ULTRSONIC LEVEL TRANSMITTER

REMOTE LIQUID/SOLID

WITH RELAY OUTPUTS

Features

PROLEVEL 1000R Remote type ultrasonic level meter is non-contact type level measurement in liquid and solid. It consists of sensor part and main unit part,both of which are plastic leak-proof structure. Can be widely applied to the metallurgical,chemical, electricity and oil industries.
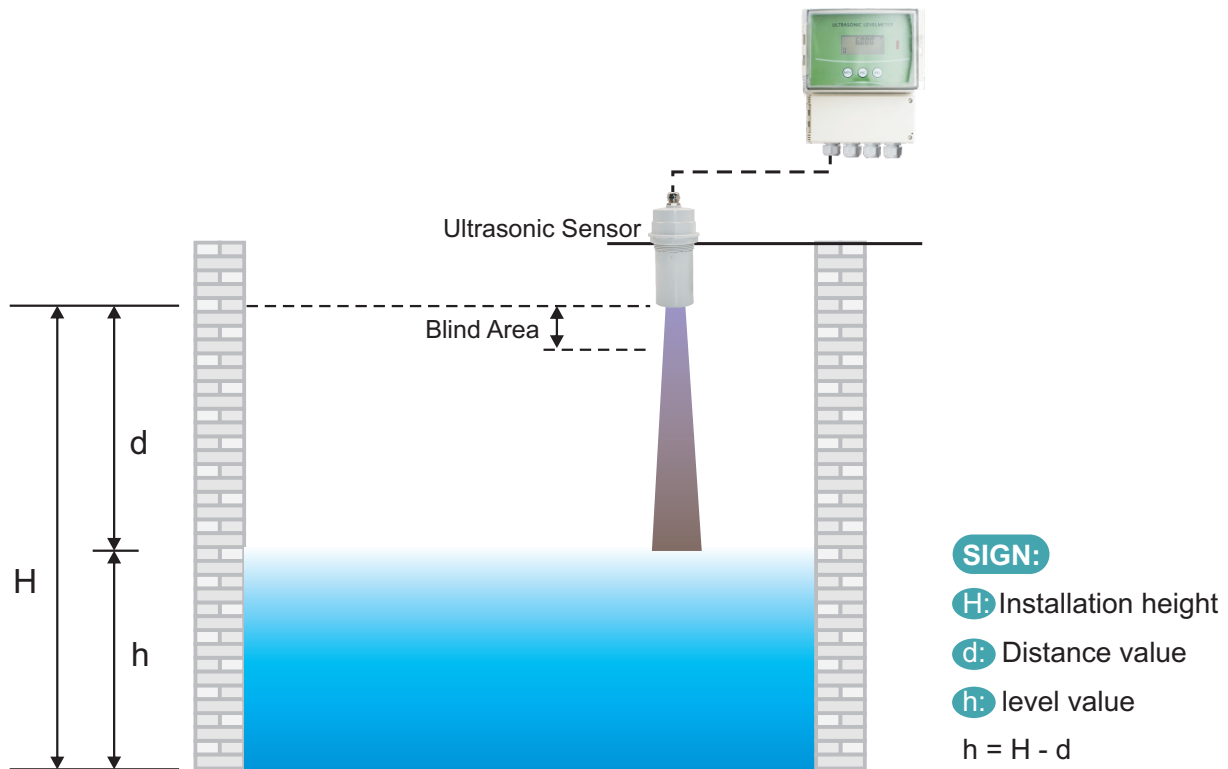
- Max cable length between main unit and ultrasonic sensor can be 1000m.
- Ultrasonic sensor fully closed structure,strong corrosion resistance ability
- Low blind area,high sensitivity and strong interference rejection ability
- Support 5 relay switch signal;State of relay can be set freely
- Support sensor with electrical heat tracing,can be used outside in winter
- AC or DC power supply are optional
- Support remote controller to set parameters,which is more convenience

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) to calculate the distance "d" between the sensor membrane and the product surface:

$d = v \cdot t/2$. As the device knows the empty distance H from a user entry, it can calculate the level as follows: $h = H - d$.

