

64-Channel Splitter Box

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 64-Channel Splitter Box is part of a recording system and should not be used in applications involving stimulation.
- Do not plug in devices to the Amplifier Manifold that are not approved by Blackrock Microsystems.

1.2 Warnings

- Do not touch any exposed electrical conductors when the 64-Channel Splitter Box Connector is attached to EEG devices on subject's head as this may result in inducing electric charge to the neural tissue. Irreversible damage may occur.
- The 64-Channel Splitter Box 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 Amplifier Manifold Shielded Cable, 3rd party recording system and the EEG input connectors to minimize the risk of the cable being accidentally pulled or tugged.
- Do not use the 64-Channel Splitter Box 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 64-Channel Splitter Box 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 64-Channel Splitter Box may compromise electrical safety.
- Always use antistatic or electro static discharge (ESD) safe gloves when connecting the 64-Channel Splitter Box.
- Use only the supplied Blackrock Microsystems components (Neuroport™ system, Amplifier Manifold, Amplifier Manifold Shielded Cable). Substitution of components not supplied by Blackrock Microsystems may affect system performance and patient safety.
- Do not leave the patient/subject connected to the 64-Channel Splitter Box 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 64-Channel Splitter Box, Amplifier Manifold Shielded Cable, or any other connected devices.

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1.3 Cautions

- Federal (USA) law restricts this device to sale, by or on the order of a physician.
- Read this entire manual prior to using the device.
- Third party recording systems connecting to the 64-Channel Splitter Box must be electrically isolated for patient safety.

1.4 Specifications

Model Name	64-Channel Splitter Box
Power Requirements	±5 VDC, 50 mAmps maximum load
Compliance Standards	IEC 60601-1-1, IEC 60601-1-2
Mode of Operation	Continuous
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)

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2 Introduction

The Blackrock Splitter box is designed to allow connection of a wide variety of electrodes which terminate in 1.5mm touch proof connectors with the Neuroport Bio-potential recording system and 3rd party recording systems. Figure 1-1 below shows an application overview of how the 64-Channel Splitter Box fits into a complete neural recording system.

Blackrock 64-channel splitter box provides internal connections allowing electrode arrays terminating in up to 64 touch proof connectors to be simultaneously connected to both Blackrock Neural Signal Processing system and 3rd party electrode recording system.

