

F24-60 Industrial Remote Controller Operating Manual



TELECRANE[®] Lee's Hi-Tech Ent. Co., Ltd.

Table of Contents

□ Warranty & Precautions of Operation.....	2
□ F24-60 Operation.....	4
□ F24-60 Software Quick Start	8
□ Definition of Function Terminology.....	13

Warranty

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.

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.

Excluded Items

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

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.

Attention

- ◎ Never dismantle the equipment by any unauthorized personnel, or equipment may be damaged.
- ◎ After finishing operation of TELECRANE radio controller 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.
- ◎ The crane should be equipped with main power relay, limit switch and other safety devices.

Precautions (I)

To avoid any interference, the receiver must be placed as far as possible from frequency inverter and power cable as possible.

Precaution (II)

The receiver should be installed on top of the electrical control box. Do not mount the receiver inside the electrical control box.

Emergency Procedure

In case of Emergency, please follow the procedure below and contact the distributor for service immediately.

1. Press EMS button of transmitter.
2. Remove the key from transmitter.
3. Switch off crane main power.
4. Contact distributor nearest you immediately.

F24-60 Operation

How to start

1. Insert 4 AA-size batteries into battery compartment.
2. Insert rotary key and switch to ON position.
3. Follow the Power-On procedure to energize receiver main relay.
4. Operate normally according to the function settings have been done.
5. Follow the instructions below to switch off the system: (1) Press EMS button /mushroom, (2) remove the key and keep it in safe place, (3) Switch off the equipment's main power (e.g. Crane)

Transmitter Batteries

Transmitter requires 4 AA size alkaline or rechargeable batteries. 3 stages power indicator available on transmitter. During operation, green LED indicator flashes when battery power is full and flashes yellow when battery power is low. Replace new battery immediately when yellow indicator appears, unloading and stop all activity until new battery is replaced. An EMS stop signal will be sent automatically to receiver accompany with red LED indicator if the transmitter power is below the limit.

Receiver Power Supply

Each transformer provide 2 option voltages for receiver power supply as below:

- (1) 48/110 VAC
- (2) 110/220 VAC
- (3) 48/220 VAC
- (4) 220/380 VAC

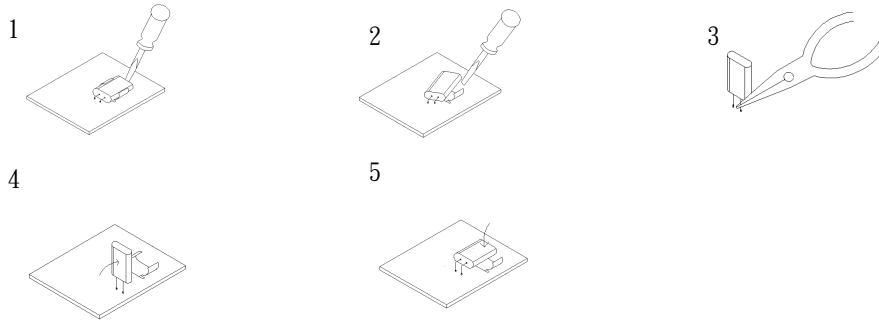
Changing Frequency & identify frequency quartz

It's easy to change frequency of new F24-60. The frequency can be changed simply by replacing correspondent frequency quartz into both TX and RX.

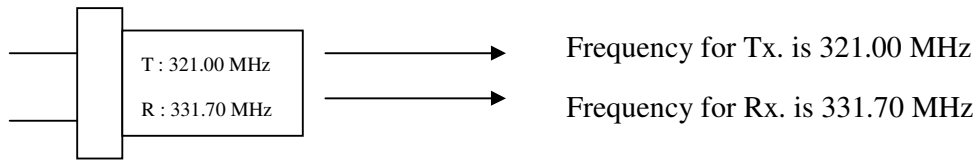
Note: There are 2 types of frequency are available: VHF and UHF. Do not replace the VHF quartz unit into UHF transmitter or receiver. The UHF and VHF frequency band can be found on both TX and RX RF module with a check mark "v".

