RCX Series
DUPLEX INTERCOM SYSTEM

Models:  RCX-48CEU/B, 48-station CEU
         RCX-88CEU/B, 88-station CEU
         RCX-128CEU/B, 128-station CEU

INSTALLATION MANUAL

* This Installation Manual contains information on all the RCX components;

Before actually installing the RCX equipment, the contents of this Manual must be thoroughly read and understood.
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PRECAUTIONS ON INSTALLATION & WIRING

WARNING: (Negligence could result in death or serious injury)

CAUTION: (Negligence could result in injury to people or damage to property)

GENERAL PRECAUTIONS:

Prohibitions to dismantle the unit.

Prohibitions to subject the unit to water.

Take the unit to earth ground.

WARNING

1. The RCX-CEU/B is an electrical device, whose wiring must be done by qualified personnel.
2. Do not change or modify the RCX equipment.
3. Do not connect any power source other than specified to power input terminals on the RCX-CEU/B. Doing so can cause fire or damage the unit.
4. The RCX components must not be exposed to water or any other liquid.
5. Do not open the RCX-CEU/B without first turning off power switch. The high voltage is inside.
6. Make sure wires are connected properly before turning on power.
7. Keep AC outlet away from moisture and dust.

CAUTION

1. Do not install or make any wire terminations while the RCX-CEU/B is turned on. It can cause electrical shock or damage the unit.
2. Mount the RCX-CEU/B on wall in a convenient location, but not where it could be bumped or jarred.
3. Do not install the RCX components in any of the following locations, as it may cause the system to malfunction;
   - High or extreme cold temperature area: under direct sunlight, near equipment that varies in temperature, in front of air-conditioner, inside a refrigerated area, etc.
   - Places subject to moisture or humidity extremes,
   - Places subject to environmental conditions, such as oil, dust, chemicals, salt, etc.
   - Places subject to constant vibration or impact.

GENERAL PRECAUTIONS

1. The RCX-CEU/B components are designed for indoor use only. Do not install outdoors.
2. The RCX-CEU/B is not operable during a power failure.
3. In areas where broadcasting station antennas are close by, intercom system may be affected by radio frequency interference.
4. Keep all DC wiring at least 30cm away from AC 100 – 240V wiring, fluorescent lighting, or dimmer switches. Otherwise, cross AC wiring at a 90° angle.
1 SYSTEM OUTLINE & COMPONENTS

The RCX is a Duplex Intercom System for up to 48, 88, and 128 stations within mid or large-sized offices, factories etc. The microprocessor based system provides a multi-channel, total handsfree communication between any pair of master stations. A variety of communication functions are standard, and paging to a zone(s) is optional. Wiring is simple home run to CEU from each station, which can be located at a max. distance of 3Km, 9,600' away.

## SYSTEM OUTLINE

### Permitted distance to Stations
- Max. 3Km w/0.8mm, 9,600' w/20AWG

### Intercom stations
- # 10 or 100

1. The Central Exchange Unit (CEU) system.
   - Punch block terminals with numbers.
     - No individual station # setting.
   - Installation of Station Card (XC-092) per 8-station increment.
     - Optional Duplex Link Card (XC-091) to increase 4 or 8 more talk channels.

2. Four types of Intercom stations to meet environment.
   - All master configuration.
   - Total handsfree, handset simultaneous or press-to-talk communication.
   - RA-C flush-mount sub station.

3. Up to four zones of paging can be installed without reducing stations.
   - Each zone requires MC-A/A, Amp. & a appropriate number of speakers.
   - Talkback feature with PB-YKXX.

### Package Contents
- RCX Central Exchange Unit (RCX-48CEU/B, RCX-88CEU/B or RCX-128CEU/B)
  - Mounting hardware
  - Package of screws
  - Installation Manual

---

100V SP line
70.7V SP line

PA amp.  MC-A/A

Central Exchange Unit
(Abul XC-092 Cerca)
RCX-48CEU/B
RCX-88CEU/B or
RCX-128CEU/B

Intercom cables must be separated from PA speaker lines.

Zones #2 - 4
2P x No. of Stations or Multi-twisted pair cable

# 57, 157 or 227

RA-D
RA-A
RA-B
RA-C
1 SYSTEM OUTLINE & COMPONENTS

COMPONENTS AVAILABLE

A. Central Exchange Unit (CEU)

RCX-48CEU/B, 48-station CEU (4 talk channels)
RCX-88CEU/B, 88-station CEU (8 talk channels)
RCX-128CEU/B, 128-station CEU (12 talk channels)

Install XC-092 Station Cards per 8 stations.
Duplex Link Card XC-091 is optional to increase 4 or 8 talk channels.

B. Intercom Stations

RA-D, Speaker-Phone type station. Desk/wall.
RA-A, Compact open voice station w/handset bar switch. Desk/wall.
RA-B, Flush-mount open voice station
RA-C, Flush-mount sub station w/ master call & OFF buttons.

