Installation & Operation Manual
FCC ID: LWNF21-E1B
F21-E1B type
Industrial Radio Remote Controller

TELECRANE Lee's Hi-tech Ent. Co., Ltd.

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Part. 1 Operator’s Manual

Safety Considerations

This product and related documentation must be reviewed for familiarization with safety markings and instructions before operation.

Safety Symbols — The following symbols may be found on the remote control or throughout the remote control's documentation.

Refer to Manual

When product is marked with this symbol refer to instruction manual for additional information.

High Voltage

Indicates presence of hazardous voltage. Unsafe practice Could result in severe personal injury.

Protective Earth Ground

Indicates protective earth terminal.

Warning

Denotes a hazard. Included text gives proper procedures. Failure to follow instructions could result in severe personal injury and/or property damage.

Caution

Denotes a hazard. Included text gives proper procedures. Failure to follow instructions could result in minor personal injury and/or properly damage.

Part 1. Operator's Manual

Chapter 1 Warranty

1-1 ***Warranty*** Lee's Hi-Tech Enterprises Co., Ltd. guarantees that this product meets its published specifications at the time of shipment from the factory. Under proper installation it should work as expected.

1-2 ***Warranty Period*** This equipment is warranted against defects in material and manufacturing for a period of one year from the date of shipment. During the warranty period, TELECRANE is responsible for necessary repairs as long as the product can be proved to be defective.

For warranty service or repair this product must be returned to a service facility designated by TELECRANE. Buyer will pay shipping charges to TELECRANE while TELECRANE will pay return shipping charges.

1-3 Excluded Items

This warranty does not include consumptive parts such as batteries, fuses, buttons, relays. Also this warranty does not cover defects caused by improper installation, improper or insufficient maintenance, unauthorized modification, improper operation, ignorance of environmental specifications, or improper software or interfacing.

1-4 Remarks

◎No other warranty is expressed or implied, except for the above mentioned.

◎The remedies provided herein are the buyer's sole and exclusive remedies.

TELECRANE shall not be liable for any direct, indirect, special, incidental or Consequential damages.

Chapter 2 Precautions of Operation

2-1 Attention

◎Please carefully read the manual before installing and operating this device.

◎Due to the complex nature of this equipment it is necessary to read the entire manual before installation.

◎Never dismantle the equipment by any unauthorized personnel, or equipment may be damaged.

◎This manual is for reference only. Pleases consult your distributor for further assistance.

◎The equipment has been strictly tested for quality before delivery from our plant. However, this equipment must not be used in dangerous situations or where damage may result.

◎After finishing operation of TELECRANE shut off main power to the crane, power to receiver, and remove transmitter key. If transmitter's power is controlled by "rotary key switch", then need turn the key to "OFF" position and remove it.

◎Transmitter should be placed in a safe area when not in use to avoid accidental pressing of buttons.

◎The crane should be equipped with main power relay, limit switch and other safety devices.

◎The GND (ground) of the receiver must be in contact with the metal part of the crane or electrical shock may occur.

◎Don't use equipment during lightening or high electrical interference conditions.

◎Make sure that the batteries are in good condition and power for receiver is correct.

◎Installation and maintenance should only be done while the crane's main power is off to prevent electrical shock.

◎The contents of this manual may be amended by the manufacturer without notice.

◎The manufacturer may introduce new functions to the equipment as necessary, therefore, the descriptions may change.

◎The patent and related documents for the equipment belong to LEE'S HI-TECH CO., LTD. and they aren't allowed to be used by others without permission.

◎F21 series systems adopt many of patents belong to LEE'S HI-TECH CO., LTD. and its associated companies.

2-2 Precautions

☆ Operating in an industrial facility is highly dangerous, therefore, operator must have adequate training in using TELECRANE with this in mind.

☆ Those who operate the machine should be healthy and have good judgment in regards to safety.

☆ Although the F21 transmitter is very durable and weather resistant care should be taken not to expose it to severe impact or pressure.

