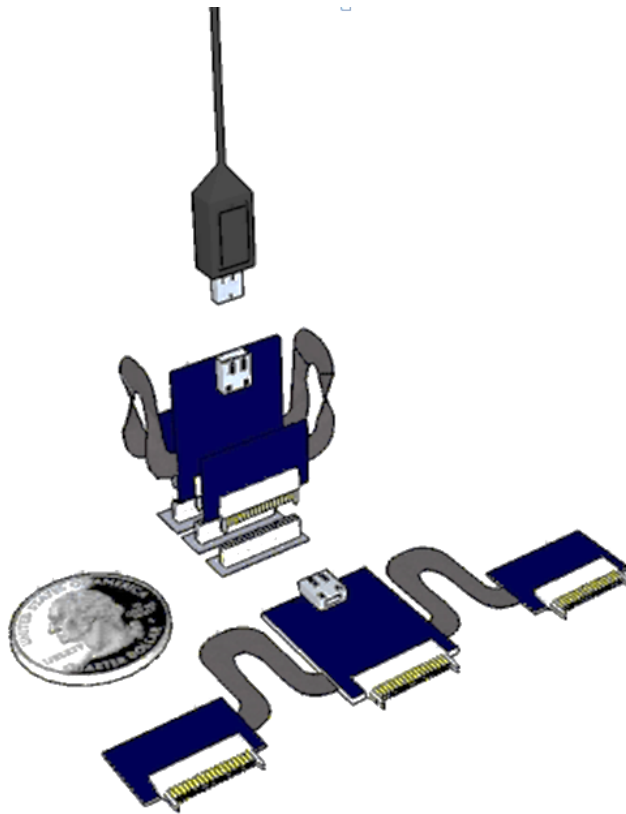


Blackrock CerePlex M

Instruction for Use



Blackrock Microsystems, Inc.

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Blackrock CerePlex M - Instruction for Use

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1 Symbols of Contraindications, Warnings, Cautions, and Specifications

	IEC60101-0102	Danger of Electrostatic Discharge (ESD)
	EN-980	Caution
	IEC60417-5036	Dangerous voltage
	IEC60417-5019	Protective earth (ground)
	IEC60417-5021	Equipotentiality Connector
	IEC606417-5335	Type of CF Applied Part

1.1 Contraindications

- The CerePlex M is part of a recording system and should not be used in applications involving stimulation.
- Do not plug in devices to the CerePlex M that are not approved by Blackrock Microsystems.

1.2 Warnings

- Do not touch any exposed electrical conductors when the CerePlex M connector is attached to devices on subject's head as this may result in inducing electric charge to the neural tissue. Irreversible damage may occur.
- The CerePlex M is NOT to be used for stimulation.
- The patient/subject should not attempt to remove the connections themselves.
- Use caution when connecting and disconnecting the Cable to the CerePlex M to minimize the risk of the cable being accidentally pulled or tugged.
- Do not use the CerePlex M in the presence of flammable anesthetic agents or any other reagents.
- Avoid strong static discharges from sources like television or computer monitors because it can damage the electrical components of the system.
- Keep the CerePlex M away from liquids. Contact with water, shower spray, or wet surfaces can lead to the patient receiving an electrical shock.
- Connection of external instruments to the CerePlex M may compromise electrical safety.
- Always use antistatic or electrostatic discharge (ESD) safe gloves when connecting the CerePlex M.
- Use only the supplied Blackrock Microsystems components (Cerebus™ system, Digital Hub128, CerePlex M Cable). Substitution of components not supplied by Blackrock Microsystems may affect system performance and patient/ subject safety.
- Do not leave the patient/subject connected to the CerePlex M when the NeuroPort™ System is not in use.
- Use caution when placing cables and other connectors to minimize the likelihood of tripping or accidentally pulling on cables. Pulled cables may cause damage to the CerePlex M or any other connected devices.

1.3 Cautions

- Read this entire manual prior to using the device.

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- This product is for animal research only.

