



# MX405 MX410 MX415

## Gooseneck Microphones and Accessories

The Shure miniature gooseneck microphones, MX405, MX410 and MX415, user guide.  
Version: 5 (2019-J)

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# MX405 MX410 MX415 Gooseneck Microphones and Accessories

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## General Description

Shure MX405, MX410, and MX415 miniature gooseneck microphones are suitable for boardrooms and other sites where aesthetics are important. Permanently mount them at conference tables or lecterns using the MX400SMP surface mount, or use the MX400DP moveable desktop base, which includes a configurable mute button with logic output. Also compatible with the MX890 wireless desktop base and the ULXD8 wireless base.

## Features

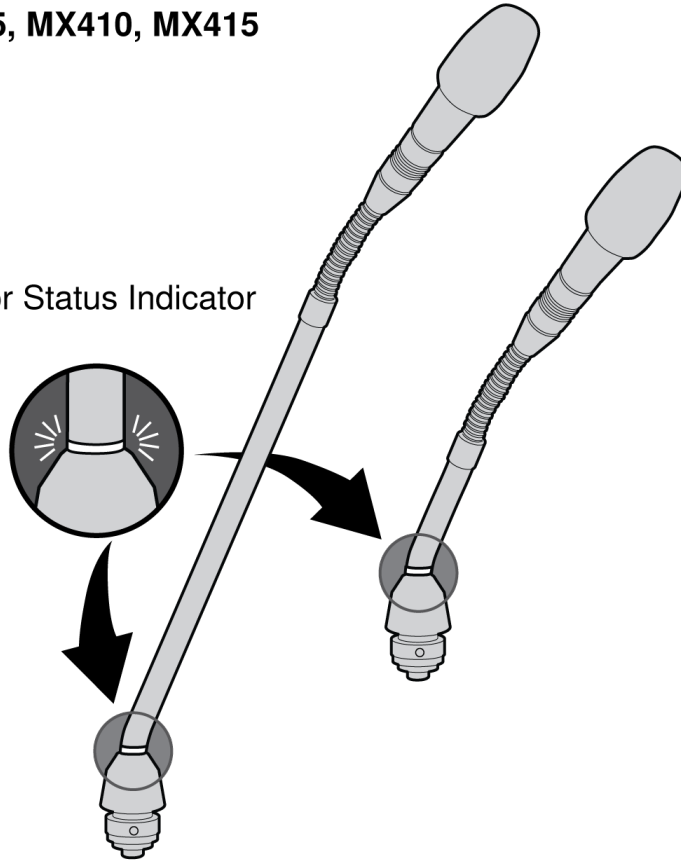
- Low profile, aesthetic design
- Choice of bi-color indicator or light ring
- Wide dynamic range and smooth frequency response
- RF filtering with CommShield<sup>®</sup> technology
- Logic input for external LED control

## Model Variations

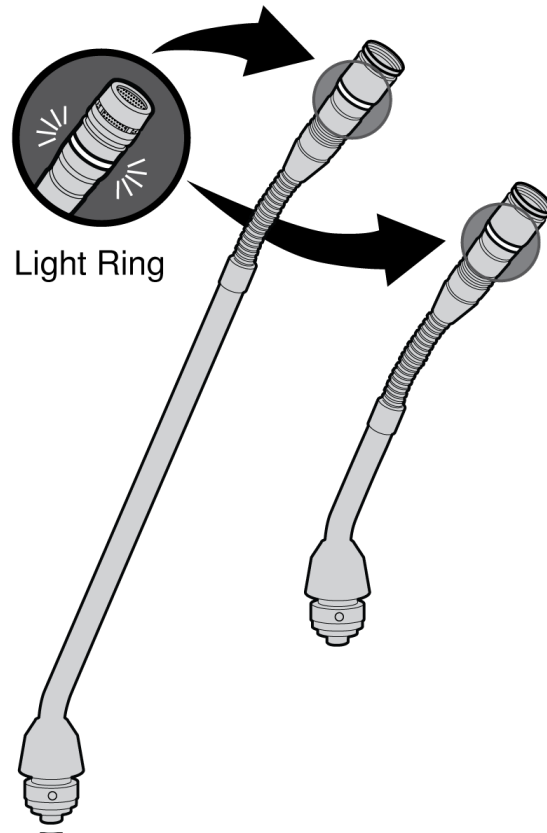
These gooseneck microphones are available in different lengths with a cardioid, supercardioid, or mini-shotgun cartridge and either a bi-color LED status indicator or a light ring. The 10 and 15 inch models are also available with a dualflex neck.

**MX405, MX410, MX415**

Bi-color Status Indicator

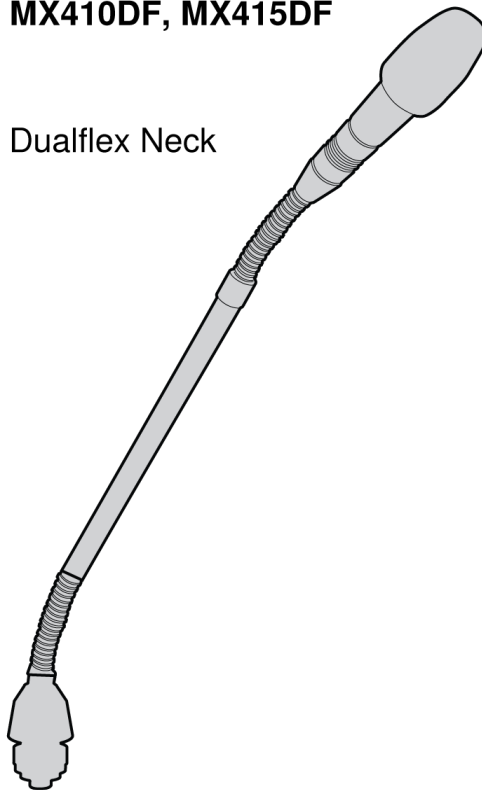


**MX405R, MX410R, MX415R**



**MX410DF, MX415DF**

Dualflex Neck



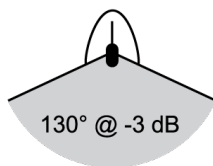
## Gooseneck Microphones

5" Cardioid Gooseneck Microphone	MX405LP/C
5" Supercardioid Gooseneck Microphone	MX405LP/S
5" Mini-shotgun Gooseneck Microphone	MX405LP/MS
5" Gooseneck with Red Top LED (no cartridge)	MX405RLP/N
10" Cardioid Gooseneck Microphone	MX410LP/C
10" Supercardioid Gooseneck Microphone	MX410LP/S
10" Gooseneck with Red Top LED (no cartridge)	MX410RLP/N
10" Cardioid Dualflex Gooseneck Microphone	MX410LPDF/C
10" Supercardioid Dualflex Gooseneck Microphone	MX410LPDF/S
10" Dualflex Gooseneck with Red Top LED (no cartridge)	MX410RLPDF/N
10" Cardioid Dualflex Gooseneck Microphone with Red Top LED	MX410RLPDF/C
10" Supercardioid Dualflex Gooseneck Microphone with Red Top LED	MX410RLPDF/S
15" Cardioid Gooseneck Microphone	MX415LP/C
15" Supercardioid Gooseneck Microphone	MX415LP/S

