

KUS650 Wireless Ultrasonic Level Sensor

1. Introduction

KUS650 series intelligent wireless digital wireless liquid level/level sensor is an intelligent digital display product with high precision and high stability introduced by our company. Suitable for real-time measurement and display of liquid level/material level. This product adopts special wide temperature liquid crystal display, high stability sensor, and is carefully manufactured through precise digital temperature compensation and nonlinear correction technology to ensure the high precision and high stability of liquid level/level measurement. The built-in wireless module uses the network to provide users with wireless long-distance and low-power data transmission, and sends all the status data of the sensor to the cloud background management server in real time to realize alarm linkage and data statistical analysis with the smart cloud platform.

2. Feature

- Power: Two DC3.6V primary lithium sub-battery
- Wireless transmit power: <23 dBm
- Receive sensitivity: <-135 dBm
- Theoretical bandwidth: 200Kbs
- Support wireless transmission of alarm status to server, configurable server address and port
- Using precise digital temperature compensation and nonlinear correction technology, wide temperature range and full scale precision compensation;
- Multiple data type indication (percentage, output current display);
- Special wide temperature LCD display (-30℃~80℃);
- Provide a variety of power supply methods at the same time;
- Vertical installation or axial installation, providing a variety of liquid level/level interfaces and interface materials;
- LCD with parameterization and three setting buttons.
- According to user needs and site conditions, the collection frequency and time interval can be set.
- Battery power monitoring, when the power is insufficient, the meter screen will flash and report to the centralized management platform at the same time.
- Water pressure/water level alarm threshold can be set and modified according to actual needs.
- Water pressure/water level alarm threshold automatically alarms.

3. Application

- • Fire water system
- • Urban water supply
- • Sewage treatment
- • Long distance heating
- • Food industry
- • Chemical, Energy

4. Parameter

Range	20-4000mm (customizable)
Accuracy	$\pm 0.15\%FS/0.15^{\circ}C$
Temperature Compensation	$-10^{\circ}C \sim 70^{\circ}C$
Vibration Effects	$< \pm 0.05\%/g$, all directions 500Hz (IEC 68 -2-64)
Environmental Conditions	
Ambient Temperature	$-25 \sim +85^{\circ}C$
Storage Temperature	$-40 \sim +85^{\circ}C$
IP Grade	IP65
Electromagnetic Compatibility	EN 61326/A2 Appendix A (2001)
Display and Controller	
Display	SFTN LCD, white backlight, 5-digit display
limit value	Free setting
Parameter Setting	Using 3 buttons
Unit	mm, default is m.
Weight	Around 1.35kg
Materials of non-wetted parts	
Connector	1NPT, stainless steel, length 20mm (customizable)。
Electrical Connections	Watertight connector, air vent cable entry according to EN 175301-803A
Measurement Period	$\leq 100ms$

Tips: For special requirements, please contact our company and indicate it in the order.

Precautions:

1. If you need to calibrate the instrument, please contact our company. Non-professionals are not allowed to calibrate the instrument.
2. When calibrating the watch, please turn on the watch first, and then calibrate after 1 hour of constant temperature.

5. Setting



1. Sending time setting

Opcode: 2121 units (minutes)

In the measurement state, press the "M" key, it will display "-COd-"; press the "M" key to confirm, it will display "00000", the units digit flashes, press the "up and down" key to adjust to "2121"; press the "M" key to confirm, Display "S_TIM", press "M" key, display "00000" (the last set value,), set the value (range 1) by "up" key (data left shift key) and "down" key (data increase key) ~09999), after the adjustment is completed, press the "M" key to confirm and save.

2. Collection time interval setting

Opcode: 2122 units (seconds)

In the measurement state, press the "M" key, it will display "-COd-"; press the "M" key to confirm, it will display "00000", the units digit flashes, press the "up and down" key to adjust to "2122"; press the "M" key to confirm, Display "S_FrE", press "M" key, display "00000" (the last set value,), set the value (range 1~09999) by "up" key and "down" key, press "M" after adjustment is completed key to confirm saving.

3. Data upload mode setting

Opcode: 2124

In the measurement state, press the "M" key, it will display "-COd-"; press the "M" key to confirm, it will display "00000", the units digit flashes, press the "up and down" key to adjust to "2124"; press the "M" key to confirm, Display "S.MOdE", press "M" key, display "last set value", use "up" key and "down" key to set, after adjustment is completed, press "M" key to confirm and save.

