LEVEL MEASUREMENT
Ultrasonic Rate of Flow Open Channel
136 ROF

SBEM
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INTRODUCTION

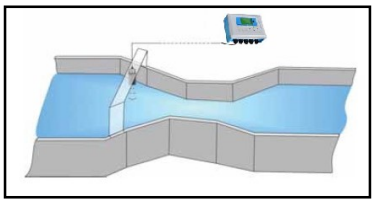
The ultrasonic open channel flow measurement device is designed to assess water flow in Parshall flume, Rectangular Weir as well as Triangular Weir applications. Flow rate can be derived from liquid level using structured algorithms, eliminating the need for traditional stage-discharge / strap tables. This non-contact method utilizes ultrasonic waves that propagate through the air, enhancing reliability and durability. In contrast to contact-type meters, ultrasonic systems significantly reduce wear and maintenance requirements, making them particularly well-suited for challenging operating conditions.

PRINCIPLE OF OPERATION

Ultrasonic flow measurement systems are utilized to directly assess liquid height in flumes. When employed for open channel flow measurement, the measuring flume must be properly installed within the channel. The flume translates the flow rate into a corresponding liquid level. The flow meter first captures the water level within the flume and subsequently calculates the flow rate based on the established relationship between the water level and the flow rate.

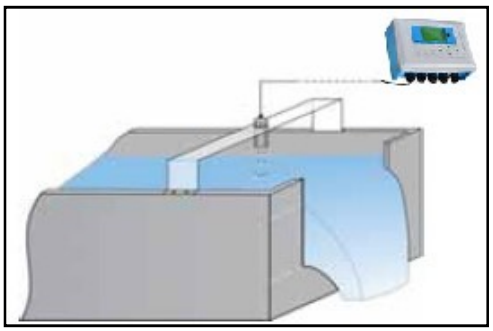
Parshall Flume

Parshall flumes are flow measurement devices commonly used in open channels to measure the flow of water or wastewater. They are designed with a specific shape (a converging throat) that creates a distinct relationship between the flow rate and the water level. Parshall flumes are valued for their accuracy, reliability, and ease of installation, especially in locations where direct flow measurement with other instruments might be challenging.



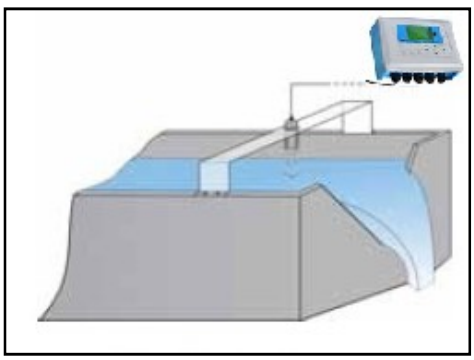
Rectangular Weir

A rectangular weir is a simple, flat structure used to measure the flow of water over a barrier, typically in open channels. The water flows over the top of the weir, and the flow rate is determined based on the height of the water above the weir's crest. Rectangular weirs are relatively simple to construct, providing an effective solution for flow measurement in various water management systems.



Triangular Weir

A triangular weir (often called a V-notch weir) is a flow measurement device with a V-shaped notch at the top. Water flows through the notch, and the flow rate is determined based on the water level above the notch. Triangular weirs are valued for their precision, especially in low flow conditions, and are easy to install and maintain.



