# DATA SHEET
PARLÉ™ TCM-X
AVB BEAMTRACKING™ CEILING MICROPHONE

The Parlé™ TCM-X is an AVB low-profile ceiling microphone for use in Tesira® systems. Comprising a network box and a ceiling microphone, each microphone includes Beamtracking™ technology with four 90-degree zones, providing full 360-degree coverage of the meeting space. The TCM-X microphone delivers the same level of performance as our other Beamtracking microphones in a sleek, unobtrusive design that mounts to the ceiling. The TCM-X actively tracks and intelligently mixes conversations from around the table, allowing far-end participants to experience the conversation as they would a face-to-face meeting. Each network box has its own digital signal processing module and comes with an additional RJ-45 connector to add an optional TCM-XEX to the network box. A maximum of two microphones are permitted per network box (one TCM-X or TCM-XA with TCM-XEX). The TCM-X is well suited for a variety of room types and sizes with 10 foot (3 meter) ceilings or lower that require high-quality audio solutions and low profile or unobtrusive microphones.
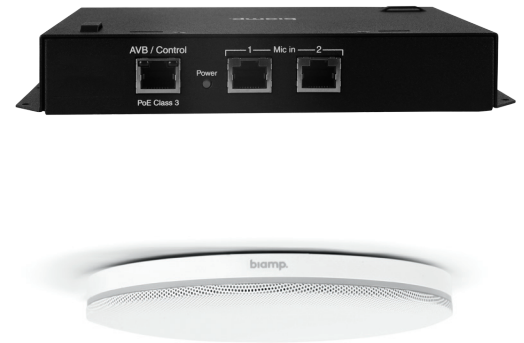
FEATURES

- Low profile circular ceiling microphone that measures 5.90 inches (150 mm) in diameter
- Mounts directly to the ceiling to virtually disappear in room
- Beamtracking technology actively tracks and intelligently mixes conversations
- Four 90-degree zones for full 360-degree room coverage
- Network box includes DSP for Beamtracking
- Single cable connection via category cable
- Beamtracking technology works out-of-box without any lobe aiming or room mapping

- Uses only one channel of AEC per microphone
- LED mute status indicator
- Available in either black or white
- Evaluated to the requirements of UL 2043 and is suitable for use in air handling spaces
- Additional RJ-45 on network box for connection to a TCM-XEX microphone
- CE marked, UL listed, and RoHS compliant
- Covered by Biamp Systems' five-year warranty

ARCHITECTS & ENGINEERS SPECIFICATIONS

The Beamtracking™ ceiling microphone shall be designed exclusively for use with Biamp® Tesira® systems. The Beamtracking ceiling microphone shall be comprised of a ceiling mount microphone and a network box. The Beamtracking ceiling microphone shall utilize an AVB/TSN network via an RJ-45 connector for audio networking as well as software configuration and control. The Beamtracking ceiling mount microphone shall contain a sixteen-element digital microphone array, and shall provide four 90-degree zones for 360 degrees of coverage. The Beamtracking ceiling microphone shall offer multidirectional beamforming and automatic signal tracking capabilities. The Beamtracking technology shall operate in conjunction with acoustic echo cancellation technology (AEC) in accordance with U.S. Patent 9659576. The signal processing of the Beamtracking ceiling microphone shall be configurable via the Tesira design software, including but not limited to: signal routing and mixing, equalization, filtering, dynamics, and delay, as well as control, monitoring, and diagnostic tools. The Beamtracking ceiling microphone shall offer simple installation and shall be mountable directly to the ceiling. The Beamtracking ceiling microphone shall be powered by PoE (IEEE 802.3at Class 3, 15.4W). The Beamtracking ceiling microphone shall be suitable for use in air handling spaces in accordance with UL 2043, and shall provide an additional RJ-45 connector to allow connection of one expander TCM-XEX microphone. The Beamtracking ceiling microphone shall be CE marked, UL listed, and compliant with the RoHS directive. Warranty shall be five years. The Beamtracking ceiling microphone shall be Parlé™ TCM-X.

PARLÉ TCM-X SPECIFICATIONS

CEILING MOUNT MICROPHONE			
Microphone Technology:	16-Element Digital Array	**Power:**	PoE (IEEE 802.3at Class 3, 15.4W)
Frequency Response (150 Hz - 16 kHz):	± 3dB	**Indicators:**	Power Indicator (Green/Yellow/Red LED)
Polar Pattern:	Active Beamformed	**Digital Interface:**	Custom/Proprietary
SNR (at 1kHz, 94dBSPL A-Weighted):	> 76dB	**Max Distance Between Devices:**	330 feet (100 meters) from switch to TCM-X network box; 33 feet (10 meters) between TCM-X network box and TCM-XEX
Maximum SPL (at < 1% THD):	109dB		
Dynamic Range (THD+N < 1%):	92dB, A-Weighted		
Indicators:	Mute Indicator (Green/Red LED)	**Overall Dimensions**	
		Height:	1.2 inches (30 mm)
Digital Interface:	Custom/Proprietary	Width:	6.8 inches (172 mm)
Connector:	RJ-45 (cable length 6.6 feet [2 meters])	Depth:	5.2 inches (132 mm)
		Weight:	1.4 lbs (625 g)
Overall Dimensions		**Environmental**	
Height (excluding ceiling mount):	0.7 inches (17 mm)	Ambient Operating Temperature Range:	32 - 104° F (0 - 40° C)
Diameter:	5.9 inches (150 mm)	Humidity:	0-95% relative humidity (non-condensing)
Weight:	0.7 lbs (340 g)	Altitude:	0-10,000 ft (0-3000m) MSL
NETWORK BOX		**Compliance:**	
Connectors:	Three RJ-45: one between TCM-X network box and switch, one between the network box and microphone, the other between TCM-X network box and TCM-XEX		FCC Part 15B (USA) CE marked (Europe) UL and C-UL listed (USA and Canada) RoHS Directive (Europe) Evaluated to the requirements of UL 2043 and is suitable for use in air handling spaces

OPTIONAL ACCESSORIES

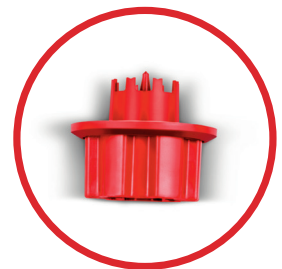**BPAK**
Backpack adapter kit

Seismic Cable Adapter
Cable adapter for TCM plenum boxes
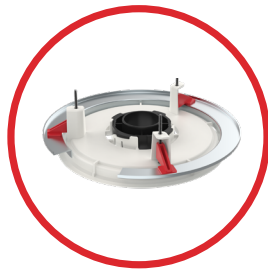

TB-1
Tile bridge for TCM plenum boxes
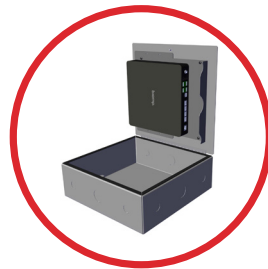

TCM-X Installation Tool
Hole saw and driver

TCM-X-DK
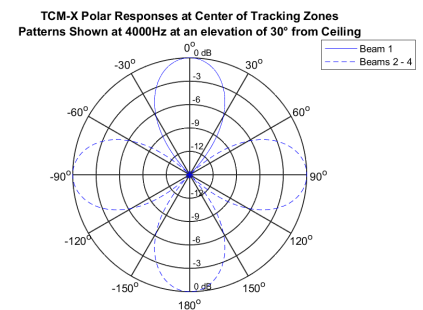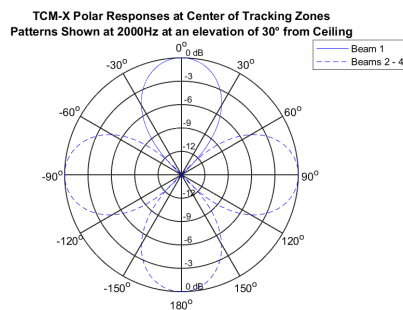Plenum attachment for drywall ceilings