Ultrasonic Sensor

Blind Area

d

H

h

SIGN:

H: Installation height

d: Distance value

h: level value

h = H - d

The ultrasonic velocity in gas is influenced by the gas temperature,So the level meter need to detect the gas temperature at work. So the material level meter need to detect the gas temperature at work,compensation for sound velocity.

Blind Area:When ultrasonic sensor is transmitting ultrasonic wave,it can not detect the back wave at the same time. When the sensor is very near to the level, the transmitting wave and back wave will overlap together and can not be distinguished. Therefore, for a certain distance to the emitting surface,the ultrasonic level meter can not work normally. The certain distance is called Blind area. While installation,user need to make sure the sensor higher than the max level to avoid level surface into blind area. The blind area for different model you can refer to sensor parameters.
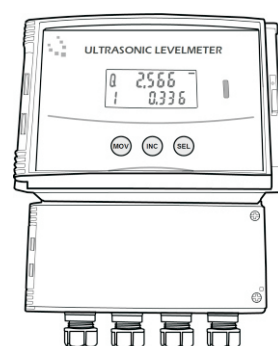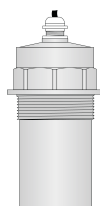
Ultrasonic level meter measure liquid or solid level. Firstly,it will measure the distance between sensor to the level surface, and then after calculation it will come out the level value. It is very important to know this for installation.
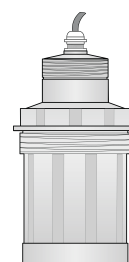
Structure
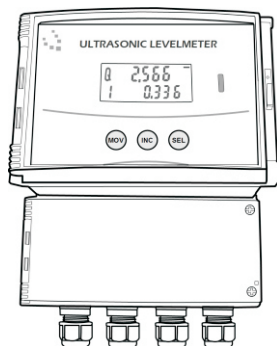
4m,6m,8m,10m Version

12m,20m,30m,40m Version

Product Introduction

● **Main Unit Parameters**

Parameters	Specification
Display Resolution Ratio	1mm (Range below 10m); 1cm (Range above 10m)
Accuracy	+/-0.2% (full range)
Display Mode	Two lines 14 digit LCD display
Output Signal	One channel DC4-20mA current output; One channel RS485 modbus output (depend on the select model)
Load Resistance	0-500 Ohm
Relay Output	Upper, lower limit alarm and control; Electric heat tracing control can set upper, lower or failure alarm (If you need relay function, please inform when order)
Relay Mode	Normally open or Normally closed (can be set)
Relay Number	Max 6 (If with RS485.max 5 relay)
Relay Specification	5A 250VAC/30VDC
Digital Communication	RS485 communication, Hart communication
Power Supply	DC24V（±5%） 0.2A AC220V（±20%） 0.1A
Measurement Circle	1 second (adjustable)
Ambient Temperature	-40~85 deg C
Housing Material	ABS
Sensor Material	ABS/PVC/PTFE
Protection	IP67
Cable Entry	PG9/PG11/PG13.5
Parameter Setting Mode	3 digit button
Installation Mode	Wall Mounted Main Unit
Dimension	186X183X126mm

● **Sensor Parameters**

Parameters \ Model	4m	6m	8m	12m	20m	30m	40m
Measuring Range calmer liquid, flat solid	4.00	6.00	8.00	12.00	20.00	30.00	40.00
lumpy, granular solid	3.00	4.00	6.00	8.00	12.00	25.00	35.00
Vigorously fluctuating, volatile strong liquid			3.00	5.00	10.00	20.00	30.00
Working Temperature	-40~+75 deg C						
Protection	IP68						
Sensor Material	ABS/PVC/PTFE						
Pressure Range	-0.04Mpa~+0.2Mpa						
Sensor beam angle	4m,6m,8m beam angle is 10º（3db); 12m,20m,30m,40m beam angle is 5º(3db)						
Sensor lengthen	20cm or according to the order (cold region could select this model)						
Installation	Thread or Flange						

