



**INSTALLATION &
OPERATION
MANUAL**

INMOTION Series
- INMOTION-140
- INMOTION-160
- INMOTION-180



PREFACE

This installation & operation manual is intended as an instruction manual for trained persons who are 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.

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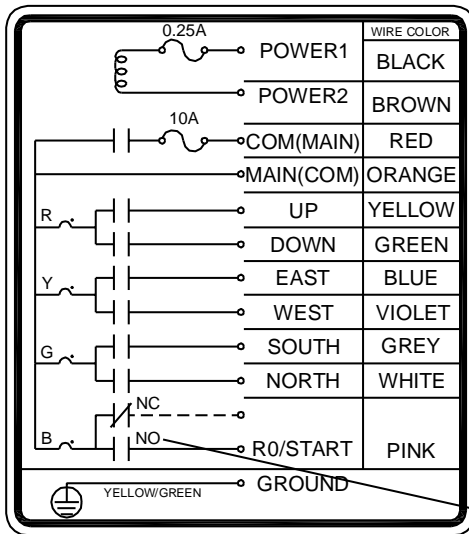
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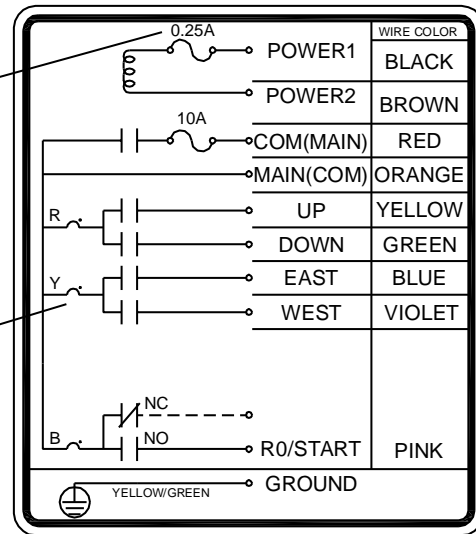
1.0

• WIRE DIAGRAM OF INMOTION SERIES:



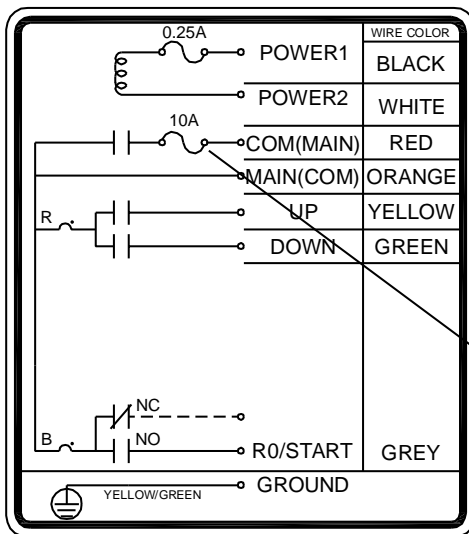
INMOTION-180

(2)



INMOTION-160

(4)



INMOTION-140

(3)

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

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

(2) The fuse for the power AC48/110/220/380V is 0.25A.
The fuse for the power DC12/24V is 1.5A.