TCM-X-FM
Flush Mount Kit

Plenum Box 12x12
Chicago compliant plenum box

C5E-10-P, C5E-25-P
10ft and 25ft pre-terminated plenum rated Cat 5e cables

TCM-X Polar Responses at Center of Tracking Zones
Patterns Shown at 1000Hz at an elevation of 30° from Ceiling

TCM-X Polar Responses at Center of Tracking Zones
Patterns Shown at 2000Hz at an elevation of 30° from Ceiling

TCM-X Polar Responses at Center of Tracking Zones
Patterns Shown at 4000Hz at an elevation of 30° from Ceiling
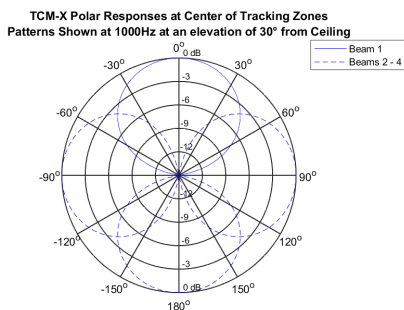
DATA SHEET
PARLÉ™ TCM-XA
AVB BEAMTRACKING™ CEILING MICROPHONE & POE+ AMPLIFIER

The Parlé™ TCM-XA is an AVB low-profile ceiling microphone and PoE+ (IEEE 802.3at Class 4, 30W) amplifier for use in Tesira® systems. Comprising a network box and a ceiling microphone, each microphone includes Beamtracking™ technology with four 90-degree zones, providing full 360-degree coverage of the meeting space. The TCM-XA microphone delivers Beamtracking performance in a sleek, unobtrusive design that mounts to the ceiling. The TCM-XA actively tracks and intelligently mixes conversations from around the table, allowing far-end participants to experience the conversation as they would a face-to-face meeting. The 2-channel PoE+ amplifier includes an internal limiter, selectable power, and is capable of operating in a burst mode to handle peak signals, providing up to 40 watts (4Ω load) or 30 watts (8Ω load) per channel. Each network box has its own digital signal processing module and comes with an additional RJ-45 connector to add an optional TCM-XEX. A maximum of two microphones are permitted per network box (one TCM-X or TCM-XA with TCM-XEX). The TCM-XA is well suited for a variety of room types and sizes with 10 foot (3 meter) ceilings or lower that require high-quality audio solutions and low profile or unobtrusive microphones.

FEATURES

- Low profile circular ceiling microphone that measures 5.90 inches (150 mm) in diameter
- Mounts directly to the ceiling to virtually disappear in room
- Beamtracking technology actively tracks and intelligently mixes conversations
- Four 90-degree zones for full 360-degree room coverage
- Network box includes DSP for Beamtracking and a PoE+ amplifier
  - Two channels
  - Burst mode to handle peak signals in accordance with ANSI/CTA-2006-B; supports up to 40 watts (4Ω load) or 30 watts (8Ω load) per channel
  - Software-selectable power vs. channel count
  - Includes internal limiter function

- Uses only one channel of AEC per microphone
- Single cable connection via category cable
- Beamtracking technology works out-of-box without any lobe aiming or room mapping
- LED mute status indicator
- Available in either black or white
- Evaluated to the requirements of UL 2043 and is suitable for use in air handling spaces
- Additional RJ-45 on network box for connection to a TCM-XEX microphone
- CE marked, UL listed, and RoHS compliant
- Covered by Biamp Systems' five-year warranty

ARCHITECTS & ENGINEERS SPECIFICATIONS

The Beamtracking™ ceiling microphone shall be designed exclusively for use with Biamp® Tesira® systems. The Beamtracking ceiling microphone shall be comprised of a ceiling mount microphone and a network box. The Beamtracking ceiling microphone shall utilize an AVB/TSN network via an RJ-45 connector for audio networking as well as software configuration and control. The Beamtracking ceiling mount microphone shall contain a sixteen-element digital microphone array, and shall provide four 90-degree zones for 360 degrees of coverage. The Beamtracking ceiling microphone shall offer multidirectional beamforming and automatic signal tracking capabilities. The Beamtracking technology shall operate in conjunction with acoustic echo cancellation technology (AEC) in accordance with U.S. Patent 9659576. The signal processing of the Beamtracking ceiling microphone shall be configurable via the Tesira design software, including but not limited to: signal routing and mixing, equalization, filtering, dynamics, and delay, as well as control, monitoring, and diagnostic tools. The Beamtracking ceiling microphone shall offer simple installation and shall be mountable directly to the ceiling. The network box of the Beamtracking ceiling microphone shall provide two output channels of 4 watts of continuous power per channel into a 4-ohm load and an 8-ohm load. The network box of the Beamtracking ceiling microphone shall also provide burst power output of 40 watts per channel into a 4-ohm load, and 30 watts per channel into an 8-ohm load in accordance with ANSI/CTA-2006-B. The Beamtracking ceiling microphone shall be powered by PoE+ (IEEE 802.3at Class 4, 30W). The Beamtracking ceiling microphone shall be suitable for use in air handling spaces in accordance with UL 2043, and shall provide an additional RJ-45 connector to allow connection of one expander TCM-XEX microphone. The Beamtracking ceiling microphone shall be CE marked, UL listed, and compliant with the RoHS directive. Warranty shall be five years. The Beamtracking ceiling microphone shall be Parlé™ TCM-XA.

PARLÉ TCM-XA SPECIFICATIONS

CEILING MOUNT MICROPHONE

Microphone Technology:	16-Element Digital Array
Frequency Response (150 Hz - 16 kHz):	± 3dB
Polar Pattern:	Active Beamformed
SNR (at 1kHz, 94dBSPL A-Weighted):	> 76dB
Maximum SPL (at < 1% THD):	109dB
Dynamic Range (THD+N < 1%):	92dB, A-Weighted
Indicators:	Mute Indicator (Green/Red LED)
Digital Interface:	Custom/Proprietary
Connector:	RJ-45 (cable length 6.6 feet [2 meters])

Overall Dimensions

Height (excluding ceiling mount):	0.7 inches (17 mm)
Diameter:	5.9 inches (150 mm)
Weight:	0.7 lbs (340 g)

NETWORK BOX

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Connectors:	Three RJ-45: one between TCM-X network box and switch, one between the network box and microphone, the other between TCM-X network box and TCM-XEX
Power:	PoE+ (IEEE 802.3at Class 4, 30W)
Indicators:	Power Indicator (Green/Yellow/Red LED)
Digital Interface:	Custom/Proprietary
Max Distance Between Devices:	330 feet (100 meters) from switch to TCM-X network box; 33 feet (10 meters) between TCM-X network box and TCM-XEX

Overall Dimensions

Height:	1.2 inches (30 mm)
Width:	6.8 inches (172 mm)
Depth:	5.2 inches (132 mm)
Weight:	1.5 lbs (680 g)

Environmental

Ambient Operating Temperature Range:	32 - 104° F (0 - 40° C)
Humidity:	0-95% relative humidity (non-condensing)
Altitude:	0-10,000 ft (0-3000m) MSL

