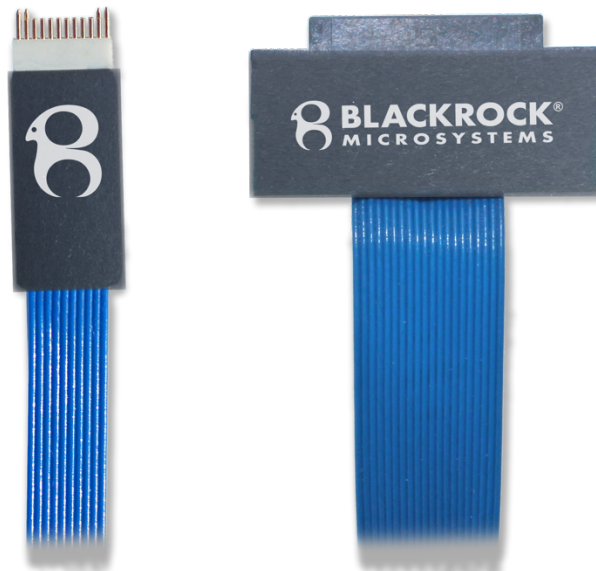


# MRI-16 Headstage

## *Instructions for Use*



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# What this Manual Covers

Blackrock Microsystems offers a wide range of headstages for recording distortion-free spikes and field potentials from high impedance microelectrodes. The MRI-16 headstage provides an isolated low-impedance output that guarantees signal integrity, minimizes noise pickup by cables and ensures maximum common-mode noise rejection by the Cerebus system and Cereplex A. It has been designed to be MRI-safe and provide little distortion to imaging.

# Intended Use and Indications for Use

The MRI-16 headstage is designed to allow for recording in and MRI of action potentials and local field potentials from MRI-safe electrodes implanted in animal models.

# Contraindications, Warnings, and Precautions

Only the electrode connection end of the MRI-16 headstage should be brought near the MRI magnet.

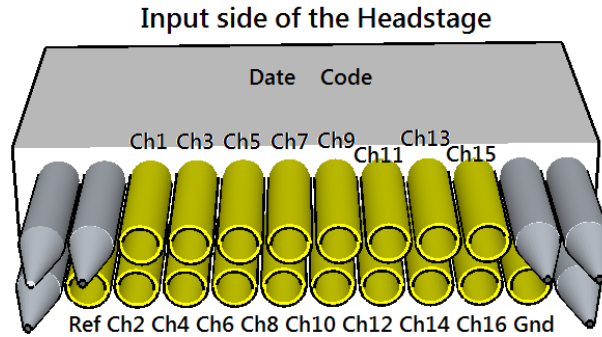
The electrode connection end of the MRI-16 headstage should be sent through the pass-through into the MRI room. All other recording equipment should remain outside of the MRI room.

Not for human use.

# Specifications

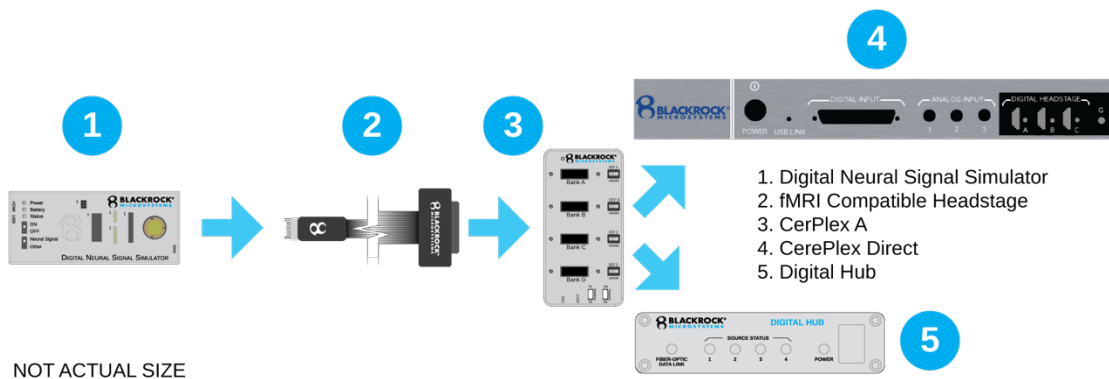
	MRI-16 Headstage
Input Impedance	2.6pF
Input Range	+/-64mV
Number of Channels	16
Gain	1x
Cable Length	10m
Dimensions	19x8x2 mm
Cable Shielding Type	Coax

