Microflex® Microphones





Work a room in more ways than ever with Shure Microflex microphones. Combining sleek, low profile aesthetics and a complete selection of microphones and mounting options, the Microflex line offers the highest standard of quality and efficiency for installed audio applications.

#### Microflex Gooseneck Microphones

- 5" (127 mm), 10" (254 mm), 12" (305 mm), 15" (381 mm) and 18" (457 mm) models fit a wide variety of applications from the podium to the conference table
- Interchangeable condenser cartridges ensure superior audio quality

## Microflex Boundary Microphones

- Multi-element mic, low-profile "button" mic, or wireless mic styles available
- Extremely versatile range of placement options for easy configuration and installation

## Microflex Overhead Microphones

- Compact and adjustable 4" (102 mm) gooseneck
- Versatile condenser cartridges for accurate sound reproduction in any setting

## Microflex Lavalier Microphones

- Exceptionally low handling noise
- Use in wired or wireless applications

#### APPLICATIONS

- **Conference rooms**
- Seminars
- **Houses of Worship**
- Theatres
- Lecterns

#### **PRODUCT HIGHLIGHTS**

Wide selection for customized installations

Wired or wireless models available

Superior audio quality

CommShield<sup>®</sup> Technology for improved RF resistance

Sleek, low-profile designs



## MX405, MX410, MX415 Modular Gooseneck Microphones

#### **Overview**

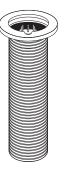
Flexible in more ways than one, Microflex Modular Gooseneck microphones deliver unsurpassed style and performance for conference rooms and similar applications. Offering desktop or mounted bases, wired or wireless options, and even interchangeable cartridges, it's easy to get the perfect fit for your conferencing installation. Fully compatible with SLX® wireless systems, including the SLX4L wireless receiver with logic output for applications requiring logic functionality.

#### Specifications (subject to change)

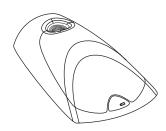
Туре	Condenser (electret bias)		
Frequency Response	50–17000 Hz		
Polar Pattern (at 1 kHz)	MX405/C, MX410/C, MX415/C: Cardioid MX405/S, MX410/S, MX415/S: Supercardioid		
Output Impedance	EIA Rated at 150 $\Omega$ (170 $\Omega$ actual)		
Output Configuration	Active Balanced		
Sensitivity (at 1 kHz , open circuit voltage)	Cardioid: –35 dBV/Pa (18 mV) Supercardioid: –34 dBV/Pa (21 mV) 1 Pascal=94 dB SPL		
Maximum SPL (1 kHz at 1% THD, 1 kW load)	Cardioid: 121 dB Supercardioid: 120 dB		
Equivalent Output Noise (A-weighted)	Cardioid: 28 dB SPL Supercardioid: 27 dB SPL		
Signal-to-Noise Ratio (referenced at 94 dB SPL at 1 kHz)	Cardioid: 66 dB Supercardioid: 68 dB		
Dynamic Range (1 kΩ load at 1 kHz)	93 dB		
Common Mode Rejection (10 Hz to 100 kHz)	45 dB minimum		
Preamplifier Output Clipping Level (1% THD)	-8 dBV (0.4 V)		
Polarity	<ul> <li>3-Pin XLR: Positive sound pressure on diaphragm produces positive voltage on pin 2 relative to pin 3 of output XLR connector.</li> <li>5-Pin XLR: Positive sound pressure on diaphragm produces positive voltage on pin 4 relative to pin 2 of output XLR connector.</li> </ul>		
Weight	MX405: 0.054 kg (0.119 lbs) MX410: 0.068 kg (0.150 lbs) MX415: 0.07 kg (0.154 lbs) MX400DP: 0.516 kg (1.138 lbs) MX400SMP (w/ Kit): 0.125 kg (0.275 lbs)		
Logic Connections	LED IN: Active low ( $\leq$ 1.0V), TTL compatible. Absolute maximum voltage: -0.7V to 50V. LOGIC OUT: 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	Operating Temperature: -18–57 °C (0–135 °F) Storage Temperature: -29–74 °C (-20–165 °F) Relative Humidity: 0–95%		
Power Requirements	48–52 Vdc phantom, 8.0 mA		



MX405, MX410 and MX415 Modular Goosenecks



MX400SMP Surface Mount Preamp



MX400DP Wired Desktop Base (also available as MX890 Wireless Desktop Base)

\*For detailed dimensions please reference MX405/410/MX415 user guide



www.shure.com

### **Available Models**

The polar pattern of the cartr	idge is indicated by the model number suffix: $C = Cardioid$ , $S = Supercardioid$ , $N = No Cartridge$
MX405/C	5 inch (127 mm) Gooseneck, cardioid cartridge, bi-color status indicator ring, includes surface mount preamp
MX405/S	5 inch (127 mm) Gooseneck, supercardioid cartridge, bi-color status indicator ring, includes surface mount preamp
MX405R/N	5 inch (127 mm) Gooseneck, no cartridge, light ring, includes surface mount preamp
MX410/C	10 inch (254 mm) Gooseneck, cardioid cartridge, bi-color status indicator ring, includes surface mount preamp
MX410/S	10 inch (254 mm) Gooseneck, supercardioid cartridge, bi-color status indicator ring, includes surface mount preamp
MX410R/N	10 inch (254 mm) Gooseneck, no cartridge, light ring, includes surface mount preamp
MX415/C	15 inch (381 mm) Gooseneck, cardioid cartridge, bi-color status indicator ring, includes surface mount preamp
MX415/S	15 inch (381 mm) Gooseneck, supercardioid cartridge, bi-color status indicator ring, includes surface mount preamp
MX415R/N	15 inch (381 mm) Gooseneck, no cartridge, light ring, includes surface mount preamp
MX405LP/C	5 inch (127 mm) Gooseneck, cardioid cartridge, bi-color status indicator ring, less preamp
MX405LP/S	5 inch (127 mm) Gooseneck, supercardioid cartridge, bi-color status indicator ring, less preamp
MX405RLP/N	5 inch (127 mm) Gooseneck, no cartridge, light ring, less preamp
MX410LP/C	10 inch (254 mm) Gooseneck, cardioid cartridge, bi-color status indicator ring, less preamp
MX410LP/S	10 inch (254 mm) Gooseneck, supercardioid cartridge, bi-color status indicator ring, less preamp
MX410RLP/N	10 inch (254 mm) Gooseneck, no cartridge, light ring, less preamp
MX415LP/C	15 inch (381 mm) Gooseneck, cardioid cartridge, bi-color status indicator ring, less preamp
MX415LP/S	15 inch (381 mm) Gooseneck, supercardioid cartridge, bi-color status indicator ring, less preamp
MX415RLP/N	15 inch (381 mm) Gooseneck, no cartridge, light ring, less preamp

### **Optional Accessories and Replacement Parts**

MX400SMP	Surface Mount Preamp	R185B	Black Cardioid Cartridge for All Micro- flex Models	A412MWS	Metal Locking Windscreen	A99WS	Big Foam Windscreen
MX400DP	Wired Desktop Base. Includes 10 ft. (6.1 M) attached cable	R184B	Black Supercardioid Cartridge for All Microflex Models	95A2487	Tapered Windscreen		
MX890	Wireless Desktop Base. Compat- ible with SLX wireless systems	R183B	Black Omnidirectional Cartridge for All Microflex Models	RK412WS	Microflex Windscreen (4pk)	-	

## **Furnished Accessories**

Models with included Preamp		All Models	
MX400SMP	Surface Mount Preamp	RK513WS	Snap-Fit Foam Windscreen
65A2166	Rubber Isolation Rings		
65A2190	Wing Nut		
95A1118	5 Pin XLR-F		
65A2166	Сар		



### **Architectural Specifications**

MX405/C - The microphone shall be an electret condenser 5" gooseneck microphone (12,7 cm) with cardioid polar pattern, black finish, and logic controlled bi-colored status indicator. The microphone shall be mounted in the included MX400SMP preamp. The microphone shall be resistant to RF interference from portable mobile and handheld devices. The frequency response shall be 50 Hz to 17 kHz and the sensitivity shall be 18 mV/Pa.

MX405/S - The microphone shall be an electret condenser 5" gooseneck microphone (12,7 cm) with supercardioid polar pattern, black finish, and logic controlled bi-colored status indicator. The microphone shall be mounted in the included MX400SMP preamp. The microphone shall be resistant to RF interference from portable mobile and handheld devices. The frequency response shall be 50 Hz to 17 kHz and the sensitivity shall be 21 mV/Pa.

MX405R/N - The microphone shall be an electret condenser 5" gooseneck microphone (12,7 cm) with no included cartridge, black finish, and logic controlled, upper red light ring status indicator. The microphone shall be mounted in the included MX400SMP preamp. The microphone shall be resistant to RF interference from portable mobile and handheld devices.

