



# **ORATOR**

## **Infrared Voice Reinforcement System**

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**NOTICE:** Every effort was made to ensure that the information in this guide was complete and accurate at the time of printing. However, information is subject to change.

**WARNING:** To reduce the risk of Fire or Electric Shock, **Do Not Expose** this apparatus to rain or moisture.

Apparatus shall not be exposed to dripping or splashing and no objects filled with liquids, such as vases shall be placed on the apparatus.

**WARNING:** Only connect unit to AC mains outlet providing protective earthing connection.

**NOTE:** Mains plug or an appliance coupler are used as disconnect devices from the mains and shall remain readily accessible and operable.

**CAUTION:** These servicing instructions are for use by qualified service personnel only. To reduce the risk of electric shock, do not perform any servicing other than that contained in the operating instructions unless you are qualified to do so.

Always follow these basic safety precautions when installing and using the unit:

### IMPORTANT SAFETY INSTRUCTIONS

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
6. Clean unit with dry cloth.
7. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
8. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
9. Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding-type plug has two blades and a third grounding prong. The wide blade, or the third prong, are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
11. Only use attachments/accessories specified by the manufacturer.
12. Unplug this apparatus during lightning storms or when not used for long periods of time.
13. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

## CAUTION

### RISK OF ELECTRIC SHOCK DO NOT OPEN

**CAUTION: TO PREVENT THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE ANY FRONT/BACK COVERS OR PANELS. NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED PERSONNEL.**



The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions.

## CAUTION

**DANGER OF EXPLOSION IF TRANSMITTER BATTERY IS INCORRECTLY REPLACED. REPLACE ONLY WITH SAME OR EQUIVALENT TYPE**

## WARNING

**BATTERY SHALL NOT BE EXPOSED TO EXCESSIVE HEAT SUCH AS SUNSHINE, FIRE, OR THE LIKE.**

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# Description

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The **Bogen Orator** is a dual-channel, infrared (IR) wireless microphone/transmitter and mixer/amplifier system that is designed to enhance a presenter's voice in all areas of the room. IR technology eliminates the interference and cross-talk from adjacent rooms that occurs with radio-based wireless products. In addition to two independent wireless microphone/transmitter channels, the receiver/base unit (ORB35) provides 4 AUX inputs for the connection of various source devices like the audio output of a computer, a video projector, a DVD player, and other audio sources. A separate Override input allows its audio source to take precedence over the AUX inputs. Typically, this input is connected to the facility's area-wide paging system so that important announcements can be clearly heard through the Orator system. A highly functional 8-Band equalizer allows a tremendous amount of control to compensate for room acoustics. A single, convenient, master volume control provides an easy means of adjusting the overall system level.

The Orator uses a centrally located ceiling sensor (ORS) to receive infrared signals from its MIC/Transmitter units (OMX1). Each OMX1 contains a built-in microphone and is designed to be used as a pendant microphone suspended from a neck-worn lanyard (with safety break-away latch) or as a handheld microphone. A professional style wire belt clip and external microphone input allows the OMX1 to be used as a body-pack if desired. A compatible, external microphone must be obtained separately for this use. The OMX1 also contains an AUX input jack for connection to audio source devices. This function of the OMX1 allows audio devices to be easily and wirelessly connected into the Orator system.

The ORB35's unique front-mounted charging docks and rotating cover provide a place for secure storage and charging of the OMX1 units. Users always know where the charging docks are and this configuration eliminates the need to find an unused outlet and a suitable spot to put the charger itself. The Orator's cover rotates up and out of the way when the system is in use and back down to help secure the OMX1 units when not in use. A key lock allows the cover to be locked in the closed position, and also in the open position if the rotating cover function is not desired. The lanyard can be left attached to the OMX1 while in the charging dock with the lanyard itself neatly tucked away in the storage area below the charging dock.

Each OMX1 unit is capable of muting the other OMX1 in the system or of initiating an intercom call request to a compatible facility intercom system. The front area contains two function buttons specifically for these features. A simple press of one button initiates an intercom call. Pushing and holding the other button will cause the other OMX1 to be muted. These features can be enabled or disabled per OMX1 through the ORB35 unit. The OMX1 itself contains no switches for setting these features or its transmit frequency. Instead the OMX1 communicates with the ORB35 unit when it is inserted into the charging dock. The ORB35 unit syncs the OMX1 with frequency to transmit on and what specific functions are to be enabled. All settings are made on the rear of the ORB35 unit.

Along with all this innovation comes Bogen's proven amplifier reliability. The same industrial grade amplifier technologies that have made Bogen a staple of commercial public address systems for over 80 years are used in the Orator. Highly dependable electronic components and robust amplifier designs wrapped in heavy-gauge steel enclosures ensure years of operational service.

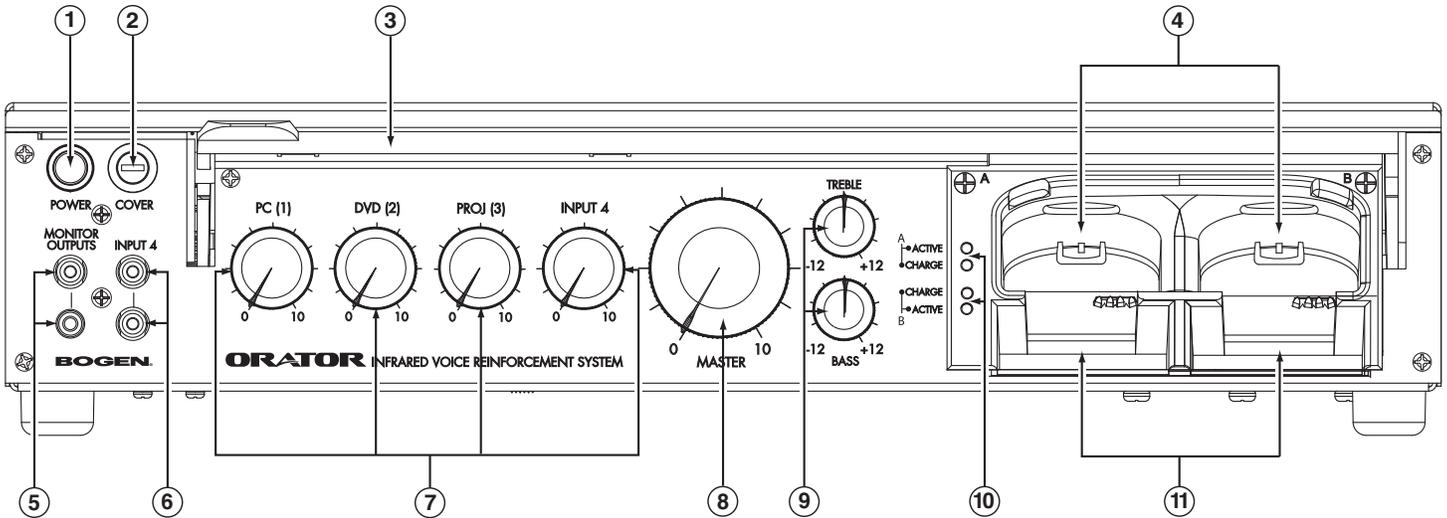
# Package Contents

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The Bogen Orator System comes complete with the following items:

