

Handheld liquid level detector XKC-E700 operating instruction



Without putting it inside the container,
The height or position of the liquid can be detected outside the container.

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1st. Overview

The hand-held liquid level detector adopts advanced signal processing technology and high-tech integrated chip to realize the detection of liquid outside the container. The detector does not need to be placed in a closed container to know the height of the liquid inside the container Or location. Simple operation, classic applications, such as detecting the height or position of various toxic substances, strong acids, strong alkalis and various liquids in high-pressure airtight containers. This is a small and convenient detector that changes the tradition

Open or contact mode, this detector has no special requirements for the material of liquid media and non-metallic containers, and can be widely used.

2nd.Product Features

1. The hand-held liquid level detector is suitable for the outer wall of non-metallic containers without direct contact with the liquid. It will not be corroded by strong acids and alkalis and other corrosive liquids, and will not be affected by scale or other debris.
2. Intelligent liquid level reference adjustment and liquid level memory function.
3. The detection is accurate and stable, and the boiling water level can be detected.
4. Pure electronic circuit structure, non-mechanical working mode, stable performance and durability.
5. High stability, high sensitivity, strong anti-interference ability, free from external electromagnetic interference.

6. Strong compatibility, penetrating various non-metallic containers, such as plastic, glass, ceramic and other containers, the sensing distance (container wall thickness) can reach 40mm; liquid, powder, and particulate matter can be detected.
7. Powered by 2 AAA batteries, the battery is cheap and easy to buy, with a NPN output at the end, suitable for docking with various devices to improve product flexibility.

3rd.Product Applications

The intelligent non-contact liquid level detector uses the inductive capacitance of water to detect the presence of liquid. When no liquid approaches the detector, the detector has a certain static capacitance to the ground due to the distributed capacitance on the detector. When the liquid level slowly rises and approaches the detector, the parasitic capacitance of the liquid will be coupled to this static capacitance, making the capacitance value of the detector larger, and the changed capacitance signal is input to the control IC for signal conversion. The capacitance is converted into a change of a certain electrical signal, and then a certain algorithm is used to detect and judge the degree of this change. When the change exceeds a certain threshold, it is considered that the liquid level has reached the sensing point.

4th.Scope of application

1. Wine vessel inventory detection
2. Grain warehouse inventory detection
3. Inventory testing of the pharmaceutical industry
4. Filling inspection
5. Convenient water pipe shortage detection
6. Applicable to various non-metallic containers to detect liquid level inventory

5th.Product parameter

Project name	Parameters
Product model	XKC-E700
Supply voltage (Vin)	DC3V
Output mode	NPN
Sink current (external wiring port)	300mA
Current consumption	85mA
Response time	500mS
Working environment temperature	-10~60℃
Humidity	5%~50%

Induction thickness (sensitivity) range	≤40mm (container wall thickness)
Liquid level error	±3mm
Terminal definition	1PIN (empty pin) 2PIN (OUT) 3PIN(GND) 4PIN(empty pin)
Display mode	digital tube
Material	ABS-V0 level(fireproof material)
Safety standard certification	CE
Environmental certification	ROHS-2.0