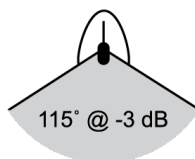
15" Gooseneck with Red Top LED (no cartridge)	MX415RLP/N
15" Cardioid Dualflex Gooseneck Microphone	MX415LPDF/C
15" Supercardioid Dualflex Gooseneck Microphone	MX415LPDF/S
15" Dualflex Gooseneck with Red Top LED (no cartridge)	MX415RLPDF/N
15" Cardioid Dualflex Gooseneck Microphone with Red Top LED	MX415RLPDF/C
15" Supercardioid Dualflex Gooseneck Microphone with Red Top LED	MX415RLPDF/S
5" White Gooseneck Microphone (no cartridge)	MX405WLP/N
5" White Gooseneck Microphone with Red Top LED (no cartridge)	MX405WRLP/N
10" White Gooseneck Microphone (no cartridge)	MX410WLP/N
10" White Gooseneck Microphone with Red Top LED (no cartridge)	MX410WRLP/N
15" White Gooseneck Microphone (no cartridge)	MX415WLP/N
15" White Gooseneck Microphone with Red Top LED (no cartridge)	MX415WRLP/N
10" White Dualflex Gooseneck Microphone (no cartridge)	MX410WLPDF/N
10" White Dualflex Gooseneck Microphone with Red Top LED (no cartridge)	MX410WRLPDF/N
15" White Dualflex Gooseneck Microphone (no cartridge)	MX415WLPDF/N
15" White Dualflex Gooseneck Microphone with Red Top LED (no cartridge)	MX415WRLPDF/N

## Coverage and Placement

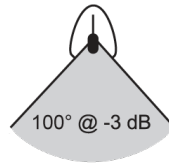
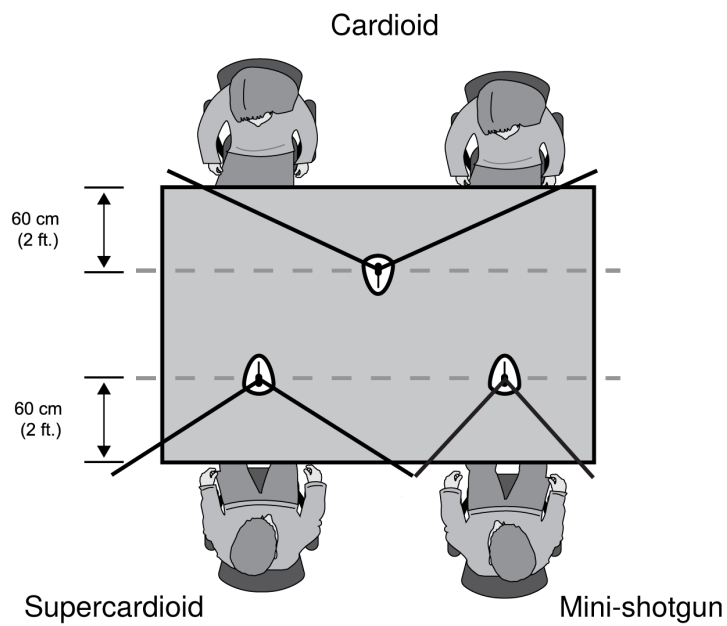
- **Cardioid:** One microphone for one or two people.
- **Supercardioid:** One microphone for each person.
- **Mini-shotgun:** One microphone for each person.



Cardioid



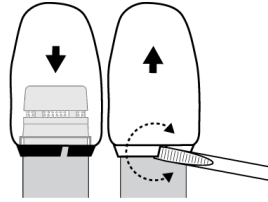
Supercardioid

**Mini-shotgun****Mic Placement**

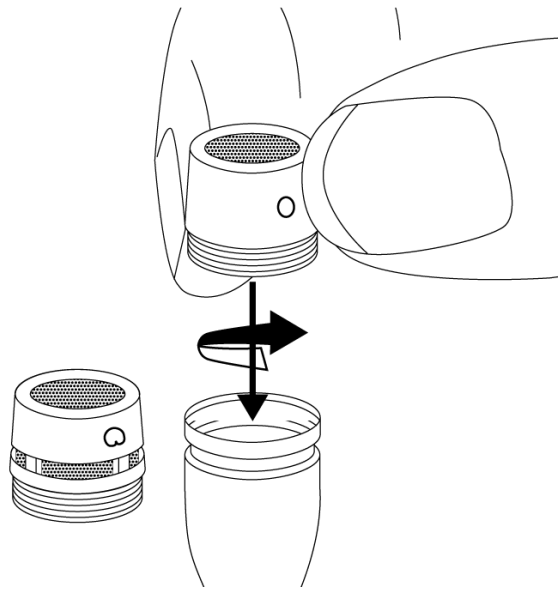
## Snap-Fit Windscreen

- Snap into the groove below the cartridge.
- To remove, spread the gap with a screwdriver or thumbnail.
- Provides 30 dB of "pop" protection.

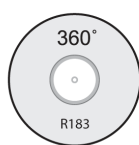




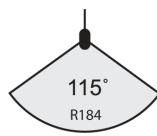
## Interchangeable Cartridges



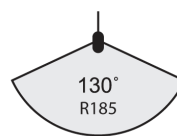
Microflex microphones use interchangeable cartridges that allow you to choose the polar pattern for different installations.