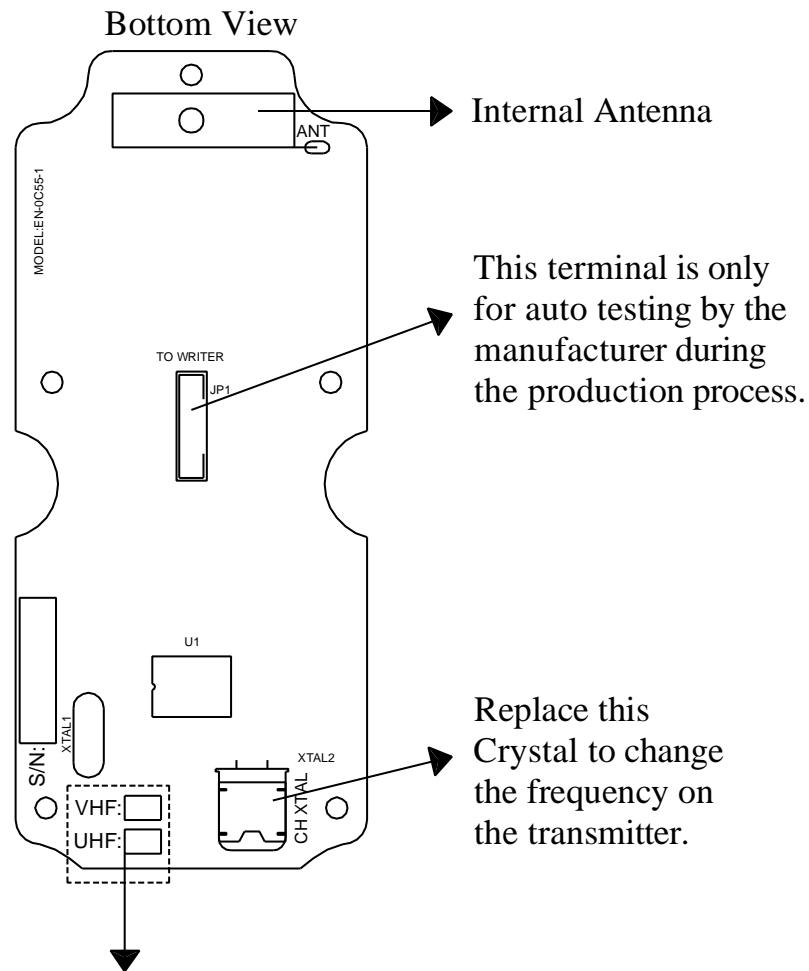
(3) The fuse for the AC type at the COM(MAIN) is 10A.
The fuse for the DC type at the COM(MAIN) is 20A.

(4) The com lines have been arranged prior to shipment, if an independent com line is required, please refer to page: 8/15.



2.0

- **TRANSMITTER PC BOARD LAYOUT:**



There are two kinds of frequencies VHF and UHF. The current frequency band is marked with a check.
Please Do Not install a VHF crystal into a UHF PC board or vice versa.

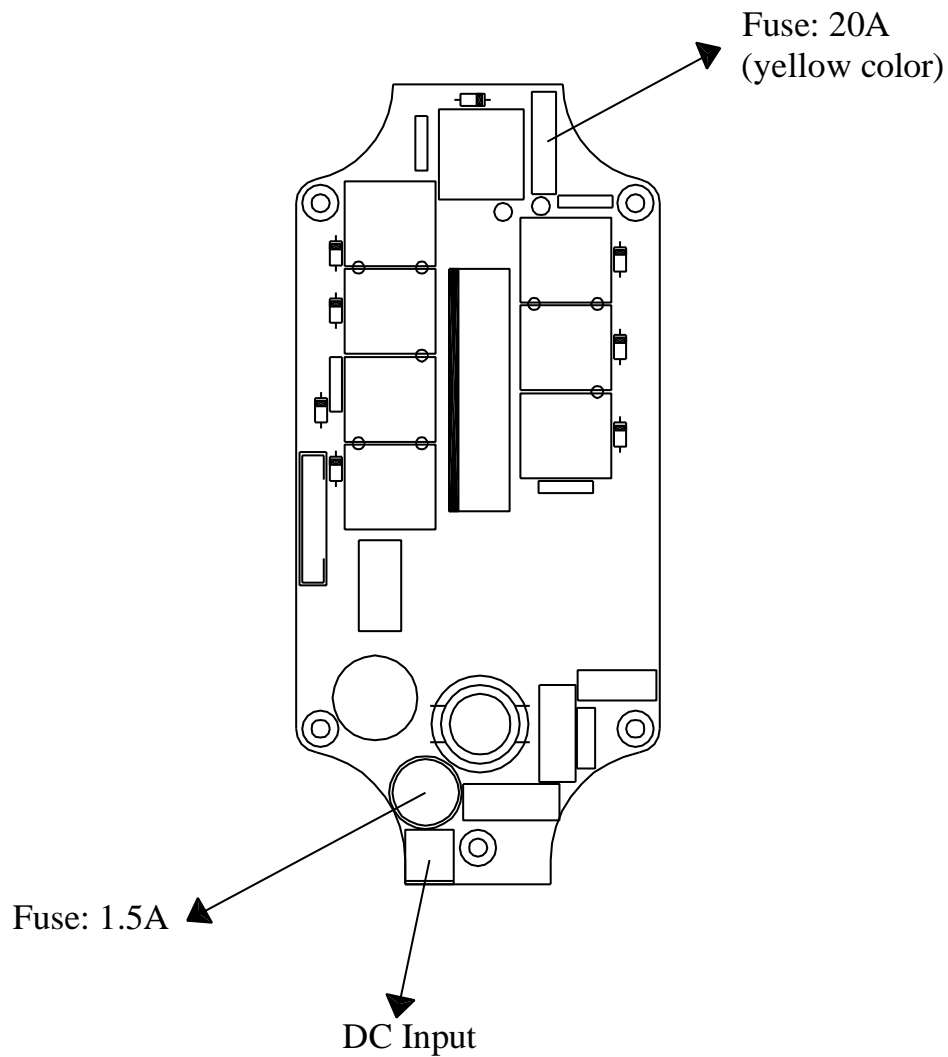
VHF: 310.0325 ~ 331.1650 MHz
UHF: 425.5925 ~ 446.7250 MHz



