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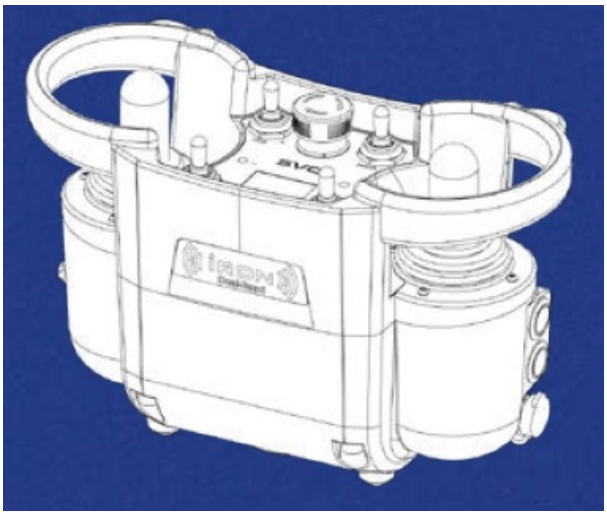
LAB-T IRON-MD Wireless Remote Control



Product Specifications

- **Brand:** IRON-MD
- **Type:** Digital Advanced Sensors
- **Manufacturer:** Lab-T, Inc.

Product Overview

The IRON-MD is a digital advanced sensor system designed for precise monitoring and transmission of data. It consists of a transmitter and a wireless receiver to provide accurate information in various applications.

Before Operation

Before operating the IRON-MD system, ensure that you have read and understood the user manual thoroughly. Familiarize yourself with the basic requirements and safety guidelines outlined in the manual.

Basic Requirements

- Users should have basic electrical knowledge about equipment control.

Safety Guide

- Use the product properly after fully understanding its features and specifications.
- Do not disassemble the product as it is not field serviceable.
- When supplying power, ensure a fuse is installed externally for safety.

Product Usage Instructions

Start Transmitter Operation

Follow the steps outlined in the user manual for transmitter inspection, start-up procedure, shutdown, emergency stop, and interpreting status light meanings.

Battery

If the battery voltage is low, follow the instructions for replacing or recharging the battery to ensure uninterrupted operation of the system.

Manufacturer Debugging Mode

Refer to the user manual for instructions on accessing the manufacturer debugging mode for troubleshooting and advanced settings.

Wireless Receiver Installation

For installing the wireless receiver, follow the installation and verification steps provided in the manual for seamless integration with the transmitter.

Breakdown Repair

If any issues arise with the system, refer to the breakdown repair section of the manual for guidance on resolving common problems.

Before Start

Explanation of Symbol Used

The symbols below are explanations of important information and safety symbols used in this manual.

 This icon marks important information or a point to note.

 This icon marks information or cautions about very important matters.
Failure to pay attention to this indication could result in personal injury or damage to the instrument’s software.

 This icon indicates a warning that may result in electrical hazards or personal injury.

Basic Requirements

User of this document should basically have basic electrical knowledge about equipment control.

Safety Guide

- Users of this document should follow the general machine safety guidelines below.
- Use the product properly after fully understanding the features and specifications of this product and how to use it.
- Do not disassemble the product as this product is not field serviceable.
- When supplying power to this product or system, a fuse must be installed externally.
- In addition, the installation and wiring of this product must be done by referring to the documentation.

Warranty

- The manufacturer disclaims any liability for products fir for ant particular purpose, other than as expressly stated in writing.
- The manufacturer’s product warranty period is within 18 months after delivery and 12 months after application to the product.
- The manufacturer provides a liability warranty against defects in the product and associated firmware and hardware arising from defects in materials, design or workmanship.
- Manufacturer’s sole obligation under this warranty is, at Manufacturer’s option, to replace the product, update the relevant firmware, or repair any defective product.
- The manufacturer is not responsible for any costs related to damage to the device in the event of a defect and does not bear any expenses.
- The warranty is void if the purchaser or other companies do not follow the user manual or change the product or firmware.

