Techwell remote control

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Official account

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TECHWELL®

Remote control instruction

SHANGHAI CRAFTMETER CONTROL TECHNOLOGY CO.,LTD

高新技术企业

FOREWORD

Before installing and using this equipment, staff who directly use the equipment and relevant management personnel should read the instruction manual carefully.

The instruction manual will help you become familiar with and understand the functions and application scope of the equipment you are selecting or using. This instruction manual contains safe operating specifications for the equipment, correct and detailed instructions for use, and relevant suggestions. Reading the instruction manual carefully will help prevent accidents, reduce maintenance costs, save maintenance time, extend the service life of the equipment, and improve the reliability of the equipment.In order to ensure the safe and reliable operation of the equipment, it is very important to formulate reasonable preventive measures and comply with safe operating procedures, especially when used in special environments. Be sure to abide by the regulations and limitations in the instruction manual. Otherwise, the user will be responsible for any losses to equipment, personnel, etc. caused by violating the constraints of the instruction manual.

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Security specification

- Improper handling of remote control equipment may cause serious safety accidents;
- The operator should carefully read the instructions and ensure that the intent expressed in the instructions is fully understood and understood before using the remote control;
- Our company can't fully learn about the local laws and regulations, so the buyers should ensure whether the product parameters provided comply with local laws and regulations, such as RF signal frequency, explosion protection requirement, etc.; We cannot provide professional advice and answers for all special and professional applications. In case of dangerous application situations, for example, For example, if the customer uses it under the high-voltage line, the operator must take an effective assessment to avoid safety accidents. Our company shall exempt from any legal responsibility for any damage and injury therefrom;
- For unauthorized modification and opening of housing of remote control, the quality assurance will automatically expire; The user equipment controlled by remote control shall be equipped with security facilities, such as: Travelling cranes shall be equipped with main power relay, E-stop button, limit switch, etc.;
- Remote control must be operated by professionally trained personnel and must not be handed over to untrained personnel;
- Please confirm that the environment is safe, there are no hidden dangers of accidents, and that no non-workers are within the working range of the controlled equipment before operation.

Receiver

Transmitter

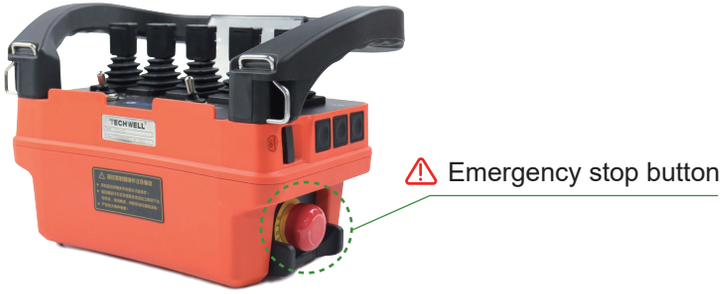


Figure 1 (Emergency stop)

- The remote controller is not allowed to operate in the rain or corrosive gas environment (although the protection level of remote control equipment reaches IP65, unless some specially-made model);
- Check whether the transmitter is matched with the receiver and observe whether the emitter is damaged before operation;
- The emergency safety stop function of remote control must be checked before each use (Figure 1);
- Specific operations: After the normal start-up, press the emergency stop button immediately after pressing a button, the remote control should enter the emergency stop state immediately without any extra operations. If the emergency stop button is pressed and the remote control is not in the emergency stop state, immediately stop it in other ways and stop using the set of remote control equipment at the same time, and contact the after-sales service department in time.
- If an emergency stop or fault occurs during operation, such as: for extra operations, you must stop working immediately (you must press the emergency stop button,(Figure 1), turn off the main power of the controlled equipment, stop continuously using the remote control, and contact the after-sales department at the first time;
- When stop working, the operator must ensure that the emergency stop button is pressed, no matter how long the suspension time is;
- After completing the work, press the emergency stop button, turn off the power supply of the transmitter and put it in a safe place, which shall be kept by a specially-assigned person;
- Regularly check the wireless remote control to ensure safe operation.

