

User Manual

Ultrasonic Level Meter



I、General information

ultrasonic level measuring instrument, taking the advantages of various many level measuring instruments, is a universal one characterized by total digitalized and humanized design. It has perfect level monitoring, data transmission and man-machine communication. The master chip is imported technical m single chip with relevant application specific ICs such as digital temperature compensation. It is featured by strong anti-interference performance; free setting of upper and lower limits and online output regulation, on-site indication. The cover, made of waterproof engineering plastics, is small and firm with ABS probe. Therefore, it is applicable for various fields concerning level measuring and monitoring.

According to the practical situation, it also can output with HART, this make up the fault that two wire level instrument can not communication.

II、Characteristics

- ★DC18~28V work voltage
- ★Backup and recovery parameter set
- ★Measure for level, volume, weight
- ★Free adjustment of the range of analog output
- ★Digit filtering and echo Identification
- ★Man-made Shield interference onsite
- ★HART communication is optional

III、Specifications

Range: 5、8、10、12、15m Blind zone: <0.4-0.5m
Accuracy: $\pm 0.3\% \times$ maximum range

Indication resolution: 1mm

Indication: OLCD

Keyboard: 3-digit SMT tactile keys

Power: 18~28V DC

Power consumption: <0.6W

Output (optional):

4~20mA RL<600Ω

4~20mA + HART

Protection degree: IP65 (optional)

Operating temperature: normal

Operating pressure: normal

Installation: M60X2 or Φ61mm

Overall dimension: Φ92mm×198mm×M60

Material : ABS

*** Product certificate parameter shall prevail***

IV、Menu operation and parameters setting

4.1 Setting Step				
The instrument is OLED display, with key operation prompts. Press A appears prompt interface. according to the prompt, operation can be work.				
(A) For Menu and Back, (B) For Shift and Add number, (C) For Confirm.				
4.2 Menu and Function				
One level	Two level	Three level	Four level	Instruction
User				Default "0000"
Admin				Default "1000"
Mounting	Work Mode	Range Mode		"0"
		Water Level Mode	Input Mounting Height	
			Input Level Value	
	Environment			Open /Closed
Output	Analog	F0		

		FS		
		L. Regul.		Low end output trim
		H. Regul.		High end output trim
		Virtual		Default "0"
		Analog Config		Default "V0E0"
	Serial	Address		For HART
		Serial Read And Write		
Display	Display Unit			
	Reserved			
	Decimal Number			
	Display conversion			
	Contrast			
	Display Delay			
Probe	Medium	Medium Selection		NO MODIFY
		Custom Speed		
	Characteristic	Cycle		
		Blind		
		Intensity		
		Gain		NO MODIFY
		Threshold		
	Filtering	Fast/General/Stable/No/Rapidly		
	Amendment	Temperature Correction		
		Display		

		Correction		
		Linear		
		Correction		
		Effective Rod		
System	Set User	User		
		Admin		
	Language			
	Restore			

V、Installation and precaution

5.1 Sensor should be placed where there is no obstacle between t emission surfaces and measured liquid, it also should be far way from feeding throats.

Chart I .

5.2 Tank shape should be considered. Some type of container will bring second echo, especially conical and spherical tank. A good installation place will solve the problem. **chart II.**

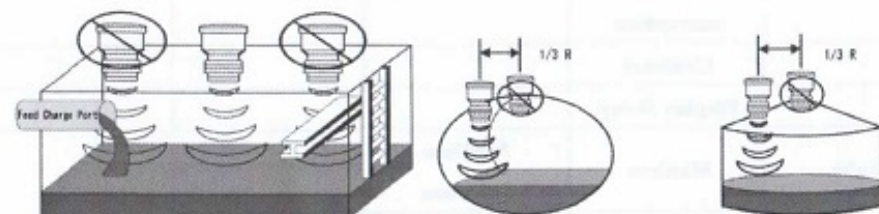


Chart I

Chart II

5.3 Lever meter can be installed by flange or $\varnothing 63$ hole, whatever installation way, make sure the sensor bottom through the installation hole or flange, **chart III.**

