

The SHURE logo is displayed in a bold, italicized, black sans-serif font. The letters are white with a black outline, set against a black rectangular background that has a slight perspective tilt.

# TH53

## TwinPlex™ Omnidirectional Headset

The Shure Omnidirectional TwinPlex Headset, TH53, user guide.  
Version: 3 (2019-H)

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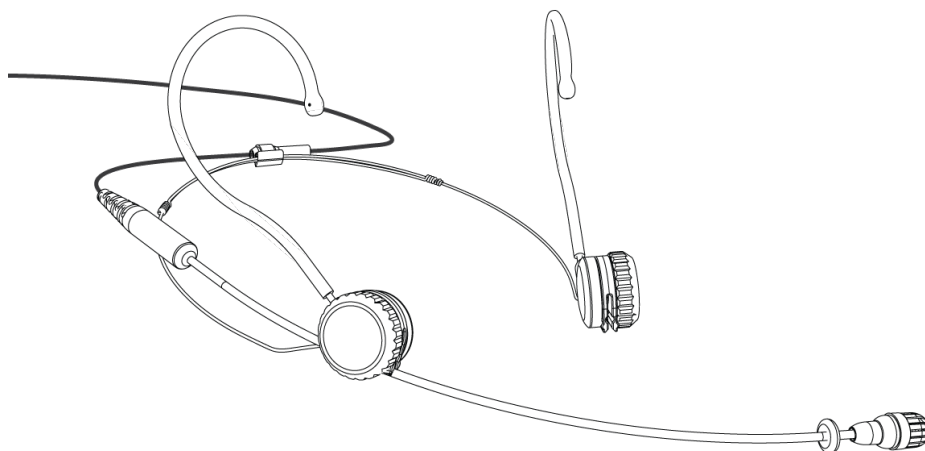
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# TH53 TwinPlex™ Omnidirectional Headset

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## General Description



The Shure TwinPlex™ omnidirectional headset offers exceptional sound quality and the lightest, most comfortable fit for a variety of applications. The TwinPlex dual-diaphragm technology yields extraordinary, off-axis response, and low self-noise while delivering life-like, exceptional clarity and robust low frequency response, free of digital interference. The cable itself is ultra quiet and has been tested to be the longest-lasting, most dependable cable in its class. The innovative clutch system quickly allows adjustment of length and pitch of the boom arm for optimal placement and a stable fit while the ultralight frame virtually is weightless for extended comfort and wear.

The TwinPlex series features the most extensive accessories and connector options to date. TwinPlex not only meets premium market-leading expectations, they exceed them.

## Features

- Exceptional sound quality from the all new TwinPlex dual-diaphragm element
  - Robust low frequency response with flat top end
  - Best in class specifications and dynamic range
- Durability beyond the competition
  - Exclusive, double helix cable technology with redundant grounding
  - Nano-coated, interchangeable frequency caps for reduced sweat out and moisture resistance
- Ultra lightweight, fully adjustable headset frame
  - Quickly adjust length and pitch of the boom arm without bending
  - Easily switch between left or right positioning
  - Comfort earhook sleeves allow for extended wear

- Headset frame can adjust down to the smallest child's head
- High RF immunity for use with today's digital wireless systems
- Paintable cables allow for discreet placement in professional theater applications
- Interchangeable frequency response caps offer adjustable flat or presence responses
- Available in a variety of color and connector offerings