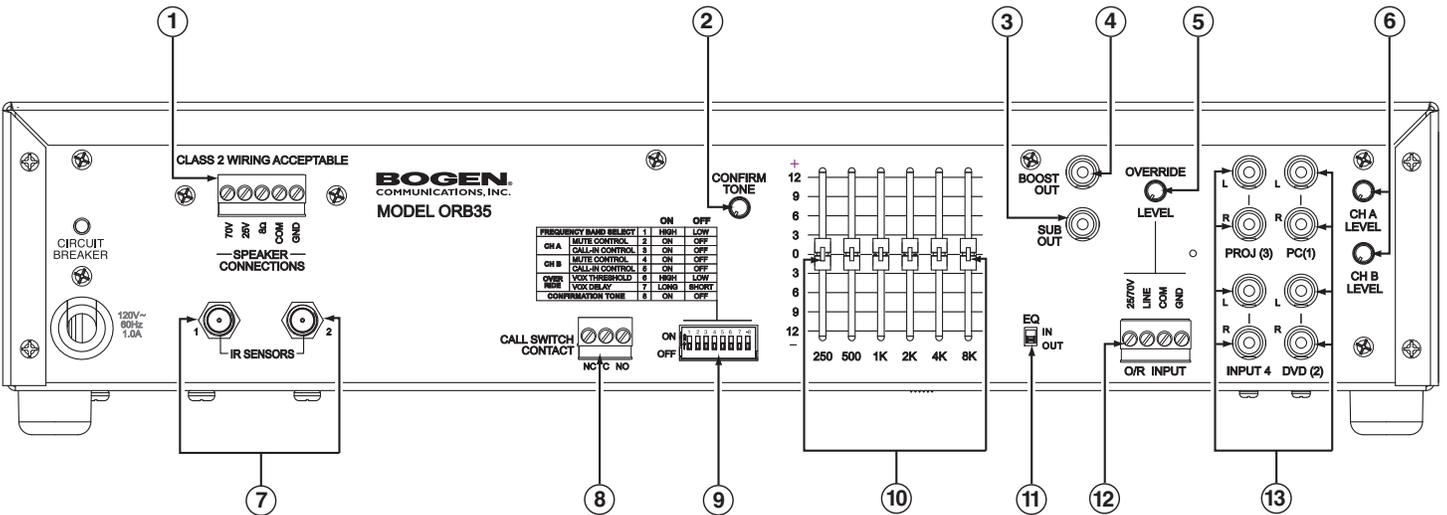
- **1 Receiver/Base Unit (ORB35)**
- **2 Security Cover Keys**
- **1 or 2 MIC/Transmitters (OMX1)**  
*Orator 1 System includes 1 OMX1 unit;*  
*Orator 2 System includes 2 OMX1 units*
- **2 Dock Selection Tabs (per OMX1)**
- **1 Lanyard (per OMX1)**
- **1 Lanyard Attachment Plate (per OMX1)**
- **1 Rechargeable Li-Ion Battery (per OMX1)**
- **5 Blank Identification Label Cards (per OMX1)**
- **1 Infrared Sensor (ORS)**
- **1 Sensor Cable - 50 ft. (15m) approx.**
- **1 Sensor Mounting Bracket (with hardware)**

# ORB35 Receiver/Base Unit Front Panel



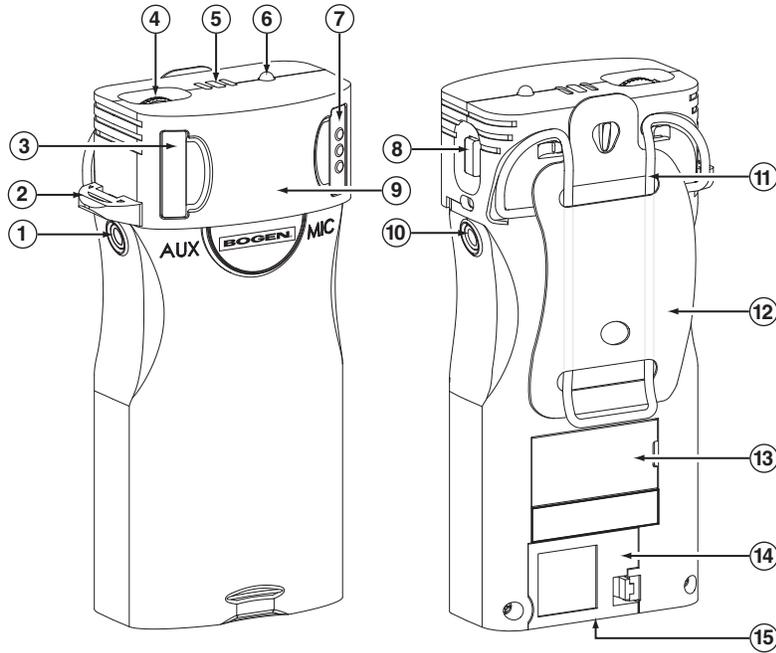
1. Power Switch - page 8
2. Rotating Security Cover Lock
3. Translucent Rotating Security Cover - page 9
4. Built-In Charging Docks - page 9
5. ALD Program Monitor Outputs - page 6
6. Input 4 Connections - page 6
7. AUX Input Volume Controls - page 8
8. Master Volume Control - page 8
9. Bass & Treble Controls - page 8
10. MIC/Transmitter Charge Status Indicators - page 9
11. Lanyard/Accessory Storage Area

# ORB35 Receiver/Base Unit Rear Panel



1. Speaker Connections - page 5
2. Confirmation Tone Volume Control - page 8
3. Line-Level Subwoofer Output - page 6
4. Line-Level Boost Output - page 6
5. Override (O/R) Input Volume Control - page 8
6. MIC/Transmitter(s) Volume Control - page 8
7. IR Sensor Connections - page 5
8. Call Switch Contact - page 6
9. Setup/Configuration DIP Switch - page 7
10. 6-Band Graphic EQ - page 8
11. EQ Bypass Switch - page 8
12. Override (O/R) Input - page 6
13. AUX Inputs - page 5

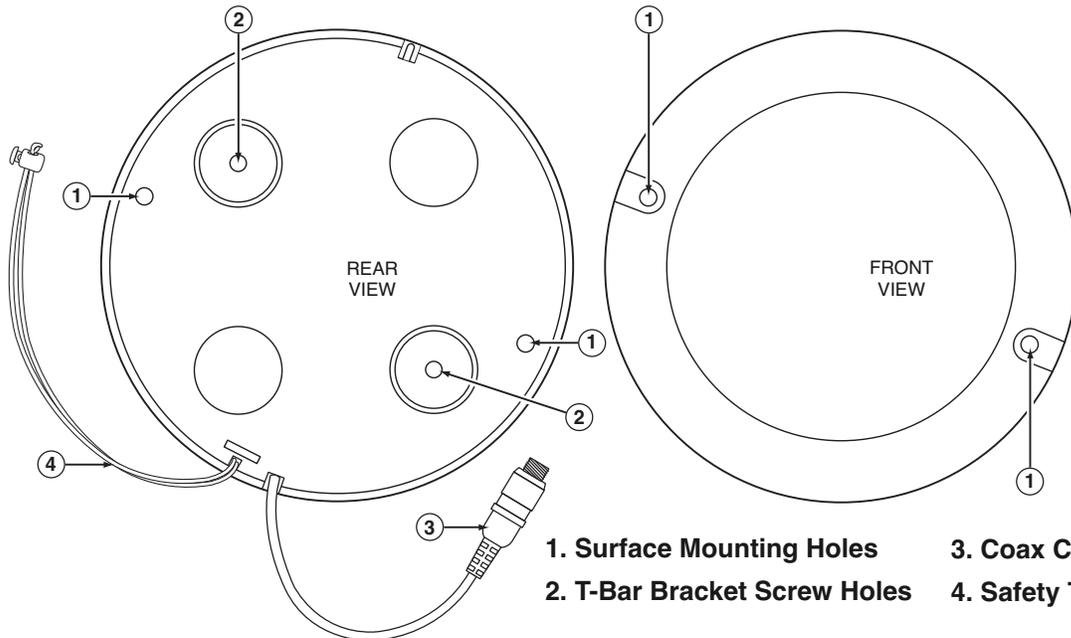
# OMX1 MIC/Transmitter Panels



- 1. AUX Input Jack - page 11
- 2. Charging Dock Selector Tab - page 11
- 3. Call-In Push Button - page 12
- 4. Recessed Volume Control - page 11
- 5. Built-In Microphone - page 11
- 6. Battery Life Status LED - page 11
- 7. MUTE Push Button - page 12
- 8. ON/OFF/Local MIC Mute - page 11

- 9. Emitter Lens
- 10. External Microphone Input - page 11
- 11. Durable Spring Wire Belt Clip - page 13
- 12. Removable Lanyard Plate - page 13
- 13. User ID Card Area - page 12
- 14. Battery Door - page 10
- 15. Charging Contacts (*underside*) - page 9

# ORS Infrared Sensor



- 1. Surface Mounting Holes
- 2. T-Bar Bracket Screw Holes
- 3. Coax Cable Connector
- 4. Safety Tether

# Quick-Start Installation Instructions

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Follow these steps to get the Orator System up and functioning quickly. These instructions assume that you are already familiar with the installation of commercial paging and sound equipment. If you are not, please take the time to read the full instructions before beginning the installation.

