INSTALLATION & OPERATION MANUAL

SAGA1-L Series
- SAGA1-L4
- SAGA1-L6
- SAGA1-L8
- SAGA1-L6B
- SAGA1-L8B

PREFACE

This installation & operation manual is intended as an instruction manual for trained person who is in charge of installation, maintenance, repair, etc.

Before installation please read the user's guide and this installation & operation manual carefully.

The main contents of this manual are organized into the following chapters.

Table of Contents

PREFACE

1.0 Wire Diagram of SAGA1-L series.....p.4

2.0 Transmitter PCB Layout.....p.5

3.0 Receiver PCB Layout.....P.6
- 3-1 Relay Board for SAGA1-L8, L6, L4, L8B, L6B
- 3-2 Independent COM Line
- 3-3 Receiver/Decoder Board for SAGA1-L8, L6, L4, L8B, L6B

4.0 Change of Frequency.....P.10

5.0 Change of NO/NC Contact of R0/START Relay.....P.14

6.0 ID-Code Remote Setting P.15

7.0 Troubleshooting.....P.16

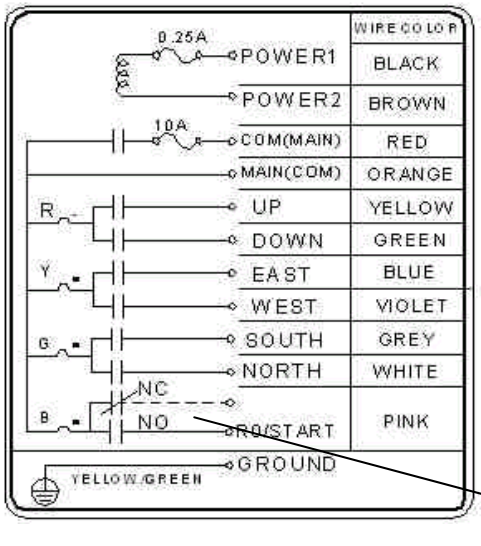
Appendix

SAGA1-L Series Software Installation And Operation Instruction.....P.17~23

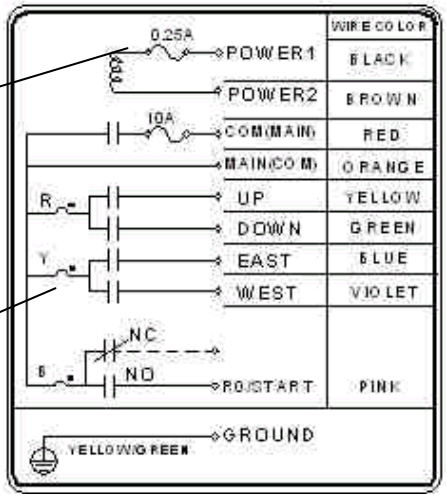
1.0

• WIRE DIAGRAM OF SAGA1-L SERIES:

SAGA1-L8, L8B



SAGA1-L6

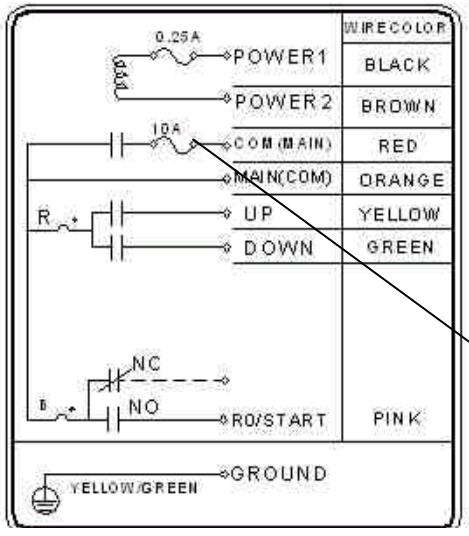


(2)

(4)

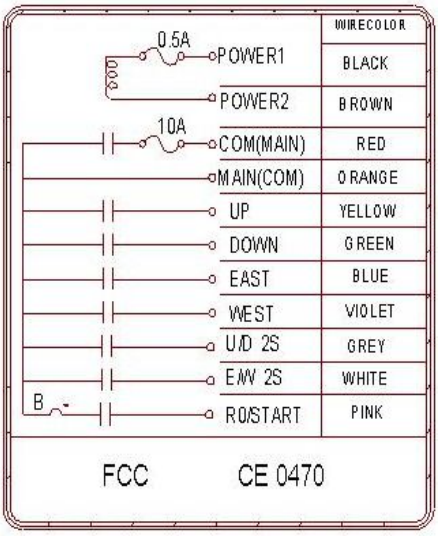
(1)

SAGA1-L4



(3)

SAGA1-L6B



Remark: (1) The R0/START could be N.C. or N.O.

(2) The fuse for the power AC24/48/110/220/380V is 0.5A.
The fuse for the power DC12/24V is 1.5A.

(3) The fuse for AC type at the COM(MAIN) is 10A.
The fuse for DC type at the COM(MAIN) is 20A.

