

## Ultrasonic Level Transmitter for Liquids ULTRAMATE 136 ULT

### PRINCIPLE OF OPERATION

Ultrasonic level metering is based on the principle of measuring the time required for the ultrasonic pulse to travel from sensor to the surface of the liquid and then Back. The Ultrasonic sensor emits an ultrasonic pulse train and receives the echo's reflected from the liquid Surface. The received signal is processed by selecting the echo reflected by the liquid surface and calculating the time of flight, the distance to the liquid surface. is measured.

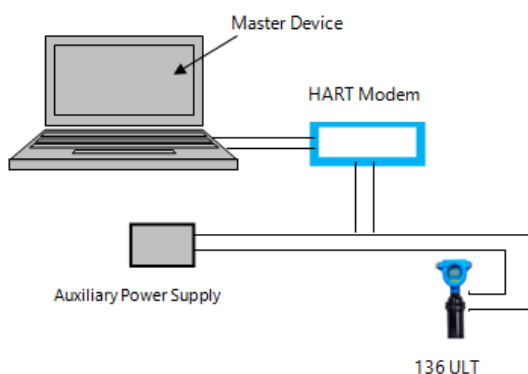
### APPLICATIONS

The Model 136 Ultrasonic Level Indicator Transmitter is specially designed to provide convenience of non contact measurement of Level. Open channel Flow, Volume, percentage level/volume can be derived from level by using optional indicators as detailed below. Sophisticated design and rugged construction guarantees no maintenance. Graphical Display visible in bright sunlight.

### OPTIONS

- Optional Remote Indicator (96X96), Model 176 suitable for panel mounting may be added with up to 4 set points for control
- Purpose and MODBUS output for real time field information at control room.
- Optional Tank Side Indicator, Model 103 HTL suitable for field mounting in weatherproof enclosure. Other similar features as per Model 176.
- Optional Remote Flow Indicator – Totalizer (96X96), Model 191 suitable for panel mounting for Open channel flow metering applications.
- \*24 VDC supply can be made available through 176/103 HTL/ 191

### SINGLE CHANNEL APPLICATION WITH PC AND MODEM



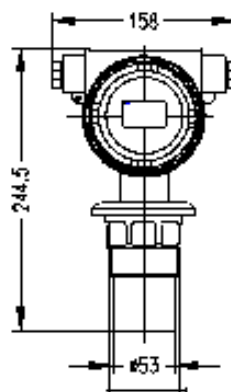
### FEATURES

- Micro-processor based Instrument
- HART version 7 compatible
- Rugged Construction - Weatherproof
- Graphical Display
- Self diagnostic functions i.e. error messages on display provided to ease setting up
- Automatic Temperature Compensation
- Unaffected by product properties
- No site calibration required

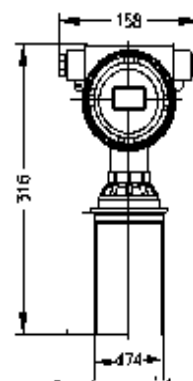


### MECHANICAL DIMENSIONS

1) 05m/10m Range - 2Wire



2) 15m Range - 2Wire



## ORDERING CODE

136 ULT					0	0			
<b>Type of Transmitter</b>	<b>Cable Entry</b>	<b>Sensor Material</b>	<b>Measuring Range</b>	<b>Slip on Flange</b>	<b>MOC for Slip on Flange</b>	<b>Power Supply</b>			
A : 2 Wire (4-20mA) C : 2 Wire (4-20mA + HART)	M : M20X1.5 T : 1/2" NPT	01 : PP 02 : PVDF 04 : Nylon	05 : 05m 10 : 10m 15 : 15m	00 : Not Applicable 26 : 2 1/2" Flange 31 : 3" Flange 41 : 4" Flange 51 : 5" Flange 61 : 6" Flange	00 : Not Applicable 01 : PP	01 : 24VDC			

## SPECIFICATION

Sr. No.	Parameter Name	Parameter Description	
1	Instrument Range	5m/10m	15m
2	Dead Band(m)	0.25	0.5
3	Beam Angle( $\alpha$ )	9°	9°
4	Process Connection	2" BSP Threaded	M78X2
5	Measuring Frequency (KHz)	64KHz $\pm$ 5%	25KHz $\pm$ 5%
6	Sensor Material	PP/PVDF	Nylon 6
7	Housing Material	Aluminium, PU Painted	Aluminium, PU Painted
8	Ingress Protection	IP67 (Standard)/ IP68 (On Request)	IP67 (Standard)/ IP68 (On Request)
9	Process Temperature	-10~60° C	-10~60° C
10	Ambient Temperature	-10~60° C	-10~60° C
11	Operating Pressure	Atmospheric	Atmospheric
12	Power Supply	18 to 30VDC	18 to 30VDC
13	Accuracy**	$\pm$ 0.5% of Full Scale (Standard) & $\pm$ 0.2% of Full Scale (On Request)	$\pm$ 0.5% of Full Scale (Standard) & $\pm$ 0.2% of Full Scale (On Request)
14	Resolution	1mm	1mm
15	Output	4~20mA/HART*	4~20mA/HART*
16	Output Configuration	2 Wire	2 Wire/4 Wire
17	Keyboard/Display	Yes	Yes
18	No. of cable entries	1(M20x1.5) / 1/2" NPT	1(M20x1.5) / 1/2" NPT
19	Display parameters	Distance, Level	Distance, Level
20	Mounting	Top	Top
21	Display formats for measuring range	xx.xxx(m)	xx.xxx(m)