Instructions:

- (1). Pry up the existing quartz unit with a flat screwdriver
- (2). Remove the quartz unit from the RF module.
- (3). Straight up both pins of the new quartz unit with pliers.
- (4). Insert new quartz unit vertically into the RF module.
- (5). Press the new quartz down into the socket.



Note: Each frequency quartz unit is having 2 different frequencies. The quartz frequency is different when installing into transmitter and receiver.



ID Code Remote Setting

ID Code Remote setting allows you to overwrite receiver ID code from transmitter. Before performing ID code remote setting, make sure both TX and RX are in same frequency channel. Caution: The prior receiver ID code will be permanent erased once ID code remote setting is done.

Before ID code remote setting, please follow the instruction below,

- Make sure both TX and RX are same model and in the same frequency channel.
- Receiver JP1 jumper must be installed in order to perform ID code remote setting.
- To avoid interference during remote setting, have transmitter closer to RX as possible.
- Receiver AC power supply must be disconnect and turn on again after 20 seconds. (ID code remote setting must be completed within 4 minutes after receiver is being turn on again).

Instructions:

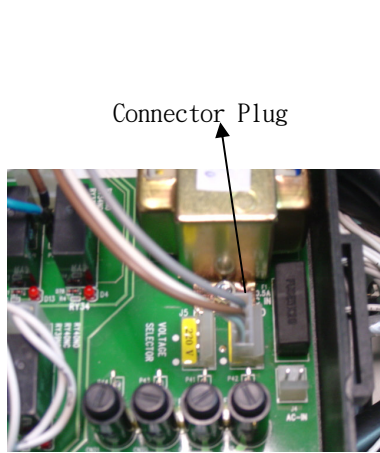
- (1) Disconnect receiver AC power supply completely (MAIN SWITCH) and turn on again after 20 seconds.
- (2) Press EMS button and switch Start Key into ON position.
- (3) Press R1 pushbutton and hold it (Do not release R1 button until next step is completed).
- (4) Press R2 button 4 times continuously and release all buttons when red LED flashing.
- (5) Start the system as usual.

Warning:

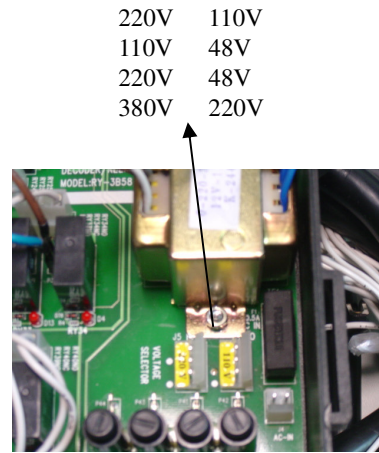
- (1) Any other receiver within control distance, the ID code is possible to be overwritten unintentionally.
- (2) ID code remote setting synchronized ID code data only. No any other data will be overwritten or changed.

Changing receiver power supply voltage

1. Disconnect receiver power.
2. Remove transformer connector plug from original position (Fig A)
3. Then insert connector plug into new position (Fig B)



(Fig. A)



(Fig. B)

NC/NO output connection

Relay module are designed for both type of relay such NO and NC/NO. Both outputs connection of NC/NO relay are available on the relay module. To replace NC/NO relay, remove existing NO relay and insert a new NC/NO relay. Follow the relay module indication for new output wire connections for NC/NO relay.

COM Configuration

P1~P44 are terminal for COM, changing COM configuration by using wire included inside the packages. Different size of wire is available.