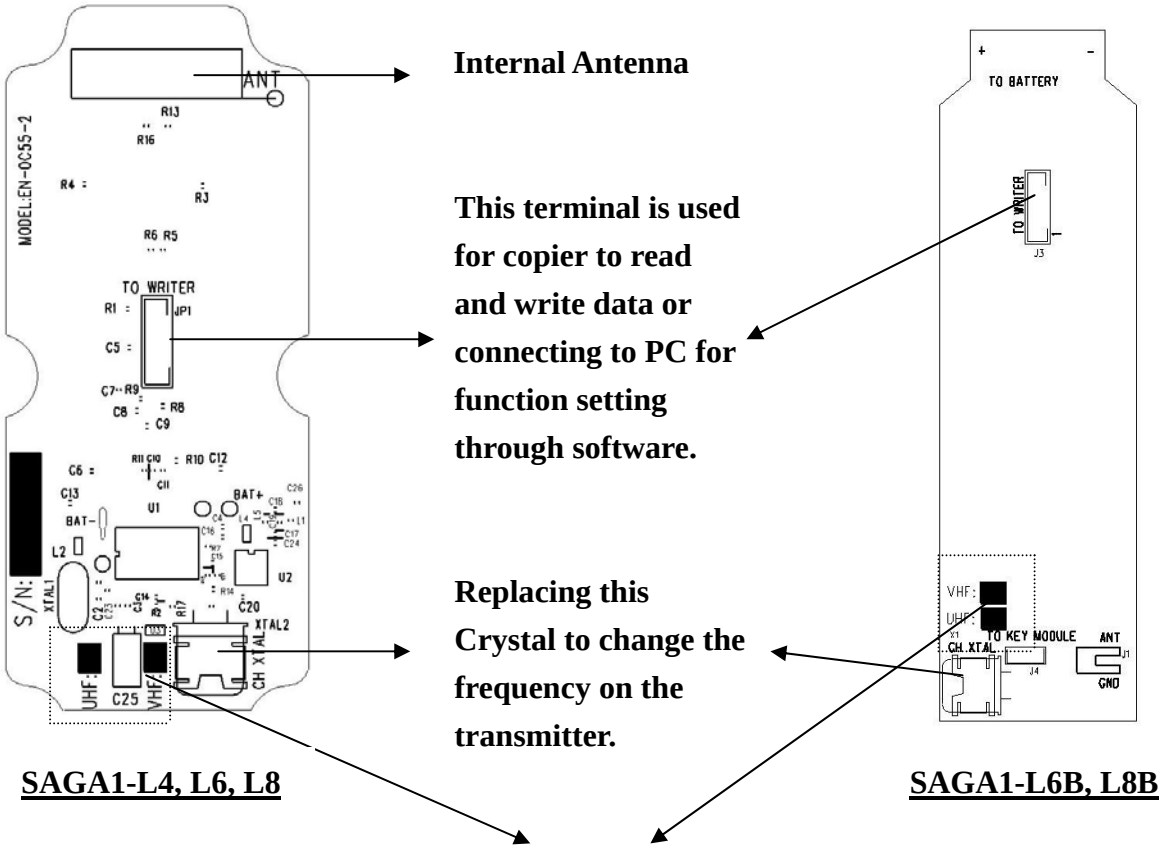
(4) The com lines have been arranged prior to shipment, if an independent

Note: The polarity direction for the power of DC12/24V isn't required when plugging in the power line connector.

COM line is required, please refer to page:8/23.

2.0

● TRANSMITTER PCB LAYOUT:



Internal Antenna

This terminal is used for copier to read and write data or connecting to PC for function setting through software.

Replacing this Crystal to change the frequency on the transmitter.

SAGA1-L4, L6, L8

SAGA1-L6B, L8B

There are two kinds of frequencies VHF and UHF are available marking with a check is the current frequency band and please make sure not to replace a VHF crystal unit into UHF PC board or visa versa.

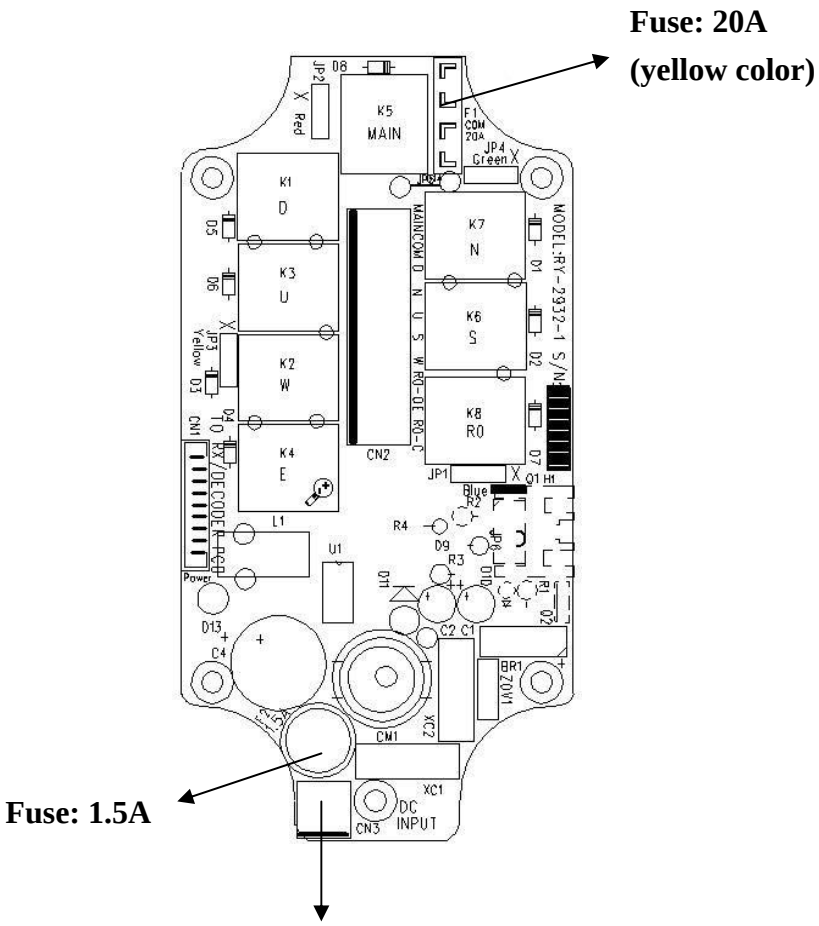
VHF:310.0325~331.165MHz
UHF:425.5925~446.725MHz

3.0

● RECEIVER PCB DIAGRAM:

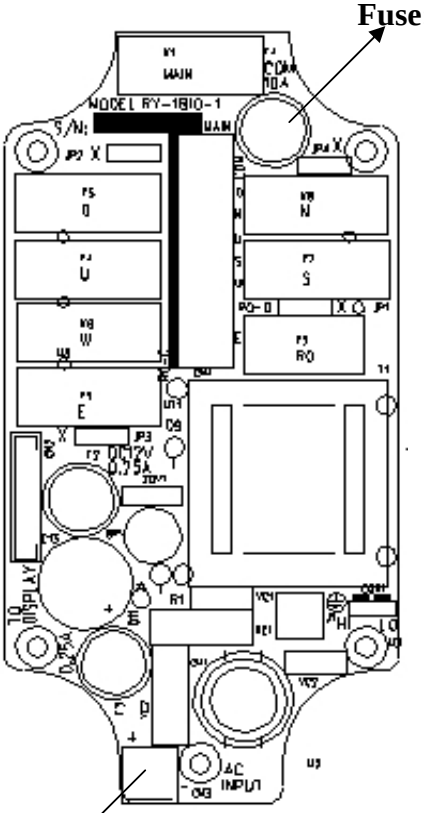
3-1. Relay Board for SAGA1-L8, L6, L4, L8B, L6B

3-1-1 DC Type



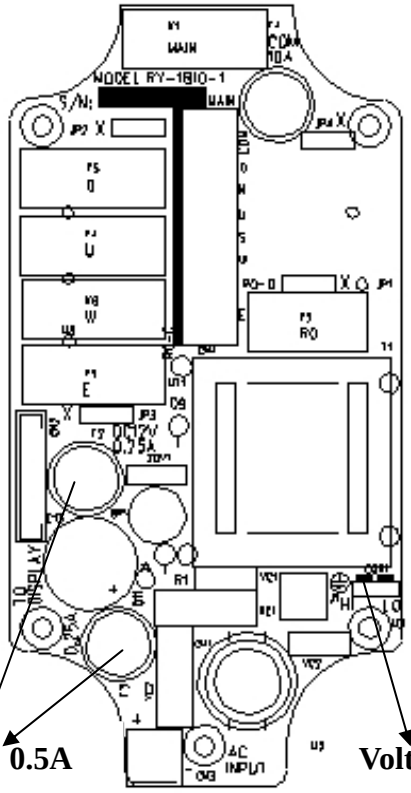
Remark: The polarity direction of DC Input isn't required when plugging in the power line connector.

3-1-2 AC Type

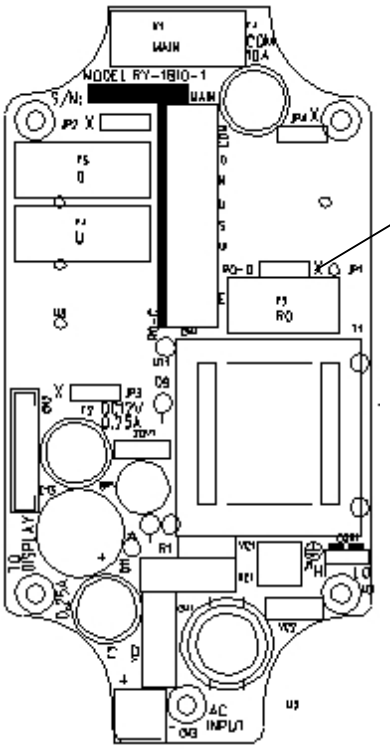


SAGA1-L8, L8B, L6B

AC Input

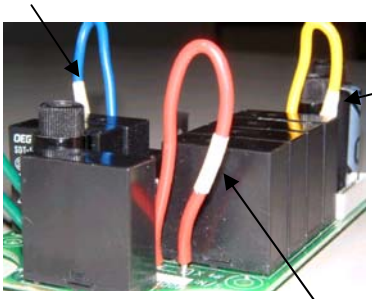


SAGA1-L6



SAGA1-L4

If an independent COM line is required then cut the wire labeled with a white "X" as showing as below. The longer part of the wire will become the new COM Line.



Cut the wire here.

3-2. Independent COM Line:

The SAGA1-L series offer optional independent COM lines as:

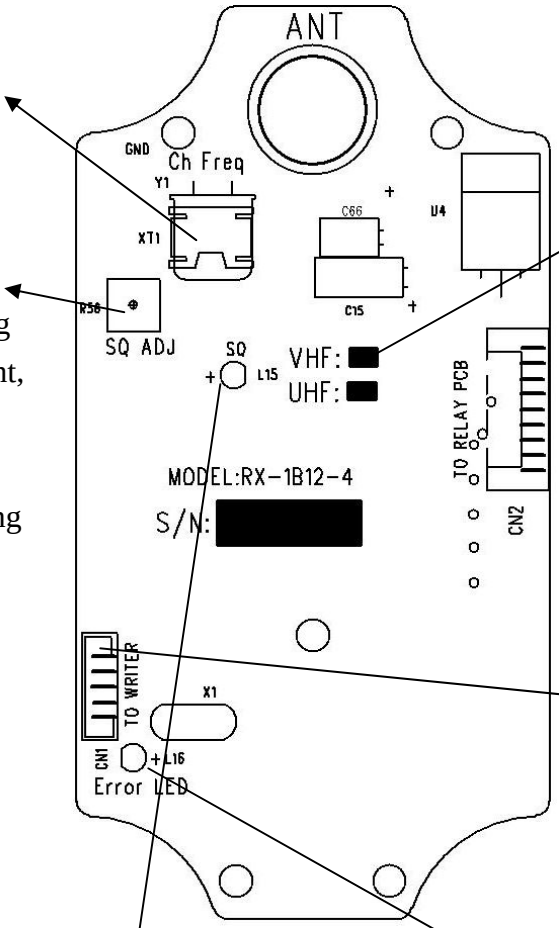
SAGA1-L8/L8B	**4 independent COM lines**	**Up/Down, East/West, South/North and R0**
SAGA1-L6	**3 independent COM lines**	**Up/Down, East/West, R0**
SAGA1-L4	**2 independent COM lines**	**Up/Down, R0**
SAGA1-L6B	**1 independent COM line**	**Up/Down ~East/West 2S and R0**

Please refer to the above figures of receiver relay boards and if an independent COM line is required then 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 existed spare output wire, otherwise, you have to use an extra wire made by yourself.

3-3. Receiver/Decoder Board for SAGA1-L8, L6, L4, L8B, L6B

Replacing this **Crystal** to Change the frequency on the receiver.