1.Product parameters

Please check all accessories are complete according to the packing list before installation and use

- Radio spectrum :433 band(427.000~M36.300MHz)470 band: (472.350~485.775MHz);
- Use environmental conditions;
  - General Purpose Ambient Temperature:-10~+45°C, Special purpose (extreme heat, extreme cold):-40~+85°C;
  - Relative humidity :not larger than 95%;
  - Atmospheric pressure:86~106 kPa;
  - Corresponding measures should be taken when used in places with acid and alkali corrosive gases, dust or strong electromagnetic field interference (or special customized remote controller should be used);
- Effective control distance: Standard 100m (open and barrier-free), special requirements according to the agreement;
- Protection level reaches IP65, special requirements according to the agreement;
- Indicator light description: Table 1 (see page 4 for details).

2.Statements of transmitter indicator light

S/N	Indicator light status			Status Description
		 I	 II	
1	Turn off	Turn off	Turn off	The transmitter is not powered on or the battery died (or fault of the status indicator)
2	Long bright	X	X	The transmitter has been turned on and powered on, but not started (if there is a starting function)
3	1s three times	X	X	The transmitter has been turned on and started, and does not connect with the receiver (two-way communication)
4	1s once	X	X	When there is two-way communication, the transmitter has been turned on and started to establish communication with the receiver; When there is no two-way communication, the transmitter has not been turned on and started (when there is starting function)
5	Flicker Three times	X	X	Under normal working, the transmitter is running and the operation has changed
6	Flicker	X	X	After startup, the checking switch is not reset or is in emergency stop state
7	X	Turn on	Turn on	Battery I and Battery II all have been fully charged
8	X	1s once	X	Battery I is out of power, and the remaining quantity of electricity is less than 20%
9	X	X	1s once	Battery II is out of power, and the remaining quantity of electricity is less than 20%
10	X	X	Turn off	If the battery port capacity is low, turn off the power supply; The battery can be removed and charged
11	X	Turn off	Turn on	If battery I capacity is low, turn off the power supply and switch the battery port to supply power; The battery II is in adequate electric quantity
12	Flicker	Turn off	Turn off	The remaining power of battery I is too low or there is no battery, and the power of battery n is too low to enter the emergency stop state, and the buzzer will spread alarm sound, and it will shut down after 10 seconds

Table 1

Remark:
X Any working state;
Products with only one battery, without considering the lamp II.

3.Operation instruction

- Transmitter type

Figure 2

BE/T Series transmitter

Figure 3

BS Series transmitter

Figure 4

BM Series transmitter

* For schematic diagram of transmitter panel, please see Annex 1

4.Battery installation and startup

- Take out the transmitter and install the special polymer lithium battery - BL2S battery on the back (as shown in Figure 5).

Lithium polymer battery (BL2S battery)

Figure 5 (Schematic diagram of battery installation)

- Reset all switches and rockers, rotate clockwise or directly pull out the emergency stop switch, press the power key as shown in Figure 6,and observe the status of the indicator light (see Table 1 for details).

Figure 6 (Boot diagram)

5.Receiver Installation Notes

- Receiver series

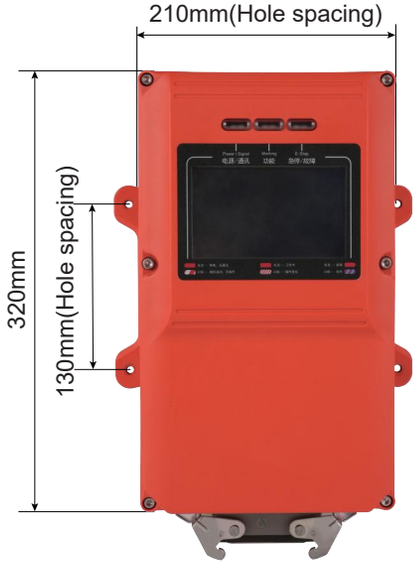


Figure 7 (MLSeries)

Figure 8 (MM Series)

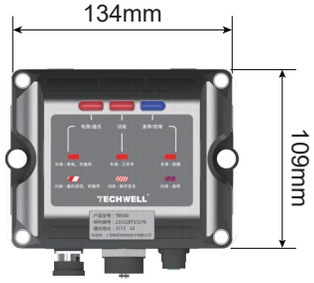


Figure 9 (MP Series)

- The receiver (or fixed remote control) should be installed in a safe place as far as possible to avoid adverse weather (such as humid environment, although the protection level reaches IP65), corrosive medium, mechanical vibration and impact, etc., and it should be installed and fixed firmly;

- The ambient temperature of the receiver installation should conform to the temperature range shown in the product parameters,The installation position of the receiver must be far away from the heat source, frequency converter, motor and other high-power equipment to prevent signal interference. Appropriate shielding measures can improve or completely eliminate the interference on the receiver.