3.0

• RECEIVER PC BOARD LAYOUT:

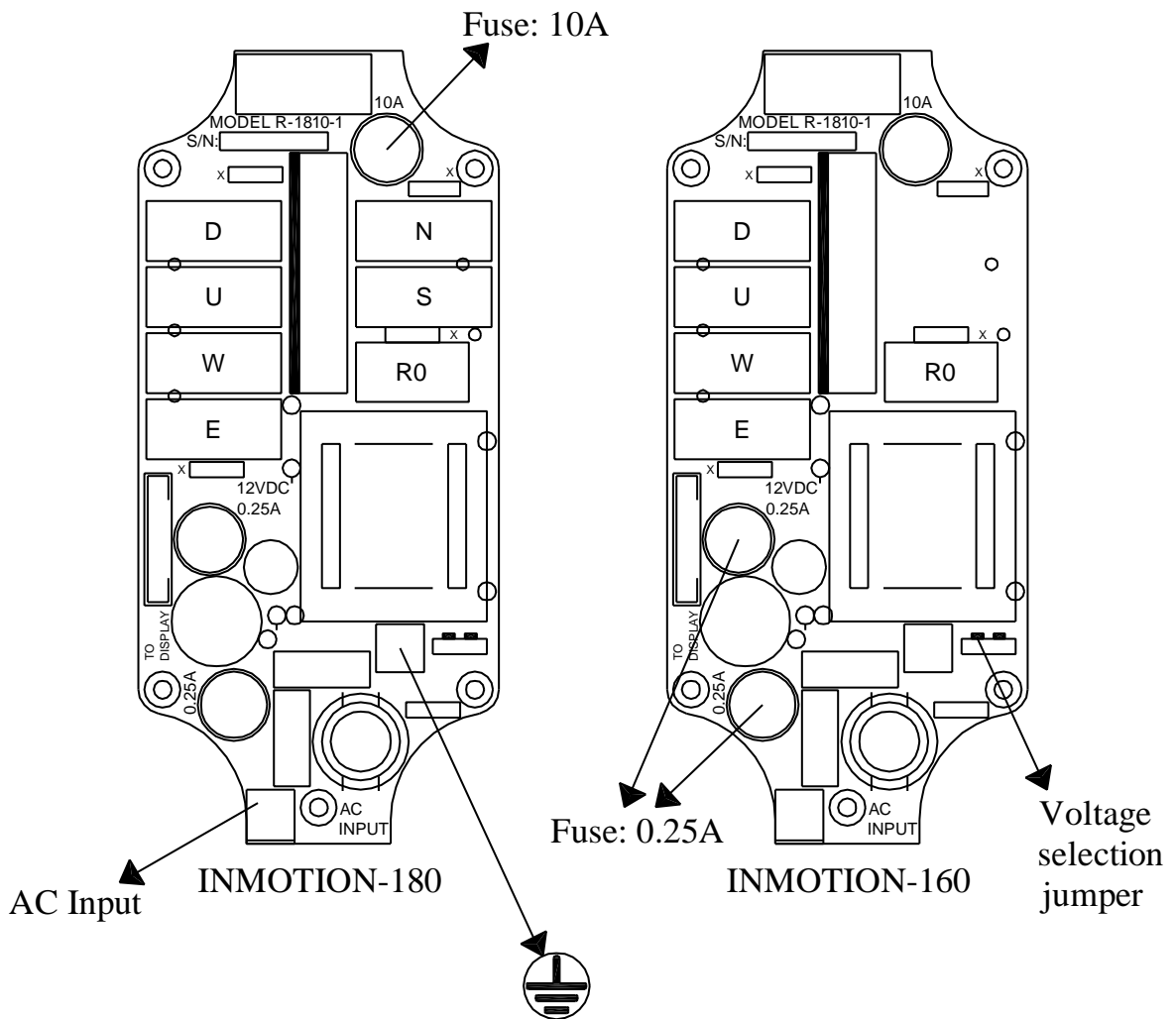
- 3-1. Relay Board for INMOTION-180, 160, 140
- 3-1-1 DC Type