SQ ADJ is used for a minimum receiving sensitivity adjustment, please don't adjust arbitrarily.
If necessary, adjusting clock wise (allow receiving a weaker signal) until the SQ lamp turns on, then adjusting counter clock wise (allow receiving a stronger signal) until the SQ lamp turns off to keep the SQ lamp at "off" status before operating.



The **SQ** lamp will turn on when receiving any radio signal. It was taken as interference if the SQ lamp didn't at "off" status before operating.
The receiving sensitivity is adjustable via the SQ ADJ.

There are two kinds of frequencies **VHF and UHF** are available marking with a check is the current frequency band and please make sure not to replace a VHF crystal unit into UHF PC board or visa versa.

VHF:310.325~331.165MHz
UHF:425.5925~446.725MH

This terminal is used for copier to read and write data or connecting to PC for function setting. through software**.**

The RX memory is defective if the **Error LED** flashes red every 0.5 second slowly.

4.0

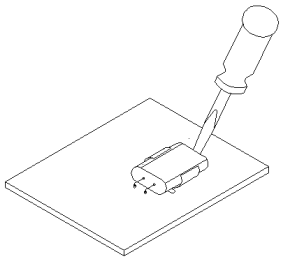
• CHANGE OF FREQUENCY

The frequency of SAGA1-L system can be simply changed by only replacing the correspondent crystal frequency in both the TX and RX. Please refer to below procedure in regards to replacing the crystal.

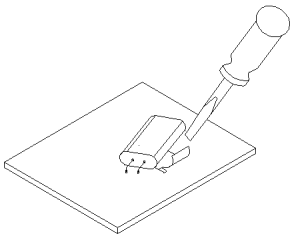
Note: To replace a new crystal, please note that there are 2 kinds of frequencies (VHF and UHF) are available. The indication of VHF or UHF is shown on the PC board with a check mark "V" and please make sure to not replace a VHF crystal unit into UHF PC board or visa versa.

Procedures:

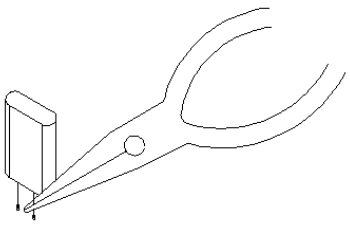
(1). Pry up the crystal unit with a flat screwdriver



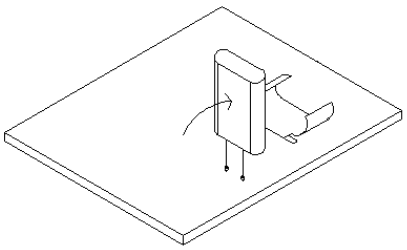
(2). Remove the crystal unit from the system.



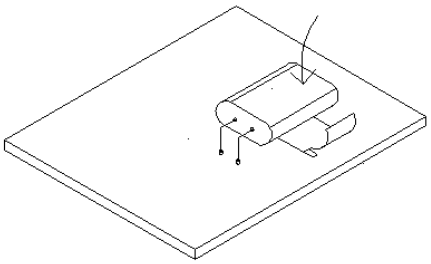
(3). Use a needle nose pliers to straighten both pins of the new crystal unit.



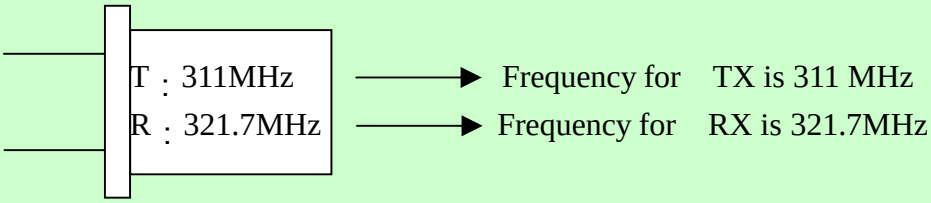
(4). Insert the new crystal unit vertically into the PC board.



(5). Press the new crystal down into the socket.



Attention: The frequency will be different when plugging the same crystal into the TX or RX. For example:



• VHF BAND CONVERSION TABLE

CH No.	Ch-Freq(MHz)	CH No.	Ch-Freq(MHz)	CH No.	Ch-Freq(MHz)
1	310.0325	32	318.3250	63	326.6175
2	310.3000	33	318.5925	64	326.8850
3	310.5675	34	318.8600	65	327.1525
4	310.8350	35	319.1275	66	327.4200
5	311.1025	36	319.3950	67	327.6875
6	311.3700	37	319.6625	68	327.9550
7	311.6375	38	319.9300	69	328.2225
8	311.9050	39	320.1975	70	328.4900
9	312.1725	40	320.4650	71	328.7575
10	312.4400	41	320.7325	72	329.0250
11	312.7075	42	321.0000	73	329.2925
12	312.9750	43	321.2675	74	329.5600
13	313.2425	44	321.5350	75	329.8275
14	313.5100	45	321.8025	76	330.0950
15	313.7775	46	322.0700	77	330.3625
16	314.0450	47	322.3375	78	330.6300
17	314.3125	48	322.6050	79	330.8975
18	314.5800	49	322.8725	80	331.1650
19	314.8475	50	323.1400		
20	315.1150	51	323.4075		
21	315.3825	52	323.6750		
22	315.6500	53	323.9425		
23	315.9175	54	324.2100		
24	316.1850	55	324.4775		
25	316.4525	56	324.7450		
26	316.7200	57	325.0125		
27	316.9875	58	325.2800		
28	317.2550	59	325.5475		
29	317.5225	60	325.8150		
30	317.7900	61	326.0825		
31	318.0575	62	326.3500		

