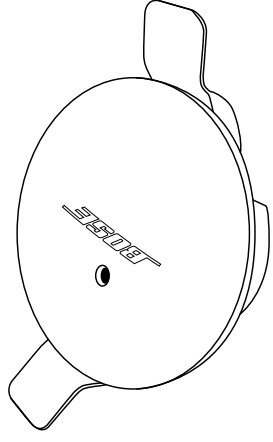


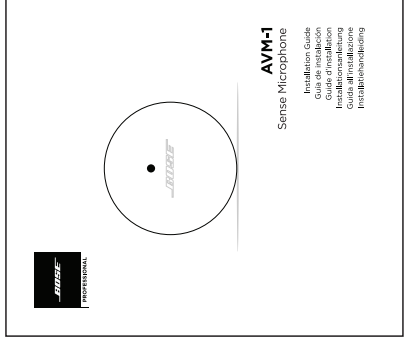
Introduction

Package Contents

AVM-1 Sense Microphone

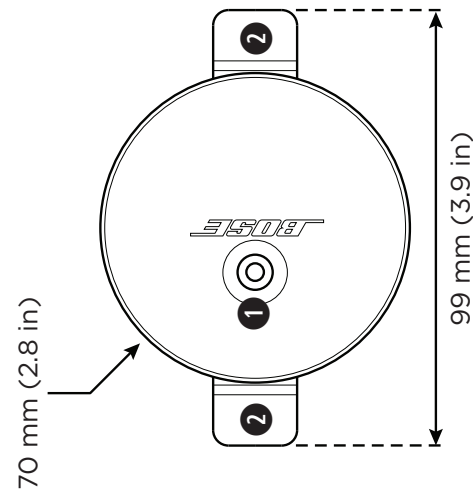


Installation Guide

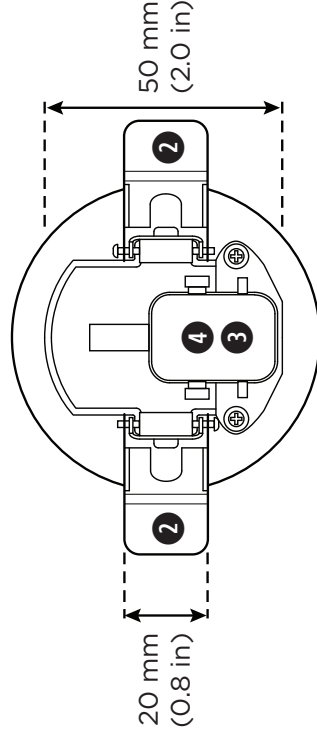


Product Overview

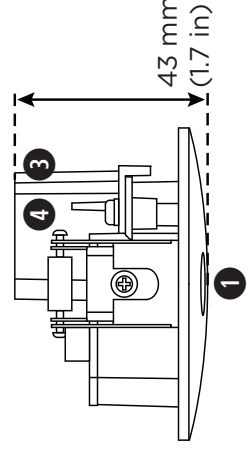
Front Panel



Rear Panel



Side View



1 Microphone aperture: The aperture of the microphone. Do not obstruct this opening.

2 Spring clips: Use these clips to attach the microphone securely to the acoustic ceiling tile.

3 Condensation cover: Protects the wiring terminal if condensation collects on the wiring or microphone housing. Use a screwdriver to remove or reattach this cover.

4 Wiring terminal (under condensation cover): Mic-level output for balanced analog audio signal.

Technical Specifications

Type	Electret condenser
Directivity	Omnidirectional
Audio Output	Analog, balanced mic-level
Frequency Response	100 Hz-6 kHz (± 4 dB, relative level 1 kHz)
Maximum Input SPL	115 dB at 1 kHz
Sensitivity	-16 dBV (± 3 dBV) (typical, 1 kHz, 1 Pa/94 dB SPL)
THD+N	< 1% (1 kHz, 1 Pa/94 dB SPL)
Recommended Ceiling Thickness	< 2.5 cm (1.0 in)
Recommended Wiring	Type: Shielded twisted-pair plenum wire Gauge: AWG 28-AWG 20 (0.08 mm ² -0.52 mm ²), recommended Length: < 610 m (2,000 ft), indoors
Connectors	Bare-wire terminals (-, +, shielded ground), 3.5 mm pitch
Power	48 VDC, 10 mA phantom power via ground terminal (typical)
Operating Temperature	0 °C to 40 °C (32 °F to 104 °F)
Operating Humidity	80% (without condensation)
Dimensions (H x W x \varnothing)	43 mm x 99 mm x 70 mm (1.7 in x 3.9 in x 2.8 in)
Net Weight	0.06 kg (0.14 lb)