Figure 10 (Receiver Installation Diagram)

- The authentication code settings of this product are different when it leaves the factory, but it must be confirmed that devices with the same frequency channel within 200m cannot be used during installation avoid mutual radio interference;

- To ensure the normal use of the equipment, obstacles should be avoidedaround the antenna to avoid affecting signal reception. The external antenna installation (Figure 11). For better signal reception and normal use of theequipment, the antenna should be placed at a height of 1.8 meters above the ground, with no obstructions in the space of 2 meters above the antenna,and the surrounding area is open and unobstructed. If it is used to controlengineering vehicle, it is recommended to install it on the roof of the cab, and do not move the antenna frequently.

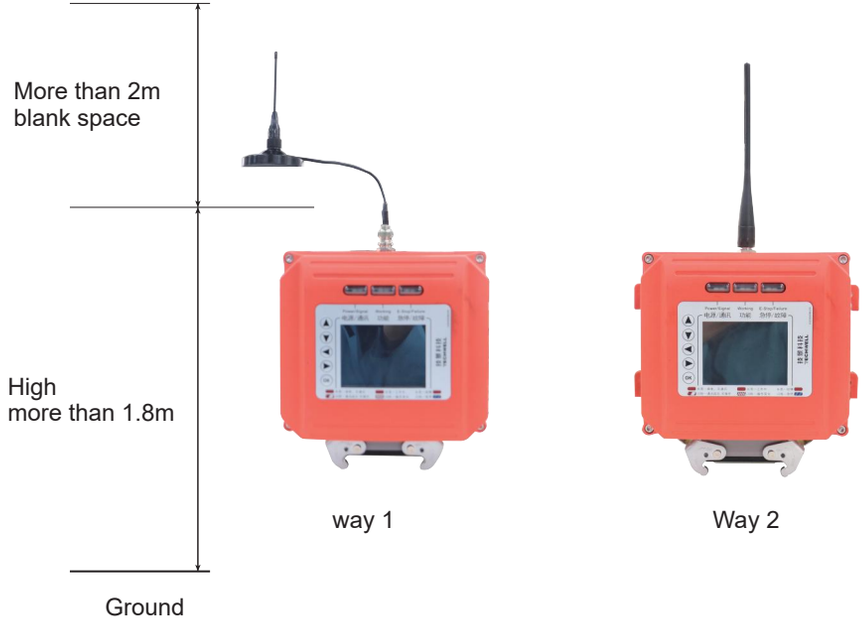
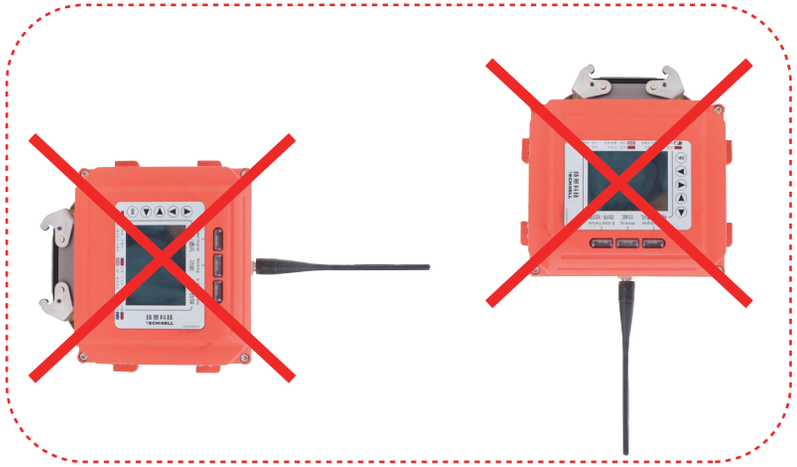