☆ During operation, if the power supplied from transmitter's batteries is insufficient, the transmitter will send out EMS signal first to de-energize all of motion relays inside the receiver to stop crane's moving (Notice: the motions which are set as "Bypass EMS" will continuously move.), and then the LED indicator on transmitter will light continuously. At this time, need to be replaced with AA size alkaline batteries. All batteries should be replaced at the same time. Don't use manganese-zinc batteries because of their corrosive properties.

☆ If the severe interference occurred you should stop using the equipment at once.

☆ Please take the battery out when the equipment will not be used for a long time.

☆ Be sure to know the "Procedures of emergency" in case of emergency.

2-3 Procedures of emergency

The F21 system has various protections to guard against different emergencies including strict security code checking and automatic monitoring of parts failure. The F21 system has isolation circuitry to protect from outside voltage surges and interference. In the event of sensing an emergency situation the F21 will perform an emergency stop of the equipment. It is important to properly install the F21 system so it can perform the emergency shutdown properly.

In case of an Emergency, please follow the steps below and ask the distributor for service immediately.

1. Press EMS button.
2. Turn the “rotary key switch” to “OFF” position and remove it.
3. Switch off the main power of crane.
4. Advise the distributor to find out the reason.

Chapter 3　F21-E1B Standard Accessories

When you get a standard and full set of F21-E1 system, it includes the following item.:

(1)Transmitter, one unit.

(2)Receiver, one unit.

Remarks：

(1). Hamming Distance----------≧4
(2). I.D. Code----------More than 42 billion ID Code(32bit)
(3). Channel Spacing----------267.5KHz

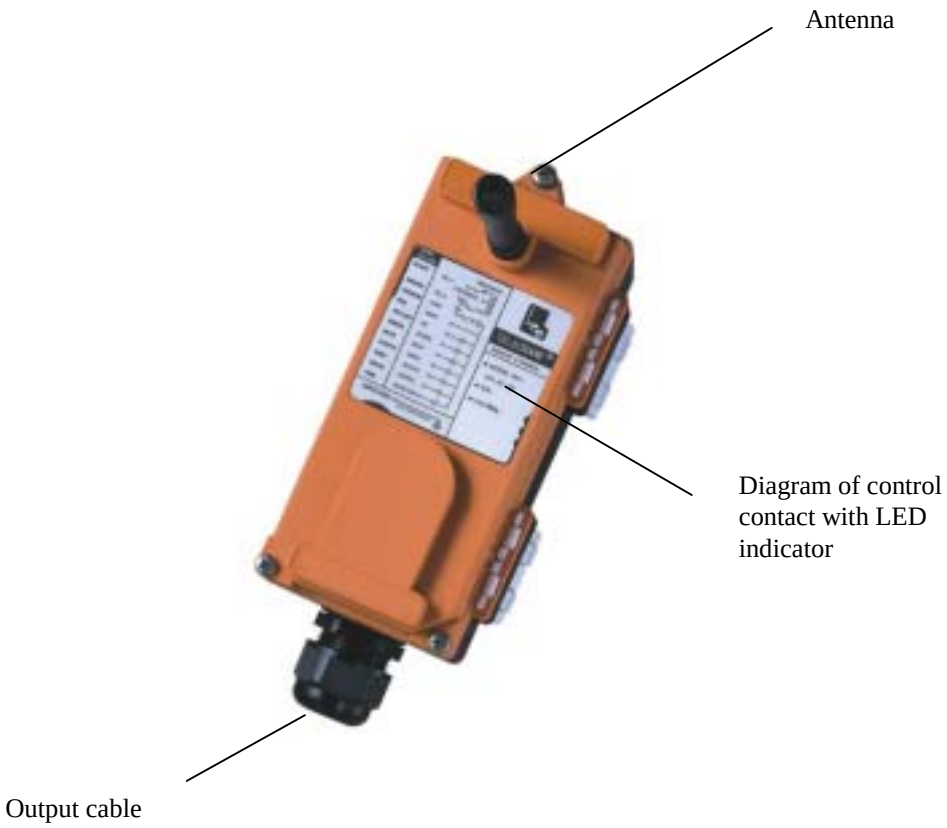
Chapter 4　Operation

4-1 F21-E1B Transmitter's parts

Remarks：

(1). Power----------Two 1.5Volt Alkaline Batteries（AA Size）
(2). Dimensions----------164ㄨ75ㄨ46mm
(3). Weight----------about 380g（W/batteries）