● **Dead zone:(probe emitting surface)**

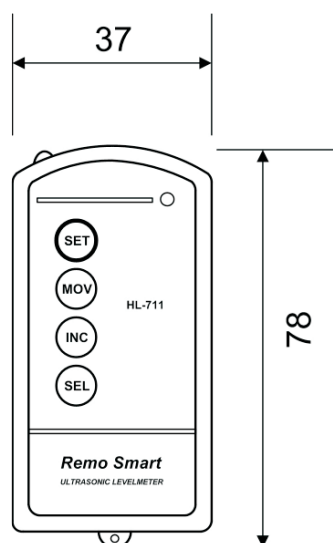| Model	4m	6m	8m	12m	20m	30m	40m
Dead zone	0.2m	0.25m	0.30m	0.5m	0.80m	1.00m	1.20m

Dimension

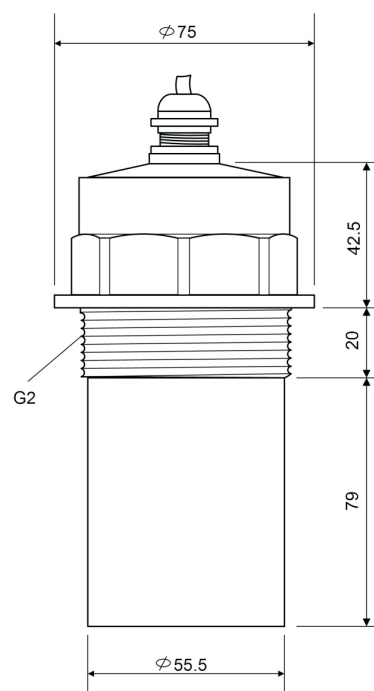● **Main Unit Dimension**
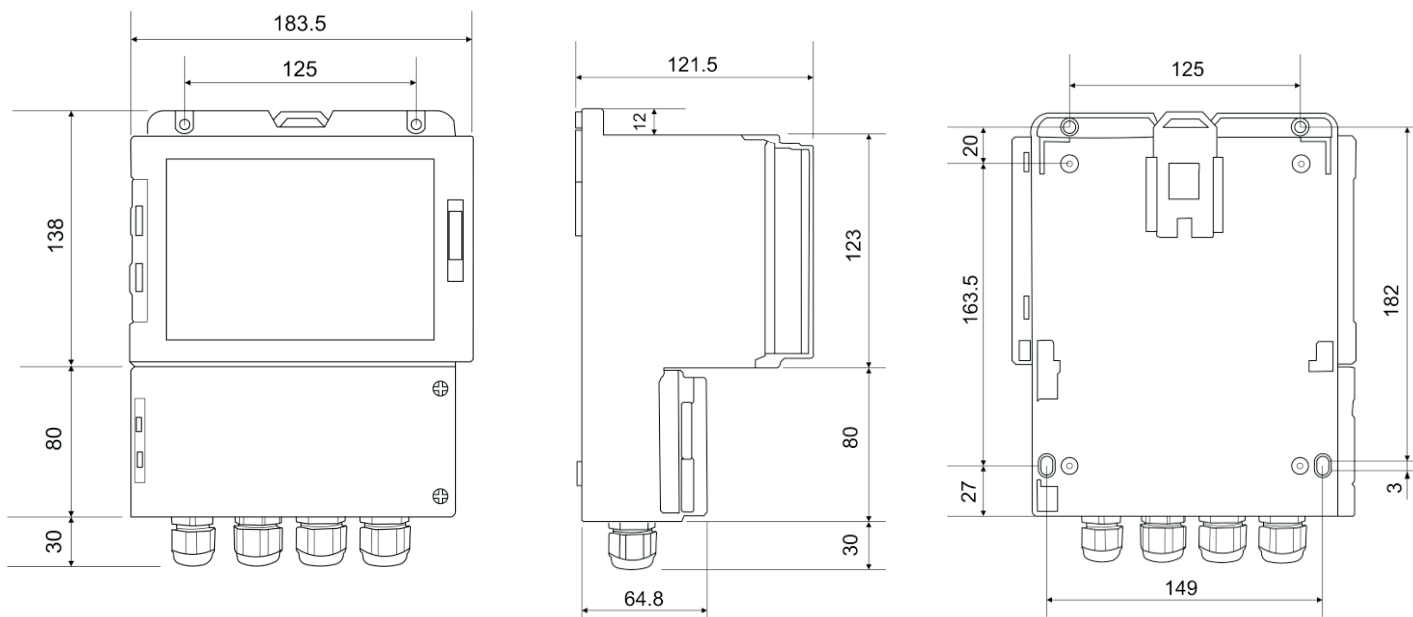
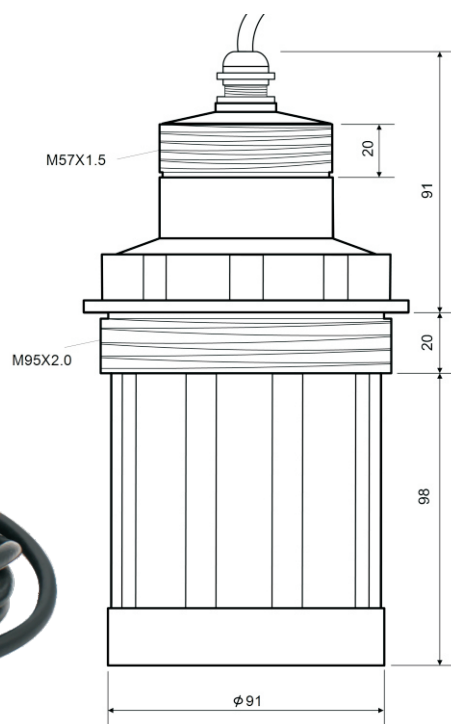● **Remote Controller Dimension**

