

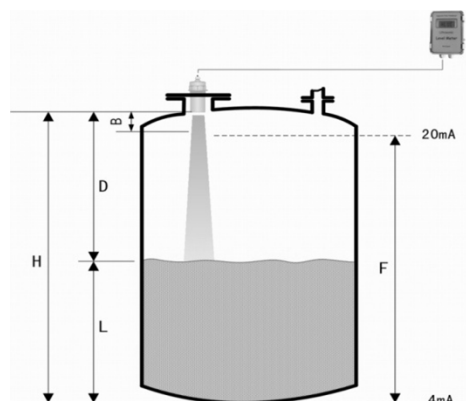
## HL Series Ultrasonic Level Meter



HL Ultrasonic level meter for continuous non-contact level measurement in liquids and solids. It consists of probe and host, both of which are plastic leak-proof structure. The HL series can be widely applied to the metallurgical, chemical, electricity and oil industries.

### Principle

The sensor of the meter pulses in the direction of the product surface. There, they are reflected back and received by the sensor. The meter measures the time  $t$  between pulse transmission and reception. The meter uses the time  $t$  (and the velocity of sound  $c$ ) to calculate the distance  $D$  between the sensor membrane and the product surface:  $d = c \cdot t/2$ . As the device knows the installation height  $H$  from a user entry, it can calculate the level as follows:  $L = H - D$ .



B: blanking distance  
 D: distance value  
 L: level value  
 H: installation height  
 F: full span value  
 $L=H-D$

An integrated temperature sensor compensates for changes in the velocity of sound caused by temperature changes. Calibration Enter the empty distance  $H$  and the span  $F$  to calibrate the device.

**Blanking distance:** Span  $F$  may not extend into the blanking distance  $B$ . Level echo from the blanking distance cannot be evaluated due to the transient characteristics of the sensor.

## Technical Specifications

### Level Range:

0-4m, Blank distance : 0.20m  
 0-6m, Blank distance : 0.25m  
 0-8m, Blank distance : 0.30m  
 0-12m, Blank distance : 0.50m  
 0-20m, Blank distance : 0.80m  
 0-30m, Blank distance : 1.20m  
 0-40m, Blank distance : 1.5 m

**Accuracy:** 0.2% of span

**Output:** 4-20mA

**Output Load:** 0-500 Ω

**Display:** 4 Digits LCD

**Temperature compensations:** Automatic

**Pressure Rating:** 0.1Mpa

**Cable Gland:** PG13.5

**Beam Angle:** 8°, 5°(3db)

**Sensor Material:** ABS &PVC or PTFE

**Protection level:** IP67

**Installation:** Thread, Flange, Bracket

**Parameter setting:** 3 Induction buttons

**Temperature Range :** -40 ~75°C, HLT1 -20 ~75°C

**Sampling time:** 1second (adjustable)

## Meter Types

Type	HLT, 2-wire,	HLN,3-wire	HLU,4-wire,	HLT1,2-wire*2
<b>Construction</b>	Compact	Compact	Compact	Compact
<b>Power</b>	DC20-32V, ≥30mA	DC20-32V, ≥60mA	DC20-32V, ≥60mA; AC85-265V ≥ 50mA	DC21-27V, ≥ 35mA
<b>Explosion Proof</b>	No			Yes, Exia IICT6
<b>Housing Material</b>	ABS or Aluminum			Aluminum
<b>Relay</b>	No		2 (High &Low)*1	NO
<b>Display</b>	With integral display			

Type	HLR,RS485,	HLF Standard	HLM Functions
<b>Construction</b>	Compact	Remote	Remote
<b>Power</b>	DC24(±10%), ≥ 60mA	DC24(±10%), 0.1A; AC85-265V, ≥ 50mA	
<b>Housing Material</b>	ABS or Aluminum	ABS	ABS
<b>Relay</b>	No	2 (High &Low) *1	2,4,6 Relays
<b>Communication</b>	RS485, Modbus	RS485 option	RS485/Hart
<b>Display</b>	With integral display	With Remote Display	

\*1 Relay output specifications: 5V 250VAC/30VDC

\*2 HLT1 only have 0-4m and 0-8m level range.