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Compliance:	FCC Part 15B (USA) CE marked (Europe) UL and C-UL listed (USA and Canada) RoHS Directive (Europe) Evaluated to the requirements of UL 2043 and is suitable for use in air handling spaces

AMPLIFIER

Number of Channels:	2
Connectors:	RJ-45
Amplifier Topology:	Class D

Burst Power Output (per ANSI/CTA-2006-B @ 1kHz):

4Ω (per channel):	40W
8Ω (per channel):	30W

Continuous Power Output:

Single Channel Driven (4Ω, 8Ω):	8W
Dual Channel Driven (4Ω, 8Ω):	4W
THD+N (20Hz-20kHz, at continuous power):	< 0.3%
Frequency Response (20Hz-20kHz):	± 1dB
Dynamic Range (20Hz-20kHz BW):	> 85dB
Minimum Operational Load:	4Ω
Intermodulation distortion (SMPTE):	< 0.3%
Cross Talk (channel to channel @ 1kHz):	< -90dB

TCM-X Polar Responses at Center of Tracking Zones
Patterns Shown at 1000Hz at an elevation of 30° from Ceiling

Beam 1
Beams 2 - 4

TCM-X Polar Responses at Center of Tracking Zones
Patterns Shown at 2000Hz at an elevation of 30° from Ceiling

Beam 1
Beams 2 - 4
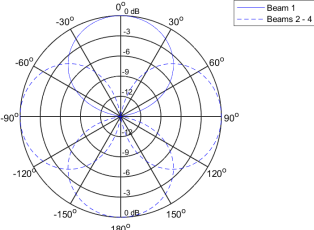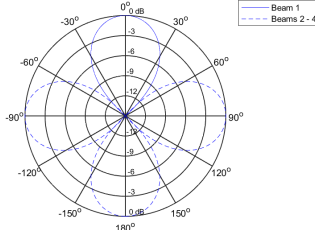
OPTIONAL ACCESSORIES

BPAK
Backpack adapter kit

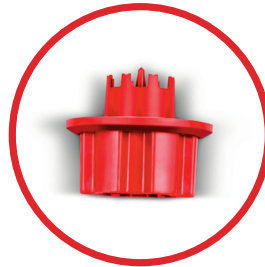**CCA**
Euroblock to category cable adapter

Seismic Cable Adapter
Cable adapter for TCM plenum boxes
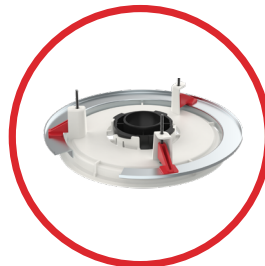
TB-1
Tile bridge for TCM plenum boxes
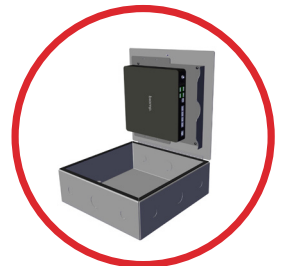
TCM-X Installation Tool
Hole saw and driver

TCM-X-DK
Plenum attachment for drywall ceilings

TCM-X-FM
Flush Mount Kit

Plenum Box 12x12
Chicago compliant plenum box

C5E-10-P, C5E-25-P
10ft and 25ft pre-terminated plenum rated Cat 5e cables

DATA SHEET
PARLÉ™ TCM-XEX
BEAMTRACKING™ CEILING MICROPHONE

The Parlé™ TCM-XEX is a low-profile ceiling microphone for use in Tesira® and Devio® systems. Each microphone includes Beamtracking™ technology with four 90-degree zones, providing full 360-degree coverage of the meeting space. The TCM-XEX microphone delivers Beamtracking performance in a sleek, unobtrusive design that mounts to the ceiling. The TCM-XEX actively tracks and intelligently mixes conversations from around the table, allowing far-end participants to experience the conversation as they would a face-to-face meeting. In Tesira systems, the TCM-XEX is intended to be used as a second microphone in conjunction with the TCM-X or TCM-XA; it cannot operate as a standalone device. In Devio systems, it functions as a standalone microphone. The TCM-XEX is well suited for a variety of room types and sizes with 10 foot (3 meter) ceilings or lower that require high-quality audio solutions and low profile or unobtrusive microphones.

FEATURES

- Must be used with a Parlé TCM-X or TCM-XA microphone in Tesira systems
- Low profile circular ceiling microphone that measures 5.9 inches (150 mm) in diameter
- Mounts directly to the ceiling to virtually disappear in the room
- Beamtracking technology actively tracks and intelligently mixes conversations
- Four 90-degree zones for full 360-degree room coverage
- Uses only one channel of AEC per microphone

- Single cable connection via category cable
- Beamtracking technology works out-of-box without any lobe aiming or room mapping
- LED mute status indicator
- Available in either black or white
- Evaluated to the requirements of UL 2043 and is suitable for use in air handling spaces
- CE marked, UL listed, and RoHS compliant
- Covered by Biamp Systems' five-year warranty

ARCHITECTS & ENGINEERS SPECIFICATIONS

The Beamtracking™ ceiling microphone shall be designed exclusively for use with Biamp® Tesira® and Devio® systems. The Beamtracking ceiling microphone shall utilize a proprietary digital protocol via an RJ-45 connector for audio networking. The Beamtracking ceiling mount microphone shall contain a sixteen-element digital microphone array, and shall provide four 90-degree zones for 360 degrees of coverage. The Beamtracking ceiling microphone shall offer multidirectional beamforming and automatic signal tracking capabilities. The Beamtracking technology shall operate in conjunction with acoustic echo cancellation technology (AEC) in accordance with U.S. Patent 9659576. The Beamtracking ceiling microphone shall be suitable for use in air handling spaces in accordance with UL 2043. The Beamtracking ceiling microphone shall be CE marked, UL listed, and compliant with the RoHS directive. Warranty shall be five years. The Beamtracking ceiling microphone shall be Parlé™ TCM-XEX.

PARLÉ TCM-XEX SPECIFICATIONS

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Microphone Technology:	16-Element Digital Array	**Power:**	Custom/Proprietary
Frequency Response (150 Hz - 16 kHz):	± 3dB	**Max Distance Between Devices:**	33 feet (10 meters) between TCM-XEX and DSP host device
Polar Pattern:	Active Beamformed		
SNR (at 1kHz, 94dBSPL A-Weighted):	> 76dB	**Environmental**	
Maximum SPL (at < 1% THD):	109dB	**Ambient Operating**	
Dynamic Range (THD+N < 1%):	92dB, A-Weighted	**Temperature Range:**	32 - 104° F (0 - 40° C)
Indicators:	Mute Indicator (Green/Red LED)	**Humidity:**	0-95% relative humidity (non-condensing)
		Altitude:	0-10,000 ft (0-3000m) MSL
Digital Interface:	Custom/Proprietary	**Compliance:**	
Connector:	RJ-45 (cable length 6.6 feet [2 meters])		FCC Part 15B (USA) CE marked (Europe) UL and C-UL listed (USA and Canada) RoHS Directive (Europe)
Overall Dimensions			Evaluated to the requirements of UL 2043 and is suitable for use in air handling spaces
Height (excluding ceiling mount):	0.7 inches (17 mm)		
Diameter:	5.9 inches (150 mm)		
Weight:	0.7 lbs (340 g)		