(Please noted:If you need remote controller,please inform us when order)

● Ultrasonic Sensor Dimension
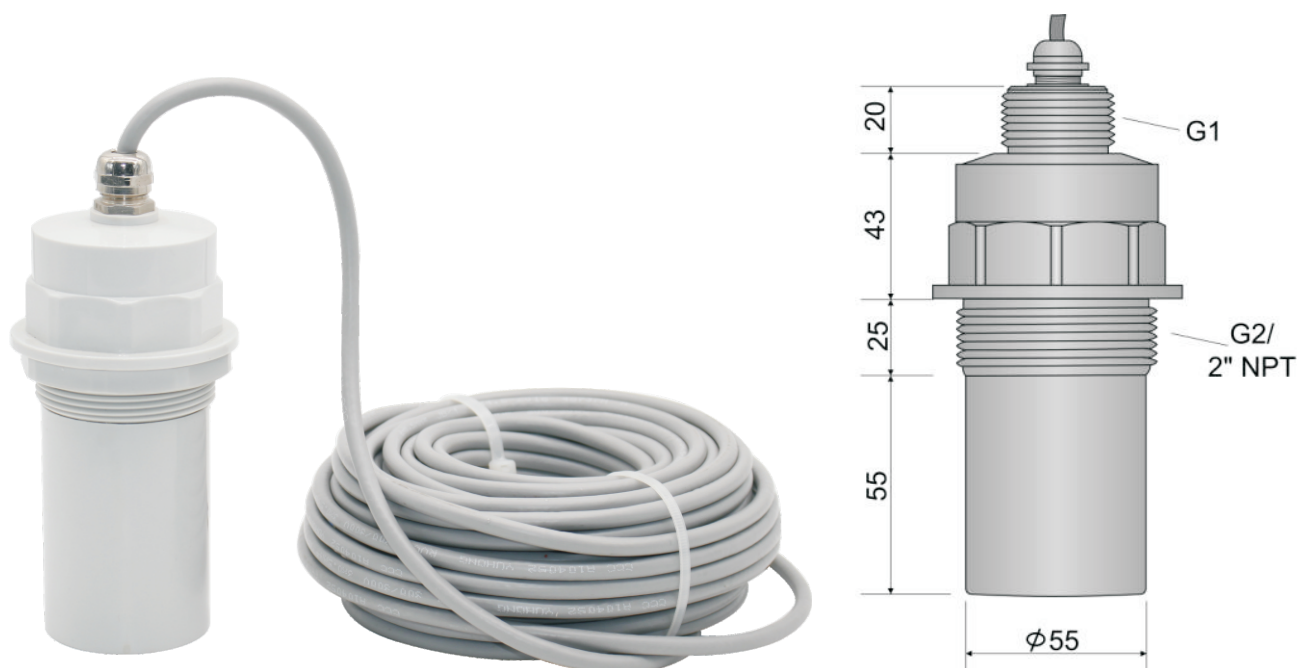
ABS/PVC Sensor