MX410/C - The microphone shall be an electret condenser 10" gooseneck microphone (25,4cm) with cardioid polar pattern, black finish, and logic controlled bi-colored status indicator. The microphone shall be mounted in the included MX400SMP preamp. The microphone shall be resistant to RF interference from portable mobile and handheld devices. The frequency response shall be 50 Hz to 17 KHz and the sensitivity shall be 18 mV/Pa.

MX410/S - The microphone shall be an electret condenser 10" gooseneck microphone (25,4cm) with supercardioid polar pattern, black finish, and logic controlled bi-colored status indicator. The microphone shall be mounted in the included MX400SMP preamp. The microphone shall be resistant to RF interference from portable mobile and handheld devices. The frequency response shall be 50 Hz to 17 kHz and the sensitivity shall be 21mV/Pa.

MX410R/N - The microphone shall be an electret condenser 10" gooseneck microphone (25,4 cm) with no included cartridge, black finish, and logic controlled, upper red light ring status indicator. The microphone shall be mounted in the included MX400SMP preamp. The microphone shall be resistant to RF interference from portable mobile and handheld devices.

MX15/C - The microphone shall be an electret condenser 15" gooseneck microphone (38,1cm) with cardioid polar pattern, black finish, and logic controlled bi-colored status indicator. The microphone shall be mounted in the included MX400SMP preamp. The microphone shall be resistant to RF interference from portable mobile and handheld devices. The frequency response shall be 50 Hz to 17 Hz and the sensitivity shall be 18 mV/Pa.

MX415/S - The microphone shall be an electret condenser 15" gooseneck microphone (38,1cm) with supercardioid polar pattern, black finish, and logic controlled bi-colored status indicator. The microphone shall be mounted in the included MX400SMP preamp. The microphone shall be resistant to RF interference from portable mobile and handheld devices. The frequency response shall be 50 Hz to 17 kHz and the sensitivity shall be 21mV/Pa.

MX415R/N - The microphone shall be an electret condenser 15" gooseneck microphone (38,1 cm) with no included cartridge, black finish, and logic controlled, upper red light ring status indicator. The microphone shall be mounted in the included MX400SMP preamp. The microphone shall be resistant to RF interference from portable mobile and handheld devices.

MX405LP/C - The microphone shall be an electret condenser 5" gooseneck microphone (12,7 cm) with cardioid polar pattern, black finish, and logic controlled bi-colored status indicator. The microphone shall be compatible with the MX400SMP or MX890. The microphone shall be resistant to RF interference from portable mobile and handheld devices. The frequency response shall be 50 Hz to 17 kHz and the sensitivity shall be 18 mV/Pa.

MX405LP/S - The microphone shall be an electret condenser 5" gooseneck microphone (12,7 cm) with supercardioid polar pattern, black finish, and logic controlled bi-colored status indicator. The microphone shall be compatible with the MX400SMP or MX890. The microphone shall be resistant to RF interference from portable mobile and handheld devices. The frequency response shall be 50 Hz to 17 kHz and the sensitivity shall be 21 mV/Pa.

MX410RLP/N - The microphone shall be an electret condenser 10" gooseneck microphone (25,4 cm) with no included cartridge, black finish, and logic controlled, upper red light ring status indicator. The microphone shall be compatible with the MX400SMP or MX890. The microphone shall be resistant to RF interference from portable mobile and handheld devices.

MX410LP/C - The microphone shall be an electret condenser 10" gooseneck microphone (25,4cm) with cardioid polar pattern, black finish, and logic controlled bi-colored status indicator. The microphone shall be compatible with the MX400SMP or MX890. The microphone shall be resistant to RF interference from portable mobile and handheld devices. The frequency response shall be 50 Hz to 17 kHz and the sensitivity shall be 18 mV/Pa.

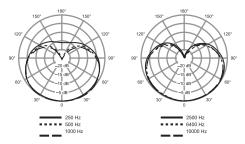
MX410LP/S - The microphone shall be an electret condenser 10" gooseneck microphone (25,4cm) with supercardioid polar pattern, black finish, and logic controlled bi-colored status indicator. The microphone shall be constrained with the MX400SMP or MX890. The microphone shall be resistant to RF interference from portable mobile and handheld devices. The frequency response shall be 50 Hz to 17 kHz and the sensitivity shall be 21 mV/Pa.

MX410RLP/N - The microphone shall be an electret condenser 10" gooseneck microphone (25,4 cm) with no included cartridge, black finish, and logic controlled, upper red light ring status indicator. The microphone shall be compatible with the MX400SMP or MX890. The microphone shall be resistant to RF interference from portable mobile and handheld devices.

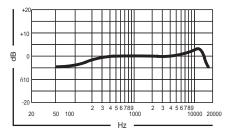
MX15LP/C - The microphone shall be an electret condenser 15" gooseneck microphone (38,1cm) with cardioid polar pattern, black finish, and logic controlled bi-colored status indicator. The microphone shall be compatible with the MX400SMP or MX890. The microphone shall be resistant to RF interference from portable mobile and handheld devices. The frequency response shall be 50 Hz to 17 kHz and the sensitivity shall be 18 mV/Pa.

MX415LP/S - The microphone shall be an electret condenser 15" gooseneck microphone (38,1cm) with supercardioid polar pattern, black finish, and logic controlled bi-colored status indicator. The microphone shall be compatible with the MX400SMP or MX890. The microphone shall be resistant to RF interference from portable mobile and handheld devices. The frequency response shall be 50 Hz to 17 kHz and the sensitivity shall be 21 mV/Pa.

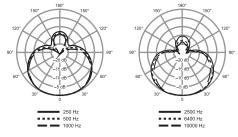
MX415RLP/N - The microphone shall be an electret condenser 15" gooseneck microphone (38,1 cm) with no included cartridge, black finish, and logic controlled, upper red light ring status indicator. The microphone shall be compatible with the MX400SMP or MX890. The microphone shall be resistant to RF interference from portable mobile and handheld devices.



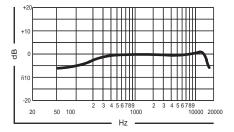
Cardioid Polar Pattern



Cardioid Frequency Response



Supercardioid Polar Pattern



Supercardioid Frequency Response



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## MX412 and MX418 Standard Gooseneck Microphones

#### **Overview**

Microflex Standard Gooseneck microphones provide the added length and flexibility needed for speakers in environments like lecterns, pulpits, and courtrooms. Available in four models with a variety of heights and mounting styles to choose from, Microflex Gooseneck microphones feature high sensitivity and balanced, transformerless output for maximum resistance to electromagnetic hum and RF interference, even over long cable runs.

#### Specifications (subject to change)

Specifications (subject f	to change)	₹.	
Туре	Condenser (electret bias)		
Frequency Response	50–17000 Hz		
Polar Pattern (at 1 kHz)	MX412/C, MX418/C: Cardioid MX412/S, MX418/S: Supercardioid Omnidirectional cartridge available separately		
Output Impedance	EIA Rated at 150 $\Omega$ (170 $\Omega$ actual)	*for detailed dimensions please reference	
Sensitivity (at 1 kHz , open circuit voltage)	Cardioid: –35 dBV/Pa (17.8 mV) Supercardioid: –33.5 dBV/Pa (21.1 mV) Omnidirectional: -27.5 (42.2 mV) 1 Pascal=94 dB SPL	MX412/418 user guides	
Maximum SPL (1 kHz at 1% THD, 1 k $\Omega$ load)	Cardioid: 124.2 dB Supercardioid: 122.7 dB Omnidirectional: 116.7 dB		
Equivalent Output Noise (A-weighted)	Cardioid: 28 dB SPL Supercardioid: 26.5 dB SPL Omnidirectional: 20.5 dB SPL		
Signal-to-Noise Ratio (referenced at 94 dB SPL at 1 kHz)	Cardioid: 66 dB Supercardioid: 67.5 dB Omnidirectional: 73.5 dB		MX418 Gooseneck with attached preamp and shockmount
Dynamic Range (1 kΩ load at 1 kHz)	96.2 dB 100 dB at 0 gain		
Common Mode Rejection	45 dB minimum (10 Hz to 100 kHz)		
Preamplifier Output Clipping Level	-6 dBV (0.5 V) (1% THD)		
Polarity	Positive sound pressure on diaphragm produces positive voltage on pin 2 relative to pin 3 of output XLR connector.		
Mute Switch Attenuation	-50 dB minimum		
Cable	MX412D and MX418D: The 3 m (10 ft) attached custom cable contains a shielded audio pair and three unshielded conductors for logic control. Overall diameter=0.6 mm (0.165 in.)	E.	
Environmental Conditions	Operating Temperature Range: -18° to 57° C (0° to 135° F) Relative Humidity: 0 to 95%		
Power Requirements	48-52 Vdc phantom, 8.0 mA		