Type	HLVT	HLVT-T	HLVR
<b>Construction</b>	Compact	Compact	Compact
<b>Power</b>	DC24(±10%), ≥ 30mA		DC3.5-5V, DC9-12V, DC20-32V
<b>Relay</b>	No		

<b>Communication</b>	No	Blue Tooth	RS485 MODBUS RTU
<b>Display</b>	No display		

## Model Selections










Item	Code	Specifications
<b>General</b>	HL	HL Ultrasonic Level meter
<b>Types</b>	T	2-wire series, compact display version
	N	3-wire series, compact display version
	R	RS485 series, compact display version
	U	4-wire series, compact display version
	T1	ExiaIICT6 ,2-wire series, intrinsically safe explosion-proof
	F	Standard series, remote display version, standard 10m cable
	M	Multi-functional, remote display version, standard 10m cable
	VT	2-wire series, no display,24V DC,4-20Ma,cable 10m
	VT-T	2-wire series, no display,24V DC, Blue tooth config.cable10m*1
	VR	4-wire,no display,RS485,modbus RTU, cable 10m *2
<b>Range</b>	04	0-4m
	06	0-6m
	08	0-8m
	12	0-12m
	20	0-20m
	30	0-30m
	40	0-40m
<b>Housing Colors &amp;Material</b>	P	Plastic (all)
	G	Aluminum, green color (only for HLT, HLN, HLR series)
	B	Aluminum, blue color (for all compact series except HLR series)
	K	Aluminum, blue & gray (only for HLT series)
	V	Aluminum, white (only for HLT series)
<b>Wet part Material</b>	S	ABS&PVC ((Simple anti-corrosion)
	F	PTFE (Strict anti-corrosion)
<b>Process connection</b>	2	G2 screw (only for the range less than 8m)
	3	DN50 flange (only for the range less than 6m)
	4	DN65 flange (only for the range less than 8m)
	5	DN80 flange (only for the range less than 12m)
	6	DN100 flange(all)
	7	DN150 flange(all)
	8	DN200 flange(all)
<b>Output</b>	C0	4-20mA(All)
	C2	RS485-Modbus protocol(only for HLR,HLVR and remote series)
	C3	RS485-Profibus-DP protocol(only for HLM series)
	C4	Hart protocol (only for HLU, HLM series)
<b>Switch Output</b>	0	None

	2	2 SPDT (only for HLU HLF HLM HLG series)
	4	4 SPDT(only for HLM series)
	6	6 SPDT (only for HLM series)
<b>Power supply</b>	D	DC24V
	A	AC220V

\*1HLVT-T is can be figured by blue tooth, the software is not free, consult sales for price.

\*2 HLVR input power supply can be DC 3.5-5V, DC9-12V,DC 20-32V option.

### Colors & Dimensions

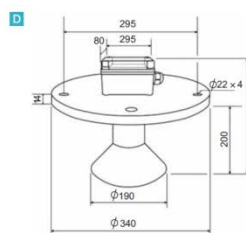
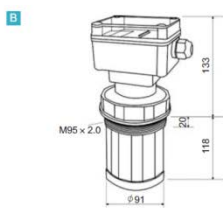
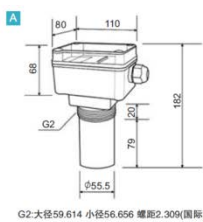
		
Plastic White housing For All compact series	Aluminum, green color For HLT,HLN,HLR series	Aluminum, blue color For HLT,HLN,HLU series
		
Aluminum, blue & gray For HLT series	Aluminum, white FOR HLT series	Aluminum, white For HLT1 Explosion proof
		
Plastic housing HLF series	Plastic housing HLM series	Plastic Housing HLVT,HLVR

### Dimensions

#### White Plastic Housing



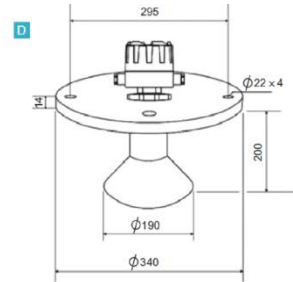
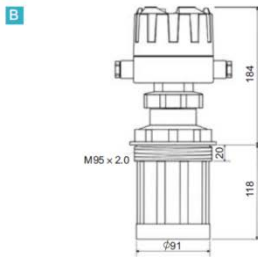
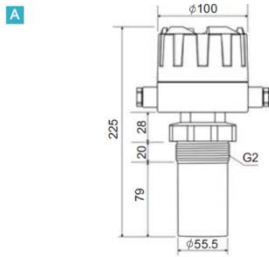
- A** Range:4m 6m 8m
- B** Range:10m 12m
- D** Range:20m 30m 40m