4-2 F21-E1B Receiver's parts



Remarks：

(1). Input Voltage----------110VAC（50/60Hz）±10%
(2). Output Relays----------10A/250VAC.
(3). Dimensions----------185X85X85mm（LXWXH）
(4). Weight----------about 550g（W/O wire cable）

4 – 3 General Operation

1. Switch on the main power switch of the equipment (e.g. Crane)
2. Install AA-size Alkaline batteries
3. Insert magnetic key or rotary key and switch to ON position.
4. Follow the power on procedure to energize the main relay inside receiver.
5. Operate normally according to the function settings have been done.
6. After operation, please proceed as following: (1) Press EMS pushbutton /mushroom, (2) rotate key counter-clock-wise to the "OFF" position (3) remove key and keep it in a safe place, (4) Switch off the main power switch of the equipment (e.g. Crane)

4 – 4 Special Functions Operation

4-4-1 Swapping COM & MAIN wires

According to the standard wiring diagram, all relays including the Main relay will be turned off when the EMS is pressed. However, when a pushbutton is programmed as a TOGGLE or an ON/OFF function with bypass EMS control, it won't work correctly with the standard wire setting diagram. In order to program a pushbutton as TOGGLE or ON/OFF with bypass EMS control, the MAIN wire and COM wire must be swapped.

4-4-2 Changing the frequency

It is very simple to change the frequency of the new F21 crystal series. The systems frequency can be changed simply by replacing the correspondent crystal frequency in both the TX and RX.

Instructions:

(1). Pry up the crystal unit with a flat screwdriver
(2). Remove the crystal unit from the system.
(3). Use a needle nose pliers to straighten both pins of the new crystal unit.
(4). Insert the new crystal unit vertically into the PC board.
(5). Press the new crystal down into the socket.

4-4-3 Independent COM Line:

The new F21 crystal series provides the option of independent (separated) COM lines.

F21- E1B: 4 independent COM lines (Up/Down, East/West, South/North and R0)

If the independent COM Line is required, cut the wire labeled with a white "X.". The longer part of the wire will become the new COM Line. Then you may connect this new COM wire with an output wire.

4-4-4 Replacing the Fuse

Depress the fuse cover and turn counter-clockwise with flat screwdriver to open up the fuse cover. Then remove the old fuse. Insert the new correct fuse into the cover first. Place this fuse along with cover into the fuse holder base, and depress the fuse cover and turn clockwise with flat screwdriver.

4-4-5 Changing R0/START NO (Normally Open) relay into NC (Normally Close).

The new F21 crystal series provides 2 different outputs: NO and NC. The NO is the default setting. If a NC output is necessary, remove the No. 11 wire (R0/Start, pink color) from the connector and insert it in No. 12.

4-4-6 Remote Setting

Remote setting allows you to pair the new TX and RX if one of them is damaged. In order to work the TX & RX must have the same ID codes and frequency. Using remote setting will make both the TX and RX to have the same ID codes.

