Neuralynx
High Density Electrophysiology Recording Systems

Isolation Cart Installation Manual

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1 Document Overview

Thank you for purchasing Neuralynx new Isolation Rack for the Digital Lynx. Below are instructions that will help you assemble your new Isolation Rack. These instructions are intended as a supplement to the included manufacturer's assembly instructions.

The following Symbols appear on the system components and documentation.

Symbol	**Description**
	Alternating Current
	Direct current
	Protective earth ground
	Earth (ground)
N	Connection point for the neutral conductor on PERMANENTLY INSTALLED EQUIPMENT
IPX0	Protection rating against the ingress of water
	Attention, consult ACCOMPANYING DOCUMENTS
	Off (power disconnection from the mains)
	On (power connection to the mains)
	TYPE BF EQUIPMENT

2 Power and Environmental Specifications

240 Volt Input	
Voltage Range	200->240 VAC
Input Current	3.2 Amp Max
Frequency	50->60Hz
Temperature Range	-40 Degrees C -> +70 Degrees C
Relative Humidity Range	10% to 100%
Atmospheric Pressure Range	500 to 1060 hPa

110 Volt Input	
Voltage Range	100->125 VAC
Input Current	5.2 Amp Max
Frequency	50->60Hz
Temperature Range	-40 Degrees C -> +70 Degrees C
Relative Humidity Range	10% to 100%
Atmospheric Pressure Range	500 to 1060 hPa

Equipment not suitable for use in the presence of a flammable anesthetic mixture with air or with oxygen or nitrous oxide.

The power cord is to be used for mains disconnection.

Type of protection against electric shock: Class 1 Equipment

Degree of Protection against electric shock: Type BF Applied Parts

Degree of Protection of the ingress of water: IPX0

Cleaning and disinfection methods: outside surfaces may be cleaned with a damp cloth and ammonia based cleaner.

No user replaceable parts on the isolation cart.

3 Manufacturer's Assembly Instructions

The Neuralynx Isolation Cart is built around Anthro Corporation's Convoi Cart. Please use the provided Neuralynx installation manual in combination with the Anthro Convoi Cart assembly instructions. Please read each manual completely before beginning assembly. Steps 3 through 10 of this manual are also explained in detail in the included Convoi Cart assembly instructions.

For questions or comments, please contact Neuralynx at 406.585.4542.

4 Attaching Feet, Leg Columns, and Casters

* Extra details in Convoi Base Unit Assembly Instructions

1. Attach one foot to the bottom of a leg column using four cap screws. Loosely install each screw individually and then tighten them all.
2. Repeat for second leg column.
3. While holding the top of the caster, rotate the wheel until it clicks into the locked position. Notice that each foot has an integrated washer. When attaching the swivel lock caster to the foot, make sure the tab faces the same direction as the integrated washer. You may need to use the rubber mallet to fully insert the wheel into the leg column/foot unit.

