

INSTALLATION INSTRUCTIONS

These instructions are for mounting the DM1 Microphone in a speaker post or menu board. Examples shown are for typical installation in an HME SPP2 Speaker Post. The DM1 comes with a 6 or 18 foot (152 mm) cable and molded foam inserts. The installation will take approximately 30 minutes.

Tools Required

- Standard (slotted) screwdriver
- Phillips (crosspoint) screwdriver #2
- High-speed drill with drill bits
- Soldering iron and solder
- Electrical tape or shrink tubing with heat gun
- Fish tape (if cable pulling is required)



Figure 1. DM1 Microphone

1. INSTALLATION PROCEDURE

CAUTION: Remove power from the audio system before beginning the installation.

1.1 Installation Inside Speaker Post or Menu Board

Typical DM1 Microphone installation involves mounting it with the four enclosed pre-cut foam pieces inside the upper compartment of the SPP2 speaker post. The foam will fit many types of speaker posts and menu boards. If it must be mounted in a small area, compress the foam when installing it and closing the speaker post or menu board. In larger areas, additional foam (not supplied) can be added. To install the DM1 in a typical SPP2 speaker post, refer to Figures 2 and 4, and follow these instructions.

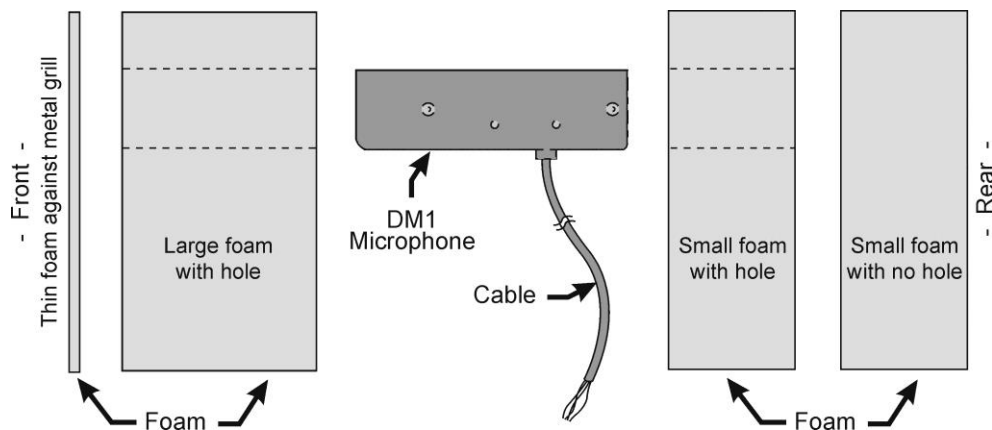


Figure 2. Sequence of DM1 and foam inserts in speaker post or menu board

- Open the speaker post and disconnect the microphone cable from any existing microphone or speaker/microphone.
- Remove any existing microphone or speaker/microphone and everything else from the upper compartment, including any foam that may already be there.
- Remove the rubber plug from the back of the DM1 microphone unit, shown in Figure 3, and locate the adjustment screw inside the hole. Use a small standard (slotted) screwdriver to turn it approximately $\frac{3}{4}$ of the way counterclockwise, then replace the rubber plug.
- Place the enclosed thin piece of foam against the inside of the metal grill.
- Place the DM1 Microphone into the holes on the large and small pieces of foam with holes, in the positions shown in Figures 2 and 4.
- Place the DM1 in the two pieces of foam into the upper compartment of the speaker post, against the thin piece of foam already in place.
- Route the DM1 cable down through the hole in the shelf as shown in Figure 4.
- Place the remaining piece of foam (with no hole in it) against the other foam in the upper compartment of the SPP2 speaker post.
- Splice the DM1 cable wires to the audio cable wires that were disconnected from the removed speaker according to the color codes shown in the appropriate wiring diagram in the audio system installation instructions.
- Close the speaker post, replacing all screws that were removed from the back cover.