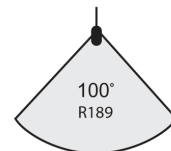
Omnidirectional



Cardioid



Supercardioid



Mini-shotgun

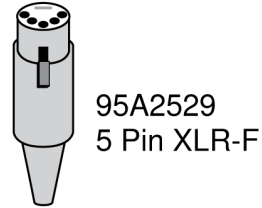
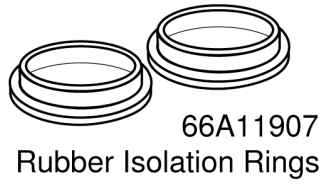
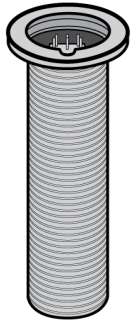
### Cartridge Polar Patterns

## MX400SMP Surface Mount Preamp

Permanent mount for conference tables or lecterns. Includes LED logic input.

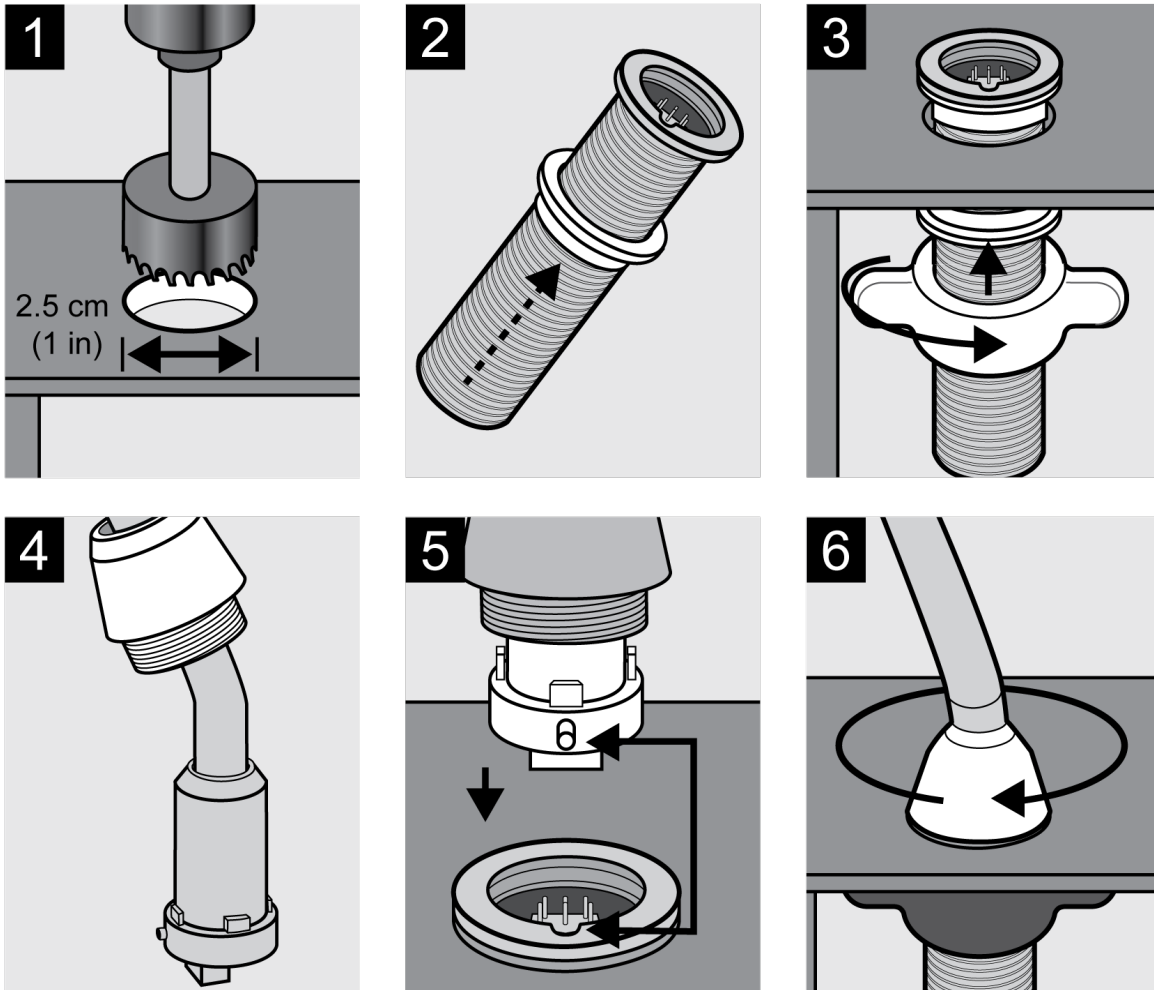
# Accessories

## Furnished Accessories



**MX400SMP Surface Mount Kit**

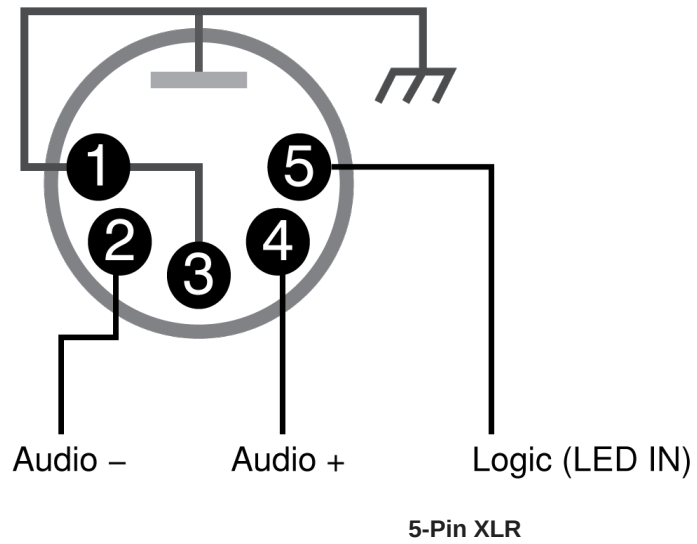
# Installation



**Note:** Over tightening the wing nut reduces shock isolation.

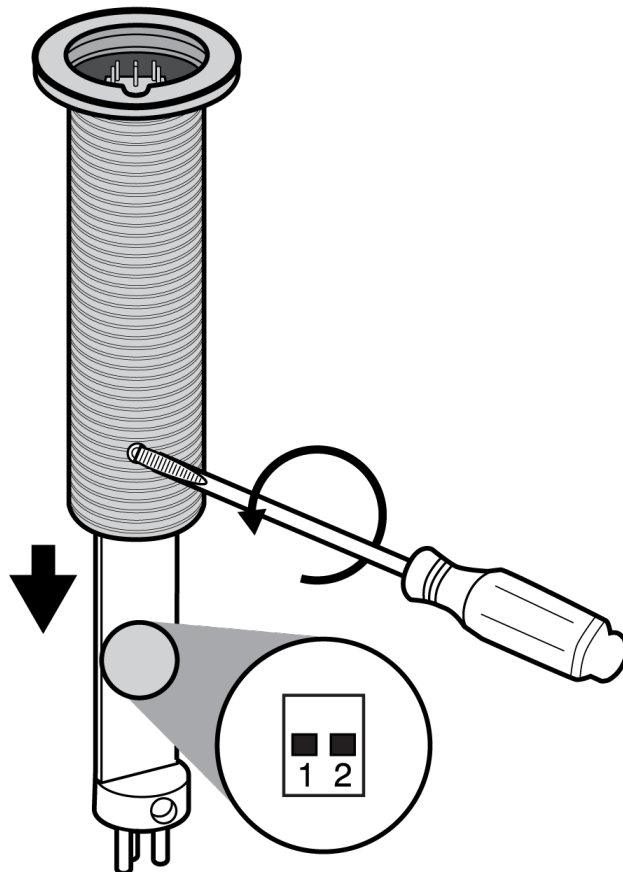
**Caution:** To prevent bending pins, line up key with notch and seat connector fully before twisting to lock.

## MX400SMP Pin Assignments



## DIP Switches

Set DIP Switch 1 up to engage the low cut filter, which attenuates frequencies by 6 dB per octave below 150 Hz.



Switch	Down (default)	Up
1	Full frequency response	Low cut filter
2	LED steady	LED flashes

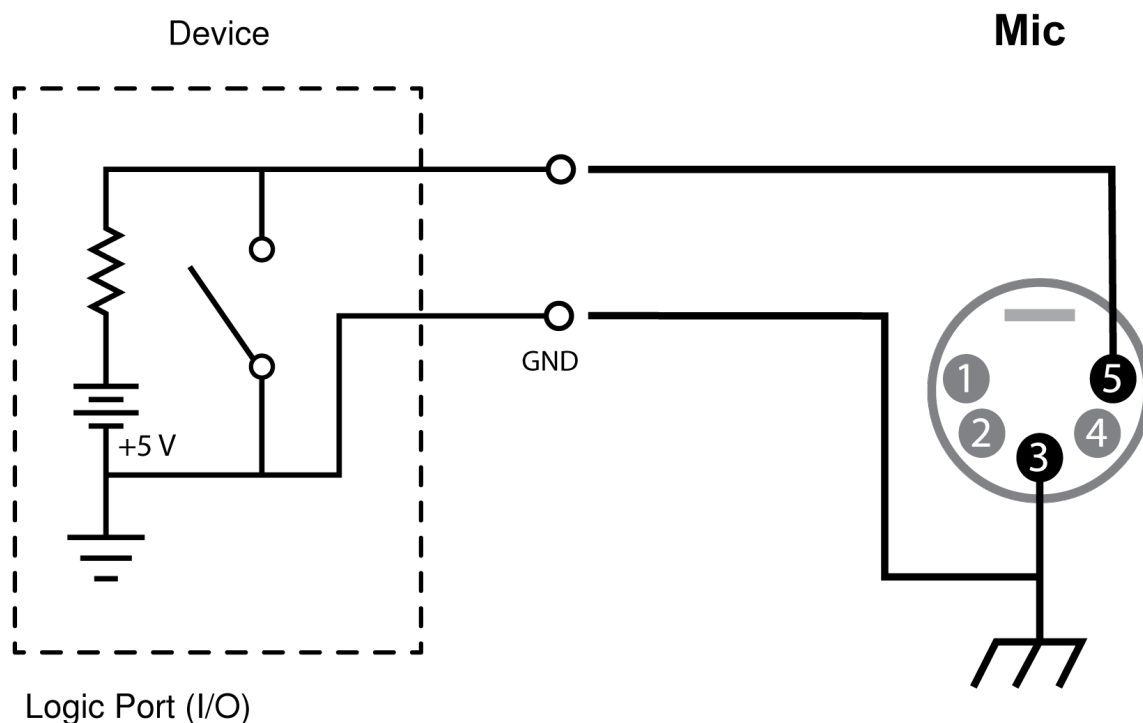