Product Overview

DAS wireless remote transceiver IRON series is a wireless transceiver for safe use of wireless control of construction equipment (aerial work truck, crane, pump car, tower crane, wireless excavator, agricultural machinery, field, etc.). It uses the basic frequency of 443MHz and hasa built-in chammel change function to prevent crosstalk. Using 2.4GHz band bluetooth communication at the same time, it receives the status of construction equipment wirelessly and displays it on the graphic LCD mounted on the transmitter. Help to operate safely. In addition, the wireless transmitter can be used continuously for more than 40 hours with a single charge through a low-power consumption design.

Main Features

- A joystick that is easy to use for extended periods of time. Reduced fatigue by using AirCell shoulder straps
- User operation sensitivity setting function
- Enough use time on a single charge (18650 3.7V / 3A lithium ion battery that can be easily purchased)
- CAN communication output support
- Transmitter wired function support

Component List

Wireless Transmitter 1EA

Wireless Receiver 1EA

Shoulder Suspenders 1EA

Battery Charger 1EA

Product Specifications

Transmitter Specifications

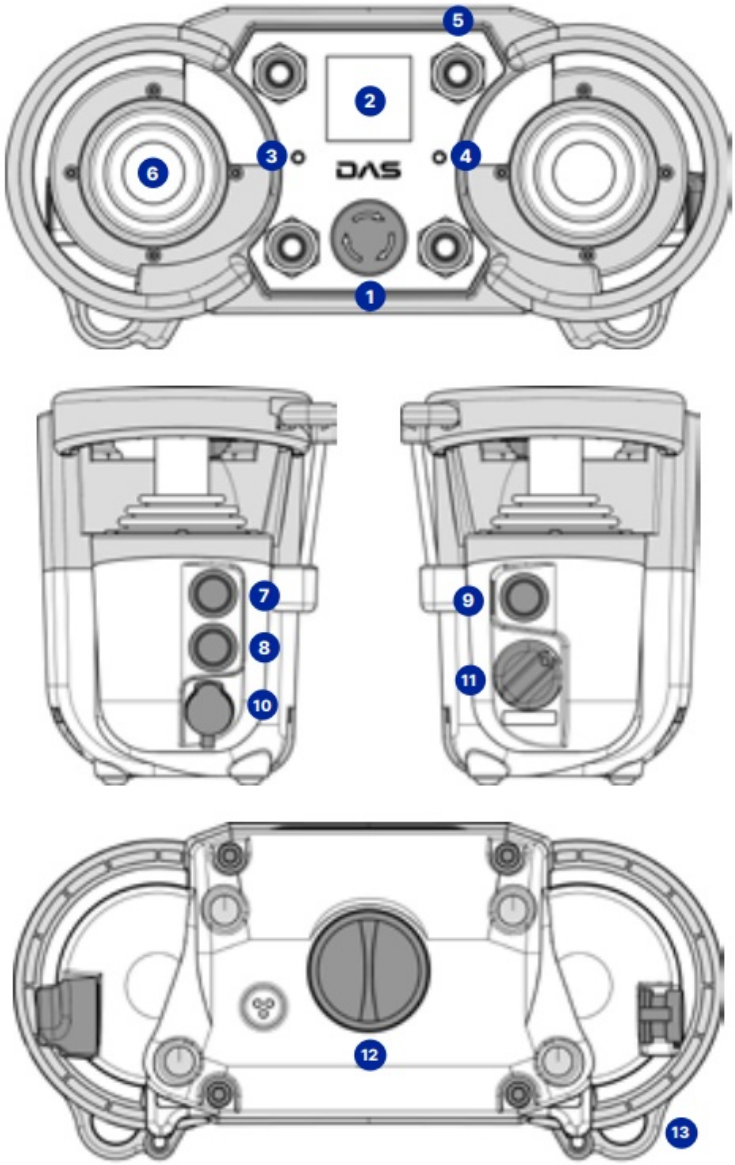
Classification	Specifications
Display	GRAPHICS LCD 128*128 (OPTION)
Radio Frequency	434 MHz / 2.4 GHz
Used Battery	Li-ion 18650 3.7V / 3A
Battery Charging Time	5hours
Usage Time After	more than 40 hours
One Charge	
Operating Temp.	-20˚C to + 70˚C
Storage Temp.	-40˚C to + 85˚C