- 1) Mechanically mount the ORB35 Receiver/Base Unit.
- 2) Mechanically mount the Sensor and then run the sensor cable back to the ORB35. Details on page 14.
- 3) Connect the coaxial sensor cable to either IR Sensor 1 or 2. Details on page 5.
- 4) Connect speakers (previously mounted) to appropriate ORB35 speaker terminal. Details on page 5.
- 5) Turn CH A and CH B level controls to half rotation, the Master Volume to 0, set all DIP switches to their down (0) positions, set the EQ switch to OUT, and set 4 AUX Input controls to 0. Details on page 8.
- 6) Plug the ORB35 unit into an AC outlet and press the power switch to turn the unit on. Check that the indicator light around the power switch is illuminated. Details on page 8.
- 7) Install batteries into the OMX1 units. Batteries have a partial charge and can power the OMX1 immediately, but will need to be fully charged for full use. Details on Page 10.
- 8) **IMPORTANT:** After battery installation, put each OMX1 into a different charger dock momentarily. This will program each OMX1 with the proper transmit frequency channel selected and any other features.
- 9) Remove from charging dock and turn on the OMX1 units by pressing the power switch on the side of each unit. The Active indicators near the charging bays should illuminate as each OMX1 is turned on. The OMX1 Volume Control should be turned to "10".
- 10) Slowly turn up the Master Volume Control while speaking into each OMX1's built-in microphone until the audio can be heard. Test each OMX1 for audio transmission. Adjust the system's volume controls as needed.

The Orator system is now proved out and functioning. Turn off the power to the ORB35 unit before making any other connections. Review the full instructions for information on enabling OMX1 functions, setting up the Override input, and using the 8-Band EQ among other system operation details.

## Setting System Volumes

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For best operation, the volume controls of the OMX1 MIC/Transmitters should be set to 10 and then adjust the CH A and CH B level controls and the Master Volume control for best gain before feedback. Initially during this process, a good place to set the Master Volume control is at half rotation. CH A and CH B are then trimmed to just before feedback using whichever MIC/Transmitter is going to be used in the system (built-in or external microphone). This approach limits the amount of system gain the user can add which helps avoid large feedback squeals during live voice operation. When using an audio source into the OMX1's AUX input, both the OMX1's volume control and the audio source's volume should be used to set the desired level.

When audio sources are connected to the ORB35 receiver/base unit's AUX or Override inputs, their associated individual volume controls and also any on the audio source, should be used to set the desired volume level. If for some reason the master volume needs to be readjusted because of sources connected to the ORB35, the CH A and CH B volumes should be readjusted to ensure good output before feedback is available.

# ORB35 Receiver/Base Unit Installation & Operation

## Mounting and Ventilation

### Rack Mount

Rack mount brackets (RPK92) are available as an accessory. The feet on the ORB35 Receiver/Base unit must be removed before rack mounting the unit. The receiver/base unit is passively cooled and requires proper ventilation. One empty rack space above and below the receiver/base unit (Model ORB35) should be provided to ensure proper ventilation. The receiver/base unit should not be positioned immediately above other equipment that produces significant heat.

### Shelf Mount

The receiver/base unit has attached feet that make it suitable for resting on a level surface. The feet provide the necessary ventilation space below the unit. A minimum of 1" of space above the amplifier is also required. If stacking the ORB35 unit with other equipment, be sure that the necessary space is left above the unit and that the equipment directly below the receiver/base unit does not produce significant heat.

**PLEASE READ THIS BEFORE INSTALLATION:** Before the MIC/Transmitter OMX1 will work in the Orator system, it must first be programmed by inserting it into a charging dock. In systems with 2 OMX1 units, each must be inserted into a different dock. Inserting both OMX1 units into the same dock will result in both MIC/Transmitters operating on the same channel frequency, which should be avoided. See page 7 for more information on programming the OMX1 MIC/Transmitters.

## System Wiring Connections

**IMPORTANT:** Turn the ORB35 Receiver/Base Unit OFF before making any electrical connections.

### Speakers (Rear)

A pluggable screw terminal connector provides access to the speaker output connections. Connect the appropriate type of speaker load to the specific output type.

**IMPORTANT:** Do not connect to more than one speaker output type.

- **70V and 25V Outputs**

70V and 25V outputs typically require speakers with transformers to step down the speaker drive voltage. The total load in watts of all the speakers connected to the 70V or 25V output cannot exceed the unit's output power rating. Make connections to the COM terminal and either the 70V or 25V terminals as determined by the speaker specification or application. All speaker outputs are transformer-coupled and have no reference to earth ground. If it is desired to have the speaker system ground referenced, then a jumper wire can be connected between COM and GND terminals.

- **8-Ohm Output**

When connecting to the 8-ohm output, the combined load of all the speaker impedances cannot be less than 8 ohms. Connecting a load higher than 8 ohms will not harm the unit, but full rated output power will not be delivered to the speaker load if its impedance is higher than 8 ohms. Make connections to the 8-ohm and COM terminals. All speaker outputs are transformer-coupled and have no reference to earth ground. If it is desired to have the speaker system ground referenced, then a jumper wire can be connected between COM and GND terminals.

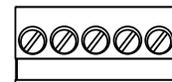
### AUX Inputs (Rear)

The ORB35 unit provides 4 line-level AUX inputs for connections to various audio source devices. All inputs are stereo combining RCA jack inputs that convert stereo inputs to mono. Mono sources can be connected to either of the RCA jacks for the input with the other jack left unconnected.

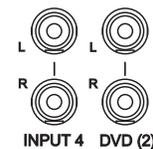
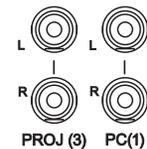
### IR Sensors (Rear)

The coaxial cable from the IR sensor must be connected to either IR Sensor 1 or 2. The second input is provided for situations where one sensor cannot provide adequate coverage for the application, and an additional sensor might need to be connected.

#### CLASS 2 WIRING ACCEPTABLE



— SPEAKER CONNECTIONS —



# ORB35 Receiver/Base Unit (cont'd)

## Call Switch Contacts (Rear)

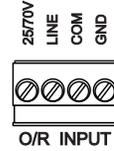
Function buttons on the OMX1 can be activated to cause a relay contact in the ORB35 unit to cycle for the purpose of signaling a call-in from the room to the facility's intercom system. Both normally open and normally closed contacts are provided. Connect the appropriate contact type to the call-in signaling circuit for the intercom system in use.



## Override Input (Rear)

The ORB35 unit provides an override input which is compatible with a wide range of input devices. 25V and 70V speaker lines can be directly connected to the override input as well as a line-level signal. These connections are transformer-coupled and are not referenced to ground. If it is desirable to reference the input to ground, place a jumper wire between COM and GND terminals.

- Connect a 25 or 70V speaker line to the 25/70V and COM terminals to trigger an override when the speaker line becomes active.
- Connect a line-level input to the LINE and COM terminals to trigger an override when this source becomes active.