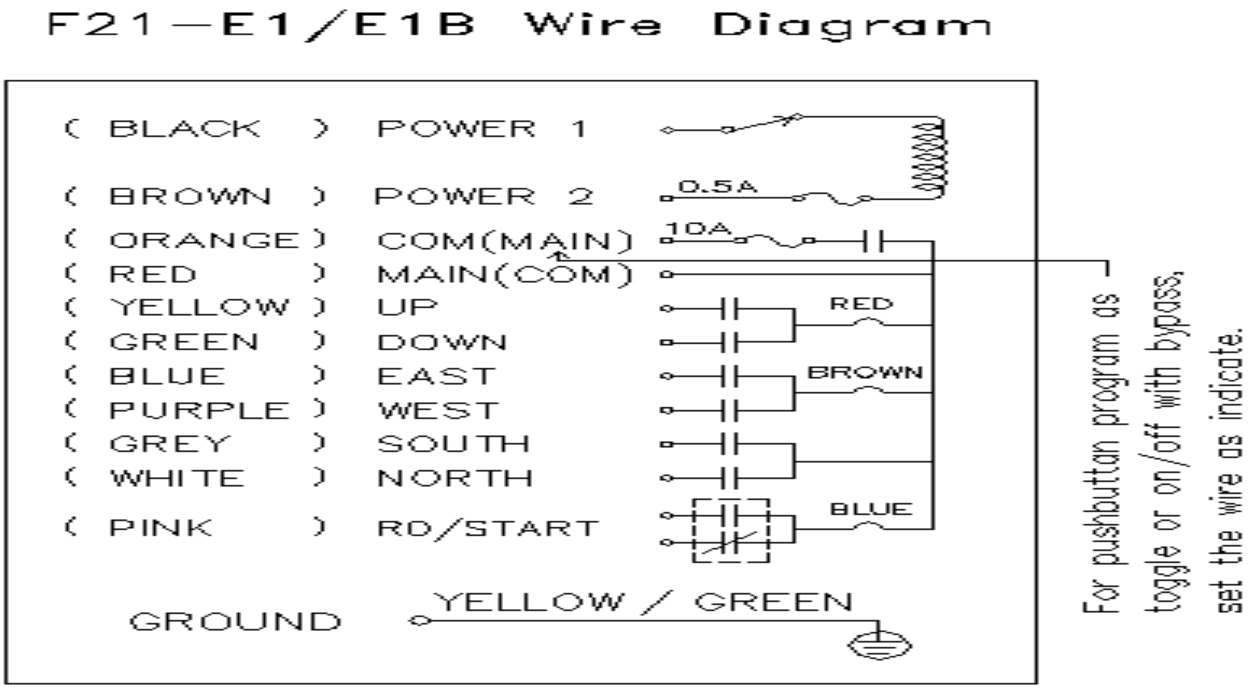
Prior to remote setting, please follow the instruction below,

(a) Make sure both TX and RX are of the same model and frequency.
(b) In order to avoid any interference, place the remote setting TX as close as possible to the RX.
(c) Turn off the RX power completely (MAIN SWITCH) for 20 seconds and turn it on again.
(d) Complete the remote setting within 4 minutes after turning on the RX. The RX will NOT accept the remote setting signal after 4 minutes.

Remote Setting Instructions:

(1) Depress the TX Emergency Stop (For those systems without a Mushroom style stop button that stays depressed, please hold down the "STOP" pushbutton)
(2) Press UP pushbutton and hold it.
(3) Press DOWN pushbutton 4 times and release "STOP & UP" pushbuttons when the red light is flashing.
(4) Start the system as usual.

4-4-7 Wire Diagram



Chapter 5 Troubleshooting and Software Installation

5-1 LED Malfunction Alert

(1) Red LED flashing quickly (every 0.2 sec) when any pushbutton is pressed.
The problem could be:
(a) One of the pushbuttons is jammed.
(b) The EMS mushroom has not been released.
(c) The system is not properly powered according to the instructions.
*If a problem is found, please contact the distributor for repair.

(2) TX LED flashes slowly (every 0.5 sec).
The memory of the TX is defective. Contact the distributor for repair.
(3) RX Main LED flashes slowly (every 0.5 sec) but the relays are not operating at all.
The RX memory is defective. Please contact the distributor for repair.
(4) The TX LED flashes every 2 seconds when the battery power is low. Please replace the new battery immediately.

5-2 Simple Troubleshooting

(1) TX LED remains ON with red light.
Please remove the batteries and insert again.
(2) The RX does not respond at all.
Turn the main power off for 20 seconds and turn it on again.

FEDERAL COMMUNICATIONS COMMISSION

This device complies with Part 15 of the FCC Rules. 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.

NOTE

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. This equipment generates, uses and can radiated 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 into 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.

Changes or modifications not expressly approved by the party responsible for compliance could void the user‘s authority to operate the equipment.