C. Paging Equipment

MC-A/A: Paging adaptor per zone (max. 4).
PB-YKX: Talkback adaptor.
SP-3NA: 3 watt paging speaker. Ceiling mount w/NBZ-M square flush or N-EA round surface frame.
# Components Selection Table

<table>
<thead>
<tr>
<th>Station Capacity</th>
<th>Central Exchange Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1 – 48 pcs</td>
</tr>
</tbody>
</table>

## Intercom Communication

A. Central Exchange Unit (CEU)

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>RCX-48CEU/B</td>
<td>1 pce</td>
<td></td>
</tr>
<tr>
<td>RCX-88CEU/B</td>
<td></td>
<td>1 pce</td>
</tr>
<tr>
<td>RCX-128CEU/B</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

B. Intercom Stations

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>XC-092 Station Card</td>
<td>1 to 6 pcs</td>
<td>1 to 11 pcs</td>
</tr>
<tr>
<td>XC-091 Duplex Link Card</td>
<td>1 or 2 pcs</td>
<td>1 or 2 pcs</td>
</tr>
</tbody>
</table>

(add-on option)

RA-D, Speaker-phone type  
RA-A, Open voice/handset  
RA-B, Flush-mount  
RA-C, Flush-mount, sub  

Max. 48 stations  
Max. 88 stations  
Max. 128 stations each expandable in 8-station step

## Options

C. Paging

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>MC-A/A, Paging adaptor</td>
<td>Max. 4 zones of paging can be installed without reducing station capacity.</td>
</tr>
<tr>
<td>PB-YKK, Talkback adaptor</td>
<td>1 to 4 pcs (one per talkback zone)</td>
</tr>
<tr>
<td>Paging amplifier</td>
<td>1 to 4 pcs (one per zone)</td>
</tr>
<tr>
<td>SP-3NA, PA speaker, 3watt</td>
<td>Varies</td>
</tr>
</tbody>
</table>

Note: All call is a standard feature for any RCX-CEU/B, and does not require a supplementary Regulator Unit.
2 NAMES & FEATURES

- RA-D, desk-top use

1. Handset
2. Directory card
3. Speaker
4. Dial and function buttons
5. Call-in LED
6. Station # card
7. Speech volume control
8. Privacy SET switch
10. 4-pin plug with 2m cord
11. DR-A socket
12. Desk-top stand
13. TALK button for handset press-to-talk communication

- RA-D, wall-mount use

1. Handset
2. Directory card
3. Speaker
4. Dial and function buttons
5. Call-in LED
6. Station # card
7. Speech volume control
8. Privacy SET switch
10. Mounting bracket
11. 4-pin plug
12. TALK button for handset press-to-talk communication
RA-A, Desk-top use

1. Speaker
2. Call-in LED
3. Speech volume control
4. Privacy SET switch
5. Dial and function buttons
6. Handset bar switch
7. Station # card
8. Mic.
9. TALK button for handset
   press-to-talk communication
10. Pedestal
11. DR-A socket
12. 4-pin plug with 2m cord
13. Receiver (handset use)

RA-A, Wall-mount

1. Speaker
2. Call-in LED
3. Speech volume control
4. Privacy SET switch
5. Dial and function buttons
6. Handset bar switch
7. Station # card
8. Mic.
9. TALK button for handset
   press-to-talk communication
10. Pedestal
11. DR-A socket
12. 4-pin plug with 2m cord
13. Receiver (handset use)
2 NAMES & FEATURES

- **RA-B**
  1. Speaker
  2. Call-in LED
  3. Speech volume control
  4. Privacy SET switch
  5. Dial and function buttons
  7. Station # card
  8. Terminals block
  9. Front stainless panel

- **RA-C**
  1. Speaker
  2. Call-in LED
  3. Speech volume control
  4. One-touch CALL & OFF buttons
  5. Mic.
  6. Station # card
  7. Terminals block
  8. Terminals for external switch
  9. Front stainless panel

- **RCX-48CEU/B**
  1. Power, PC section cover
  2. Power lamp
  3. Power switch
  4. Terminal section cover
  5. Screws(8) for covers
  6. Mounting hardware
**RCX-88CEU/B, RCX-128CEU/B**

1. Power, PC section cover
2. Power lamp
3. Power switch
4. Terminal section cover
5. Screws (8) for covers
6. Mounting hardware

**MC-A/A**

1. MUSIC Volume control
2. MUSIC Bass control
3. MUSIC Treble control
4. PAGING Volume control
5. PAGING Bass control
6. PAGING Treble control
7. Mounting bracket
8. Terminals block

**PB-YKX**

1. Receive volume control
2. Noise reduction control
3. Mounting bracket
4. System selector switch
   *Set to left YKX position.*
2. NAMES & FEATURES

- SYSTEM FEATURES

1. Duplex Intercom system with RCX Central Exchange Unit.
   - Three types of CEU's in 48, 88, & 128-station sizes.
   - Install XC-092 Station Cards to incorporate as many stations as required.

2. The RCX-CEU/B employs Punch-block terminals.
   - Home-run wiring with 2 twisted pair cable to each station.
   - Station # is assigned with wire terminations.

3. Four types of Intercom stations.
   RA-D: Speaker-phone master station.
   RA-A: Compact open voice master station.
   RA-B: Flush-mount open voice master station.
   RA-C: Flush-mount open voice sub station.