MX418SE Gooseneck with In-line Preamp and Side Exit Cable

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MX412D Gooseneck with Attached Desktop Base

LEGENDARY PERFORMANCE

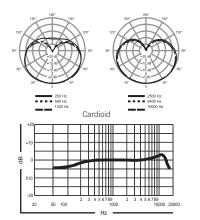
# MX412 and MX418 Standard Gooseneck Microphones

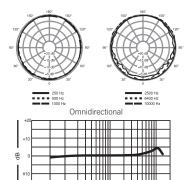
### **Furnished Accessories**

MX412, MX418, MX412S, MX418S Models		MX412SE, N	MX412SE, MX418SE Models		MX412D, MX418D Models		
65B8264	Flange	A12B	Flange and Nut	RK412WS	Snap-fit Foam Windscreen (1 furnished, 4 in replacement pack)		
65B8265	Retainer	80A476	Clamp				
80A439	Isolation Ring	A12B	Shock Mount				
RK412WS	Snap-fit Foam Windscreen (1 furnished, 4 in replacement pack)	RK412WS	Snap-fit Foam Windscreen (1 furnished, 4 in replacement pack)				
A400SM	Shock Mount						
80A67	Hex Wrench #4	_					

### **Optional Accessories and Replacement Parts**

A99WS	Foam Ball Windscreen	R183B	Black Omnidirectional Cartridge for All Microflex Models	A412MWS	Metal Locking Windscreen
27A3252	Replacement In-line Preamplifier (SE models)	R184B	Black Supercardioid Cartridge for All Microflex Models	A412B	Desktop Base
C130	Custom Logic Cable (specify Length)	R185B	Black Cardioid Cartridge for All Microflex Models	A57F	Stand Adapter





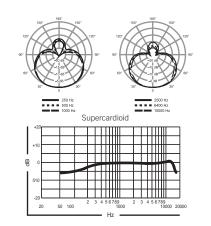
2 3 4 5 6 789 1000

Hz

50 100

20

2 3 4 5 6789 10000 20000





## **MX412 and MX418 Standard Gooseneck Microphones**

#### **Architectural Specifications**

MX412/C - The microphone shall be an electret condenser 12" gooseneck microphone (30,5 cm) with cardioid polar pattern, integrated XLR preamp, and black finish. The microphone shall be resistant to RF interference from portable mobile and handheld devices. The frequency response shall be 50 Hz to 17 kHz and the sensitivity shall be 17.8 mV/Pa.

MX412/S - The microphone shall be an electret condenser 12" gooseneck microphone (30,5 cm) with supercardioid polar pattern, integrated XLR preamp, and black finish. The microphone shall be resistant to RF interference from portable mobile and handheld devices. The frequency response shall be 50 Hz to 17 kHz and the sensitivity shall be 21.1 mV/Pa.

MX412/N - The microphone shall be an electret condenser 12" gooseneck microphone (30,5 cm) with no included cartridge, integrated XLR preamp, and black finish.

MX418/C - The microphone shall be an electret condenser 18" gooseneck microphone (45,7 cm) with cardioid polar pattern, integrated XLR preamp, and black finish. The microphone shall be resistant to RF interference from portable mobile and handheld devices. The frequency response shall be 50 Hz to 17 kHz and the sensitivity shall be 17.8 mV/Pa.

MX418/S - The microphone shall be an electret condenser 18" gooseneck microphone (45,7 cm) with supercardioid polar pattern, integrated XLR preamp, and black finish. The microphone shall be resistant to RF interference from portable mobile and handheld devices. The frequency response shall be 50 Hz to 17 kHz and the sensitivity shall be 21.1mV/Pa.

MX418/N - The microphone shall be an electret condenser 18" gooseneck microphone (45,7 cm) with no included cartridge, integrated XLR preamp, and black finish. The microphone shall be resistant to RF interference from portable mobile and handheld devices.

MX412S/C - The microphone shall be an electret condenser 12" gooseneck microphone (30,5 cm) with cardioid polar pattern, integrated XLR preamp, black finish, mute switch, and LED indicator. The microphone shall be resistant to RF interference from portable mobile and handheld devices. The frequency response shall be 50 Hz to 17 kHz and the sensitivity shall be 17.8 mV/Pa.

MX412S/S - The microphone shall be an electret condenser 12" gooseneck microphone (30,5 cm) with supercardioid polar pattern, integrated XLR preamp, black finish, mute switch, and LED indicator. The microphone shall be resistant to RF interference from portable mobile and handheld devices. The frequency response shall be 50 Hz to 17 kHz and the sensitivity shall be 21.1 mV/Pa.

MX412S/N - The microphone shall be an electret condenser 12" gooseneck microphone (30,5 cm) with integrated XLR preamp, black finish, mute switch, and LED indicator. The microphone shall be resistant to RF interference from portable mobile and handheld devices.

MX418S/C - The microphone shall be an electret condenser 18" gooseneck microphone (45,7 cm) with cardioid polar pattern, integrated XLR preamp, black finish, mute switch, and LED indicator. The microphone shall be resistant to RF interference from portable mobile and handheld devices. The frequency response shall be 50 Hz to 17 kHz and the sensitivity shall be 17.8 mV/Pa.

MX418S/S - The microphone shall be an electret condenser 18" gooseneck microphone (45,7 cm) with supercardioid polar pattern, integrated XLR preamp, black finish, mute switch, and LED indicator. The microphone shall be resistant to RF interference from portable mobile and handheld devices. The frequency response shall be 50 Hz to 17 kHz and the sensitivity shall be 21.1 mV/Pa.

MX4185/N - The microphone shall be an electret condenser 18" gooseneck microphone (45,7 cm) with integrated XLR preamp, black finish, mute switch, and LED indicator. The microphone shall be resistant to RF interference from portable mobile and handheld devices.

MX412SE/C - The microphone shall be an electret condenser 12" gooseneck microphone (30,5 cm) with cardioid polar pattern, black finish, and 10' (3m) Side-Exit (or Bottom-Exit) cable that terminates to a 4-pin miniature (TA4F) connector. The microphone shall be connected to the included in-line preamp. The microphone shall be resistant to RF interference from portable mobile and handheld devices. The frequency response shall be 50 Hz to 17 kHz and the sensitivity shall be 17.8 mV/Pa.

MX412SE/S - The microphone shall be an electret condenser 12" gooseneck microphone (30,5 cm) with supercardioid polar pattern, black finish, and 10' (3m) Side Exit (or Bottom-Exit) cable that terminates to a 4-pin miniature (TA4F) connector. The microphone shall be connected to the included in-line preamp. The microphone shall be resistant to RF interference from portable mobile and handheld devices. The frequency response shall be 50 Hz to 17 kHz and the sensitivity shall be 21.1 mV/Pa.

MX412SE/N - The microphone shall be an electret condenser 12" gooseneck microphone (30,5 cm) with no included cartridge, black finish, and 10' (3m) Side-Exit (or Bottom-Exit) cable that terminates to a 4-pin miniature (TA4F) connector. The microphone shall be connected to the included in-line preamp. The microphone shall be resistant to RF interference from portable mobile and handheld devices.

MX418SE/C - The microphone shall be an electret condenser 18" gooseneck microphone (45,7 cm) with cardioid polar pattern, black finish, and 10' (3m) Side-Exit (or Bottom-Exit) cable that terminates to a 4-pin miniature (TA4F) connector. The microphone shall be connected to the included in-line preamp. The microphone shall be resistant to RF interference from portable mobile and handheld devices. The frequency response shall be 50 Hz to 17 kHz and the sensitivity shall be 17.8 mV/Pa.

MX418SE/S - The microphone shall be an electret condenser 18" gooseneck microphone (45,7 cm) with supercardioid polar pattern, black finish, and 10' (3m) Side-Exit (or Bottom-Exit) cable that terminates to a 4-pin miniature (TA4F) connector. The microphone shall be connected to the included in-line preamp. The microphone shall be resistant to RF interference from portable mobile and handheld devices. The frequency response shall be 50 Hz to 17 kHz and the sensitivity shall be 21.1mV/Pa.

MX418SE/N - The microphone shall be an electret condenser 18" gooseneck microphone (45,7 cm) with no included cartridge, black finish, and 10' (3m) Side-Exit (or Bottom-Exit) cable that terminates to a 4-pin miniature (TA4F) connector. The microphone shall be connected to the included in-line preamp. The microphone shall be resistant to RF interference from portable mobile and handheld devices.

MX412D/C - The microphone shall be an electret condenser 12" gooseneck microphone (30,5 cm) with cardioid polar pattern and black finish. The microphone shall be mounted on a desktop base with a logic controlled programmable switch and LED indicator. The microphone shall include an attached 10' (3m) cable. The microphone shall be resistant to RF interference from portable mobile and handheld devices. The frequency response shall be 50 Hz to 17 kHz and the sensitivity shall be 17.8 mV/Pa.

