

TECHSONIC RLU - ULTRASONIC LEVEL TRANSMITTER

TYPICAL APPLICATIONS

- The measured pipe ranges 20-6000mm [0.5 - 200].
- Ultra-pure liquids,
- Potable water
- Chemicals
- Raw sewage
- Reclaimed water
- Cooling water
- River water
- Plant effluent, etc.,

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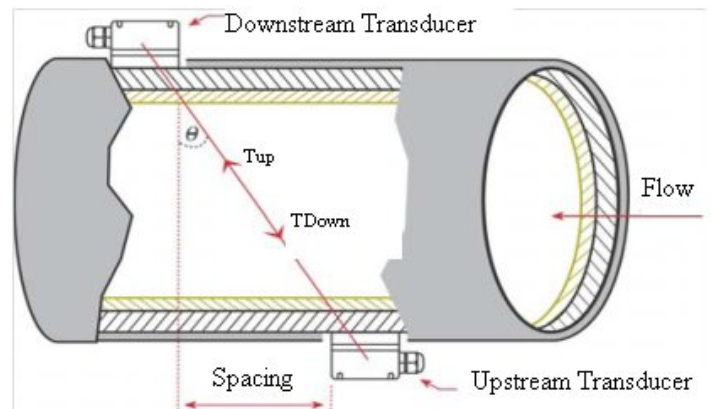
INTRODUCTION

PRINCIPLE OF MEASUREMENT

The RLC ultrasonic flow meter is designed to measure the fluid velocity of liquid within a closed conduit. The transducers are a non-contacting, clamp-on type, which will provide benefits of non-fouling operation and easy installation.

The RLC transit time flow meter utilizes two transducers that function as both ultrasonic transmitter and receivers. The transducers are clamped on the outside of a closed pipe at a specific distance from each other. The transducer can be mounted in V-method where the sound transverses the pipe twice, or W-method where the sound transverse the pipe four times, or in Z-method where the transducers are mounted on opposite side of the pipe and the sound crosses the pipe once. This selection of the mounting method depends on pipe and liquid characteristic. The flow meter operates by alternately transmitting and receiving a frequency modulated burst of sound energy between the two transducer and measuring the transit

time that it takes for sound to travel between the two transducer. The difference in the transit time measured is directly and exactly related to the velocity of the liquid in the pipe, as shown in figure 1.



$$V = MD / \sin 2\theta \times \Delta T / (T_{up} * T_{down})$$

Where

θ is the include angle to the flow direction

M is the travel times of the ultrasonic beam

RLT Instrumentation (Unit of RLT Group)

D is the pipe diameter
 T_{up} is the time for the beam from upstream transducer to the downstream one

T_{down} is the time for the beam from downstream transducer to the upstream one

$$\Delta T = T_{up} - T_{down}$$

PERFORMANCE SPECIFICATIONS:

respectively

Linearity	0.5%
Repeatability	0.2%
Accuracy	±1% of reading at rates > 0.2 mps
Response Time	0-999 seconds, user-configurable
Velocity	±32 m/s
Pipe size	20mm-6000mm
Rate Units	Meter, feet, cubic Meter, liter, Cubic feet, USA Gallon, Imperial Gallon, oil Barrel, Imperial Liquid Barrel, million USA Gallons. User configurable.
Totalizer	7-digit totals for net, positive and negative flow

Liquid Types Security

Virtually all liquids
 Setup values
 Modification
 Lockout, Access code needs unlocking

Display

4×16 English letters

Communication interface

RS-232, baud-rate: from 75 to 57600. Protocol made by the

manufacture and compatible with that of the FUJI ultrasonic flow meters. User protocols can be made on enquiry.

PHYSICAL SPECIFICATION:

Transducers

Model M1 for standard, other 3 models for optional

Data Logger

Built-in data logger can store over 2000 lines of data

Transducer Cord Length

Standard 2×10 meters, optional 2×500 meters

Manual Totalizer

7-digit press-key-to-go totalizer for calibration

Power Supply

3 AAA Ni-H built-in batteries. When fully recharged it will last over 10 hours of operation. 100V-240VAC for the charger

Housing Material Case Size

100×66×20mm

Handset Weight

514g(1.2lbs)with batteries

SPECIFICATIONS FOR SENSOR:

Sensors	A (S1)	B (M1)	C (L1)	D (HS1)	E (HM1)
Pipe Size	DN15-100	DN50- DN700	DN300- DN 6000	DN15- DN100	DN50- DN700
Material	ABS		Special Material for H-Temp		
Frequency	1MHz				
Installation Method	V(N,W)	V,Z	Z	V(N,W)	V,Z
Calibration	Calibrated together with Flow meter				
Magnetic	Yes			No	
Temperature	0 °C to 70 °C			0 °C to 160 °C	
IP	IP 65				

**RLT Instrumentation
(Unit of RLT Group)**

Outline Size	45*30*30	60*45*45	80*70*55	90*85*24	90*82*29
N.W.(g/2pcs)	75	250	650	94	150
Medium	Water, Sea Water, Sewage, Alcohol , oil , etc....				
Turbidity	10000ppm with little air bubble				
Pipe	CS, SS, Cast Iron, Brass, PVC, Aluminum etc...				
Pipe liner	Rubber , Slurry , PP , PS , Backlit , PTFE				
Signal Cable	Standard : 5M*2 , optional : 10M*2 or 15M*2				

ORDERING INFORMATION

Ultrasonic Flow Meter - RLC_ _

Ultrasonic Clamp-On flow meter to measure the Drinking Water, Waste Water & Process Water etc., without cutting Pipe. Accuracy of $\pm 1\%$, Repeatability of $\pm 0.2\%$.

TECHSONIC-RLC

1	2	3	4	5	6	7	8	9	10	11
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1	Flow Sensor
A	DN15~100, 0-70°C
B	DN 50-700, 0-70° C
C	DN 300-6000, 0-70° C
D	DN15 - 100, -30 ~ 160°C (High Temp.)
E	DN50 - 700, -30 ~ 160°C (High Temp.)
2	Installation Set
0	Not Selected
A	DN15-100 (1/2" - 4")
B	DN50-700 (2" - 28")
C	DN300-6000 (12"-240")
1	Special Version, to be specify
3	Sensor Cable
A	5Meter X 2 as Standard
B	10MeterX2
C	15 MeterX2
1	Special Version, to be specify

**RLT Instrumentation
(Unit of RLT Group)**

4	Cable Entry
0	Gland M16
2	Gland M12
1	Special Version, to be specify
5	Calibration
0	Dry Calibration
S	Marine Certificate
1	Special Version, to be specify
6	Approval
N	Non-Hazardous Area
E	Ex-Proof
F	Flame Proof
1	Special Version, to be specify
7	Housing
W	Wall Mount, IP65
P	Panel Mount, IP65
H	Hand Held, Battery operated IP65
8	Sensor Protection
5	IP65
7	IP67
8	IP68
9	Power Supply
A	220V AC
D	24V DC
10	Display
1	2-Line LCD Display (4*4 Touch Keys)
2	2-Line LCD Display with Backlit
11	Output, Input
4	4-20ma + Frequency
R	RS232/RS485
M	MODBUS
B	Battery Operated (Lithium Battery)

Head Office



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