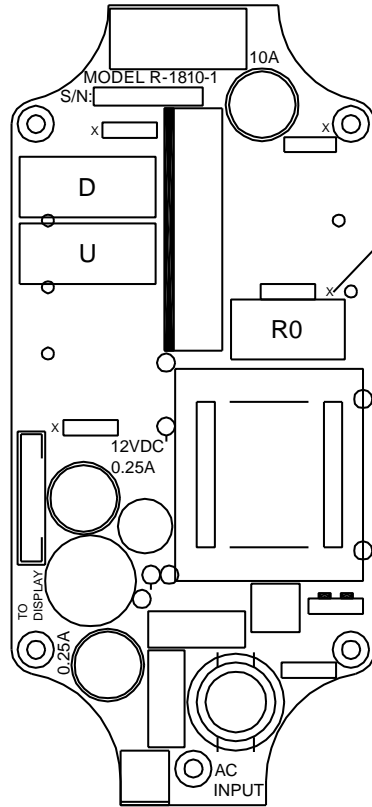
Remark: The Polarity direction of DC Input is not required when plugging in the power line connector.



3-1-2 AC Type

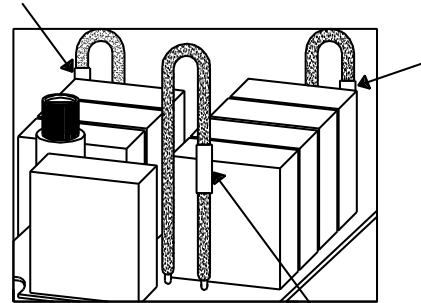


The GND (ground) of the receiver must be connected with metal part of equipment, or electrical shock may occur.



INMOTION-140

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



Cut the wire here.

3-2. Independent COM Line:

The INMOTION series offer optional independent COM lines as:

INMOTION-180	4 independent COM lines	Up/Down, East/West, South/North, R0
INMOTION-160	3 independent COM lines	Up/Down, East/West, R0
INMOTION-140	2 independent COM lines	Up/Down, 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 existing spare output wire. If no spares are available customer must supply extra wire.



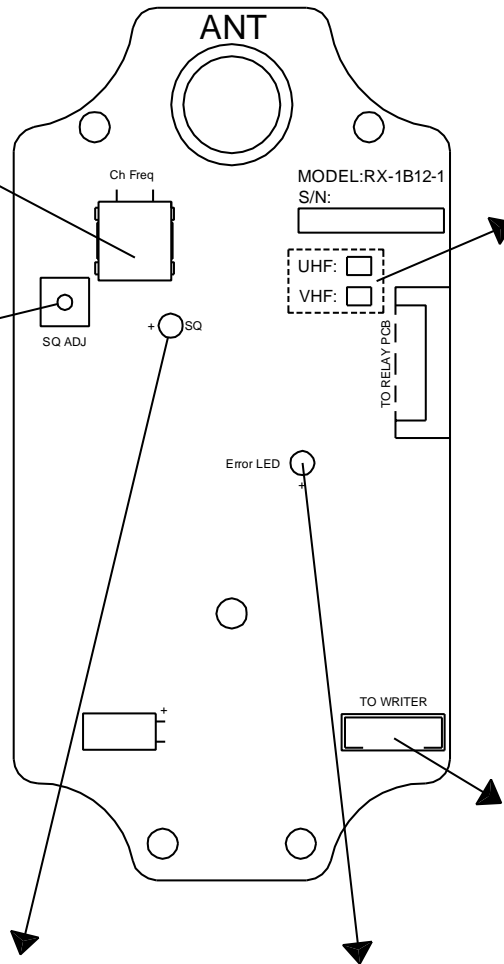
3-3. Receiver Board for INMOTION-180, 160, 140

Replace 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 clockwise (allow receiving a weaker signal) until the SQ lamp turns on, then adjusting counter clockwise (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. If the SQ does not turn on at "off" status before operating it is consider interference.
The receiving sensitivity is adjustable via the SQ ADJ.