TCM-X Polar Responses at Center of Tracking Zones
Patterns Shown at 1000Hz at an elevation of 30° from Ceiling
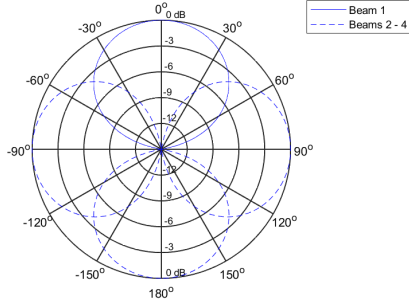
TCM-X Polar Responses at Center of Tracking Zones
Patterns Shown at 2000Hz at an elevation of 30° from Ceiling
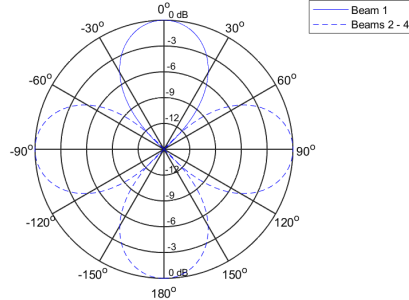
TCM-X Polar Responses at Center of Tracking Zones
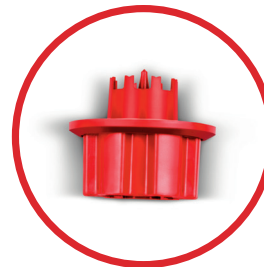Patterns Shown at 4000Hz at an elevation of 30° from Ceiling
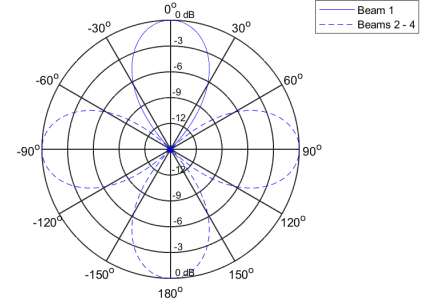
OPTIONAL ACCESSORIES

Seismic Cable Adapter
Cable adapter for
TCM plenum boxes
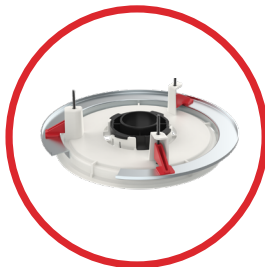

TB-1
Tile bridge for
TCM plenum boxes

TCM-X Installation Tool
Hole saw and driver
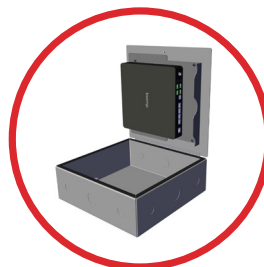

TCM-X-DK
Plenum attachment for
drywall ceilings

TCM-X-FM
Flush Mount Kit

Plenum Box 12x12
Chicago compliant plenum box

C5E-10-P, C5E-25-P
10ft and 25ft pre-terminated
plenum rated Cat 5e cables

DATA SHEET
PARLÉ™ TTM-X
AVB BEAMTRACKING™ TABLETOP MICROPHONE

The Parlé™ TTM-X is an AVB low-profile tabletop microphone for use in Tesira systems. Comprising a network box and a tabletop microphone, each microphone includes Beamtracking technology with four 90-degree zones, providing full 360-degree coverage of the meeting space. The TTM-X microphone delivers Beamtracking performance in a sleek, unobtrusive design that sits on or mounts to a conferencing table. The TTM-X actively tracks and intelligently mixes conversations from around the table, allowing far-end participants to experience the conversation as they would a face-to-face meeting. Each network box has its own digital signal processing module and comes with an additional RJ-45 connector to add an optional TTM-XEX. A maximum of two microphones are permitted per network box (one TTM-X with TTM-XEX). The TTM-X is well suited for a variety of room types and sizes that require high-quality audio solutions and low-profile or unobtrusive microphones.

FEATURES

- Low profile circular tabletop microphone that measures 4.3 inches (110 mm) in diameter
- Sits directly on a tabletop to virtually disappear in room
- Beamtracking technology actively tracks and intelligently mixes conversations
- Four 90-degree zones for full 360-degree room coverage
- Network box includes DSP for Beamtracking
- Uses only one channel of AEC per microphone

- Single cable connection via category cable
- Beamtracking technology works out-of-box without any lobe aiming or room mapping
- LED mute status indicator
- Available in either black or white
- Additional RJ-45 on network box for connection to a TTM-XEX microphone
- CE marked, UL listed, and RoHS compliant
- Covered by Biamp Systems' five-year warranty

ARCHITECTS & ENGINEERS SPECIFICATIONS

The Beamtracking™ tabletop microphone shall be designed exclusively for use with Biamp® Tesira® systems. The Beamtracking tabletop microphone shall be comprised of a tabletop microphone and a network box. The Beamtracking tabletop microphone shall utilize an AVB/TSN network via an RJ-45 connector for audio networking as well as software configuration and control. The Beamtracking tabletop microphone shall contain a sixteen-element digital microphone array and shall provide four 90-degree zones for 360 degrees of coverage. The Beamtracking tabletop microphone shall offer multidirectional beamforming and automatic signal tracking capabilities. The Beamtracking technology shall operate in conjunction with acoustic echo cancellation technology (AEC) in accordance with U.S. Patent 9659576. The signal processing of the Beamtracking tabletop microphone shall be configurable via the Tesira design software, including but not limited to: signal routing and mixing, equalization, filtering, dynamics, and delay, as well as control, monitoring, and diagnostic tools. The Beamtracking tabletop microphone shall offer simple installation and shall be placed on or mounted directly to the tabletop. The Beamtracking tabletop microphone shall be powered by PoE (IEEE 802.3at Class 3, 15.4W). The Beamtracking tabletop microphone shall provide a second RJ-45 connector to allow connection of one expander TTM-XEX microphone. The Beamtracking ceiling microphone shall be CE marked, UL listed, and compliant with the RoHS directive. Warranty shall be five years. The Beamtracking tabletop microphone shall be Parlé™ TTM-X.

PARLÉ TTM-X SPECIFICATIONS

TABLETOP MICROPHONE

Microphone Technology:	16-Element Digital Array
Frequency Response (150 Hz - 16 kHz):	± 3dB
Polar Pattern:	Beamformed
Sensitivity (94dB SPL, 1kHz):	> 74dB
Maximum SPL (at 0.5% THD):	109dB
Dynamic Range (THD+N < 10%):	90dB, A-Weighted
Indicators:	Mute Indicator (Green/Red LED)
Digital Interface:	Custom/Proprietary
Connector:	RJ-45 (cable length 6.6 feet [2 meters])

Overall Dimensions

Height:	0.7 inches (18 mm)
Diameter:	4.3 inches (110 mm)
Weight:	0.5 lbs (231 g)

NETWORK BOX

Connectors:	Three RJ-45: one between TTM-X network box and switch, one between the network box and microphone, the other between TTM-X network box and TTM-XEX
Power:	PoE (IEEE 802.3at Class 3, 15.4W)
Indicators:	Power Indicator (Green/Yellow/Red LED)
Digital Interface:	Custom/Proprietary
Max Distance Between Devices:	330 feet (100 meters) from switch to TTM-X network box; 33 feet (10 meters) between TTM-X network box and TTM-XEX

Overall Dimensions

Height:	0.9 inches (23 mm)
Width:	4.2 inches (106 mm)
Depth:	4.2 inches (106 mm)
Weight:	0.7 lbs (310 g)

Environmental

Ambient Operating Temperature Range:	32 - 104° F (0 - 40° C)
Humidity:	0-95% relative humidity (non-condensing)
Altitude:	0-10,000 ft (0-3000m) MSL
Compliance:	FCC Part 15B (USA) CE marked (Europe) UL and C-UL listed (USA and Canada) RoHS Directive (Europe)