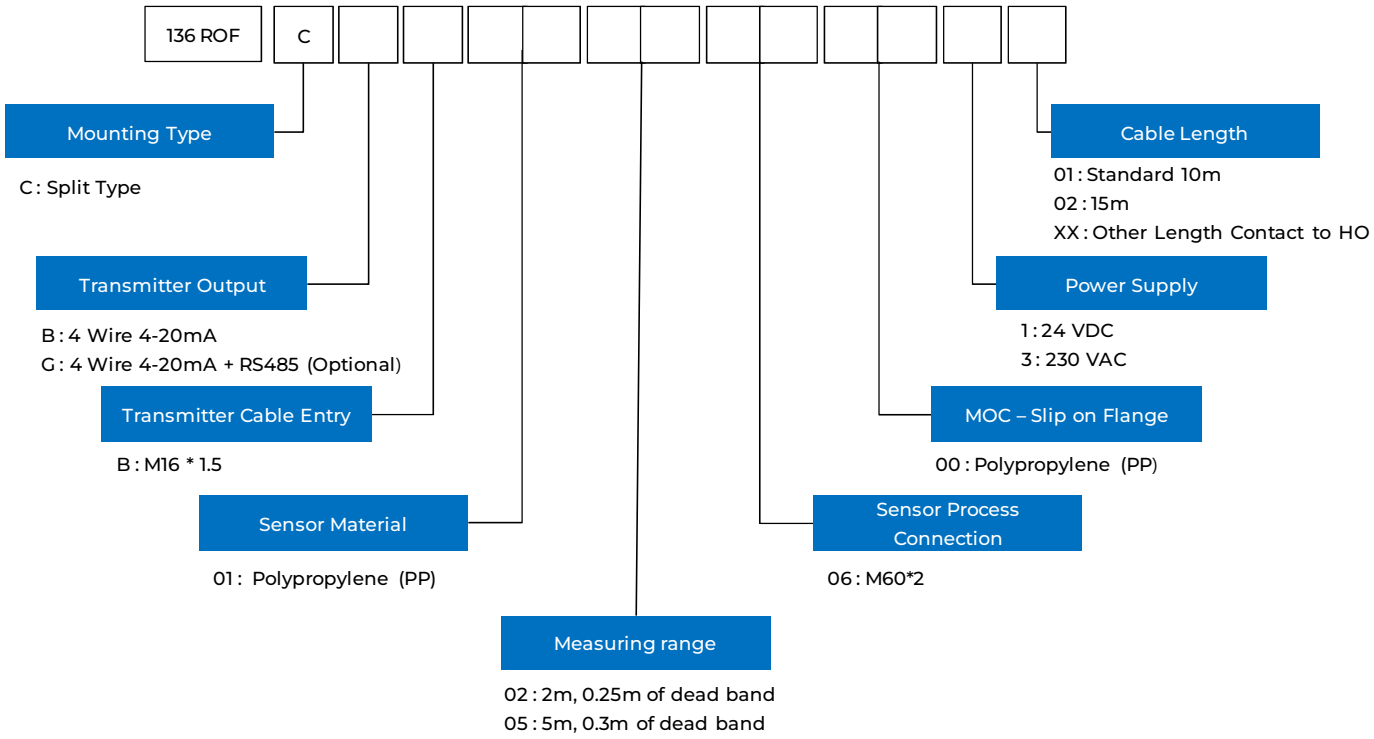
AREAS OF APPLICATIONS

- Water Resource Management:
- Irrigation Systems
- Water Distrubution
- Water Treatment Plants
- Environmental Monitoring
- Flood and Stormwater Management:
- Flood plain Mapping and Hydrological Studies

FEATURES

- Flow rate calculated by using Algorithim and structure based without strap table.
- Enhanced accuracy
- Remote Communication
- Real time Monitoring
- Low Mainatance
- Non Contact measurement
- Environmental Compatibility

ORDERING CODE



SPECIFICATIONS

Sr.No.	Category	Parameter Name	Parameter Description
1	General	Measuring Frequency	64KHz
2		Working Channel	Parshall Flume, Rectangular Weir & Triangular Weir
3	Specification	Measuring Ranges	2m or 5m
4		Dead Band	250mm for 2m or 300mm for 5m depends on Ranges
5		Mounting Type	Split Type
6		Level Accuracy	±0.5% of Full scale (Under factory set condition)
7		Flow Accuracy	±5% of Full scale (Under factory set condition for ISO Flumes, Non-ISO Flumes- upto 10%)
8		Input Power Supply	24VDC @100mA or 230 VAC @50 Hz (As per request)
9		Analog Output	4 Wire 4 to 20mA @ 500 Ω
10		Communication Output	RS485 Communication (Optional)
11		Load Resistance	500Ω
12		Display	LCD Display
13		Installation Method	Flanged

14	Construction	Sensor Material	Polypropylene (PP)
15		Transmitter Cable entry	M16 * 1.5
16		Process Connection	M60 * 2
17		Cable Length (m)	10m (standard), 15m , Higher length on request
18		Protection class	IP 50 (Converter) & IP 68 (Sensor)
19	Environmental	Ambient Temperature	0 to 60°C
20		Ambient Pressure	Standard atmospheric Pressure

MECHANICAL DIMENSIONS

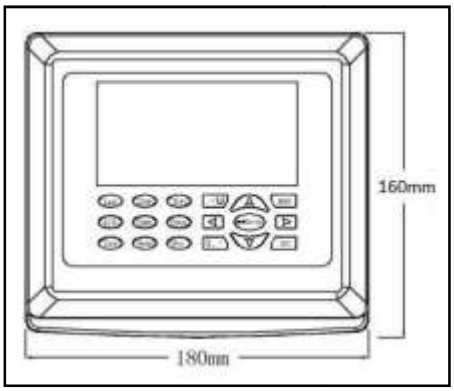


Figure 1: Converter

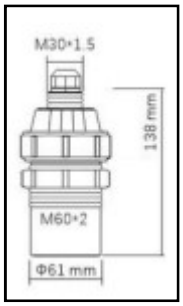


Figure 2: Sensor

***Continuous development may necessitate changes without notice.

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