6th.Application conditions

Medium viscosity

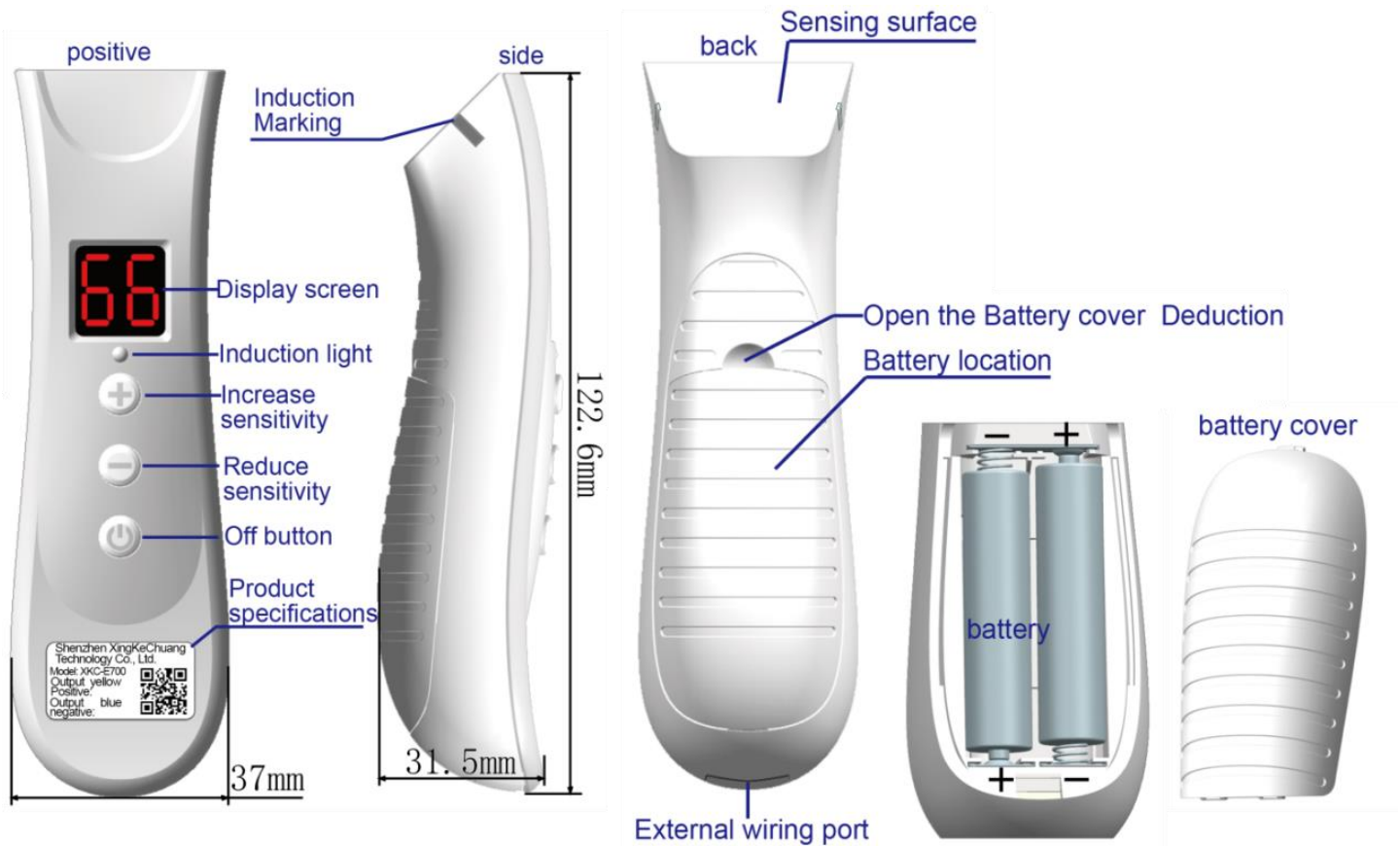
When the dynamic viscosity is less than 10mPaS, it is measured normally. 10mPaS<dynamic viscosity<30mPaS may affect the detection. When the dynamic viscosity is greater than 30mPaS, it cannot be measured because a large amount of liquid adheres to the container wall.

Note: As the temperature rises, the viscosity decreases, and most high-viscosity liquids are more affected by temperature. Therefore, pay attention to the influence of liquid temperature when measuring viscous liquids.

Detection container: insulating material container

Containers made of non-metallic materials with flat surface, uniform thickness, compact materials, and good insulation performance; such as glass, plastic, non-absorbent ceramics, acrylic, rubber and other materials or their composites.

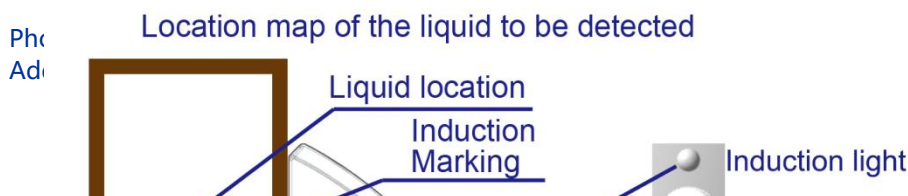
7th.Product structure and function diagram



