# SynAmps RT Power Unit

Full Range EEG and EP Amplifiers

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# 1 SynAmps RT Power Unit

## *Power Unit User Manual*

***P/N 00081520***

***1000VA Unit***

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## 1.1 Contact Information

### For Technical Support.....

If you have any questions or problems, please contact Technical Support through any of the following routes. If you live outside the USA or Canada, and purchased your system through one of our international distributors, please contact the **distributor** first, especially if your system is under warranty. In all other cases, please use **techsup@neuroscan.com**, or see the other Support options on our web site ( *http://www.neuroscan.com*). Or, if you live in the USA or Canada, please call **1-877-717-3975**. International callers should use **704-749-3200**.

For Sales related questions, please contact your local distributor, or contact us at **sales@neuroscan.com**.

# 2 Device Classification

**ATTENTION: CONSULT ACCOMPANYING DOCUMENTS BEFORE USING**

The Power Unit Model 8122 isolated transformer assembly is a line-powered instrument designed to meet the applicable requirements of IEC601-1:1988. The Power Unit should be used only according to the manufacturer's instructions. Replacement parts and accessories may be obtained from the manufacturer.

Manufacturer: **Compumedics Neuroscan USA Ltd.**
6605 West W.T. Harris Blvd., Suite F
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There is no guarantee that interference will not result from operation of this device in proximity or connected to some other device. If interference occurs, the user or operator is encouraged to try and correct the interference by one or more of the following measures: (1) Change the orientation of the two devices relative to one another; (2) Increase the separation between the two devices; (3) Check the power source and grounding for the two devices; and (4) Consult the dealer, Neuroscan Technical Support, or an experienced technician for help.

**Classification per IEC601-1:1988**
The device is ordinary equipment not protected against ingress of water and should not be used in the presence of any spilled liquids. It is not designed to be suitable for use in the presence of a flammable anesthetic mixture of air and oxygen or nitrous oxide. The device is capable of continuous operation.

Class and degree of protection against electrical shock is Class 1, Type B.

**Technical Description**

| | | |
|---|---|---|
| Input: | 120/230~, 50-60Hz, 1000VA | |
| Fuses: | 2 each T5A 250V 5 X 20mm for 230V operation | |
| | 2 each T10A 250V 5 X 20mm for 120V operation | |
| *Power Unit* | | |
| Weight: | 12.5kg | |
| Dimensions | Height: | 22.6cm |
| | Width: | 11.6cm |
| | Depth: | 27.9cm |

**Shipping and Storage Maximum Limits**

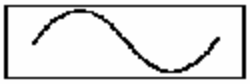
-20°C to +70°C, 10% to 100% humidity, non-condensing RH, 500hPa to 1060hPa. After unpacking, allow devices to adjust to room temperature for at least two hours prior to interconnection and application of power.

**Operational Limits**
+15°C to +30°C, 25% to 95% humidity, non-condensing RH, 700hPa to 1060hPa pressure.

**Warnings and Precautions**
Instructions
Read instructions before operating the device.

Symbols
The following symbols are found on the Power Unit:

CAUTION! Read instructions before using!
ATTENTION! Lire le mode d'emploi avant usage!.
VORSICHT! Vor Verwendung Gebrauchsanleitung lesen!
PRECAUCION! Lea las instrucciones antes de su uso!
ATTENZIONE! Leggere le instruzioni prima dell'uso!



Volts AC

CLASSIFICATION: Class 1, Type BF
CLASSFICATION: classe 1, type BF
KLASSIFIZIERUNG: Klasse 1, Typ BF
CLASIFICACION: Clase 1, Tipo BF
CLASSIFICAZIONE: Classe 1, Tipo BF

This device is not equipped with appropriate alarms required for use in monitoring clinical parameters of a patient where it is necessary to alert the user of situations which could lead to death or severe deterioration of the patient's state of health.

The Power Unit operates using line voltages which are present inside the enclosure.

CAUTION: To reduce risk of electric shock, do not remove cover. Refer servicing to qualified personnel.
ATTENTION: pour reduire tout risque de choc electrique, ne pas oter le couvercie. S'adresser a un technician qualifie en cas de mauvais fonctionnement.
VORSICHT: Zur Vermeidung der Stromschlaggefahr die Abdeckung nicht entiemen. Wartungsarbeiten sind nur von geschultem Personel vorzunehmen!
PRECAUCION: Para reducir el riesgo de que se produzca un electrochoque, no retire la tapa. Consulte a personal cualilicado para efectuar el servicio!

ATTENZIONE: Per ridurre il rischlo di scossa elettrica non rimouvere il coperchio. Rivolgersi a personale qualificato.

WARNING: For continued protection against fire hazard, replace fuse with same type and rating.
AVERTISSEMENT: pour une protection permanente contre les risques d'incendie, utiliser des fusibles de rechange du meme amperage.
WARNUNG: Zur Wahrung des Schutzes gegen Feuergefahr Sicherung nur durch eine Sicherung desselben Typs und derselven Leistung emeuem!
ADVERTENCIA: Para obtener una proteccion continuada contra el riesgo de incendio, reemplace el fusible con uno del mismo tipo y potencia.
ATTENZIONE: per una protezione continuativa contro rischi di incendio, sostituire il fisible con uno dello stesso tipo e voltagio.