Waterproof Rating	IP65
Weight	1.1 kg

Receiver Specifications

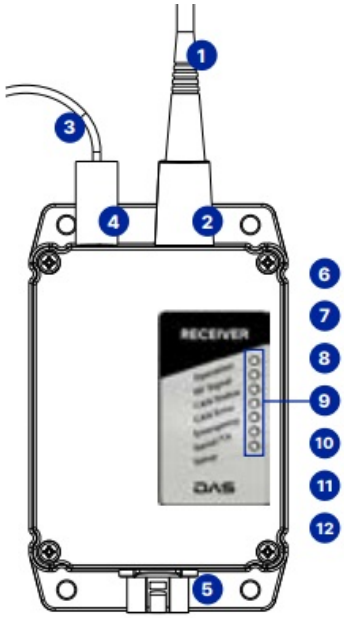
Classification	Specifications
LED Status Indication	7 LED
Radio Frequency	434 MHz / 2.4 GHz
Supply Power	DC 8-26 VDC, 3A Min
Communication	CAN
Output Method	
Contact Output	RELAY 10A
Operating Temp.	-20˚C to + 70˚C
Storage Temp.	-40˚C to + 85˚C
Waterproof Rating	IP65
Weight	0.4 kg

Each Part of the Transmitter



1. Emergency Stop Switch
2. Status Monitoring LCD (option)
3. RUN LED
4. PW LED
5. Function Selection Toggle Switch
6. 2-axis Joystick (front, back, right, left)
7. Engine START Push Button
8. Engine STOP Push Button
9. START, HORN Push Button
10. Wired Communication Connector
11. KEY LOCK Switch
12. Li-ion Battery Holder Cap
13. Shoulder Strap Loops

Each Part of the Receiver



1. 434 MHz Antenna
2. 434 MHz Antenna Cap
3. 2.4 GHz Antenna Cable
4. 2.4 GHz Antenna Cap
5. I/O Connector
6. Indicator LED During Operation
7. Radio Signal Activity Indicator LED
8. CAN Status LED
9. CAN Communication Error Display LED
10. Emergency Stop Operation Indicator LED
11. Sefial Communication Transmit Indicator LED
12. Set up Operation Indicator LED

Before Operation

Risk

DANGER

- Do not drive unless you have been trained in the safety and operation of the remote control and know the features of the machine.
- Be very cateful as the wifeless remote control can operate normally even in a place

where are obstacles or where is no view.
- It is safe to turn off the transmitter when not in use.
- When moving away from the transmitter, it is safe to turn off the KEY LOCK switch. (To separate the KEY LOCK switch, hold the handle of the switch and pull it out.)

Preparation Before Operating

WARNING

- Be sure to test and use the emergency stop function.
  Never operate the machine when the emergency stop function is not functioning properly.
- Transmitters should always be checked before operating and before starting a shift.
  Make sure you read all safety labels.
- Visually inspect the transmitter for wear or damage.
  If the transmitter has worn or damaged parts, do not operate it.

Transmitter Handling

The front of the transmitter should be facing forward, the text on the control panel should be clearly visible and legible, and the length of the shoulder strap should be adjusted to a height that is comfortable and easy to operate.

WARNING
Operation without holding the transmitter properly may cause equipment malfunction.

Start Transmitter Operation

Transmitter Inspection and Start-up Procedure

1. Check that the safety measures of the mechanical equipment are observed.
2. Make sure the battery is sufficiently charged.
3. Press the emergency stop button.
4. Turn the KEY LOCK switch clockwise to turn on the power.
5. Unscrew the emergency stop button.
6. If you press the START button on the right side of the transmitter, the operation RUN

LED (green) blinks quickly and transmission starts.

7. Check the function of the equipment to see operates normally.
   Scince the equipment may move during this check, care must be taken to ensure that is functioningis safe and that there are no cbstructions around the equipment.
   WARNING
8. Press the emergency stop button and check once again whether the function of the machine is stopped.
   WARNIMG
   If the equipment moves even though the emergency stop button is pressed, turn off the transmitter immediately, remove the battery, and contact a professional technician.
9. When the START/HORN button is pressed, transmission operation preparation is completed.