## Model Variations Key

TH53 T/O-MTQG  
Color Polar Pattern Connector

Color: Black / Cocoa / Tan

Polar Pattern: Omnidirectional

Connector: LEMO / MTQG / MDOT / NC

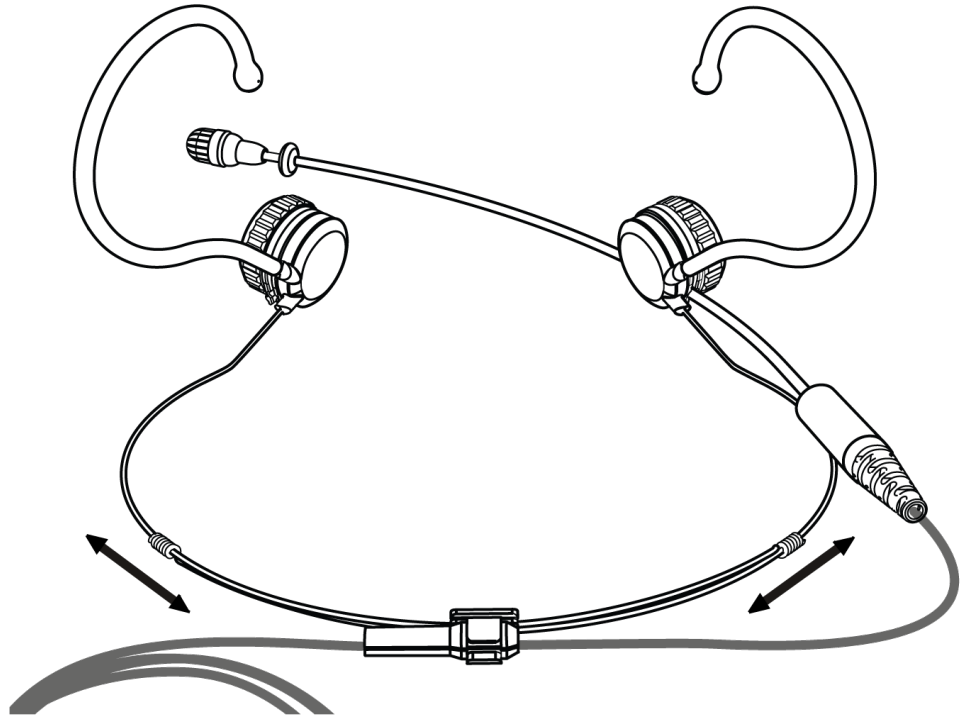
**Note:** Not all model variations are available. Refer to [www.shure.com/twinplex](http://www.shure.com/twinplex) for the most up to date offerings.

## Care and Maintenance

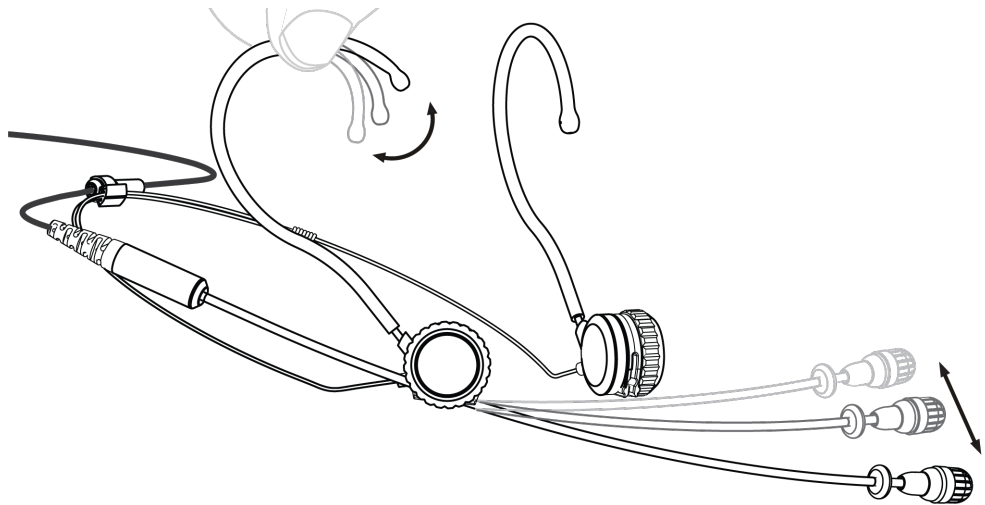
The TwinPlex lavalier dual-diaphragm has a nanocoating which rejects the build-up of grit from sweat and water. It is designed to withstand being blown out with a can of air for quick clean-up.

