## Table of Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>2  Introduction</td>
<td>3</td>
</tr>
<tr>
<td>3  Getting Started</td>
<td>4</td>
</tr>
<tr>
<td>3.1  Construction</td>
<td>4</td>
</tr>
<tr>
<td>4  Wiring Diagram</td>
<td>5</td>
</tr>
<tr>
<td>5  Installation</td>
<td>6</td>
</tr>
<tr>
<td>5.1  IA500</td>
<td>6</td>
</tr>
<tr>
<td>5.2  IA501</td>
<td>7</td>
</tr>
<tr>
<td>6  CB 5 Series Curb Mount Installation Instructions</td>
<td>8</td>
</tr>
<tr>
<td>7  Programming</td>
<td>10</td>
</tr>
<tr>
<td>7.1  General Programming</td>
<td>11</td>
</tr>
<tr>
<td>7.2  Basic Programming Mode</td>
<td>11</td>
</tr>
<tr>
<td>7.3  Additional Programming Commands</td>
<td>13</td>
</tr>
<tr>
<td>8  Audio Programming Mode</td>
<td>15</td>
</tr>
<tr>
<td>8.1  Audio Program Effects</td>
<td>16</td>
</tr>
<tr>
<td>9  Auxiliary Relay 1 Output using Command 6</td>
<td>17</td>
</tr>
<tr>
<td>10 Remote Mount Beacon/Strobe Installation</td>
<td>18</td>
</tr>
<tr>
<td>11 Troubleshooting</td>
<td>19</td>
</tr>
<tr>
<td>12 Technical Specifications</td>
<td>20</td>
</tr>
<tr>
<td>13 Maintenance Schedule</td>
<td>21</td>
</tr>
<tr>
<td>14 Warranty</td>
<td>23</td>
</tr>
</tbody>
</table>
2 Introduction

Thank you for choosing the Code Blue InterAct 500 series analog speakerphone(s), intercom(s) and paging device(s) for indoor and outdoor applications. These speakerphones are part of our Emergency Signaling group of products that are built to meet the latest regulations, withstand the harshest elements and be proactive solutions for when you need them most. The InterAct 500 series phones meet the need for a cost effective, highly reliable product for multi-level parking decks, stairwells, hallways and building entrances.

Note: Only recommended for use on Bell POTS lines or dial tone provided by ToolVox®; locations with private PBX head end phone systems should explore the rest of Code Blue’s speakerphone options.

The InterAct 500 is a series of line powered speakerphones – IA500-d, IA500-s, IA501-d and IA501-s – featuring piezoelectric touch sensitive buttons, a waterproof speaker and microphone, and one latching type auxiliary relay output. The units include remote programming, call in monitoring for Areas of Rescue functionality and live audio setup programming.

These line-powered phones feature single or dual solid-state button activation, two high intensity LED indicators, a cast metal bezel assembly and stainless steel housings for surface or flush mount applications.

The InterAct 500 series has conformal-coated electronics to support both indoor and outdoor installations. Each model includes a built-in contact closure that may be used to activate a strobe or camera or can be used for door access applications.

The two-piece housing on the surface mount models allows the back plate to be mounted and pre-wired during the rough-in phase and the faceplate/electronics assembly set in place near the end of the project. The flush mount version includes the flush mounting box and has an oversized faceplate to eliminate additional trim work.

Accessories include blue beacon lighting, remote mount strobes, identification signage and curb mount pedestals to support a wide range of installations.

This guide provides basic and advanced programming information for obtaining the best performance with the InterAct 500 speakerphone.
3 Getting Started

1. The analog phone line will terminate on the barrier strip at Tip and Ring positions.
   a. Talk voltage: 24~48
   b. Loop Current Range: 27~50mA

2. Relay: The phone has one relay that can be a straight contact closure or supply low current through the relay to power a remote strobe.
   a. Spec Rating: 1A @ 220V DC or 250V AC (EA2-3TNU.1)

The IA500 series phones are remotely programmed. This enables the installer or end user to program the unit from a phone on site or from a remote location.

3.1 Construction

Surface Mount

The IA500 housing shall be constructed of 16 gauge stainless steel and measure 7.375" W x 7.125" H x 2" D and weigh approximately 5 lbs. The housing shall consist of two pieces, permitting the backplate to be mounted during the rough in and the faceplate installed during completion. The back shall have four holes for mounting hardware.