Transmitter Shutdown

1. Press the emergency stop button.
2. Turn the KEY LOCK switch counterclockwise to turn off the power.
3. Remove the KEY LOCK switch.
   Keep the KEY LOCK switch in a safe place so that no one can operate it.

Emergency Stop

1. Press the emergency stop button.
2. After confirming that the emergency situation has been lifted, resume operating.

Status Light Meaning

- When the RUN LED (green) blinks, the joystick is operating.
- When the RUN LED (green) turns off, the joystick operation is stopped.
- When the PW LED (green) blinks, the power is on, the battery is normal.
- When the PW LED (red) blinks, the power is turned on, and the battery is charging.

Battery Low Voltage Warning

If the battery is depleted during driving and the voltage becomes low, the buzzer sounds twice, and after 30 seconds, the buzzer sounds at 1-second intervals for 30 seconds,

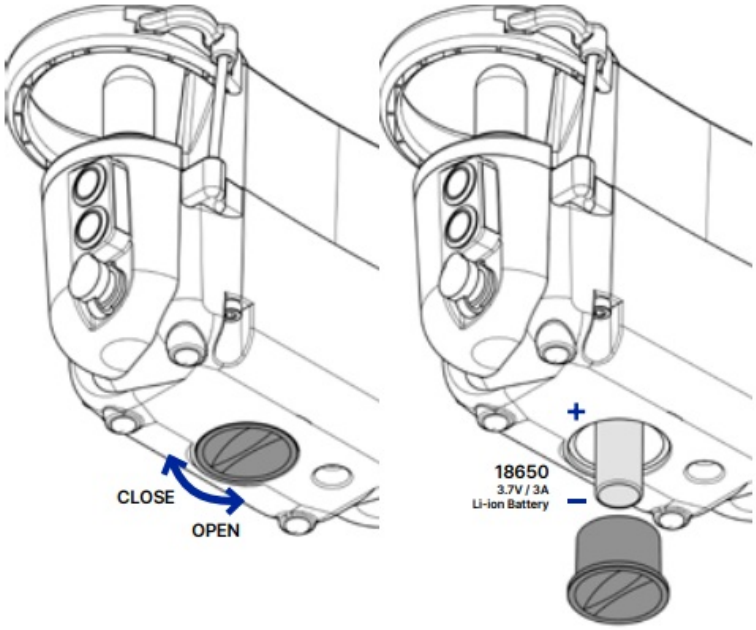
and then the transmitter automatically turns off for safety.
Secure the equipment during this time.

When using the transmitter again, replace the battery and start according to the proecedure for starting operation of the transmitter.

Battery Replacement and Charging

Replacing Batteries

1. The battery is located on the underside of the transmitter.
2. Turn the battery cap counterclockwise to open the cap.
3. Remove the exhausted battery and replace it with a charged battery. (when replacing, pay attention to the polarity of the battery. inside +, cap side -)
4. Trun the cap clockwise to lock.



Battery Charge

1. Insert the USB charger cable into the AC220V adapter or car cigar jack adapter.
2. Insert the dead 18650 battery into the battery charger. (Pay attention to polarity)
3. The charging progress is displayed on the lamp of the charger.
    - **Charging**: RED LAMP on
    - **Charging Complete:** GREEN LAMP on
    - **Error Check**: RED LAMP blinks