4. Three types of communication available: either total handsfree at both stations, handset simultaneous or press-to-talk communication.
   - Multi-talk channels, including paging.
   - Add-on Duplex Link Card XC-091. Four channels per Card (1 or 2 cards).
   - Speech volume control on each station.
   - Variety of standard communication functions.
   - Privacy SET/OFF switch. Temporary privacy release.
   - Master/Sub communication: Speed dialing without dialing station # to subsequent 9 stations from Master stations Nos.10, 20 ... (100, 110,...).

5. All Call is a standard feature (any RCX-CEU/B)
   - Does not require a supplementary Regulator Unit.


7. Provided four terminals of Zone page installation.
   - Each zone requires MC-A/A, PA amp. & appropriate number of speakers.
   - Talkback adaptor.
   - Background music.

8. Long communication distance.
   - Max. 3Km to RCX-CEU/B with 0.8mma cable. (9,800' w/20AWG)

Operational Features

RA-A & RA-D:
- Open voice, handsfree voice-actuation; Upon the channel established, talk and listen at both stations.
- Handset simultaneous communication; Pick up handset on RA-D or pick up RA-A intercom and hold the back receiver to your ear.
- Press-to-talk communication; Press 3 TALK button to turn your communication to press-to-talk mode. TALK button on left side(RA-A) or on handset(RA-D) functions same way as 3 TALK button.

RA-B & RA-C:
- Handsfree voice-actuation or press-to-talk communication.
- For best results, talk toward the mic, from the front within an operable distance.
3. INSTALLATION & WIRING

■ Selecting the CEU
The RCX is a microprocessor-based intercom system, with a Central Exchange Unit. Each CEU is available without any XC-092 Station Card installed. Add XC-092 Cards in 8-station step.

<table>
<thead>
<tr>
<th>CEU</th>
<th>XC-092 Card</th>
<th>Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>RCX-48CEU/B</td>
<td>6 sockets</td>
<td>48 stations</td>
</tr>
<tr>
<td>RCX-88CEU/B</td>
<td>11 sockets</td>
<td>88 stations</td>
</tr>
<tr>
<td>RCX-128CEU/B</td>
<td>16 sockets</td>
<td>128 stations</td>
</tr>
</tbody>
</table>

■ Talk channel
The XC-091 Duplex Link Card provides 4 talk channels. As shown, each RCX-CEU/B has two vacant sockets to install an XC-091 Card(s).

<table>
<thead>
<tr>
<th>CEU</th>
<th>XC-091</th>
<th>Channel</th>
<th>Add'1 XC-091</th>
<th>Total channel</th>
</tr>
</thead>
<tbody>
<tr>
<td>RCX-48CEU/B</td>
<td>One card</td>
<td>4 ch.</td>
<td>Two cards</td>
<td>12</td>
</tr>
<tr>
<td>RCX-88CEU/B</td>
<td>Two cards</td>
<td>6 ch.</td>
<td>Two cards</td>
<td>16</td>
</tr>
<tr>
<td>RCX-128CEU/B</td>
<td>Three cards</td>
<td>12 ch.</td>
<td>Two cards</td>
<td>20</td>
</tr>
</tbody>
</table>

■ Selecting the Appropriate Stations
Select an appropriate Intercom station to meet environmental conditions.

<table>
<thead>
<tr>
<th>Model #</th>
<th>Type</th>
<th>Suggested place</th>
</tr>
</thead>
<tbody>
<tr>
<td>RA-D</td>
<td>Open voice/handset combination</td>
<td>Quiet office environment</td>
</tr>
<tr>
<td>RA-A</td>
<td>Open voice station, with manual handset bar switch</td>
<td>Quiet office environment</td>
</tr>
<tr>
<td>RA-B</td>
<td>Flush-mount open voice station</td>
<td>Open work area, requiring handsfree communication</td>
</tr>
<tr>
<td>RA-C</td>
<td>Flush-mount sub station</td>
<td>Open work area, requiring quick &amp; handsfree communication with a master</td>
</tr>
</tbody>
</table>

■ Wiring & Cable
Home-run wiring with 2 twisted pairs cable (polarized) to each station or multiple twisted pair cables. Use a 2 twisted pair (shielded) cable of 0.65mm² or 0.8mm². (22AWG or 20AWG)

■ Power supply
The RCX-CEU/B includes an AC 220-240V line input terminals, with grounding terminal. (AC 110 - 125V for N. America)

■ Paging terminals
Each RCX-CEU/B is equipped with four zone page terminals P1 – P4 and talkback terminals TB1 – TB4. See WIRING DIAGRAM section. RC1 – RC4 may be used for remote control of external equipment.

■ Master/Sub communication
The RCX system provides master/sub communication between one Master (any) numbered 10,20,...(100, 110,...) and Sub station(any master or RA-C) numbered with subsequent 11 – 19,21–29,...(101 – 108, 111 – 119,...).

This is auto programmed with wire terminations. In addition to routine call with station # dialing, each Master can call the 9 subs with # and number 1 – 9 from the Master, and from Subs, with single push of # button. RA-C sub station must not be connected to any stations #10, 20,...(100, 110,...).

■ All Call feature built in on all the CEU’s
All the RCX-CEU/B’s are equipped with Regulator Unit required for All Call.
3. INSTALLATION & WIRING

- **Group Call Programming**

Press handles in arrow direction and pull.