Flush Mount

The IA501 faceplate shall be constructed of 12 gauge stainless steel and the flush mounting box of 14 gauge painted steel. It shall measure 9" H x 9" W x 3.5" D and weigh approximately 9 lbs. The faceplate shall provide an overlap to the mounting box to eliminate additional trim work.
4  Wiring Diagram

Relay Output can be used to trigger an optional strobe as shown. Another application for this output would be a door control system. Refer to the IA500 programming manual for options.

Optional Strobe
40197
12V DC @ 180ma

Optional DC Power Supply
(Supplied by Others)

~28 – 50 mA Loop Current required
To analog telephone service

Always use a phone line surge suppressor for protection.
If loop current is found to be less than ideal, use either a Ring Voltage Booster or a Long Loop Adaptor Ref: Proctor 46222

See Relay Ratings Below

RELAY RATINGS

<table>
<thead>
<tr>
<th>CONTRACT FORM</th>
<th>2 FORM C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contract Rating</td>
<td>Maximum Switching Power</td>
</tr>
<tr>
<td></td>
<td>Maximum Switching Voltage</td>
</tr>
<tr>
<td></td>
<td>Maximum Switching Current</td>
</tr>
<tr>
<td></td>
<td>Maximum Carrying Current</td>
</tr>
</tbody>
</table>

Product wiring diagram reasonably represents current offering and is intended to assist in component identification and service. Earlier product production may have different components and wiring connections. Reference the model and serial number from the unit ID tag and contact manufacturer to confirm replacement part version and availability.
5 Installation

The IA500 Series comes in surface and flush mount options. The surface mount allows the mounting bracket to be installed during rough in and the faceplate with electronics during completion. The faceplate on the flush mount is five inches square and provides an overlap to the mounting box to eliminate additional trim work.

5.1 IA500

- To install the IA500, first remove the two retaining screws (Allen wrench provided), from each side of the case.

- Remove the rear mounting plate by sliding it downward.

- Using the mounting plate as your guide on the wall, mark the mounting hole and conduit hole locations on the wall.

- Remove the rear mounting plate and create the required holes, along with any conduit you choose to use. Attach rear mounting plate to wall.

- Pull CAT 3 shield twisted pair wire through the conduit opening in the rear mounting plate, and leave nine inches of CAT 3 wire beyond the wall.

- Strip the tip and ring wires and attach them to the IA500 (PCB) screw terminals marked tip and ring.

- Slide the IA500 down, starting from the top of the rear mounting plate until the bottom of the IA500 comes flush with the rear mounting plate lip.

- Replace the two retaining screws.

REQUIRED MATERIALS

- Cat 3 shield twisted phone wire
- 4 - #8 screw (fasteners)

Three ½-inch conduit openings are available through the bottom of this panel.
5.2 IA501

1. Remove the four faceplate screws from the back box
2. Using the back box as your guide on the wall, mark the rough opening size
3. Create the required opening and conduit runs
4. Pull CAT 3 cable through the conduit hole in the back box
5. Connect CAT 3 cable to the Ethernet port on the PCB
6. Attach faceplate to back box
7. Replace the four faceplate screws
6 CB 5 Series Curb Mount Installation Instructions

1.0 PRE-INSTALLATION

   **Electrical Preparation** – The unit will need a phone wire (POTS) run through the curb mount with at least 10 inches of wire coming out of the top of the curb mount to connect to the Code Blue phone. A 1/2 inch conduit hole in the back of the unit has been provided for this purpose.

2.0 INSTALLATION PROCEDURES – Curb Mounts should be mounted on concrete bases with a depth of 4-5 inches, using the correct mounting bolts for your application.

   **Mounting Holes** – In order to comply with the Americans with Disabilities Act (ADA) of 1990, the speakerphone button(s) should be positioned between 34 and 48 inches from grade level (Consult an ADA specialist in your area to verify local and federal guidelines).

   **Secure the housing to the Curb Mount** – Four bolts with 4 lock nuts, 4 rubber washers and 8 steel washers are provided to securely fasten the housing to the curb mount. Connect communications wiring. Follow all federal and local codes that apply.