4. When the green lamp lights up, charging is complete.

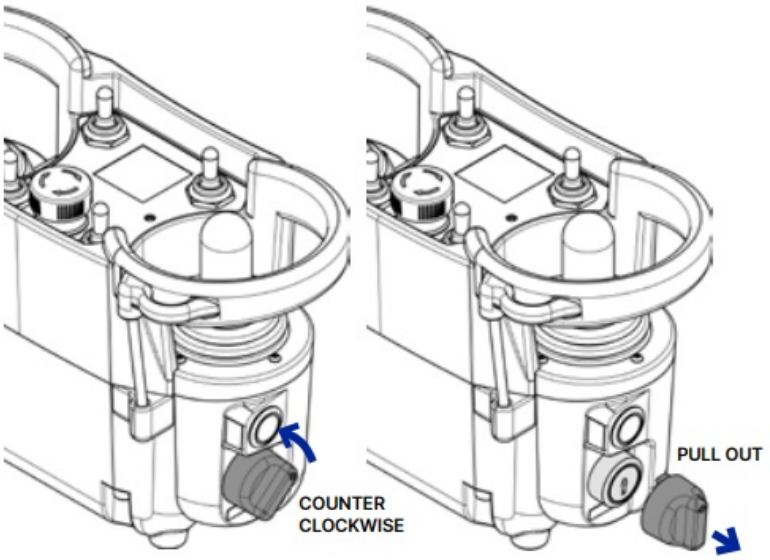
18650 CHARGER

Manufacturer Debugging Mode

How to Remove KEY LOCK Switch

Turn the KEY LOCK switch counterclockwise and pull it out.

Forcibly pulling out without turning it may cause a malfunction.



Debugging Connector Pin Definition

1. USB-5V
2. USB-DP
3. CAN-H
4. Power 24V
5. CAN-L
6. USB-DN

7. USB GND / Power24V GNG

7 Pin connector

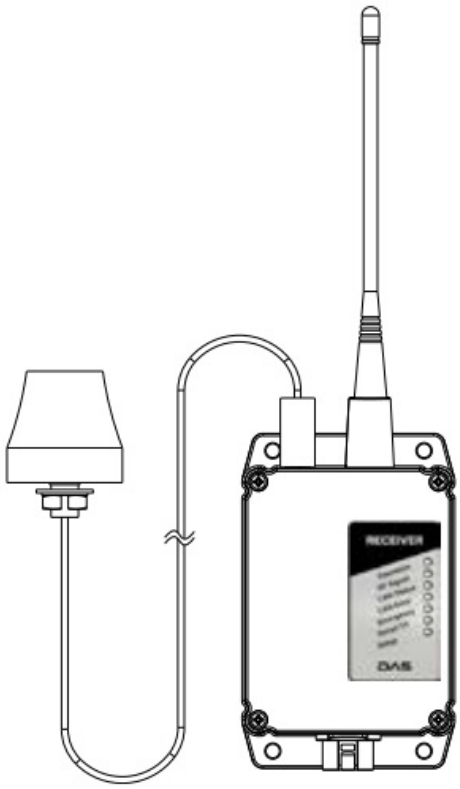
Debugging the Connector PC Connection

Insert the debugging plug into the 7-pin connector.

Wireless Receiver Installation

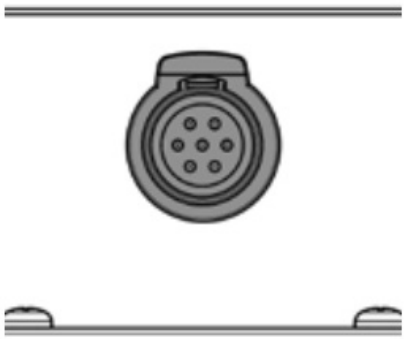
Receiver Installation and Verification

1. Turn off the power to the equipment before installing the receiver.
2. Adjust the wireless receiver to the installation location of the wireless receiver with bolts.
3. Insert the receiver’s PIN connector plug.
4. After turning on the power of the equipment, check the operation LED on the top of the receiver.
5. Operate the transmitter and confirm that the RF signal LED is blinking and the equipment is operating.



Wireless Receiver 7Pin Connector Pin Specification

1. CAN_L: Data output from transmitter
2. CAN_H: Data output from transmitter
3. N.C: Not used
4. GND: – Power supply terminal
5. V+ (8~30V) : + Power supply terminal
6. RS 232-TX : RS-232C for debugging
7. RS 232-RX : RS-232C for debugging



7 Pin connector

Breakdown Repair

Battert does not charge.

- Check that the charger has power.
- Check that the battery insertion polarity is correct.

Replaced the battery with a charged one, but the power-on operation does not work.

- Make sure the battery is inserted upside down.
- Check the voltage and polarity of the battery again, if normal Request A/S

The system does not work even after START.

- Check the battery and replace if necessary.
- Check if the KEY LOCK switch is off.
  (If it is bad or there is no contact, the power with LED turns off and on twice)
- Check that the receiver power is on.