The Override Input is always connected to the amplifier's internal mix bus. When an override is triggered, the AUX inputs of the ORB35 are muted, allowing the Override Input to take priority over the audio program from the ORB35 Receiver/Base Unit. The OMX1 inputs are active during an override page.

## Boost Out (Rear)

The Booster output RCA jack provides a line-level output of the program at the speaker outputs including all volume adjustments and EQ settings. This output is typically used to feed an external amplifier to increase the power available for the application.



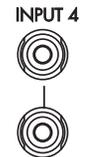
## Sub Out (Rear)

This RCA jack provides a line-level low-passed version of the Boost output. This output is provided for connection of a powered subwoofer, if available.



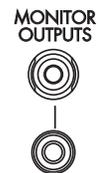
## Input 4 (Front)

The front-mounted Input 4 is wired in parallel with the rear-mounted Input 4. Both inputs should not be connected to source equipment at the same time. See the section on AUX inputs for more information about this input.



## Monitor Outputs (Front)

Two different styles of monitor output jacks are provided on the front of the receiver/base unit. These styles are provided to improve the compatibility with devices such as Assistive Listening Devices or recording equipment. The Monitor outputs provide a line-level signal with the same program as the speaker outputs including all volume adjustments and EQ settings (Pre Master Volume).



## AC Line Cord (Rear)

Connect the AC line cord to a 120V AC grounded outlet (5-15R or greater).

# ORB35 Receiver/Base Unit (cont'd)

## Receiver/Base Unit Programming DIP Switches

### Programming DIP Switch (Rear)

The 8-position DIP switch allows several of the system's operational parameters to be set.

**NOTE:** Uses of labels "A" and "B" below for the OMX1 refer to which charging dock the OMX1 was previously inserted in. OMX1 parameters, such as transmitting frequencies and enabled functions are synced with the ORB35 unit each time an OMX1 is inserted in one of the charging docks. Inserting an OMX1 into Dock A will give it those associated functions. Likewise inserting the same OMX1 into Dock B will instead give it the "B" setting attributes.

		ON	OFF	
<b>FREQUENCY BAND SELECT</b>		1	HIGH	LOW
<b>CH A</b>	MUTE CONTROL	2	ON	OFF
	CALL-IN CONTROL	3	ON	OFF
<b>CH B</b>	MUTE CONTROL	4	ON	OFF
	CALL-IN CONTROL	5	ON	OFF
<b>OVER RIDE</b>	VOX THRESHOLD	6	HIGH	LOW
	VOX DELAY	7	LONG	SHORT
<b>CONFIRMATION TONE</b>		8	ON	OFF



### SWITCH:

- #1. The Orator can operate on two different frequency bands. Dual-band operation is provided to improve the system's ability to avoid interference sources within the environment. When possible, it is best to use the low band since the OMX1's battery life will be increased in this band.
- #2. Setting this switch to ON allows the "A" OMX1 to mute the audio of the "B" OMX1, whenever the Mute function button on the "A" OMX1 is depressed. Setting the switch to OFF disables this feature. See the OMX1 section for information on this function button.
- #3. Setting this switch to ON allows the "A" OMX1 to initiate a call-in to the facility's intercom system whenever the Call-In function button on the "A" OMX1 is depressed. Setting the switch to OFF disables this feature. See the OMX1 section for information on this function button.
- IMPORTANT:** The Orator Call-In feature is provided as a convenience for the user and is not intended to be used as a personal safety device. In an emergency situation, the Call-In device provided with the intercom system should be used.
- #4. Setting this switch to ON allows the "B" OMX1 to mute the audio of the "A" OMX1, whenever the Mute function button on the "B" OMX1 is depressed. Setting the switch to OFF disables this feature. See the OMX1 section for information on this function button.
- #5. Setting this switch to ON allows the "B" OMX1 to initiate a call-in to the facility's intercom system whenever the Call-In function button on the "B" OMX1 is depressed. Setting the switch to OFF disables this feature. See the OMX1 section for information on this function button.
- IMPORTANT:** The Orator Call-In feature is provided as a convenience for the user and is not intended to be used as a personal safety device. In an emergency situation, the Call-In device provided with the intercom system should be used.
- #6. Determines the threshold level that will trigger an Override Mute. The LOW will allow an override mute to be triggered by a smaller input signal. The HIGH setting will require a larger input signal to cause an override mute. This switch is useful in situations where the override input source is noisy and may cause false override muting.
- #7. Determines the length of time after a triggered mute un-mutes the other inputs. The "SHORT" setting provides a delay suitable for most paging applications; the "LONG" setting provides a delay approximately twice as long (for atypical paging situations).
- #8. Turn the confirmation tone ON or OFF.

# ORB35 Receiver/Base Unit

## Controls & Indicators

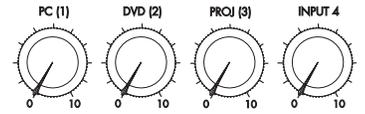
### Power Switch (Front)

The soft touch power switch turns the ORB35 Receiver/Base Unit on and off. A green indicator ring around the power switch indicates that the Orator is powered on. This indicator is extinguished when the Orator is off. Charging and communication between OMX1 MIC/Transmitters still continue when the ORB35 is powered off.



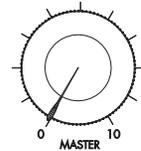
### AUX 1 – 4 Level Controls (Front)

Each of the AUX inputs has an associated level control located on the ORB35 unit's front panel to adjust its level and the overall balance with other inputs.



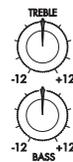
### Master Volume Control (Front)

A large Master Volume Control is located on the front of the ORB35 unit. The levels of all inputs are simultaneously changed by adjustments to this control. However, the confirmation tone is unaffected by this control.



### Bass and Treble Controls (Front)

A Bass and a Treble control are provided on the front of the ORB35 base unit to allow users to adjust the high and low frequency response of the system.



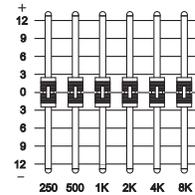
### EQ Bypass Switch (Rear)

To use the EQ, this switch must be in the IN position. When the switch is set to the OUT position, the slider controls will have no effect, but the Bass and Treble controls on the front of the unit will continue to work.



### 6-Band Graphic EQ (Rear)

In addition to the front-mounted bass and treble controls, a rear mounted 6-band graphic EQ is provided to allow precise control of system tonal response. The EQ bypass switch must be set to IN for these 6 controls to operate.



### Override Level Control (Rear)

Sets the Override Input Level to the mix bus. Detection of override audio for muting other inputs is done before the control so its setting has no effect on the signal level required to trip an override.



### MIC/Transmitter Level Controls (Rear)

Each OMX1 channel has its own level control located on the rear of the ORB35 unit. The OMX1 has a local level control. When setting the initial levels, the OMX1's level controls should be set to 10 and the channel's rear level control should be set so that feedback (howling/squealing) from the OMX1's microphone is not occurring. Users can reduce the level at the OMX1 itself since this will not result in feedback.



### Confirmation Tone Level Control (Rear)

When enabled by the DIP Switch setting, the ORB35 unit will acknowledge that certain functions were received or triggered by emitting a short confirmation tone over the system speakers. The confirmation tone level control is provided to trim the level of these tones. The level of the confirmation tone is not affected by the master volume control.



# ORB35 Receiver/Base Unit

## Charging Dock Indicators

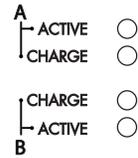
### Active

Indicators near the charging docks report the status of the two OMX1 channels. When a channel's associated active indicator is illuminated, the channel is receiving valid IR transmissions.

### Charge

When OMX1 is being charged, the indicator illuminates GREEN. Charging is complete when the indicator is extinguished. A fault condition is signaled by a RED indicator. A fault condition may indicate a problem with the battery.