8th.Function and usage

1. On/off button: If it is not turned on, press and hold the "On/Off button" to display the sensitivity value; if it is turned on, press and hold the "On/Off button" to shut down.
2. "+" "-" key: Press the sensitivity "+" or "-" to adjust the sensitivity to a suitable value. When there is no liquid at the position to be detected, the buzzer will sound. Press the "+" and "-" keys to adjust the sensitivity appropriately to achieve more precision.
3. Indicator light: the blue light is on when the liquid is detected, and the buzzer sounds. The blue light goes out after leaving the test target. When the battery is low, the red light flashes once every 2 seconds.
4. Output protection: When the OUT terminal of the output port is directly connected to a voltage of 5-24V, it will automatically be forced to shut down.
5. Digital tube display: sensitivity adjustment range 1-100. When the battery voltage is lower than half, the digital tube will automatically reduce the brightness to save power consumption.
6. Automatic shutdown: automatic shutdown after 5 minutes when unmanned operation "+" "-" or no induction, to avoid forgetting to shutdown after use and running out of power.
7. Liquid detection: move down from the top of the container for detection. When liquid is detected, the blue indicator light will be on and the buzzer will alarm.

9th.Detection steps



Step 1: Long press the power button to start the hand-held liquid level detector. Adjust the sensor sensitivity value. (Refer to the following "Wall thickness and sensitivity")

Step 2: Put the sensing surface of the hand-held liquid level detector close to the container wall and from the top Sliding to Down.

Step 3: When the liquid level detector is held and the sensing scale is aligned with the liquid level to be detected, the liquid is detected. At this time, the buzzer sounds and the blue sensor light is on, and the high position of the liquid plane is detected.

Wall thickness and sensitivity(Test material is acrylic)

Wall thickness	sensitivity reference value:
Wall thickness: 1mm	Sensitivity value: 20
Wall thickness: 2mm	Sensitivity value: 29
Wall thickness: 3mm	Sensitivity value: 32
Wall thickness: 5mm	Sensitivity value: 39
Wall thickness: 10mm	Sensitivity value: 53
Wall thickness: 20mm	Sensitivity value: 64
Wall thickness: 40mm	Sensitivity value: 68-72

Note: The above sensitivity values are for reference only, and can actually be fine-tuned according to the container material and liquid concentration.

10th. Use environment

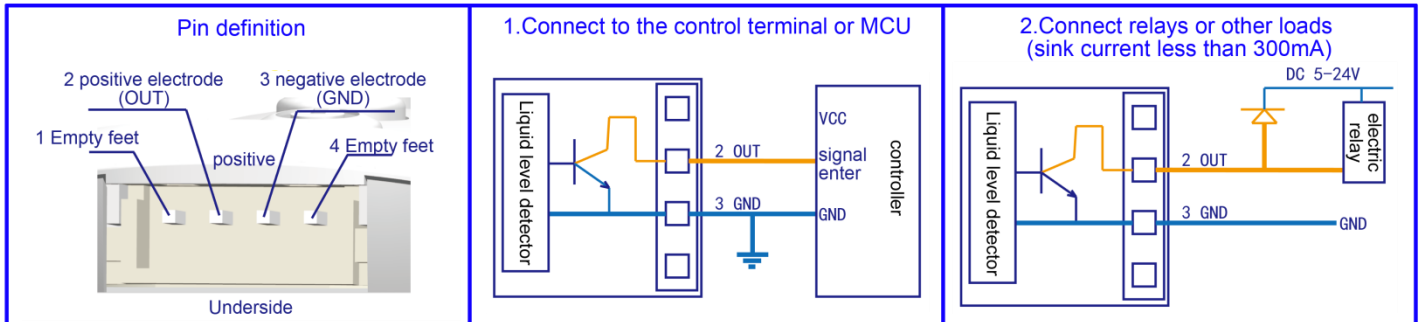
1. If the container wall where the measuring probe is installed is of multilayer material, the layers should be in close contact with each other, and there should be no bubbles or gas interlayers.

The inner and outer surfaces of the container wall should be smooth.

2. Container wall thickness: 0-40mm.

3. Tank type: spherical tank, horizontal tank, vertical tank, etc.

11th.External wiring port definition



12th.Product precautions

1. Pay attention to keeping the level gauge clean, try to prevent corrosion and avoid violent collisions and blows from other objects.
2. When the red indicator light flashes, please replace the battery in time.
3. Please use AAA batteries produced by regular manufacturers.
4. When not in use for a long time, please take out the battery in time to prevent battery leakage from damaging the sensor.
5. When you press and hold the power button and do not turn on, please confirm whether the battery voltage is normal and whether the battery is installed correctly.
6. Please do not disassemble the product privately. If you have any comments or suggestions, please contact customer service.
8. Please use the unit (or individual) to make reasonable use of the product based on its actual situation! The company is only responsible for the safety performance of this product, and is not responsible for any accidents caused by the user's (or individual) combination with other products.

