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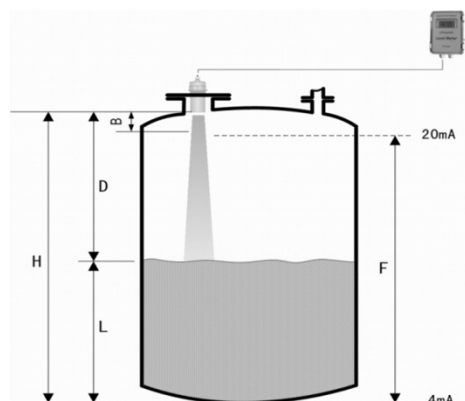
B: blacking distance
D: distance value
L: level value
H: installation height
F: full span value
L=H-D

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(All types have displays)

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℃,HLT1 -20 ~75℃

Sampling time: 1second (adjustable)

Meter Types

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

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

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

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

RUNYI GROUP

Model Selections

Item	Code	Specifications
General	HL	HL Ultrasonic Level meter
Types	T	2-wire series, compact version
	N	3-wire series, compact version
	R	RS485 series, compact version
	U	4-wire series, compact version
	T1	ExiaIICT6 ,2-wire series, intrinsically safe explosion-proof
	F	Standard series, remote version, standard 10m cable
	M	Multi-functional series, remote version, standard 10m cable
Range	04	0-4m
	06	0-6m
	08	0-8m
	12	0-12m
	20	0-20m
	30	0-30m
	40	0-40m
Housing Colors &Material	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）
Wet part Material	S	ABS&PVC ((Simple anti-corrosion)
	F	PTFE （Strict anti-corrosion）
Process connection	1	G1½ screw (only for the range less than 6m)
	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）
Output	C0	4-20mA(All)
	C2	RS485-Modbus protocol(only for HLR and remote series)
	C3	RS485-Profibus-DP protocol(only for HLM series)
	C4	Hart protocol (only for HLU，HLM series)
Switch Output	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）
Power supply	D	DC24V
	A	AC220V

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	

Dimensions

White Plastic Housing

A Range:4m 6m 8m
B Range:10m 12m
D Range:20m 30m 40m
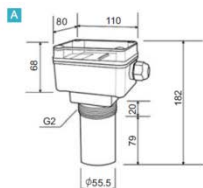
G2:大径59.614 小径56.656 螺距2.309(国际)
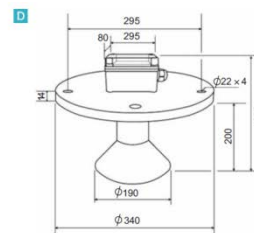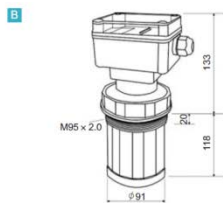
Blue Aluminum Housing

A Range:4m 6m 8m
B Range:10m 12m
D Range:20m 30m 40m
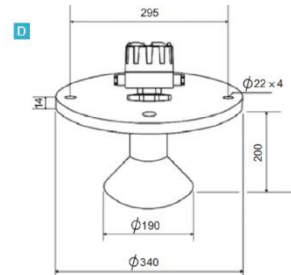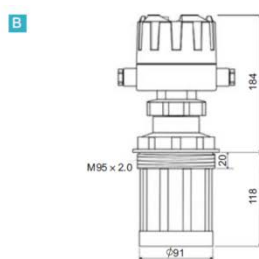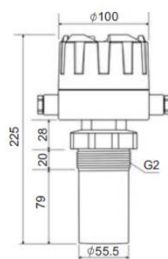
Green Aluminum Housing

A   Range:4m 6m 8m
B   Range:10m 12m
D   Range:20m 30m 40m
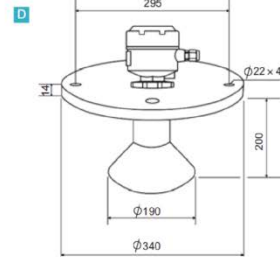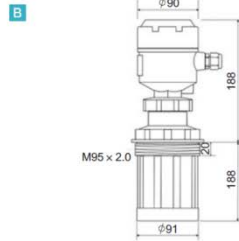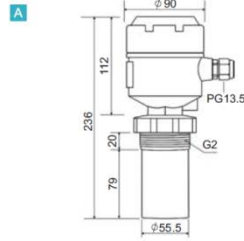
Blue &Gray Aluminum Housing

A   Range:4m 6m 8m
B   Range:10m 12m
D   Range:20m 30m 40m
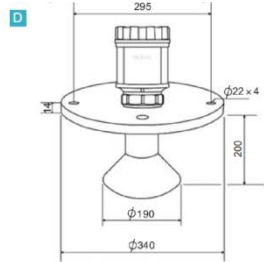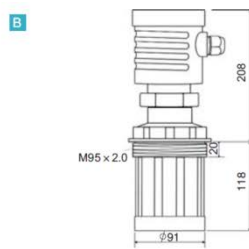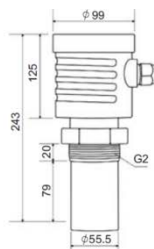
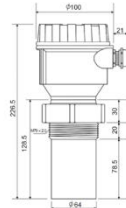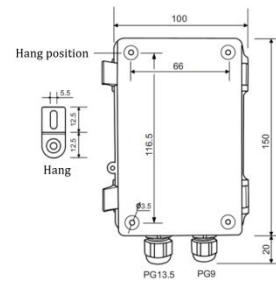## White Aluminum Housing
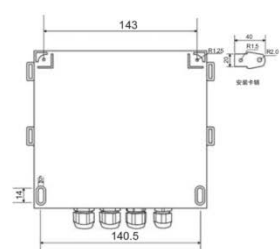
A   Range:4m 6m 8m
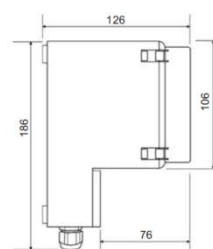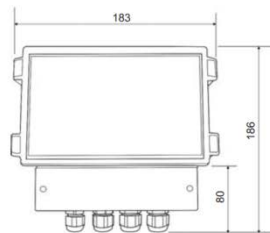B   Range:10m 12m
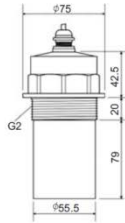D   Range:20m 30m 40m
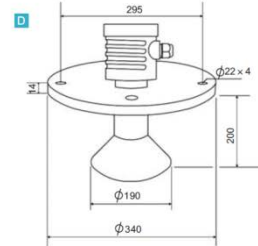
Explosion proof   Housing
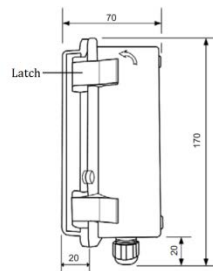
Standard Remote Display

Multi-Functional Display

Remote Type sensors

A

φ75
42.5
20
G2
79
φ55.5

B

M57 × 1.5
20
91
M95 × 2.0
20
98
φ91

D

295
φ22 × 4
4
200
φ190
φ340

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