# Adjusting the Headband and Microphone

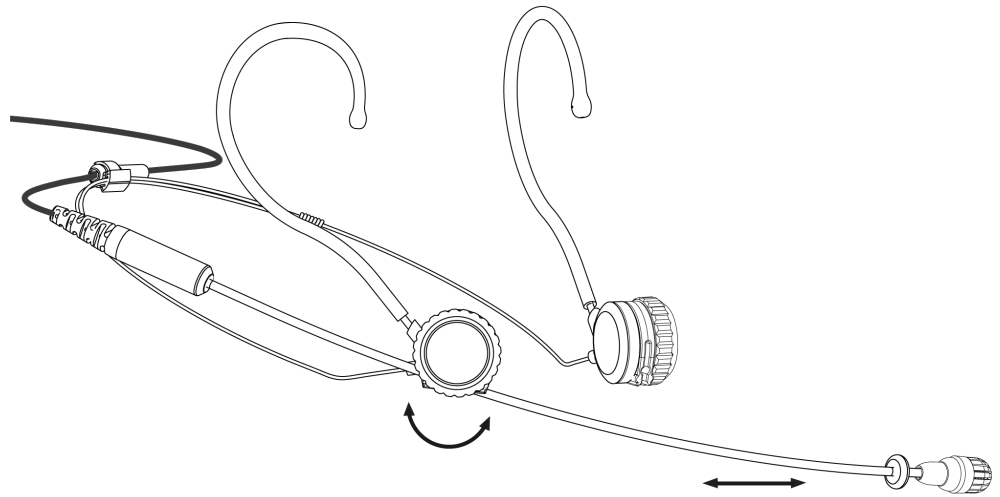
① Adjust headband width



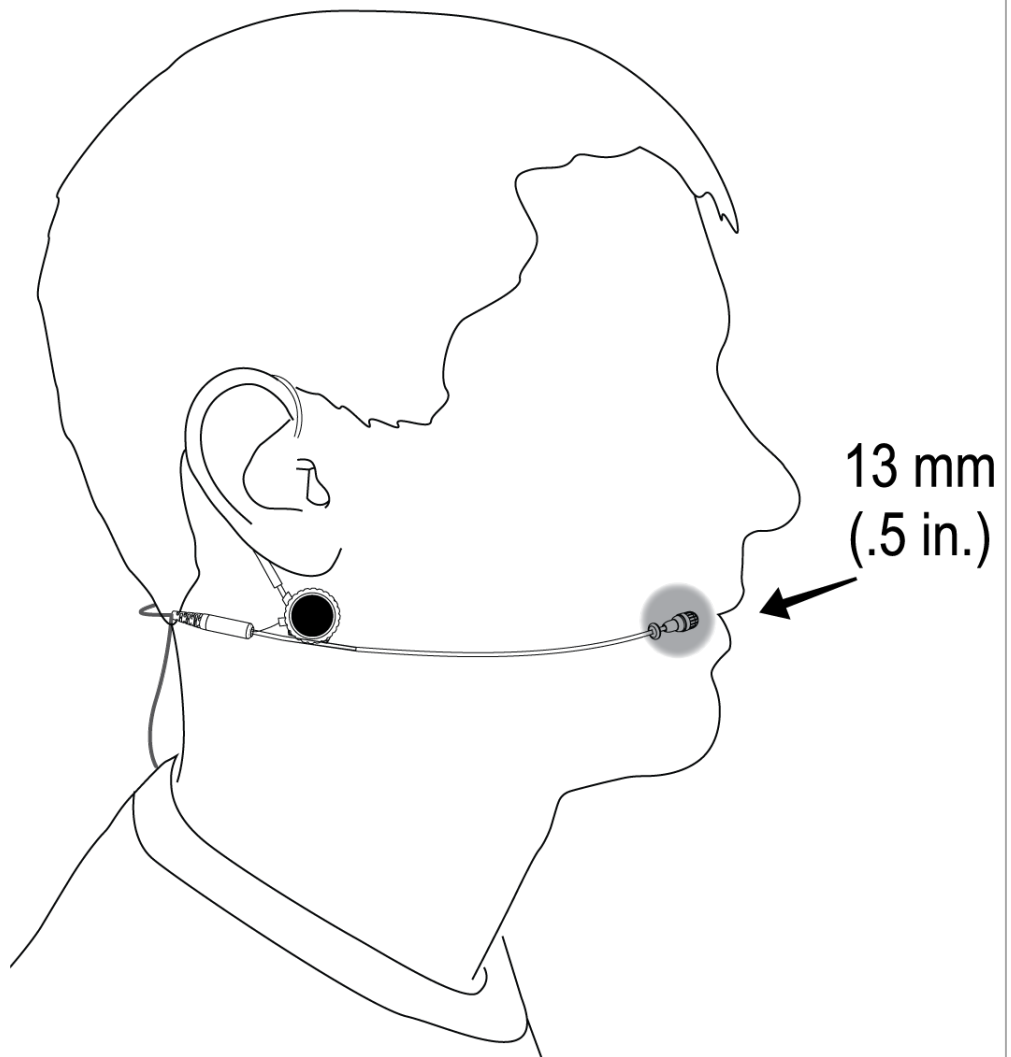
② Adjust the earhooks and boom angle

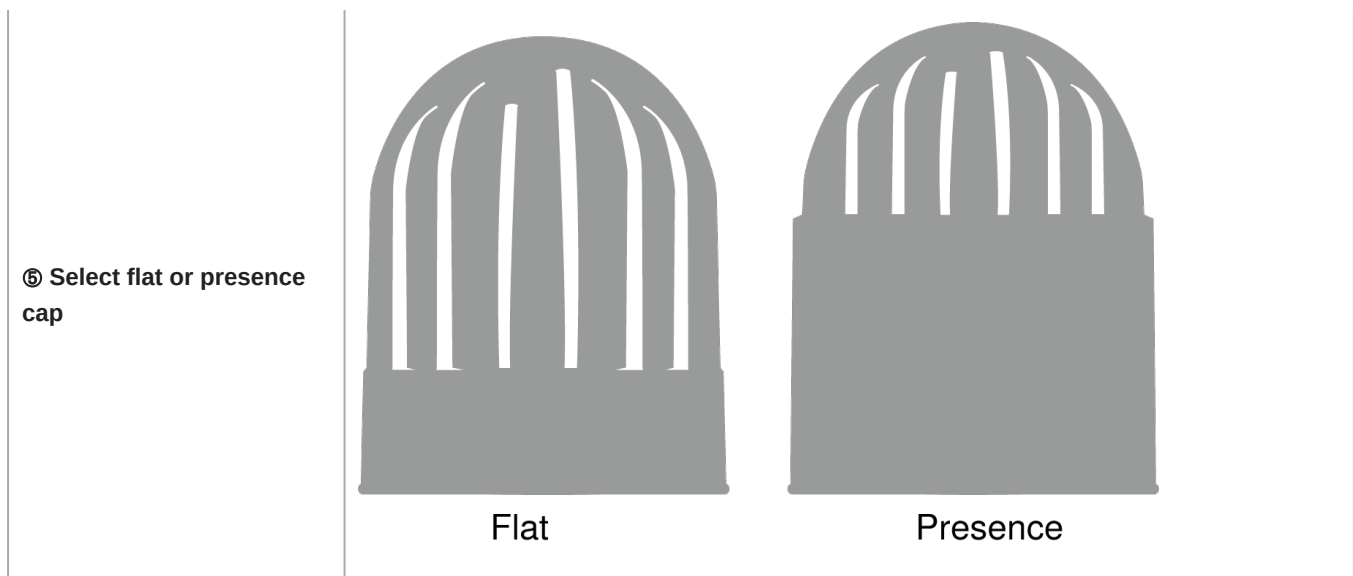


③ Unscrew the clutch to adjust boom height and length



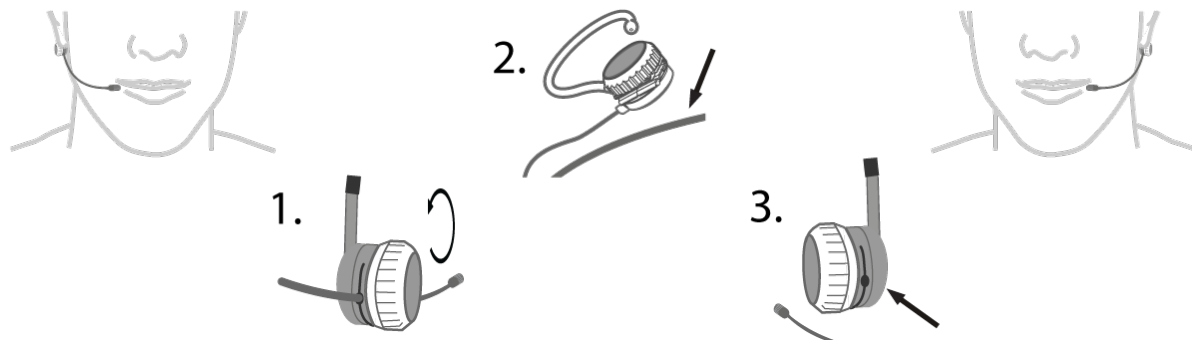
④ Bend boom arm into place. Adjust position





