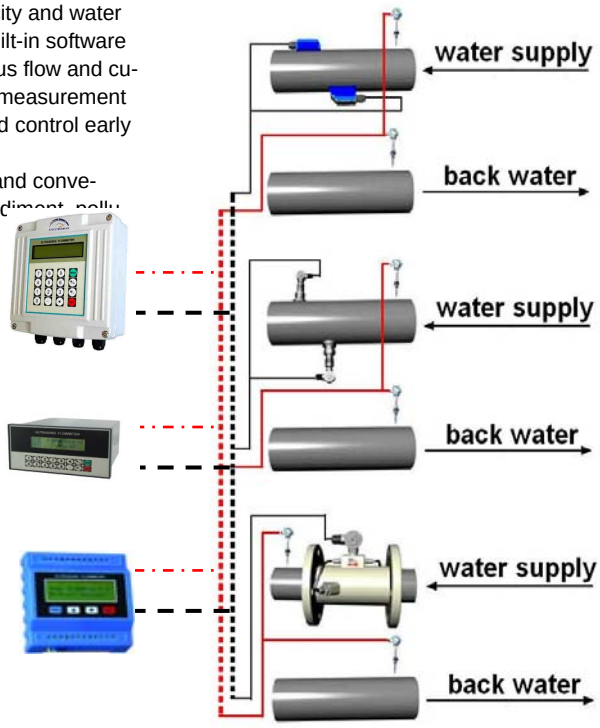
CALSTRUMENT
Calibration & Instrumentation

Ultrasonic Thermal Energy Meter
Model CALSONIC-FU

GENERAL

CRF-300 is a fully automatic flow meter based on microwave technology. It uses advanced K-band planar radar technology to measure the flow velocity and water level of the water body in a non-contact manner. According to the built-in software model and algorithm, it calculates and outputs real-time instantaneous flow and cumulative flow at a cross-section. It can be used for non-contact flow measurement in rivers, irrigation canals, underground drainage pipe networks, flood control early warning and other occasions.

It has the characteristics of low power consumption, high reliability, and convenience; the measurement process is not affected by temperature, sediment, pollutants, and floating objects on the water surface.



FEATURES

- ❑
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- ❑ Transducers for pipe size form 15 to 6000 mm.
- ❑ High accuracy of +/-0.5% of reading.
- ❑ Featuring RS485 and Modbus protocals
- ❑ 4-20mA and pulse outputs with relays and alarms
- ❑ Data logger function, include date, totalizer, signal condition.. Etc.
- ❑ Response time less than 1 second.
- ❑ NIST traceable calibration certificate

SPECIFICATION

- Flow measurement : Transit time Ultrasonic
- Transducer type : clamp, spool piece or insertion
- Temperature measure : Platnium 100 RTDs
- Pipe Size : 25-6000mm (1"- 240")
- Pipe Material : Cast Iron, Stainless Steel, Ductle Iron Copper, PVC, Aluminum, Asbestos Fiberglass… etc.
- Liner Material : Tar Epoxy, Rubber, Mortar, Polypropylene, Polystryal, Ploystryene, Polyester, Ebonite, Polyethylene, Teflon… etc.
- Flow Velocity : 0.1 ~ +/- 32 m/s
- Resolution : 0.0001 m/s
- Liquid temperature : -40 ~ +155°(-40F ~ +312F)
- Suspended solids : <2% particle size smaller than 75um
- Engineer Unit : Metric or English (US)
- Accuracy : +/- 1% ~ +/- 2% of reading(0.5 ~ 30 m/s) +/- 0.5% of reading (online calibration)
- Repeatability : +/-0.5% of reading
- Digital communication : Insolated RS 485. MODBUS, GPRS/GSM
- Measurement period : 0 to 99s
- Ambient Temperature : -20 ~ +50 deg C
- Display : LCD with backlight. 2 x 20 characters
- Keypad : 4 x 4 tactile-feedback membrane keypad Displays energy rate, total consumption temperature,instantaneous flow rate accumulated flow rate, velocity, time, etc.
- Mounting : wall mounting or integral
- Max. Cable Length : 150 M
- Power : Less than 2W
- Power Supply (AC) : 90 ~ 260Vac 50/60 Hz
- Power Supply (DC) 8~36 VDC
- Data Storage : Totalized data up 64 days Time and corresponding flow rates of the last 64 times power on/off events
- : Manual or automatic flow loss consumption
- Signal outputs : 4-20 mA , Impedance 0-1k, pulse, relays Isolated OCT for alarms (on/off with buzzer)
- Signal inputs Two RTD channels, and additional inputs
- Response Time : Less than 1 second
- Enclosure : NEMA 4X (IP65)
- Sensor : IP65
- Weight : 2kg (4lb) wall mount, 1Kg (2lb) integral