The RCX system has a programmable Group Call, which is a desk-top announcement through a grouped stations. The stations can be divided up to 4 groups of not more than 32 stations.

- **How to Program Group Call**

1. Turn off the power switch on the RCX-CEU/B. Remove main & sub front covers. Remove the shield plate, and pull the XC-093 Card from PAG socket.

2. On two blocks of 8 dip switches, set the first and the last station number of Group 1. The 10 digit with the left half 1, 2, 4, 8 switches, and the 1 digit with the right half 1, 2, 4, 8 switches.

3. Referring to the Chart on next page, locate the switches to ON or OFF position. For example, to obtain 53, locate switches as shown below;

4. Same way, proceed setting for the last station # on the next block. After completion, remount the XC-093 Card to PAG socket. Turn on the power switch of the RCX-CEU/B.

On every RCX-48, 88, 128CEU/B, all dip switches are initially set to OFF position.

To program a station No.53, refer to the chart on next page, and you get Symbols 3 & B. Locate dip switches according to the chart, which are as follows;

- **First symbol**
- **Second symbol**

<table>
<thead>
<tr>
<th>ON</th>
<th>ON</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>8</td>
<td>8</td>
</tr>
</tbody>
</table>

1 + 2 ON = 3  
1 + 2 + 8 ON = 11(B)
Programming for Group Call

On the XC-093 Paging Card, locate the two 1, 2, 4, 8 dip switches of 8 blocks as follows:

```
# 0
1  2  4  8
# 1
1  2  4  8
# 2
1  2  4  8
# 3
1  2  4  8
# 4
1  2  4  8
# 5
1  2  4  8
# 6
1  2  4  8
# 7
1  2  4  8
# 8
1  2  4  8
# 9
1  2  4  8
```

Programming Chart of first & last station # (of 4 groups)

Chart for RCX-468CEU/B

```
Symbol of
1st 1,2,4,8
10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 → 1
26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 → 2
42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 → 3
0 1 2 3 4 5 6 7 8 9 A B C D E F
(for up to 48-station system)
```

Chart for RCX-868CEU/B, RCX-128CEU/B

```
Symbol of
1st 1,2,4,8
100 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 → 1
116 117 118 119 120 121 122 123 124 125 126 127 128 129 130 131 → 2
132 133 134 135 136 137 138 139 140 141 142 143 144 145 146 147 → 3
148 149 150 151 152 153 154 155 156 157 158 159 160 161 162 163 → 4
164 165 166 167 168 169 170 171 172 173 174 175 176 177 178 179 → 5
180 181 182 183 184 185 186 187 188 189 190 191 192 193 194 195 → 6
196 197 198 199 200 201 202 203 204 205 206 207 208 209 210 211 → 7
212 213 214 215 216 217 218 219 220 221 222 223 224 225 226 227 → 8
0 1 2 3 4 5 6 7 8 9 A B C D E F
(for up to 128-station system)
```
- **Terminals identifications**

10 - 57: Intercom stations punch-block terminals
P1 - P4: Paging/control zone output (screw terminals)
TB1 - TB4: Talkback zone input
RM1 - RM4: Remote control output
+ , GND (any): Power supply for MC-A/A, PB-YKX.
BGM, GND (any): BGM input for distribution through stations

- **Terminals Block**
**Terminals identifications**

100 - 187 or 100 - 227: Intercom stations punch-block terminals
P1 - P4: Paging/control zone output (screw terminals)
TB1 - TB4: Talkback zone input
RM1 - RM4: Remote control output
+, GND (any): Power supply for MC-A/A, PB-YKK.
BGM, GND(any): BGM input for distribution through stations

**Terminals Block**

* Included in RCX-128CEU/B only.
4. INSTALLATION & WIRING

Wire terminations on the RCX-CEU/B

Before you start wiring, it is recommended to establish a system color code and continue this color code throughout the entire system. (Example No.1 Black, No.2 Red, No.3 White, No.4 Green).

A standard punch-on tool with a cutting edge will be required for connecting to the terminal board. Select cable run for first staiton and using your color code connect to terminals 1, 2, 3 & 4 of stations No.10 on punch block. You do not strip the wires, simply lay in notch of terminal and punch on with tool. This will make a good connection and cut off any surplus wire. Continue until all station runs are connected.

Wire terminations on Intercom Stations

RA-D, RA-A

4P plug      DR-A socket

- 4P plug: Plugs into the DR-A socket.
- DR-A: Connects to Terminal section on RCX-CEU/B.

RA-B, RA-C

1, 2, 3, 4: Connect to each numbered four terminals (polarized).
Note:
Master station connected to terminals No.10, 20, 30, ...
(100, 110, 120 ...) are auto programmed as Master
to Sub stations Nos.11 - 19, regardless of type.
2. Paging

**Single zone of Paging**

- RCX-48CEU/B
- RCX-88CEU/B
- RCX-128CEU/B

**Single zone of Paging w/Talkback**

- RCX-48CEU/B
- RCX-88CEU/B
- RCX-128CEU/B

* Music is optional.
3. Paging to 4 zones

Four zones of paging

* Paging amp. & speaker line & Music wiring are not shown on MC-A/A #2 - 4. Music source can be connected in common for all the zones.

