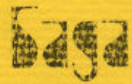


User's Manual

SAGA1-J Joystick type *Industrial Radio Remote Controller*



Gain Electronic Co., Ltd.

Model: SAGA1-J

FCC ID: NCTSAGA1-J

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 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:

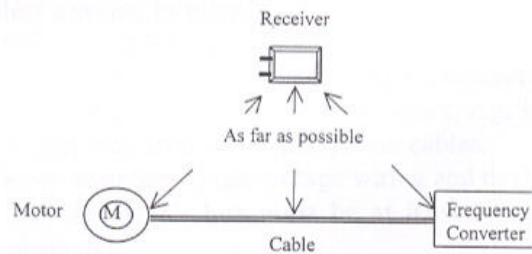
- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

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

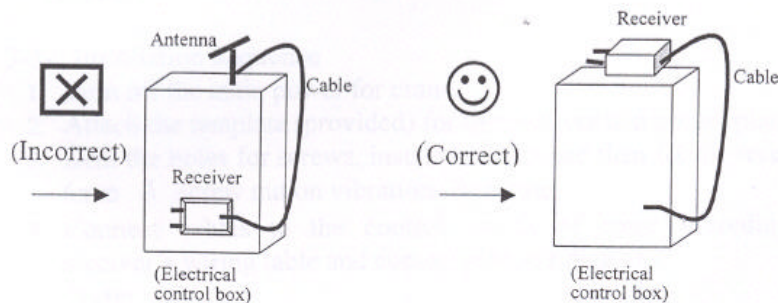
Chapter 3 Installation and Function Setting

3-1 Precautions during installation

1. Observe all safety precautions when climbing the crane.
2. Turn off the main power source of cranes before installation to avoid electric shock.
3. Receiver must be installed in the way that it will not touch any part of the building during the operation.
4. Receiver must be fastened safely.
5. Before installation, inspect the crane's safety devices, and make sure everything is in proper working condition.
6. Make sure you understand the crane circuits and power distribution as well as the function setting of remote controller, to avoid incorrect wiring.
7. To avoid any interference, the Receiver shall be away from motors, frequency converter and power cable (shown as below).



8. The Receiver should be installed on the top of the electrical control box. To mount the receiver inside the electrical control box is not correct.



3 – 2 Transmitter Installation Instructions

3-2-1 Installation of batteries in the transmitter:

Insert batteries in proper direction into transmitter and screw up battery cover. The LED on transmitter lights in red color and transmitter sound two long sound (“– –”); “–” indicates 0.5 second sound and the short interval lasts 0.5 second) to indicate proper installation.

3-2-2 Installation of function setting software in the transmitter:

When change a new transmitter, please refer to section 3-4 to install the function setting software in the transmitter, in order to pair the transmitter and receiver.

3 – 3 Receiver Installation Instructions

3-3-1 Preparation for Installation

1. Provide all necessary tools.
2. Select a proper location.
 - a. Select a stable place.
 - b. Select a place where you can see the Receiver or Antenna.
 - c. Select a place where there is no spark, e.g. keep away from motors, relays, magnetic switch and power cables.
 - d. Keep away from high-voltage wiring and device.
 - e. The Receiver's box must be at least 3 cm away from the other obstacles.**
3. Installation of proper power source
The input power source for receiver is 48V/110VAC (50/60 Hz) power source.

3-3-2 Installation Sequence

1. Turn off the main power for crane.
2. Attach the template (provided) for the receiver to a proper place.
3. Drill the holes for screws, install receiver and then fix the receiver with 6mm ϕ screw nut on vibration- Resistant.
4. Connect cables to the control circuit of crane according to the receiver's wiring table and control contacts diagram.

Note:

Inspect and make sure that all wires are connected correctly.

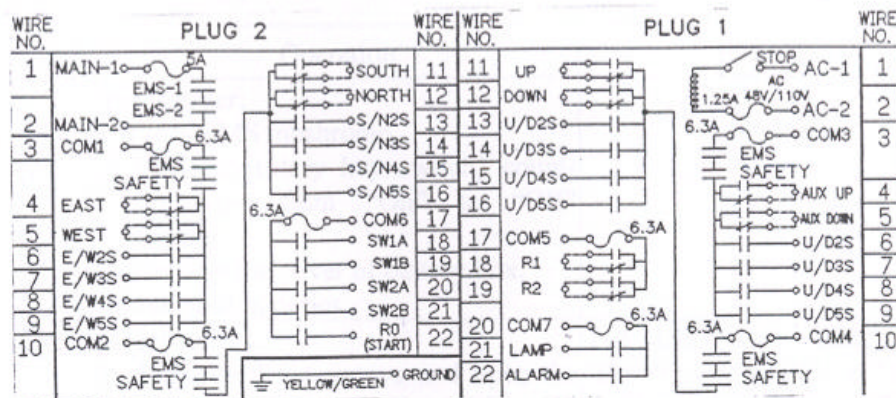
Grounding for remote controller and crane must be properly connected to ensure safety. (Grounded wire isn't attached from factory due to different requirement in length.)

5. Secure the cables between the receiver and crane so that cable cover (wrapper) will not wear out due to the vibration of the crane.
6. Open the top cover of the receiver and turn Relay module's Run/Test switch to "Test" position.
7. Turn on the main power for crane.
8. Operate the transmitter to test every function and make sure they are all correct (read by LED indicator).