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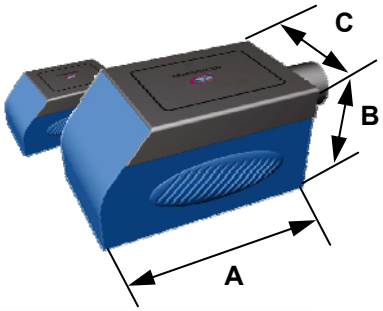
TRANSDUCER SPECIFICATION



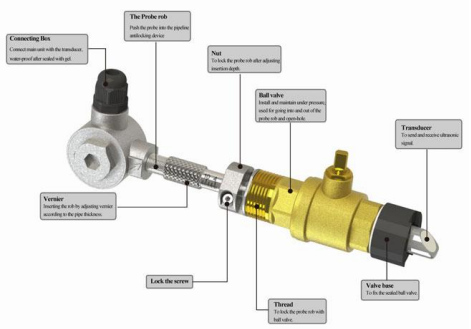
• Standard-Transducers

Fluid Temperature : -30 ~ +90 ℃

Accuracy: 1%

Model	SCS (Small Size)	SCM (Medium Size)	SCL- (Large Size)
Pipe Size	DN15-100mm	DN50-1000mm	DN300-6000mm
A*B*C	45mm*23mm*25mm	64mm*32mm*35mm	98mm*45mm*49mm

• Insertion Transducers



Fluid Temperature : -40 ~ +160 ℃

Accuracy: 1%

Model	SIS (Standard)	SIL (Large Size)
Pipe Size	DN80-1000mm	DN300-6000mm

• High Temperature Transducers

Fluid Temperature : -30~160 ℃

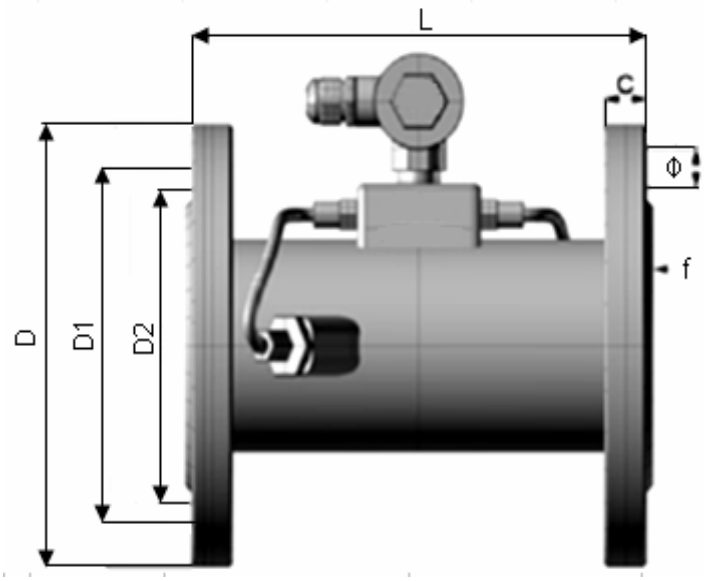
Accuracy: 1%

Model	STS (Small Size)	SHL (Medium Size)
Pipe Size	DN15-100mm	DN50-1000mm

• Inline Type

Fluid Temperature : -40~160 ℃

Accuracy: 0.5%



DN	L	D	D1	φ×n	D2	f	C
50	200	165	125	18×4	99	3	20
65	200	185	145	18×4	118	3	20
80	225	200	160	18×4	132	3	20
100	250	220	180	18×8	156	3	22
125	250	250	210	18×8	184	3	22
150	300	285	240	22×8	211	3	24
200	350	340	295	22×12	266	3	24
250	450	405	355	26×12	319	3	26
300	500	460	410	26×12	370	4	28
350	550	520	470	26×12	429	4	30
400	600	580	525	26×16	480	4	32
450	700	640	585	30×20	548	4	34
500	800	715	650	33×20	609	4	36
600	1000	840	770	36×20	720	5	38
700	1100	910	840	36×24	794	5	40
800	1200	1025	950	39×24	901	5	42
900	1300	1125	1050	39×28	1001	5	44
1000	1400	1255	1170	42×28	1112	5	46

Note: all dimensions are mm unless stated

ACCESSORY

Pt-100 RTD

Measuring Tape

Mounting Belt

Silicone grease

Thickness gauge

Transducer cable

Energy Ultrasonic Flowmeter

Wall Mount

Size: 180×170×56mm
Marterial: cast aluminium
Setting data: flow unit, zero, clear total flow, K-factor, date, passwords, linearity factor, etc….
Input: 3 channel 4-20mA analog input, 2 channel resistance signal input
Output: Isolation RS232/RS485 output, MODBUS
2 channel isolation OCT output
1 channel isolation 4-20mA output (two-wire)
Protection: IP65

