

工业遥控器说明书 发射器部分

Industrial Remote Control Manual Transmitter Section

产品名称 Product Name	工业遥控器 Industrial Remote Control
型号 Model	BM800&BS800 系列 BM800&BS800 series
制造商 Manufacturer	上海格尼特控制技术有限公司 Shanghai Craftmeter Control Technology Co., Ltd
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前言

Preface

感谢您选用本公司工业遥控器。上海格尼特控制技术有限公司成立于 2018 年，专注工业无线通讯控制、电液比例控制产品的研发与生产。本产品需与同系列 MM800&MP800 接收器配套使用，适用于各类工业工程机械无线操控。请在使用前完整阅读本说明书，严格遵守各项安全与操作要求。

Thank you for choosing our industrial remote control. Shanghai Craftmeter Control Technology Co., Ltd. was established in 2018, focusing on the research and production of industrial wireless communication control and electro-hydraulic proportional control products. This product shall be used together with MM800&MC800 series receivers for wireless operation of various industrial construction machinery. Please read this manual thoroughly and follow all safety and operation requirements before use.

1. 安全规程/Safety Regulations

⚠ 危险：违规操作将引发人身伤亡、重大设备事故

DANGER: Violation of regulations may result in personal injury or major equipment accidents

⚠ 警告：不当使用将造成人身伤害、设备损坏

WARNING: Improper use may cause personal injury and equipment damage

⚠ 注意：操作失误易导致设备故障

CAUTION: Operational errors can easily lead to equipment malfunctions

1.1 通用安全准则 / General Safety Rules

1.1.1 不当处置、私自改装设备会引发严重安全事故，所有操作人员必须通读并理解本说明书。

Improper handling or unauthorized modification will cause serious safety accidents. All operators must read and fully understand this manual.

1.1.2 采购方需自行核验产品射频、防爆等参数符合当地法律法规；在高压线等高危场景使用前，必须完成安全风险评估。因违规使用、未评估造成的损坏与伤害，本公司不承担法律责任。

The purchaser shall verify that RF, explosion-proof and other parameters comply with local laws. Complete safety risk assessment before using the device near high-voltage lines or other high-risk areas. We assume no legal liability for damage or injury caused by unauthorized use.

1.1.3 严禁未经授权拆解、改装设备外壳，该行为将直接导致质保失效。被控设备必须标配总电源继电器、急停开关、限位开关等安全装置。

Unauthorized disassembly or modification of the enclosure is strictly prohibited and will void the warranty. The controlled equipment shall be equipped with main power relay, emergency stop switch and limit switch.

1.1.4 若被控设备同时具备遥控与本地控制，必须加装电气 / 机械互锁，两种模式禁止同时启用。

If the equipment supports both remote and local control, interlock devices must be installed to prevent simultaneous operation.

1.1.5 设备仅限专业培训人员操作，无关人员不得进入作业区；超出遥控距离、信号严重干扰、视线不良时，立即停机。

Only professionally trained personnel are allowed to operate. Unauthorized personnel are forbidden in the working area. Stop operation when out of range, with severe interference or poor visibility.

1.1.6 该设备的防护等级为IP66。禁止在雨天或腐蚀性气体环境中长期作业。

The device is IP66 rated. Long-term operation in rainy days or corrosive gas environments is prohibited.

1.2 急停功能要求 / Emergency Stop Requirements

1.2.1 每日作业前强制测试急停功能：开机后触发任意功能，立即按下急停，被控设备需瞬间停机。若急停失效，立即停机并联系售后。

Test emergency stop daily: After power-on and function actuation, press E-stop immediately, and the controlled equipment shall stop instantly. Stop use and contact after-sales service if E-stop fails.

1.2.2 作业中出现误动作、故障等紧急情况，第一时间按下急停，并切断被控设备总电源。

In case of malfunction or emergency, press E-stop and cut off the main power of the controlled equipment at once.

1.2.3 临时停工、作业结束，无论时长，均需按下急停、关闭发射器电源，由专人保管设备。

Activate E-stop and power off the transmitter for temporary or final shutdown. Store the device by designated personnel.

1.3 风险评估与剩余风险

Risk assessment and residual risk

本设备已完成全项风险评估，剩余风险及缓解措施如下：

Full risk assessment has been completed for this equipment. Residual risks and mitigation measures are as follows:

- 无线信号干扰风险：作业时远离高压线、大功率无线设备；

Wireless interference: Keep away from high-voltage lines and high-power wireless devices;

- 机械磕碰风险：搬运、使用时轻拿轻放；

Mechanical impact: Handle the device gently during carrying and operation;

- 锂电池安全风险：禁止拆解、穿刺电池，远离明火；本项符合性通过文件检查验证。

Lithium battery risk: Do not disassemble or puncture the battery, keep away from open flame. Conformity is verified by document inspection.