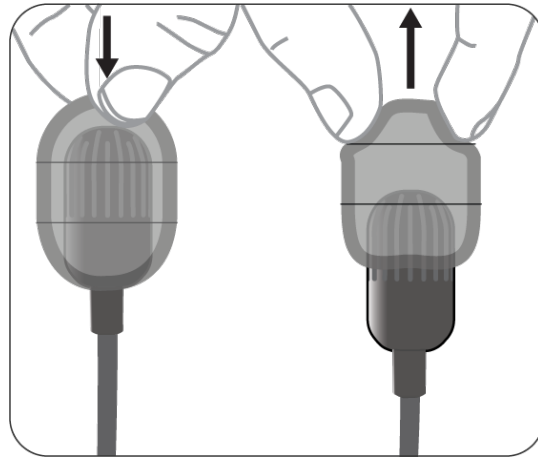
## Reversing the Boom

The microphone boom can be positioned on the left or right side of the head.

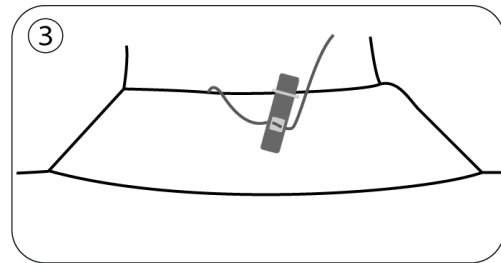
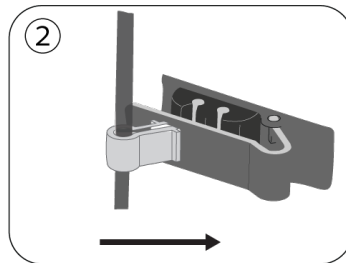
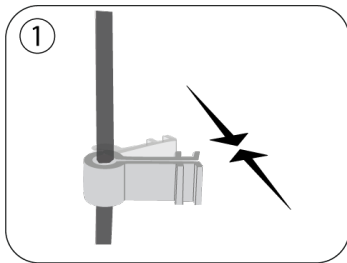


1. Unscrew the clutch to loosen the boom arm.
2. Push down and snap out the boom arm.
3. Snap into the other side and tighten in place.