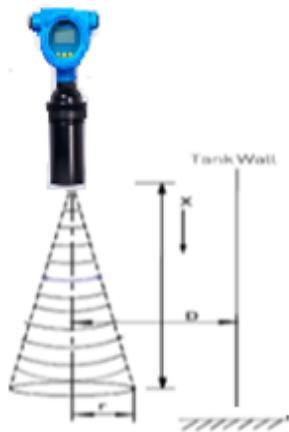
Not recommended for pressurized tanks, tanks under vacuum, fuming and foaming liquids

\* HART 7 compatible

\*\* Under optimal circumstances of reflection, stabilized & uniform temperature throughout the measuring zone

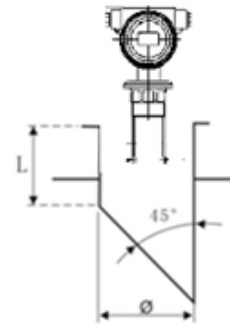
\*\*\* IP68 versions are with 2 m cables (Pre glanded with special cable gland)

## SONIC CONE



Tank Height (mtr)	r in 'mm'
1	158
2	317
3	475
4	634
5	792
6	950
7	1109
8	1267
9	1425
10	1584
11	1742
12	1901
13	2059
14	2217
15	2376

## MAXIMUM NOZZLE HEIGHT



Sr.no	Length (L) of connecting pipe	Minimum Inner diameter of pipe (Ø)
1	150mm	100mm
2	200mm	150mm
3	250mm	180mm
4	300mm	220mm
5	400mm	280mm

### NOTE

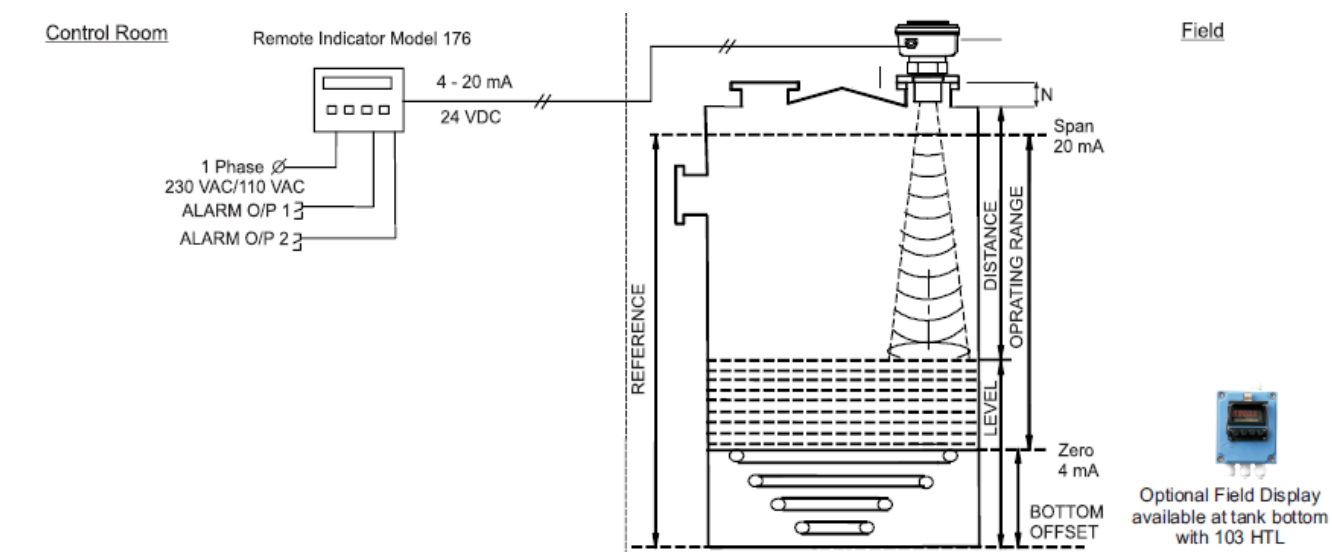
- 1) A clear path with NO interfacing objects for various Heights are required as shown. \* D MUST BE > r.
- 2) The inner wall of connecting pipe should be free of burr and bulges and vertical and the weld joint shall be polished. The connection of connecting pipe and tank top shall be outwards polished at an oblique angle of 45°

## INSTALLATION GUIDELINES

Position	Sensor Alignment	Obstructions
<p>The ultrasonic beam should not touch the tank wall.</p>	<p>Sensor should be aligned in such a way that its face must be parallel to the surface of liquid.</p>	<p>Inflow path, objects or uneven tank wall surfaces should not protrude into sensing cone of ultrasonic beam.</p>

In Case of dome shaped or horizontal cylindrical tanks, the unit must NOT be mounted at the center of the tank.

## /

**SBEM Pvt. Ltd.**

Tel 02113299298

**Email :** [sales@sbem.co.in](mailto:sales@sbem.co.in) **Website :** [www.sbem-india.com](http://www.sbem-india.com)

## Pune

[pune@sbem.co.in](mailto:pune@sbem.co.in)

## Mumbai

mumbai@sbem.co.in

## New Delhi

[newdelhi@sbem.co.in](mailto:newdelhi@sbem.co.in)

## Chennai

chennai@sbem.co.in