   *See diagrams next page*
Specifications subject to change without notice or obligation on the part of the manufacturer.
7 Programming

The IA500 series can be programmed from any touch-tone telephone keypad or through the use of Code Blue’s Unit Programming & Diagnostics (UPD) software. There are basically two modes of operation: Monitoring and Programming. Programming is broken down into two categories: Basic and Audio.

Either the first number or first two numbers is the actual “command,” followed by the default password. The # (pound symbol) is always your enter key and the * # (asterisk and pound symbols) end a programming or monitoring session, as well as invoke a force hang-up. As an example, enter Programming Mode by dialing: 2 - 2258 - #.

Anytime you wish to reset programming, use Command 99 - #.

NOTE: If programming the IA500 for ring down or hotline service, you must enter 99 - # to clear the factory default settings.

In some installations you may find the phone will not answer when called and the phone line you’re using goes into reorder tones. This is an indication the line current is below minimum to ring the phone. If this is the case, do the following:

- Locate the jumper on the bottom of the PCB board below the barrier strip.
- Remove the jumper (shunt).
- The IA500 will now answer the incoming call.

Low line current comes at an expense as the phone cannot roll over to the next number. If calling into the unit is more important than roll-over dialing, the shunt can remain off. Available options:

1. **Shunt Applied**: Normal operation with a strong POTS line service; unit will answer and also roll over normally.

2. **Shunt Removed**: Operations are limited; able to answer an incoming call, but unable to roll over.

3. **Shunt Applied w/Long Loop Adapter Applied to the Line**: Normal operations; receiving and placing calls are as expected (reference Proctor Long Loop Adapter).
7.1 General Programming

To program an IA500 series phone you need to use an analog phone or an IP phone that pushes DTMF tones and call the extension or phone number of the Emergency phone. When you dial the phone number to the Code Blue speakerphone you’re trying to reach, you will hear an acknowledgement tone or RFA tone to let you know that the phone has picked up and is ready to be programmed. Press the programming password for that particular model phone to enter programming mode and configure the phone.

For example, to program an IA500:

Call into the speakerphone or “call box.” After the beep, press 22258#. Wait for acknowledgement tone, press 1-1 <phone number> #. Wait for acknowledgement tone, then press * # to hang up.

7.2 Basic Programming Mode

Assigning Telephone Numbers to the Help and Info Buttons:

1. Call the IA500 by dialing its assigned phone number or extension.

2. Upon answering, the unit will emit a short beep.

3. The unit automatically enters Monitoring Mode (see previous page).

4. You have two minutes to select Basic Programming or Audio Programming Mode, as well as the option to issue additional commands during this interim, such as Reset programming (see Figure 1 on the following page).

5. To enter into Basic Programming Mode, dial the unit’s default password, 2 - 2258 - #

NOTE: If the initial password (i.e., 2258) was changed by another operator, then the new password must be entered.

   a. The unit will emit a single beep; an incorrect entry will trigger a triple beep.

6. Input telephone numbers based on emergency buttons.

   a. There are three “fields” or three sets of numbers that encompass what phone number will be dialed and in which sequence:

      • Assigned Button Number - The first digit will be either a “1” or “2”, corresponding to the Help or Info button (“2” is only used with the 500-d and 501-d models).

      • Call Sequence - Represents the order in which the stored number will be dialed.

      • Phone Number - Designates the actual phone number to be dialed; 1 to 16 digits available. The asterisk (*) can be used for a pause.

      • Programming sequence - each line entry is completed by entering the pound sign (#).