OPTIONAL ACCESSORIES
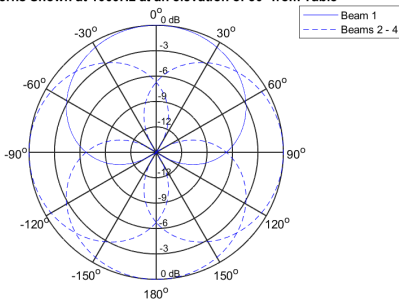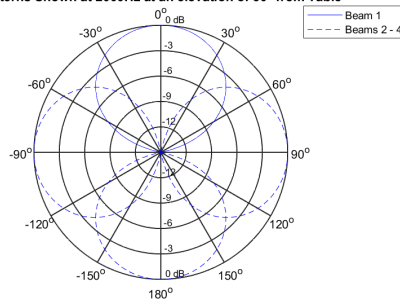

TTM-X-SM
Secure mounting bracket
for TTM-X/-XEX
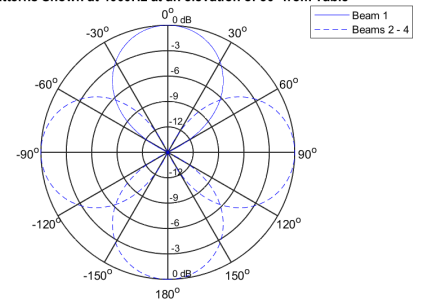

16mm Grommet
Table grommet, 7mm ID

TTM-X Polar Responses at Center of Tracking Zones
Patterns Shown at 1000Hz at an elevation of 30° from Table

TTM-X Polar Responses at Center of Tracking Zones
Patterns Shown at 2000Hz at an elevation of 30° from Table

TTM-X Polar Responses at Center of Tracking Zones
Patterns Shown at 4000Hz at an elevation of 30° from Table

biamp.

DATA SHEET
PARLÉ™ TTM-XEX
BEAMTRACKING™ TABLETOP MICROPHONE

The Parlé™ TTM-XEX is a tabletop microphone for use in Tesira® and Devio® systems. Each low-profile microphone includes Beamtracking technology with four 90-degree zones, providing full 360-degree coverage of the meeting space. The TTM-XEX microphone delivers Beamtracking performance in a sleek, unobtrusive design that can be either placed on or mounted to a tabletop. The TTM-XEX actively tracks and intelligently mixes conversations from around the table, allowing far-end participants to experience the conversation as they would a face-to-face meeting. In Tesira systems, the TTM-XEX is intended to be used as a second microphone in conjunction with the TTM-X; it cannot operate as a standalone device. In Devio systems, it functions as a standalone microphone. The TTM-XEX is well suited for a variety of room types and sizes that require high-quality audio solutions and low-profile or unobtrusive microphones.
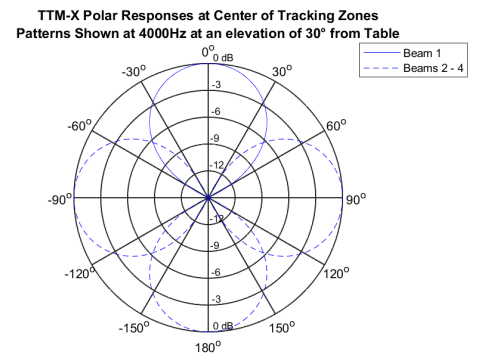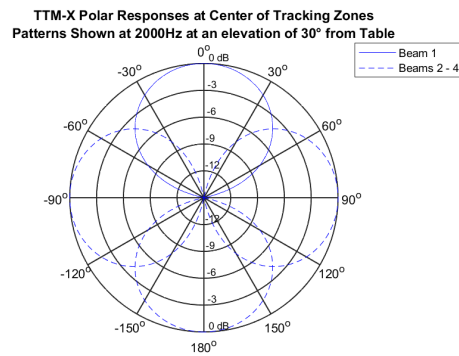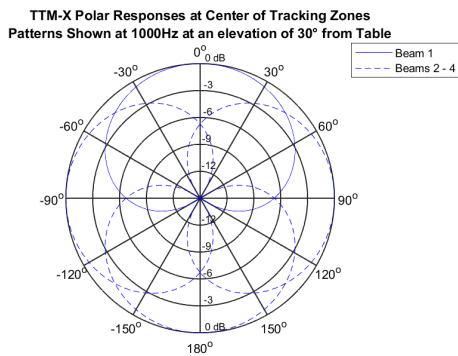
FEATURES

- Must be used with a Parlé TTM-X microphone in Tesira systems
- Low profile circular tabletop mic that measures 4.3 inches (110 mm) in diameter
- Sits directly on a tabletop to virtually disappear in room
- Beamtracking technology actively tracks and intelligently mixes conversations
- Four 90-degree zones for full 360-degree room coverage

- Uses only one channel of AEC per microphone
- Single cable connection via category cable
- Beamtracking technology works out-of-box without any lobe aiming or room mapping
- LED mute status indicator
- Available in either black or white
- CE marked, UL listed, and RoHS compliant
- Covered by Biamp Systems' five-year warranty

ARCHITECTS & ENGINEERS SPECIFICATIONS

The Beamtracking™ tabletop microphone shall be designed exclusively for use with Biamp® Tesira® and Devio® systems. The Beamtracking tabletop microphone shall utilize a proprietary digital protocol via an RJ-45 connector for audio networking. The Beamtracking tabletop microphone shall contain a sixteen-element digital microphone array, and shall provide four 90-degree zones for 360 degrees of coverage. The Beamtracking tabletop microphone shall offer multidirectional beamforming and automatic signal tracking capabilities. The Beamtracking technology shall operate in conjunction with acoustic echo cancellation technology (AEC) in accordance with U.S. Patent 9659576. The Beamtracking tabletop microphone shall offer simple installation and shall be placed on or mounted to a tabletop. The Beamtracking tabletop microphone shall be CE marked, UL listed, and compliant with the RoHS directive. Warranty shall be five years. The Beamtracking tabletop microphone shall be Parlé™ TTM-XEX.

PARLÉ TTM-XEX SPECIFICATIONS

Microphone Technology:	16-Element Digital Array	**Power:**		Custom/Proprietary
Frequency Response (150 Hz - 16 kHz):	± 3dB	**Max Distance Between Devices:**		33 feet (10 meters) between TTM-XEX and DSP host device
Polar Pattern:	Beamformed			
Sensitivity (94dB SPL, 1kHz):	> 74dB	**Environmental:**		
Maximum SPL (at 0.5% THD):	109dB	**Ambient Operating**		
Dynamic Range (THD+N < 10%):	90dB, A-Weighted	**Temperature Range:**		32 - 104° F (0 - 40° C)
		Humidity:	0-95% relative humidity (non-condensing)	
Indicators:	Mute Indicator (Green/Red LED)	**Altitude:**		0-10,000 ft (0-3000m) MSL
		Compliance:		
Digital Interface:	Custom/Proprietary			FCC Part 15B (USA)
Connector:	RJ-45 (cable length 6.6 feet [2 meters])			CE marked (Europe)
				UL and C-UL listed (USA and Canada)
Overall Dimensions				RoHS Directive (Europe)
Height:	0.7 inches (18 mm)			
Diameter:	4.3 inches (110 mm)			
Weight:	0.5 lbs (231 g)			

TTM-X Polar Responses at Center of Tracking Zones
Patterns Shown at 1000Hz at an elevation of 30° from Table

TTM-X Polar Responses at Center of Tracking Zones
Patterns Shown at 2000Hz at an elevation of 30° from Table