• UHF BAND CONVERSION TABLE

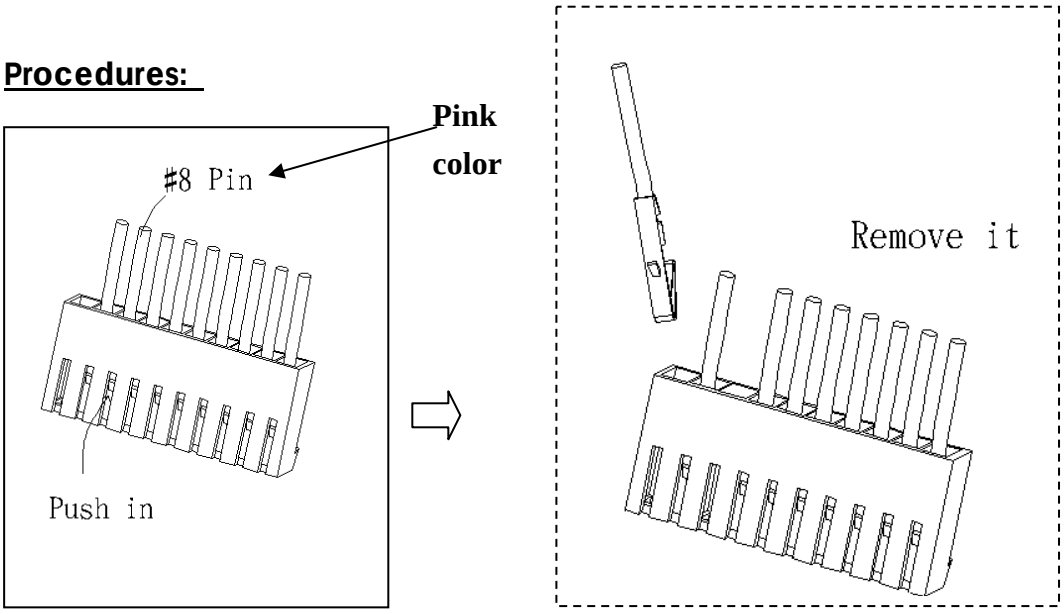
CH No.	Ch-Freq(MHz)	CH No.	Ch-Freq(MHz)	CH No.	Ch-Freq(MHz)
101	425.5925	132	433.8850	163	442.1775
102	425,8600	133	434.1525	164	442.4450
103	426,1275	134	434.4200	165	442.7125
104	426.3950	135	434.6875	166	442.9800
105	426.6625	136	434.9550	167	443.2475
106	426.9300	137	435.225	168	443.5150
107	427.1975	138	435.4900	169	443.7825
108	427.4650	139	435.7575	170	444.0500
109	427.7325	140	436.0250	171	444.3175
110	428.000	141	436.2925	172	444.5850
111	428.2675	142	436.5600	173	444.8525
112	428.5350	143	436.8275	174	445.1200
113	428.8025	144	437.0950	175	445.3875
114	429.0700	145	437.3625	176	445.6550
115	429.3375	146	437.6300	177	445.9225
116	429.6050	147	437.8975	178	446.1900
117	429.8725	148	438.1650	179	446.4575
118	430.1400	149	438.4325	180	446.7250
119	430.4075	150	438.7000		
120	430.6750	151	438.9675		
121	430.9425	152	439.2350		
122	431.2100	153	439.5025		
123	431.4775	154	439.7700		
124	431.7450	155	440.0375		
125	432.0125	156	440.3050		
126	432.2800	157	440.5725		
127	432.5475	158	440.8400		
128	432.8150	159	441.1075		
129	433.0825	160	441.3750		
130	433.3500	161	441.6425		
131	433.6175	162	441.9100		

5.0

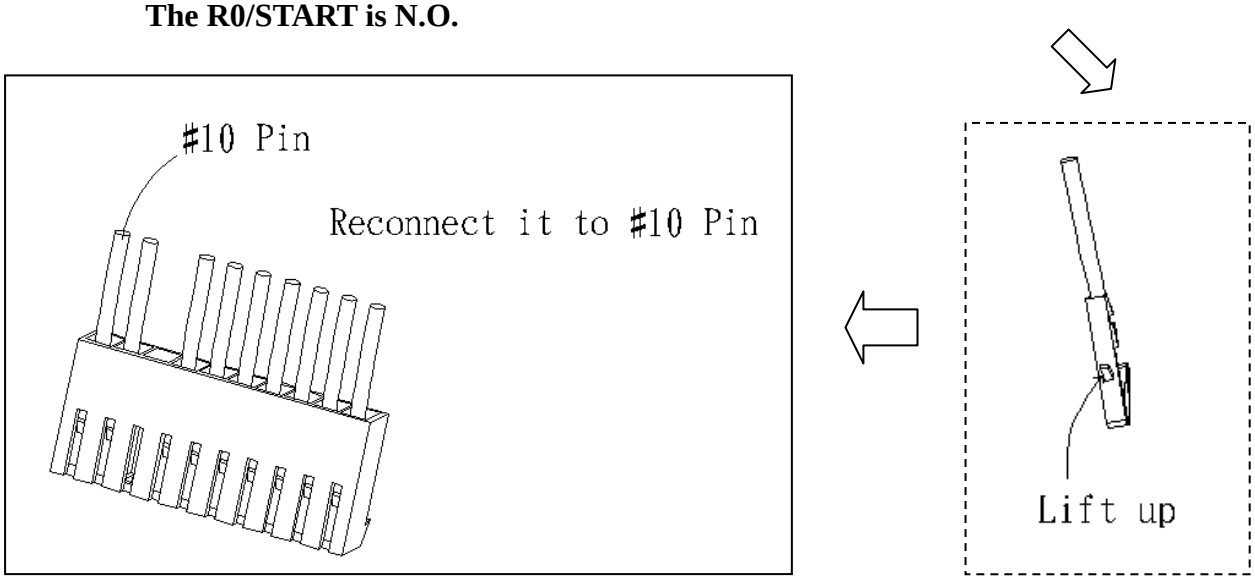
● CHANGE OF NO/NC CONTACT OF R0/START RELAY

The R0/START key of the new SAGA1-L crystal series provides **NO and NC contact.** The NO is the default setting. If a NC output is necessary, please remove the No. 8 wire **(R0/Start, pink color)** from the connector and insert it into No. 10.