1.4 专用附件要求

Requirements for Special Accessories

为保障使用安全，本设备仅可使用原厂配套附件、探头及电池，禁止使用非规格配件。本项符合性通过文件检查验证。

For safety, only original accessories, probes and batteries supplied by the manufacturer can be used. Non-standard parts are prohibited. Conformity is verified by document inspection.

1.5 警示符号强制声明

Mandatory Declaration of Warning Symbols

操作人员必须查阅本说明书，明确潜在危险及对应处置措施。

Operators must refer to this manual to identify potential hazards and countermeasures.

1.6 操作强制声明

Mandatory declaration of operation

若本设备未按照制造商指定方式使用，设备原有安全防护功能可能受损。

If this equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.

2. 产品概述与技术参数 / Product Overview & Specifications

2.1 产品概述

本产品为工业无线遥控发射器，采用 433MHz 工业通用射频频段，适用于工业工程机械无线控制，具备抗干扰、防护等级高、操作稳定等特点。

This is an industrial wireless remote control transmitter adopting 433MHz radio frequency band, designed for wireless control of industrial construction machinery. It features strong anti-interference capability, high ingress protection grade and stable operation.

2.2 核心技术参数/ Main Technical Specifications

分类 Category	项目 Item	参数 Specification
射频参数 Radio Frequency	工作频段	433.15MHz ~ 434.65MHz
	Operating Frequency	
控制距离 Control Range	无线距离	100 m
	Wireless Range	
	有线连接距离 Wired Range	30 m
环境参数 Environmental Parameters	使用场地 Usage Location	室外使用 Outdoor use
	工作海拔 Operating Altitude	≤ 2000 m
	工作温度 Operating Temperature	-20℃ ~ +55℃
	相对湿度 Relative Humidity	≤ 95%
	大气压力 Atmospheric Pressure	86 kPa ~ 106 kPa
	污染等级 Pollution Degree	Pollution Degree 2
	潮湿等级 Humidity Class	适用于一般潮湿环境 Suitable for general humid environments

	过电压类别 Overvoltage Category	OVC II
	外部电路绝缘等级 Insulation Class	基础绝缘 Basic Insulation
	供电 Power Supply	聚合物锂电池 Polymer Lithium-ion Battery
	电池额定电压 Rated Voltage of Battery	DC 7.4 V
	电池额定容量 Rated capacity of battery	3600 mAh
机械参数 Mechanical	机械冲击能量 Shock Rating	< 5 J
防护等级 Protection Grade	整机防护 Overall Ingress Protection	IP66

补充说明 Supplementary Note

在粉尘、酸碱气体、强电磁场环境使用时，必须增设屏蔽与防护措施。

Shielding and protective measures are required for environments with dust, acid-base gas or strong electromagnetic interference.

2.3 标记耐久性 / Marking Durability

2.3.1 本设备铭牌、标识、标签均满足标记耐久性要求：

All nameplates, markings and labels comply with marking durability requirements:

1. 测试介质：70% 异丙醇，手工无过度压力擦拭 30 秒；

Test medium: 70% isopropyl alcohol, wipe manually for 30 seconds without excessive force;

2. 判定标准：测试后标记清晰可辨，粘性标签无松动、边缘卷曲；

Criterion: Markings remain clear; adhesive labels are free from loosening and edge curling after test;

3. 符合性验证方式：擦拭测试 + 目视检查。

Conformity verification: Wiping test + visual inspection.

3. 发射器面板操作说明/Transmitter panel operation instruction

3.1 开机与联机完整流程/Power-on & Connection Procedure

1. 取出发射器，在设备背部安装专用锂电池（详见图 1 电池安装示意图）；

Take out the transmitter and install the dedicated lithium battery on the back (See Figure 1 Battery Installation Diagram).

2. 将所有开关、摇杆复位至初始位置，顺时针旋转 / 拔出蘑菇头急停开关解除锁定；

Reset all switches and rockers to the initial position, rotate clockwise or pull out the mushroom emergency stop switch to unlock.

3. 按下电源键开机（详见图 2 开机示意图），观察面板指示灯状态；

Press the power button to start up (See Figure 2 Power-on Diagram) and check the indicator lights.