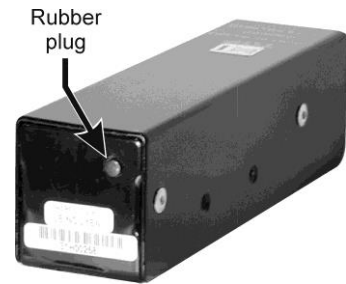


Figure 3. Rubber plug on back of DM1

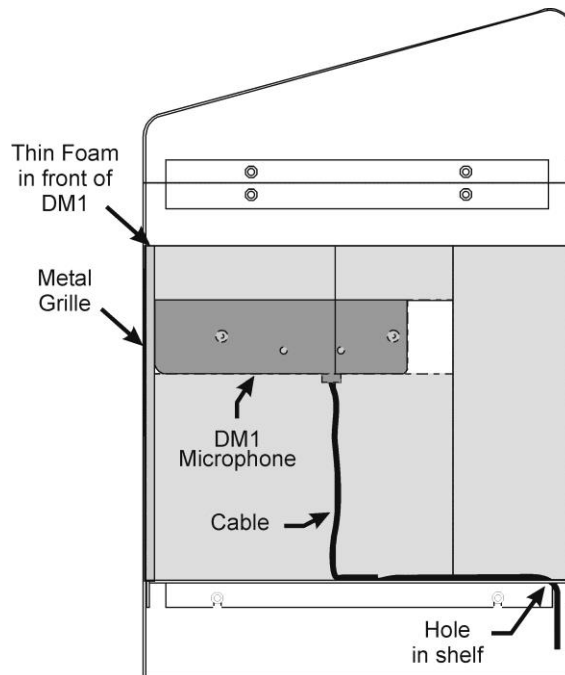


Figure 4. DM1 and foam inserts in typical SPP2 speaker post installation

1.2 Cable Connections

Connections for the DM1 with HME audio systems are shown in the table below. If the DM1 is replacing another microphone, the microphone cable may need to be rewired in the audio system base station.

HME System	DM1 Connections with no Switcher Board	DM1 Connections with Switcher Board
500	to Base Station Audio Board J3 – 1, 2, 3 (shield) and 4 (12VDC)	to Switcher Board J2 – 1, 2, 3 (shield) and 4 (12VDC)
Wireless IQ	to Base Station Audio Board J30 – 1, 2, 3 (shield) and 4 (12VDC)	to Switcher Board J1 – 1, 2, 3 (shield) and 4 (12VDC)
ionIQ	For single lane or lane 1 of dual lanes to Base Station Audio Board J6 – 1, 2, 3 (shield) and 4 (12VDC) For lane 2 of dual lanes to Base Station Audio Board J14 – 1, 2, 3 (shield) and 4 (12VDC)	For single lane or lane 1 of dual lanes to left Switcher Board J1 – 1, 2, 3 (shield) and 4 (12VDC) Outside speaker to left Switcher Board J2 – 1 and 2 For lane 2 of dual lanes to right Switcher Board J1 – 1, 2, 3 (shield) and 4 (12VDC) Outside speaker to right Switcher Board J2 – 1 and 2

DM1 Cable wires:

Red	Audio Out HI	base connector pin 1
Black	Audio Out LO	base connector pin 2
Shield	ground	base connector pin 3
White	+12VDC input	base connector pin 4

1.3 Wireless IQ™ Base Station Settings

If you are installing the DM1 with a Wireless IQ system, open the base station and put the JP3 jumper on the left two pins, as shown in Figure 5. Close the base station when finished.

