

630 Komas Drive | Suite 200

Salt Lake City | UT 84108 | USA

P +1 (801) 582-5533 | F +1 (801) 582-1509

www.blackrockmicro.com



16-Channel Cabrio Butterfly Ref Adapter

Instructions for Use



Revision 3.00 / LB-0335 – 16-Channel Cabrio Butterfly Adapter Ref IFU

© October 2018, Blackrock Microsystems, LLC – October 2018

Table of Contents

Contraindications, Warnings and Precautions	3
System Overview	4
Hardware.....	5
<i>Blackrock 16-channel Cabrio Butterfly Ref Adapter Pinout</i>	<i>5</i>
<i>Connect the Pigtail to the Cabrio Connector</i>	<i>6</i>
<i>Connect the Blue-Ribbon Cable to the Cabrio Adapter</i>	<i>6</i>
Cleaning and Maintenance	7
Return Merchandise Authorization	7
Warranty.....	7
Support.....	9
<i>Complaints.....</i>	<i>9</i>

Contraindications, Warnings and Precautions

The 16-Channel Cabrio Butterfly Ref Adapter, as part of the NeuroPort® BioPotential Signal Processing System, has the following contraindications, warnings, and precautions:

Contraindications

- The NeuroPort System is a recording system and should not be used in applications involving stimulation.

Warnings

- Only connect NeuroPort System components to properly tested, grounded and dedicated AC outlets to reduce the risk of electrical shock. Do not use an adapter for ungrounded wall outlets.
- Do not connect the NeuroPort System to an outlet controlled by a wall switch.
- Do not use the NeuroPort System in the presence of flammable anesthetic agents.
- Avoid strong static discharges from sources like televisions or computer monitors because it can damage the electrical parts of the system.
- Keep the NeuroPort System away from liquids. Contact with water, shower spray, or wet surfaces can lead to the patient receiving an electrical shock.
- Connection of external instruments may compromise electrical safety compliance with IEC 60601-1.

Precautions

- Follow the restrictions of use for third party electrodes or arrays.
- Third party recording systems connecting to the NeuroPort System and components must be electrically isolated for patient safety.

System Overview

The Blackrock 16-Channel Cabrio Butterfly Ref Adapter (part number 6480) provides an interface between Blackrock's Neuroport Neural Signal Processor (NSP) and microelectrode arrays for high fidelity transmission and recording of extracellular spikes and local field potentials from the brain. The combination of the Amplifier Manifold, Shielded Cable, and the Adapter provides an ultra-low noise transmission across a desirable distance. **Figure 1** below shows an application overview of how the 16-Channel Cabrio Butterfly Adapter fits into a complete neural recording system.

This device is a Type BF applied part.

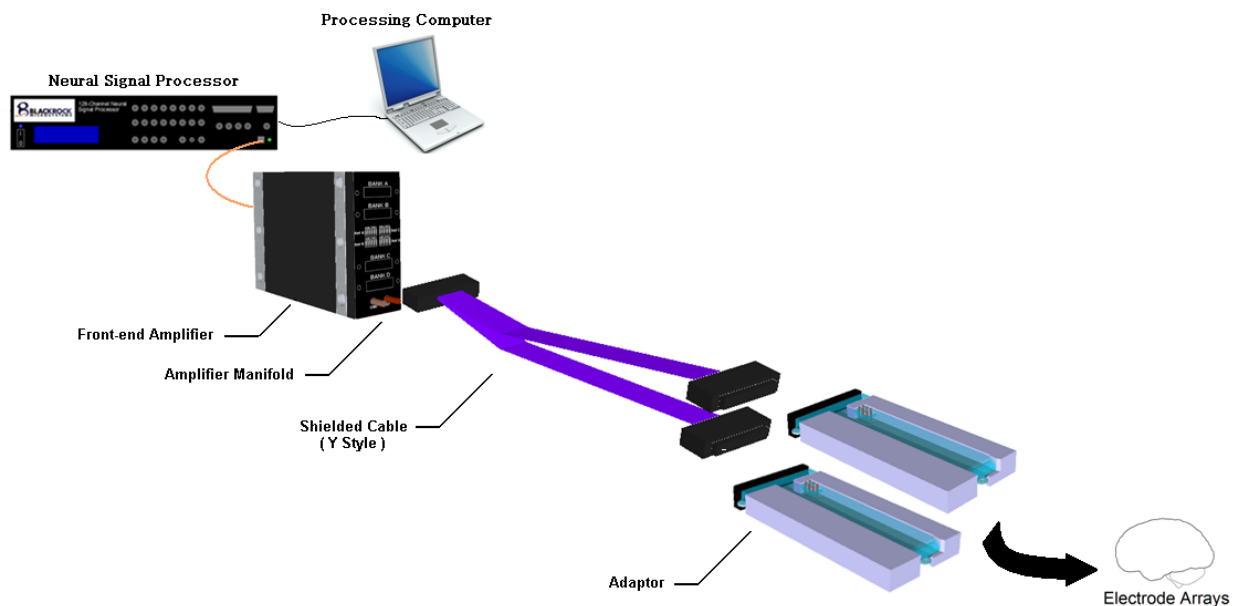


Figure 1—Application Overview

* Blackrock Amplifier Manifold and Neuroport Acquisition System (Neural Signal Processor, Front End Amplifier) are each purchased separately.