There are two kinds of frequencies available UHF and VHF. The current frequency band is marked with a check. Please Do Not install a VHF crystal into a UHF PC board or vice versa.

VHF:310.3250~331.1650MHz
UHF:425.5925~446.7250MHz

This terminal is only for auto testing by the manufacturer during production process.

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



4.0

• FREQUENCY CHANGE

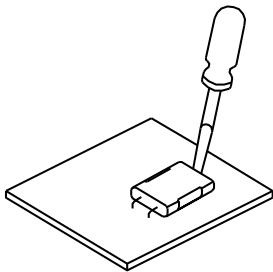
INMOTION system frequency can be changed by replacing the correspondent crystal in both the Transmitter and Receiver. Please refer to the procedure below in regard to replacing the crystal.



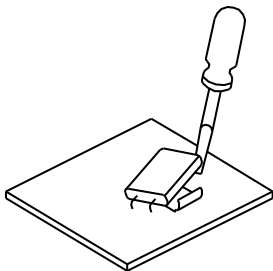
Note: To replace a new crystal, please note there are 2 kinds of frequencies available (VHF and UHF). The current frequency band is marked on the PC board with a check mark. Please Do Not install a VHF crystal into a UHF PC board or vice versa.

Procedures:

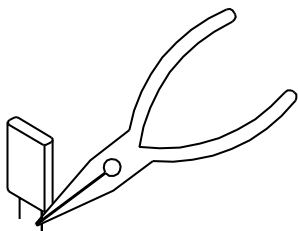
- (1). Pry up the crystal with a flat screwdriver.



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

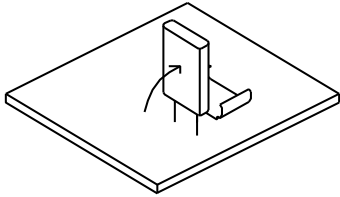


- (3). Use needle nose pliers to straighten both pins of the new crystal.

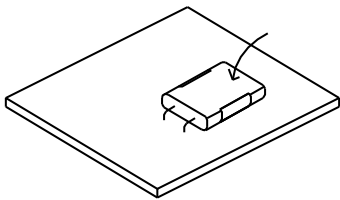




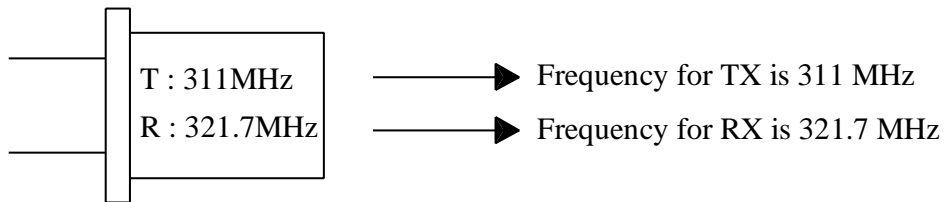
(4). Insert the new crystal vertically into the PC board.



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



Attention: The Transmitter frequency will be different from the Receiver frequency. For example:





• VHF BAND CONVERSION TABLE

Ch No.	Freq(MHz)	Ch No.	Freq(MHz)	Ch No.	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.	Freq(MHz)	Ch No.	Freq(MHz)	Ch No.	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	435.2250	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	428.0000	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		