Procedures:



The R0/START is N.O.



The R0/START is N.C.

6.0

• ID-Code Remote Setting

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

1). Please make sure the following conditions before ID-Code remote setting:

(a) Both TX and RX are of the SAME model and frequency.

(b) To place the transmitter as close as possible to the receiver to avoid any interference.

(c) Turn off the RX power more than 10 seconds and turn it on again.

(d) Complete the ID-Code remote setting within 4 minutes after turning on the RX. The RX will NOT accept the ID-Code remote setting signal after 4 minutes.

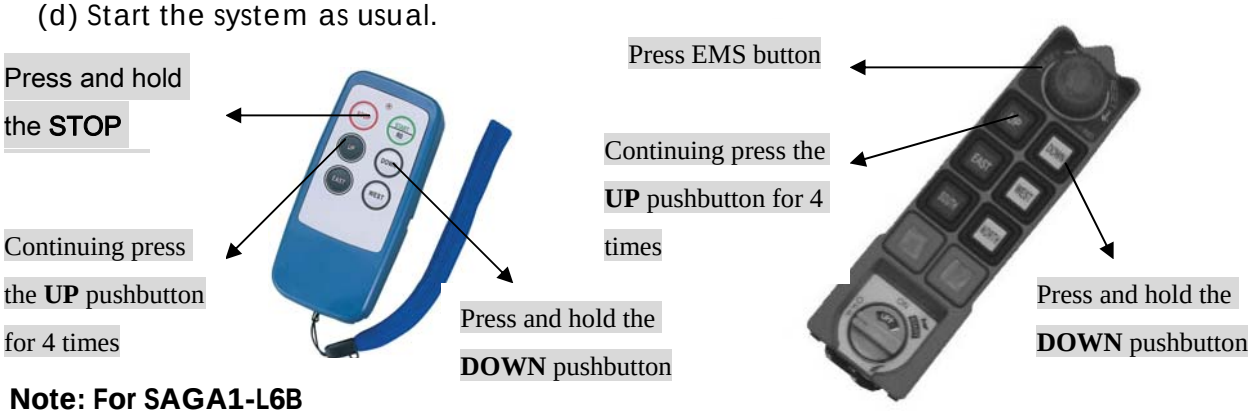
2). ID-Code remote setting Instructions:

(a) Press and hold the transmitter STOP pushbutton/EMS button.

(b) Press DOWN pushbutton and hold it.

(c) Press UP pushbutton 4 times and release "STOP & DOWN" pushbuttons when the red light on the transmitter is flashing.

(d) Start the system as usual.



Note: For SAGA1-L6B

1. The **DOWN** pushbutton must be remaining in 1st step while holding the button.

2. Press **UP** pushbutton till **1st step** continuing for 4 times. Do not press button into 2nd step while processing this instruction otherwise the ID-Code remote setting will be aborted.

• ATTENTION:

* In case ID-Code remote setting fails, repeat the instructions above within 4 minutes.

* ID-Code remote setting is available for ID Code only. It will not change function settings

* Within the operating distance, all same model systems on the same frequency will be paired with the transmitters ID Code.

7.0

• TROUBLESHOOTING

Item	Phenomenon	Cause	Action Required
1	Red LED flashing quickly (every 0.2 sec.) when any motion pushbutton of Transmitter is pressed.	a) One of the pushbutton is jammed. b) The system is not properly powered according to the instruction.	a) Replace the pushbutton. b) Power on again according to the instruction.
2	TX LED flashes red and yellow reciprocally and slowly (every 0.5 sec.)	The memory of the TX is defective.	Send back the Manufacturer.
3	RX Error LED flashes red slowly (every 0.5 sec.)	The memory of the RX is defective.	Send back the Manufacturer.
4	The operating distance Is shorter or an intermittent operation is happened.	It was interfered by other Radio Remote Controller /or unknowing signal with the same frequency.	Replace the crystal of both TX and RX to change the frequency.

Remark: The memory of the TX and RX has Anti-copy function design, any inadequate action on decoding the firmware of the memory will cause the trouble as the above item 2 and 4.

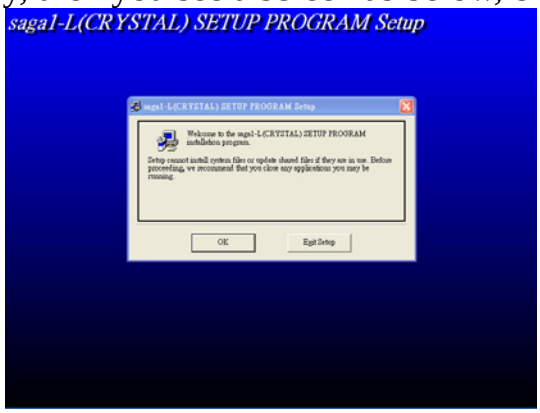
If any problem couldn't be solved or any comments, suggestions please fax to 886-7-8157253

Appendix

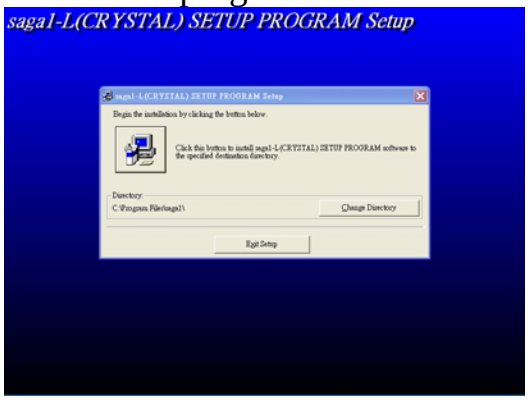
SAGA1-L Series Software Installation and Operation Instruction