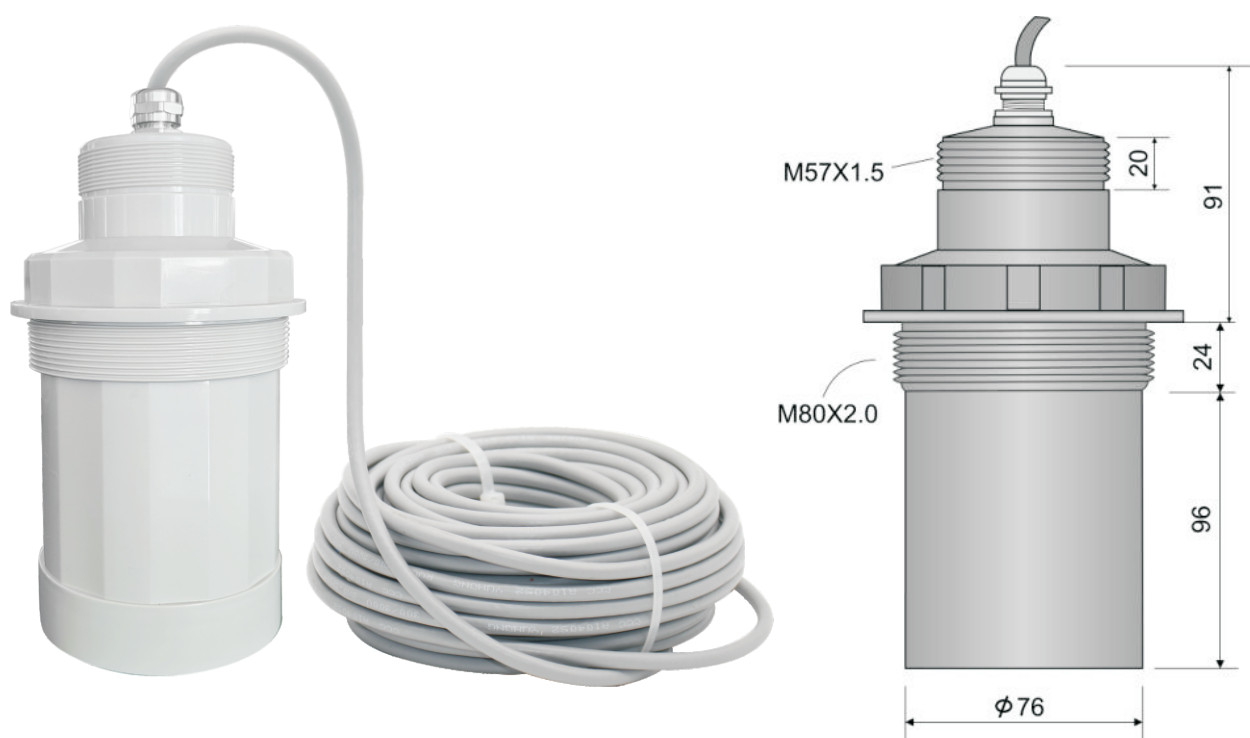Dimension of Ultrasonic Sensor for 4m, 6m, 8m Range

Dimension of Ultrasonic Sensor for 12m,20m,30m,40m Range and electrical heat tracing sensor