MX412D/S - The microphone shall be an electret condenser 12" gooseneck microphone (30,5 cm) with supercardioid polar pattern and black finish. The microphone shall be mounted on a desktop base with a logic controlled programmable switch and LED indicator. The microphone shall include an attached 10' (3m) cable. The microphone shall be resistant to RF interference from portable mobile and handheld devices. The frequency response shall be 50 Hz to 17 kHz and the sensitivity shall be 21.1 mV/Pa.

MX412D/N - The microphone shall be an electret condenser 12" gooseneck microphone (30,5 cm) with no included cartridge and black finish. The microphone shall be mounted on a desktop base with a logic controlled programmable switch and LED indicator. The microphone shall include an attached 10' (3m) cable. The microphone shall be resistant to RF interference from portable mobile and handheld devices.

MX418D/C - The microphone shall be an electret condenser 18" gooseneck microphone (45,7 cm) with cardioid polar pattern and black finish. The microphone shall be mounted on a desktop base with a logic controlled programmable switch and LED indicator. The microphone shall include an attached 10' (3m) cable. The microphone shall be resistant to RF interference from portable mobile and handheld devices. The frequency response shall be 50 Hz to 17 kHz and the sensitivity shall be 17.8 mV/Pa.

MX418D/S - The microphone shall be an electret condenser 18" gooseneck microphone (45,7 cm) with supercardioid polar pattern and black finish. The microphone shall be mounted on a desktop base with a logic controlled programmable switch and LED indicator. The microphone shall include an attached 10' (3m) cable. The microphone shall be resistant to RF interference from portable mobile and handheld devices. The frequency response shall be 50 Hz to 17 kHz and the sensitivity shall be 21.1mV/Pa.

MX418D/N - The microphone shall be an electret condenser 18" gooseneck microphone (45,7 cm) with no included cartridge and black finish. The microphone shall be mounted on a desktop base with a logic controlled programmable switch and LED indicator. The microphone shall include an attached 10' (3m) cable. The microphone shall be resistant to RF interference from portable mobile and handheld devices.



LEGENDARY PERFORMANCE™

## **MX396 Multi-Element Boundary Microphones**

#### **Overview**

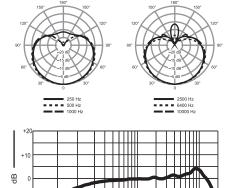
Microflex Multi-Element Boundary microphones deliver a unique and versatile tool for conference room installations. Clean and simple in appearance, Multi-Element Boundary mics come in two or three element configurations, combining the coverage of multiple microphones into one small, compact package.

#### Specifications (subject to change)

Туре	Condenser (electret bias)	
Frequency Response	50–17000 Hz	
Output Impedance	EIA Rated at 150 $\Omega~(170~\Omega~actual)$	
Output Configuration	n Active Balanced	
Sensitivity (at 1 kHz , open circuit voltage)	-35 dBV/Pa (18 mV)	
Maximum SPL (1 kHz at 1% THD, 1 kΩ load)	122 dB	
Equivalent Output Noise (A-weighted)	28 dB SPL	
Signal-to-Noise Ratio (referenced at 94 dB SPL at 1 kHz)	66 dB	
Dynamic Range (1 kΩ load at 1 kHz)	94 dB	
Common Mode Rejection (10 Hz to 100 kHz)	45 dB minimum	
Preamplifier Output Clipping Level (1% THD)	-7 dBV (0.5 V)	
Weight	Net: 0.587 kg (1.29 lb) Packaged: 0.916 kg (2.02 lbs)	
Logic Connections	LED IN: Active low ( $\leq$ 1.0V), sinks up to 20mA, TTL compatible. Absolute maximum volt- age: -0.7V to 50V (up to 50V through 3kΩ). LOGIC OUT: Active low ( $\leq$ 1.0V), sinks up to 20mA, TTL compatible. Absolute maximum voltage: -0.7V to 50V (up to 50V through 3kΩ).	
Mute Switch Attentuation	-50 dB minimum	
Cable	6.1 m (20 ft) attached unterminated cable with three shielded audio pairs and three shielded conductors for logic control.	
Environmental Conditions	Operating Temperature: -18–57 °C (0–135 °F) Storage Temperature: -29–74 °C (-20–165 °F) Relative Humidity: 0–95%	
Power Requirements	MX396/C-DUAL: 48–52 Vdc phantom, 10.0 mA MX396/C-TRI: 48–52 Vdc phantom, 12.0 mA	



MX396 Multi-Element Boundary Mic Diam. x H: 4 5/16" (110mm) x 15/16" (24mm)



2 3 4 5 6 7 8 9 10000 20000

Center-Of-Table Coverage(Tri)

### **Available Models**

MX396/C-DUAL	Dual-Element 0-180 Degrees, back or bottom exit cable, mute output, LED input
MX396/C-TRI	Tri-Element 90-0-90 mic, adjustable to 120-120-120 degrees, back or bottom exit cable, mute output, LED input

## **Furnished Accessories/Replacement Parts**

65A2190	Fastening Wingnut	R185B	Cardioid Replacement Cartridge (x 1)	Cross-Table Coverage (Dual)
31A2165	Fastening Tube	65A2166	Rubber Isolation Rings	130'

## **Architectural Specifications**

MX396/C Dual - The microphone shall be a surface mounted, black electret condenser microphone with two cardioid polar pattern elements, each with individual channel output. The microphone shall include a logic enabled, bi-colored status indicator ring and programmable mute switch. The microphone shall be resistant to RF interference from portable mobile and handheld devices. The frequency range shall be 50Hz to 17KHz and the sensitivity of each individual element, 18 mV/Pa.

MX396/C Tri - The microphone shall be a surface mounted, black electret condenser microphone with three cardioid polar pattern elements, each with individual channel output. The microphone shall include a logic enabled, bi-colored status indicator ring and programmable mute switch. The microphone shall be resistant to RF interference from portable mobile and handheld devices. The frequency range shall be 50Hz to 17KHz and the sensitivity of each individual element, 18 mV/Pa.



LEGENDARY PERFORMANCE™



End-Of-Table Coverage (Tri)

3 4 5 6 7 8 9 1000

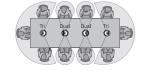
Hz

-20

20

50 100

Example of Boardroom Table Mic Placement Coverage



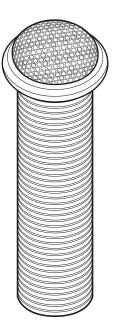
## **MX395 Low Profile Boundary Microphones**

#### **Overview**

The Microflex Low Profile Boundary microphone is an ideal table microphone when minimal presence is of high priority. Perfect for meeting rooms, these microphones deliver exceptional sound pickup while barely being noticed. Choose from a selection of colors and pickup patterns for customized table and ceiling installations.

## Specifications (subject to change)

Туре	Condenser (electret bias)
Frequency Response	50–17000 Hz
Polar Pattern (at 1 kHz)	MX395/0: Omnidirectional MX395/C: Cardioid MX395/BI: Bidirectional
Output Impedance	EIA Rated at 150 $\Omega$ (170 $\Omega$ actual)
Output Configuration	Active Balanced
Sensitivity (at 1 kHz , open circuit voltage) 1 Pascal=94 dB SPL	Cardioid: –35 dBV/Pa (18 mV) Omnidirectional: –28 dBV/Pa (42 mV) Bidirectional: –37 dBV/Pa (14 mV)
Maximum SPL (1 kHz at 1% THD, 1 kΩ load)	Cardioid: 121 dB Omnidirectional: 114 dB Bidirectional: 123 dB
Equivalent Output Noise (A-weighted)	Cardioid: 28 dB SPL Omnidirectional: 21 dB SPL Bidirectional: 29 dB
Signal-to-Noise Ratio (referenced at 94 dB SPL at 1 kHz)	Cardioid: 66 dB Omnidirectional: 75 dB Bidirectional: 65 dB
Dynamic Range (1 kΩ load at 1 kHz)	Cardioid: 93 dB Omnidirectional: 93 dB Bidirectional: 94 dB
Common Mode Rejection	45 dB minimum (10 Hz to 100 kHz)
Preamplifier Output Clipping Level	-8 dBV (0.4 V) (1% THD)
Polarity	3-Pin XLR: Positive sound pressure on diaphragm produces positive voltage on pin 2 relative to pin 3 of output XLR connector. 5-Pin XLR: Positive sound pressure on diaphragm produces positive voltage on pin 4 relative to pin 2 of output XLR connector.
Weight	Net: .136 kg (.30 lb) Packaged: 0.374 kg (0.825 lbs)
Logic Connections	LED IN: Active low ( $\leq$ 1.0V), TTL compatible. Absolute maximum voltage: -0.7V to 50V.
Environmental Conditions	Operating Temperature: -18–57 °C (0–135 °F) Storage Temperature: -29–74 °C (-20–165 °F) Relative Humidity: 0–95%
Power Requirements	MX395: 11–52 Vdc phantom, 2.0 mA MX395-LED: 48–52 Vdc phantom, 8.0 mA



