

TECHTROL ULTRASONIC OPEN CHANNEL FLOW SYSTEM "TOCF"

A versatile, non-contact type, microcontroller based system to measure flow and totalized flow of liquids flowing through an open channel, fitted with flumes or weirs.

SALIENT FEATURES

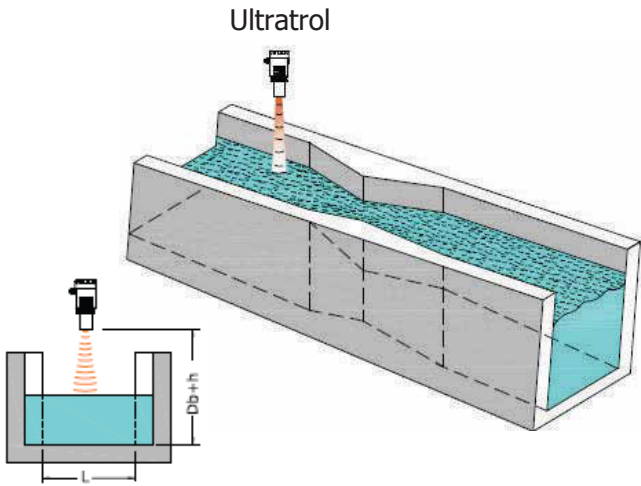
- Reliable and cost effective
- Displays instantaneous flow & totalized flow
- Inbuilt 24 VDC supply for transmitter
- Easy to program & calibrate
- Retains memory during power interruption
- IP65 protected transmitter to suit outdoor mounting

SYSTEM OVERVIEW

The system consists of a display unit to indicate instantaneous flow & totalized flow, which is wired to an ultrasonic transmitter to measure head height. The ultrasonic transmitter should be mounted at a correct distance upstream from the primary element, where liquid surface is fairly stable and has uniform flow velocity. The 4-20 mA output from transmitter is fed to the display unit having integrated 'Level to Flow' equation corresponding to various primary elements. It displays 'Flow & Totalized Flow' on LCD and provides 4 relay output alongwith RS485 Modbus Communication. Re-transmission 4-20mA output is provided optionally.

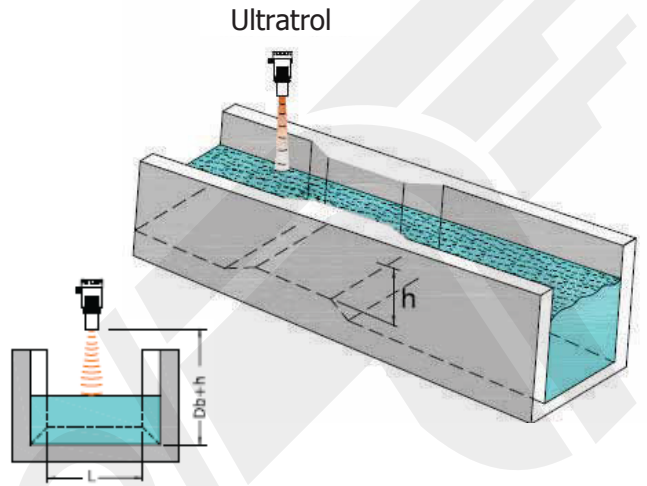


CUT THROAT FLUME



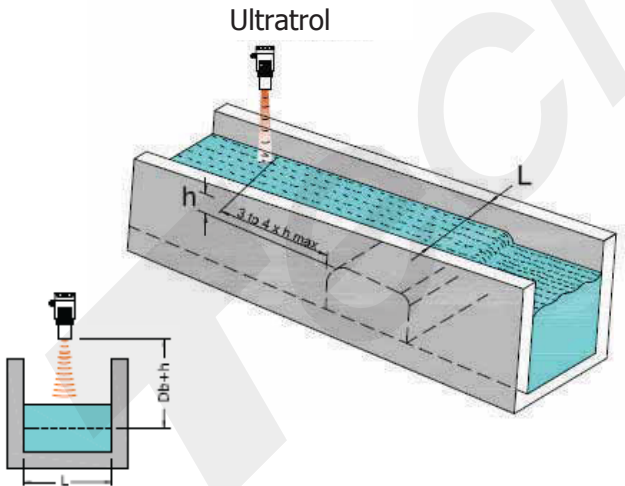
Db= dead band of ultrasonic transmitter, h = head height, L = width of weir