Hardware

Blackrock 16-channel Cabrio Butterfly Ref Adapter Pinout

The adapter has two separate 8-channel Cabrio connectors that receive incoming signal. Each 8-channel bank has a unity gain headstage that buffers the incoming analog signals.

Red and green touch-proof jacks provide optional inputs for external reference and external ground. The blue LED will light up when power is applied to the headstage.

The dip switches on the Cabrio Adapter are used to select the reference for each bank of channels. Each bank of channels can use its own reference, the reference from the other bank, external ground or external reference.

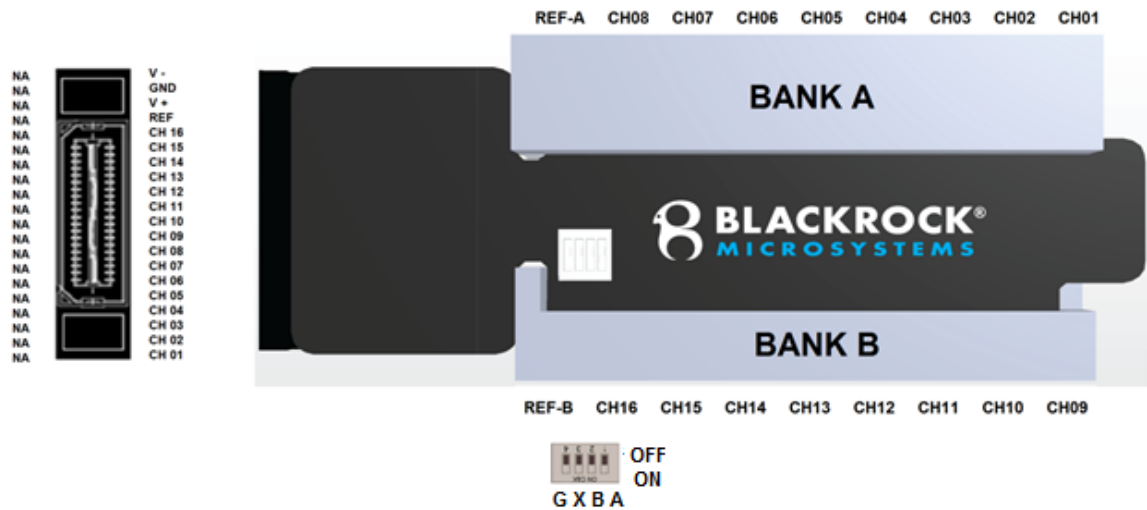


Figure 2—Blackrock 32-Channel Cabrio Butterfly Ref Adapter Pinout

***Note: LED facing on top with Bank A**

Position 1 ON: Selects reference from Bank A

Position 2 ON: Selects reference from Bank B

Position 3 ON: Selects external reference (X)

Position 4 ON: Shorts reference to ground (G)

****Only one position should be ON for each reference selection switch**

Connect the Pigtail to the Cabrio Connector

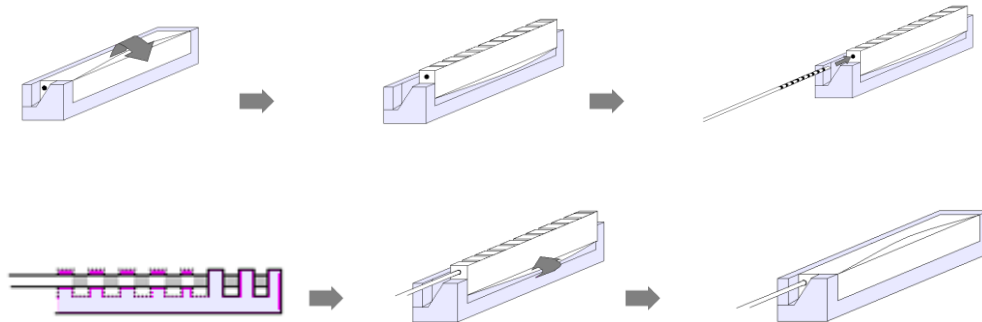


Figure 3—Connecting the pigtail to the Cabrio Connector. After the pigtail is inserted, make sure the contacts on the pigtail are correctly placed in-between the intervals on the connector.

The adapter is connected to the ECoG pigtails and can be wrapped in the headwrap. The shielded cable can be connected to the amplifier manifold and the reference jumpers can then be set appropriately.

Connect the Blue-Ribbon Cable to the Cabrio Adapter

The Blackrock Cabrio Adapter receives power and transmits recorded signal through the attached blue-ribbon cable. It is important to connect the cable correctly to prevent tripping the power safety switches within the amplifier. Plug the blue-ribbon cable straight into the connector on the adapter, do not 'rock' it in or insert diagonally.

Note: When the Cabrio Adapter is unplugged from the amplifier while powered, it will not power on when plugged back in. To repower the adapter, the amplifier power supply must be power cycled.

Cleaning and Maintenance

Cabrio Butterfly Adapter devices may be wiped down with standard hospital-grade sanitizing wipes or isopropyl alcohol (70%)/ethanol (96%). If necessary, the surfaces and connection ports may be wiped with enzymatic detergent. Dust and debris on the exterior connectors/ports may be removed with compressed air. No validated sterilization instructions are provided for this device.

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.

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: +1 (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

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

support@blackrockmicro.com

Tel: +1 (801) 582 5533

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.

Caution: Federal (U.S.A.) law restricts this device to sale by or on the order of a physician.



MDSS GmbH
Schiffgraben 41
30175 Hannover, Germany