The transmitter is on but not transmitting.
(GREEN LAMP not blinking)

- Check the battery and replace if necessary.
- If the battery is sufficiently charged there is a malfunction inside the transmitter. → Request A/S

It transmits, but the machine does not move.

- If the equipment is out of range, restart within the range of operation.
- Check that + and – are properly supplied to the powe supplied to the receiver.
- If the frequency channels of the transmitter and receiver do not match, and it do not operate even after turning the power off and on. → Request A/S
- The transmitter and receiver device IDs are missing internally or do not match. → Request A/S

All functions of the device are working or not working

- Check receiver antenna wiring and grounding.

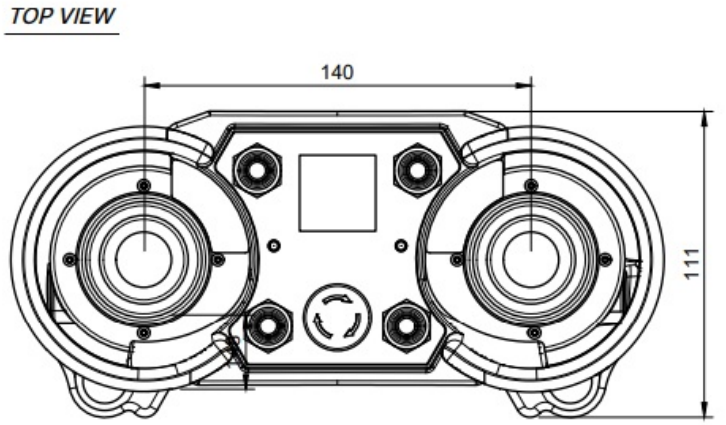
- Check for confusion.
- Check the receiver’s internal connector.

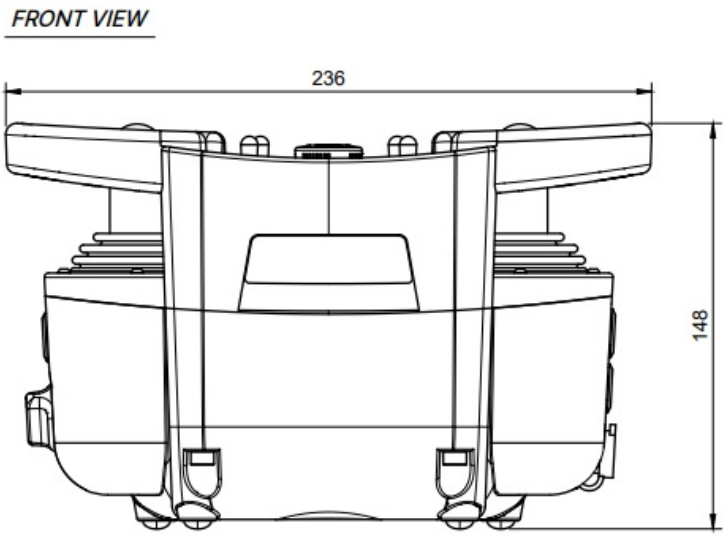
Some if the features of the device are working or not working.

- After checking whether the wiring connected to the equipment is loosely connected, check the wiring between the receiver and the valve controller, and between the valve controller and the actuator.
- The connector inside the receiver is loose.