## Attaching the Windscreen



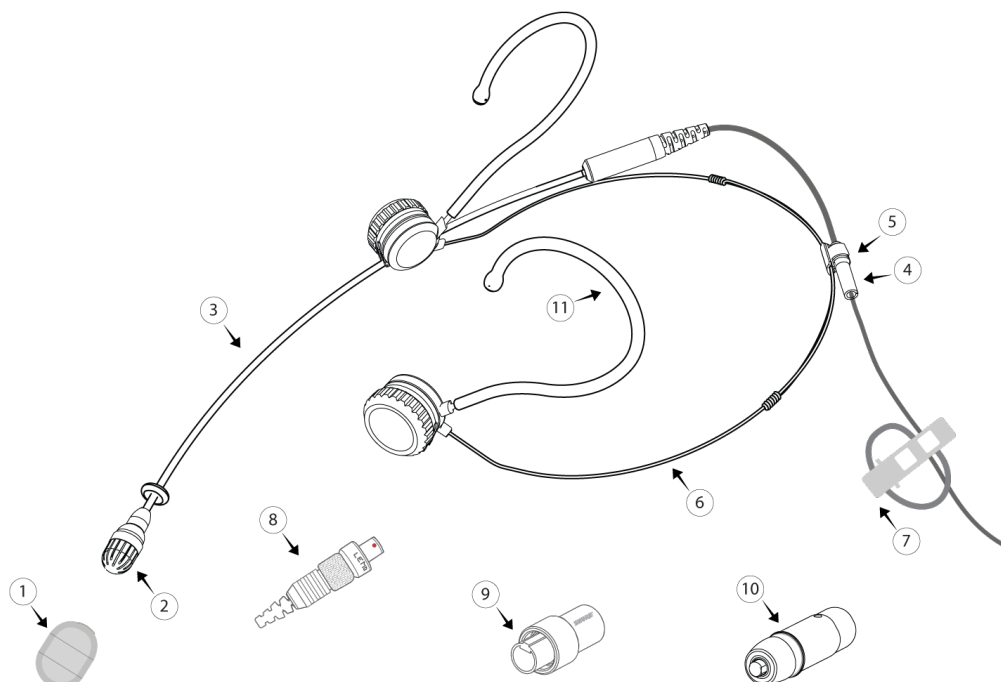
## Using the Collar Clip





# Accessories

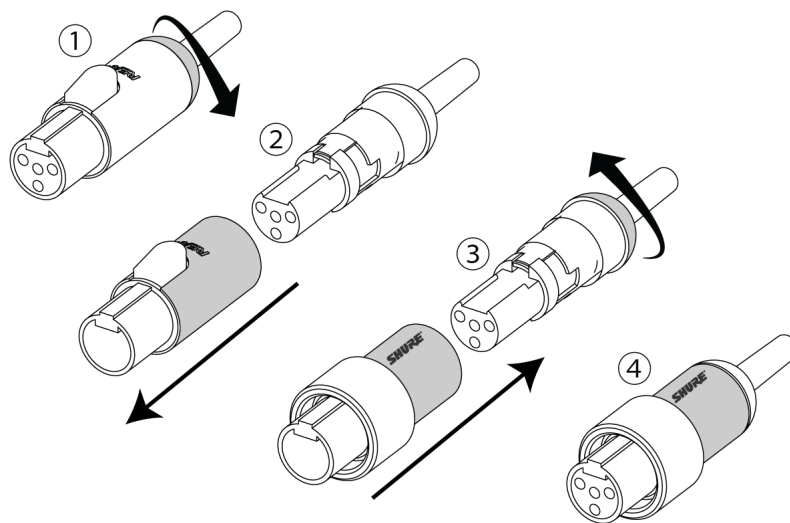
## Replacement Parts



|   | Description   | Black         | Tan           | Cocoa         |
|---|---|---------------|---------------|---------------|
| 1 | Foam Windscreen   | RPM40WS/B     | RPM40WS/T     | RPM40WS/C     |
| 2 | Frequency Caps, <b>Flat Response</b>                              | RPM40FC/B     | RPM40FC/T     | RPM40FC/C     |
|   | Frequency Caps, <b>Presence Response</b>                          | RPM40PC/B     | RPM40PC/T     | RPM40PC/C     |
| 3 | Microphone Boom Arm and Cable Assembly, <b>Lemo Connector</b>     | RPM53B/O-LEMO | RPM53T/O-LEMO | RPM53C/O-LEMO |
|   | Microphone Boom Arm and Cable Assembly, <b>MTQG Connector</b>     | RPM53B/O-MTQG | RPM53T/O-MTQG | RPM53C/O-MTQG |
|   | Microphone Boom Arm and Cable Assembly, <b>No Connector</b>       | RPM53B/O-NC   | RPM53T/O-NC   | RPM53C/O-NC   |
|   | Microphone Boom Arm and Cable Assembly, <b>MicroDot Connector</b> | RPM53B/O-MDOT | RPM53T/O-MDOT | RPM53C/O-MDOT |
| 4 | Cable Flex  | RPM53B-CF     | RPM53T-CF     | RPM53C-CF     |
| 5 | Cable Headset Clip  | RPM53B-CC     | RPM53T-CC     | RPM53C-CC     |

|    | Description               | Black   | Tan            | Cocoa          |
|----|---------------------------|---|----------------|----------------|
| 6  | Headset Frame             | RPM53B-HF   | RPM53T-HF      | RPM53C-HF      |
| 7  | Collar Clip               | RPM40STC/<br>B (Black),<br>RPM40STC/<br>W (White) | RPM40STC/<br>T | RPM40STC/<br>C |
| 8  | Connector                 | WA430 (MTQG), WA416 (LEMO)                        |                |                |
| 9  | Threaded TA4F/MTQG Collar | WA445   |                |                |