MX395 Low Profile Boundary Mic Diam. x H: 1 1/4" (32 mm) x 4" (102 mm)

## **Available Models**

The polar pattern of the cartridge is indicated by the model number suffix: C = Cardioid, O = Omnidirectional, BI = Bidirectional

MX395B/C, MX395B/BI, MX395B/O	Black, 3-pin XLR
MX395AL/C, MX395AL/BI, MX395AL/O	Aluminum, 3-pin XLR
MX395W/O	White, 3-pin XLR
MX395B/C-LED, MX395B/BI-LED, MX395B/O-LED	Black, 5-pin XLR, logic-controlled muting functions, Bi-color Status Indicator Ring



## MX395 Low Profile Boundary Microphones

#### **Furnished Accessories**

65A2166	Rubber isolation Rings
30A1438	Fastening Hex Nut
95A1118 (LED Models only)	5-Pin XLR-Female Connector
65A2190	Wing Nut

### Architectural Specifications

MX395AL/C - The microphone shall be a surface mounted, aluminum, electret condenser microphone with a cardioid polar pattern. The visible diameter and height of the microphone above the mounting surface shall be 1 ¼" (32mm) and 5/8" (24 mm). The microphone shall be resistant to RF interference from portable mobile and handheld devices. The frequency response range shall be 50 Hz to 17kHz and the sensitivity 18 mV/Pa.

MX395B/C - The microphone shall be a surface mounted, black, electret condenser microphone with a cardioid polar pattern. The visible diameter and height of the microphone above the mounting surface shall be 1 ¼" (32mm) and 5/8" (24 mm). The microphone shall be resistant to RF interference from portable mobile and handheld devices. The frequency response range shall be 50 Hz to 17kHz and the sensitivity 18 mV/Pa.

MX395B/C-LED – The microphone shall be a surface mounted, black, electret condenser microphone with a cardioid polar pattern. The microphone shall include a logic controlled, bi-colored status indicator ring. The visible diameter and height of the microphone above the mounting surface shall be 1 ¼" (32mm) and 5/8" (24 mm). The microphone shall be resistant to RF interference from portable mobile and handheld devices. The frequency response range shall be 50 Hz to 17kHz and the sensitivity 18 mV/Pa.

MX395AL/O - The microphone shall be a surface mounted, aluminum, electret condenser microphone with an omni polar pattern. The visible diameter and height of the microphone above the mounting surface shall be 1 ¼ " (32mm) and 5/8" (24 mm). The microphone shall be resistant to RF interference from portable mobile and handheld devices. The frequency response range shall be 50 Hz to 17kHz and the sensitivity 42 mV/Pa.

MX395B/O - The microphone shall be a surface mounted, black, electret condenser microphone with an omni polar pattern. The visible diameter and height of the microphone above the mounting surface shall be 1 ¼" (32mm) and 5/8" (24 mm). The microphone shall be resistant to RF interference from portable mobile and handheld devices. The frequency response range shall be 50 Hz to 17kHz and the sensitivity 42 mV/Pa.

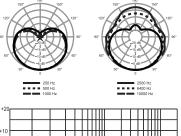
MX395B/O-LED – The microphone shall be a surface mounted, aluminum, electret condenser microphone with an omni polar pattern. The microphone shall include a logic controlled, bi-colored status indicator ring. The visible diameter and height of the microphone above the mounting surface shall be 1 ¼" (32mm) and 5/8" (24 mm). The microphone shall be resistant to RF interference from portable mobile and handheld devices. The frequency response range shall be 50 Hz to 17kHz and the sensitivity 42 mV/Pa.

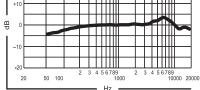
MX395W/O - The microphone shall be a surface mounted, white, electret condenser microphone with an omni polar pattern. The visible diameter and height of the microphone above the mounting surface shall be 1 1/4" (32mm) and 5/8" (24 mm). The microphone shall be resistant to RF interference from portable mobile and handheld devices. The frequency response range shall be 50 Hz to 17kHz and the sensitivity 42 mV/Pa.

MX395AL/BI – The microphone shall be a surface mounted, aluminum, electret condenser microphone with a bi-directional polar pattern. The visible diameter and height of the microphone above the mounting surface shall be 1 ¼" (32mm) and 5/8" (24 mm). The microphone shall be resistant to RF interference from portable mobile and handheld devices. The frequency response range shall be 50 Hz to 17kHz and the sensitivity 14 mV/Pa

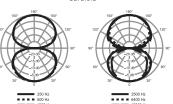
MX395B/BI - The microphone shall be a surface mounted, black, electret condenser microphone with a bi-directional polar pattern. The visible diameter and height of the microphone above the mounting surface shall be 1 ¼" (32mm) and 5/8" (24 mm). The microphone shall be resistant to RF interference from portable mobile and handheld devices. The frequency response range shall be 50 Hz to 17kHz and the sensitivity 14 mV/Pa.

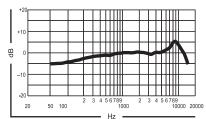
MX395B/BI-LED - The microphone shall be a surface mounted, black, electret condenser microphone with a bi-directional polar pattern. The microphone shall include a logic controlled, bi-colored status indicator ring. The visible diameter and height of the microphone above the mounting surface shall be 1 ¼" (32mm) and 5/8" (24 mm). The microphone shall be resistant to RF interference from portable mobile and handheld devices. The frequency response range shall be 50 Hz to 17kHz and the sensitivity 14 mV/Pa.



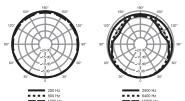




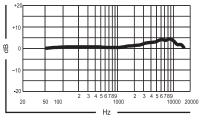




Bidirectional







Omnidirectional



## MX690 Wireless Boundary and MX890 Wireless Desktop Base

#### **Overview**

The Microflex Wireless Boundary microphone offers total freedom of placement with no holes to drill or cables to run for installation. The Wireless Boundary Microphone is the perfect solution for conference and meeting spaces where users demand flexibility and high performance. Compatible with Shure SLX<sup>®</sup> wireless systems, including the SLX4L receiver with logic output for applications requiring logic functionality.

### Specifications (subject to change)

MX690 MIcrophone Specifications			
Туре	Condenser (electret bias)		
Frequency Response	50–17000 Hz		
Polar Pattern (at 1 kHz)	Cardioid		
Sensitivity (at 1 kHz , open circuit voltage)	–33 dBV/Pa (33 mV) 1 Pascal=94 dB SPL		
Dynamic Range	96 dB (1 kΩ load at 1 kHz)		
Common Mode Rejection	45 dB minimum (10 Hz to 100 kHz)		
Preamplifier Output Clipping Level	-6 dBV (0.5 V) (1% THD)		
Polarity	Positive sound pressure on diaphragm produces positive voltage on pin 2 relative to pin 3 of output XLR connector or tip of 1/4" phone plug.		
MX690 and MX890 Transmitter Specifications			
Operating Range	30 m (100 ft.) Note: Actual range depends on RF signal absorption, reflection, and interference		
Frequency Stability	±10 ppm		
Maximum Frequency Deviation	45 kHz		
Oscillator Type	Phase-locked loop (PLL) controlled synthesizer		
Power Requirements	3V (2 AA alkaline or rechargeable batteries)		
Battery Life	≥8 hours (alkaline)		
Power Consumption	130 mA, ±15 mA		
Operating Temperature Range	-18–57 °C (0–135 °F) Note: Battery may limit this range		
Dimensions	43 mmH x 87 mmW x 148 mmD (1 11/16 x 3 3/8 x 5 13/16 in.)		
Weight	Net: 318 g (11.2 oz) Packaged: 516 g (18.2 oz)		

#### **Available Models**

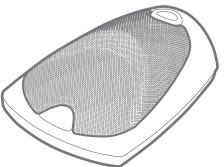
Outional Ass	
MX890	Wireless Desktop Base for MX405 and MX410 models, mute switch
MX690	Wireless Boundary Microphone, cardioid, mute switch

#### **Optional Accessories**

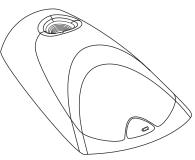
## **Architectural Specifications**

MX690 – The microphone shall be a surface mounted, black condenser microphone with a cardioid polar pattern. The microphone shall have an integrated wireless transmitter for audio signals with switchable carrier frequencies as well as preprogrammed groups up to 12 compatible channels. An infrared signal shall be used to synchronize the frequency between transmitter and receiver. The microphone shall be resistant to RF interference from portable mobile and handheld devices. The frequency range shall be 50Hz to 17KHz and the sensitivity shall be 33 mV/Pa.