4. 接通接收器电源、安装外置天线，完成发射器与接收器联机配对。

Power on the receiver, install the external antenna, and complete pairing between transmitter and receiver.



图 1 电池安装示意图

Figure 1 Battery installation diagram



图 2 开机示意图

Figure 2 Boot diagram

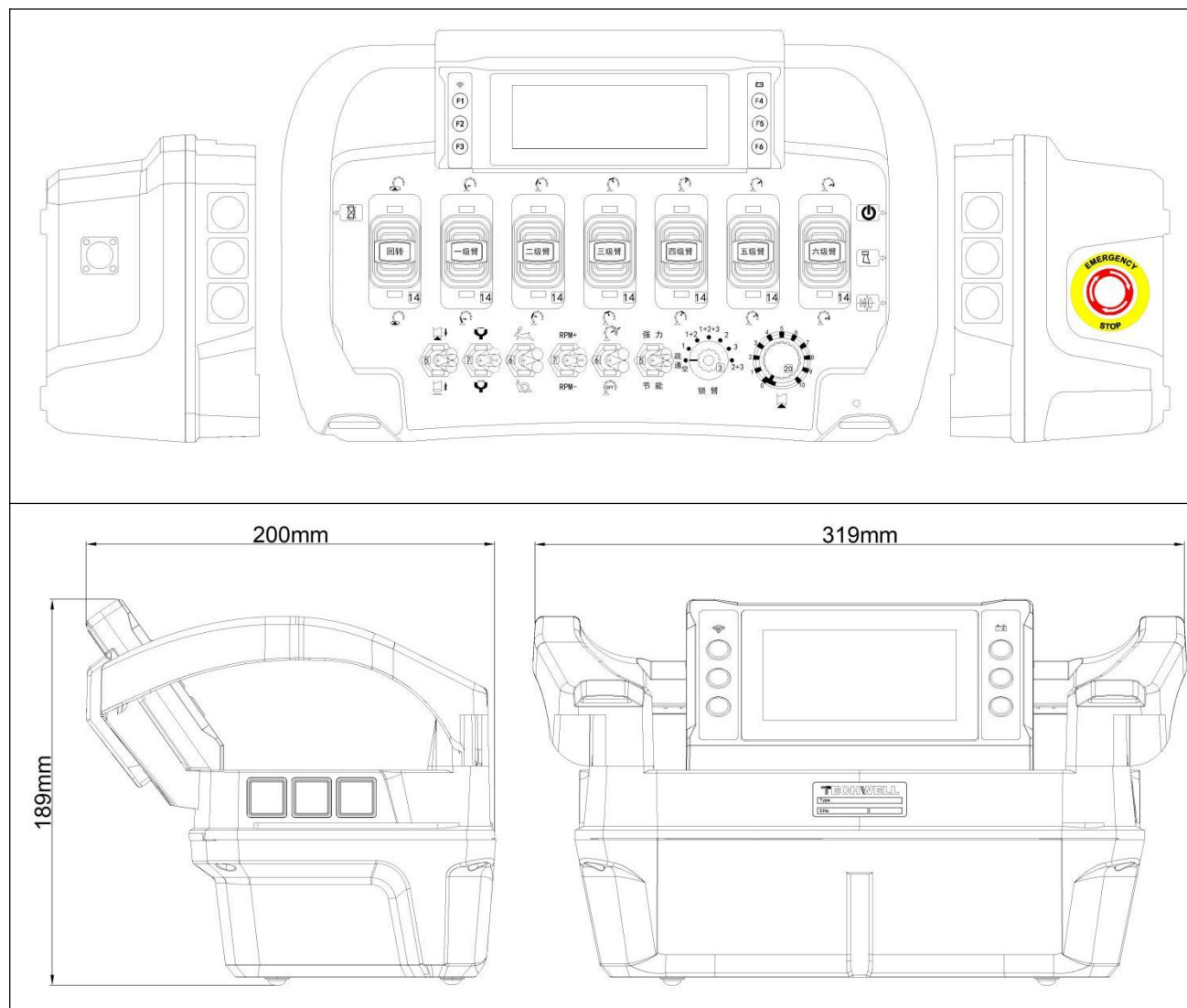
3.2 面板部件名称及功能 / Panel Components Description

设备面板集成各类按键、摇杆、开关、显示屏及接口，主要部件说明：

The panel is equipped with various buttons, rockers, switches, display screen and interfaces. Main components are listed as follows:

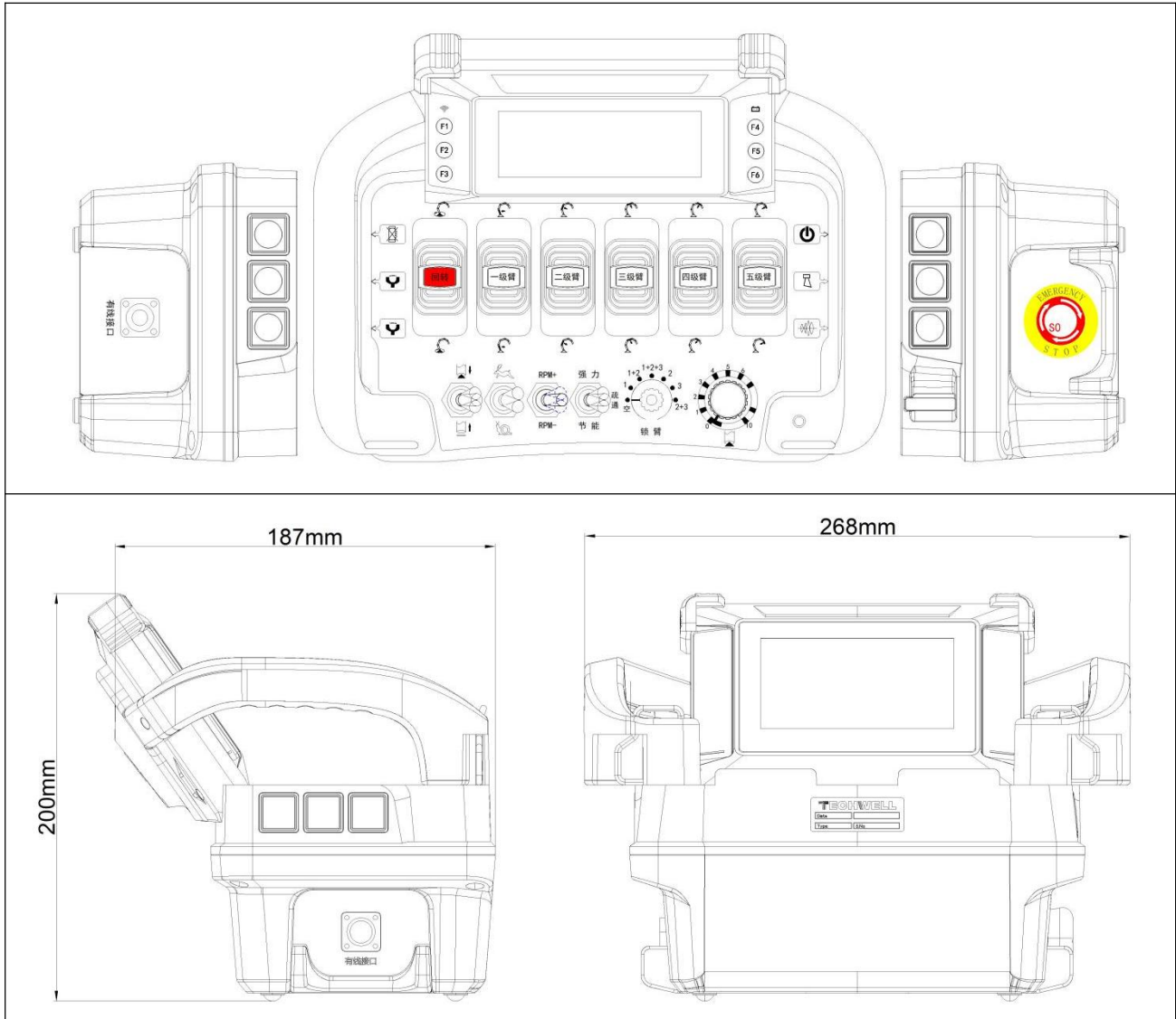
3.2.1 BM800的外观及尺寸

Appearance and dimensions of BM800



3.2.2 BS800的外观及尺寸

Appearance and dimensions of BS800



3.3 发射器指示灯状态定义 / Transmitter indicator status definition

序号 No.			状态说明 Status description
1	灭 Turn off	灭 Turn off	发射器未上电或电池无电（或状态灯故障） Transmitter is power off or the battery is over used (or the status light is in fault)
2	长亮 Long bright	×	发射器已开机接通电源，未启动（如有启动功能） The transmitter is powered on, but not started (if it has a start function)