TTM-X Polar Responses at Center of Tracking Zones
Patterns Shown at 4000Hz at an elevation of 30° from Table

OPTIONAL ACCESSORIES

TTM-X-SM
Secure mounting bracket
for TTM-X/-XEX

16mm Grommet
Table grommet, 7mm ID

DATA SHEET
PARLÉ™ TCM-1
AVB BEAMTRACKING™ PENDANT MICROPHONE

The Parlé™ TCM-1 is an AVB pendant microphone for use in Tesira® systems. Comprising a pendant microphone and plenum box, each microphone includes Beamtracking™ technology with three 120-degree zones, providing full 360-degree coverage of the meeting space. The TCM-1 microphone actively tracks and intelligently mixes conversations from around the table, allowing far-end conference participants to experience the conversation naturally. The Parlé TCM-1 comes with its own digital signal processing module for Beamtracking, and each plenum box comes with an additional RJ-45 connector for daisy-chain connections. A maximum of three microphones are permitted per daisy chain (one TCM-1 or TCM-1A required, plus up to two TCM-1EX). The TCM-1 is well suited for a variety of room types and sizes that require high-quality audio solutions, such as conference rooms or council chambers.

FEATURES

- Beamtracking technology actively tracks and intelligently mixes conversations
- Three 120-degree zones for 360 degrees of coverage
- Plenum box includes DSP for Beamtracking
- LED mute status indicator
- Pendant microphone available in either white or black
- User-adjustable mic height
- Easy single-cable installation process

- Optional tile bridge mounting accessory available
- Evaluated to the requirements of UL 2043 and is suitable for use in air handling spaces
- Additional RJ-45 for daisy-chain connection to a TCM-1EX microphone (maximum of three mics per daisy chain; one TCM-1 or TCM-1A and two TCM-1EX)
- CE marked, UL listed, and RoHS compliant
- Covered by Biamp Systems' five-year warranty
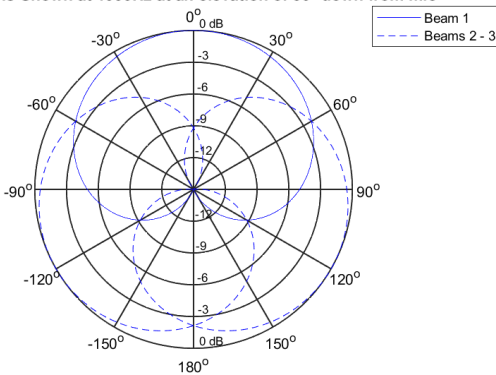
ARCHITECTS & ENGINEERS SPECIFICATIONS

The Beamtracking™ pendant microphone shall be designed exclusively for use with Biamp® Tesira® systems. The Beamtracking pendant microphone shall be comprised of a pendant microphone and plenum box. The Beamtracking pendant microphone shall utilize an AVB/TSN network via an RJ-45 connector for audio networking as well as software configuration and control. The Beamtracking pendant microphone shall contain an eight-element digital microphone array, and shall provide three 120-degree zones for 360 degrees of coverage. The Beamtracking pendant microphone shall offer multidirectional beamforming and automatic signal tracking capabilities. The Beamtracking technology shall operate in conjunction with acoustic echo cancellation technology (AEC) in accordance with U.S. Patent 9659576. The signal processing of the Beamtracking pendant microphone shall be configurable via the Tesira design software, including but not limited to: signal routing and mixing, equalization, filtering, dynamics, and delay, as well as control, monitoring, and diagnostic tools. The Beamtracking pendant microphone shall offer simple installation and microphone height adjustment, and shall be mountable on a ceiling tile or in open-ceiling environments. The Beamtracking pendant microphone shall be powered by PoE (IEEE 802.3at Class 3). The Beamtracking pendant microphone shall be suitable for use in air handling spaces in accordance with UL 2043, and shall provide a second RJ-45 connector to allow up to two additional expander TCM-1EX microphones to be daisy-chained together. The Beamtracking pendant microphone shall be CE marked, UL listed, and compliant with the RoHS directive. Warranty shall be five years. The Beamtracking pendant microphone shall be Parlé™ TCM-1.
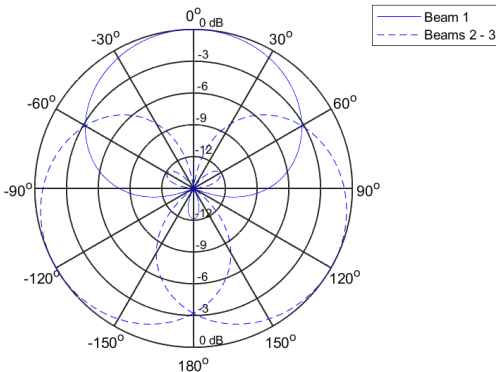
PARLÉ TCM-1 SPECIFICATIONS

PENDANT MICROPHONE	
Microphone Technology:	8-Element Digital Array
Frequency Response (150 Hz - 16 kHz):	± 3dB
Polar Pattern:	Beamformed
Sensitivity (94dB SPL, 1kHz):	> 70dB
Maximum SPL (at 0.5% THD):	106dB
Dynamic Range (THD+N < 10%):	92dB, A-Weighted
Indicators:	Mute Indicator (Green/Red LED)
Digital Interface:	Custom/Proprietary
Connector:	Custom 2-pin (cable length 10 feet [3 meters])
Overall Dimensions	
Height:	2 inches (51 mm)
Width:	2.5 inches (63 mm)
Depth:	2.5 inches (63 mm)
Weight:	0.4 lbs (0.2 kg)

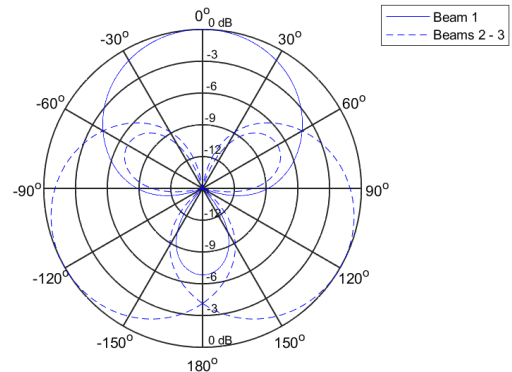| PLENUM BOX	
Connectors:	Two RJ-45: one between TCM-1 plenum box and switch, the other between TCM-1 plenum box and additional TCM-1EX plenum box; 2-pin 3.5 mm Phoenix connector to TCM-1 microphone
Power:	PoE (IEEE 802.3at Class 3, 15.4W)
Indicators:	Power Indicator (Green/Yellow/Red LED)
Digital Interface:	Custom/Proprietary
Max Distance Between Devices:	330 feet (100 meters) from switch to TCM-1 plenum box; 33 feet (10 meters) for daisy-chained connections between TCM plenum boxes
Overall Dimensions	
Height:	2 inches (51 mm)
Width:	7 inches (178 mm)
Depth:	7.125 inches (181 mm)
Weight:	2.4 lbs (1.1 kg)
Environmental	
Ambient Operating Temperature Range:	32 - 104° F (0 - 40° C)
Humidity:	0-95% relative humidity (non-condensing)
Altitude:	0-10,000 ft (0-3000m) MSL
Compliance:	FCC Part 15B (USA) CE marked (Europe) UL and C-UL listed (USA and Canada) RoHS Directive (Europe) Evaluated to the requirements of UL 2043 and is suitable for use in air handling spaces

TCM-1 Polar Responses at Center of Tracking Zones
Patterns Shown at 1000Hz at an elevation of 30° down from mic