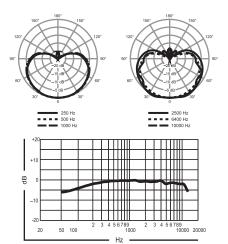
MX890 - The wireless desk stand shall be a transmitter base for audio signals with switchable carrier frequencies as well as preprogrammed groups with up to 12 compatible channels. An infrared signal shall be used to synchronize the frequency between transmitter and receiver. The wireless desk stand shall be used with the MX405 and MX410 series gooseneck microphones.



MX690 Wireless Boundary Mic L x W x H: 5 13/16" x 3 3/8" x 1 11/16" (148 mm x 87 mm x 43 mm)



MX890 Wireless Desktop Base L x W x H: 5 3/4" x 3 7/16" x 1 11/16" (146 mm x 87 mm x 43 mm)



MX690



## **MX202 Overhead Microphones**

#### **Overview**

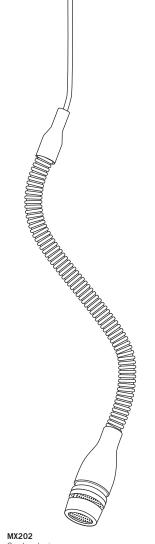
Easily hung from ceilings, Microflex Overhead microphones capture sound from speakers, choirs, stages, and more conveniently and unobtrusively from above. Compact and flexible, Overhead microphones each feature a 4" (102 mm) gooseneck, multiple preamp options for easy installation into ceilings or microphone stands, and versatile condenser cartridges for accurate sound reproduction in any setting.

### Specifications (subject to change)

	5-/
Туре	Condenser (electret bias)
Frequency Response	50–17000 Hz
Polar Pattern (at 1 kHz)	MX202/C: Cardioid MX202/O: Omnidirectional MX202/S: Supercardioid
Output Impedance	180 $\Omega$ actual (EIA rated at 150 $\Omega)$
Sensitivity (at 1 kHz , open circuit voltage)	Cardioid: -35.0 dBV/Pa (17.8 mV) Supercardioid: -33.5 dBV/Pa (21.1 mV) Omnidirectional: -27.5 dBV/Pa (42.2 mV) All values -12 dB at 0 gain *1 Pascal = 94 dB SP
Maximum SPL (1 kHz at 1% THD, 1 kΩ load) All values +6 dB at 0 gain	Cardioid: 124.2 dB Supercardioid: 122.7 dB Omnidirectional: 116.7 dB
Equivalent Output Noise (A-weighted)	Cardioid: 28.0 dB SPL Supercardioid: 26.5 dB SPL Omnidirectional: 20.5 dB SPL
Signal to Noise Ratio (referenced at 94 dB SPL)	Cardioid: 66.0 dB Supercardioid: 67.5 dB Omnidirectional: 73.5 dB
Dynamic Range (1 k $\Omega$ load at 1 kHz)	96.2 dB (100 dB at 0 gain)
Common Mode Rejection (10 Hz to 100 kHz)	45 dB minimum
Preamplifier Output Clipping Level (1% THD)	-6 dBV (0.5 V)
Polarity	Positive sound pressure on diaphragm produces positive voltage on pin 2 relative to pin 3 of output connector.
Power Requirements	11 to 52 Vdc phantom, 2.0 mA
Environmental Requirements	Operating Temperature Range: -18° C to 57° C (0° F to 135° F) Relative Humidity: 0 to 95%

### **Available Models**

MX202B/C, MX202B/S, MX202B/O	Black mini-condenser microphone; includes cable, in-line preamplifier, and stand adapter.
MX202W/C, MX202W/S, MX202W/O	White mini-condenser microphone; includes cable, in-line preamplifier, and stand adapter.
MX202BP/C, MX202BP/S, MX202BP/O	Black mini-condenser microphone; includes cable and plate-mounted preamplifier.
MX202WP/C, MX202WP/S, MX202WP/O	White mini-condenser microphone; includes cable and plate-mounted preamplifier.



Overhead mic Diam.: .46" (11.7 mm) L: 5.69" (144.5 mm)



## **MX202 Overhead Microphones**

#### **Furnished Accessories**

RK183WS (Black) 95B2064 (White)	Black Snap-fit Foam Windscreen White Snap-fit Foam Windscreen	65B1752	Stand Adaptor (MX202B and MX202W)
RK202PK	Preamplifier Kit, Plate Mounted, White (MX202BP & MX202WP)		

### **Optional Accessories and Replacement Parts**

A202BB	Desk Stand	R183B (Black) R183W (White)	Omnidirectional Cartridge for All Microflex Models	80A476	Clamp (MX202B & MX202WP)
RK100PKW	Replacement In-line Preamplifier	R184B (Black) R184W (White)	Supercardioid Cartridge for All Microflex Models	80B489	Hang Clip
80A479	Strain Relief (MX202BP & MX202WP)	R185B (Black) R185W (White)	Cardioid Cartridge for All Microflex Models	A57F	Stand Adapter

### **Architectural Specifications**

MX202B/C – The microphone shall be an electret condenser overhead microphone with a cardioid polar pattern, 4" (10,1cm) gooseneck, in-line preamplifier, and black finish. The microphone shall be resistant to RF interference from portable mobile and handheld devices. The frequency response shall be 50 Hz to 17 kHz and the sensitivity shall be 17.8 mV/Pa.

MX202B/S – The microphone shall be an electret condenser overhead microphone with a supercardioid polar pattern, 4" (10,1cm) gooseneck, in-line preamplifier, and black finish. The microphone shall be resistant to RF interference from portable mobile and handheld devices. The frequency response shall be 50 Hz to 17 kHz and the sensitivity shall be 21.1 mV/Pa.

MX202B/0 – The microphone shall be an electret condenser overhead microphone with an omnidirectional polar pattern, 4" (10,1cm) gooseneck, in-line preamplifier, and black finish. The microphone shall be resistant to RF interference from portable mobile and handheld devices. The frequency response shall be 50 Hz to 17 kHz and the sensitivity shall be 42.2 mV/Pa.

MX202W/C – The microphone shall be an electret condenser overhead microphone with a cardioid polar pattern, 4" (10,1cm) gooseneck, in-line preamplifier, and white finish. The microphone shall be resistant to RF interference from portable mobile and handheld devices. The frequency response shall be 50 Hz to 17 kHz and the sensitivity shall be 17.8 mV/Pa.

MX202W/S – The microphone shall be an electret condenser overhead microphone with a supercardioid polar pattern, 4" (10,1cm) gooseneck, in-line preamplifier, and white finish. The microphone shall be resistant to RF interference from portable mobile and handheld devices. The frequency response shall be 50 Hz to 17 kHz and the sensitivity shall be 21.1 mV/Pa.

MX202W/O – The microphone shall be an electret condenser overhead microphone with an omnidirectional polar pattern, 4" (10,1cm) gooseneck, in-line preamplifier, and white finish. The microphone shall be resistant to RF interference from portable mobile and handheld devices. The frequency response shall be 50 Hz to 17 kHz and the sensitivity shall be 42.2 mV/Pa.

MX202BP/C – The microphone shall be an electret condenser overhead microphone with a cardioid polar pattern, 4" (10,1cm) gooseneck, a plate-mounted preamplifier, and black finish. The microphone shall be resistant to RF interference from portable mobile and handheld devices. The frequency response shall be 50 Hz to 17 kHz and the sensitivity shall be 17.8 mV/Pa.

MX202BP/S – The microphone shall be an electret condenser overhead microphone with a supercardioid polar pattern, 4" (10,1cm) gooseneck, a plate-mounted preamplifier, and black finish. The microphone shall be resistant to RF interference from portable mobile and handheld devices. The frequency response shall be 50 Hz to 17 kHz and the sensitivity shall be 21.1 mV/Pa.

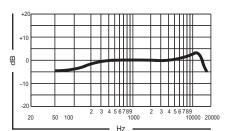
MX202BP/O – The microphone shall be an electret condenser overhead microphone with an omnidirectional polar pattern, 4" (10,1cm) gooseneck, a plate-mounted preamplifier, and black finish. The microphone shall be resistant to RF interference from portable mobile and handheld devices. The frequency response shall be 50 Hz to 17 kHz and the sensitivity shall be 42.2 mV/Pa.

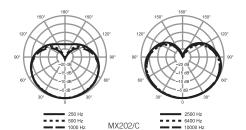
MX202WP/C – The microphone shall be an electret condenser overhead microphone with a cardioid polar pattern, 4" (10,1cm) gooseneck, a plate-mounted preamplifier, and white finish. The microphone shall be resistant to RF interference from portable mobile and handheld devices. The frequency response shall be 50 Hz to 17 kHz and the sensitivity shall be 17.8 mV/Pa.