13th.Product List

Number	Name	Quantity
1	XKC-E700	1 set
2	Product Manual	1 copy
3	Output line (50cm)	1 piece
4	Batteries (AAA)	1 pair
5	Certificate of conformity	1 sheet

14th.Product warranty terms and instructions

(A) .Warranty service

1. Warranty period maintenance: from the date of purchase, the product host has a one-year free warranty. The company has the right to decide to repair or replace the faulty part. If it is replaced, the replacement part

may be a new device or a repair product of the same category, function, and quality. The replaced faulty part belongs to the company; the product Resale and repair do not affect the warranty period. Products that have been repaired or replaced continue to enjoy the original remaining warranty period service. If the warranty period is less than three months after the repair, the repaired or replaced part shall be shipped from the date of delivery Warranty for three months; all products of the company are guaranteed for repair.

2. Loss upon arrival (DOA) replacement: From the day of purchase, you can enjoy a free replacement service within 7 days. Products with the following problems are defined as DOA equipment: the packing and packing list do not match after the first unpacking of the product; some or all of the components cannot be used normally after the first unpacking of the product (surface scratches or other things that do not affect the function of the device) Defects are not included); other hardware failures identified by our company's engineers remotely or locally.

(B). Applicable limitations of warranty

For the following situations, the company does not assume warranty responsibility:

1. The product is out of warranty; the surface of the product is fragile and damaged; the appearance of the product is seriously damaged, installation/use in abnormal environment, unauthorized disassembly and repair/modification, external power supply damage and other abnormal damage;
2. Damage caused by incorrect installation and use of the product by the user not following the requirements of the manual;
3. Damage caused by natural disasters and human negligence (fire, lightning, flooding, impact, etc.).

(C) .Accessories and consumables are not covered by the warranty.

(D) .Non-free warranty service

Within two years of product purchase, for non-warranty product (including components) failures and damages, you can choose paid maintenance services (free labor costs), and we will charge the transportation cost of repairing parts and accessories according to the actual situation.

(E). Ways to obtain warranty service

It is recommended that you contact the dealer who purchased this product to obtain the warranty service. For the warranty, please present a valid warranty card (the dealer's stamp is required to take effect) or the purchase invoice/receipt: if you can't show it, the product's free warranty period 12 months from the product shipment date, and the latest DOA application deadline is 7 days from the product shipment date.

(F). Statement

1. The copyright of this manual belongs to Shenzhen Xingkechuang Technology Co., Ltd. (Xingkechuang) and its authorized licensors. Shenzhen Xingkechuang Technology Co., Ltd. (Xingkechuang) reserves all rights.
2. Without the written permission of the company, no unit or individual may excerpt or copy part or all of the contents of this manual, and shall not spread it in any form.
3. The customer recognizes that the purpose of the design and production of the company's products does not involve use in products related to life support or other systems or products used in other dangerous activities or environments. Personal injury or death, property or environmental damage due to product failure

(collectively referred to as high-risk activities). The company's products are artificially used in high-risk activities, and the company does not guarantee it and is not liable to customers or third parties.

4. Due to product version upgrades or other reasons, the contents of this manual may change. Xingkechuang reserves the right to modify the contents of this manual without any notice or prompt. This manual is only used as a guide. Xingkechuang makes every effort to provide accurate information in this manual. However, Xingkechuang does not guarantee that the contents of the manual are completely free of errors. All statements, information and suggestions in this manual do not constitute any express or Implied guarantee.

5. Not all models are available in all countries/regions

Please keep this manual properly. Before using the product, please read this manual carefully. When using the product, please be sure to operate in accordance with this manual. The company is not responsible for injuries and accidents caused by operations that do not follow this manual.

(G).Environmental protection This product meets the design requirements for environmental protection. The storage, use and disposal should comply with relevant national laws and regulations. Seek to proceed.

15th. Manual version

Version	Release date
V16	September 28, 2020