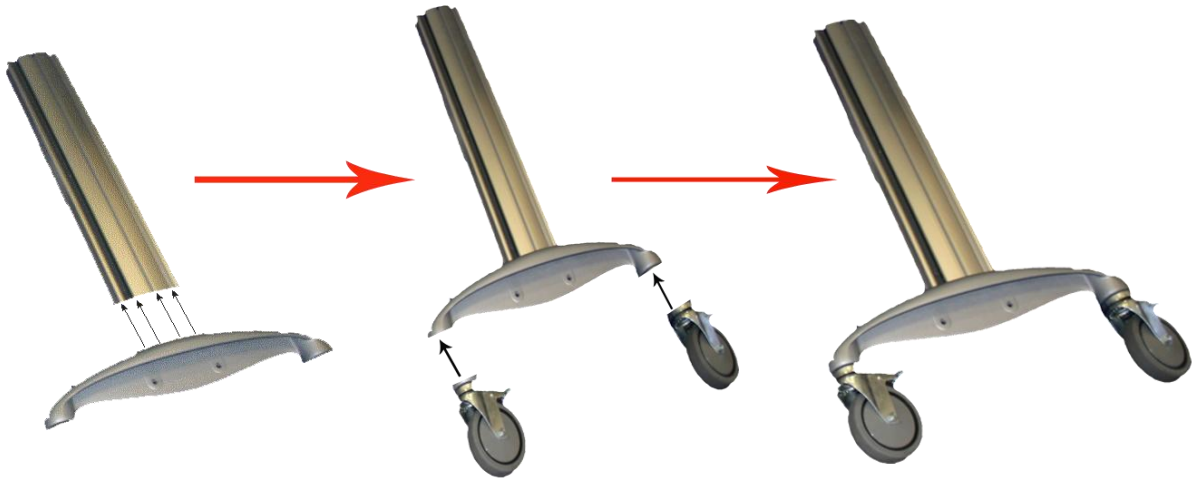

Figure 4-1 Attaching Feet, Leg Columns, and Casters

5 The Cart Base

* Extra details in Convoi Base Unit and Metal Base Shelf Assembly Instructions

Install the carrier bin on the center rails/cross tubes using the given screws (Figure 4-1, center). The next step will be attaching this piece to the two side rails.

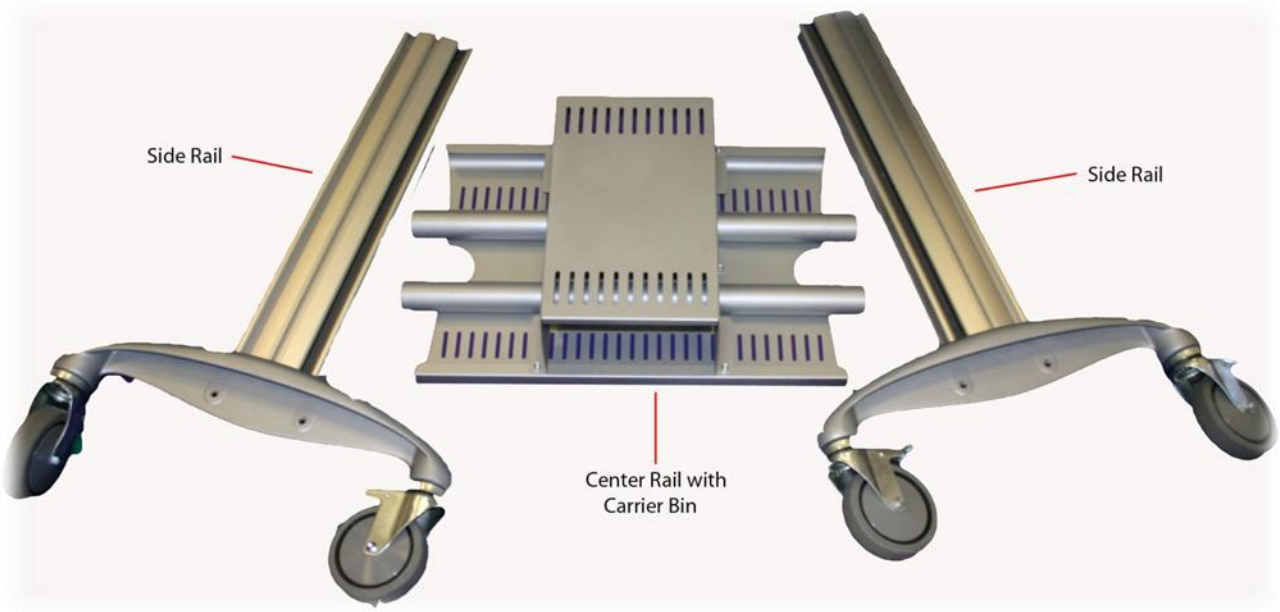

Figure 5-1 Side Rails and Base Bin

1. Orient the legs so the integrated washer faces the outside of the cart.
2. Insert one bolt through a bolt hole at the center of the spine of one foot and thread it into one end of a cross tube, but do not tighten all the way.
3. Insert another bolt through the corresponding hole in the other foot and thread it into the other end of the cross tube.
4. Repeat to install the second cross section. After all 4 bolts are attached; tighten them to secure the bottom base bin to the two leg units making one complete unit (Figure 4-2).

Figure 5-2 Complete Base

6 Installing the Shelves

6.1 Bottom Bin

The bottom bin is the shelf that contains a black antistatic foam mat. The black foam is a non-slick, static deterrent substance that will secure your computer base.