(Continued on next page)
### Command Default Description Example

<table>
<thead>
<tr>
<th>Command</th>
<th>Default</th>
<th>Description</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>2258</td>
<td>Enter Programming Mode</td>
<td>2-2258-#</td>
</tr>
<tr>
<td>8</td>
<td>2258</td>
<td>Enter Audio Programming Mode</td>
<td>8-2258-#</td>
</tr>
<tr>
<td>99</td>
<td>-</td>
<td>Reset Programming</td>
<td>99-#</td>
</tr>
<tr>
<td>#</td>
<td>-</td>
<td>Enter (i.e. Initiate; used at the end of EVERY command)</td>
<td>(see “#” in each example above)</td>
</tr>
<tr>
<td>*#</td>
<td>-</td>
<td>Force hang up (phone disconnects)</td>
<td>*-#</td>
</tr>
</tbody>
</table>

**Figure 1**

b. **Figure 2** (below) depicts the three fields, categories listed in red, followed by the pound sign (#) required for programming the IA500. In addition, this chart provides actual examples of a phone configuration.

c. **Sequence of Calls:**

   - In the sample provided (Figure 2), when the Red button (i.e., PUSH FOR HELP) is pushed, the phone will dial the first number – 1111. If this number happens to be busy or is not answered within the time set (i.e., Command 04 - Ring Time; Figure 3) the phone will hang up and dial the next number assigned to the Red button. The unit will cycle through to the last number in memory for the HELP button (i.e., 1-6-9-231-555-1212-#). The unit will cycle through the number twice since the default is set to 2 (Command 05, Figure 3).

   NOTE: In this case, the first digit reflects that the Red button (1) has been assigned to the sixth memory location (6) and further, the phone must first dial a “9” to initiate the call. The regular phone number, beginning with area code, follows.

d. **Programming Sample 1:**

   - Using the PHONE NUMBER CONFIGURATION SAMPLE (Figure 2), the Black button (2) has been assigned the third (3) Memory Location for calling extension 2222.

   - Although it is the third number programmed into memory, it will be the FIRST number dialed for any user activating the INFO button (i.e., Black button).

7. Once all phone numbers have been allocated into memory, the operator can modify any combination of the settings once in programming mode:

   a. Enter * # (asterisk and pound signs) to close all IA500 programming (Figure 1).
### Programming Examples

<table>
<thead>
<tr>
<th>Button Assignments</th>
<th>Memory Slot</th>
<th>Phone Number</th>
<th>Examples while in Programming</th>
<th>Button Assignment Variations</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 (RED button)</td>
<td>1</td>
<td>123-456-7890</td>
<td>1-1-1234567890-#</td>
<td>RED Button, first assignment</td>
</tr>
<tr>
<td>1 (RED button)</td>
<td>2</td>
<td>987-123-4567</td>
<td>1-2-9871234567-#</td>
<td>RED Button, second assignment</td>
</tr>
<tr>
<td>1 (RED button)</td>
<td>3</td>
<td>876-543-2109</td>
<td>1-3-8765432109-#</td>
<td>RED Button, third assignment</td>
</tr>
<tr>
<td>2 (BLACK button)</td>
<td>4</td>
<td>765-432-1098</td>
<td>2-4-7654321098-#</td>
<td>BLACK Button, first assignment</td>
</tr>
<tr>
<td>2 (BLACK button)</td>
<td>5</td>
<td>654-321-0987</td>
<td>2-5-6543210987-#</td>
<td>BLACK Button, second assignment</td>
</tr>
<tr>
<td>2 (BLACK button)</td>
<td>6</td>
<td>543-210-9876</td>
<td>2-6-5432109876-#</td>
<td>BLACK Button, third assignment</td>
</tr>
</tbody>
</table>

*Figure 2*

#### 7.3 Additional Programming Commands

1. If not already in programming mode, call the IA500 by dialing its assigned phone number or extension.

2. Upon answering, the unit will emit a short beep.

3. The unit automatically enters Monitoring Mode.

4. You have two minutes to select Basic Programming Mode.

5. Dial **2 - 2258 - #** to enter into Basic Programming Mode.
   
   a. As described in the chart below (*Figure 3*), command options include Call Length, Ring Timer and Calling Cycle, among others.

6. If the command is programmed correctly the unit will emit a single beep; an incorrect entry will trigger a triple beep.