## LED Logic

To operate the LED indicator, use the included 5-pin XLR connector to wire the microphone to an automatic mixer or other logic device.

**Note:** Connect the LED IN to the gate output to illuminate the LED when the channel is gated on.

Do not use the relay ports on Crestron and AMX devices. Use the I/O logic ports instead.





The LED logic may not function when connecting to devices that do not have internal "pull-up resistor" logic circuits, such as ClearOne DSP products. External pull-up resistor circuits can be added for each microphone. Visit [www.shure.com/FAQ](http://www.shure.com/FAQ) for detailed instructions.



**Logic Connection**

Connection to device with internal "pull-up resistor" logic circuit

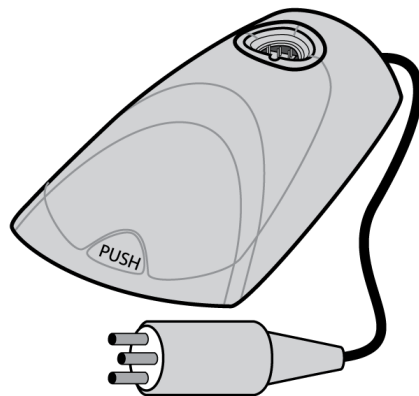
MX405, 410, 415	
Logic LOW (0 V)	Logic HIGH (+5 V)

MX405, 410, 415	
	
Green	Red
MX405R, 410R, 415R	
Logic LOW (0 V)	Logic HIGH (+5V)
	
Red	Off/flashing

## MX400DP Desktop Base

The MX400DP moveable desktop base includes a configurable mute button with logic output.