Before installing the bottom bin in the slide rails, 4 screw holds must be attached. A screw hold is a rectangular metal bar with threaded holes (Figure 5-1). Loosely attach each of the 4 screw holds to the bottom bin using two button head screws per screw hold.

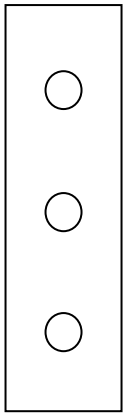

Figure 6-1 A Screw Hold

To mount the bottom bin to the slide rails, align the 4 screw holds with the guides at the top of the slide rails and lower the bin to the bottom. Once the bottom bin is resting on the bottom, tighten the top screw of each screw hold (Figure 5-2).

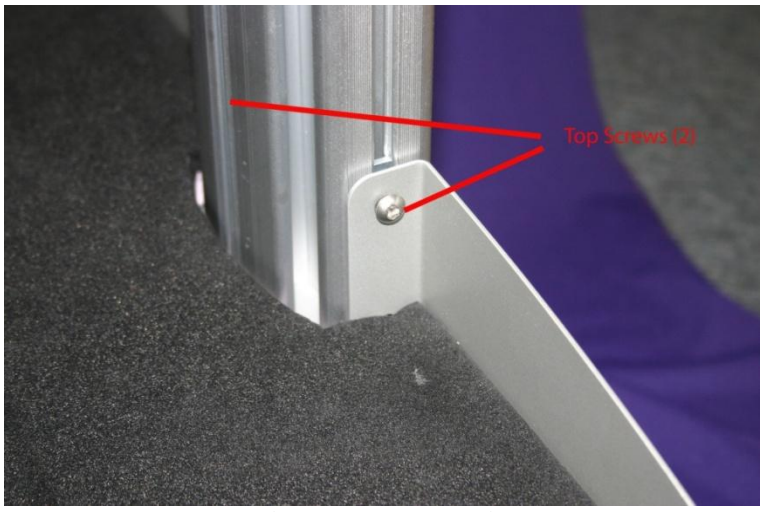

Figure 6-2 Bottom Bin

The lower section is now complete (Figure5-3).

Figure 6-3 Bottom Bin Installed

6.2 Computer Placement

Place your acquisition computer on the non-slick black antistatic foam. Your computer will rest on its side (Figure 5-4). It will later be connected to a power a source and a fiber optic link to the Digital Lynx.

Figure 6-4 Base Unit with Computer

6.3 Middle Shelf

* Extra details in Convoi Inboard Shelves Assembly Instructions

Take the middle shelf (Figure 5-5) and mount screw holds to it in the same way as for the bottom bin in Section 5.1. Guide the middle shelf into slide rails and slide it down until it is 5-8 cm above the computer. Tighten all 8 button head screws locking the shelf into place.

Figure 6-5 Middle Shelf

6.4 Cap Shelf

* Extra details in Convoi Cap Shelf Assembly Instructions

6.4.1 Bracket Mounts

Attach the two bracket mounts to the tops of the slide rails using the eight bracket mount screws (Figure 5-6).

Figure 6-6 Bracket Mounts

6.4.2 Securing the Cap Shelf

1. Orient the cap shelf so that the pre-drilled holes for the monitor mount are on the same side as the back side of your computer.
2. Place the cap shelf on top of the two bracket mounts while aligning the 8 bracket mount screws (4 on each bracket mount).
3. Secure the cap shelf with the eight wood screw provided in the Convoi Cap Shelf packaging. These screws insert from under the shelf.

Figure 6-7 Isolation Cart with Digital Lynx and Computer

7 Monitor Mounting

Mount the monitor holding bracket using the four attached screws. Tighten all screws until it is secure. On the back of your monitors there should be four screws holding it to its stand. Take these four screws along with the two black mounting brackets and attach your monitors using the Anthro "Flat Panel Mount Double" Assembly Instructions.

8 Installing the Digital Lynx

For UL 60601 compliance the acquisition system needs to rest securely in a shielded enclosure. The Neuralynx Isolation Cart comes with a customized polycarbonate housing to shield the Digital Lynx.

1. Remove the polycarbonate from its box and place it in the center of the middle shelf. The polycarbonate shielding unit has a rubber bottom which will prevent it from moving.