Four zones of paging w/talkback

* Paging speaker line & BGM wiring are not shown for PB-YKXX #2 - 4. BGM source can be connected in common.
4 MOUNTING

- RCX Central Exchange Unit

- CEU Mounting Location

Be sure to turn off the power switch on the RCX-CEU/B before you open the unit or make wire terminations. The location of the Central Exchange Equipment must meet the following criteria:
- Ambient temperature range: 0°C - +40°C (+32°F - +104°F).
- Area must be as dust free as possible, and not too dry or too humid.
- Units must be wall mounted.
- Avoid static electricity.

There are two basic methods (shown above) of mounting the RCX-CEU/B equipment. The Central Exchange Unit should not be installed inside of the electrical enclosure, which could restrict ventilation. If the adaptor(s) and amplifier(s) must be located in an area exposed to people, use of a cabinet is recommended to reduce possibility of someone changing level controls, or damaging wiring.

If the RCX-CEU/B equipment is to be installed in an electrical room or enclosure, it is recommended that a piece of 2.5cm, 1" plywood of adequate size be secured to the wall first and equipment then mounted to the plywood. This will insure adequate backing mounting screws, incoming cable distribution, and tie down.

- Connecting AC Power Line and Grounding Wire

As shown below, using standard screwdriver, connect AC power line to AC INPUT terminals, and grounding wire to EARTH-marked terminal. Observe that the grounding wire be longer than AC power wires, and that the AC power wires be fastened by the cable clamp so as not to be pulled tensely.

* AC Input & Grounding terminals are clearly marked. Be sure to take the marked terminal to earth.
5. MOUNTING

• RCX Central Exchange Unit

Wall-mounting

1. Attach a template provided to wall. Make a hole of 8.5mm, 1/8" diameter and 20 - 25mm, 3/4" - 1" deep in the wall.
2. Remove a nut from the anchoring bolt and drive in a wedge by hammer at 2 points.
3. Attach the mounting hardware to the bolts and secure firmly by the nuts.
4. Remove covers of the RCX unit and hook the RCX unit to the protruding bolts of the mounting hardware and secure firmly the RCX unit by wing nuts.
5. Make wire terminations. Keep the intercom cable away from AC power line.

CEU Mounting Height

Central Exchange Unit shall be wall mounted approximately 1.5m high from the floor.
The RCX-48CEU/B weights about 20kg, 44 lbs. and the RCX-128CEU/B about 40kg, 88 lbs.
The wall, therefore, has to be strong enough to secure the CEU firmly.

Extend incoming cable from either top, bottom or through gang box.
The space may permit cable of up to 50 pair of 0.65mm² of 19mms, 22AWG of 3/4"² to be passed between the RCX-CEU/B and the wall.
4. MOUNTING

**Mounting DR-A Socket**
In either desk-top or wall-mounting, RA-A & RA-D stations plug into DR-A socket supplied. As shown, mount DR-A on wall or flush-panel. Locate the station within the terminal cord length of approx. 2m, 6’7”

- Drill holes on flush plate.
  - Hole 10mm ø, 3/8”ø
  - 2 holes 4.5mm ø, 3/16”ø
  - 27mm, 1-1/16”ø

- Connect wires on DR-A base

RA-D & RA-A are primarily designed for desk-top use, but can be mounted to wall or single-gang box.

**Mounting RA-D**

For wall-mounting:
1. Unscrew on the back of RA-D.
2. Slide down the mounting bracket off the case.
3. Unplug 4-pin connector.
4. Mount the bracket on wall or single-gang box.
5. Replug in and pull down the RA-D until it locks.

**Mounting RA-A**

For wall-mounting:
1. Loosen two screws on the Pedestal.
2. Reversely mount the Pedestal to box.
4. MOUNTING

- **RA-B & RA-C Flush-mounting**

  - **For mounting to box**
    1. Loosen two screws on front stainless panel.
    2. Mount the RA-B or RA-C to box.
    3. Remount the front panel to the intercom.

  - **For mounting to wall**
    1. Cut and open a hole to flush mount the recessed case, referring to the drawing below.
    2. The intercom has two bosses for the panel mounting screws. Since the boss protrudes 4.5mm, 3/16", open two holes for the bosses.

---

2 screws (4mm)

Panel mount guide

205, 8-1/16"

195, 7-11/16"

240, 9-7/16"

140, 5-1/2"

30, 1-3/16"

90, 3-9/16"

194, 7-5/8" min.

203, 8"

209, 8-1/4" max.

112, 4-7/16"

85, 3-5/16"

62, 2-7/16" min.

Boss 9.2
mm, 3/8"o, 4.5mm, 3/16" protruded.

Intercom recessed case dimensions:
194H x 90W x 30D (mm),
7-5/8"H x 3-9/16"W x 1-3/16"D.
5 OPERATIONS

- Communication
  RA-A & RA-D stations are capable of effecting either of the following communications;
  1. Total handsfree at both stations (in quiet office environment).
  2. Handset simultaneous communication (in open office environment)
  3. Press-to-talk communication (in noisy or large environment)
  RA-B & RA-C are for open voice communication only.
  In press-to-talk mode, RA-A or RA-D can return to handset or handsfree communication
  by pressing twice \( \text{MEMORY} \) button.
  Note: Lift handset at initiating a call or in the midst of communication.