# Product/System Specific Content



**Figure 1–Pin-Out of the MRI-16 Headstage**

The MRI-16 Headstage is intended to connect to MRI-safe electrodes on one end and to a CerePlex A on the other end. Below is an example of how to bench test the MRI-16 Headstage outside of the MRI room, with the electrode side plugged into a Digital Neural Signal Simulator and the other end plugged into a CerePlex A.



## Cleaning, Disinfection, Sterilization, Maintenance, and Disposal

This headstage may be cleaned with mild detergents, disinfecting wipes, deionized water, and/or isopropanol.

# Magnetic Resonance

The MRI-16 Headstage has been evaluated for safety and compatibility in the MR environment. The MRI-16 Headstage has been successfully tested for heating, migration, and image artifact in the MR environment up to 9.4T.

## Troubleshooting

The MRI-16 headstage is used in a potentially noisy environment. Care should be taken to ensure good connection, especially to ground and reference for the electrodes. In addition, if noise levels are unusually high it may be helpful to connect a ground wire from the MRI machine to the safe-lead ground on the CerePlex A.

## Return Merchandise Authorization

In the unlikely event that your device needs to be returned to Blackrock for repair or maintenance, do not send any equipment back without a Return Merchandise Authorization Number (RMA). An RMA number will be issued to you by a Blackrock representative. If you need to obtain an RMA number, you may contact a product support representative at +1 (801) 582 5533 or by emailing [support@blackrockmicro.com](mailto:support@blackrockmicro.com).

Once an RMA number has been issued, it is important to safely pack the returned item for shipping back to Blackrock. It is preferred that you save the original boxes and packing materials that your system arrived in for return shipment. Please address the package as follows:

**Blackrock Microsystems, LLC**  
ATTN: RMA#  
630 S. Komas Dr., Suite 200  
Salt Lake City, UT 84108 USA  
Tel: (801) 582-5533

## Warranty

Blackrock Microsystems (“Blackrock”) warrants its products are free from defects in materials and manufacturing for a period of one-year from the date of shipment. At its option, Blackrock will repair or replace any product that does not comply with this warranty. This warranty is voided by: (1) any modification or attempted modification to the product done by anyone other than an authorized Blackrock employee; (2) any abuse, negligent handling or misapplication of the product; or (3) any sale or other transfer of the product by the original purchaser.

Except for the warranty set forth in the preceding paragraph, Blackrock provides no warranties of any kind, either express or implied, by fact or law, and hereby disclaims all other warranties, including without limitation the implied warranties of merchantability, fitness for a particular purpose, and non-infringement of third-party patent or other intellectual property rights.

Blackrock shall not be liable for special, indirect, incidental, punitive, exemplary or consequential damages (including without limitation, damages resulting from loss of use, loss of profits, interruption or loss of business or other economic loss) arising out of non-compliance with any

warranty. Blackrock's entire liability shall be limited to providing the remedy set forth in the previous paragraph.

## Support

Blackrock prides itself in its customer support. For additional information on this product or any of our products, you can contact our Support team through the contact information below:

### **Manuals, Software Downloads, and Application Notes**

[www.blackrockmicro.com/technical-support](http://www.blackrockmicro.com/technical-support)

## *Complaints*

When filing a complaint, please provide the product description, product number, software version, lot number, complainant's name and address, and the nature of the complaint.

### **Issues or Questions**

[www.blackrockmicro.com/technical-support](http://www.blackrockmicro.com/technical-support)

[support@blackrockmicro.com](mailto:support@blackrockmicro.com)

Tel: (801) 582-5533

Notice to the user and/or patient that any serious incident that has occurred in relation to the device should be reported to the manufacturer and the competent authority of the member state in which the user and/or patient is established.