3	1 秒 3 次 1s three times	×	发射器已开机并启动，未与接收器通信（双向通信机器） The transmitter is powered on and activated, but not communicating with the receiver (two-way communication machine)
4	1 秒 1 次 1s once	×	有双向通信时，发射器已开机并启动，与接收器建立通信； 无双向通信时，开机并启动（有启动功能时） When there is two-way communication, the transmitter is powered on and started, and communication with the receiver is established;When there is no two-way communication, it is powered on and started (when there is a startup function)
5	快闪 3 次 Flicker three times	×	正常工作状态下，发射器正在操作并且操作有变化 In normal working condition, the transmitter is operating and the operation changes
6	快闪 Flicker	×	开机启动后，有校验的开关未复位，或处于急停状态 After starting up, the checking switch is not reset or is in emergency stop state
7	×	亮 Turn on	电池电量充足 battery are fully charged.
8	×	1 秒 1 次 1s once	电池电量不足，剩余电量小于 20% The battery power is low, remaining power is less than 20%
9	快闪 Flicker	灭 Turn off	电池电量过低进入急停状态，并蜂鸣器发出报警声，在 3 秒后关机 The power of battery is too low, the system will enter emergency stop state, and the buzzer will sound an alarm, and the system will shut down after 3 seconds.

表1

Table 1

4. 电池与专用充电器 / Battery & Dedicated Charger

4.1 标配锂电池 / Standard Lithium Battery

4.1.1 基础参数 / Basic Specifications

项目 Item	规格 Specification
电池型号 Model	BL2S-P
电池类型 Battery Type	聚合物锂离子电池 Polymer Lithium-ion Battery
额定电压 Rated Voltage	DC 7.4 V
电池容量 Capacity	3600 mAh
标准充电时长 Standard Charging Time	5 h
适配充电器 Matched Charger	CL2S
适配机型 Applicable Transmitter	BS800 系列 / BM800 系列 BS800 Series / BM800 Series

4.1.2 使用与存储要求 / Usage & Storage Requirements

- 妥善存放电池，严禁电极短路、挤压、穿刺、靠近明火；

Store the battery properly. Short circuit, extrusion, puncture and exposure to open flame are strictly prohibited.

- 长期闲置时，需定期充放电，建议交替使用多组电池，维持电池性能；

For long-term storage, charge and discharge the battery regularly. Use multiple batteries alternately to maintain battery performance.

- 若电池充放电异常、续航大幅缩短，立即停止使用并联系厂商检修；

Stop using the battery immediately and contact the manufacturer for maintenance if abnormal charging/discharging or sharp reduction of endurance occurs.

- 电池使用、存储需遵循 IEC 62133 锂电池安全标准，禁止短路、挤压、靠近明火。废旧锂电池按危废法规处置。

The use and storage of the battery shall comply with IEC 62133 safety standards for lithium batteries. Short circuit, extrusion and open flame are prohibited. Dispose of waste batteries in accordance with hazardous waste regulations.

4.2 专用充电器 / Dedicated Charger

4.2.1 基础参数 / Basic Specifications

项目 Item	规格 Specification
充电器型号 Model	CL2S
输出电压 Output VoltageDC	8.4 V
输出电流 Output Current	720 mA
输出接口 Output Interface	A/B/C 型通用接口 Type A/B/C Universal Port
适配电池 Applicable Battery	BL2S-P 聚合物锂电池 BL2S-P Polymer Lithium-ion Battery

4.2.2 充电环境要求 / Charging Environment Requirements

- 充电需在室温、通风良好环境下进行，避免阳光直射，防止充电器过热；

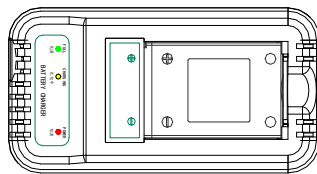
Charge the battery at room temperature with good ventilation. Avoid direct sunlight to prevent the charger from overheating.

- 必须使用原厂配套 CL2S 充电器，禁止混用非原厂充电器。

Only use the original CL2S charger. Do not use non-original chargers. Only use the original CL2S charger. Do not use non-original chargers.