| 10 | XLR Preamplifier          | RPM400TQG (TA4F to XLR), RPM400LEMO (LEMO to XLR) |                |                |
| 11 | Clear Earhook Sleeve      | RPM50ES   |                |                |
|    | Storage Case              | RPM50CASE   |                |                |

## Threaded Mount Instructions



# Wiring and Termination

## Typical Wiring Table

| Series           | Cable Construction                                       | Electrical Design        | Polarity                        | Replacement Connector   | For Use With   | Wiring  | Line Art (From Solder Side) |
|------------------|--|--------------------------|---------------------------------|---|--|---|-----------------------------|
| <b>TH53-MTQG</b> | 1.6mm cable with 2 conductors, 2 shield wires and shield | 3-Wire (Source Follower) | Positive with respect to ground | WA430   | All Shure TA4F Bodypacks   | Red wire: Bias(2)<br>Blue wire: Audio(3)<br>Shield wire: Ground(1)<br>Shield: Ground (Shell)      |                             |
| <b>TH53-LEMO</b> | 1.6mm cable with 2 conductors, 2 shield wires and shield | 2-Wire (Common Source)   | Negative with respect to ground | WA416   | Shure Lemo bodypacks (ADX1-Lemo, Shure UR1M-Lemo, ULXD1-Lemo), Sennheiser SK5212, Lectrosonics SSM, and others | Red wire: Audio/Bias(3)<br>Blue wire: Not connected<br>Shield wire: Ground(1)                     |                             |
| <b>TH53-NC</b>   | 1.6mm cable with 2 conductors, 2 shield wires and shield | 2-Wire (Common Source)   | Negative with respect to ground | LEMO: WA416, Shure TQG/ TA4F: WA430, Lectrosonics TA5F: WA435 | Termination Dependent  | Red wire: Audio/Bias<br>Blue wire: Not connected<br>Shield wire: Ground<br>Shield: Ground (Shell) |                             |

