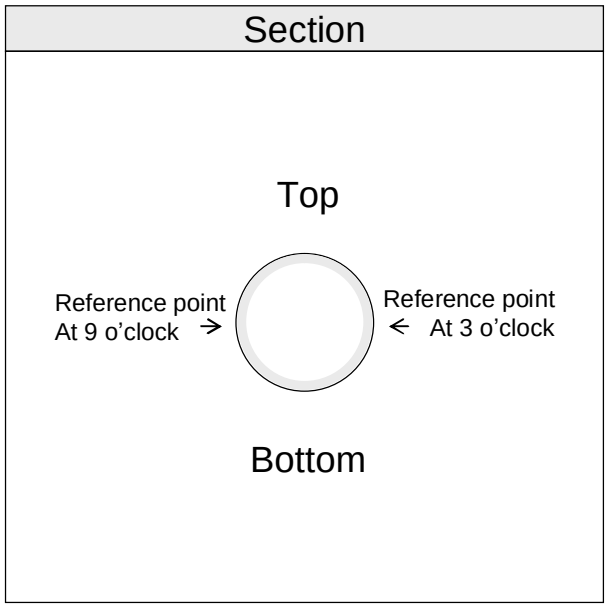


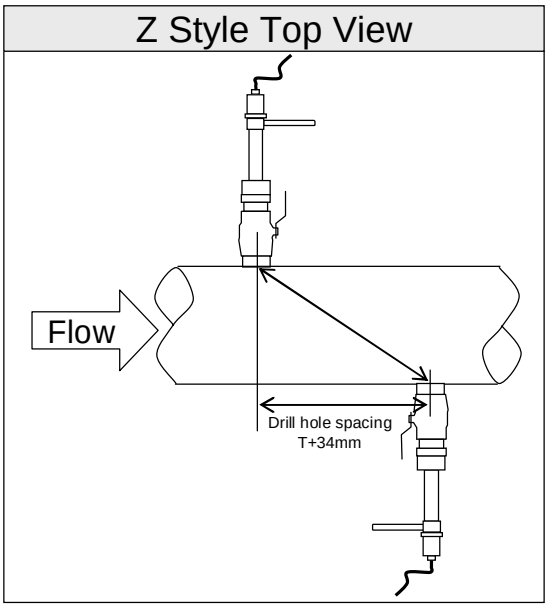
Wetted Transducers Installation Methods

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 materiel is eliminated from the calculation of spacing between transducers.







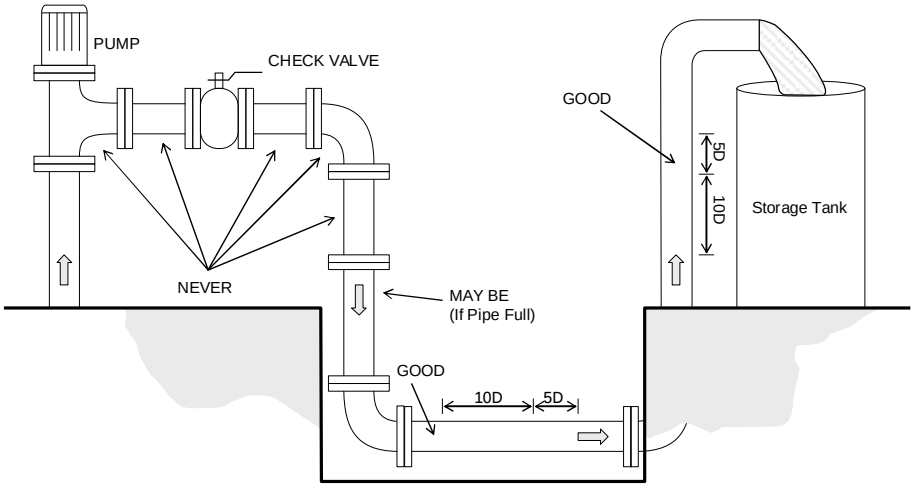


Transducer	Spacing(L)	Installation Method and Pipe Size	
W Style	T+34mm	Z 2″~200″ (50mm~5000mm)	V 6″~ 20″ (150mm ~ 500mm)
WS Style	Inner size-10mm	Z 2″~16″ (50mm~400mm)	V 4″~10″ (100mm~250mm)

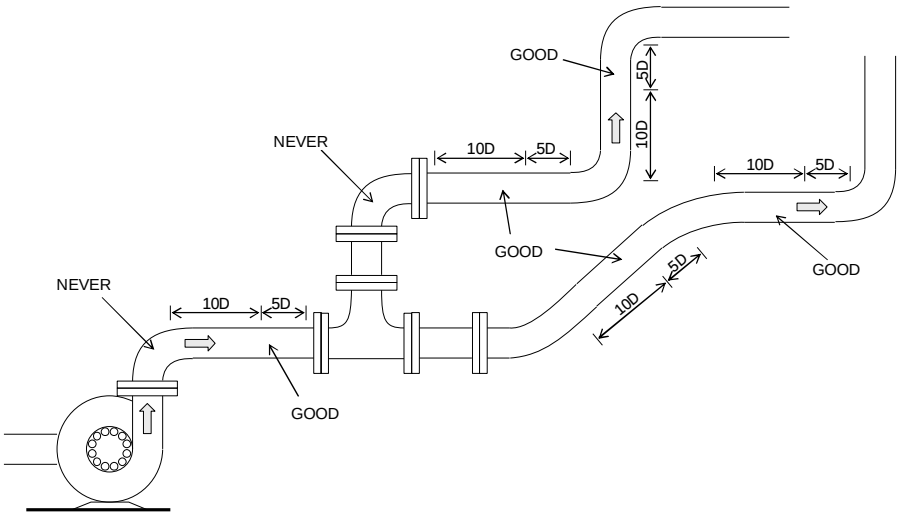
Installation Site Selection

Straight pipe: Generally there should be 10D (pipe diameters) upstream of the measurement point and 5D downstream of the measurement point after SIMPLE pipe changes (such as a simple 90 degree elbow). However, longer distances are required from pump discharges, control valves, etc.

Full pipe: The pipe must be full of liquid at all times for accurate volumetric measurements



The best measuring site in this above case is in the horizontal line below ground level and another is in the vertical pipe section before the water discharge to the storage tank.



When pumping water upward, the best measuring site is in the vertical pipe after a clean 90 degree elbow.

Note: D is pipe diameter.

Explosion-proof enclosure (Optional):

If the meter is to be placed 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, ex-proof flexible cable conduits can be used.

Material: Die-cast aluminum
Explosion-proof rating: Exd Ⅱ BT4
Electrical interface：4×G1/2″
Wmm：0.15
Ra：3.2

Dimensions