4.2.3 充电器指示灯状态 / Charger Indicator Status

备注 Note: √ = 指示灯点亮 Indicator light On



已充满 FULL	充电中 CHARGIN	电源 POWER	充电器工作状态指示灯 Charger working status indicator light
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√		√	充电器无电池，或电池已充满 No battery inserted or battery fully charged
	√	√	电池正在充电中 Battery is being charged

5. 注意事项、常见故障及排查方案 / Precautions, Common Faults & Troubleshooting

5.1 注意事项

Precautions

5.1.1 如遇紧急情况或安全事故，请立即操作急停开关，并关闭发射器电源；

Once emergency or safety accident occurs, please press e-stop button and shut down transmitter power;

5.1.2 不使用发射器时（包括暂时不使用），应按下急停开关，并关闭发射器电源；

After using the transmitter (including temporary disusing), press e-stop button and shut down transmitter power;

5.1.3 请勿重力操作发射器上各功能开关，以免影响产品寿命，操作力度以该开关或功能键起作用为宜。

Please do not operate every function switches of transmitter forcibly, so as to guarantee the service life of products. Operating force should be subject to making them work.

5.2 常见故障和解决方案/Frequent faults and solutions

故障现象 Fault phenomenon	可能原因 Possible causes	解决方法 Solution
发射器所有指示灯不亮 All indicators on the transmitter are off	1.电源开关未打开 The power switch is not turned on. 2.电池没电 Dead battery 3.没装电池 No battery installed 4.指示灯损坏 Indicator light damaged	1.检查电源开关或更换、安装电池，或联系供应商 Check the power switch or replace or install the battery, or contact the supplier 2.如未解决联系供应商 If unresolved, contact the supplier

开机后发射器蜂鸣器“滴”1声后关机 After powering on, the transmitter buzzer beeps once and then turns off	电池没电 Dead battery	更换专用电量充足的电池 Replace the dedicated battery with sufficient power
开机后发射器蜂鸣器“滴”2声后关机 After powering on, the transmitter buzzer beeps twice and then turns off	数据卡通信丢失 Data card communication lost	1.打开发射器后盖（用3号内六角扳手）重新插拔数据卡 Open the back cover of the transmitter (use a No. 3 Allen wrench) and re-insert the data card 2.如未解决需返厂维修 If the problem is not solved, return to the factory for repair
开机后发射器蜂鸣器“滴”3声后关机 After powering on, the transmitter buzzer beeps 3 times and then turns off	通讯模块故障 RF module faults	1.重新插拔 RF 模块 Re-insert the RF module 2.如未解决需返厂维修 If the problem is not solved, return to the factory for repair
开机后发射器蜂鸣器“滴”6声后关机 After powering on, the transmitter buzzer beeps 6 times and then turns off	发射器急停未拉起或急停损坏 The transmitter emergency stop is not pulled up or the emergency stop is damaged	1.拉起急停，再次尝试 Pull up the emergency stop and try again 2.如未解决需返厂维修 If the problem is not solved, return to the factory for repair.

发射器通信指示灯每 3 秒闪烁 1 次 The transmitter communication indicator flashes once every 3 seconds	1.接收器未上电或损坏 The receiver is not powered or is damaged. 2.未与接收器通讯 2.No communication with receiver	1.重新给接收器上电; Re-power the receiver. 2.近距离操作或更换天线 Close range operation or antenna replacement
发射器指示灯处于急停或故障状态 The transmitter indicator light is in emergency stop or fault state	1.急停开关未复位 Emergency stop switch not reset 2.其他开关未复位 Other switches not reset	1.检查所有开关复位状态, 并使其复位 Check the reset status of all switches and reset them
接收器所有指示灯不亮 All indicator lights on the receiver are off	1.接收器未接上电 Receiver is not powered 2.接收器内保险丝烧断电源正负极接反 The fuse in the receiver is blown. The positive and negative poles of the power supply are connected in reverse.	检查接收器供电电源和保险丝 Check the receiver power supply and fuse
发射器接收器之间不通讯 No communication between transmitter and receiver	1.发射器开关未复位操作距离过远 The transmitter switch is not reset. The operation distance is too far. 2.接收器天线未连接或接触不良 The receiver antenna is not connected or has poor contact.	1.检查所有开关是否复位 Check that all switches are reset. 2.断电重启 Power off and restart 3.检查天线 Check the antenna

通讯后正常操作所有功能无输出 After communication, all functions are operated normally without output	接收器内保险丝烧毁 The fuse in the receiver is blown.	检查接收器，更换保险丝 Check receiver, replace fuse
通讯后正常操作个别功能无输出 After communication, normal operation of some functions has no output	1.发射器：开关坏或其他故障 Transmitter: switch is broken or other faults 2.接收器：继电器坏或者外接线接触不良 Receiver: The relay is broken or the external wiring is in poor contact. 3.其他故障 Other faults	1.如果操作发射器观察接收器指示灯无变化，则发射器有故障，检查该功能开关及开关上的焊线是否正常 If the indicator light on the receiver does not change after the transmitter is operated, the transmitter is faulty. Check whether the function switch and the welding wire on the switch are normal. 2.操作发射器接收器指示灯有变化，检查对应功能的接收器外接输出线是否连接可靠 If the indicator light of the transmitter or receiver changes, check whether the external output line of the corresponding receiver is connected reliably. 3.如未解决联系供应商 If unresolved, contact the supplier