Installation Guidelines

Before installing the AVM-1, please note the following:

Do not install the AVM-1 in a ceiling or ceiling tile that is thicker than **2.5 centimeters** (one inch).

Avoid placing the AVM-1 near vents, HVAC equipment, or other machinery that could produce vibrations or sounds that would be detected by the microphone.

We recommend using wire no longer than **610 meters** (2,000 feet) to connect the AVM-1 to the Bose CSP. Use shielded twisted-pair plenum wire (AWG 28 to AWG 20 [0.08 mm² to 0.52 mm²]).

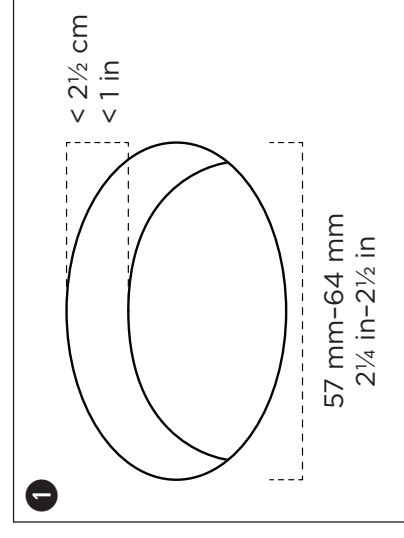
We recommend installing the AVM-1 in ceilings directly above the center of the area where ambient noise is likely to occur. If the ceiling is less than **3.6 meters** (12 feet) high, install the AVM-1 in a wall rather than the ceiling.

Place the AVM-1 at least **1.8 meters** (six feet) from other loudspeakers and above the height of the highest loudspeaker. Make sure other loudspeakers are not pointed directly at the AVM-1. This will reduce the possibility of the microphone detecting sounds that are not part of the ambient noise.

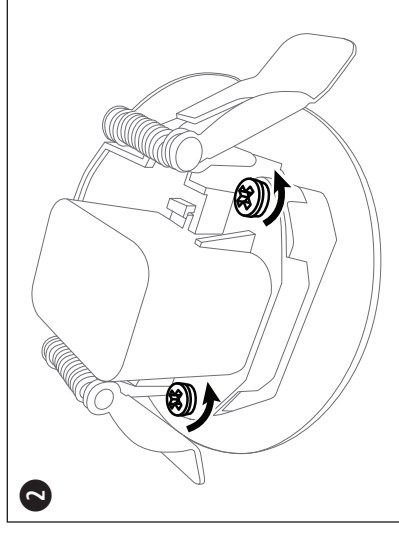
We recommend installing the AVM-1 in a ceiling, but if you must install the AVM-1 in a wall, place the AVM-1 at least **3 meters** (10 feet) above the ground and no higher than **7.3 meters** (24 feet). In addition, place the AVM-1 at least **0.9 meters** (3 feet) away from any boundary or structure (ceiling, HVAC materials, pipes, etc.).

Installation Instructions

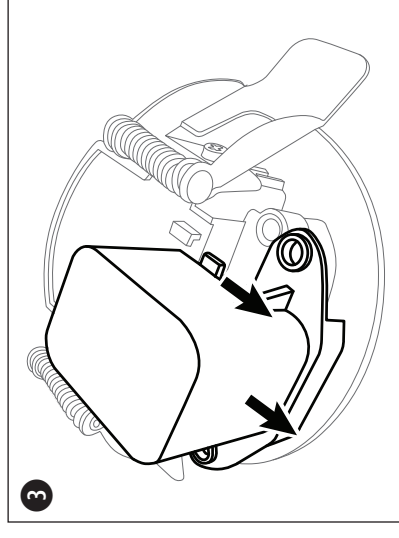
After reading the **Installation Guidelines** above, follow the steps below when installing the AVM-1 microphone.