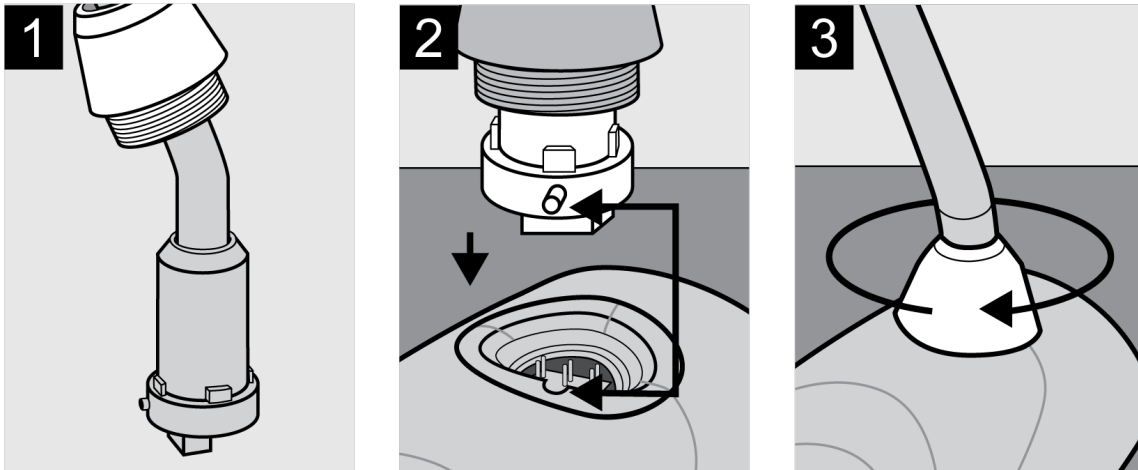
Desktop Base



Attached Cable

MX400DP Desktop Base

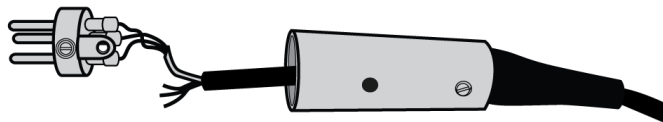
# Installation



**Caution:** To prevent bending pins, line up key with notch and seat connector fully before twisting to lock.

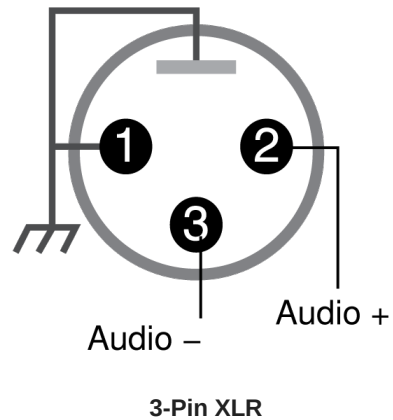
## Cable

The 20 ft. attached cable is terminated with a 3-pin XLR connector. For logic applications, open the XLR connector to access the three unterminated logic conductors.



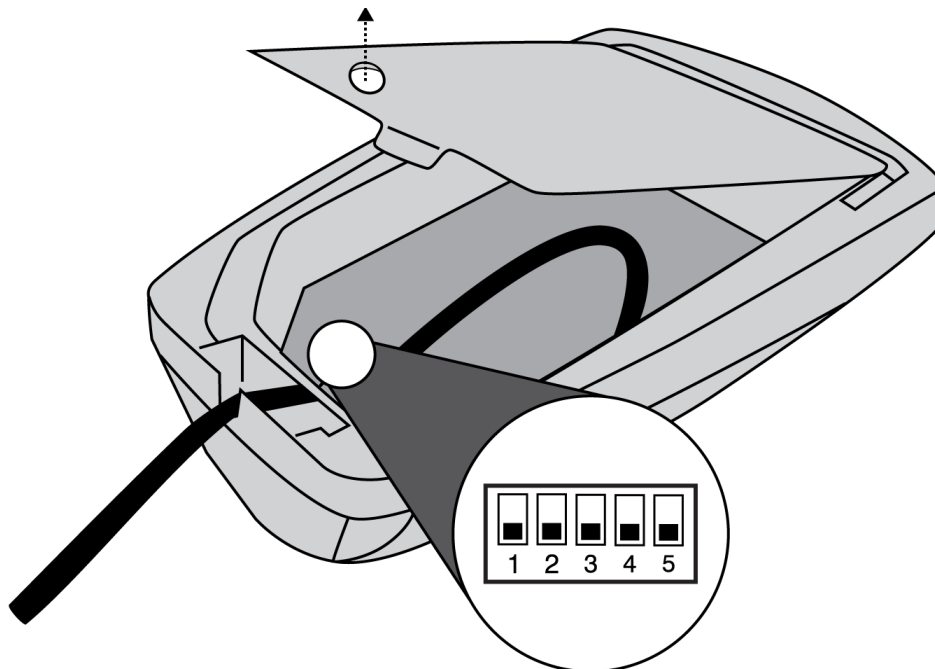
Wire Color	Function
Red	Audio +
Black	Audio -
White	SWITCH OUT
Orange	LED IN
Green	Logic Ground
Shield	Mic Common Ground

## MX400DP Pin Assignments



## MX400DP DIP Switches

**Caution:** Failure to reinstall the setscrew will reduce RF immunity.



Switch	Down (default)	Up
1	Momentary	Toggle
2	Push-to-Mute	Push-to-Talk
3	Local Mute	Logic Control



Switch	Down (default)	Up
4	Full Frequency Range	Low Cut Filter (attenuates 6 dB per octave below 150 Hz)
5	LED Steady	LED Flashes

## Local Mute Control

The microphone ships configured for local (manual) mute control (**DIP Switch 3 down**). In this mode, the *PUSH* button on the microphone mutes the audio signal at the microphone. Audio is not sent to the audio outputs when muted.

In this configuration, the LED color reflects the microphone state, as controlled by the user with the *PUSH* button.

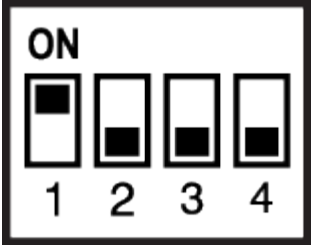
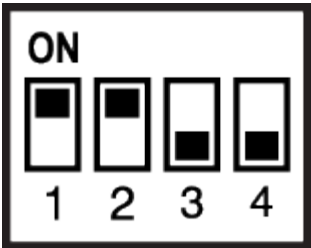


Microphone Status	MX405, 410, 415	MX405R, 410R, 415R
<b>Active</b>	Green	Red
<b>Muted</b>	Red	Off/flashing

## Button Configuration

For local mute control operation, use DIP Switches 1 and 2 to configure the button behavior.