通讯后正常操作个别功能无输出 After communication, normal operation of some functions has no output	接收器该功能输出端短路 The output terminal of the receiver is short-circuited.	检查该功能输出线是否与负极连通或搭铁 Check whether the output line of this function is connected to the negative pole or grounded.
正常工作中操作某一功能，接收器出现断电现象，指示灯全部熄灭 When operating a certain function during normal operation, the receiver loses power and all indicator lights go out	接收器该功能输出端短路 The output terminal of the receiver is short-circuited	检查该功能输出线是否与负极连通或搭铁 Check whether the output line of this function is connected to the negative pole or grounded.
接收信号差（偶尔断信号） Poor signal reception (occasionally disconnected)	1.信号受强干扰（高压线或是其他无线信号，如大功率对讲机干扰） The signal is subject to strong interference (high voltage lines or other wireless signals, such as high-power walkie-talkie interference) 2.遥控器受障碍物(如墙体)遮挡 The remote control is blocked by obstacles (such as walls)	1.减少大功率无线设备的使用 Reduce the use of high-power wireless devices 2.天线放高或缩短操作距离 Place the antenna higher or shorten the operating distance 3.操作时避开障碍物或更换频率 Avoid obstacles or change frequency during operation
接收信号特别差（10m内） The reception signal is particularly poor (within 10m)	1.天线损坏或者接触不良 The antenna is damaged or has poor contact.	1.检查天线是否连接牢固或更换天线 Check whether the antenna is firmly connected or replace the antenna.

摇杆开关不复位 Rocker switch does not reset	1.使用时间过长机械磨损 1.Mechanical wear due to long-term use 2.复位弹簧损坏 Return spring damaged	1.返厂维修更换摇杆开关 Factory repair and replacement of rocker switch
遥控器意外进水 The remote control accidentally got wet	N/A	1.立即停止工作，切断电源，用吹风机吹干后使用 Stop working immediately, cut off the power supply, and use a hair dryer to dry before use 2.如未解决联系供应商 If unresolved, contact the supplier

表 4

Table 4

6. 包装、储运、维护/Packaging, storage & transportation and maintenance

6.1 包装说明 / Packaging Description

产品采用内外双层纸质包装，可满足海运、陆运、空运运输要求。纸质包装禁止长期放置在潮湿、积水环境。

The product adopts double-layer paper packaging, which meets the requirements of sea, land and air transportation. Do not place the paper packaging in humid or waterlogged environment for a long time.

6.2 仓储要求 / Storage Requirements

- 1.仓储环境：环境温度 $-10^{\circ}\text{C} \sim +40^{\circ}\text{C}$ ，相对湿度 $\leq 80\%$ ；

Storage environment: Temperature $-10^{\circ}\text{C} \sim +40^{\circ}\text{C}$, Relative Humidity $\leq 80\%$.

- 2.仓库要求：通风良好、无腐蚀性气体、无强电磁场干扰；

Warehouse requirements: Well ventilated, free of corrosive gas and strong electromagnetic interference.

- 3.堆叠规范：包装箱按标识方向朝上码放，堆叠层数不得超过 5 层。

Stacking rules: Place cartons according to the upward mark. Maximum stacking layer: 5 layers.

6.3 运输要求 / Transportation Requirements

运输过程中避免雨雪直接淋袭、剧烈振动与冲击；禁止野蛮装卸、踩踏、挤压、跌落，防止包装及设备损坏。禁止抛掷、高空坠落；单人手持即可，无需吊装。本项符合性通过文件检查验证。

Avoid direct rain, snow, severe vibration and impact during transportation. Violent loading/unloading, trampling, extrusion and dropping are prohibited to prevent damage to packaging and equipment. Do not drop or throw. Hand-held operation only, no hoisting required. Conformity is verified by document inspection.

6.4 日常维护 / Routine Maintenance

建议维护周期：每 2 周 1 次

Recommended maintenance cycle: Once every two weeks

- 1.每日必检：作业前测试急停功能，确认动作可靠；

Daily inspection: Test the emergency stop function before operation to ensure reliable performance.