Figure 11 (Antenna Installation Drawing)

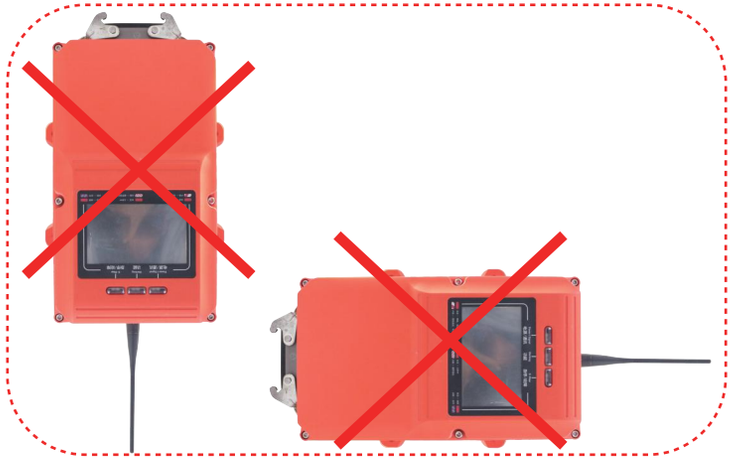
Correct installation diagram



Wrong installation diagram

Figure 12 (MM series receiver installation diagram)

Correct installation diagram



Wrong installation diagram

Figure 13 (MM series receiver installation diagram)

6.Receiver of transmitter indicator light

Indicator name	Status Description
Power, communication indicator (red)	Normally on of indicator light: No communication; The indicator light flashes (frequency 1 time per second):The transmitting and receiving are keeping in communication and waiting for operation. When online successfully, and it can work at once.
Operation status indicator (red)	Indicator light off:there is no operating function output; Indicator light is on: there is operating function output; Indicator light flashes quickly (frequency flashes 3 times):Operating function output has changed.
Emergency stop, fault indicator (Double-color of red and blue)	Indicator light is off: No emergency stop button; Red and blue flicker alternately at a frequency (Frequency 3 times per second); Emergency stop status,Emergency stop display priority.
Remark: Three lights are all turned off,The receiver is No power or fault conditio.	

Table 2

1.Battery

- Supporting battery is a polymer lithium battery

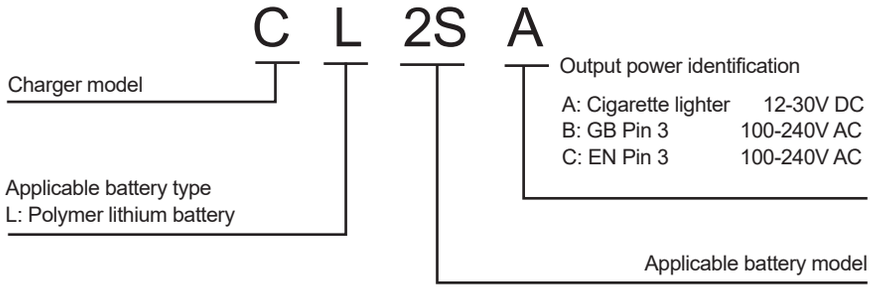
Model	BL2S	BL3F	BL4
Schematic			
Characteristics	Polymer lithium battery (optional low temperature)	Polymer lithium battery (optional explosion-proof)	Polymer lithium battery
Capacity	3000mAh	2000mAh	2000mAh
Voltage	7.4V DC	7.4V DC	7.4V DC
Full time	4h	3h	3h
Applicable charger	CL2S	CL2S-F	CL4
Applicable transmitter	BS series BM series	T-F series FYF series	BEB series BTB series

Table 3

2.Battery usage precautions

- Batteries should be used alternately to ensure frequent charging and discharging, which can delay battery performance degradation;
- If the battery can't be charged and discharged normally, or the service time is too short, it may be caused by improper use or faults, please consult the manufacturer.