**IMPORTANT:** When replacing batteries use only Bogen P/N 45-7543-05. The use of other batteries will void the warranty and may result in product damage or fire.



## Charging OMX1 MIC/Transmitter Units

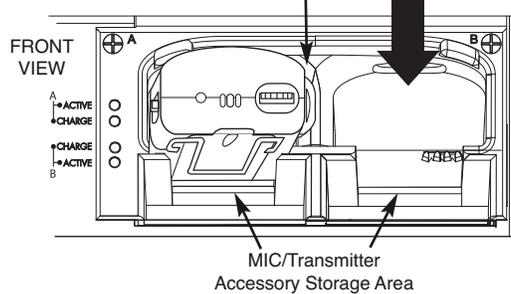
OMX1 units are inserted into the charging dock with their front facing up and their tops facing out as shown. If the OMX1 has a dock selection tab installed (see page 11), it will only fit into one of the docks. The charging docks have a retention feature to hold the OMX1 against the charging contacts at the bottom of the dock. A mechanical click is noticeable when the OMX1 is fully inserted into the dock. When an OMX1 is inserted, its charge indicator will illuminate shortly thereafter. You may also hear a confirmation tone over the system speakers if the unit is powered on and the confirmation tone feature has been enabled. The ORB35 receiver/base unit does not have to be powered on for the OMX1 MIC/Transmitter units to charge. The charge indicator will extinguish when fully charged.

### "B" Programmed OMX1

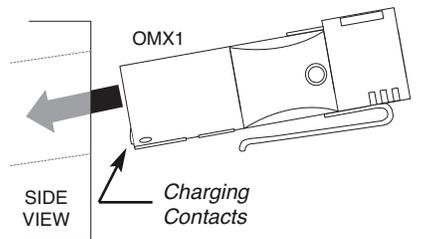
Dock Selection Tab is towards the center of dock station

### "A" Programmed OMX1

Dock Selection Tab is towards the center of dock station



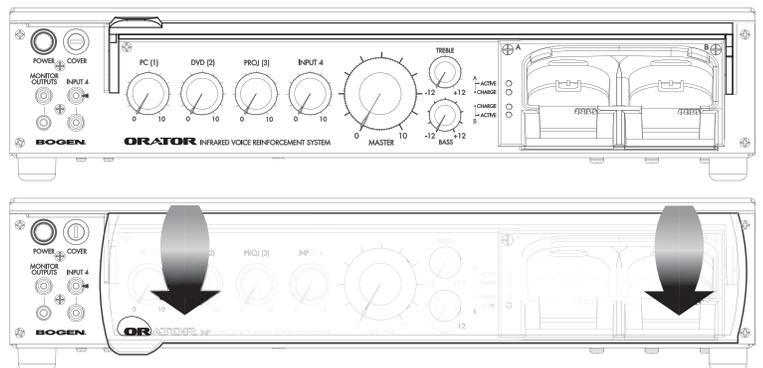
When storing the OMX1 MIC/Transmitter into the ORB35 Loading Dock for charging, insert it on a slight angle, with the front face of the OMX1 pointing up.



## ORB35 Rotating Cover

The ORB35 Receiver/Base unit includes a rotating cover. A key lock to the left of the cover allows it to be locked to provide a measure of security to the OMX1 units and accessories when they are not in use. The cover lock can be left unlocked so the cover can operate freely or it can be locked in the open position when the cover feature is not desired.

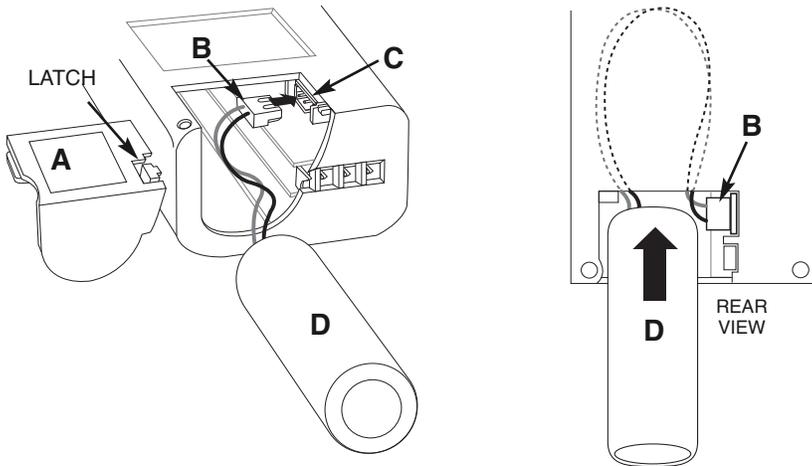
To open the cover when unlocked, use tab or finger hole on the lower left of the cover to rotate the cover up. If in the open position and unlocked, pull on the cover's tab and rotate closed. The cover's operation is mechanically dampened.



# OMX1 MIC/Transmitter

## Battery Installation

The OMX1 operates on a single, Li-ion rechargeable battery (included). Use only the Bogen P/N 45-7543-05 battery for replacement. To install the battery, first remove Battery Door (A) from rear of the OMX1 MIC/Transmitter by pulling back on the small latch. Insert the battery connector (B) into the unit's receptacle (C), and feed the battery's cables up into the unit body. Gently slide the rechargeable battery (D) up into the OMX1, taking care **NOT** to crimp or tangle the battery wires. After inserting the battery, replace the Battery Door securely by engaging the small latch with a "click".



*Gently feed battery cable wires up into the unit BEFORE putting in the battery, so as not to tangle or crimp wires when inserting the battery.*

*DO NOT FORCE THE BATTERY into the OMX1. If you are feeling any resistance while sliding in the battery, remove it and check that the wire has been fed in first, and then try again.*

### **IMPORTANT:**

*Use of any other battery will void the unit's warranty and may result in product damage or fire.*

## OMX1 Features

The Orator systems allow for simultaneous operation of two OMX1 MIC/Transmitters.

Each OMX1 has the following features (See Panel section on OMX1 on page 3):

- **Mute Function Button** - An OMX1 can be permitted to mute the audio of the other OMX1.
- **Intercom Call-In** - An OMX1 can be permitted to initiate a call-in to the facility's compatible intercom system.
- **Built-in Microphone**
- **External MIC Input** (External microphone is an optional accessory; not included)
- **Local Microphone Mute** - Mutes OMX1 microphone.
- **AUX Input** - For line-level audio sources.
- **Status Indicator** - 3-level battery indicator & local mic mute.
- **Battery** - High capacity Li-Ion rechargeable battery.
- **Lanyard** - Adjustable, neck-worn pendant style.
- **Wire Belt Clip** - Heavy-duty clip for body-pack operation.
- **Personalized ID Area** - Insertable ID cards.

## Programming the OMX1 — VERY IMPORTANT

**BEFORE USING FOR THE 1ST TIME, PUT EACH OMX1 UNIT INTO A DIFFERENT CHARGE DOCK FOR 2 SECONDS.**

There are no setup switches on the OMX1 itself. All setup and programming of the OMX1 is done through a communications link between the ORB35 unit and OMX1. Programming switches on the ORB35 unit allow a charging dock to enable or disable functions for the OMX1 that is inserted. Inserting an OMX1 into Dock A will sync that OMX1 with the particular transmitting frequency and other functional attributes determined by the "A" programmed features. Inserting that same OMX1 into Dock B will change all the operational attributes to those determined by the "B" programmed features. Please note that programming both OMX1 units in the same dock will result in the system not working since both OMX1 units will be operating on the same transmit frequency. Typically inserting OMX1 units into separate docks is done as a matter of course when both OMX1 units are being recharged.

If the ORB35 unit is on when an OMX1 is inserted into its dock, a confirmation tone will sound over the system's speaker(s) to indicate the OMX1 was successfully programmed. This tone will sound each time the OMX1 is inserted (confirmation tone function must be enabled on the ORB35 unit).