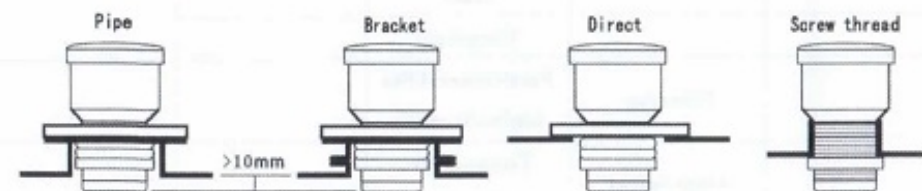


Chart III

5.4 If the liquid to be measured has sewage, afloat impurities or fluctuation, use a waveguide and the diameter of the waveguide should over 120mm, **chart IV**

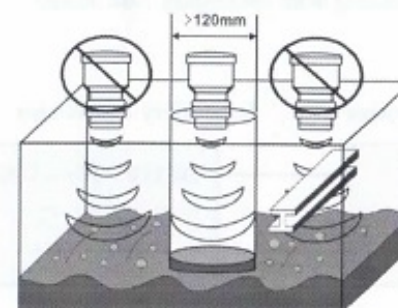


Chart IV

5.5 This instrument has two mode, the difference as following, **chart V :**

5.5.1 **Under liquid level mode,** B (Installation Height) is the distance from bottom of container to sensor surface, A is the distance between sensor surface and liquid surface, D is the height of liquid, $D=B$ (Installation Height) -A, display value is bottom of container to liquid surface (D) .

5.5.2 **Under level mode,** set bAd=0, display value is distance from sensor surface to liquid surface (A) .

5.6 Refer to the tags attached on the instrument for wiring. In order to keep it working reliable and display precise , please electrify > 15 minutes before work. When operated outdoors, it should be placed under a sun screen to avoid direct under sunshine and rain. Lightning proof measures should also be taken outdoor.

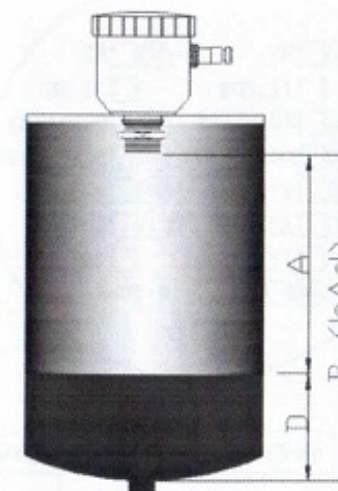
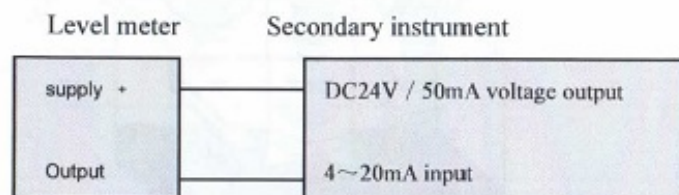


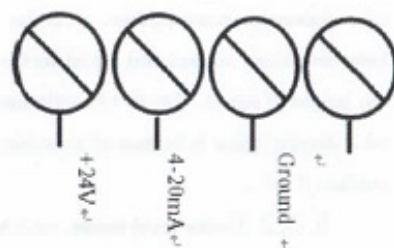
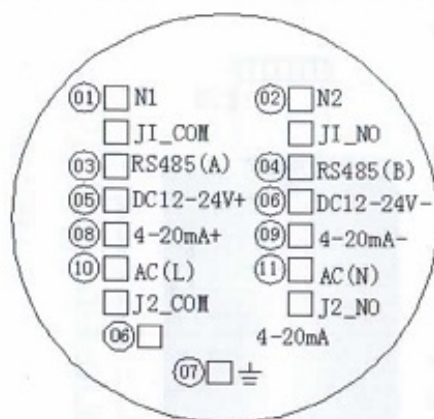
Chart V