3.Charger model naming rules and charger working status indicator description



Charger working status indicator description

Working status indicator			Status Description
FULL	Charge	POWER	
●		●	There is no battery in the charger or the battery is fully charged;
	●	●	charge

Table 4

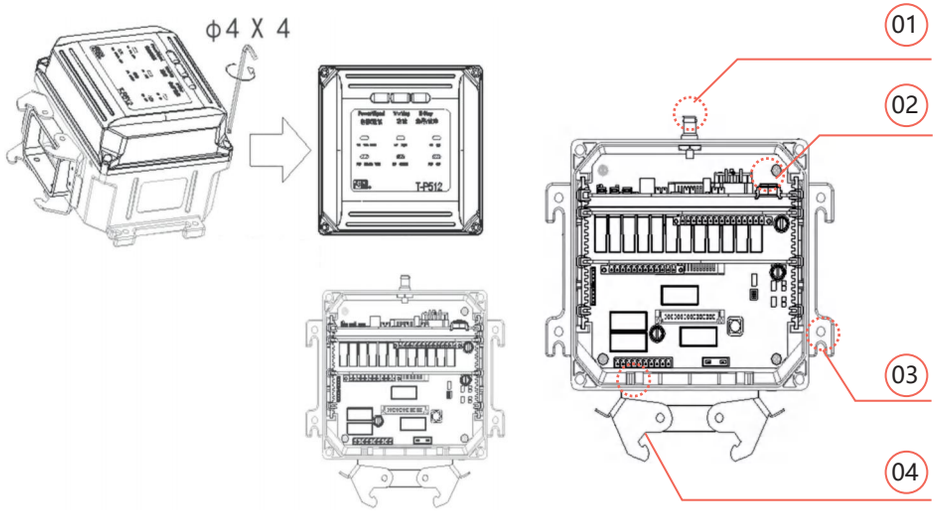
Notice: Suitable for polymer lithium batteries only

Model	Schematic	Adaptation type	Output voltage	Output current	Output Interface	Applicable battery
CL2S		Rechargeable Lithium Battery	8.4V DC	800mA	A\B\C	BL2S
CL4		Rechargeable Lithium Battery	8.4V DC	800mA	A\B\C	BL4

Table 5

1.Receiver schematic

- Correct wiring in strict accordance with the drawings and supply power to the receiver. After communication with the transmitter is established, the communication indicator light flashes slowly (see Table 2) before operation;
- Receiver assembly diagram(Figure 14)



Note:

01: Antenna terminal

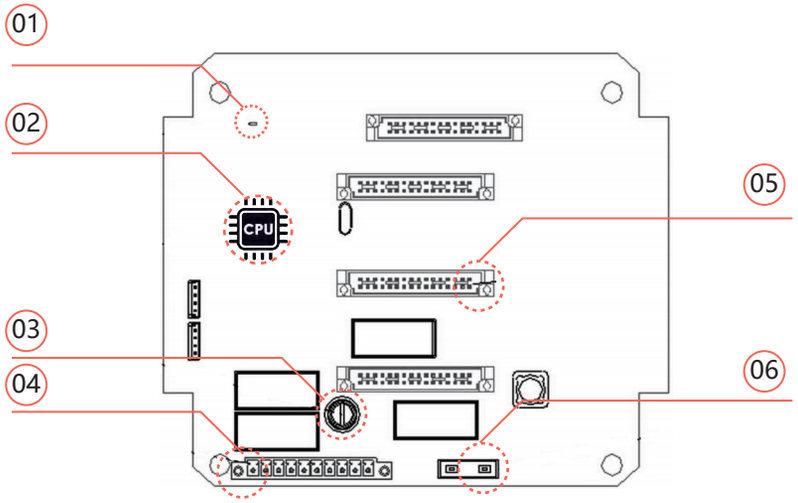
02: Communication/setting board

03: Housing

04: Heavy duty connector

Figure 14 (Internal schematic diagram of the receiver)

2.Introduction of functions



Note:

01: CPU running indicator light: The indicator light flashes slowly → normal operation;

02: CPU;

03: "Emergency stop" output fuse (10A/220V);

04: Motherboard socket (power supply and function output);

05: Plug socket;

06: Power fuse (2A/30V);

Notice:

1: When adjusting the output signal, the signal has an output change;

2: When the boom pump remote controller adjusts the boom current, the boom can move;

3: Strictly forbidden to stand in the working range of the boom.