● PTFE/PVDF Sensor

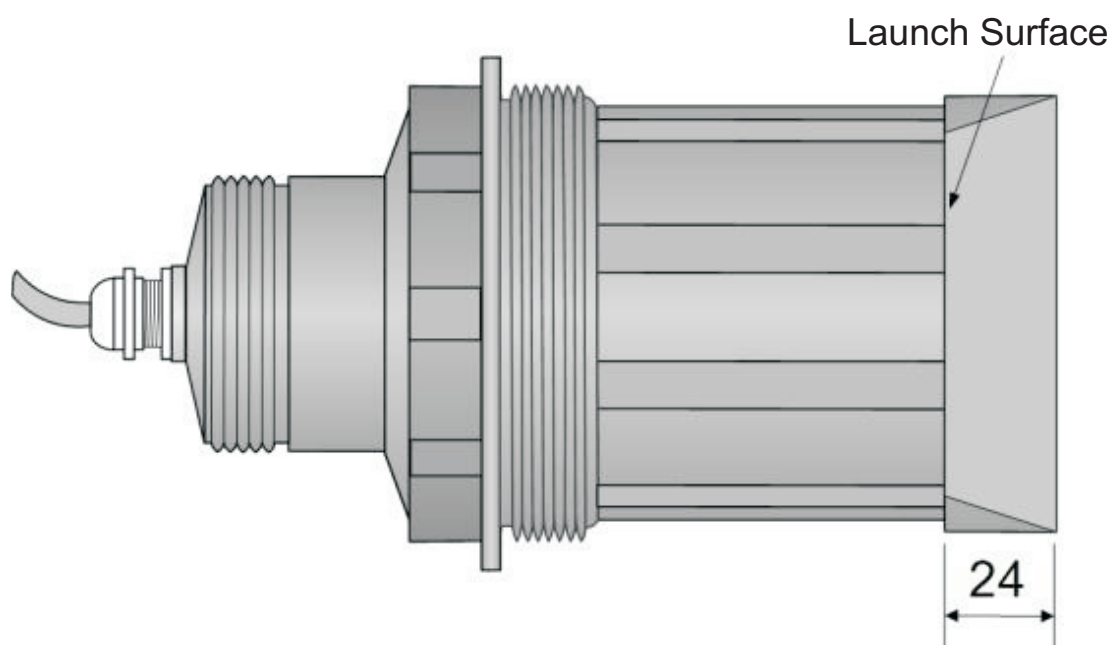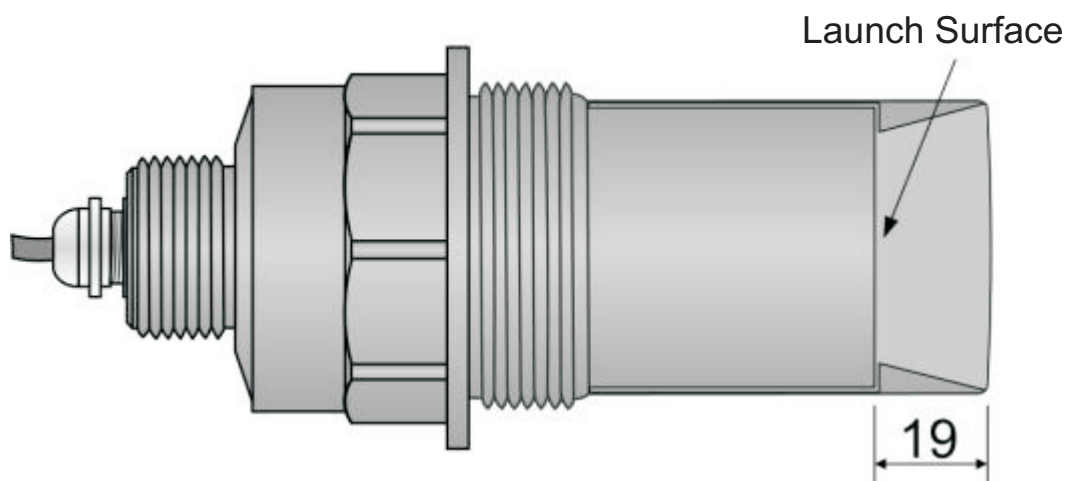Dimension of Ultrasonic Sensor for 4m, 6m, 8m, 12m Range