7. Dial **99 - #** to reset all programming functions (*Figure 1*).
<table>
<thead>
<tr>
<th>Commands</th>
<th>Feature</th>
<th>Description</th>
<th>Command Range</th>
<th>Default</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>02</td>
<td>Programming Password</td>
<td>The programming password can be changed from default to your choice of numbers up to 8 digits in length.</td>
<td>0-8 digits</td>
<td>2258</td>
<td>To modify the default password to 98765, from the keypad, dial: 02-98765-#</td>
</tr>
<tr>
<td>03</td>
<td>Call Length Timer</td>
<td>Sets duration of the call. This can be modified to accommodate the end user.</td>
<td>1-99 min.</td>
<td>10 min.</td>
<td>To increase the call length duration from 10 to 25 min., dial: 03-25-#</td>
</tr>
<tr>
<td>04</td>
<td>Ring Timer</td>
<td>Ring Timer controls the amount of time the IA500 is allowed to ring a called party before the phone rolls over to dial the next programmed number (NOTE: Limited to quality of line conditions).</td>
<td>05-99 sec.</td>
<td>30 sec.</td>
<td>To increase the ring timer from 30 to 35 sec. dial: 04-35-#</td>
</tr>
<tr>
<td>05</td>
<td>Calling Cycle</td>
<td>Determines how many times each number in memory is dialed before the IA500 resets to standby state (NOTE: Limited to quality of line conditions).</td>
<td>1-3 times</td>
<td>2</td>
<td>Decrease the calling cycle from 2 to 1 by dialing: 05-1-#</td>
</tr>
<tr>
<td>07</td>
<td>Contact Closure Relay</td>
<td>Relay Programming: 2 Modes Available</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Mode 1</strong>: Default. Closed for the duration of the call and is uniquely linked to the RED BUTTON activation only.</td>
<td>Duration of Call</td>
<td>10 min.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Mode 2</strong>: Relay Gate Control. This feature disengages the relay from the RED BUTTON relationship, but ONLY when Command 07 has been programmed with a time period. To control the relay remotely, the operator needs to use the “6” on the keypad to request the contact closure for the time period pre-programmed.</td>
<td>00-99 sec.</td>
<td>none</td>
<td>To force contact closure for 2 sec. dial: 07-02-#, or for a contact closure of 60 sec. dial: 07-60-#</td>
</tr>
</tbody>
</table>

*Figure 3*
8 Audio Programming Mode

Audio programming is normally performed once all other programming has been completed. These commands allow the installer/programmer to fine tune the IA500’s audio settings to maximize the performance of the attached phone line services.

Field audio programming can have a negative effect on the performance of the IA500 if the person implementing these changes is not thoroughly familiar with telecommunication systems.

**NOTE:** All changes can easily be reversed by using 99 - # at any time during the AUDIO PROGRAMMING MODE session (i.e., 99 - # resets all programming modifications back to factory default settings).

1. Call the IA500 by dialing its assigned phone number or extension.
2. Upon answering, the unit will emit a short beep.
3. The unit automatically enters Monitoring Mode.
4. You have two minutes to initiate Audio Programming Mode.
5. Dial 8 - 2258 - # to enter into live monitoring mode.
   a. As described in the chart on page 14 (Figure 4), command options include Speaker Level, Microphone Sensitivity and Background Noise Filter, among others.
6. If the programming command is correct the unit will emit a single beep; an incorrect entry will trigger a triple beep.
7. To close the programming session or to disconnect from the IA500, dial * # (Figure 1).

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
<th>Command Range</th>
<th>Default</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>81</td>
<td>Speaker Output Level</td>
<td>00-15</td>
<td>07</td>
<td>Lower the Speaker Level from 07 to 03 by dialing: 81-03-#</td>
</tr>
<tr>
<td>82</td>
<td>Microphone Sensitivity</td>
<td>00-15</td>
<td>07</td>
<td>To decrease the Microphone Sensitivity from 07 to 03, dial: 82-03-#</td>
</tr>
<tr>
<td>83</td>
<td>Phone Line Receive Gain</td>
<td>00-15</td>
<td>02</td>
<td>Increase the Phone Line Receive Gain from 02 to 05 by dialing: 83-05-#</td>
</tr>
<tr>
<td>87</td>
<td>Background Noise Filter</td>
<td>1 = On, 2 = Off</td>
<td>2</td>
<td>To turn on the Background Noise Filter from 2 to 1, dial: 87-1-#</td>
</tr>
</tbody>
</table>
|         | Filter Delay Speed  | 3 = no delay, 4 = 10ms delay | 3       | Remove any Filter Delay Speed by dialing: 87-3-#  
Add a 10ms Delay by dialing: 87-4-# |

*Figure 4*
8.1 Audio Program Effects

Due to variation in telephone line voltage and loop current, changes will affect the quality of sound from and to the IA500. Code Blue has attempted to provide a configuration to match a majority of normal installations. However, manual changes may be required to achieve the best performance.