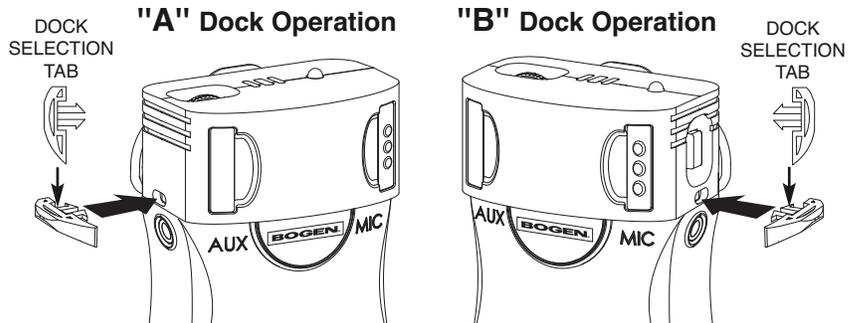
To reassign an OMX1 from an "A" to a "B" set of features, the user simply inserts the OMX1 into the "B" dock instead of the "A" dock.

**IMPORTANT:** It is very important that each of the system's OMX1 MIC/Transmitters be inserted into a different dock. Programming both OMX1 units in the same dock will result in the system not working since both OMX1 units will be operating on the same transmit frequency. Typically, inserting OMX1 units into separate docks is done as a matter of course when the OMX1 units are being recharged.

# OMX1 MIC/Transmitter Features (cont'd)

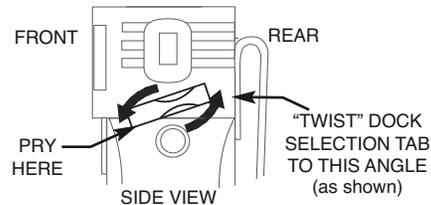
## Dock Selection Tabs

If it is important that a particular OMX1 always be an "A" or a "B" unit. As in the case of an Instructor's OMX1 with muting and call-in capability and a Student OMX1 without, a Dock Selection Tab can be installed on each OMX1. The Dock Selection Tab determines which dock that particular OMX1 will fit into.



### **IMPORTANT:**

Installation of the Dock Selection Tab is designed to be semi-permanent. In order to remove, the Tab can be twisted and then pried (see illustration). If twisted too far, the Tab will break (with no effect on the unit). Two (2) Dock Selection Tabs are included per OMX1.



## Controls and Indicators (see OMX1 Panel section page 3)

### Power Button

The OMX1's Power Button is located on the side in a recessed well. To turn the OMX1 ON, press and release the button; the status indicator will illuminate. To turn the OMX1 OFF, press and hold the power button for more than three seconds; the status indicator will extinguish.

### Inputs

The OMX1 includes a built-in microphone for use when worn around the neck as a pendant or as a handheld microphone. Two additional inputs are provided for external devices:

- **MIC:** This input is compatible with external lavalier and headset microphones. The external microphone device must have a 3.5mm mono plug and be able to operate from a 2.0V DC supply with a 680-ohm series resistance. Using this jack disables the built-in microphone.
- **AUX:** This input will work with either stereo or mono sources. It requires a 3.5 mm stereo or mono plug with output signal levels of approximately .75V into 3k-ohms. The ultimate level is determined by both the onboard volume control and the ORB35 unit volume trim. Using this jack disables any microphones and is not affected by the Local MIC Mute function.

### Volume Control

A thumbwheel volume control located on the top of the OMX1 provides the user with a means of controlling the level of their program at the ORB35 unit. Care must be taken when adjusting volume levels with the built-in microphone not to cause feedback. The Orator products are a voice reinforcement system and when the voice program level is set correctly, the speakers will not pick up their own sound.

### Battery Life Status Indicator

The status indicator also provides information on battery life using three signals:

- **Continuous Green** – good battery life;
- **Flashing Green** – approximately 1 hour of battery life remaining;
- **Red** – approximately 10 minutes of battery life remaining.

The OMX1 will turn itself OFF when there is not enough battery life to sustain operation.

### Local Microphone Mute

The OMX1 provides a means to mute its built-in microphone (or an external microphone).

- Pressing the power button quickly will toggle the microphone mute function ON and OFF.
- The OMX1 will indicate local mute mode by illuminating the status indicator amber.

**NOTE:** Battery level status will be suppressed while in this mode.

- The AUX input is not affected by the local microphone mute mode, and will play normally.

# OMX1 MIC/Transmitter Features (cont'd)

## Function Buttons

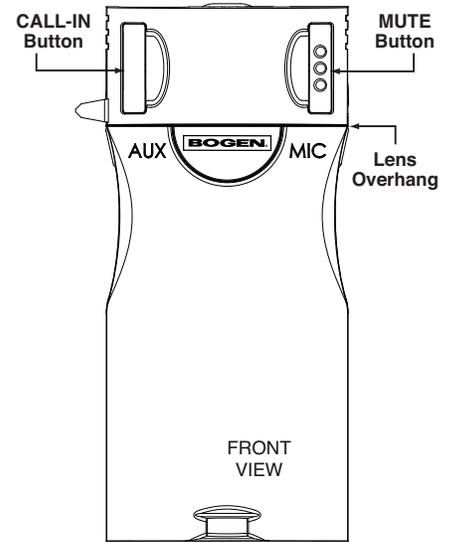
Two function buttons are built in to the OMX1 lens area. When looking at the front of the OMX1, the button on the right, with three raised bumps, is the MUTE Button and provides the ability to mute the other OMX1. The button on the left, which is smooth-faced, is the Call-In button and provides the ability to initiate a call-in to a compatible intercom system. These functions can be enabled or disabled per OMX1 by setting the programming switches on the rear of the ORB35 unit.

- **Mute Button**

Press and hold the Mute button, with the three raised bumps, for as long as you desire to mute the other OMX1. When the mute is first pressed, the confirmation tone will signal over the speakers. When the mute button is released, the confirmation tone will again signal over the system's speakers.

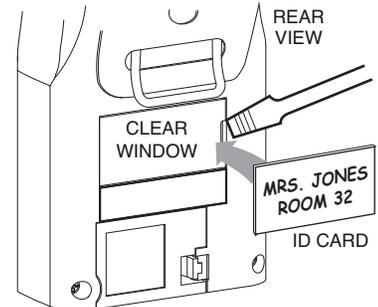
- **Call-In Button**

An intercom call-in can be initiated by pressing the Call-In button momentarily. A confirmation tone will signal through the system's speakers to indicate the call-in has been initiated. The facility intercom system must be compatible with a single 1-second contact cycle from either a normally open or normally closed contact set.



## User ID Card Area

A protected area for a user identification card is located on the rear of the OMX1. Using a small flat-head screwdriver, pry out the clear window and insert one of the ID Cards provided with the OMX1. The user can include any desired information on this ID Card (e.g., Channel A or B, room number, instructor's name, etc.). Place the clear window on top of the ID Card and snap back into position.



Using a screwdriver, lift out clear window and insert ID Label card.

## OMX1 Wearing Options

**NOTE:** Due to the line-of-sight limitations of an IR-based wireless system, it is very important that the Emitter Lens of the OMX1 Mic/Transmitter is not blocked or covered when in use.

### Pendant

The OMX1 can be worn around the neck as a pendant using the lanyard and lanyard plate provided. The lanyard is placed over the head and the placement of the OMX1 is adjusted simply by sliding it up and down the lanyard. Ideally the OMX1 should be located approximately the width of the user's hand below the chin. See page 13 for Instruction on how to properly assemble and position the OMX1 adjustable lanyard.

### Body-Pack

The OMX1 will allow for body-pack applications. The OMX1 can be securely placed onto an appropriate part of the user's clothing (e.g., belt, pocket, etc.). A compatible external microphone plugged into the MIC jack is required when using the OMX1 in this manner.