Dimension of Ultrasonic Sensor for 20m, 30m, 40m Range

Probe Launch Surface

The PTFE/PVDF probe is a flat, and PVC/ABS probes is a horn structure

Launch Surface

19

Launch Surface

24

Note: The detection distance and blind zone value should be calculated from the Launch surface of probe

Wiring
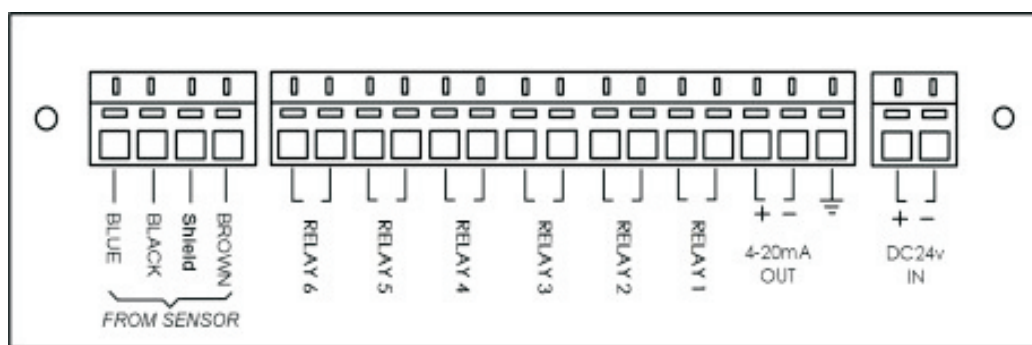
Wiring PROLEVEL 1000R has one LCD show and three keys for setting and some terminal blocks,which are located within the host housing and can be operated when the terminal cover is open.
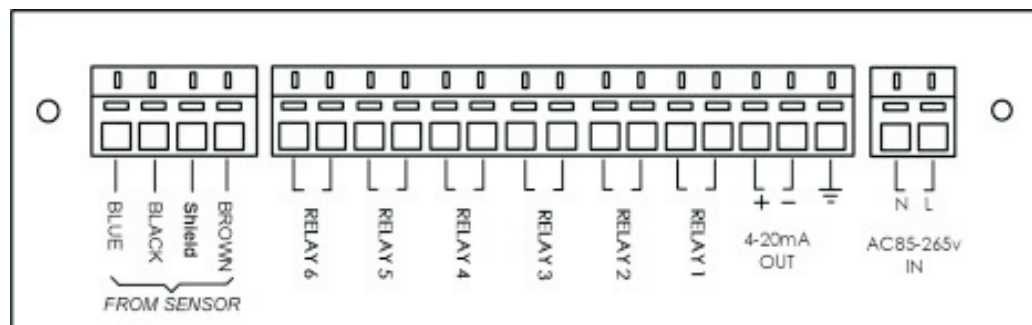
● The host

Wiring diagram remove the terminal cover to expose the terminals shown below. The wiring instructions are on bottom of the terminals as below.

DC24V power supply.

AC220V power supply

Model Selection

PROLEVEL 1000R		X	X	X	X	X	X	X	X	X
Measure Range	4m	4								
	6m	6								
	8m	8								
	12m	12								
	20m	20								
	30m	30								
	40m	40								
License	Standard Type (Non ex-proof)		P							
	Intrinsically safe (Exia IIC T6 Ga)		I							
Probe Material /Process Temperature/ Protection Grade	ABS/(-40-75)°C/IP67			A						
	PVC/(-40-75)°C/IP67			B						
	PTFE/(-40-100)°C/IP67			C						
Process Connection	Thread				G					
	Flange /PP				D					
Electronic Unit	DC 4~20mA Two wire					2				
	RS485 Modbus					3				
	HART					4				
Shell / Protection Grade	ABS / IP67						L			
Relay Output	None							N		
	Two Relay							2		
	Four Relay							4		
	Six Relay							6		
Power Supply	DC24V								D	
	AC220V								A	
Remote Cable Length	Standard is 10m									1
	Specialized cable length (max 1000m)									xx