2. Place the Digital Lynx in the polycarbonate case and secure the unit with the four provided rack mount screws (Figure 7-1).

Figure 8-1 Digital Lynx Mounting Screw

Figure 8-2 Isolation Cart with Digital Lynx and Computer (monitor stand not shown)

9 Connecting the Power Supply and GFI Inside the Polycarbonate Case

The Digital Lynx will be shipped with a ground fault interrupter (GFI) combined with a WSL515-MC Medical Grade Power Supply (GFI unit). The Power Supply and GFI devices will be shipped in a separate package, so you will need to make a couple of minor connections. The polycarbonate enclosure will be shipped with a power entry filter already mounted in place (Figure 8-1). Power and ground connections from this module will need to be connected to the WSL515-MC Power Supply and the GFI. First, connect the main power line to the power supply (Figure 8-2). Next, connect the green ground line to the top of the grey GFI unit (Figure 8-3) **Pay special attention to connect the ground banana plug to the GREEN banana jack on the GFI.**

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Figure 9-1 Power Entry Filter

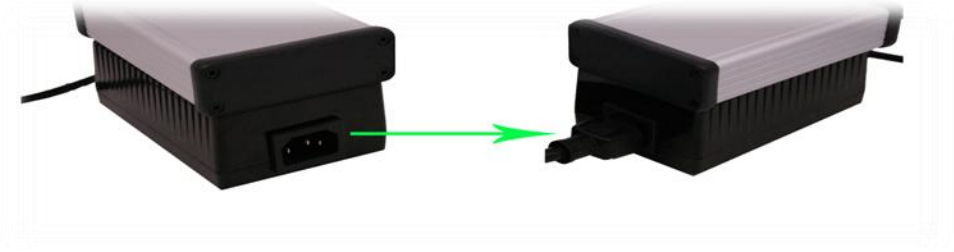

Figure 9-2 GFI Power Connection

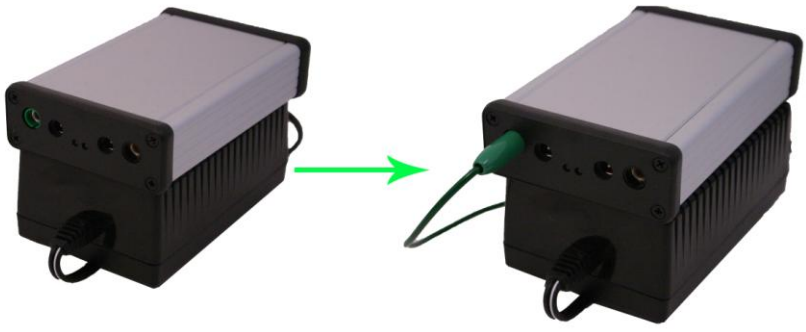

Figure 9-3 GFI Unit ground connection

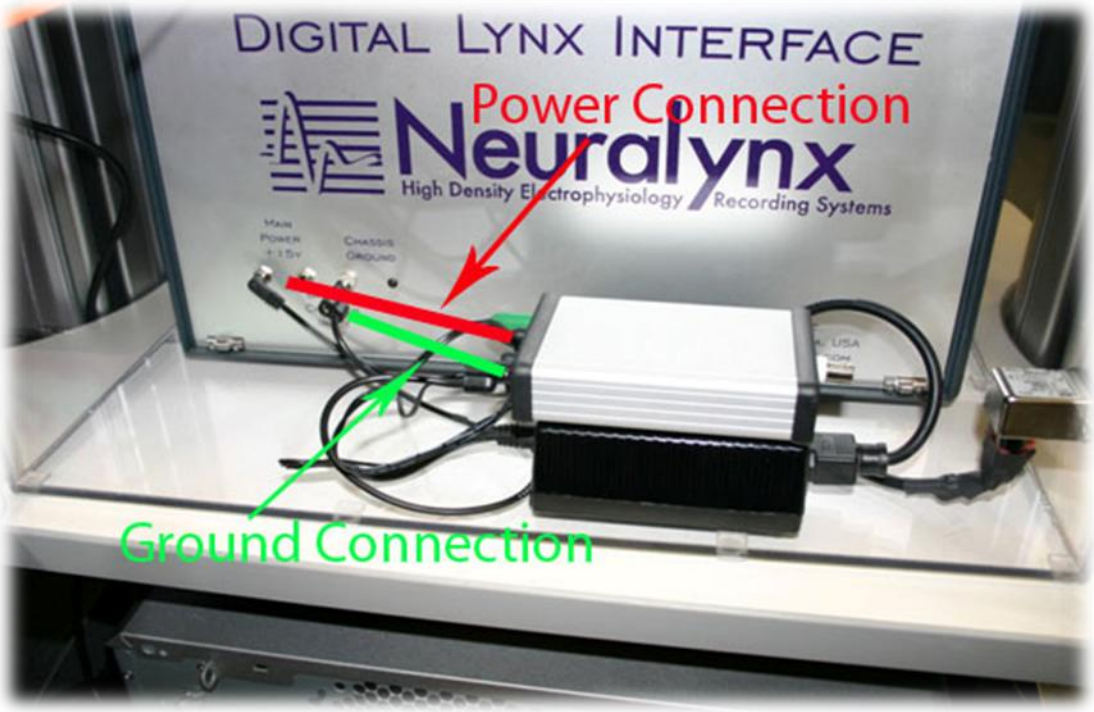

Figure 9-4 GFI Connections

Next, the GFI unit will need to be connected to the Digital Lynx. First, connect the black ground cable with the "banana plug" style connecter to the Chassis Ground Input on the back of the Digital Lynx. Next, connect the power connection to the Main Power on the back of the Digital Lynx. Finally, peel of the Velcro covering on the bottom of the power supply and firmly secure the complete unit to the bottom of the polycarbonate enclosure. This will complete the GFI unit installation.

9.1 BNC TTL Output