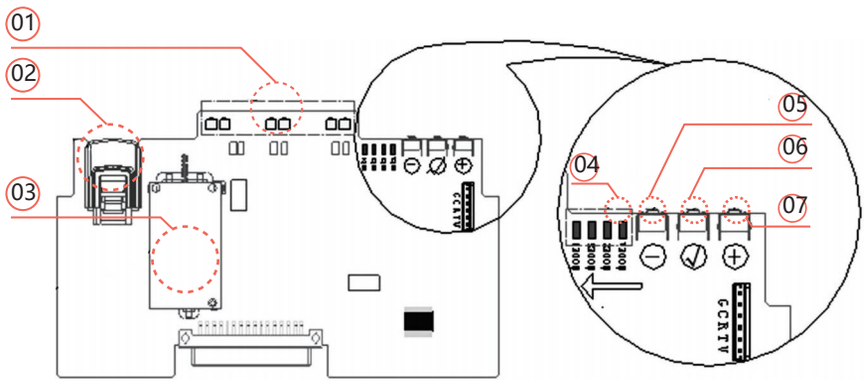
Figure 15 (Schematic diagram of Circuit Board)

3.Receiver PWM Adjustment Steps

- When some models have PWM output, adjust the PWM signal current;
- Step 1: Turn on the transmitter and make it communicate with the receiver normally;
- Step 2: Press "Button 2" (shown in Figure 16), and press once to enter the mode selection (the mode indicator is always on). At this time, press "Button 1" or "Button 3" to enter M0DE1, and press "Button 2" again (corresponding mode light flashes);
- Step 3: Select the fast or slow position, and push the rocker corresponding to the boom to be adjusted to the end in the direction to be adjusted, and then start to adjust the operating current of the rocker to control the boom in that direction. Press and hold "Button 1" (-) or "Button 3" (+) to adjust (fast or slow) the maximum current. When the rocker pushes out a small angle from the middle position to one side, adjust the starting current;
- Step 4: After adjustment, press "Button 2" to save the data; Press "Button 2" again until the mode indicator goes out.

4.Adjust the direction of the rocker

- See step 1 above for details;
- See step 2 above for details, and enter M0DE2;
- Push the rocker that needs to be reversed, press and hold "Button 1" or "Button 3" to change the direction of the rocker;
- See step 4 above for details.



Note:

01: Indicator light of the receiver

02: Identification card

03: Radio frequency module

04: Mode indicator

05: Button 1

06: Button 2

07: Button 3

Figure 16 (Schematic diagram of Regulator)

S/N	Fault phenomenon	Possible Causes	Solution
1	All indicator lights of the transmitter are not on	• The power switch is not turned on • Dead battery • No battery • The indicator light is damaged	• Check the power switch or replace or install the battery • If not resolved, contact the supplier
2	After turning on the transmitter, the buzzer will "Di" once and then turn off	• The transmitter battery is low • Battery model does not match	• Replace the dedicated battery with sufficient power
3	After turning on the transmitter, the buzzer will "Di" twice and then turn off	• Data card communication is lost	• Open the back cover of the transmitter (use a 3# socket head wrench) to reinsert and unplug the data card • If not resolved, return to the factory for repair
4	After turning on the transmitter, the buzzer will "Di" three times and then turn off	• High frequency data loss	• Re-plug the high-frequency module • If not resolved, return to the factory for repair
5	After turning on the transmitter, the buzzer will "Di" six times and then turn off	• The emergency stop of the transmitter is not pulled up • The emergency stop is damaged;	• Pull up the emergency stop, try again • If still not solved, return to the factory for repair
6	Transmitter communication indicator light flashes once every 3 seconds	• The receiver is not powered on or damaged • Not communicating with the receiver	• Power on the receiver again • Operate at close range or replace the antenna
7	Transmitter indicator light is in emergency stop or fault state	• The emergency stop switch is not reset • Other switches are not reset	• Check the reset status of all switches and reset them
8	All indicator lights of the receiver are not on	• The receiver is not connected to power • The fuse in the receiver is blown • The positive and negative poles of thepower supply are reversed	• Check the receiver power supply and fuse
9	No communication between transmitter and receiver	• The transmitter switch is not reset • Operating distance is too far • The receiver antenna is not connected or has poor contact	• Check whether all switches are reset • Power off and restart • Check the antenna