PARSHALL FLUME



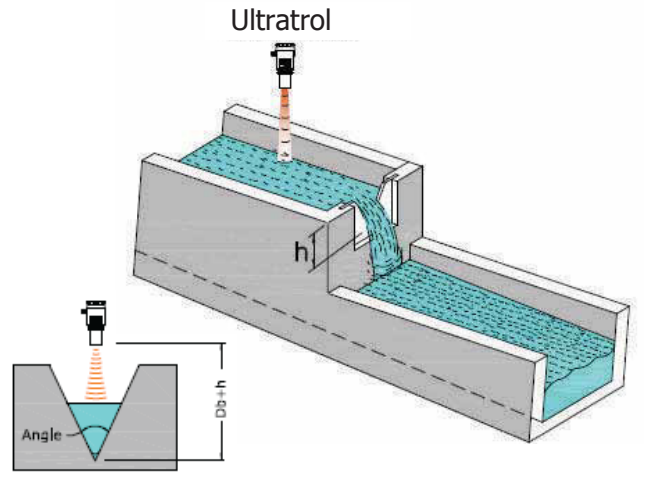
Db= dead band of ultrasonic transmitter, h = head height

RECTANGULAR WEIR



Db = dead band of ultrasonic transmitter, h = head height, L = width of weir

V-NOTCH WEIR



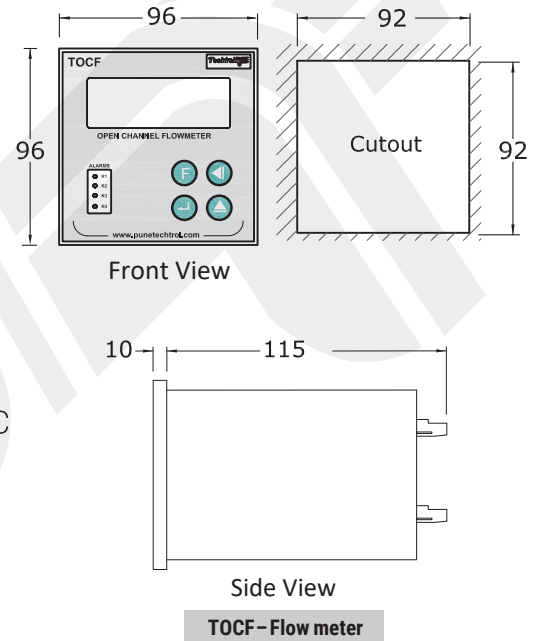
Db = dead band of ultrasonic transmitter, h = head height, L = width of weir