Note: When Run/Test switch is set at "Test" position, relay will not function, but LED will display.

9. Turn Run/Test switch to "Run" position and secure the top cover to the receiver with screws.
10. Complete.

3-3-3 Diagram of control contact



3-3-4 Installation of function setting software in the receiver:

When change a new receiver, one must follow the procedures below (please refer to section 3-4) to install the function setting software in the receiver, in order to pair the receiver and transmitter.

3 – 4 Instructions of software installation by interface cable

The installation procedures mentioned here refer to the process of the receiver's direct loading (copying) of function setting software into the transmitter, and vice versa. The PC or maintenance kit will not be discussed here.

Note: For F21 remote controller, one can write the function setting software from PC or Maintenance Kit into transmitter only. It is impossible to write into receiver. Therefore, the following procedure is the only way to pair the transmitter and the receiver.

Warning:

Before execution of the following procedure, one must make sure the receiver is in the "Power-Off" mode, so that the crane will not move.

Installation Procedures:

Step	Operation	Remark
1.	Transmitter: 1. Press EMS mushroom. 2. Turn key(rotary key switch) count-clockwise from "On" to "Off" position. 3. Remove the cover of battery box. 4. Take out batteries.	
2.	Receiver: 1. Remove the 4 screws and open the top cover. 2. Turn the "Run/Test" switch in the Relay module to "Test" position.	The LED will light when "Run/Test" switch is in "Test" position, but relay will be inactive.
3.	Select the copying direction: 1. If copy software from receiver to transmitter then set sw4 of function dip switch on "Encoder board" to "OFF" position.	

	2. IF copy software from transmitter to receiver then set sw4 of function dip switch on "Encoder board" to "ON" position.	
4.	Push "Pgm" button in the "Receiver/Decoder" module.	Push "Pgm" button, then "Alarm" LED will rapidly flash to indicate program has entered into "WRITE" mode. At this time, one can proceed to the next step.
5.	Connect 7-pin cable from "Receiver/Decoder" module to transmitter's "Encoder" module.	
6.	Push "Pgm" button in the "Receiver/Decoder module".	After push "Pgm" button, the "Alarm" LED will display "- . -" signal to indicate the software writing is completed and then the "Alarm" LED will rapidly flash to indicate that one can proceed to the next step. Note: If alarm LED displays ". . . ." which indicates an error in software writing. Maintenance personnel must be contacted to solve the problem.
7.	Remove the 7-pin cable.	After remove the 7-pin cable from transmitter, once put in Batteries and screw up battery cover the buzzer on transmitter will sound "- -" indicating correct installation procedure.
8.	Push "Pgm" button in the "Receiver/Decoder" module.	After push "Pgm" button, the "Alarm" LED will stop flashing to indicate program has entered into "normal operation" mode.

		operation” mode.
9.	1. Turn “Run/Test” switch of Relay module to “Run” position. 2. Attach back the receiver’s covers.	
12.	Power-on according to the proper procedure and return to normal operation.	

Note: After set a new channel by “channel dip switch” on transmitter, if use the above installation procedure to copy the new channel from transmitter to receiver, one must follow the procedure below to renew transmitter itself first:

1. Loose screws and open the bottom cover of transmitter, then adjust dip switch(8-bits) on Encoder board to a new channel setting.
2. Screw up the bottom cover of transmitter, pressing Emergency stop button.
3. Turn the key(rotary key switch) in “OFF” position.
4. Open the battery cover and take out batteries.
5. Press and hold R1 pushbutton.
6. Put in batteries.
7. The buzzer on transmitter will sound “ – – “.
8. Release R1 pushbutton and screw up the battery cover.

3 – 5 Function setting by Dip Switch

There are two dip switch on “Encoder board” of transmitter’s “Encoder Module”. The dip switch for Channel setting is 8-bit and the other one for function setting is 4-bit.

Note: When change the setting value of dip switch (including channel and function dip switch), one must loose screws and open the bottom cover of transmitter.

3-5-2 Function setting by dip switch:

Transmitter's dip switch(4-bit) for function setting can be used to set the "Proportional function", "Radio remote setting", "Alarm mode" and "Software copy way" as follows:

3-5-2-1. Use of SW1 to set "Proportional function"

Dip Switch	Remark
Sw1	
ON	Enable "Proportional function"(response time:98ms)
OFF	Disable "Proportional function"(response time:65ms)

Note: The response time for *Enable "Proportional function"* would be longer(98ms) due to transmitting proportional data.

3-5-2-2. Use of SW2 to set "Radio remote setting"

Dip Switch	Remark
Sw2	
ON	Disable "Radio remote setting"
OFF	Enable "Radio remote setting"

Note: If "Enable", some applications executed by "Radio remote setting" include (1) change of operating frequency A,B,C (2)forcing receiver's frequency changed (3)renew the required channel set by software or dip switch (4)renew the required functions set by software

3-5-2-3. Use of SW3 to set "Alarm mode"

Dip Switch	Remark
Sw3	
ON	Morse alarm mode
OFF	Simple alarm mode

4. Use of SW4 to set "Software copy way"

Dip Switch	Remark
------------	--------