4. Alarm interval time setting

Opcode: 2125 units (minutes)

In the measurement state, press the "M" key, it will display "-COd-"; press the "M" key to confirm, it will display "00000", the units digit flashes, press the "up and down" key to adjust to "2125"; press the "M" key to confirm, Display "S_ErT", press "M" key, display "00000" (the last set value,), set the value (range 1~09999) by "up" key and "down" key, press "M" after adjustment is completed key to confirm saving.

5. Liquid level/level alarm upper limit setting

Opcode: 2311

In the measurement state, press the "M" key, it will display "-COd-"; press the "M" key to confirm, it will display "00000", the units digit flashes, press the "up and down" key to adjust to "2311"; press the "M" key to confirm, Display "Ad1H", press "M" key to set the upper limit alarm value, set the value by "up" key and "down" key, "Ad1F" alarm upper limit hysteresis value, "Ad1d" alarm upper limit delay, all adjustment Press the "M" key to confirm saving when finished.

6. Liquid level/level alarm lower limit setting

Opcode: 2312

In the measurement state, press the "M" key, it will display "-COd-"; press the "M" key to confirm, it will display "00000", the units digit flashes, press the "up and down" key to adjust to "2312"; press the "M" key to confirm, Displays "Ad2H", press the "M" key to set the upper limit alarm value, use the "Up" and "Down" keys to set the value, "Ad2F" alarm upper limit hysteresis value, "Ad2d" alarm upper limit delay, all adjustments Press the "M" key to confirm saving when finished.

7. Instrument zero calibration

Opcode: 1000

In the measurement state, press the "M" key, it will display "-COd-"; press the "M" key to confirm, it will display "00000", the units digit flashes, press the "up and down" key to adjust to "1000"; press the "M" key to confirm, Display "bd_0" Press the "up and down" keys to select "NO (exit without calibration) or YES (calibration zero)". Press the "M" key to confirm saving and exit.

8. Instrument zero point removal

Opcode: 1511

In the measurement state, press the "M" key, it will display "-COd-"; press the "M" key to confirm, it will display "00000", the units digit flashes, press the "up and down" key to adjust to "1511"; press the "M" key to confirm, Display "CUTO", press the "M" key, it will display "00000" (the last set value), use the "up" and "down" keys to set the value (range 1~29999), press "M" after the adjustment is completed key to confirm saving.

9. Meter offset setting

Opcode: 1510

In the measurement state, press the "M" key, it will display "-COd-"; press the "M" key to confirm, it will display "00000", the units digit flashes, press the "up and down" key to adjust to "1510"; press the "M" key to confirm, Display "OFSET", press "M" key, display "00000" (the last set value,), set the value (range -19999~29999) by "up" key and "down" key, press "M" after adjustment is completed " button to confirm saving.

6. Communication Method

1. MODBUS 通信

There are two types of MODBUS protocols:

- MODBUS-RTU (commonly used in China)
- MODBUS-ASCII

The communication protocol of KUS650 uses MODBUS-RTU communication protocol.

Suppose instrument parameters are: address is 1; baud rate is 9600; no check digit; 0 decimal point; unit KPa; The measured value is 161KPa, and the display value of the meter is 161KPa.

2. Wireless communication (NB-IoT/4G/Lora)

According to the different needs of users, wireless communication has different transmission methods and protocol contents. Please inquire for details.

7. Installation and Maintenance

1. Installation

- 1) The instrument should be installed vertically and horizontally.
- 2) When using with other instruments, pay attention to the matching of the range.
- 3) Before installing the digital meter on the device, check whether the meter head is clean. During use, the pipeline should be kept clean.

2. Maintenance

- 1) The instrument is a high-precision instrument, and should be selected in a place with air circulation, easy observation, and easy maintenance and operation.
- 2) Although the digital sensor can exceed the range during use, long-term use will affect the accuracy of the measurement and may damage the meter. It is recommended that the user use the meter according to the range.
- 3) When the LCD screen of the wireless digital meter shows that the battery voltage is blank, please replace the battery to ensure the normal measurement.

Note: The rechargeable battery can only be charged, and the charging time is 3~4 hours.

8. Storage and Transportation

1. The product should be stored in $-40^{\circ}\text{C}\sim+80^{\circ}\text{C}$, relative humidity not more than 90%, ventilated, dry and non-corrosive gas warehouse.
2. The product, the certificate of conformity and the instruction manual are packed in one package, and strong collision is strictly prohibited during transportation.

Note: The contents of the manual are subject to change without prior notice, please pay attention to keep in touch.