1. Broken Audio
   a. Discontinuous audio signal between operator and user is normally related to oversensitivity of the microphone.
   b. Dial 82 - 02 - # to decrease the Microphone Sensitivity and continue to modify as necessary (option range is 00-15; Figure 4).

2. Speaker Volume Too Low
   a. Increase the Speaker Output Level by changing Command 81 to 81 - 12 - # (option range is 00-15; Figure 4).

3. NOTE: If the phone line is weak this command change may produce a negative condition.

4. Phone Line Receive Gain
   a. Occasionally, when the phone line is below standard gain levels it is necessary to change the IA500’s line gain control. Changing program settings in this area can affect both speaker and microphone performance (i.e., there could be negative impacts upon previously made IA500 settings).
   b. To modify the default setting, dial 83 - (enter new value, between 01 and 15) - # (Figure 4).
9 Auxiliary Relay 1 Output using Command 6

The IA500 has only one command available during a call. This command enables the Auxiliary Relay to change from activating with the Red Button to activation when the operator enters 6 (Figure 5) from the keypad.

NOTE: Auxiliary 1 can only perform one of the following functions:

a. Closed for the duration of the call (default setting).

b. Operator-dependent during the call for the time period set with pre-programmed Command 07 (Figure 4).

1. If not already in programming mode, call the IA500 by dialing its assigned phone number or extension.

2. Upon answering, the unit will emit a short beep.

3. The unit automatically enters Monitoring Mode.

4. You have two minutes to initiate Basic Programming Mode.

5. Dial 2 - 2258 - #, or appropriate password, to enter into programming mode.

6. Modify the Contact Closure Relay by dialing 07 - xx - #, where “xx” equals the duration of the closed relay (option range is 00-99 seconds; Figure 4).

7. Close the programming session by dialing * # (Figure 1).

8. During a call, the operator enters 6 on their keypad and the auxiliary relay closes for the time period set (as described in Step 6) and then releases.

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
<th>Command Range</th>
<th>Default</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>Turns on Auxiliary Output</td>
<td>00-99 seconds</td>
<td>Enter 6 from phone keypad</td>
<td></td>
</tr>
</tbody>
</table>

*Figure 5*
10 Remote Mount Beacon/Strobe Installation

1.0 ATTACH J-BOX TO THE POLE

1.1 Thread the banding (B) through the pole bracket (A) located on the backside of the J-box (C).

1.2 Wrap the banding around the pole. Cut the banding to desired length.

1.3 Using a screwdriver or nut driver, tighten the banding and make sure that the unit is in the desired location.

NOTE: J-box must be positioned so weep hole faces down.

2.0 ATTACH LIGHT TO BRACKET

3.1 Using the three M4 X 8 screws enclosed (K), fasten the strobe (J) to the round portion of the strobe bracket.

NOTE: If the beacon/strobe is mounted upside-down, a drain hole must be drilled into the lens to prevent it from filling with water.

3.0 ATTACH LIGHT AND BRACKET TO THE J-BOX

4.1 Connect all wiring from the strobe to the wiring from the unit inside of the J-box using wire nuts.

4.2 Attach strobe bracket to the J-box using four 6-32 X ½ screws as shown.

All wiring must be installed and connected by experienced and certified personnel to meet local and national electrical codes, and will include a service disconnect.
11 Troubleshooting

1. Check phone line
2. Is this a dial-up (1MB/POTS or ring down (hotline)) type service?
3. Loop Current: IA500 27mA to 50mA
4. Talk Battery: -24V DC to -48V DC
5. Ring Voltage: 90Vrms

Note: Only recommended for use on Bell POTS lines or dial tone provided by ToolVox®; locations with private PBX head end phone systems should explore the rest of Code Blue’s speakerphone options.

Speakerphone programming manuals can be found at:

codeblue.com/Support/TechnicalSupport/downloads

If the IA500 doesn’t seem to be functioning properly, follow the steps below to test line loop current, ring voltage and talk battery. These line levels are important to the proper function of the IA500.