The GFI unit is equipped with a BNC connector for TTL output. This unit will generate a TTL pulse every time that the unit is tripped allowing you to monitor this event. This TTL pulse can then be directly inputted into the parallel input port on the front of the Digital Lynx Control Board or some other viewing scope (see Figure 9-5 and Figure 9-6). If you connect to the Parallel input port of the Digital Lynx, then these "events" will be displayed in the event display of Cheetah.

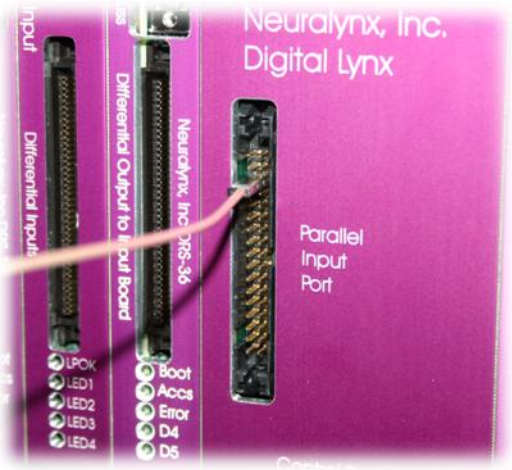

Figure 9-5 GFI-BNC Connection

Figure 9-6 Parallel Input Port

10 Power Conditioners

10.1 110 Volt Power conditioner

The Neuralynx Isolation Cart includes a power conditioner for providing stable power to your equipment. Section 10.1 shows the power conditioner that will be used for all 110V hook-ups. If you are a 240V customer, please skip to Section 10.2. It is recommended that you plug all of your acquisition equipment, including the computer and monitor(s), into your power conditioner (Figure 10-1). This will also create one common ground which is an essential part of proper data acquisition.

Insert the power conditioner in the space beneath the bottom shelf of the cart. Orient it so the power receptacles are on the same side as the back side of your computer.

Figure 10-1 Power Conditioner-110V

10.2 240 Volt Power Conditioner

The Neuralynx Isolation Cart includes a power conditioner for providing stable power to your equipment. It is recommended that you plug all of your acquisition equipment, including the computer and monitor(s), into your power conditioner (Figure 10-1). With the 240V Power Conditioner you will need to use the provided power cables. This will create one common ground which is an essential part of proper data acquisition.

Insert the power conditioner in the space beneath the bottom shelf of the cart. Orient it so the power receptacles are on the same side as the back side of your computer.