VI、Wiring diagrams

1. Output connecting with secondary instrument

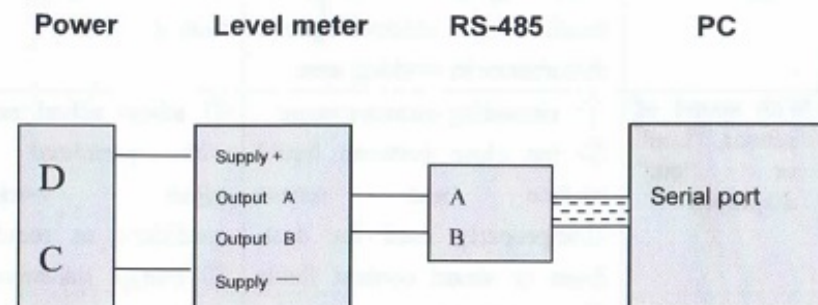


2. Please connect as the wiring terminal label



Definition of lead	pin / color	applied
Supply	⑤DC24V	■Yes / □No
Current output	⑥4-20mA	■Yes / □No
GND	⑦	■是 / □否

3. HART output connect with main communication chart.



VII、Trouble shooting

No.	problem	probable reason	remedy
1	Not working when power on, no display, no sound of sensor	① power is not connected or "+" "-" polarities are connected reversely; ② too low voltage resulting no working or too high resulting damage	① check to ensure correct wiring as instructed. ② use 12-24V DC supply, contact with distributor
2	No display of sensor but with sound	① display turned off ② connected to high voltage, damaging display chip	① press "B" to turn on display; ② contact with distributor.
3	With sound and display, but the values not change with distance	① Low input voltage. ② the sensor or power driver damaged.	① use 24V DC supply ② contact with distributor
4	With display and sound, no change with distance or	① too defective installation ② improper setting of pulse intensity, leading to great residual vibration or	① adjust sensor vertical to measured surface ② in general with range of 1-3m, transmit intensity

	irregular fluctuation of values	diffraction ③more than 2 instruments on stream, interfering each other ④too much electromagnetic disturbance in working area.	is 2-5. ③eliminate interference, find out disturbance and shield from it.
5	With sound of sensor, "Lon" or "out" displayed	① exceeding measure range ② too close between liquid surface and sensor ③improperly used for dust, foam or steam content fields ④ improper working temperature or pulse intensity	① adjust actual range with permitted ② adjust working conditions as required ③ change transmitting intensity until stable display
6	With sound of sensor, display exceeding true distance 10cm	①non vertical installation, leading to multiple reflection ②installed too close to wall, sonic wave reflected midway③ check "Installation Height" ④ check temperature display	①adjust installation positions several times.② correctly set "Installation Height" ③adjust "Temperature Correction" to proper value.
7	Abnormal 4-20mAoutput; high or low, fluctuating	①too large load resistance ②"Output End", "Low Output Regulation" or "High Output Regulation" be revised. ③power can not rectification and filtering ④ electrify is not enough	①lower load resistance ②readjust parameter③ replace with DC regulated supply with larger capacity ④electrify > 15 minutes before work

Manufacturer Certificate

Type: USCX5m420mA

Name: Ultrasonic level meter

Main specification

Sense range : FS= 5 m

Unusable area: ☐ 300mm; ☒ 400mm; ☐ ≤60mm; ☐ other _____

accuracy: ☒ ±0.3% × max range; ☐ ±2mm; ☐ other _____

display resolution: 1mm

output: ☒ 4-20mA, ☐ other _____

working temperature: ☒ normal; ☐ -10-60℃; ☐ other _____

working pressure: ☒ normal; ☐ other _____

working humidity: ≤80%RH

storage temperature: -40—85℃

storage humidity: ≤70%RH

working voltage: 18~28V DC

normal power consumption: <0.6W