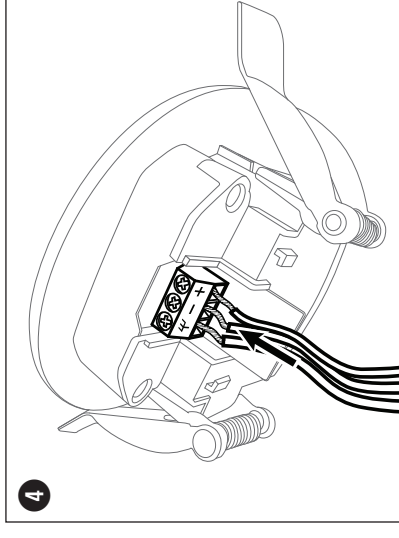
1 Cut a circular hole in the ceiling or ceiling tile. The diameter must be between **57 mm** and **64 mm** (2¼ in and 2½ in). The ceiling or ceiling tile must be thinner than **2½ cm** (1 in).



2 Loosen and remove the two screws on either side of the **condensation cover**.



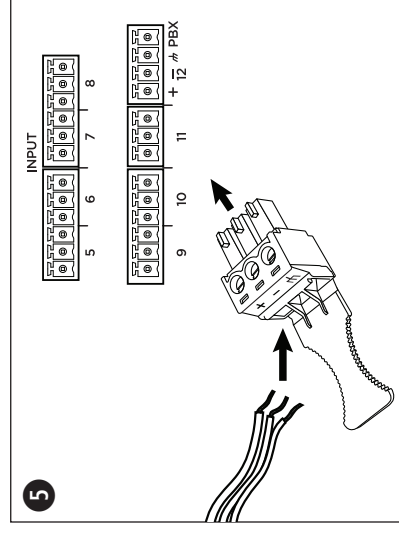
3 Slide the **condensation cover** away from the center of AVM-1, and then lift it up to expose the **wiring terminal**.



4 Loosen the screws above the wiring terminals.

Insert shielded twisted-pair plenum wire (AWG 28 to AWG 20 [0.08 mm² to 0.52 mm²]) into the **+**, **-**, and **ground** terminals.

Re-tighten the screws above the wiring terminals to secure the wires in place.



5 Insert the **-**, **+**, and **ground** wires connected to the AVM-1 to the corresponding terminals of a Euroblock connector included with the Bose CSP.

Connect that Euroblock connector to an **analog input** on the rear panel of the Bose CSP.

If you plan to install two or more AVM-1 microphones:

Maintain at least **10.7 meters** (35 feet) between microphones. Do not install multiple AVM-1 microphones if the loudspeakers in the room are higher than **7.6 meters** (25 feet).

If the loudspeakers in the room are **3.7 meters** to **7.6 meters** (12 feet to 25 feet) high, install one AVM-1 for every **324 square meters** (3,600 square feet).

If the loudspeakers in the room are less than **3.7 meters** (12 feet) high, install one AVM-1 for every **162 square meters** (1,800 square feet).

Assign each AVM-1 to a unique listening area in the CSP Configuration Utility, and calibrate each AVM-1 for its assigned listening area. Configure the space as though it were divided into separate rooms with physical walls, each with a single AVM-1 and with independent loudspeakers and controllers.

After installing the AVM-1 microphone, you will need to use the browser-based CSP configuration utility (hosted on the Bose CSP) to calibrate the AutoVolume feature. After that, recalibrate AutoVolume if any of the following items change:

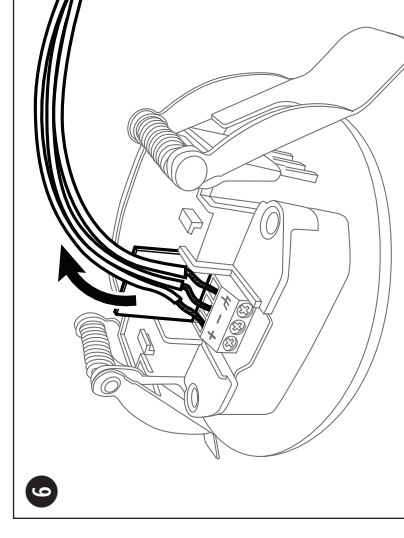
the location of an AVM-1

the room's physical layout or acoustic dampening

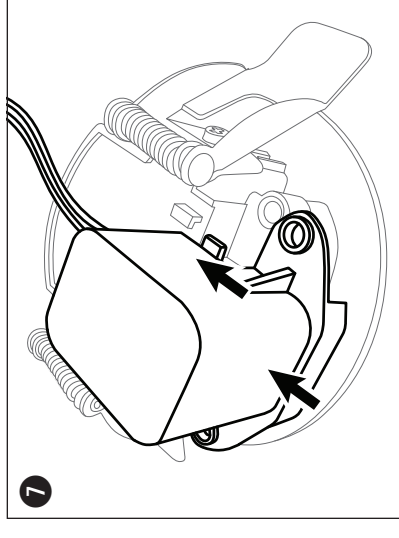
the model or position of any loudspeaker in the room

the equalization of a loudspeaker or equalization of a zone (listening area)

the firmware of the Bose CSP

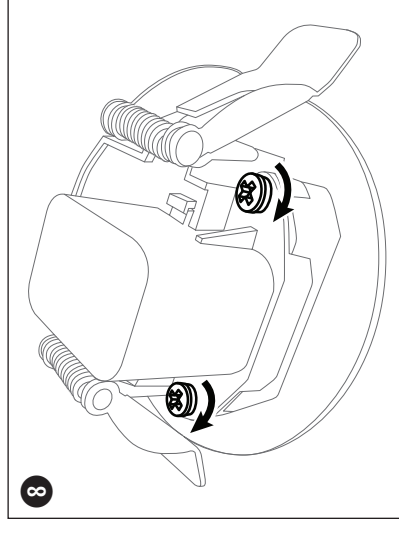


6 On the AVM-1, arrange the connected wires so they rest on the large tab below the wiring terminal. This ensures the wires stay in place under the condensation cover.

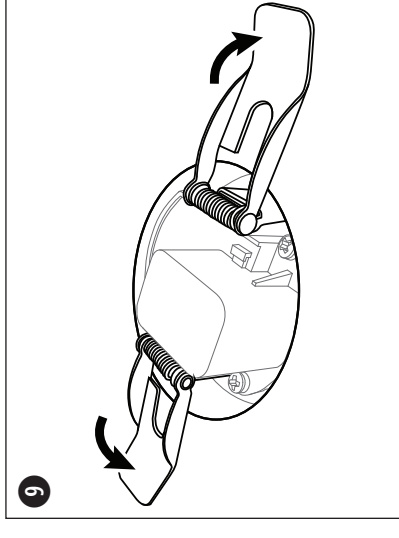


7 Place the **condensation cover** over the wiring terminal and wires on the AVM-1.

Slide the **condensation cover** toward the center of the AVM-1.

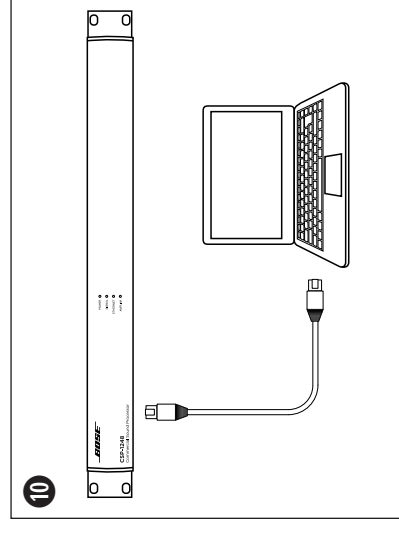


8 Reinstall and tighten the screws to secure the condensation cover to the AVM-1.



9 Pull the **spring clips** toward each other, and then insert them through the hole you cut in **Step 1**.

Release the spring clips. The spring clips and the edge of the microphone will tightly grasp the ceiling or ceiling tile.



10 Use the browser-based CSP configuration utility (hosted on the Bose CSP) to calibrate the AutoVolume compensation feature.

Refer to the installation guide included with the Bose CSP to learn how to access the configuration utility.