Troubleshooting

Symptom	Causes or solution
Transmitter red LED indicator flashing quickly (every 0.2 sec) when operating	<ul style="list-style-type: none"> ■ One of the pushbuttons is jammed. ■ Joystick is not in neutral position. ■ The EMS mushroom is not released completely. ■ The transmitter is not properly Power-On. <p>Note: Please contact the distributor nearest you for further assistant if need.</p>
Transmitter green/Yellow LED indicator flashing crossly when start key switch on	<ul style="list-style-type: none"> ■ The joystick #1 memory is damaged. Contact the distributor for service.

Transmitter red/yellow LED indicator flashing crossly when start key switch on	<ul style="list-style-type: none"> ■ The joystick #2 memory is damaged. Contact the distributor for service.
Red LED indicator flashing quickly when start key switch on	<ul style="list-style-type: none"> ■ Transmitter main memory is damaged. Contact the distributor for service.
Transmitter red LED indicator remains on permanent	<ul style="list-style-type: none"> ■ Remove the batteries and re-insert again.
Receiver LED1 indicator flashing quickly	<ul style="list-style-type: none"> ■ Receiver main memory is damaged. Contact the distributor for service.
Receiver does not respond at all	<ul style="list-style-type: none"> ■ Switch off main power and switch on again after 20 seconds.

F24-60 Software Quick Start

I. RELAY SELECTION

Select quantity of relay to be used for each buttons, selector switch and joystick.

- (1) Choose COM PORT for your interface is assign
- (2) Press READ R/C (It may take a while to download the data from transmitter or receiver)
- (3) Pull down the menu and changing the number of relay to be used of each command.
Select 0 for command disable.
- (3) Press **NEXT** when ready

Note: Total quantity of relay available on receiver is 40.
Maximum quantity of relay to be used of each joystick axis is 16.

F24-60 SETUP PROGRAM V1.00M (07/15/2005)

File Tools About

2005/8/2 下午 01:20 No. of Relay available 39 + No. of Relay in used 1 = 40

Relay Selection Function Setting Joystick Setting User Information Print-Preview

R/C INFORMATION

Model : Serial Number : COM PORT
ID-Code : Manufactured Date: COM1

F1 Button No. of Relay in used 0

R1 Button No. of Relay in used 0

R3 Button No. of Relay in used 0

Joystick 1 Y 0 No. of Relay in used X 0 No. of Relay in used

Joystick 2 Y 0 No. of Relay in used X 0 No. of Relay in used

Start / R0 Button No. of Relay in used 1

R2 Button No. of Relay in used 0

R4 Button No. of Relay in used 0

Switch A No. of Relay in used 0

Switch B No. of Relay in used 0

Switch C No. of Relay in used 0

Switch D No. of Relay in used 0

READ R/C NEXT

II. FUNCTION SETTING

Choose the function for selected buttons, selector switch, joystick and transmitter/receiver parameters.

(1) Changing the setting as need and press **NEXT** when ready

Note: You may return to previous step by press RETURN at any time.

Refer to annex I for further explanation of all parameters.

F24-60 SETUP PROGRAM V1.00M(07/15/2005)

File Tools About

2005/8/2 下午 01:52 No. of Relay available 28 + No. of Relay in used 12 = 40

Relay Selection **Function Setting** Joystick Setting User Information Print-Preview

TRANSMITTER FUNCTION

Transmit Mode: Continuous LED On/Off: On

Save-Power: 30 sec LED Off Time: 1.0 sec

Auto Off (TX): Enable Powersaving: Disable

RECEIVER FUNCTION

Passive Act: Power-Off

PassiveTimes: 0.5 sec

Auto Off (RX): Not-Execute

R/C_FUNCTION

IDCode Remote: Enable

Setting:

Power On Mode: Start-Pushbutton

F1 Button

Normal

Interlock delay 0.0 s

R1 Button

Normal

Non-Interlock

R3 Button

Normal

Non-Interlock

START/R0 Button

Normal

Interlock delay 0.0 s

R2 Button

Normal

Non-Interlock

R4 Button

Normal

Non-Interlock

Switch A

Control by EMS

Switch B

Control by EMS

Center On

Switch C

Control by EMS

Center On

Switch D

Control by EMS

Center On

RETURN

NEXT

IV. USER INFORMATION

Save user information as record for future use.