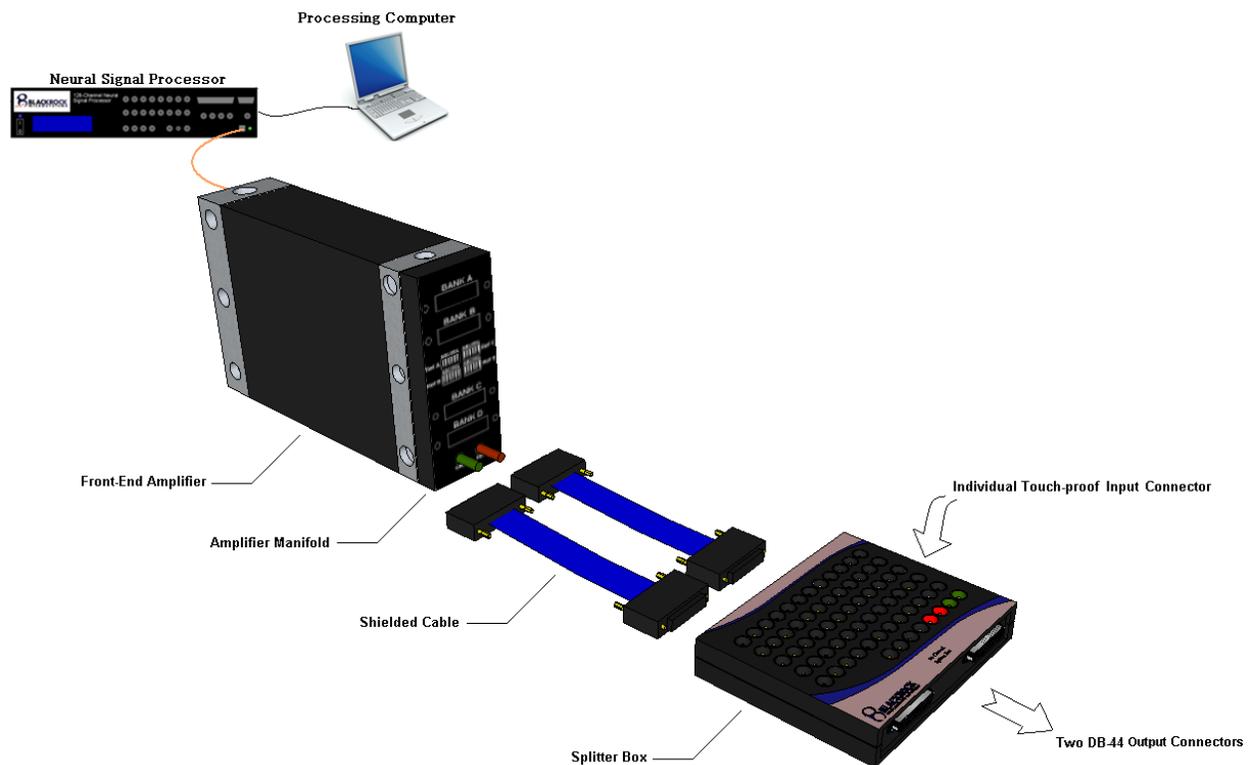


Figure 1-1: 64-Channel Splitter Box Set-up

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

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3 Hardware

3.1 64-Channel Splitter Box Pin-out

The front connectors on the splitter box are standard DB-44 connectors as shown in Figure 3-1. The touch-proof connectors are directly connected to the DB-44 as pass through connections. Bank A covers the input connectors 1 to 32 and R1 on the top panel; bank B covers the input connectors 33 to 64 and R2 on the top panel. If using the 65-128 channel splitter box bank C and bank D are the same as the 1-65 channel splitter box bank A and bank B respectively. Securing the 3rd party recording system connectors to the 64-Channel Splitter Box front connectors through the provided screw holes is highly recommended.

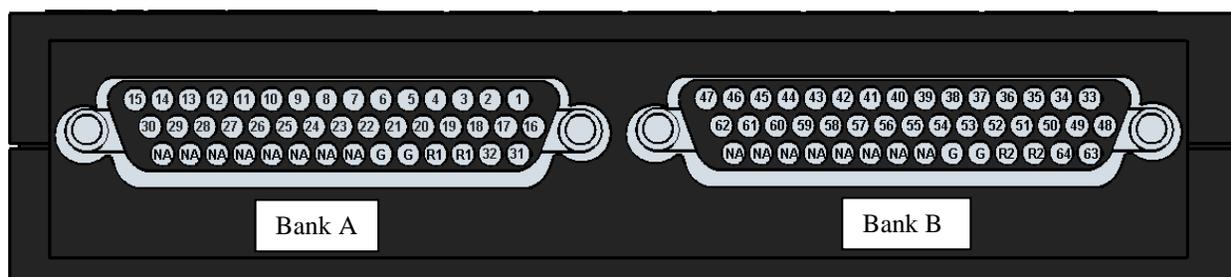


Figure 3-1: 64-Channel Splitter Box Front Connectors Pin-Out

Both of the rear connectors (Figure 3-2) consist of a unity gain headstage. Bank A covers the input connectors 1 to 32 and R1 on the top panel; bank B covers the input connectors 33 to 64 and R2 on the top panel. If using the 65-128 channel splitter box bank C and bank D have the same pin outs as bank A and bank B respectively. Two screw holes are provided for each connector. Fastening the screws on the Amplifier Manifold Shielded Cable to the 64-Channel Splitter Box is required before and during operations.

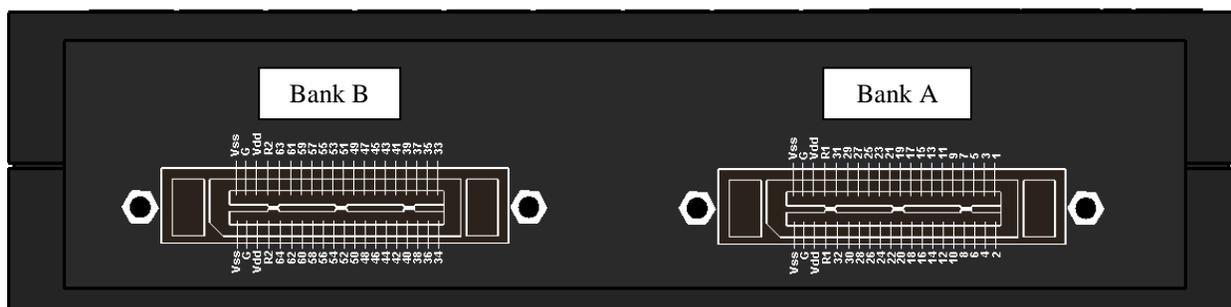


Figure 3-2: 64-channel Splitter Box Rear Connectors Pin-Out

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Figure 3-3 shows the top connectors of the 64-Channel Splitter Box. Connectors 1 to 32 are covered in Bank A and connectors 33 to 64 are covered in Bank B. R1 (Reference 1) corresponds to connectors 1 to 32 and R2 (Reference 2) corresponds to connectors 33 to 64. Both G (Ground) connectors are internally connected. If using the 65-128 channel splitter box bank C and bank D are the same as bank A and bank B respectively.



Figure 3-3: 64-Channel Splitter Box Top Connectors Pin-Out

4 Instruction for Assembly

1. Turn off the power supply of the Front-end amplifier before connecting
2. Connect the Amplifier Manifold and Shielded Cable to the Front-end Amplifier (See the User Manual for the Amplifier Manifold for instructions on assembly).
3. Plug in and screw down the connector on the blue shielded cable to the rear connector on the splitter box. Note that the connectors are keyed.
4. Plug in and screw down the 3rd party recording system connector to the front connector on the splitter box.

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5. Plug in the ground connector(s) from the patient before any other connections are made on the top connectors.



Figure 4-1: Attaching Cable to 64-channel Splitter Box Connectors

6. Plug in other touch-proof connectors from the patient.
7. Turn on the power supply for recording.

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

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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.

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:

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