- Placing a Call
  1. Dial a station \# with dial buttons.
  2. Upon a short tone heard, the talk channel is established.
  3. Communicate handsfree, both ways (slow voice-actuated).
  4. At conclusion, press \( \text{OFF} \) button.

  Note: Press 2 or 3 digit station \# with inter-digit pause of not more than 4 seconds.
  Otherwise, the call becomes ineffective.

  Your operation may vary according to the status of called station:

- When quick low intermittent (busy) tone is heard;
  Press \( \text{OFF} \) button. Call later. OR Press \( \text{MEMORY} \) button.
  You will be connected upon present conversation finished (Camp-on Busy).

- To break in on communication;
  Press \( \text{OFF} \) button to send a tone signal. Hold down \( \text{TALK} \) button and
  send a voice message. The called station; Press \( \text{MEMORY} \) button to
  place the present line on hold. Reply handsfree.
  After communication, return to the initial communication.

- When slower high intermittent tone (Privacy) is heard;
  The station is set for Privacy mode, and will be signalled by tone for 4 seconds
  The called station may either press \( \text{PRIVACY RELEASE} \) button to reply
  handsfree, or simply pick up handset for immediate connection.
  Upon finish, the station returns to Privacy mode.
5 OPERATIONS

Your operation may vary according to the status of called station:

■ When quick high intermittent tone (absence) tone is heard;
  The station is set for Absence memory. Press either OFF button or MEMORY button to leave a request for call back.

■ When slow and low intermittent tone (network busy) tone is heard;
  All the channels are being used. Press OFF button.

■ Memory button functions
* During communication;

■ Call Holding
  Press MEMORY button to place the present line on hold. To return, press OFF button.

■ Call Transfer
  Press MEMORY button. Dial the station #. Upon the line connected, tell the call is being transferred. Press MEMORY button to effect. Note: When there is no reply, press OFF button to cancel.

■ Secretary Transfer (Station transfer)
  In standby mode, press MEMORY button. Dial the station # to temporarily designate the station as secretary. Every call to your station will be automatically routed to the secretary station.
  * On your station, call-in LED blinks. Press MEMORY, buttons to clear.

■ Master/Sub connection
  At master station;
  Press one-touch call button, and a number 1 – 9 button.

  At RA-C sub station;
  Simply press one-touch call button. Press OFF button to finish at master or sub station.

■ When music source is connected
  On your station;
  Dial your own station # to turn on music. To cancel, press the station # again. When other station calls in, music is muted. If secretary transfer or absence memory is set on your station, music is cut off until returns to normal operation.
**5 OPERATIONS**

**Conference Call**
1. Initiator station presses a station # and PAGE button.
2. Repeat process up to 5 stations.
3. Depress and hold down TALK button, and begin speaking.
4. Respondent holds down TALK button to speak.
5. To get out of the Conference, participants press OFF button or hang up.
6. At conclusion, initiator presses OFF button or hang up.

**Absence Memory**
1. Before you leave your desk, press MEMORY, buttons.
2. When other station has pressed MEMORY button for call back, call-in LED starts blinking on your station.
3. Upon your return, press MEMORY button. You're connected to a first caller (in the order of youngest number).
4. After concluding with OFF button, press MEMORY button.
5. Repeat process until red LED goes out.
6. To cancel Absence memory: Press MEMORY, buttons.

**Camp-on Absence**
When quick and high intermittent is heard upon dialed, press MEMORY button to leave a request for call back.

**Memory Clear**
To erase all memory functions present, press MEMORY, buttons.
*E.g.* Memory functions: Camp-on busy, Secretary transfer, Camp-on absence, Absence memory, except Privacy.

**Group Call**
1. Press PAGE, Group # (5 - 8) buttons.
   Press PAGE button again for call back.
2. Announce through station speakers of one group, holding down TALK button.
3. Within 40 seconds, paged person at the nearest station of the group, presses PAGE buttons.
4. At conclusion, press OFF button.

**All Call**
1. Press PAGE, buttons.
   Press PAGE button again for call back.
2. Announce through all station speakers, holding down TALK button.
3. Press PAGE buttons to reply at the nearest station within 40 seconds.
4. At conclusion, press OFF button.

**Paging**

**Zone Page**
1. Press PAGE button, zone # (1 - 4) buttons.
   Press PAGE button again for call back.
2. Page holding down TALK button.
3. Paged person presses PAGE buttons at nearest station.
4. To conclude, press OFF button.

**Zone Talkback Page**
1. Press PAGE, zone # (1 - 4) buttons.
2. Page holding down TALK button.
3. Release TALK button to listen.
4. To conclude, press OFF button.

**All Page**
1. Press PAGE, buttons.
   Press PAGE button again for call back.
2. Page holding down TALK button.
3. Paged person presses PAGE buttons at the nearest station.
4. To conclude, press OFF button.

*Note: Talkback is not available in All Page mode.*
6 TECHNICAL PRECAUTIONS

- Post Installation System Testing

Once installation is finished, testing is recommended prior to indoctrination of user personnel regarding operation of the system. Proper installation of the RCX system, and its full range of communication functions, can be tested with three simple steps.