Table 6

Faults and solving

S/N	Fault phenomenon	Possible Causes	Solution
10	Normal operation after communication No output for all functions	• The fuse in the receiver is burned out	Check the receiver, replace the fuse
11	Normal operation after communication No output for individual functions	• Transmitter: The switch is broken or other faults • Receiver: The relay is broken or the external wiring is in poor contact or other faults	• When the detector is burned out by the fuse in the receiver, replace the fuse. If the indicator light of the receiver has no change when the transmitter is running, it indicates that the transmitter malfunctions. Then, check whether the function switch and the welding wire on it can work normally. • If there is any change, check whether the external output line of the receiver of the corresponding function is connected reliably. Please contact the supplier for help if there are still faults.
12	Normal operation after communication No output for individual functions	The receiver's output terminal of this function is short-circuited	Check whether the output line of this function is connected to the negative pole or grounded.
13	When a function is operated during normal work, the receiver is out of power, and the indicator lights are all off	The receiver's output terminal of this function is short-circuited	Check whether the output line of this function is connected to the negative pole or grounded
14	Poor received signal (occasionally broken signal)	The signal is subject to strong interference (high-voltage lines or other wireless signals, such as interference from high-power walkie-talkies) or the remote control is blocked by obstacles (such as walls)	Reduce the frequency of use of high-mobility wireless devices; The antenna is raised; Shorten the operating distance; Avoid obstacles or change frequency during operation
15	Very poor reception signal (within 10m)	The antenna is damaged or has poor contact	Check the antenna, connect it firmly or replace it
16	Rocker switch does not reset	• Mechanical wear when used for a long time • Damaged return spring	Return to the factory for repair and replacement of the rocker switch
17	Water inflows in remote controller accidentally		Stop work immediately, cut off the power supply, and try it after drying with a hair dryer; Contact suppliers

Table 6 (continued 1)

Maintenance

- The transmitter should be maintained regularly, including checking the emergency stop function before each use;
- The transmitter should always be checked for damage or malfunction of accessories such as switches, and if damaged, replace in time;
- Waterproof and dustproof accessories such as rubber sleeves on the transmitter should be checked regularly, and the damaged should be replaced in time;
- The transmitter's fixed shoulder straps and waist straps are damaged and lose the original function, and should be repaired or replaced in time;
- The transmitter should be kept clean and tidy regularly to protect the nameplate from damage and keep the handwriting clearly legible;
- If the receiver has cracks, damages, or deformations that cause the loss of protection against water and dust, it should be repaired or replaced in time;
- The electrical connector of the receiver should maintain reliable connection and protection;
- It is recommended to check every 2 weeks.

Warranty and after sales

With the service concept of "Quality Service, Professional Guarantee", Techwell has established a number of after-sales service standards to allow customers to efficiently use the intelligent industrial control equipment provided by Techwell. The company strives for perfection in its services, and wholeheartedly provides customers with professional and efficient after-sales service and strong after-sales support.

Instant response

The customer service staff responds 7*24 hours without holidays, ensuring that customers receive technical support and answers to difficult questions anytime and anywhere, and provide customers with accurate services.

upgrading

According to the actual development or operation needs of the enterprise and related equipment, customize the upgrade and transformation plan suitable for the enterprise or related equipment.

Operation training

The "accompanying" development provides customers with relevant training services such as operation training or maintenance of relevant smart remote.

Technical Support

Provide timely assistance to customers through telephone support, online diagnosis, remote monitoring and on-site maintenance.

Quality assurance

- Techwell guarantees that this product is in full compliance with its published specifications before leaving the factory, and it can be used normally as long as it is installed correctly;
- Under the conditions of proper storage, reasonable installation and correct use by the user, the product attaches a one-year warranty period from the date of leaving the factory.During the warranty period, if it is a product quality problem, Techwell will be responsible for maintenance;
- The product that needs to be repaired must be sent to the service office designated by Techwell.