**Loop Current Test Configuration**

[Diagram showing testing loop current with a meter set on mA DC range.]

Testing Loop Current
Interrupt one wire of the pair and connect through your Amp Meter, as diagrammed.

Set your meter on mA DC range
Either call the Code Blue Phone or Activate the Code Blue Phone and note the mA reading, once the connection to the party has been made.

The IA3100 Min Loop current is 27mA with a max of 50mA.
The IA3100 Loop Current is 23 – 35mA.

**Ring Voltage Test Configuration**

[Diagram showing testing ring voltage with a meter set to AC.]

Testing Ring Voltage
With your volt meter connected to tip and ring.
The meter needs to be set to AC.
Place a call to the unit and record the AC voltage during the ring cycle.
Normal Ring Voltage, according to the FCC, is 100 Volts AC.

**Talk Battery**

[Diagram showing testing talk battery with a meter set to DC mode.]

Testing Talk Battery
Connect your meter as diagrammed.
Set the meter to DC mode.
Activate the phone while connected in conversation mode record the DC voltage.
Ranges: S-B PBX -24 to -48 Volts DC
Larger systems, including the Bell network, are always -48.

Note
For those using non auto ranging meter. Please make sure you have proper polarity set up for each test.

For those with Fluke Meters, they are generally auto-ranging. Also they’re bidirectional, meaning polarity is not an issue.
12 Technical Specifications

Note: Only recommended for use on Bell POTS lines or dial tone provided by ToolVox®; locations with private PBX head end phone systems should explore the rest of Code Blue’s speakerphone options.

**TELEPHONE & ELECTRONIC INTERFACE**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ringer Equivalence Number</td>
<td>FCC REN AC = 0.1 DC = 0.25</td>
</tr>
<tr>
<td>Surge Suppressors</td>
<td>Telephone interface FCC part 68 Approved</td>
</tr>
<tr>
<td>Signaling</td>
<td>DTMF (tone)</td>
</tr>
<tr>
<td>Loop Current</td>
<td>27-50 mA</td>
</tr>
<tr>
<td>Auxiliary Output</td>
<td>Dry contact relay 120mA maximum. Normally open relay. Form C.</td>
</tr>
<tr>
<td>System Connections</td>
<td>Individual phone lines or PBX extensions recommended</td>
</tr>
</tbody>
</table>

**ENVIRONMENTAL**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating Temperature Range</td>
<td>-22° to 150° F</td>
</tr>
<tr>
<td>Operating Relative Humidity</td>
<td>0% to 95% RH Non-condensing</td>
</tr>
<tr>
<td>Electrostatic Discharge</td>
<td>20kV</td>
</tr>
<tr>
<td>Faceplate</td>
<td>Stainless steel, piezoelectric weatherproof button, microphone and speaker openings reduce damage from vandalism, waterproof 3½” speaker, waterproof microphone</td>
</tr>
</tbody>
</table>

**PHYSICAL**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimensions (faceplate)</td>
<td>IA 500 7⅜&quot; w x 7⅓&quot; h x 2&quot; d 16 Gauge Stainless Steel</td>
</tr>
<tr>
<td></td>
<td>IA 501 9&quot; w x 9&quot; h x 3½&quot; d 12 Gauge Stainless Steel</td>
</tr>
<tr>
<td>Faceplate</td>
<td>14 Gauge Painted Steel</td>
</tr>
<tr>
<td>Backbox</td>
<td>8⅛&quot; w x 8¼&quot; h</td>
</tr>
<tr>
<td>Remote Mount Electronics</td>
<td>Speakerphone electronics are conformal coated to withstand harsh environmental conditions.</td>
</tr>
</tbody>
</table>
### 13 Maintenance Schedule

**Legend**
- **G** Guard tasks
- **T** Technician tasks

#### DAILY OR WEEKLY

- **G** Perform functional communications check
  - **Action:** Press red button
    - Strobe activates
    - Red LED “Call Placed” light turns on
    - Message plays
    - Call connects, green LED “Call Received” light turns on
    - Confirm conversation clarity with dispatch

#### MONTHLY OR QUARTERLY

- **G** Visually check lighting functions:
  - Faceplate light
  - Beacon
  - Strobe