Step 1: Checking Station-to-Station Communication

- Select one station as key station. Label is "S-1". Label remaining stations "S-2" through "S-n".
- Call S-2 from S-1 and realize communication.
- Call S-1 from S-2 and realize communication.
- Repeat process from S-1 to S-n until each station in the system has been tested.

Step 2: Checking Busy Tone Signal

- Using three stations (S-1, S-2 and S-3), call S-1 from S-2.
- While S-2 is calling S-1, call S-2 from S-3 to confirm that Busy tone signal is heard.

Step 3: Checking Paging Function (if applicable)

Using S-1, page each zone (press and 1, 2, 3 or 4), then depress TALK button to confirm paging is transmitted to selected zone. (If talkback function is included, release TALK button to confirm talkback). To check remote control operation, press and zone number button connected to the external devices, and momentarily depress TALK button in handset.
Depress button to confirm either continuous or intermittent tone. Upon completion of the above tests, if any of the remaining communication functions are found not to work as prescribed in the Operation Manual, the cause is not due to improper installation. Rather, the Central Exchange Unit must be checked. If this is the case, an Aiphone Specialist must be consulted.

- User Indoctrination

Upon completion of post installation testing and confirmation of the system being fully operable, user personnel should be indoctrinated as to how to use the system. The Operation Manual clearly describes all of the communication features of the system. A complete understanding of the operation of the system by those who will be using it well avoid post installation call backs and related service.

Special Instructions:

(1) Turn on the power switch on the RCX-CEU/B after all the equipment wiring is completed.
(2) Do not make temporary operation of turning ON and OFF power switch again and again.
At least 3 seconds have to elapse between ON and OFF operations.
6 TECHNICAL PRECAUTIONS

■ Servicing

1. Be sure to turn off power switch on the RCX-CEU/B before you remove the cover of the Central Exchange Unit.
2. Removing the cover of the Central Exchange Unit will automatically activate the cutoff switch, shutting off the power. When the system has to be powered for testing, the automatic cutoff switch must be in a depressed position.
3. As the printed circuit boards in the Central Exchange Unit employs MOS-ICs, do not touch the printed circuit boards. Doing so may damage the printed circuit boards with static electricity discharged from your fingers.
4. Before removing the printed circuit board: XC-092 Station Card, wait until all three LED's go out on the Mother board XC-095 (RCX-88 & RCX-128CEU/B) or XC-097 (RCX-48CEU/B) after the power is off.
5. Before replacing any station, be sure to turn off the power supply.
6. When your RCX system includes paging amplifier(s) or remote control devices, turning on and off will cause noise through paging speakers and switchover of the remote control ON/OFF mode of the remote control devices. This is not due to equipment failure but occurs when the power supply is turned on or off.
7. When replacing Cards, locate the Card in the right position by matching the Card number with that on the chassis.

■ Trouble Shooting Guide

• Look for a line open

<table>
<thead>
<tr>
<th>Trouble modes</th>
<th>The lines of the below terminals are disconnected.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1 and 2</td>
</tr>
<tr>
<td></td>
<td>(1 and 4)</td>
</tr>
<tr>
<td>No LED is lit.</td>
<td>•</td>
</tr>
<tr>
<td>No dial tone.</td>
<td>•</td>
</tr>
<tr>
<td>Cannot call.</td>
<td>•</td>
</tr>
<tr>
<td>Cannot be called.</td>
<td>•</td>
</tr>
<tr>
<td>Note 1</td>
<td>•</td>
</tr>
<tr>
<td>Note 2</td>
<td>•</td>
</tr>
</tbody>
</table>

Notes:
1. Can call, but dialing phase is reversed.
2. Cannot communicate if incoming voice level is high.
3. With higher volume, cannot call. → Dialing phase is reversed.
6. TECHNICAL PRECAUTIONS

• Look for a line shorted

<table>
<thead>
<tr>
<th>Trouble modes</th>
<th>The lines of the below terminals are shorted.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1 and 2</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>No LED is lit.</td>
<td>-</td>
</tr>
<tr>
<td>No dial tone.</td>
<td>-</td>
</tr>
<tr>
<td>Cannot call.</td>
<td>-</td>
</tr>
<tr>
<td>Cannot be called.</td>
<td>-</td>
</tr>
<tr>
<td>Cannot communicate.</td>
<td>Can receive</td>
</tr>
<tr>
<td>Cannot end communication</td>
<td>-</td>
</tr>
</tbody>
</table>

• Look for Wire Crossed

<table>
<thead>
<tr>
<th>Trouble modes</th>
<th>The lines of the below terminals are crossed.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1 and 2</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>No LED is lit.</td>
<td>-</td>
</tr>
<tr>
<td>No dial tone.</td>
<td>-</td>
</tr>
<tr>
<td>Cannot call.</td>
<td>-</td>
</tr>
<tr>
<td>Cannot be called.</td>
<td>-</td>
</tr>
<tr>
<td>Cannot communicate.</td>
<td>-</td>
</tr>
<tr>
<td>Cannot end communication</td>
<td>-</td>
</tr>
</tbody>
</table>

Note: 1. Can call, but dialing phase is reversed.
7 SPECIFICATIONS

**RCX-48CEU/B, RCX-88CEU/B & RCX-128CEU/B**

- **Power source:**
  - AC 110 - 125V, 50/60Hz.
  - AC 220 - 240V, 50/60Hz.