1.4 Specifications

Model Name	Blackrock CerePlex M
Power Requirements	±3 VDC, 150 mAmps maximum load
Resolution	16-bit
Sampling Frequency	30ksps
Mode of Operation	Continuous
Input Frequency Range	0.3 Hz – 7.5k Hz
Input Impedance Range	5kΩ – 1MΩ
Maximum Input Voltage	± 5mV with respect to reference
Water Ingress Protection	Ordinary Equipment, not fluid resistant, IP20
Operating Environment	10°C to 40°C, 5 to 95% R.H. (non-condensing)
Storage Environment	-20°C to 50°C, 5 to 100% R.H. (non-condensing)

Blackrock Microsystems, Inc.
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2 Introduction

The Blackrock CerePlex M provides an interface between the Cerebus Bio-potential recording system and up to three 32-channel microelectrode arrays for high fidelity transmission and recording of extracellular spikes and local field potentials from the brain. The Blackrock CerePlex M converts analog signals to digital format right at the recording site which dramatically reduces the noise introduced to the signal during transmission. Figure 2-1 below shows an application overview of how the CerePlex M fits into a complete neural recording system.

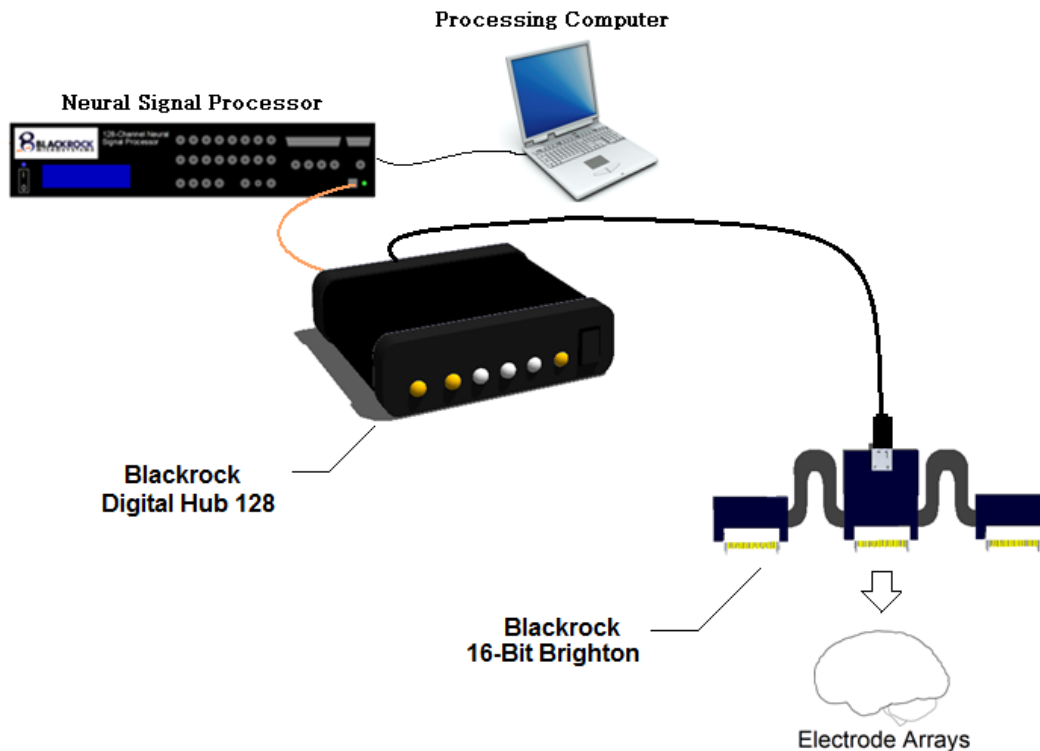


Figure 2-1: Blackrock Brighton Omnetics Set-up

- * A 10-channel commutator (Dragonfly DL-88-10) is also available for the CerePlex M application.
- * Blackrock Digital Hub 128 and Cerebus Acquisition System are each purchased separately.