Button Behavior	SWITCH OUT Logic Signal	DIP Switch Setting
<b>Momentary: push-to-mute (as shipped).</b>	When pushed, SWITCH OUT (red wire) falls to 0 V. When released, SWITCH OUT returns to +5 V.	
<b>Momentary: push-to-talk</b>		

Button Behavior	SWITCH OUT Logic Signal	DIP Switch Setting
<p><b>Toggle:</b> Push and release to toggle the microphone on or off. Mic is active when powered on.</p>	<p>Push and release sets SWITCH OUT to 0 V. Push again to toggle back to +5 V.</p>	
<p><b>Toggle:</b> Push and release to toggle the microphone on or off. Mic is mute when powered on</p>		

## Logic Mute Control (Automatic Mixing)

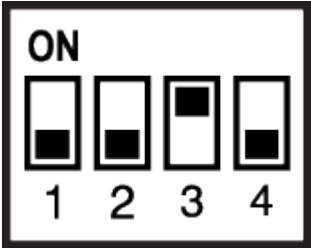
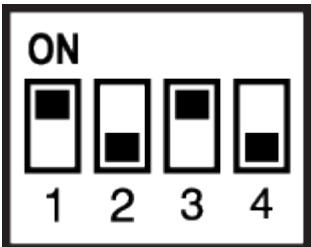
Set **DIP Switch 3 up** to configure the microphone for logic control applications where audio from the microphone is muted by an external device, such as an automatic mixer. In this mode, the local mute function of the *PUSH* button is bypassed (the microphone always sends audio) and the LED does not respond directly from pushing the button.

As required by the installation specifications, wire the SWITCH OUT conductor in the microphone cable to the automatic mixer or other TTL logic device. When the talker presses the button on the microphone, it changes the voltage level at the SWITCH OUT conductor, which signals the device to mute audio for that channel or perform some other function.

To control the LED on the microphone, wire the LED IN conductor to the gate output on the automatic mixer (or any TTL logic device).

## Button Configuration

For logic control operation, DIP Switch 1 determines the button behavior (DIP Switch 2 has no effect).

Button Behavior	DIP Switch Setting
<p><b>Momentary:</b> When pushed, SWITCH OUT (red wire) falls to 0 V. When released, SWITCH OUT returns to +5 V.</p>	
<p><b>Toggle:</b> Push and release sets SWITCH OUT to 0 V. Push again to toggle back to +5 V.</p>	

## Controlling the LED Using Logic LED IN

When configured for logic mute control, connect the LED IN conductors to an external switch, relay, or a TTL gate (gate out) on an automatic mixer. The MX400DB contains an internal pull-up resistor circuit.

- The LED illuminates **green/red** when the MX396 LED IN is **grounded** (orange wire connected to the green wire).
- The LED illuminates **red/off** when LED IN is **lifted** (orange wire is NOT connected to the green wire).

## Specifications

### Type

Electret Condenser

### Frequency Response

50–17000 Hz

### Polar Pattern

<b>MX405/C, MX410/C, MX415/C</b>	Cardioid
<b>MX405/S, MX410/S, MX415/S</b>	Supercardioid
<b>MX405/MS</b>	Mini-shotgun

### Output Impedance

170  $\Omega$

### Output Configuration

Active Balanced

### Sensitivity

@ 1 kHz, open circuit voltage

<b>Cardioid</b>	-35 dBV/Pa (18 mV)
<b>Supercardioid</b>	-34 dBV/Pa (21 mV)
<b>Mini-shotgun</b>	-33 dBV/Pa (22 mV)

1 Pa=94 dB SPL

### Maximum SPL

1 kHz at 1% THD, 1 k $\Omega$  load

<b>Cardioid</b>	121 dB
<b>Supercardioid</b>	120 dB
<b>Mini-shotgun</b>	121 dB

### Self Noise

A-weighted

<b>Cardioid</b>	28 dB SPL
-----------------	-----------

<b>Supercardioid</b>	27 dB SPL
<b>Mini-shotgun</b>	26 dB SPL

### Signal-to-Noise Ratio

*Ref. 94 dB SPL at 1 kHz*

<b>Cardioid</b>	66 dB
<b>Supercardioid</b>	68 dB
<b>Mini-shotgun</b>	68 dB

### Dynamic Range

*1 k $\Omega$  load, @ 1 kHz*

93 dB

### Common Mode Rejection

*10 to 100,000 kHz*

45 dB, minimum

### Clipping Level

*at 1% THD*

-8 dBV (0.4 V)

### Polarity

<b>3-pin XLR</b>	Positive sound pressure on diaphragm produces positive voltage on pin 2 relative to pin 3 of output XLR connector
<b>5-pin XLR</b>	Positive sound pressure on diaphragm produces positive voltage on pin 4 relative to pin 2 of output XLR connector

### Weight

<b>MX405</b>	0.054 kg (0.119 lbs)
<b>MX410</b>	0.068 kg (0.150 lbs)
<b>MX415</b>	0.07 kg (0.154 lbs)
<b>MX400DP</b>	0.516 kg (1.138 lbs)
<b>MX400SMP</b>	0.125 kg (0.275 lbs)

### Logic Connections

<b>LED IN</b>	Active low ( $\leq 1.0V$ ), TTL compatible. Absolute maximum voltage: -0.7V to 50V.
<b>LOGIC OUT</b>	Active low ( $\leq 1.0V$ ), sinks up to 20mA, TTL compatible. Absolute maximum voltage: -0.7V to 50V (up to 50V through 3k $\Omega$ ).

### Mute Switch Attenuation

-50 dB minimum

## Cable

MX400DP

6.1 m (20 ft) attached cable with shielded audio pair terminated at a 3-pin male XLR and three unterminated conductors for logic control