I. How to install the SAGA1-L function setting program:

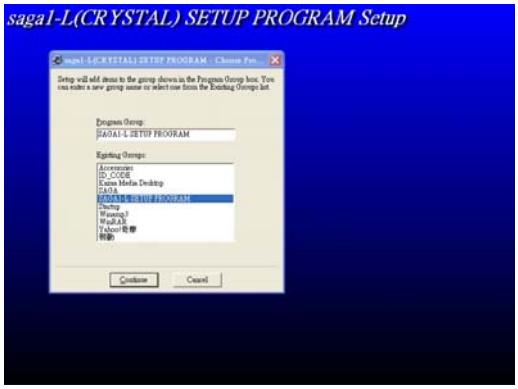
1. Insert the CD-ROM into the CD-ROM driver, the program initiates automatically, then you see a screen as below, click “OK” and continue:



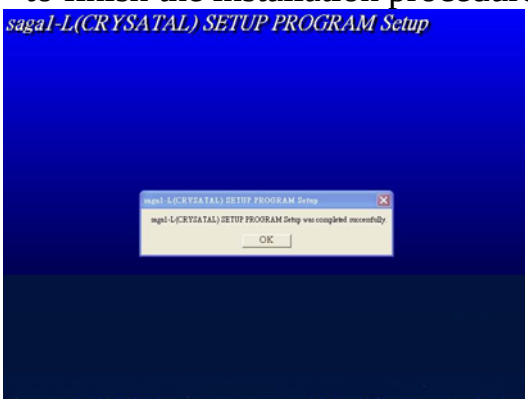
2. The next screen you see is as below, click on  or “Change Directory” if you intend to install the program in other directory than the preset drive.



3. Click on “Continue” to proceed with the installation.

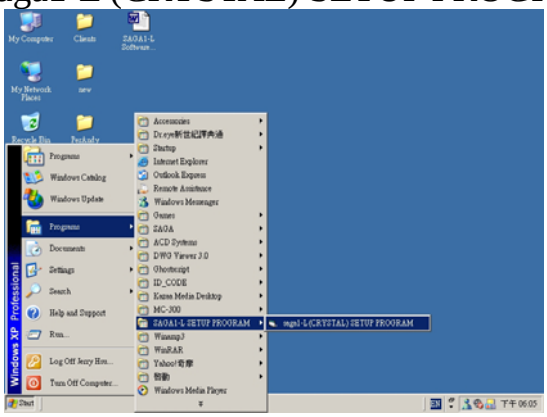


4. Click “OK” to finish the installation procedure.

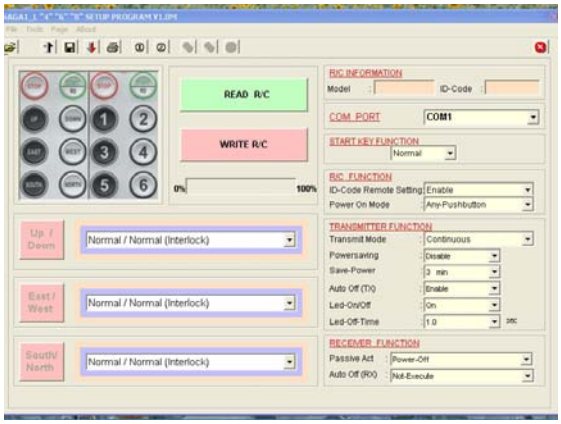


II. How to start the SAGA1-L function setting program:

To start using this program, please click from “Start” menu on your desktop, then move your mouse to “Programs”, “SAGA1-L SETUP PROGRAM”, and click on “saga1-L (CRYSTAL) SETUP PROGRAM” to activate.



III. Toolbar of the program:

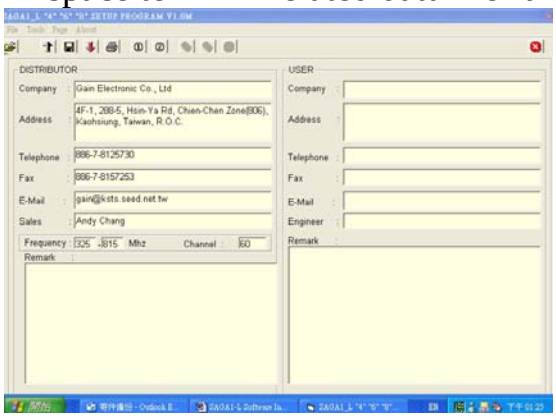


1. On the left upper corner of the toolbar “File”, there are Load means to load the saved data (same as); Save to save the current data (same as); Printer to print out the existing data shown on the current screen (same as); Exit to

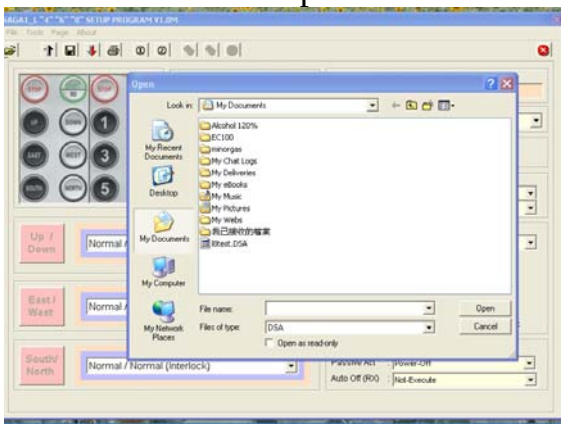
leave this program (same as).

2. On next toolbar "Tools" there are Read Setup Data to read the function setting of the transmitter or receiver (same as or READ R/C); Write Setup Data to write function setting into the transmitter or receiver (same as or WRITE R/C); Language to choose language applied in this program, either for English, traditional Chinese, or simplify Chinese.

3. On the "Page" menu, there are Setup-Page (same as ①) and User-Page (same as ②), choose the latter to change the screen to an information page which provides blank space to fill in related datum of the distributor and user.



4. When chose "File" Load or , a screen popped up to load data file in "DSA" format as below. The use of this saved data is to record corresponding details of the setting in order to make a duplication of the transmitter or receiver.



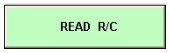
IV. The operation of the program:

Note: a. Make sure the power is off before any reading or writing either on the transmitter or receiver.

b. Check the connection port on RS232 whether it is on "COM1" or others if the reading failed.