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3 Hardware

3.1 Blackrock CerePlex M Pin-out

The CerePlex M has three different configurations which are 32-channel, 64-channel and 96-channel. The differences can be distinguished easily by recognizing the quantity of banks on the board. For 32-channel CerePlex M, there is only one bank, bank A. For 64-channel CerePlex M, there are two banks, bank A and bank B, but bank B could be on either left or right side of bank A. For 96-channel CerePlex M, there are three banks, bank A, bank B and bank C. The input connector(s) pin-out is(are) shown in Figure 3-1.

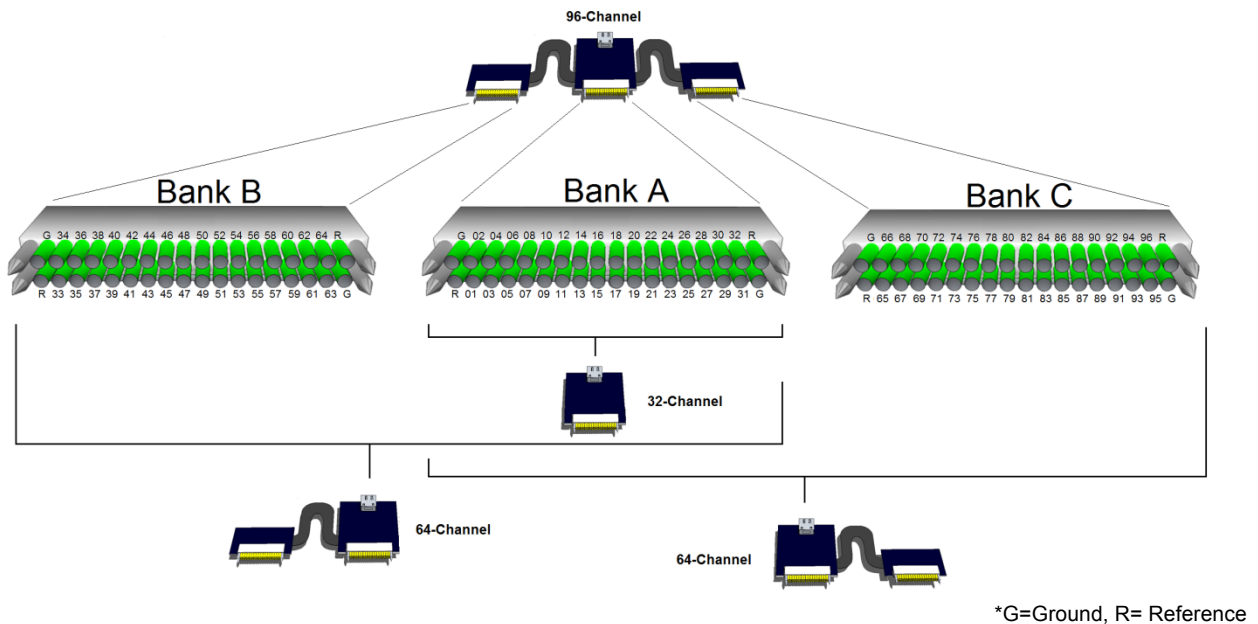
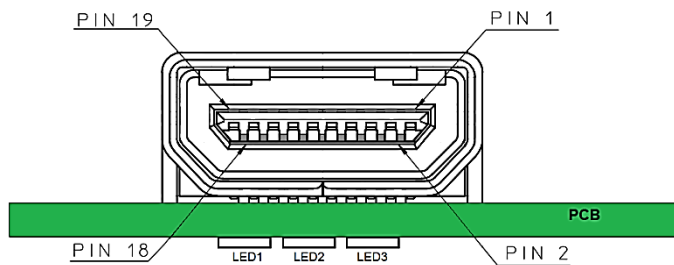


Figure 3-1: Brighton Omnetics Input Connector Pin-Out



HDMI/D Pin #	Description
12	Clock+
14	Clock-
16	V-
1, 7	Ground
19	V+
9	Data+
11	Data-
3,5,6,7, 15,17,18	Reserved for Internal use

Figure 3-2: Brighton Omnetics Output Connector Pin-Out

Figure 3-2 shows the pin-out of the output connector. The three LEDs under the board are Power (LED1), Clock (LED2) and Error (LED3). LED1 will light up constantly after the power is

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on. LED2 will blink on a one second interval as receiving correct clock cycle. LED3 only lights up when the conversion of analog to digital is saturated.