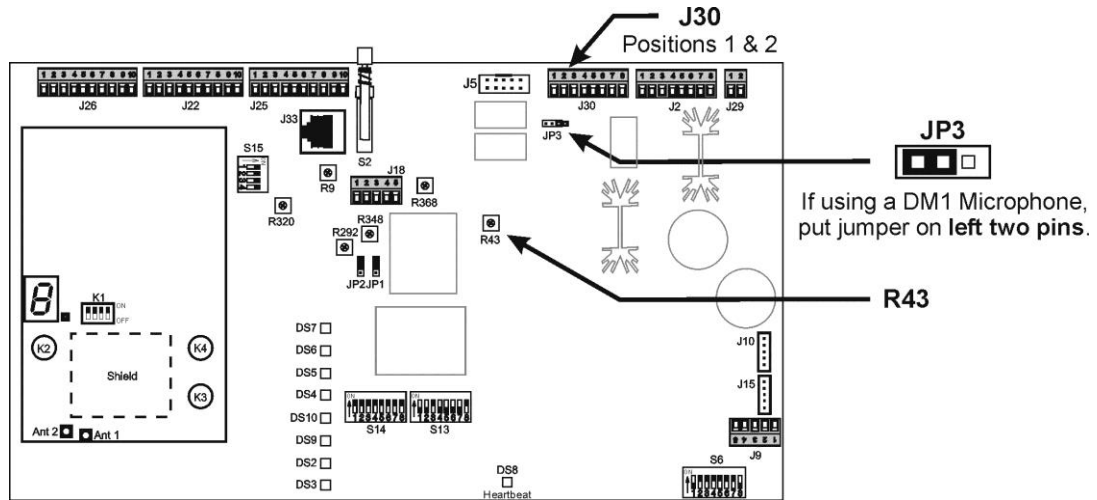


Figure 5. Wireless IQ Base Station JP3 jumper setting

For Wireless IQ base stations without the JP3 jumper, obtain a 2.2 Ω, 5%, ¼ watt, carbon film, through-hole resistor, and insert it into positions 1 and 2 of the connector plug located at J30. Tighten the screws at positions 1 and 2 of J30 until the resistor is securely attached.

Adjust microphone volume with a small screwdriver, by turning the R43 adjustment shown in Figure 5, clockwise to increase or counterclockwise to decrease.

1.4 ionIQ™ Base Station Settings

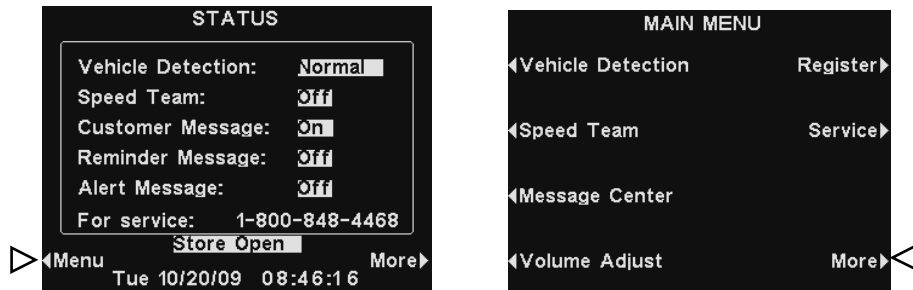
If you are installing the DM1 with a ionIQ system, you must make the following settings on the ionIQ base station.

NOTE: You must have an installer password for the ionIQ to make these settings. If you do not have an installer password, call HME Technical Support at 1-800-848-4468.

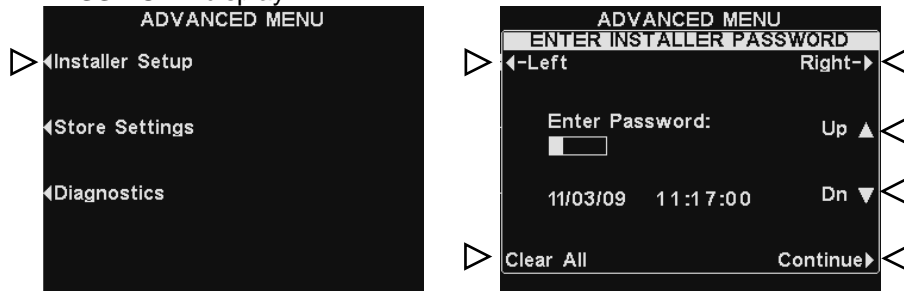
If you have an installer password, proceed as follows.

1.4.1 Speaker Selection

Press the **Menu** button on the **STATUS** display to access the **MAIN MENU**. Press the **More** button on the **MAIN MENU** to access the **ADVANCED MENU**.