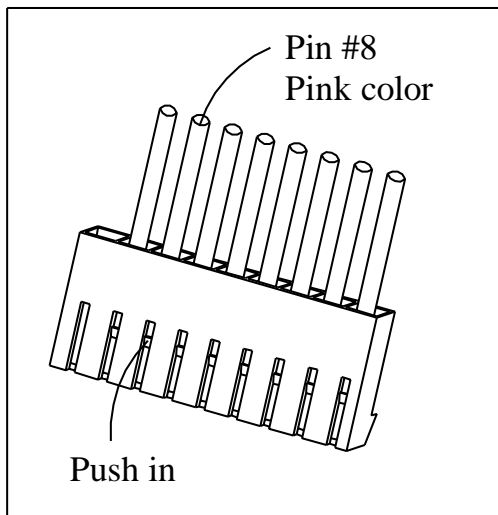


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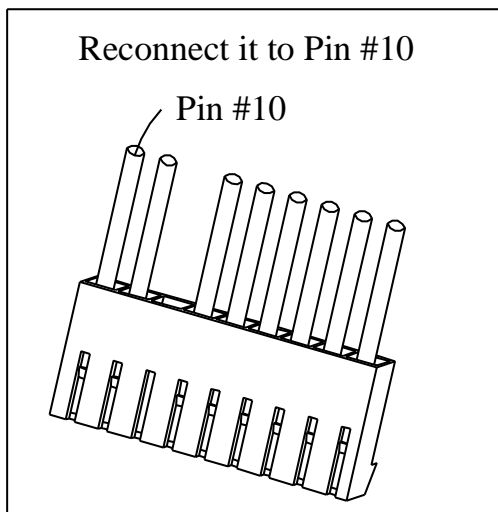
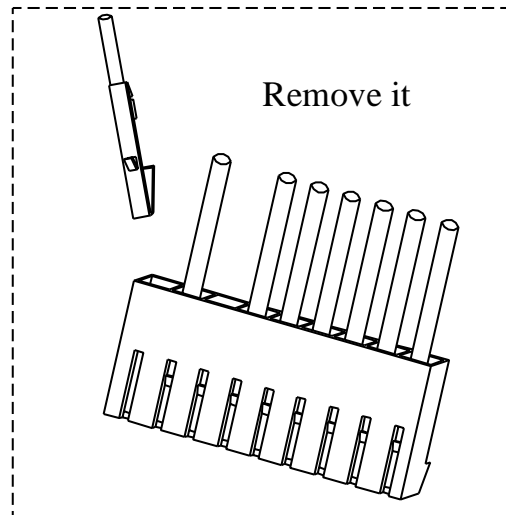
• CHANGING R0/START N.O. (normally open) INTO N.C. (normally closed)

The R0/START key of the new INMOTION 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 in color) from the connector and insert it into No. 10.

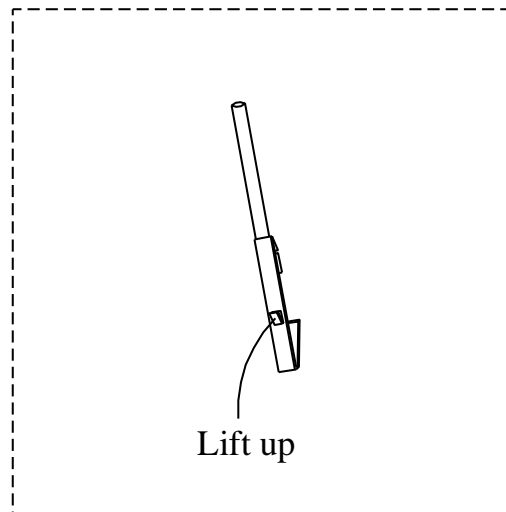
Procedures:



The R0/START is N.O.



The R0/START is N.C.





6.0

• TROUBLESHOOTING

Item	Problem	Cause	Action Required
1	Red LED flashing quickly (every 0.2 sec.) when any motion pushbutton is pressed.	a) One of the pushbutton is jammed. b) The system is not properly powered according to the instructions.	a) Replace the Pushbutton. b) Power on again according to the instructions.
2	TX LED flashes red and yellow reciprocally and slowly (every 0.5 sec.)	The memory of the TX is defective.	Send back to the manufacturer.
3	TX LED flashes red every 2 sec., when any motion pushbutton is pressed.	The transmitter batteries are at low power.	Replace the 2 AA size Alkaline Batteries at once.
4	RX Error LED flashes red slowly (every 0.5 sec.)	The memory of the RX is defective.	Send back to the manufacturer.
5	The operating distance is shorter or an intermittent operation is happening.	It was interfered by other Radio Remote Controller /or unknown 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 items 2 and 4.

If any problem cannot be solved or if you have any comments or suggestions please call 888-501-2220.

MOUNTING TEMPLATE FOR INMOTION-180/160/140 RECEIVER