### Handheld

The OMX1 is designed to be held comfortably in the user's hand. The front of the transmitter is placed in the palm of the hand with the lens overhang sitting above the user's index finger ensuring that the emitter lens is not covered. The user then speaks at a normal speaking level into the top of the OMX1 while holding it about 6 inches away from the user's mouth.

### Audio Link

The OMX1 can be used to connect audio sources into the Orator system. Simply plug a mono or stereo line-level signal into the AUX input jack (1/8" mini style) and use the OMX1's volume control, and the source's volume (if it has one), adjust the volume control for the desired playback level. For best sound quality, position the OMX1 so that its Emitter Lens is directly aimed at the ceiling mounted sensor.

# OMX1 MIC/Transmitter Features (cont'd)

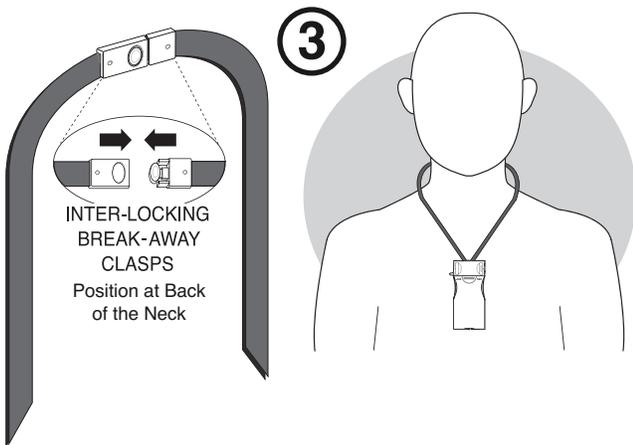
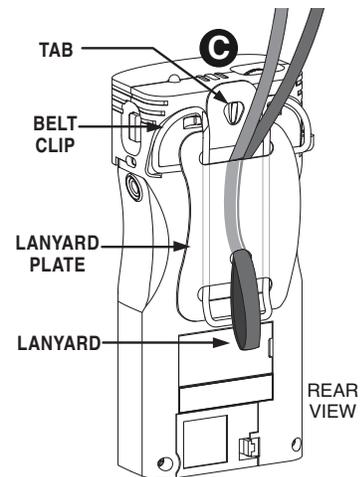
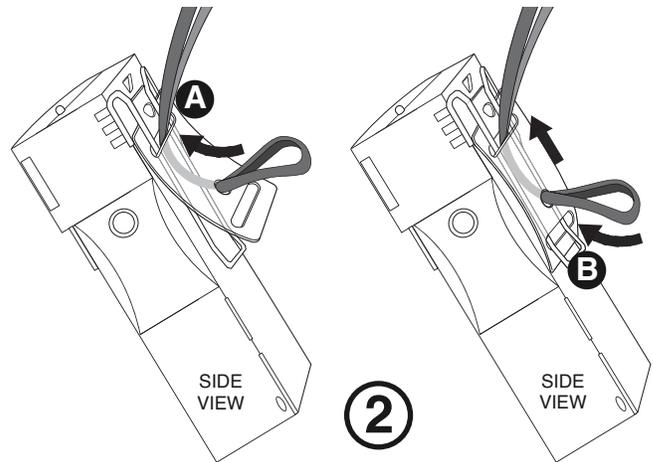
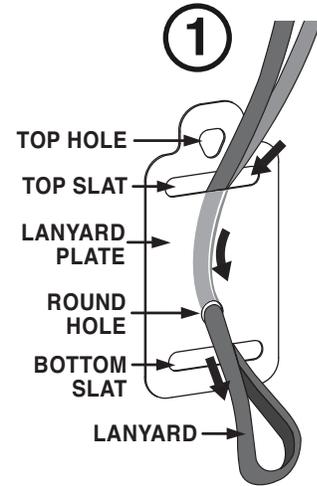
## OMX1 Adjustable Lanyard Assembly

### Setup for OMX1 Pendant Use

The figures to the right show how to properly assemble the Lanyard and Lanyard Plate onto the rear of the OMX1 and how to best position the unit when worn.

- (1) Feed Lanyard into Top Slit on the Lanyard Plate, then back out through the round hole.
- (2) A. Start feeding the Lanyard plate so that the top of the plate is under the Belt Clip but the rest of the plate is above the Belt Clip.  
B. Then slip the Belt Clip through the Bottom Slit of the Lanyard Plate so that the bottom end of the plate is against the transmitter and underneath the Belt Clip.  
C. Continue to slide the Lanyard Plate up until the top hole in the plate snaps over the Tab at the top of the transmitter.
- (3) Slip the lanyard and OMX1 over your head and adjust the OMX1's position by sliding it up or down the lanyard. The proper position for the OMX1 on the lanyard is to have the top approximately the width of your hand below your chin. Bottom of the lanyard may need to be held when sliding the pendant up.

**NOTE:** The break-away clip must be positioned at the back of the neck and is provided to ensure the lanyard will not become a strangulation hazard. It is not designed to be used as a means of attaching the lanyard around your neck.



# ORS Infrared Sensor

## Installation

### Sensor Wiring

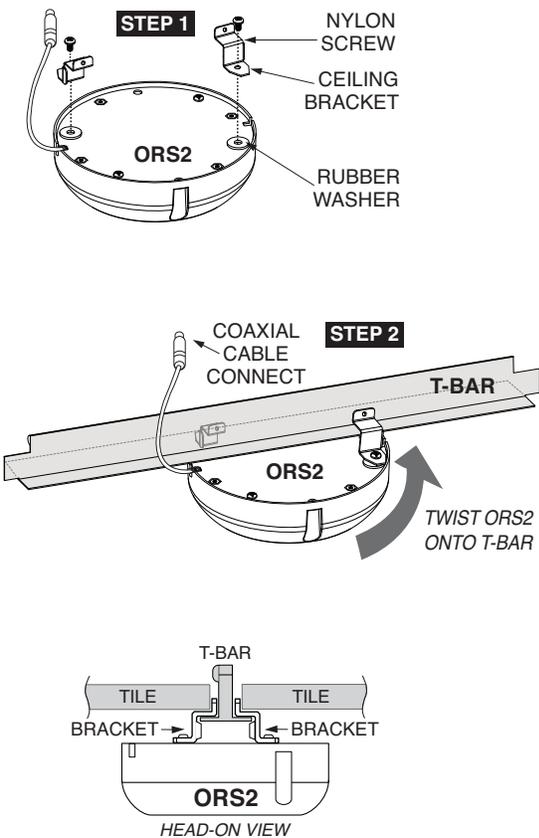
The sensor connects to the coaxial cable using F-connectors. Route the coaxial cable over the ceiling from the IR sensor location to the location of the ORB35 unit. Connect the cable with the sensor's pigtail connector. For distances longer than the included coaxial cable, a user-supplied cable can be connected to the included coaxial cable using a double ended F-connector. A good quality 75-ohm coaxial should be used for the extension cable. A maximum cable length of 100 feet (30 meters) is recommended.

### Sensor Mounting

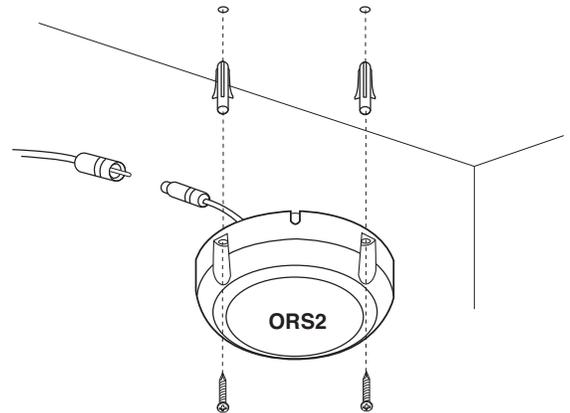
The IR sensor is typically installed on the ceiling of the room. The sensor includes quick mounting brackets for use on suspended ceiling T-rails. Mounting holes for use with screws and wall anchors are also provided. Refer to the instructions supplied with the sensor for specific mounting instructions.