⚠️ On each RCX-CEU/B unit, power input voltage and consumption are clearly indicated. Strictly observe that the RCX-CEU/B be fed power from the right power source in each area, otherwise it can cause fire or damage to the RCX-CEU/B unit.

- **Power consumption:**
  - AC 110 - 125V, 50/60Hz.
  - RCX-48CEU/B: Max. 70W, 30W in standby.
  - RCX-88CEU/B: Max. 125W, 45W in standby.
  - RCX-128CEU/B: Max. 155W, 55W in standby.
  - AC 220 - 240V, 50/60Hz.
  - RCX-48CEU/B: Max. 85W, 40W in standby.
  - RCX-88CEU/B: Max. 135W, 55W in standby.
  - RCX-128CEU/B: Max. 165W, 65W in standby.

- **Station capacity:**
  - 48 stations (RCX-48CEU/B w/six XC-092).
  - 88 stations (RCX-88CEU/B w/eleven XC-092).
  - 128 stations (RCX-128CEU/B w/sixteen XC-092).

- **Talk channels:**
  - 4 channels standard (plus 4 or 8 ch. w/one or two XC-091).
  - 8 channels standard (plus 4 or 8 ch. w/one or two XC-091).
  - 12 channels standard (plus 4 or 8 ch. w/one or two XC-091).

- **Dialing:**
  - Mono Frequency-duty modulation.

- **Line scanning:**
  - Voltage level detection by time sharing.

- **Internal network:**
  - PAM time sharing multi-network.

- **Line Impedance:**
  - 600Ω for transmission.
  - 220Ω for reception.
  - 220Ω (loop).

- **Permitted line resistance:**
  - 2 twisted pairs home run, RCX CEU/B to each station:
    - RA-A, RA-D, RA-B & RA-C
    - 3 wires, RCX CEU/B to MC-A/A

- **Ambient temperature:**
  - 0°C ~ +40°C (+32°F ~ +104°F)

- **Ambient humidity:**
  - Under 80% (yearly average)

- **Mounting:**
  - Wall-mount with terminals block & power supply unit.

**RA-D Speaker-phone or RA-A**
- **Open voice or handset**
- **Power source:**
  - DC 24V, supplied by RCX-CEU/B.
- **Current consumption:**
  - DC 10mA max.
- **Communication:**
  - Voice-actuated handsfree, handset simultaneous or press-to-talk
  - Pretone & call-in IED lit
- **Call signal:**
  - 2 numbers dial (10 to 57) or 3 numbers dial (100 to 227)
  - 16 touch keys
- **Mounting:**
  - Desk or wall-mount.

**RA-B Open voice flush-mount**
- **Power source:**
  - DC 24V, supplied by RCX-CEU/B.
- **Current consumption:**
  - DC 10mA max.
- **Communication:**
  - Voice-actuated handsfree or press-to-talk
  - Pretone & call-in LED lit.
- **Call signal:**
  - 2 numbers dial (10 to 57) or 3 numbers dial (100 to 227)
- **Mounting:**
  - Flush-mount to wall, with stainless steel panel.
7 SPECIFICATIONS

■ RA-C Open voice flush-mount Sub
  - Power source: DC 24V, supplied by RCX-CEU/B.
  - Current consumption: DC 10mA max.
  - Call signal: Pretone & call-in LED lit.
  - Calling: One-touch CALL button.
  - Communication: Voice-actuated, handsfree.
  - Mounting: Flush-mount to wall, with stainless steel panel.

■ MC-A/A
  - Power source: DC 24V, supplied by RCX-CEU/B.
  - Current consumption: 50mA max. (paging).
  - 20mA max. (standby).

■ PB-YKX
  - Power source: DC 24V, supplied by RCX-CEU/B.
  - Current consumption: 40mA max. (talkback paging)
  - 2mA (standby).

■ Permitted line distance

<table>
<thead>
<tr>
<th></th>
<th>0.5mm²</th>
<th>0.65mm²</th>
<th>0.8mm²</th>
</tr>
</thead>
<tbody>
<tr>
<td>RCX-CEU/B to Intercom</td>
<td>1,170m</td>
<td>2,000m</td>
<td>3,000m</td>
</tr>
<tr>
<td>RCX-CEU/B to MC-A/A</td>
<td>90m</td>
<td>150m</td>
<td>230m</td>
</tr>
<tr>
<td>RCX-CEU/B to PB-YKX</td>
<td>530m</td>
<td>890m</td>
<td>1,350m</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>24AWG</th>
<th>22AWG</th>
<th>20AWG</th>
</tr>
</thead>
<tbody>
<tr>
<td>RCX-CEU/B to Intercom</td>
<td>3,800'</td>
<td>6,500'</td>
<td>9,800'</td>
</tr>
<tr>
<td>RCX-CEU/B to MC-A/A</td>
<td>300'</td>
<td>500'</td>
<td>800'</td>
</tr>
<tr>
<td>RCX-CEU/B to PB-YKX</td>
<td>1,800'</td>
<td>3,000'</td>
<td>4,500'</td>
</tr>
</tbody>
</table>