- (1) Fill the necessary information as need.
- (2) Press **WRITE R/C** when ready to overwrite the existing data on transmitter or receiver.

Note: You may return to previous step by press **RETURN** at any time.

The user information is not saving in either transmitter or receiver memory, and it will be only saving into PC with D24 file format.

F24-60 SETUP PROGRAM V1.00M(07/15/2005)

File Tools About

2005/8/2 下午 02:45 No. of Relay available 0 + No. of Relay in used 40 = 40

Relay Selection Function Setting Joystick Setting **User Information** Print-Preview

DISTRIBUTOR

Company :

Address :

Telephone :

Fax :

E-Mail :

Sales :

Frequency : . Mhz Channel :

Remark :

USER

Company :

Address :

Telephone :

Fax :

E-Mail :

Engineer :

Remark :






RETURN **WRITE R/C**

V. PRINT PREVIEW

Print Preview allows you to have a print copy of receiver wire output which corresponding with all commands.

(1) Press the printer icon to print the page.

Note: Receiver output wire number is varied with command every time you change the settings. Refer to print preview always after new setting is done.
You may print the screen of setting by pressing printer icon for any page you wish to print.

F24-60 SETUP PROGRAM V1.00M (07/15/2005)									
File Tools About									
     2005/8/2 下午 02:54 No.of Relay available 0 + No.of Relay in used 40 = 40									
Relay Selection Function Setting Joystick Setting User Information Print-Preview									
Commonline	RY contact	Command	WireNO.	Remark	Commonline	RY contact	Command	WireNO.	Remark
	RY1	F1	1-1			RY21	J1L1	1-21	
	RY2	R0	1-2			RY22	J1R1	1-22	
	RY3	R1	1-3			RY23	J2U1	1-23	
	RY4	R2	1-4			RY24	J2D1	1-24	
	RY5	R3	1-5			RY25	J2L1	2-5	
	RY6	R4	1-6			RY26	J2R1	2-6	
	RY7	SW A	1-7			RY27	J2L2-R2	2-7	
	RY8	SW B-A	1-8			RY28	J2L3-R3	2-8	
	RY9	SW B-B	1-9			RY29	J2L4-R4	2-9	
	RY10	SW C-A	1-10			RY30	J2L5-R5	2-10	
	RY11	SW C-B	1-11			RY31		2-11	
	RY12	SW D	1-12			RY32		2-12	
	RY13	J1U1	1-13			RY33		2-13	
	RY14	J1D1	1-14			RY34		2-14	
	RY15	J1U2-D2	1-15			RY35		2-15	
	RY16	J1U3-D3	1-16			RY36		2-16	
	RY17	J1U4-D4	1-17			RY37		2-17	
	RY18	J1U5-D5	1-18			RY38		2-18	
	RY19		1-19			RY39		2-19	
	RY20		1-20			RY40		2-20	
	AC-1		2-1			COM1		2-21	
	AC-2		2-2			COM2		2-22	
	MAIN-IN		2-3			COM3		2-23	
	MAIN-OUT		2-4			COM4		2-24	