Figure 9-0-1 Power Conditioner-240V

Figure 9-0-2 Power Cord-240V

11 Connecting Fiber Optics and Computer Cables

The final steps to get your system up and running are to connect the remaining cabling components. This will include your monitors, computer mouse, keyboard (please follow all Hewlett Packard assembly instructions) and finally your orange fiber optics cable. This cable goes from the optical niche on the back of the computer to the Fiber Optics connection on the back of the Digital Lynx. There is a cutout on the side of the Polycarbonate box that this cable should go through. For a complete detailed outline of this connection, please refer to the *Digital Lynx Installation Guide* provided by Neuralynx.

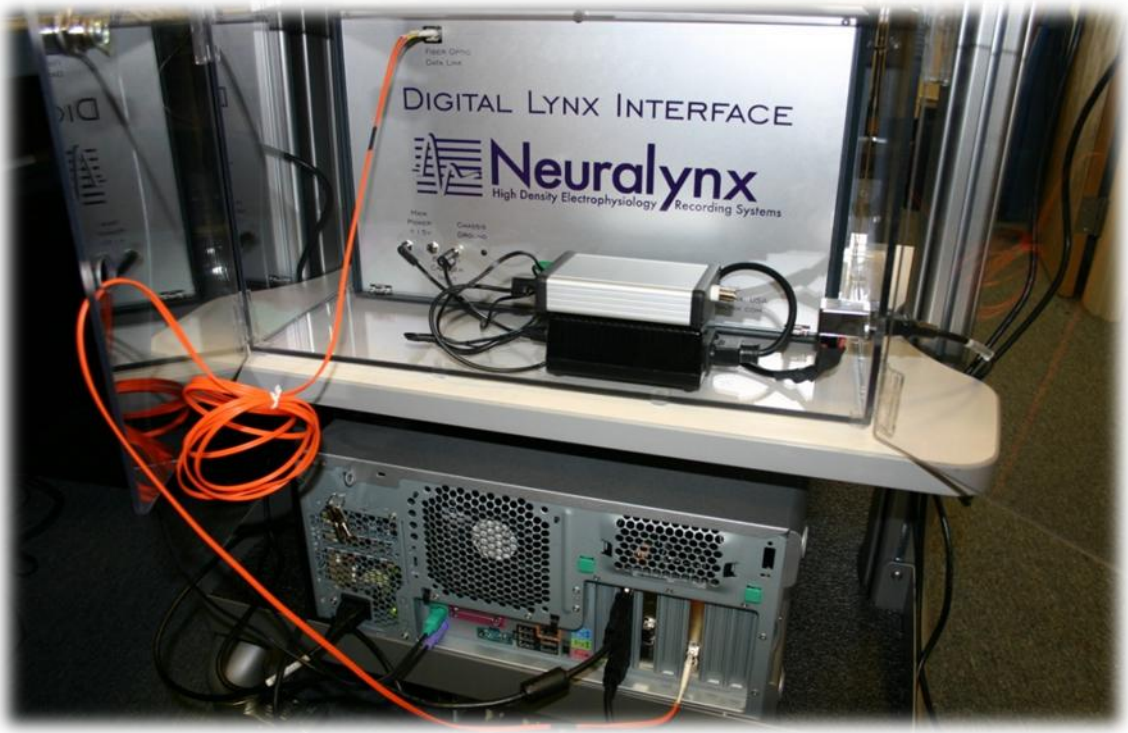

Figure 11-1 Fiber Optics connection

11.1 Optional Installation of Optical Ethernet Card

The isolation cart is sold with an optically isolated ethernet card. In most situations, this card is installed at Neuralynx when the system is being prepared for the initial setup. If the isolation cart is purchased after the initial purchase of the Digital Lynx, then this ethernet card will need to be installed by the end user. This PCIe card can be installed in any open PCIe slot. All drivers for the card will be found on the accompanying CD.

Each Cheetah Software license is linked to its individual PC by a unique MAC address. Sometimes, after installing this new ethernet card, the MAC address can differ by one character. If this happens, Cheetah will display errors saying that the license file is not valid. You should then contact Neuralynx Support for a new license file. If you have any questions on this topic, feel free to contact us at 406-585-4542 or email support@neuralynx.com.

12 Completed Isolation Cart and System

Figure 12-1 Assembled Isolation Cart