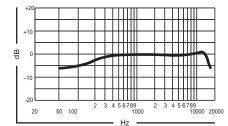
MX202WP/S – The microphone shall be an electret condenser overhead microphone with a supercardioid polar pattern, 4" (10,1cm) gooseneck, a plate-mounted preamplifier, and white finish. The microphone shall be resistant to RF interference from portable mobile and handheld devices. The frequency response shall be 50 Hz to 17 kHz and the sensitivity shall be 21.1 mV/Pa.

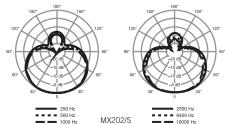
MX202WP/0 – The microphone shall be an electret condenser overhead microphone with an omnidirectional polar pattern, 4" (10,1cm) gooseneck, a plate-mounted preamplifier, and white finish. The microphone shall be resistant to RF interference from portable mobile and handheld devices. The frequency response shall be 50 Hz to 17 kHz and the sensitivity shall be 42.2 mV/Pa.

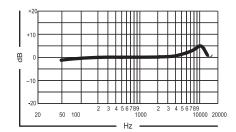


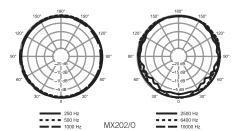












## MX391, MX392, MX393 Boundary Microphones

#### **Overview**

With slim design and superior audio reproduction, Microflex Boundary microphones are the ideal conference room solution. Equipped with features like programmable, silent membrane switches, interchangeable cartridges, logic inputs and outputs, and LED indicators, Microflex Boundary microphones provide high-quality sound for a wide range of applications.

## Specifications (subject to change)

Туре	Condenser (electret bias)			
Frequency Response	50–17000 Hz			
Polar Pattern	MX391/C, MX392/C, MX393/C: Cardioid MX391/C, MX392/C, MX393/S: Supercardioid MX391/O, MX392/O, MX393/O: Omnidirectional			
Output Impedance	EIA Rated at 150 $\Omega~(180~\Omega$ actual)			
Logic Connections (MX392 Only)	LED IN: Active low (≤1.0v), TTL compatible. Absolute maximum voltage: -0.7V to 50V. SWITCH OUT: Active low (≤0.5V), sinks up to 20mA, TTL compatible. Absolute maximum voltage: -0.7V to 50V (up to 50V through 3kΩ).			
Environmental Conditions	Operating Temperature Range: -18° C to 57° C (0° F to 135° F) Relative Humidity: 0 to 95%			
Power Requirements	11–52 Vdc phantom, 2.0 mA			
	MX391	MX392/MX393		
Sensitivity (at 1 kHz , open circuit voltage) All settings -12 dB at 0 gain	Cardioid -29.6 dB (33.5 mV) Supercardioid -28.3 dB (38.5 mV) Omnidirectional -21.5 dB (81.4 mV) *1 Pascal = 94 dB SPL	Cardioid: -27.5 dBV/Pa (42.2 mV) Supercardioid: -26.5 dBV/Pa (47.3 mV) Omnidirectional: -22.0 dBV/Pa (79.4 mV) *1 Pascal = 94 dB SPL		
Maximum SPL (1 kHz at 1% THD, 1 kΩ load) All settings +6 dB at 0 gain	Cardioid: 118.8 dB Supercardioid: 117.5 dB Omnidirectional: 110.7 dB	Cardioid: 117.0 dB Supercardioid: 116.0 dB Omnidirectional: 111.5 dB		
Equivalent Output Noise (A-weighted)	Cardioid: 22.6 dB SPL Supercardioid: 21.3 dB SPL Omnidirectional: 14.5 dB SPL	Cardioid: 23.0 dB Supercardioid: 22.0 dB Omnidirectional: 17.5 dB		
Signal-to-Noise Ratio (referenced at 94 dB SPL at 1 kHz)	Cardioid: 71.4 dB Supercardioid: 72.7 dB Omnidirectional: 79.5 dB	Cardioid: 71.0 dB Supercardioid: 72.0 dB Omnidirectional: 76.5 dB		
Dynamic Range (1 k $\Omega$ load at 1 kHz)	96.2 dB	94.0 dB		
Common Mode Rejection (10 Hz to 100 kHz)	45 dB minimum, 10 Hz to 100 kHz	45 dB minimum, 10 Hz to 100 kHz		
Preamplifier Output Clipping Level (1% THD)	-6 dBV (0.5 V)	-6 dBV (0.5 V)		
Polarity	Positive sound pressure on diaphragm produces positive voltage on pin 2 relative to pin 3 of the preamplifier XLR output	Positive sound pressure on diaphragm produces positive voltage on pin 2 relative to pin 3 of output connector (MX393) or red wire relative to black wire (MX392).		



MX391 Boundary mic L x W x H: 3.13" x 2.08" x .75" (79.4 mm x 53 mm x 19 mm)



MX392/MX393 Boundary mic L x W x H: 4.26" x 3.0" x .83" (108.3 mm x 76.2 mm x 21.2 mm)

#### **Available Models**

MX391/C, MX391/S, MX391/O	Black surface-mount microphone, attached 4 m (12 ft.) cable terminated, 4-pin mini connector, separate preamplifier
MX391W/C, MX391W/S, MX391W/O	White surface-mount microphone, attached 4 m (12 ft.) cable terminated, 4-pin mini connector, separate preamplifier
MX392/C, MX392/S, MX392/O	Surface-mount microphone, programmable membrane on/off switch, logic input/output terminals, on/off indicator LED, screw terminal connections, attached 3.7 m (12 ft.) unterminated cable
MX393/C, MX393/S, MX393/O	Surface-mount microphone, programmable membrane on/off switch, on/off indicator LED, miniature three pin connector, and detachable 3.7 m (12 ft.) cable.



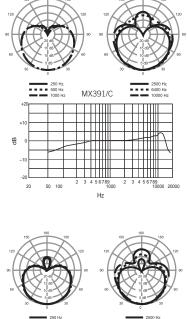
## MX391, MX392, MX393 Boundary Microphones

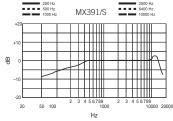
### **Furnished Accessories**

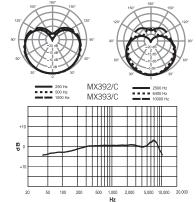
95B2313	Zipper Bag	80A541	Switch Paint Mask (MX392/MX393)
80C514	Paint Mask (MX392/MX393)	36A664	Paint Plug (MX392/MX393)
15A525	Custom Logic Cable (specify length)	C119	12' (3.7m) Cable 3-Pin Miniature Connector (TA3F) to male XLR (MX393)
RK100PK	In-Line Preamp (MX391/MX391W)		

#### **Optional Accessories** and Replacement Parts

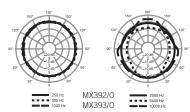
R183B	Omnidirectional Cartridge for All Microflex Models	R185B
R184B	Supercardioid Cartridge for All Microflex Models	

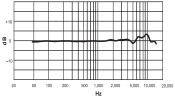


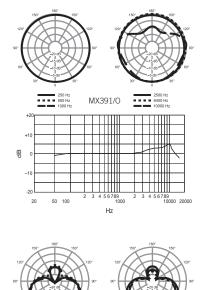


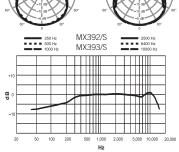


Cardioid Cartridge for All Microflex Models











#### **Architectural Specifications**

MX391/C – The microphone shall be a surface mounted, black electret condenser microphone with a cardioid polar pattern, a 12' (3.7m) cable terminated with a 4-pin mini connector, and in-line preamplifier. The microphone shall be resistant to RF interference from portable mobile and handheld devices. The frequency response shall be 50 Hz to 17 kHz and the sensitivity shall be 33.5 mV/Pa.

MX391/S – The microphone shall be a surface mounted, black electret condenser microphone with a supercardioid polar pattern, a 12' (3.7m) cable terminated with a 4-pin mini connector, and in-line preamplifier. The microphone shall be resistant to RF interference from portable mobile and handheld devices. The frequency response shall be 50Hz to 17 kHz and the sensitivity shall be 38.5 mV/Pa.

MX391/0 – The microphone shall be a surface mounted, black electret condenser microphone with an omnidirectional polar pattern, a 12' (3.7m) cable terminated with a 4-pin mini connector, and in-line preamplifier. The microphone shall be resistant to RF interference from portable mobile and handheld devices. The frequency response shall be 50 Hz to 17 kHz and the sensitivity shall be 81.4 mV/Pa.