#### Blue Aluminum Housing



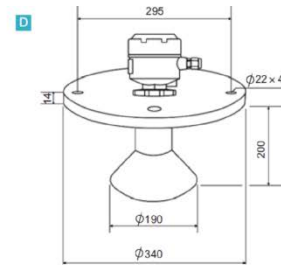
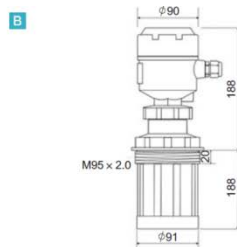
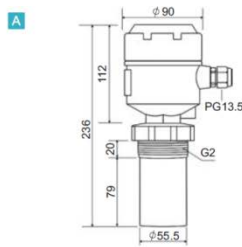
- A** Range:4m 6m 8m
- B** Range:10m 12m
- D** Range:20m 30m 40m



**Green Aluminum Housing**



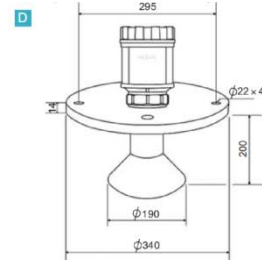
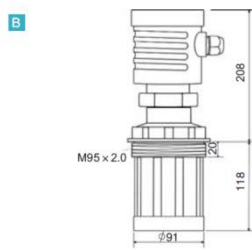
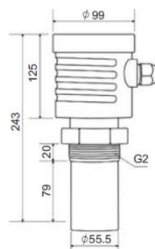
- A** Range:4m 6m 8m
- B** Range:10m 12m
- D** Range:20m 30m 40m



**Blue & Gray Aluminum Housing**



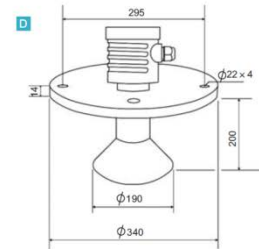
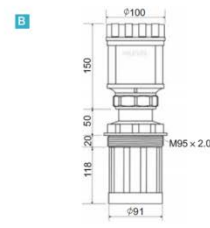
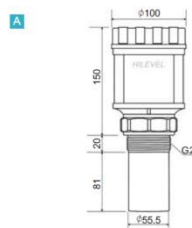
- A** Range:4m 6m 8m
- B** Range:10m 12m
- D** Range:20m 30m 40m



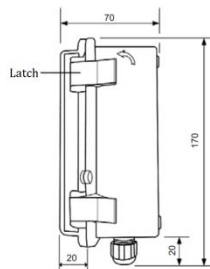
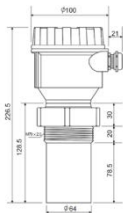
**White Aluminum Housing**



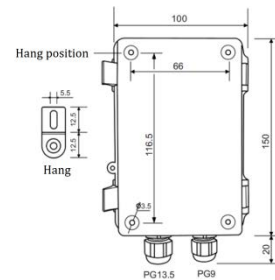
- A** Range:4m 6m 8m
- B** Range:10m 12m
- D** Range:20m 30m 40m



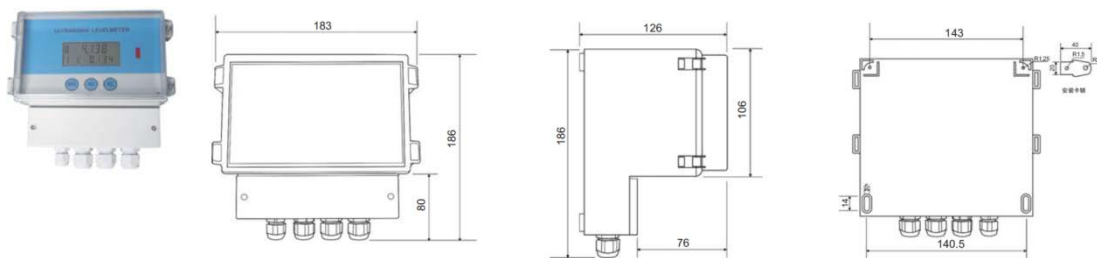
**Explosion proof Housing**



**Standard Remote Display**



**Multi-Functional Display**

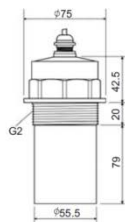


**Remote Type sensors**

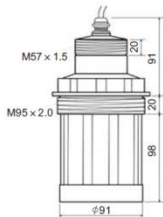


**A**

- A** Range:4m 6m 8m
- B** Range:10m 12m
- D** Range:20m 30m 40m



**B**



**D**