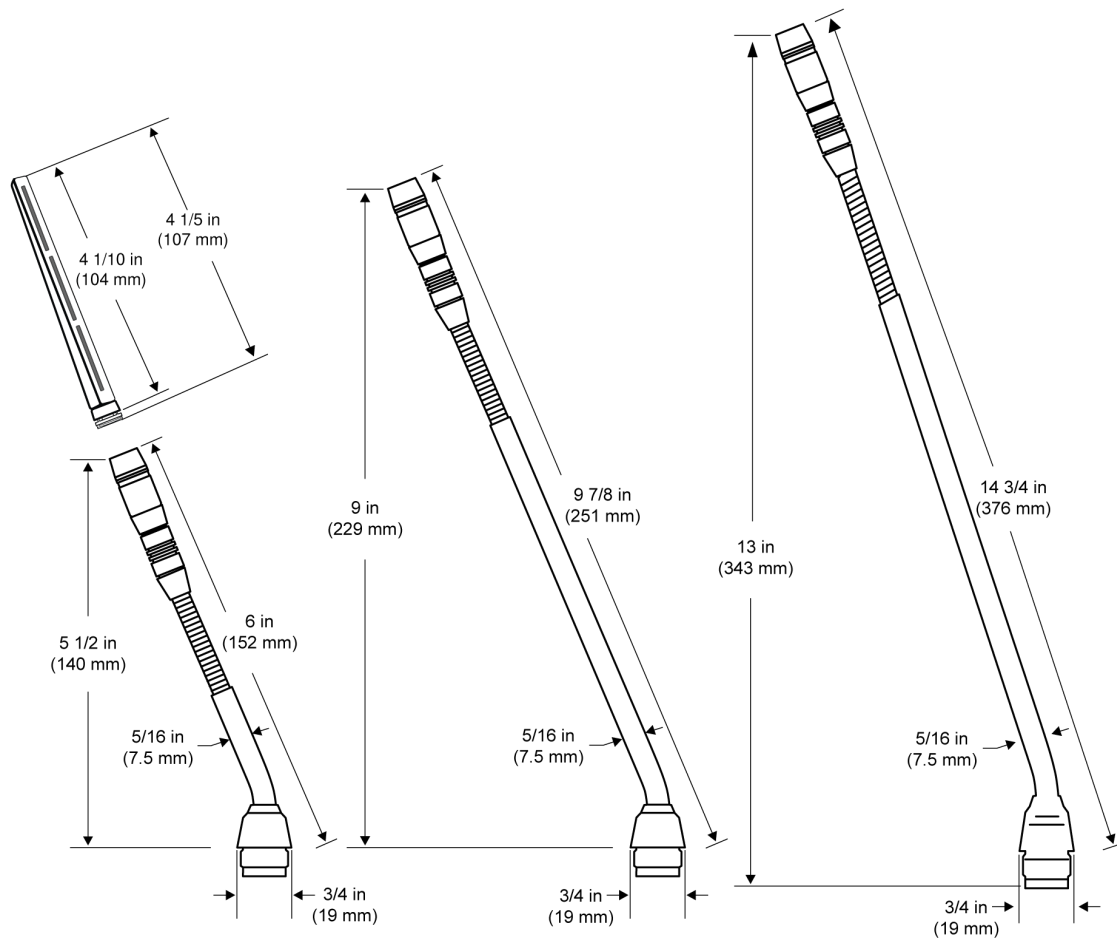
## Environmental Conditions

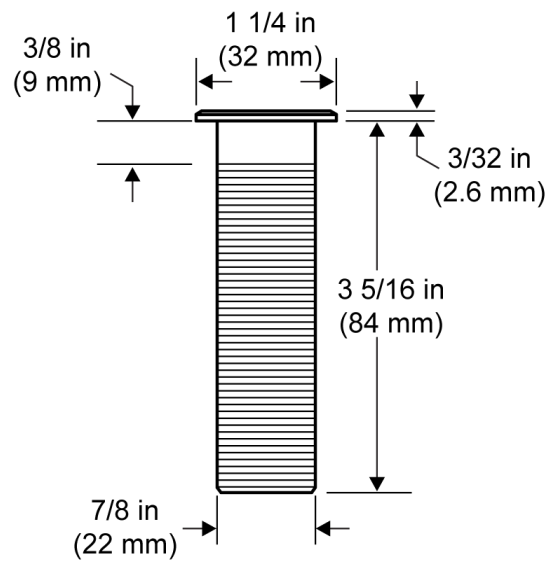
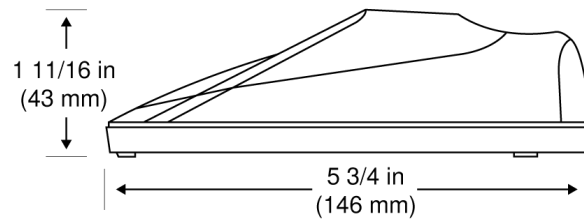
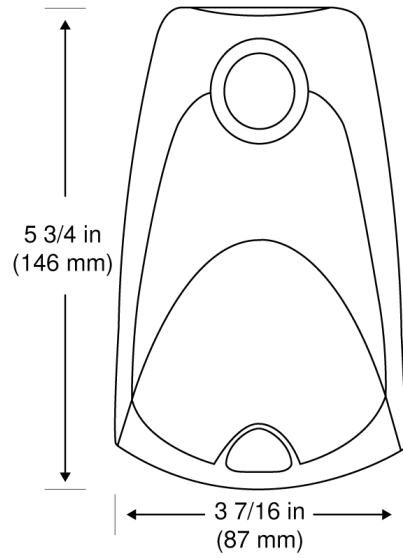
<b>Operating Temperature</b>	-18–57°C (0–135°F)
<b>Storage Temperature</b>	-29–74°C (-20–165°F)
<b>Relative Humidity</b>	0–95%