(Annex I) Definition of Function

Normal	The relative relay is “ON” when the pushbutton is pressed and held; and relay is “off” when the pushbutton is released.
Toggle	Maintained function: the relay is operated by pressing and releasing; press and release again to turn off the relay.
ON/OFF	Both pushbuttons are used to operate the same relay. Press the ON pushbutton to activate the relay and press the OFF pushbutton to de-activate the relay.
Inching	Once pushbutton is pressed then the relative relay will be conducted within a certain time, in order to operate with short and precision movement. Press and hold inching pushbutton and press motion pushbutton to perform inching motion.
Interlock	The two pushbuttons are interlocked; it's not possible to operate two opposite functions at same time.
Non-Interlock	The two pushbuttons can be operated at the same time: When the application allows to operate at the same time two functions which are usually opposite to one another.
Acceleration Delay Time	This function uses to set the time interval between acceleration relay (i.e. conduction-delayed time of acceleration relay). It is suitable for accelerative operation only in order to prevent the cranes directly runs to highest speed to damage the motor.
Interlock Delay Time	“Interlock Delay Time” is delay time between 2 opposite pushbuttons are being press one after another. i.e.: while crane is moving one direction (forward), moving opposite direction (backward) immediately would be dangerous specially when crane is hooking up the heavy object. The object may sway if crane does not completely stop before moving into opposite direction. Therefore the interlocked delay time could potentially prevent it. Normally, the interlocked delay time should be larger than the duration of crane stop.
Bypass EMS	The relay relating to pushbutton will not be controlled by EMS mushroom or emergency stop signal.
Control By EMS	The relay relating to pushbutton is controlled by EMS mushroom or emergency stop signal.
Center ON	Both A & B relay of switch will remain ON
Center OFF	Both A & B relay of switch will remain OFF
ID-Code Remote Setting	<p>ID Code Remote setting allows you to overwrite ID code of receiver when Receiver or Transmitter is damaged. Before remote setting, one must make sure both TX and RX are in same frequency channel. By using remote setting, receiver ID code will be overwriting by the transmitter.</p> <p>Note:</p> <ol style="list-style-type: none"> (1) All radios of same model within its radio operating distance, might be affecting by ID code remote setting. (2) Transmitter ID code remote setting overwrite the ID code of receiver only. (3) Receiver will not accept ID code remote setting signal 4 minutes after main power being turn ON.

Power Saving	<p>Power Saving Mode: By using firmware to control frequency transmission cycle period, thus to reduce power consumption of transmitter.</p> <p>Note: the operating distance will be decreased when the “Power Saving” mode is activated.</p>
Transmit Mode	<p>“Non-continuous transmitting mode”: After “Power-On”, the transmitter will transmitting the signal only when the pushbutton is pressed. This mode can save the power of transmitter.</p> <p>“Continuous transmitting mode”: Transmitter will continuously transmit signal once transmitter is being Power-On.</p>
Save Power	<p>This function is used to turn off the Transmitter after a given idle time.</p> <p>*Only available under “continuous transmitting” mode.</p>
Auto-OFF(TX)	<p>This function refers to turn off the Transmitter after a given idle time while transmitting the signal to switch off the receiver main relay.</p> <p>*Only available under “continuous transmitting” mode.</p>
LED ON/OFF	<p>“LED-OFF”: LED indicator will remain OFF during normal operation to save battery power but it is still available for warning and fault indication.</p> <p>“LED-ON”: LED indicator will be lighten with green color when transmitting.</p>
LED OFF-Time	<p>This setting allows you to select the LED intermittent time to save transmitter power. i.e.: If select 1 second is selected, the LED will be lighted every 1 second.</p>
Passive Act	<p><u>This function ensures safe operations, including when there are disturbances that may affect the normal operating conditions. This assures that when the machine operates, the control is not subject to temporary and unexpected stops. Possible short interferences are bypassed. The passive act can be select in 2 mode as below, “Ry Off” If the interferences are larger than the pre-set time, the receiver will turn off all the relays under “NORMAL” function except the MAIN relay.</u></p> <p>“Power-Off” If the interferences are larger than the default time setting, the receiver will turn off all the relays under “NORMAL” function setting and “Control by EMS” including MAIN relay. The receiver must be restart to operate again, follow the “Power-On” procedure to restart the system.</p>
AUTO OFF RX	<p>This function refers to turn off receiver after a given idle time. Receiver MAIN relay will be turn off automatically. Normally this function is cooperated with “non-continuous transmitting” mode to prevent any unintentional radio.</p>