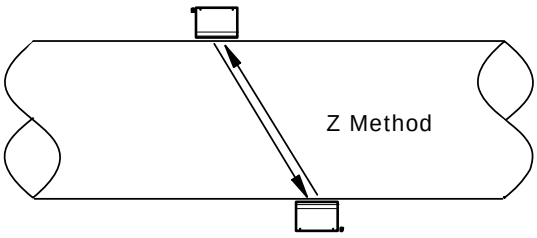
Panel Mount

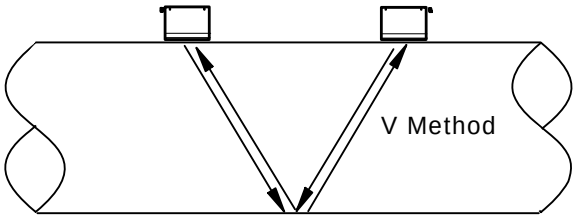
Display: 1. status
2. error time
3. temperature difference
4. temperature
5. energy flow
6. total flow
7. flow rate
8. positive total flow
Size: 96×96×129mm
Input: 3 channel 4-20mA analog input, 2 channel resistance signal input
Output: Isolation RS232/RS485 output, 2 channel isolation OCT output
1 channel isolation 4-20mA output (two-wire), MODBUS
Protection: IP68
DC Power: 24VDC

Remote Module

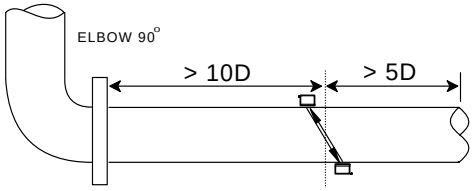
Size: 120×80×30mm
Display: 1. status 2. error time 3. temperature difference
4. temperature 5. energy flow 6. total energy flow
7. flow rate 8. positive total flow
Input: 3 channel 4-20mA analog input,
2 channel resistance signal input
Output: Isolation RS232/RS485 output
2 channel isolation OCT output
1 channel isolation 4-20mA output

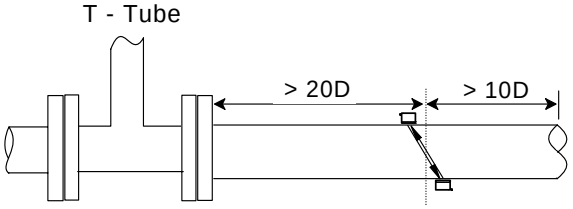
INSTALLATION

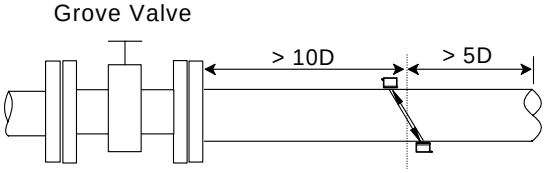


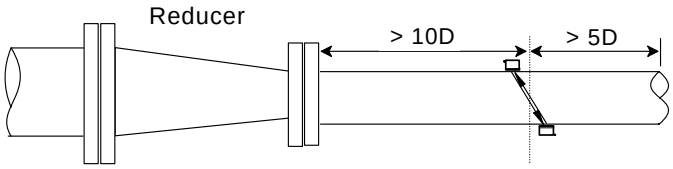


STRAIGHT RUN PIPING REQUIREMENT









**** Please contact your local Calstrument application engineer**

You also need to provide the following information:

Type of Fluid	**We need the name of your fluid, including operating density and viscosity**
Line Size	**pipe size and sensor connection type (insertion,clamp, etc..)**
Process Pressure and Temperature	**We calibration your Flowmeter as close to your application as possible**
Type of Electronics	**output and install type (compact, wallmount, panelmount,etc..)**
Pipe Material	**We need the name of your pipe material**

Model Selection Guide

Calsonic-Energy							
Example 1: Calsonic-FU-CPE-SMCTS-C1-05-AC							
Alsonic-EG-	**	**	**	**	**		**Description**
Compact-multichannel with display,RS232/RS485,OCT output,4-20mA output	CPE						Flow Meter
Module-Energy, 4-20mA, RTD input, RS-232/RS-485, OCT, 4-20mA output 	MUE						
Wall mount with display, mulitchanel input/outputs 	WLE						
Pair of Pt 100 RTDs		RTD					RTD
Small clamp sensor, 15 ~ 100 mm			TS-2				Transducers
Middle clamp sensor, 50 ~ 1000 mm			TM-1				
Large clamp sensor, 300 ~ 6000 mm			TL-1				
High Temperature clamp sensor (-30-160℃), 15 ~ 100 mm			S1				
High Temperature clamp sensor (-30-160℃), 50 ~ 1000 mm			M1				
Standard insertion sensor			SIS				
Long insertion sensor			SIL				
Inline spool piece please state size in mm			SN-**"				
5M, 2 Cables				C1			Signal Cable Length
10M, 2 Cables				C2			
15M, 2 Cables				C3			
Addional wall mount transmitter					TW		Options
Additional panel mount transmitter					TP		
thinkness gague					P1		