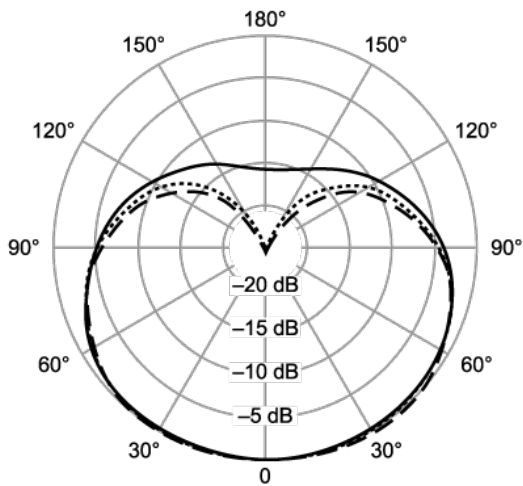
## Power Requirements

Phantom Power

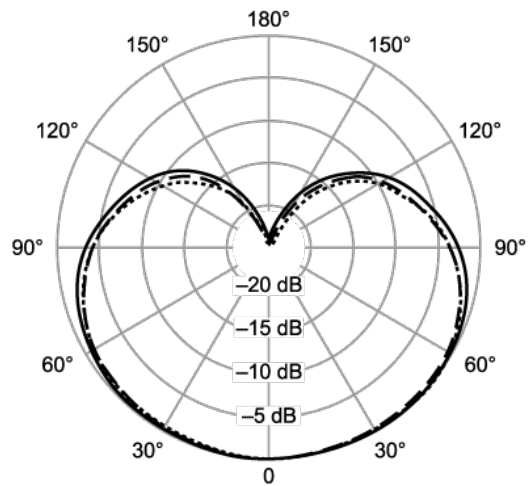
48–52 V DC, 8.0 mA





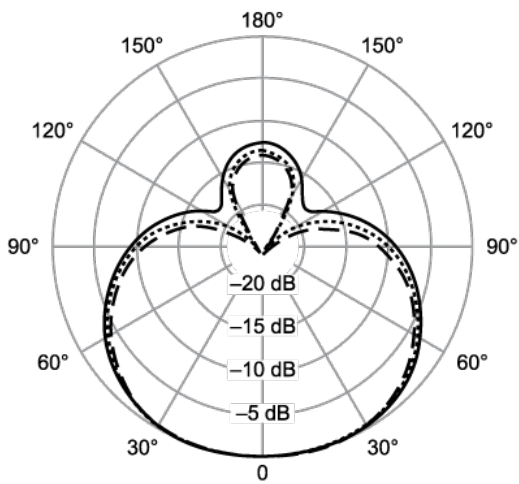


— 250 Hz  
 ..... 500 Hz  
 - - - 1000 Hz

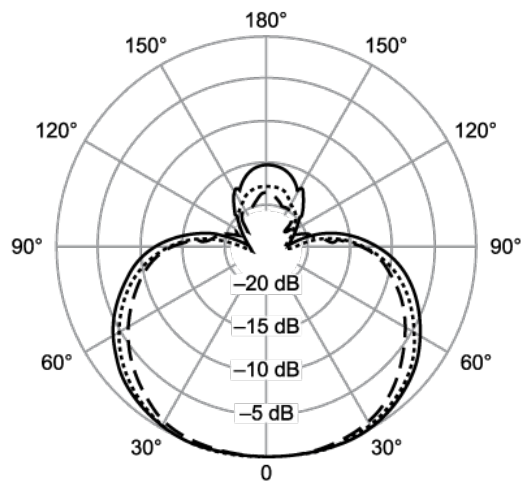


— 2500 Hz  
 ..... 6400 Hz  
 - - - 10000 Hz

## Cardioid

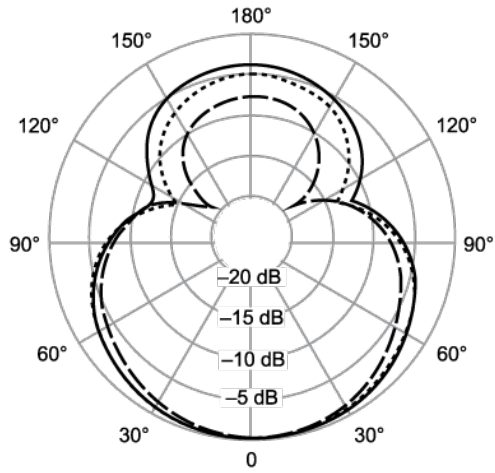


— 250 Hz  
 ..... 500 Hz  
 - - - 1000 Hz

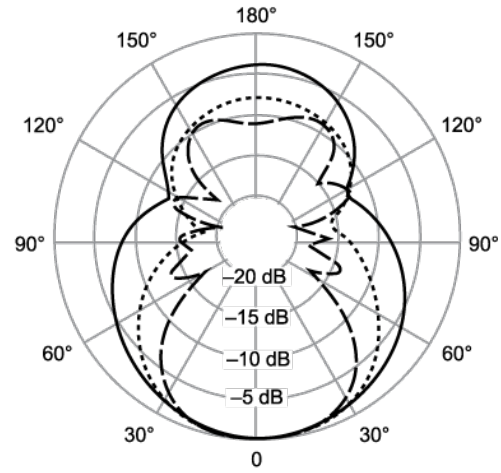


— 2500 Hz  
 ..... 6400 Hz  
 - - - 10000 Hz

## Supercardioid



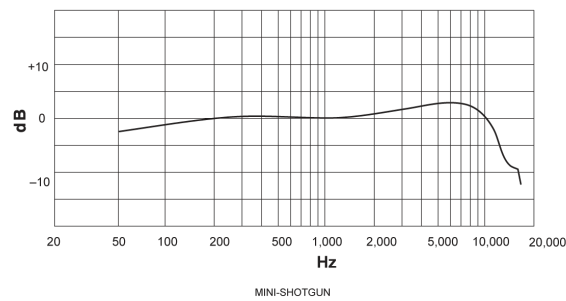
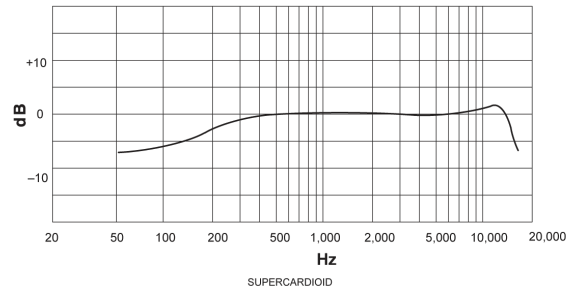
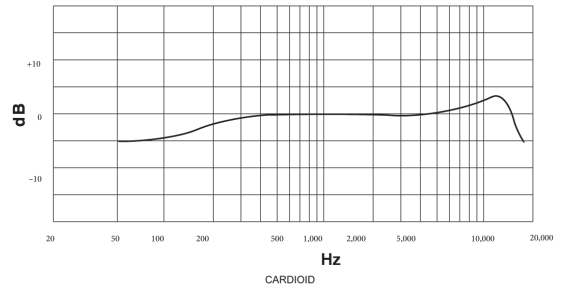
— 250 Hz  
····· 500 Hz  
- - - 1000 Hz



— 2500 Hz  
····· 6400 Hz  
- - - 10000 Hz

## Mini-shotgun





TYPICAL FREQUENCY RESPONSE

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## Certifications

This product meets the Essential Requirements of all relevant European directives and is eligible for CE marking.

The CE Declaration of Conformity can be obtained from: [www.shure.com/europe/compliance](http://www.shure.com/europe/compliance)

Authorized European representative:

Shure Europe GmbH

Headquarters Europe, Middle East & Africa

Department: EMEA Approval

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