4 Instruction for Assembly

1. The following instructions are for 96-channel CerePlex M. However, the 32 and 64-channel CerePlex M are still applicable.
2. Turn off the power on the Digital Hub 128 before connecting.
3. Plug the input connector on the CerePlex M main board to the electrode termination.
4. Bend and plug the second connector on the CerePlex M to the next electrode termination.
5. Bend and plug the third connector on the CerePlex M to the next electrode termination.
6. Plug the HDMI cable to the output connector on the CerePlex M main board.
7. Plug the other end of the HDMI cable to the connector on the back of the the Digital Hub 128.
8. Make sure the connections are secured.
9. Turn on the power of the FODD for recording.

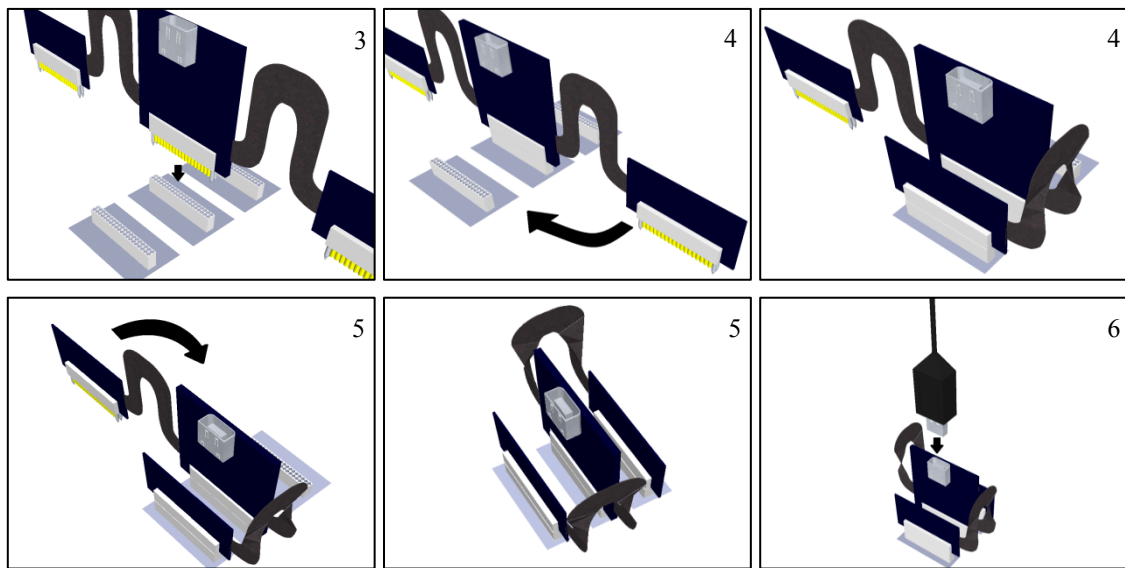


Figure 4-1: Instruction for Assembly

**After recording, turn off the power supply before any disconnection.

5 Warranty

Blackrock Microsystems, Inc. warrants that its products are free from defects in materials and manufacturing for a period of one year from the date of shipment. Blackrock will, at its option, 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.

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This constitutes the sole warranty made by Blackrock, Inc. There are no other warranties, expressed or implied, which extend beyond those described herein or to anyone other than the original purchaser, including the implied warranties of merchantability and fitness for a particular purpose. In no event shall Blackrock Microsystems, Inc. be liable for any incidental or consequential damages, or for the infringement of any patent rights or third party rights due to the use of its products.

5.1 Return Merchandise Authorization (RMA)

In the unlikely event that your adaptor needs to be returned to Blackrock for repair or maintenance, do not send any equipment back without a Return Merchandise Authorization Number. 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 (801) 582-5533 or toll free at (866) 806-3692.

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, Inc.
ATTN: RMA#
391 Chipeta Way, Suite G
Salt Lake City, UT 84108 USA
Tel: (801) 582-5533