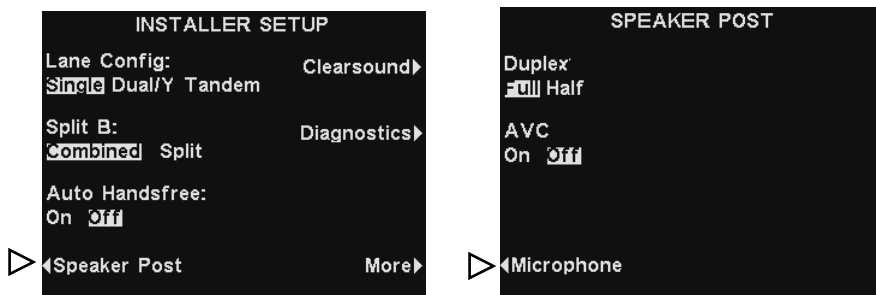


Press the **Installer Setup** button on the **ADVANCED MENU** to access the **ENTER INSTALLER PASSWORD** display.



Enter the first character of the 4-digit password in the highlighted box in the **Enter Password** field by pressing the **Up** button to enter alphabetic characters, or the **Down** button to enter numbers. Press the **Right** button to move the highlighted box to the next position to the right. Repeat this procedure until all 4 digits of the password are entered, and then press the **Continue** button to access the **INSTALLER SETUP** display.

Press the **Speaker Post** button on the **INSTALLER SETUP** display, and then press the **Microphone** button on the **SPEAKER POST** display.



Press the **Microphone** button repeatedly until **DM1** is highlighted.

Select the typical distance from the microphone to the vehicle in the drive-thru lane by pressing the **Distance to Vehicle** button repeatedly until the correct distance is highlighted.



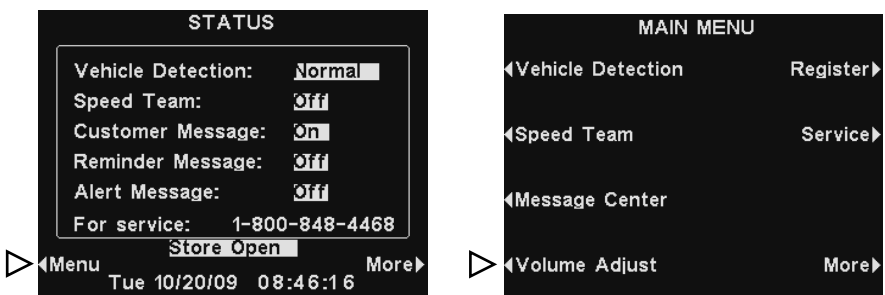
NOTE: If you are installing DM1 in more than one speaker post, for a dual-lane or tandem drive-thru, the display will appear split for **Lane 1** and **Lane 2**. You will then need to press the **Microphone** button for each lane to make the respective settings.

Press the **Back** button to save these settings.

1.4.2 Microphone Volume Adjustment

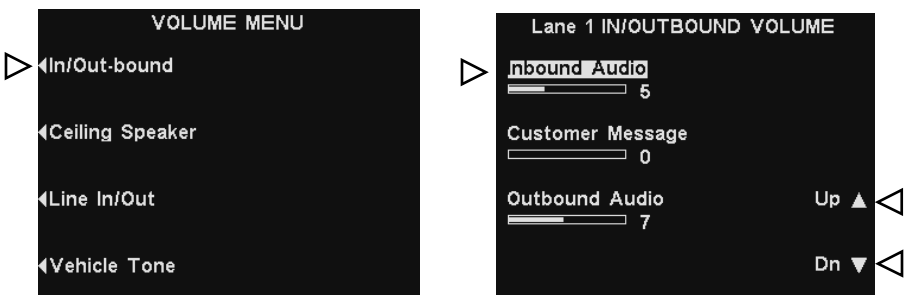
To adjust the volume of inbound audio from the DM1, on the base station **STATUS** display, select **Menu** and then, on the **MAIN MENU** select **Volume Adjust**.

If you have a dual lane operation, the **VOLUME MENU** will have the same selections for **Lane 1** and **Lane 2** as shown here on the **VOLUME MENU**. Make your selections accordingly.