TCM-1 Polar Responses at Center of Tracking Zones
Patterns Shown at 2000Hz at an elevation of 30° down from mic

TCM-1 Polar Responses at Center of Tracking Zones
Patterns Shown at 4000Hz at an elevation of 30° down from mic

DATA SHEET
PARLÉ™ TCM-1A
AVB BEAMTRACKING™ PENDANT MICROPHONE & POE+ AMPLIFIER

The Parlé™ TCM-1A is an AVB pendant microphone and PoE+ (IEEE 802.3at Class 4, 30W) amplifier for use in Tesira® systems. Comprising a pendant microphone and plenum box, each microphone includes Beamtracking™ technology with three 120-degree zones, providing full 360-degree coverage of the meeting space. The TCM-1A microphone actively tracks and intelligently mixes conversations from around the table, allowing far-end conference participants to experience the conversation naturally. The 2-channel PoE+ amplifier includes an internal limiter, selectable power, and is also capable of operating in a burst mode to handle peak signals, providing up to 40 watts (4Ω load) or 30 watts (8Ω load) per channel. The TCM-1A comes with its own digital signal processing module for Beamtracking, and each plenum box comes with an additional RJ-45 connector for daisy-chain connections. A maximum of three microphones are permitted per daisy chain (one TCM-1 or TCM-1A required, plus up to two TCM-1EX). The TCM-1A is well suited for a variety of room types and sizes that require high-quality audio solutions, such as conference rooms or council chambers.

FEATURES

- Beamtracking technology actively tracks and intelligently mixes conversations

- Plenum box includes DSP for Beamtracking and a PoE+ amplifier

  - Two channels; 4 watts continuous power per channel

  - Burst mode to handle peak signals in accordance with ANSI/CTA-2006-B; supports up to 40 watts (4Ω load) or 30 watts (8Ω load) per channel

  - Software-selectable power vs. channel count

  - Includes internal limiter function

- Three 120-degree zones for 360 degrees of coverage

- Pendant microphone available in either white or black

- User-adjustable mic height

- Optional tile bridge mounting accessory available

- Evaluated to the requirements of UL 2043 and is suitable for use in air handling spaces

- Additional RJ-45 for daisy-chain connection to a TCM-1EX microphone (maximum of three mics per daisy chain; one TCM-1 or TCM-1A and two TCM-1EX)

- CE marked, UL listed, and RoHS compliant

- Covered by Biamp Systems' five-year warranty

## ARCHITECTS & ENGINEERS SPECIFICATIONS

The Beamtracking™ pendant microphone shall be designed exclusively for use with Biamp® Tesira® systems. The Beamtracking pendant microphone shall be comprised of a pendant microphone and plenum box. The Beamtracking pendant microphone shall utilize an AVB/TSN network via an RJ-45 connector for audio networking as well as software configuration and control. The Beamtracking pendant microphone shall contain an eight-element digital microphone array, and shall provide three 120-degree zones for 360 degrees of coverage. The Beamtracking pendant microphone shall offer multidirectional beamforming and automatic signal tracking capabilities. The Beamtracking technology shall operate in conjunction with acoustic echo cancellation technology (AEC) in accordance with U.S. Patent 9659576. The signal processing of the Beamtracking pendant microphone shall be configurable via the Tesira design software, including but not limited to: signal routing and mixing, equalization, filtering, dynamics, and delay, as well as control, monitoring, and diagnostic tools. The plenum box of the Beamtracking pendant microphone shall provide two output channels of 4 watts of continuous power per channel into a 4-ohm load and an 8-ohm load. The plenum box of the Beamtracking pendant microphone shall also provide burst power output of 40 watts per channel into a 4-ohm load, and 30 watts per channel into an 8-ohm load in accordance with ANSI/CTA-2006-B. The Beamtracking pendant microphone shall offer simple installation and microphone height adjustment, and shall be mountable on a ceiling tile or in open-ceiling environments. The Beamtracking pendant microphone shall be powered by PoE+ (IEEE 802.3at Class 4, 30W). The Beamtracking pendant microphone shall be suitable for use in air handling spaces in accordance with UL 2043, and shall provide a second RJ-45 connector to allow up to two additional expander TCM-1EX microphones to be daisy-chained together. The Beamtracking pendant microphone shall be CE marked, UL listed, and compliant with the RoHS directive. Warranty shall be five years. The Beamtracking pendant microphone shall be Parlé™ TCM-1A.

PARLÉ TCM-1A SPECIFICATIONS

PENDANT MICROPHONE

Microphone Technology:	8-Element Digital Array
Frequency Response (150 Hz - 16 kHz):	± 3dB
Polar Pattern:	Beamformed
Sensitivity (94dB SPL, 1kHz):	> 70dB
Maximum SPL (at 0.5% THD):	106dB
Dynamic Range (THD+N < 10%):	92dB, A-Weighted
Indicators:	Mute Indicator (Green/Red LED)
Digital Interface:	Custom/Proprietary
Connector:	Custom 2-pin (cable length 10 feet [3 meters])

Overall Dimensions

|	
Height:	2 inches (51 mm)
Width:	2.5 inches (63 mm)
Depth:	2.5 inches (63 mm)
Weight:	0.4 lbs (0.2 kg)

TCM-1 Polar Responses at Center of Tracking Zones
Patterns Shown at 1000Hz at an elevation of 30° down from mic
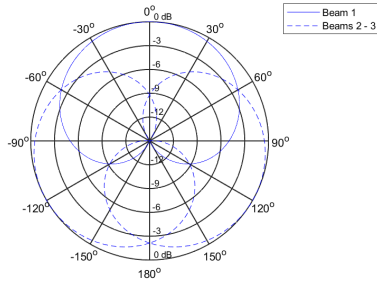
TCM-1 Polar Responses at Center of Tracking Zones
Patterns Shown at 2000Hz at an elevation of 30° down from mic
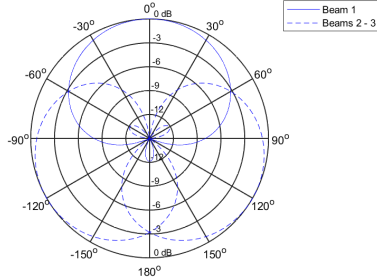
TCM-1 Polar Responses at Center of Tracking Zones
Patterns Shown at 4000Hz at an elevation of 30° down from mic
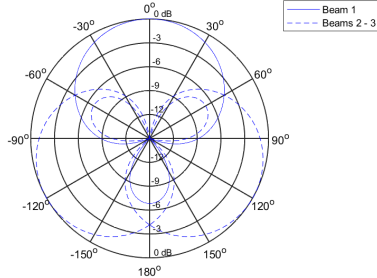
PLENUM BOX

Connectors:	Two RJ-45: one between TCM-1A plenum box and switch, the other between TCM-1A plenum box and additional TCM-1EX plenum box; 2-pin 3.5 mm Phoenix connector to TCM-1A microphone
Power:	PoE+ (IEEE 802.3at Class 4, 30W)
Indicators:	Power Indicator (Green/Yellow/Red LED) Amp Status Indicator (Green/Yellow/Red LED)
Digital Interface:	Custom/Proprietary
Max Distance Between Devices:	330 feet (100 meters) from switch to TCM-1A plenum box; 33 feet (10 meters) for daisy-chained connections between TCM plenum boxes

Overall Dimensions

Height:	2 inches (51 mm)
Width:	7 inches (178 mm)
Depth:	7.125 inches (181 mm)
Weight:	2.4 lbs (1.1 kg)