- *Flumes and Weirs are supplied on demand as an accessory*

SPECIFICATIONS

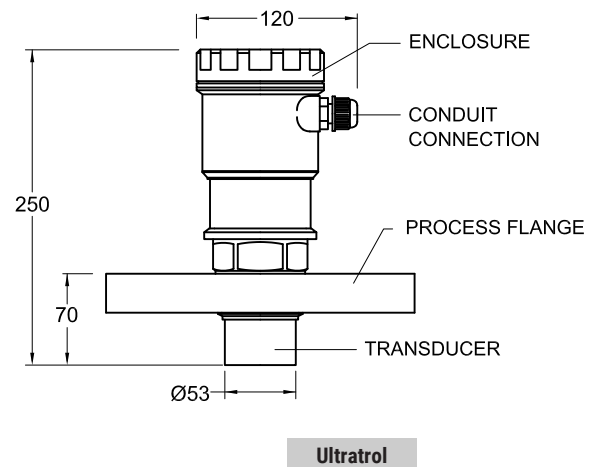
System	: TOCF
Circuitry	: Microcontroller based
Accuracy	: 0.5% FS
Indication	: 2 line x 16 character, backlit LCD 5 digit flow rate (M3/m, M3/hr, Lt/m, Lt/s) 10 digit totalized flow (Ltrs/ M3/KL)
Indication (Alarm)	: 4 Red LEDs (Relay On status)
Programming	: Through 4 keys
Power Supply	: 90-270 V AC, 50-60 Hz or 24 V DC ($\pm 10\%$)
Supply for X'mitter	: 24 VDC, 30 mA
Input	: 4-20 mA from transmitter
Output	: 1. Relay output 4 nos. x SPDT, 5A, 250VAC 2. RS-485 Modbus RTU Communication
Enclosure	: MS Powder ctd, Panel Mounted, IP41 Size 96 x 96 x 115 D mm
Ambient Temp	: 55 °C
Humidity	: 90% Rh, Non-condensing
Special Feature (Optional)	: Re-transmission 4-20 mA proportional to flow (Source Type), Max load 400 Ohms

Schematic Diagram



Transmitter : Non-contact Ultrasonic (Ultratrol)

Range	: 5 mtrs
Blanking Distance	: 400 mm
Accuracy	: $\pm 0.5\%$ FS
Power Supply	: 24 VDC loop powered
Output	: 4-20 mA x 250 Ohms load
Display (Integral)	: 4 digit LCD
Enclosure	: ABS x IP65
Cable Gland	: M20 x 1.5, Nylon
Transducer MOC	: ABS
Process Conn.	: 3"NB ANSI 150 # flange, PP
Optg. Temp	: -30 to 70°C
Max. Pressure	: < 1 bar



ACCESSORIES

1. Mounting Bracket : For easy installation CS powder coated, 400 H x 500 mm extension.
2. Canopy : To protect LCD/electronics from direct sunlight in outdoor installations
MOC -FRP, 400 D x 350 H mm
3. Signal Cable : To connect transmitter with display unit, 2 core, screened pair cable,
1 mm², PVC insulated/sheathed
4. Primary Element : 1) Cut throat flume, Sizes: 60W x 180L, 40W x 180L or 100W x 270L cm,
2) Rectangular weir, 3) V-notch weir, 4) Parshall flume

APPLICATIONS

1. Dam Reservoirs

To measure total flow of raw water from the reservoir to estimate consumption and discharge delivered for irrigation projects.

For custody transfer /billing of water released to agriculture by rural water supply boards.

2. Sewage Treatment Plant (STP)

To measure flow at inlet as well as outlet to calculate efficiency of STP.

3. Waste Water Treatment Plant (WTP)

To measure intake of waste water for records and assessing production plant efficiency.

4. Common Effluent Treatment plant (CETP)

To regulate total flow of effluent discharge and to allocate effluent treatment expenses to polluting industries like Chemical, Fertilizer and Quarry & Paper to curb environmental pollution.

SITE INSTALLATION



Effluent Treatment Plant



Sewage Treatment Plant

MODEL IDENTIFICATION

		TOCF -			
1. Power Supply					
90-270 VAC		1			
24 VDC		2			
2. Primary Element Type					
Cut Throat Flume			C		
V-notch Weir			V		
Rectangular Weir			R		
Parshall Flume			P		
Others			O		
3. Special Features					
Without				W	
Re-transmission 4-20 mA				R	
4. Transmitter Type					
Ultratrol					U
Others					O

INFORMATION REQUIRED FROM USER

Maximum flow rate alongwith type of primary element and its dimensions (Cut Throat flume/ Parshall flume/ / Rectangular Weir) or angle (V-notch).

ORDERING INFORMATION

Model number alongwith accessories if required.

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