- **G** Visually inspect unit for damage to:
  - Faceplate
  - Piezo button
  - Microphone *(pest infestation, damage or obstructions)*
  - Speaker *(pest infestation, damage or obstructions)*

- **T** Check batteries
  - Functioning with full charge
  - Recharging fully, including NightCharge®/Solar units *(NOTE: recommend mid- to late afternoon inspection)*

#### BIANNUALLY

- **T** Remove access door and faceplate assembly to inspect the following:
  - Ensure all electrical connections are secure
  - Check all phone connections for corrosion *(If corroded, clean and coat with dielectric gel or replace)*
  - Ensure all battery connections are tight and clean
  - Verify no stains exist around gasket areas *(Stains indicate leaking and gasket should be replaced)*
  - Verify moisture weep hole on cabinet bottom is open and unobstructed
  - Verify bottom of bollards are at least 1/2 inch above footing and free of obstructions *(Only applies to CB 1, CB 5 and CB 9 units)*

  - **G** Apply automotive paint sealant to unit exterior for protecting finish against environmental pollutants *(Suggested products include Black Magic Wet Shine Liquid Wax, Nu Finish NFP-80, and 5 Star Shine)*

  - **G** Clean and coat exterior stainless steel cabinets with cleaner/polish *(Suggested products include Chase Products’ Champion Sprayon Stainless Steel Cleaner to help protect finish against environmental pollutants)*

  - **T** Visually confirm line-of-sight is still clear to base station *(i.e., confirm that new tree growth, new building construction or other obstructions are not blocking view of base station)*

#### ANNUALLY

- **T** Replace batteries used with NightCharge®, cellular or RF systems *(Replace with batteries recommended by the communication manufacturer to ensure optimal performance)*
UNIT SURFACE MAINTENANCE

The painted and stainless steel Code Blue models require periodic care to sustain their aesthetic appearance. Units located outdoors are vulnerable to harsh environmental conditions, including UV rays, acid rain, diesel fumes and airborne iron particles (i.e., dust) which over time may cause unit discoloring. To prevent pollutants developing harmful chemical reactions on Code Blue units, an appropriate surface maintenance schedule should be adhered to. The Surface Care Frequency table below provides general guidelines to assist in configuring a schedule. Please note that the frequency of care required to guard the Code Blue unit’s surface from damage will also be dictated by local environmental characteristics.

LEGEND: POLLUTANTS LEVEL

<table>
<thead>
<tr>
<th>Level</th>
<th>Image</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>★</td>
</tr>
<tr>
<td>Low/Moderate</td>
<td>★★</td>
</tr>
<tr>
<td>Moderate</td>
<td>★★★</td>
</tr>
<tr>
<td>Moderate/High</td>
<td>★★★★</td>
</tr>
<tr>
<td>High</td>
<td>★★★★★</td>
</tr>
</tbody>
</table>

SURFACE CARE FREQUENCY

<table>
<thead>
<tr>
<th>Surface Type</th>
<th>MONTHLY</th>
<th>BIMONTHLY</th>
<th>QUARTERLY</th>
<th>BIANNUAL</th>
<th>ANNUAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Painted</td>
<td>★★★★★</td>
<td>★★★★★</td>
<td>★★★★★</td>
<td>★★★</td>
<td>★★</td>
</tr>
<tr>
<td>Stainless Steel</td>
<td>★★★★★</td>
<td>★★★★★</td>
<td>★★★★★</td>
<td>★★★</td>
<td>★★</td>
</tr>
</tbody>
</table>

See scheduled tasks under Biannually for suggested paint sealants or stainless steel cleaners.

AVERAGE COMPONENT LIFE

Component life is based on various mechanical, operational and environmental factors. Your local Code Blue dealer can assist you with a regularly scheduled maintenance program customized to your individual site requirements.
14 Warranty

Code Blue Corporation provides a limited warranty on this product. Refer to your sales agreement to establish the terms. In addition, Code Blue's standard warranty language, as well as information regarding support for this product while under warranty, is available at www.codeblue.com/support.

Notice: Every effort was made to ensure that the information in this document was complete and accurate at the time of printing. Information is subject to change.