- 2.定期检查开关、摇杆等操作部件，出现卡滞、损坏及时更换；

Inspect operating components such as switches and rockers regularly. Replace them timely if stuck or damaged.

3.检查防水橡胶套、防尘配件，破损后立即更换，保证 IP66 防护性能；

Check waterproof rubber sleeves and dustproof accessories. Replace damaged parts immediately to maintain IP66 protection performance.

4.检查腰带、肩带等附属配件，损坏后及时修复 / 更换；

Inspect accessories such as belts and shoulder straps. Repair or replace them in time if damaged.

5.保持设备表面清洁，保护铭牌及标识清晰完整；

Keep the device clean and ensure the nameplate and marks are clear and intact.

6.检查接收器壳体，出现裂纹、变形时立即检修，防止防护失效；

Inspect the receiver shell. Repair it immediately if cracks or deformation are found to avoid protection failure.

7.定期检查接收器电气接线、连接器，保证连接牢固、防护完好。

Check the wiring and connectors of the receiver regularly to ensure firm connection and complete protection.

6.5 通风要求 Ventilation requirements

设备使用时无需强制通风，禁止完全包裹封闭。

No forced ventilation required. Do not enclose the device completely.

7. 质量保证与售后服务 Quality warranty and after-sale service

7.1 质量保证 Quality warranty

7.1.1 我公司保证本产品出厂时，完全符合其所公布之各项规格，只要正确安装，都可以正常使用。

Our company guarantees that the all products conform to the specifications declared and could be put into service after correct installation.

7.1.2 在用户妥善保管和合理安装、正确使用的条件下,产品自出厂日起享有一年的质保期，质保期内，属产品质量问题，技景公司负责维修。

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;

7.1.3 需要修理的产品需送往技景公司指定的服务处。

The product that needs to be repaired must be sent to the service office designated by Techwell.

7.1.4 前述的质保范围未包含事项：

Above-mentioned quality warranty excludes:

未包含开关、继电器、保险丝、电池、防尘罩等损耗性零件。

Consumable parts such as switches, relays, fuses, batteries, dust covers, etc. are not included.

未包含装机错误所造成的电路板损坏等。

Circuit panel damage caused by wrong installation.

未包含因客户不当使用、维修不足、操作环境规格的忽略、未经许可的变更、错误的使用或客户自行设置介面而造成之故障。

Improper using, bad maintenance, ignoring of operating environment specification, unauthorized modification, incorrect using or faults caused by customers' interface setting.

未包含不可避免之天然原因损坏（包括雷击、风灾、水灾等不可抗拒因素）。

Damage due to unavoidable natural causes (including lightning strikes, wind disasters, floods and other force majeure factors) is not included.

未包含其他法律规定之不可预见之因素。

Unpredictable factors specified in other laws and regulations

7.1.5 售后服务 After-sales service

技景科技以“优质服务、专业保障”为服务理念，建立了多项售后服务标准，让客户高效的使用技景科技提供的智能工控设备。技景科技在服务中精益求精，竭诚为客户提供专业、高效的售后服务和强有力的售后支持。

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.

7.1.5.1 及时响应 Instant response

客服人员 7*24 小时无节假日响应，保障客户随时随地得到技术支持及疑难问题的解答，为客户提供精准的服务。

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.

7.1.5.2 升级改造 Up grading

根据企业及相关设备的实际发展或操作需求，定制出适合企业或者相关设备的升级改造方案。

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.

7.1.5.3 操作培训 Operation training

“伴随式”发展为客户提供相关智能遥控器的操作培训或维修保养等相关培训服务。

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

7.1.5.4 技术支持 Technical Support

通过电话支持、在线诊断、远程监控和现场维修的方式，为客户提供及时的帮助。

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

附录 / Appendix

附录 A 配件清单 / Appendix A Accessories List

标准配置：工业遥控器发射端 ×1、BL2S-P 锂电池 ×2、CL2S 专用充电器 ×1、说明书 ×1

Standard Configuration: Industrial Remote Control Transmitter ×1, BL2S-P Lithium Battery ×2, CL2S Dedicated Charger ×1, Operation Manual ×1

附录 B 锂电池废弃处置 / Appendix B Waste Lithium Battery Disposal

废旧锂电池属于危废，禁止随意丢弃、投入生活垃圾。请按照当地环保法规，交由专业危废回收机构统一处置。

Waste lithium batteries are hazardous waste. **Do not discard them into domestic garbage.** Please hand them over to professional hazardous waste recycling institutions in accordance with local environmental regulations.