

DATASHEET

Level

Ultrasonic Level Sensor



PWL-U700 (Integrative Type)

PWL-U707 (Segregated Type)

PWL-U709 (Explosion proof)

Features

- Ultrasonic working principle, non-contact measurement method
- Less than 9°beam angle design, less than 200ms responding time
- NLEPF engineering composite materials, durable and corrosion-resistant
- Sun protection cover design, IP65/IP66 waterproof
- Intelligent filtering algorithm design, more accurate
- Simple installation with no calibration necessary
- Over voltage and over current protection
- Optional explosion-proof

Description

PWL-U700 series ultrasonic level sensor is a non-contact, highly reliable, cost-effective, easy-to-install and maintain liquid measuring instrument. It can meet most liquid level measurement requirements without contacting the medium.

The housing is made of NLEPF engineering composite materials, which is durable, corrosion-resistant, acid-resistant and alkali-resistant, good aging performance. The intelligent filtering algorithm design is adopted to effectively eliminate false echoes in actual measurements, improve the signal-to-noise ratio, and make the measurement more accurate.

It is widely used in tap water, heating, water conservancy, metallurgy, chemical industry, machinery, energy and other industries. It can be used for production detection, flow calibration, temporary detection, flow inspection, water meter horizontal debugging and energy-saving monitoring. It is an essential tool for timely detection of water level.



Specifications

Model	PWL-U700/PWL-U707/PWL-U709		
Measuring Range	5m, 10m, 15m, 20m, 30m, 40m, 50m, 60m		
Accuracy	±0.5%FS; ±0.25%FS by customized		
Blind Zone	0.25-1.2m (According to the range)		
Resolution	3mm or 0.1% (Which one is max)		
Working Pressure	2 Bar (Explosion proof type is 5 Bar)		
Display	Display: Level measurement, distance measurement, transmission value, ambient		
(English language)	temperature, echo state, alarm display, algorithm selection		
	Integrative Type	Segregated Type	
	4-20mA/510Ω load resistance (4 wires)		
Signal Output	4-20mA/250Ω load resistance (2 wires)	4-20mA/510 Ω load resistance (4 wires)	
	0~5V, 1~5V, 0~10V (3 wires)	0~5V, 1~5V, 0~10V (3 wires)	
	Hart protocol		
		2 or 4 ways of AC250V/(NO:10A, NC: 6A)	
Relay/Alarm output	2 ways of AC250V/5A or DC30V/5A	or DC24V/10A	
	Programmable status	Programmable status	
	24VDC 120mA (typical)		
Power Supply	12VDC Optional (for power by battery, solar panel)		
	220V AC±15% 50Hz Optional		
Communication	RS485 Modbus RTU or RS232(optional)		
	Indicator: -20~+60°C		
Environmental Temp.	Sensor: -20~+80℃		
	Indicator of integrated type: IP66		
Protection Level	Indicator of segregated type: IP65		
	Sensor: IP68		
Cable Length	None cable for integrative type;		
	10 meter cable for segregated type, max 100m		
	Range ≤10m: G2A thread(similar with M60)		
Concer Installation	Range 11-20m: M78*2 thread		
Sensor Installation	Range 21-30m: G3 thread		
	Range >31m: M108*2 thread		
Explosion Proof	Ex(ia) II CT6 for integrative type only		
Store Condition	Temperature: -20~+80°C;		
	Humidity: ≤90%RH		
	Pressure: Atmospheric pressure		
	Non-corrosive gases or steam, no vibration		
Corrosive Application	Available to customize PVFD or PTFE sensor probe		



Installation



Notes:

- 1. Measurement starts from the bottom line of the sensor.
- 2. The highest level of media cannot enter into blind area.
- 3. Level measurement should avoid the feeding port/inlet.
- 4. Better use sun/rain shade when installing outdoors.
- 5. Sensor's bottom should be horizontal with surface of medias, keep the sensor to be vertical with medias.
- 6. Sensor should be kept some distance to the wall because of beam angle of ultrasonic wave.

7. When measuring the object level, should avoid the feeding port to prevent the ultrasound echo being interfered.



Dimensions







Electrical Connection

Electronic Wiring Definition				
Current	Red	Vcc+		
Current	Yellow	Signal+		
	Red	Vcc+		
Voltage	Yellow	Signal+		
	Black	GND		
	Red	Vcc+		
	Yellow	RS485A		
K3403	White	RS485B		
	Black	GND		

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How to Order

Example Part Number: PWL-U700R20A1T1S1T2000

Model No.	PWL-U700 (Integrative Type) PWL-U707 (Segregated Type) PWL-U709 (Explosion proof type)	PWL-U700
	B5-5m	
	B10=10m	
Measuring Bange	B15-15m	B20
Measuring hange		1120
	 B60–60m	
	A1 = 0.5% ES (typical)	
Accuracy	$A_{2=0.25\%}$ ES	A1
	$T_{1-1-20mA(2wires)}$	
	$T_2 = 4-20 \text{ mA}(3 \text{ wires})$	
	$\Delta 3 = 4.20 \text{ mA}(4 \text{ wires})$	
	$T_{4}=0.5V$	
Signal Output	T5=1-5V	Т1
	T6=BS485 Modbus BTU	
	T7=HABT	
	S1=Belay (Upper & Lower alarm)	
	$T_0 = Others by customization$	
	S1=24VDC	
Power Supply	S2=12VDC	S1
	S3=220VAC	
Working Temperature	T1=0~50℃	
	T2=-10~60℃	T2
	T3=-20~70 ℃	
Cable Length	000=None cable 001= 1m cable 002= 2m cable	000