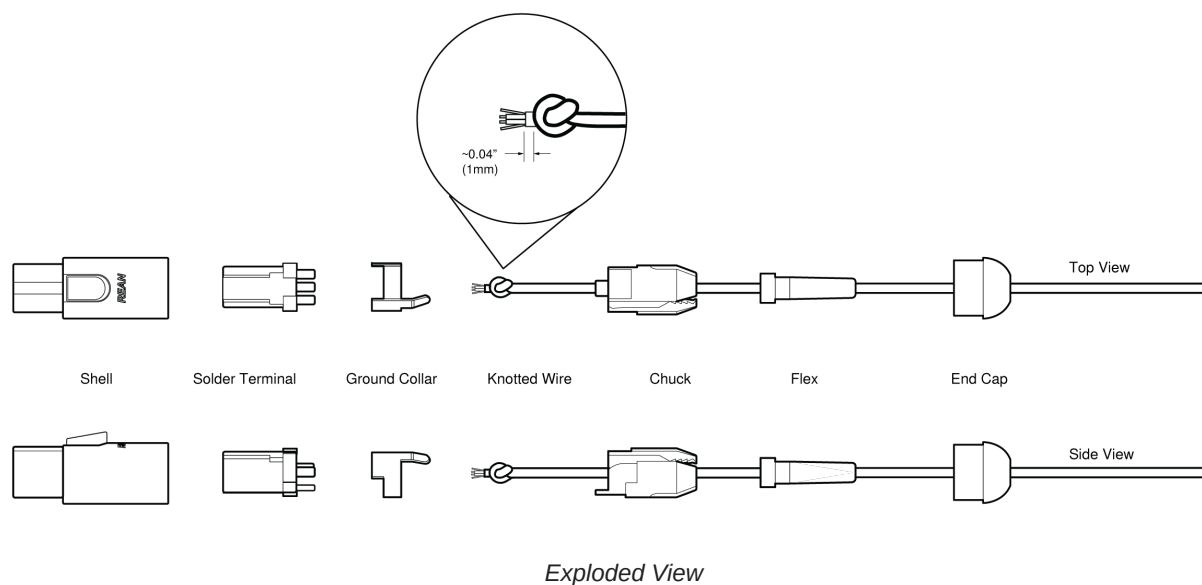
## Converting LEMO to TA4F

| Series           | Cable Construction                                       | Electrical Design      | Polarity                        | Replacement Connector | For Use With          | Wiring  | Line Art (From Solder Side) |
|------------------|--|------------------------|---------------------------------|-----------------------|-----------------------|---|-----------------------------|
| <b>TH53-LEMO</b> | 1.6mm cable with 2 conductors, 2 shield wires and shield | 2-Wire (Common Source) | Negative with respect to ground | Shure TQG/TA4F: WA430 | Termination Dependent | Shield wire: Ground(1)<br>Red wire: Audio/Bias(3)<br>Blue wire: Not connected<br>8.25kΩ Resistor between pin 2 and 3<br>Shield: Ground(Shell) |                             |

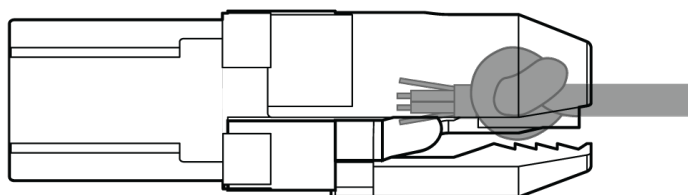
## TA5F Wiring for Lectrosonics Bodypacks (Servo Biased Wiring)

| Series                    | Cable Construction                                       | Electrical Design        | Polarity                        | Replacement Connector | For Use With                | Wiring   | Line Art (From Solder Side) |
|---------------------------|--|--------------------------|---------------------------------|-----------------------|-----------------------------|--|-----------------------------|
| <b>TH53-MTQG</b>          | 1.6mm cable with 2 conductors, 2 shield wires and shield | 3-Wire (Source Follower) | Positive with respect to ground | WA435                 | Lectrosonics TA5F bodypacks | Red wire: Bias(3)<br>Blue wire: Audio(5)<br>Shield wire: Ground(1)<br>Shield: Ground(Shell)<br>Jumper between 2 and 4            |                             |
| <b>TH53-LEMO, TH53-NC</b> | 1.6mm cable with 2 conductors, 2 shield wires and shield | 2-Wire (Common Source)   | Negative with respect to ground | WA435                 | Lectrosonics TA5F bodypacks | Red wire: Audio/Bias(3)<br>Blue wire: Not connected<br>Shield wire: Ground(1)<br>Shield: Ground(Shell)<br>Jumper between 2 and 4 |                             |

# MTQG Connector Assembly



**Note:** Make sure to solder the shield to ground collar.



## Specifications

All specification values are based on using a typical bodypack with 5 V bias input or the RPM400MTQG preamplifier. When using the RPM400LEMO amplifier, refer to the RPM400LEMO specifications. <sup>[1]</sup>

### Microphone Capsule

Dual-Diaphragm, Prepolarized Condenser

### Polar Pattern

Omnidirectional

### Frequency Response

20 Hz to 20 kHz

### Sensitivity

-45.0 dBV(5.62 mV)at 1 kHz <sup>[2]</sup>

## Self-Noise, A-Weighted, Equivalent Acoustical

24.5 dB SPL-A

Signal-To-Noise Ratio <sup>[3]</sup>

69.5 dB

## Output Clipping Level

3.0 dBV, 1 kHz at 1% THD, typical

Maximum SPL <sup>[4]</sup>

142.0 dB SPL, 1 kHz at 1% THD, typical

## Dynamic Range

117.5 dB typical

## Microphone Current Draw

120 to 240  $\mu$ A, typical

## Bias Voltage

*Recommended Operating Voltage*

5 V DC

## Housing

Molded ABS

## Polarity

|                       |  |
|-----------------------|--|
| <b>MTQG</b>           | Positive pressure on diaphragm produces positive voltage on pin 3 with respect to pin 1  |
| <b>LEMO, NC, MDOT</b> | Positive pressure on diaphragm produces negative voltage on pin 3 with respect to pin 1. |