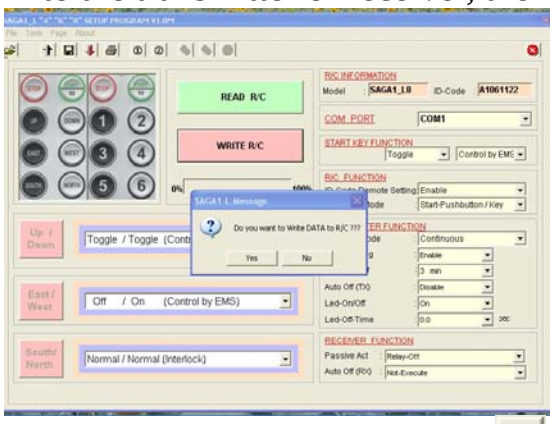
c. Do aware to read first every time before writing or making any function setting.

d. This software allows user to read or write directly from both the transmitter and receiver.

1. Connect the interface cable (RS232) with the transmitter of receiver.
2. When the computer is connected with the transmitter or receiver, click on  or 

to read the data, then click "OK" after the new data is input, and a new screen with "Model" and "ID-Code" appeared as below (lower picture).
3. When the new settings or modification have been made, click  or 

to write data into the transmitter or receiver, then click "YES".



3. If you want to save the new setting, click on  to save the data with "DSA" format.
4. To print out the setting, click on  .

V. Function setting of SAGA1-L by PC Software

Definition for special terms:

***ID-Code Remote Setting :** When the power is on, the ID-Code of the receiver can be changed remotely by the transmitter within 4 minutes.

***Power Saving:** The signal is sent by the transmitter periodically to save power, the effective distance will be lessened once this mode is chosen.

1. "Start Key" Function Setting

Item	Title	Content	Description
A	**Normal**		This function is available only when remote controller is "Power-On". **"Normal":** "R0" relay is on when "Start/R0" pushbutton is pressed or rotary key switch (for L6B, L8B) turned to "START" position; "R0" relay is "off" when pushbutton is released or rotary key is re-turned to "ON" position. **"Toggle":** Same as "Normal" to activate "R0" relay. But "R0" relay is on once activated, off when pushbutton is pressed or key is turned to "START" again. PS: When it is "Toggle", choose "Control by EMS" or "Bypass EMS".
B.	**Toggle**	**1. Control by EMS** **2. Bypass EMS**	

2. "R/C" Function Setting:

Item	Title	Content	Description
A	**ID-Code Remote Setting** *	**1. Enable** **2. Disable**	**"Enable":** Allows user to change ID-Code by Remote Control method. **"Disable":** Disable this function.
B	**Power On Mode**	**1. Any-Pushbutton** **2. Start-Pushbutton/Key**	**"Any-Pushbutton":** To activate the main relay on (power on) with any pushbutton. **"Start-Pushbutton/Key":** To activate the main relay on (power on) by rotate the "Start Key" or press "Start/R0" button only.

3. "Up / Down Pushbutton" Function Setting:

Item	Content	Description
A	**Normal/Normal (Interlock)** **Normal/Normal (Non-Interlock)** **Normal/Toggle (Control by EMS)** **Toggle/Normal (Control by EMS)** **Toggle/Toggle (Control by EMS)** **Off /On (Control by EMS)**	**"Normal/Normal (Interlock)":** When "Up" or "Down" is pressed, if the other is pressed too, then both of them will be off. **"Normal/Normal (Non-Interlock)":** Both of "Up" and "Down" work independently or simultaneously when they were pressed at the same time. **"Normal/Toggle (Control by EMS)":** "Up" is on when pressed, off when released; "Down" is on once pressed, off when pressed again. **"Toggle/Normal (Control by EMS)":** Reverse to above description. **"Toggle/Toggle (Control by EMS)":** Both "Up" and "Down" work once pressed, off when pressed again independently. **"Off/On (Control by EMS)":** "Down" is on once pressed, off when "Up" is pressed afterwards.

4. "East / West Pushbutton" Function Setting:

Same as "Up / Down Pushbutton" Function Setting

5."South / North Pushbutton" Function Setting:

Same as "Up / Down Pushbutton" Function Setting

6."Transmitter" Function Setting:

item	Title	Content	Description
A	**Transmit Mode**	**1. Continuous** **2. Non-Continuous**	**"Continuous":** The signal is transmitting to the receiver by transmitter continuously during "Power-On". **"Non-Continuous":** The signal is transmitting to the receiver only when pushbutton on transmitter is pressed.
B	**Power saving ***	**1. Enable** **2. Disable**	**"Enable":** Enable the "power saving mode". **"Disable":** Disable this function.
C.	**Save-Power**	**1. 1 min~30 min** **2. Non-Execute** **PS. Only appears when the Transmitter Mode is "Continuous"**	**"1 min~30 min":** Choose the due time for the transmitter to cut off its own power if no operation signal sending out by any pushbutton pressed to save power. **"Non-Execute":** Disable this function.

D.	**Auto Off (Tx)**	**1. Enable** **2. Disable**	**"Enable":** Enable the transmitter to send EMS signal to the receiver too before its own power is off. **"Disable":** Disable this function but the transmitter still will be power off itself if the "Save-Power" is executed.
E.	**Led On/Off**	**1. On** **2. Off**	**"On":** Enable LED lights on while operating. **"Off":** Disable LED lights on.
F.	**Led Off-Time**	**0~4.0 sec**	Determine the interval of LED shining time.

7."Receiver" Function Setting:

Item	Title	Content	Description
A	**Passive Act**	**1. Power-Off** **2. Relay-Off**	**"Power-Off":** The "Power"(main relay) is off when not receiving any normal signal from the transmitter for a certain period of time. **"Relay-Off":** Only those operating functional replays are off when not receiving signal from transmitter for a certain period of time.
B	**Auto Off (Rx)**	**1. 10 min~4 hour** **2. Non-Execute**	**"10min~4hour":** Choose the due time for the receiver to cut off "Main Relay" if no signal received. **"Non-Execute":** Disable this function.