Press the **In/Out-bound** button on the **VOLUME MENU**.

On the next display that appears for the selected location, press the **Inbound Audio** button, and then use the **Up** and **Dn** buttons to raise and lower the volume.



Press the **Back** button to save these settings.

1.5 DM1 Noise Adjustment

In extremely noisy environments, locate and remove the rubber plug from the back of the DM1, shown in Figure 3, and carefully adjust the screw inside the hole counterclockwise to reduce background noise. Note that this also reduces intelligibility of the customer. Adjusting the screw clockwise increases intelligibility of the customer, but also increases background noise.

2. TROUBLESHOOTING

In Case of Problems

PROBLEM	PROBABLE CAUSE	SOLUTION
No inbound audio when a vehicle is present.	Power OFF at base station.	Verify the power is ON at the base station.
	DM1 not wired properly.	Refer to the appropriate wiring diagram and verify the DM1 is wired correctly.
	Underground cable for DM1 is damaged.	Perform a continuity test on the DM1 cable from inside the store to the outside. Pull a new cable if needed.
Inbound audio is improved, but still rather noisy.	Adjustment screw in hole on back of DM1 is set too far clockwise.	Remove the rubber plug on the rear of the DM1 microphone to access the adjustment screw inside the hole. See Figure 3. Using a small screwdriver, adjust the screw inside the hole counterclockwise until the sound quality is acceptable. Replace the rubber plug after making the adjustment.
Inbound audio is improved, but the customer sounds muffled.	Adjustment screw in hole on back of DM1 is set too far counterclockwise.	Remove the rubber plug on the rear of the DM1 microphone to access the adjustment screw inside the hole. See Figure 3. Using a small screwdriver, adjust the screw inside the hole clockwise until the sound quality is acceptable. Replace the rubber plug after making the adjustment.

For assistance, call HME at 1-800-848-4468.

3. DM1 SPECIFICATIONS

Microphone type:	Directional Electret Level is -7dB typical @ 180°, 1kHz Level is -20dB typical @ 120°, 1kHz
Input voltage:	11-26VDC
Input current:	20mA maximum @ 12VDC
Output level:	Balanced across an 8Ω load, -63dBV ±10dB each line to ground with equalizer set fully counterclockwise and an input of 1kHz @ 74dB SPL
Equalizer adjustment range:	+0 to -10dB, ±3dB @ 1kHz
Terminating or load resistance:	8Ω nominal
Temperature range:	-40° C to +80° C operating
Dimensions:	Metal housing - 1.55" x 1.45" x 5.35" maximum (39.37 x 36.83 x 135.89 mm) Mounting bracket - 3.5" x 3.5" x 3.7" maximum (88.90 x 88.90 x 93.98 mm)
Output cable:	Red = balanced audio out HI Black = balanced audio out LO White = +12VDC input Green = no connection Shield = ground

In the event of an electrical power outage —

Such as from a lightning storm or power generator failure, if you experience problems with your HME equipment after the electricity comes on again, unplug the AC power adapters from their electrical outlets, then plug them back in.

Waste Electrical and Electronic Equipment (WEEE)

The European Union (EU) WEEE Directive (2002/96/EC) places an obligation on producers (manufacturers, distributors and/or retailers) to take-back electronic products at the end of their useful life. The WEEE Directive covers most HME products being sold into the EU as of August 13, 2005. Manufacturers, distributors and retailers are obliged to finance the costs of recovery from municipal collection points, reuse, and recycling of specified percentages per the WEEE requirements.

Instructions for Disposal of WEEE by Users in the European Union

The symbol shown below is on the product or on its packaging which indicates that this product was put on the market after August 13, 2005 and must not be disposed of with other waste. Instead, it is the user's responsibility to dispose of the user's waste equipment by handing it over to a designated collection point for the recycling of WEEE. The separate collection and recycling of waste equipment at the time of disposal will help to conserve natural resources and ensure that it is recycled in a manner that protects human health and the environment. For more information about where you can drop off your waste equipment for recycling, please contact your local authority, your household waste disposal service or the seller from whom you purchased the product.



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