MX391W/C – The microphone shall be a surface mounted, white electret condenser microphone with a cardioid polar pattern, a 12' (3.7m) cable terminated with a 4-pin mini connector, and in-line preamplifier. The microphone shall be resistant to RF interference from portable mobile and handheld devices. The frequency response shall be 50 Hz to 17 kHz and the sensitivity shall be 33.5 mV/Pa.

MX391W/S – The microphone shall be a surface mounted, white electret condenser microphone with a supercardioid polar pattern, a 12' (3.7m) cable terminated with a 4-pin mini connector, and in-line preamplifier. The microphone shall be resistant to RF interference from portable mobile and handheld devices. The frequency response shall be 50Hz to 17 kHz and the sensitivity shall be 38.5 mV/Pa.

MX391W/O – The microphone shall be a surface mounted, white electret condenser microphone with an omnidirectional polar pattern, a 12' (3.7m) cable terminated with a 4-pin mini connector, and in-line preamplifier. The microphone shall be resistant to RF interference from portable mobile and handheld devices. The frequency response shall be 50 Hz to 17 kHz and the sensitivity shall be 81.4 mV/Pa.

MX392/C – The microphone shall be a surface mounted, black electret condenser microphone with a cardioid polar pattern, programmable membrane on/off switch, and logic controlled LED indicator. The microphone shall be resistant to RF interference from portable mobile and handheld devices. The frequency response shall be 50 Hz to 17 kHz and the sensitivity shall be 42.2 mV/Pa.

MX392/S – The microphone shall be a surface mounted, black electret condenser microphone with a supercardioid polar pattern, programmable membrane on/off switch, and logic controlled LED indicator. The microphone shall be resistant to RF interference from portable mobile and handheld devices. The frequency response shall be 50 Hz to 17 kHz and the sensitivity shall be 43.7 mV/Pa.

MX392/0 – The microphone shall be a surface mounted, black electret condenser microphone with an omnidirectional polar pattern, programmable membrane on/off switch, and logic controlled LED indicator. The microphone shall be resistant to RF interference from portable mobile and handheld devices. The frequency response shall be 50 Hz to 17 kHz and the sensitivity shall be 79.4 mV/Pa.

MX393/C – The microphone shall be a surface mounted, black electret condenser microphone with a cardioid polar pattern, programmable membrane on/off switch with LED indicator. The microphone shall include a removable 12' (3,7m) cable, connected to the microphone through a TA3 connector and which terminates to a XLR connector. The microphone shall be resistant to RF interference from portable mobile and handheld devices. The frequency response shall be 50 Hz to 17 kHz and the sensitivity shall be 42.2 mV/Pa.

MX393/S – The microphone shall be a surface mounted, black electret condenser microphone with a supercardioid polar pattern, programmable membrane on/off switch with LED indicator. The microphone shall include a removable 12' (3,7m) cable, connected to the microphone through a TA3 connector and which terminates to a XLR connector. The microphone shall be resistant to RF interference from portable mobile and handheld devices. The frequency response shall be 50 Hz to 17 kHz and the sensitivity shall be 47.3 m//Pa.

MX393/0 – The microphone shall be a surface mounted, black electret condenser microphone with a omnidirectional polar pattern, programmable membrane on/off switch with LED indicator. The microphone shall include a removable 12' (3,7m) cable, connected to the microphone through a TA3 connector and which terminates to a XLR connector. The microphone shall be resistant to RF interference from portable mobile and handheld devices. The frequency response shall be 50 Hz to 17 KHz and the sensitivity shall be 79.4 mV/Pa



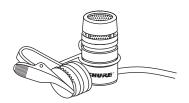
## MX183, MX184, MX185 Lavalier Microphones

#### **Overview**

Attached to a tie or lapel, Microflex Lavalier microphones offer freedom of movement to any situation involving voice reproduction. As stylish as they are convenient, Lavaliers are available in different directional patterns, come with multiple clip options, and are compatible with all Shure wireless platforms.

#### Specifications (subject to change)

(					
Туре	Condenser (electret bias)				
Frequency Response	50–17000 Hz				
Polar Pattern (at 1 kHz)	MX183: Omnidirectional MX184: Supercardioid MX185: Cardioid				
Output Impedance	EIA Rated at 150 $\Omega$ (170 $\Omega$ actual)				
Sensitivity (at 1 kHz , open circuit voltage)	MX183: -27.5 dB (42.2 mV) MX184: -33.5 dB (21.1 mV) MX185: -35.0 dB (17.0 mV) All settings -12 dB at 0 gain *1 Pascal = 94 dB SPL				
Maximum SPL (1 kHz at 1% THD, 1 kΩ load)	MX183: 116.7 dB MX184: 122.7 dB MX185: 124.2 dB All settings +6 dB at 0 gain				
Equivalent Output Noise (A-weighted)	MX183: 20.5 dB MX184: 26.5 dB MX185: 28.0 dB				
Signal-to-Noise Ratio (referenced at 94 dB SPL at 1 kHz)	MX183: 73.5 dB MX184: 67.5 dB MX185: 66.0 dB				
Dynamic Range (1 kΩ load at 1 kHz)	96.2 dB 100 dB at 0 gain				
Common Mode Rejection (10 Hz to 100 kHz)	45 dB minimum				
Polarity	Positive sound pressure on diaphragm produces positive voltage on pin 2 relative to pin 3 of output XLR connector.				
Environmental Conditions	Operating Temperature Range: -18° to 57° C (0° to 135° F) Storage Temperature Range: -29° to 74° C (-20° to 165° F)				
Power Requirements	11–52 Vdc phantom, 2.0 mA				
Cable	Shielded 1.2 meter (4 ft.) cable terminated with a 4-Pin Female Mini Connector (TA4F)				



**MX183/184/185** Lavalier mic H x Diam.: .85" x .46" (22 mm x 12 mm)

### **Available Models**

MX183	Omnidirectional, Includes Belt-Clip Preamp, Rotatable Tie Clip, Dual Tie Clip, Snap-Fit Windscreen	
MX184	Supercardioid, Includes Belt-Clip Preamp, Rotatable Tie Clip, Dual Tie Clip, Snap-Fit Windscreen	
MX185	Cardioid, Includes Belt-Clip Preamp, Rotatable Tie Clip, Dual Tie Clip, Snap-Fit Windscreen	



## MX183, MX184, MX185 Lavalier Microphones

#### **Furnished Accessories**

26A13	Zipper Bag	RK183T1	Tie Clip
RK261BWS	Foam Windscreen	RK183T2	Dual Tie Clip
RK183WS	Snap-fit Windscreen	RK100PK	In-line Preamp
80A67	Hex Wrench #4		

#### **Optional Accessories and Replacement Parts**

R183B	Omnidirectional Cartridge for All Microflex Models	R184B	Supercardioid Cartridge for All Microflex Models	R185B	Cardioid Cartridge for All Microflex Models
MX1BP	Battery Powered Preamp	53A2133A	Belt Clip for In-Line Preamp	WA333	4-Pin Female Mini Connector (TA4F)
C133	Replacement Cable,				

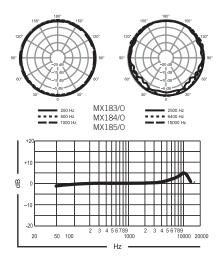
Microphone to Preamp

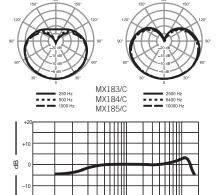
### **Architectural Specifications**

MX183 – The microphone shall be black electret condenser lavalier microphone with an omnidirectional polar pattern, in-line Belt-Clip preamp, and 4' (1,2m) cable that terminates with a 4-pin miniature (TA4F) connector. The microphone shall be resistant to RF interference from portable mobile and handheld devices. The frequency response shall be 50 Hz to 17 kHz and the sensitivity shall be 42.4 mV/Pa.

MX184 – The microphone shall be a black electret condenser lavalier microphone with a supercardioid polar pattern, in-line Belt-Clip preamp, and 4' (1,2m) cable that terminates with a 4-pin miniature (TA4F) connector. The microphone shall be resistant to RF interference from portable mobile and handheld devices. The frequency response shall be 50 Hz to 17 kHz and the sensitivity shall be 21.1 mV/Pa.

MX185 – The microphone shall be a black electret condenser lavalier microphone with a cardioid polar pattern, in-line Belt-Clip preamp, and 4' (1,2m) cable that terminates with a 4-pin miniature (TA4F) connector. The microphone shall be resistant to RF interference from portable mobile and handheld devices. The frequency response shall be 50 Hz to 17 kHz and the sensitivity shall be 17.0 mV/Pa.

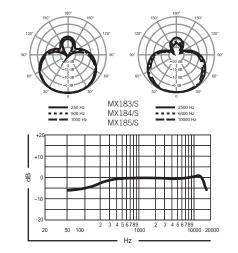




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