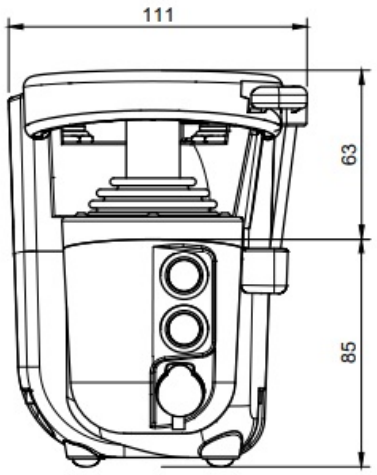
Product Dimensions

Transmitter Dimensions



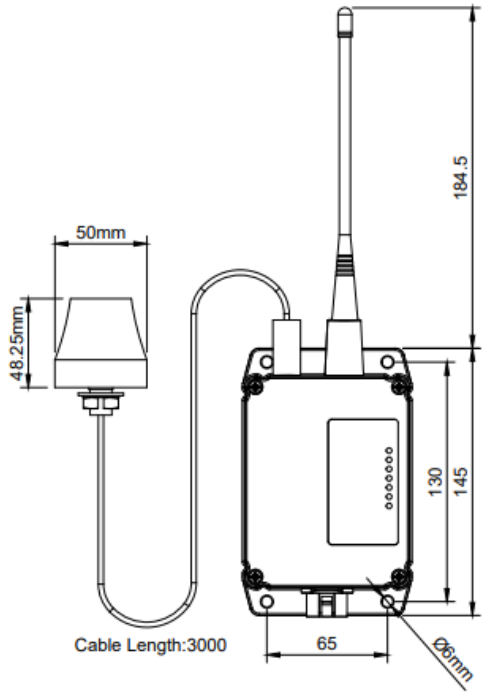


SIDE VIEW

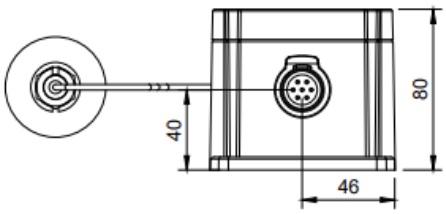


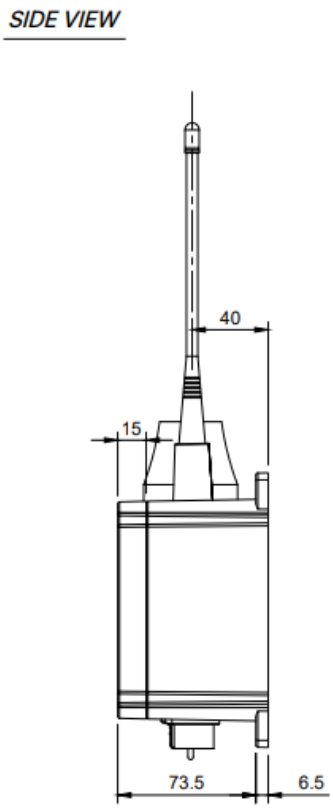
Receiver Dimensions

TOP VIEW



FRONT VIEW





Precautions when Welding

- Some welding devices have high current flow and voltage peaks.
- It should be noted that components of the control system may be damaged if this welding current passes through the control module itself.
- When welding, care must be taken to avoid high currents going through the controller or CAN bus.
- Carefully follows these guidelines.
- Disconnect all connectors on the control unit before welding.

Even if the control system is de-energized, welding must be carried out carefully and with appropriate safety precautions. A welding ground must be connected near the welding point to prevent high currents from flowing over long distances through the machine frame.

FCC/IC Compliance Statement

This device complies with Part 15 of the FCC Rules and Industry Canada license-exempt RSS standard (s).

Operation is subject to the following two conditions: {1) this device may not cause harmful interference, and {2) this device must accept any interference received, including interference that may cause undesired operation.

CAUTION: Any Changes or modifications not expressly approved by the manufacturer could void the user's authority to operate the equipment. This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment to an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

(For Receiver)A minimum separation distance of 20 cm must be maintained between the antenna and the person for this appliance to satisfy the RF exposure requirements. (For Transmitter.)A minimum separation distance of 6 cm must be maintained between the antenna and the person for this appliance to satisfy the RF exposure requirements.

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FAQ

Common Issues and Solutions

1. **Battery does not charge:** Check battery connection and try a different power source.
2. **Power on operation does not work:** Ensure correct battery placement and check for any faults in the power supply.
3. **Transmitter not transmitting:** Verify transmitter settings and check for interference.
4. **Machine does not move:** Inspect connections and ensure proper setup of the system.
5. **Device functions not working:** Check for loose connections or contact technical support for further assistance.

Documents / Resources

	LAB-T IRON-MD Wireless Remote Control [pdf] User Manual 2BHL8-IRON-MD-RD, 2BHL8IRONMDRD, IRON-MD Wireless Remote Control, IRON-MD, Wireless Remote Control, Remote Control

References

- User Manual

LAB T

2BHL8-IRON-MD-RD, 2BHL8IRONMDRD, IRON-MD, IRON-MD Wireless Remote Control, LAB T, Remote Control, Wireless Remote Control

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