Typically the IR sensor is mounted in the center of the area where the instructor is most likely to be while using the system. Odd shaped rooms or rooms with elements that may obstruct the sensor's ability to "see" the OMX1, may need additional sensors for optimal coverage. It is important to keep the sensor away from areas subject to bright illumination by sunlight. Either direct or reflected bright sunlight can overwhelm the sensor and make it less sensitive to the IR signals coming from the OMX1.

#### OPTION 1: ATTACH TO CEILING TILE T-BAR RAIL



#### OPTION 2: ATTACH TO HARD SURFACES



**NOTE:** FOR MOST UP-TO-DATE SENSOR INSTALLATION INSTRUCTIONS, REFER TO THE MANUAL INCLUDED WITH SENSOR.

# Technical Specifications

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## ORB35 Receiver/Base Unit

<b>Communication Method:</b>	Infrared Frequency Modulated
<b>Output Power Rating:</b>	35W
<b>Output Speaker Impedance:</b>	Balanced or unbalanced 8-ohms, 25V, 70V
<b>Receiving Channels:</b>	Two independent channels
<b>Carrier Frequency:</b>	4 operational frequencies between 1.8 – 2.7 MHz Selectable as two bands: 1.8/2.4 MHz or 2.1/2.7 MHz
<b>Range (line-of-sight):</b>	Up to 40 ft.
<b>Audio Frequency Response:</b>	60 Hz to 20 kHz AUX inputs, 100 Hz to 10 kHz Channel A & B
<b>S/N Ratio:</b>	> 70 dB AUX/Page inputs; > 60 dB Channel A & B
<b>Distortion:</b>	< 1% AUX inputs, < 3% Channel A & B
<b>Input Sensitivity:</b>	ORB35: AUX: 85mV; Priority Page: 150mV or 25/70V
<b>Input Impedance:</b>	ORB35: AUX: >10k ohms; Priority Page: 1k ohms (min.)
<b>Controls:</b>	<i>Front-Mounted:</i> AUX 1 – 4 Level, Master Volume, Bass and Treble <i>Rear-Mounted:</i> Channel A & B Level, Page Override Level, 6 bands of EQ, Confirmation Tone Level
<b>Audio Inputs:</b>	<i>Front-Mounted:</i> AUX 4 (Stereo combining RCA jacks) <i>Rear-Mounted:</i> AUX 1 – AUX 4 (Stereo combining RCA jacks); Page Override (pluggable terminal strip)
<b>Audio Outputs:</b>	<i>Front-Mounted:</i> Monitor Out (RCA jack and 1/8" Mini) <i>Rear-Mounted:</i> Booster Out and Subwoofer Out (RCA jacks); Speaker connections (pluggable terminal strip)
<b>Switches:</b>	<i>Front-Mounted:</i> Power <i>Rear-Mounted:</i> EQ In/Out, 8-position DIP switch (configuration)
<b>Other Connectors:</b>	<i>Rear-Mounted:</i> Sensor input (F-type Connector) <i>Rear-Mounted:</i> C-form relay contact set (pluggable terminal strip)
<b>EQ:</b>	Bass and Treble controls ( $\pm 12$ dB at 100 Hz and 10 kHz, respectively); 6-Band Graphic EQ ( $\pm 12$ dB at 250, 500, 1k, 2k, 4k, and 8k Hz)
<b>Indicators:</b>	Power; 2 Channel Active (one for each channel), 2 Charging (one for each dock)
<b>Chargers:</b>	Two front-mounted with lockable rotating cover
<b>Locks:</b>	Rotating cover; lock/unlock in both open or closed positions
<b>Power Requirements:</b>	120V AC, 1A
<b>Dimensions:</b>	17.25" W x 3.5" H x 12.5" D
<b>Product Weight:</b>	17 lb.
<b>Safety Certifications:</b>	Listed to UL Standard 60065 for U.S. and Canada

## OMX1 MIC/Transmitter

<b>Carrier Frequency:</b>	4 operational frequencies between 1.8 – 2.7 MHz
<b>Audio Input:</b>	Built-in Condenser Microphone; <i>MIC (external):</i> Condenser only, mono 1/8" mini plug, 2V DC through 680 ohms, 1mV sensitivity min. 10 mV max; <i>AUX:</i> Stereo or mono 1/8" mini plug, 3k $\Omega$ (min.) input, 250mV sensitivity
<b>Controls:</b>	On/Off Switch, Input Volume Control, 2 function buttons
<b>Connectors:</b>	<i>MIC (external):</i> mono 1/8" mini style <i>AUX:</i> stereo or mono 1/8" mini style
<b>Batteries:</b>	Li-ion, Rechargeable, Bogen P/N 45-7543-05
<b>Operational Time:</b>	10-15 hours (approx.), depending on transmit frequency
<b>Dimensions:</b>	1.9" W x 4" H x 1.2" D
<b>Product Weight:</b>	4 oz. with battery (approx.)

# Limited Warranty; Exclusion of Certain Damages

The Bogen Orator ORB35 Receiver/Base Unit and the ORS Sensor and cable are warranted to be free from defects in material and workmanship for five (5) years from the date of sale to the original purchaser; the OMX1 MIC/Transmitter, its battery, and accessories carry a two (2) year warranty. Any part of the product covered by this warranty that, with normal installation and use, becomes defective (as confirmed by Bogen upon inspection) during the applicable warranty period, will be repaired or replaced by Bogen, at Bogen's option, provided the product is shipped insured and prepaid to: Bogen Factory Service Department, 50 Spring Street, Ramsey, NJ 07446, USA. Repaired or replacement product will be returned to you freight prepaid. This warranty does not extend to any of our products that have been subjected to abuse, misuse, improper storage, neglect, accident, improper installation or have been modified or repaired or altered in any manner whatsoever, or where the serial number or date code has been removed or defaced.

**THE FOREGOING LIMITED WARRANTY IS BOGEN'S SOLE AND EXCLUSIVE WARRANTY AND THE PURCHASER'S SOLE AND EXCLUSIVE REMEDY. BOGEN MAKES NO OTHER WARRANTIES OF ANY KIND, EITHER EXPRESS OR IMPLIED, AND ALL IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE ARE HEREBY DISCLAIMED AND EXCLUDED TO THE MAXIMUM EXTENT ALLOWABLE BY LAW.** Bogen's liability arising out of the manufacture, sale or supplying of products or their use or disposition, whether based upon warranty, contract, tort or otherwise, shall be limited to the price of the product. **IN NO EVENT SHALL BOGEN BE LIABLE FOR SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, LOSS OF PROFITS, LOSS OF DATA OR LOSS OF USE DAMAGES) ARISING OUT OF THE MANUFACTURE, SALE OR SUPPLYING OF PRODUCTS, EVEN IF BOGEN HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES OR LOSSES.** Some States do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you. This warranty gives you specific legal rights, and you may also have other rights which vary from State to State.

Products that are out of warranty will also be repaired by the Bogen Factory Service Department – same address as above or call 201-934-8500. The parts and labor involved in these repairs are warranted for 90 days when repaired by the Bogen Factory Service Department. All shipping charges in addition to parts and labor charges will be at the owner's expense. All returns require a Return Authorization number. For most efficient warranty or repair service, please include a description of the failure.

12/2008

## Accessories



**WMK2**  
Easy Mount  
Wall Bracket



**RPK92**  
Rack Mount  
Bracket



**OXC1**  
External  
Sync-Charger



**OSC50Plenum**  
50-Foot  
Plenum-Rated  
Cable Assembly

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