Matters not included in the aforementioned warranty scope

- Wearable parts such as switches, relays, fuses, batteries, dust covers, etc. are not included;
- Circuit board damage caused by installation errors are not included;
- Faults caused by improper use by customers, insufficient maintenance, ignorance of operating environment specifications, unauthorized changes,incorrect use or user-defined interfaces are not included;
- Inevitable damage from natural causes (including irresistible factors such as lightning strikes, wind disasters, floods, etc.) are not included;
- Other unforeseen factors stipulated by law are not included.

1.Packaging

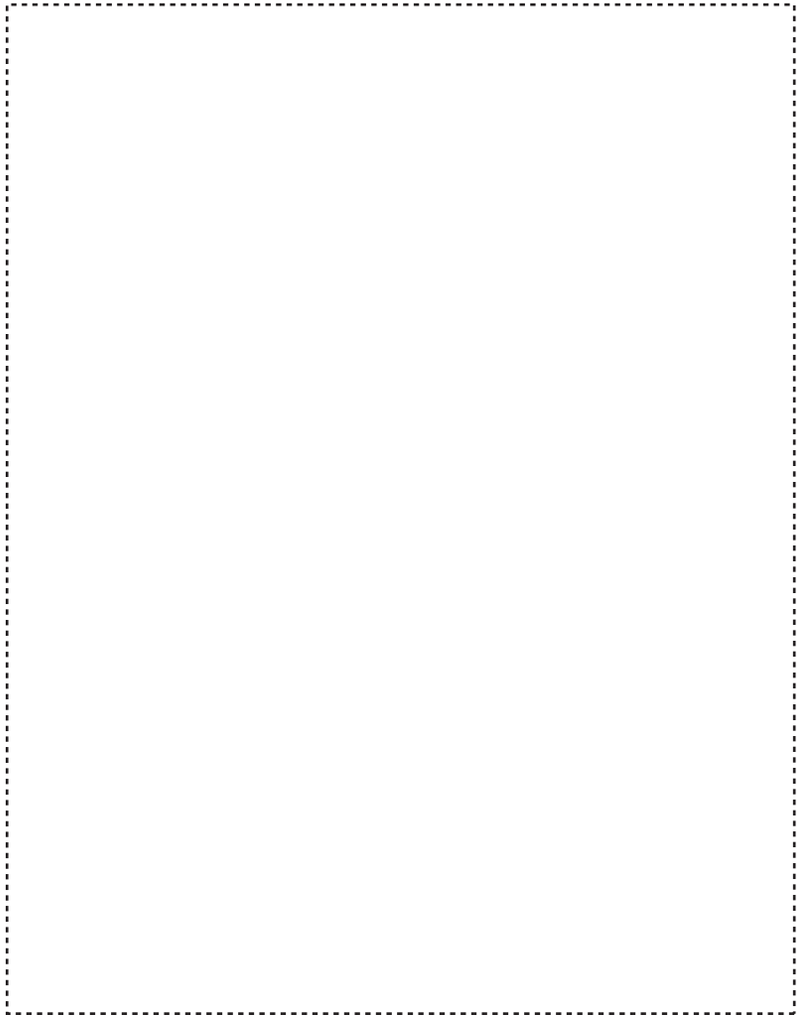
- Products usually have outer packaging and inner packaging, which can meet the transportation requirements of sea, land, and air. The product packaging is paper to avoid humidity and water environment;
- The packaged products should be stored in a ventilated warehouse with a temperature of -10~+40°C, a relative humidity of no more than 80%, no strong electromagnetic field influence, and no other corrosive gases in the air;
- When stacking, the packaging boxes should be upward in the direction indicated by the label, and no more than 5 layers of the same goods are allowed above;
- Avoid direct rain and snow and strong vibration and impact during transportation, and avoid rough loading and unloading, trampling, squeezing,falling, etc., to avoid packaging damage and product damage;

Figure 17 (Schematic diagram of the packing box)

Packaging and Storage

Annex 1: Transmitter Panel Diagram

Annex 2: Receiver Wiring and Logic Diagram



Annex 3