## Cable Diameter

1.6 mm

## Cable Length

|                         |                 |
|-------------------------|-----------------|
| <b>MTQG, LEMO, MDOT</b> | 66 in. (1.67 m) |
| <b>NC</b>               | 96 in. (2.43 m) |

## Net Weight

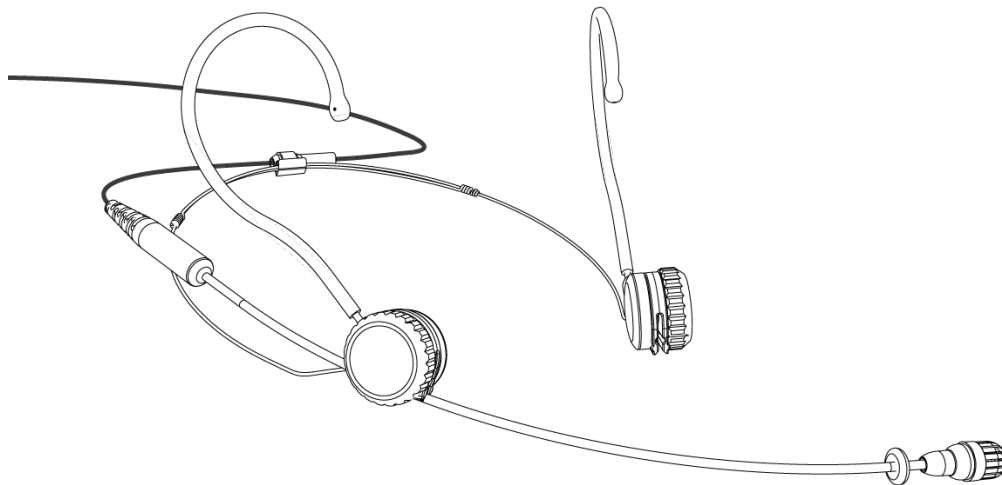
|                            |                  |
|----------------------------|------------------|
| <b>Boom arm with cable</b> | 12.0 g(0.42 oz.) |
| <b>Headset frame</b>       | 6.0 g(0.21 oz.)  |

<sup>[1]</sup>All specifications measured with a 48 Vdc phantom power supply. The microphone operates at lower voltages, but with slightly decreased headroom and sensitivity.

<sup>[2]</sup>1 Pa=94 dB SPL

<sup>[3]</sup>S/N ratio is the difference between 94 dB SPL and equivalent SPL of self noise, A-weighted

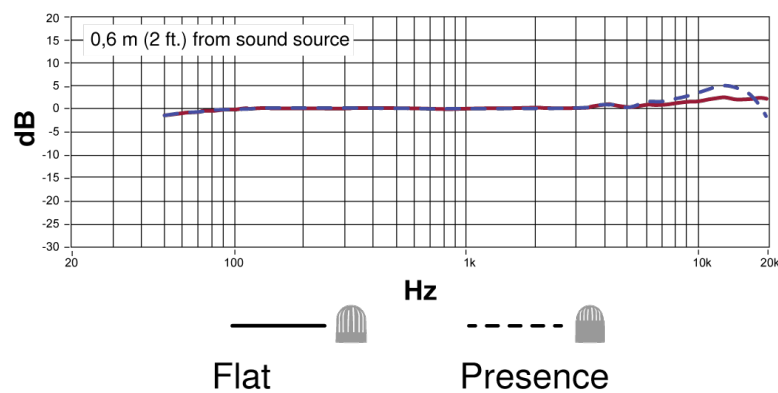
<sup>[4]</sup>THD of microphone preamplifier when applied input signal level is equivalent to cartridge output at specified SPL



Dimensions

|                                 | A              | B              | C                 | D                   | E           |
|---------------------------------|----------------|----------------|-------------------|---------------------|-------------|
|                                 | Cable Length   | Cable Diameter | Microphone Length | Microphone Diameter | Boom Length |
| TH53-MTQG, TH53-MDOT, TH53-LEMO | 66 in. (1.67M) | 1.6MM          | 19MM              | 5.6MM               | 13.6CM      |
| TH53-NC                         | 96 in. (2.43M) | 1.6MM          | 19MM              | 5.6MM               | 13.6CM      |

## Frequency Response



# Certifications

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

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

Authorized European representative:

Shure Europe GmbH

Headquarters Europe, Middle East & Africa

Department: EMEA Approval

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