Environmental

Ambient Operating Temperature Range:	32 - 104° F (0 - 40° C)
Humidity:	0-95% relative humidity (non-condensing)
Altitude:	0-10,000 ft (0-3000m) MSL

Compliance:	FCC Part 15B (USA) CE marked (Europe) UL and C-UL listed (USA and Canada) RoHS Directive (Europe) Evaluated to the requirements of UL 2043 and is suitable for use in air handling spaces

AMPLIFIER

Number of Channels:	2
Connectors:	4-pin 5.08 mm Phoenix connectors
Amplifier Topology:	Class D

Burst Power Output (per ANSI/CTA-2006-B @ 1kHz):

4Ω **(per channel):**	40W
8Ω **(per channel):**	30W

Continuous Power Output:

Single Channel Driven, (4Ω, 8Ω):	8W
Dual Channel Driven (4Ω, 8Ω):	4W

THD+N (20Hz-20kHz, at continuous power):	< 0.3%
Frequency Response (20Hz-20kHz):	± 1dB
Dynamic Range (20Hz-20kHz BW):	> 85dB
Minimum Operational Load:	4Ω
Intermodulation distortion (SMPTE):	< 0.3%
Cross Talk (channel to channel @ 1kHz):	< -90dB

DATA SHEET
PARLÉ™ TCM-1EX
EXPANSION AVB BEAMTRACKING™ PENDANT MICROPHONE

The Parlé™ TCM-1EX is an expansion AVB pendant microphone for use in Tesira® systems. Comprising a pendant microphone and plenum box, each microphone includes Beamtracking™ technology with three 120-degree zones, providing full 360-degree coverage of the meeting space. The TCM-1EX microphone actively tracks and intelligently mixes conversations from around the table, allowing far-end conference participants to experience the conversation naturally. The Parlé TCM-1EX is intended to be used as a second and third microphone in conjunction with a TCM-1 or TCM-1A; it cannot operate as a standalone device. Each plenum box comes with an additional RJ-45 connector for daisy-chain connections. A maximum of three microphones are permitted per daisy chain (one TCM-1 or TCM-1A required, plus up to two TCM-1EX). The TCM-1EX is well suited for a variety of room types and sizes that require high-quality audio solutions, such as conference rooms or council chambers.

FEATURES

- Must be used with a Parlé TCM-1 or TCM-1A microphone
- Beamtracking technology actively tracks and intelligently mixes conversations
- Three 120-degree zones for 360 degrees of coverage
- LED mute status indicator
- Pendant microphone available in either white or black
- User-adjustable mic height
- Easy single-cable installation process

- Optional tile bridge mounting accessory available
- Evaluated to the requirements of UL 2043 and is suitable for use in air handling spaces
- Additional RJ-45 for daisy-chain connection to another TCM-1EX microphone (maximum of three mics per daisy chain; one TCM-1 or TCM-1A and two TCM-1EX)
- CE marked, UL listed, and RoHS compliant
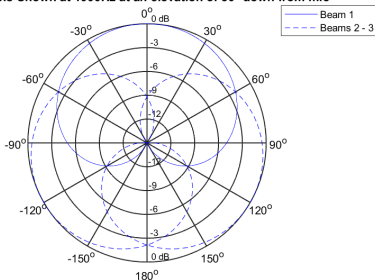- Covered by Biamp Systems' five-year warranty

ARCHITECTS & ENGINEERS SPECIFICATIONS

The expansion Beamtracking™ pendant microphone shall be designed exclusively for use with Biamp® Tesira® systems. The expansion Beamtracking pendant microphone shall be comprised of a pendant microphone and plenum box. The expansion Beamtracking pendant microphone shall utilize a proprietary digital protocol via an RJ-45 connector for audio networking with a TCM-1 or TCM-1A Beamtracking pendant microphone. The expansion Beamtracking pendant microphone shall contain an eight-element digital microphone array, and shall provide three 120-degree zones for 360 degrees of coverage. The expansion Beamtracking pendant microphone shall offer multidirectional beamforming and automatic signal tracking capabilities. The Beamtracking technology shall operate in conjunction with acoustic echo cancellation technology (AEC) in accordance with U.S. Patent 9659576. The signal processing of the expansion Beamtracking pendant microphone shall be configurable via the Tesira design software, including but not limited to: signal routing and mixing, equalization, filtering, dynamics, and delay, as well as control, monitoring, and diagnostic tools. The expansion Beamtracking pendant microphone shall offer simple installation and microphone height adjustment, and shall be mountable on a ceiling tile or in open-ceiling environments. The expansion Beamtracking pendant microphone shall be suitable for use in air handling spaces in accordance with UL 2043, and shall provide a second RJ-45 connector to allow up to three microphones to be daisy-chained together. The expansion Beamtracking pendant microphone shall be CE marked, UL listed, and compliant with the RoHS directive. Warranty shall be five years. The expansion Beamtracking pendant microphone shall be Parlé™ TCM-1EX.
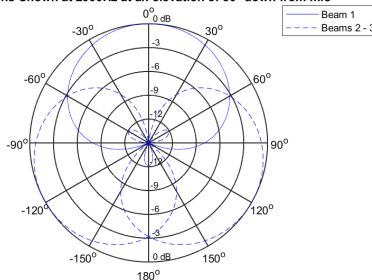
PARLÉ TCM-1EX SPECIFICATIONS

PENDANT MICROPHONE

Microphone Technology:	8-Element Digital Array
Frequency Response (150 Hz - 16 kHz):	± 3dB
Polar Pattern:	Beamformed
Sensitivity (94dB SPL, 1kHz):	> 70dB
Maximum SPL (at 0.5% THD):	106dB
Dynamic Range (THD+N < 10%):	92 dB, A-Weighted
Indicators:	Mute Indicator (Green/Red LED)
Digital Interface:	Custom/Proprietary
Connector:	Custom 2-pin (cable length 10 feet [3 meters])
Overall Dimensions:	
Height:	2 inches (51 mm)
Width:	2.5 inches (63 mm)
Depth:	2.5 inches (63 mm)
Weight:	0.4 lbs (0.2 kg)

PLENUM BOX

Connectors:	Two RJ-45: one between TCM-1EX plenum box and TCM-1 or TCM-1A, the other between TCM-1EX plenum box and additional TCM-1EX plenum box; 2-pin 3.5 mm Phoenix connector to TCM-1EX microphone
Power:	Custom/Proprietary
Indicators:	Link Indicator (Green LED)
Digital Interface:	Custom/Proprietary
Max Distance Between Devices:	33 feet (10 meters) between TCM plenum boxes
Overall Dimensions:	
Height:	2 inches (51 mm)
Width:	4 inches (102 mm)
Depth:	5.25 inches (133 mm)
Weight:	0.8 lbs (0.4 kg)
Environmental:	
Ambient Operating Temperature Range:	32 - 104° F (0 - 40° C)
Humidity:	0-95% relative humidity (non-condensing)
Altitude:	0-10,000 ft (0-3000m) MSL
Compliance:	FCC Part 15B (USA) CE marked (Europe) UL and C-UL listed (USA and Canada) RoHS Directive (Europe) Evaluated to the requirements of UL 2043 and is suitable for use in air handling spaces

TCM-1 Polar Responses at Center of Tracking Zones
Patterns Shown at 1000Hz at an elevation of 30° down from mic

TCM-1 Polar Responses at Center of Tracking Zones
Patterns Shown at 2000Hz at an elevation of 30° down from mic

TCM-1 Polar Responses at Center of Tracking Zones
Patterns Shown at 4000Hz at an elevation of 30° down from mic