DANGER: Possible explosion hazard when used in the presence of a flammable anaethetic mixture with air or with oxygen or nitrous oxide.
DANGER: Risque possible d'explosion en cas d'utilisation en presence d'un melange d'anesthesique inflammable et d'air, d'oxygene ou de protoxyde d'azote.
GEFAHR: Mogliche Explosionsgefahr bel Verwendung in Gegenwart von entzundbarer Anasthetikummischung mit Luft oder mit Sauerstoff oder Stickstoffoxid!
PELIGRO: Riesgo posible de explosion cuando se usa cerca de un anestesico inflamable mezclado con aire, con oxigeno o con oxido nitroso.
PERICOLO: Possibile rischio di esplosione se utilizzato in presenza di una miscela di gas inflammabile ed aria oppure ossigeno o protossido d'azoto.

This device is not equipped with appropriate alarms required for use in monitoring clinical parameters of a patient where it is necessary to alert the user of situations which could lead to death or severe deterioration of the patient's state of health.

**CAUTION**: MEDICAL ELECTRICAL EQUIPMENT needs special precautions regarding EMC (ElectroMagnetic Compatibility) and needs to be installed and put into service according to the EMC information provided in the ACCOMPANYING DOCUMENTS.

**CAUTION**: Portable and mobile RF communications equipment can affect MEDICAL ELECTRICAL EQUIPMENT. Use of this type of equipment in close proximity to the Power Unit should be prohibited. If portable or mobile RF communications devices are used in the vicinity of the Power Unit, the user or operator should verify normal operation of the device.

Neuroscan does not specify a minimum amplitude or value of the patient physiological signal.

**CAUTION**: Grounding continuity should be checked periodically.

**CAUTION**: This product requires convection cooling. Adequate ventilation is required. Clearance of 2" minimum on any side.

**ATTENTION**: Ce product doit ètre refroidit par convection. Une ventilation appropriée est indespensable. Un espace de 2" (5cm) doit ètre laissé libre de chaque côté.

**NOTE**: **USA and Canada**: Grounding reliability can only be achieved when this

equipment is connected to a receptacle marked "Hospital Only" or "Hospital Grade".

**REMARQUE**: **USA et Canada**, la fiabilité de la mise à la masse de cet équipment ne peut être réalisé que si celui-ci est connecté à une price marquée "Hôpital Suelement" ou "Classe Hôpital".

**Environment**

The Power Unit is designed to be used in a clinical laboratory or office environment. Extremes of humidity, temperature, or pressure should be avoided. The device should not be used in a location where contact with liquids is possible, and if liquids are spilled on or in the area of the device, it should not be used until it can be ensured that the fluid or its residue will not affect device operation. Questions should be directed to the manufacturer or its representatives.

**Cleaning Instructions**

The Power Unit enclosure may be cleaned with a damp sponge or cloth and mild nonabrasive cleanser. Take care to ensure that liquid does not spill in or on the device. Do not use abrasives or detergents.

**Repair**

There are no user serviceable parts in the Power Unit transformer. Fuses in the Power Unit should be replaced with the type and rating indicated on the back panel label. Contact your dealer or Neuroscan Technical Support if you believe the Power Unit is in need of repair.

**Maintenance**

Neuroscan suggests that the earth and patient leakage currents be tested at least once per year to ensure continued safe use of the device. Also at least once per year, visually inspect the device, including the power cord. Replace any worn or frayed cables, and contact your dealer or Neuroscan technical support if you have concerns about what you see. This inspection interval may be shortened for devices that are moved often or experience unusually heavy use. No other maintenance or service is required.

**Installation Precaution**

Proper grounding is important for continued safe use of your Power Unit. Ensure that the outlet supplying power to the Power Unit is grounded, and that the power cords supplied with your system are used. Other devices in the same patient area should be at the same ground potential, and should preferably use the same branch circuit.

**Interconnection with Other Devices**

Care should be taken when multiple devices are connected to a patient, or when devices are connected together. Leakage currents for individual devices may sum to values higher than expected for single devices. In particular, care should be taken when connecting Information Technology (computer) equipment to Medical equipment. Allowable leakage current levels for IT equipment are higher than for Medical equipment. All equipment that is electrically connected together must be powered from the isolation transformer.

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# 3 Introduction

The Neuroscan Power Unit transformer is designed to provide isolated power to *SynAmps*$^2$, *SynAmps RT*, and other approved devices from Neuroscan (up to 1000 watts total output). The Power Unit may be operated from either 110 or 220VAC power. The Power Unit is a flexible, dependable power source for many laboratory applications.

# 4 Power Unit Installation

Installation of the Power Unit is straightforward. Here is a summary of the steps that you will need to perform:

## Unpacking the Power Unit

The Power Unit has been shipped in a container designed to reduce damage due to shipping. Please retain this box and its contents in case you need to return the unit for any reason.

The Power Unit is typically packaged in a smaller box within a larger box containing other devices that have been purchased (such as the *SynAmps RT* System Unit and headbox).

Open the box and check for the following contents:

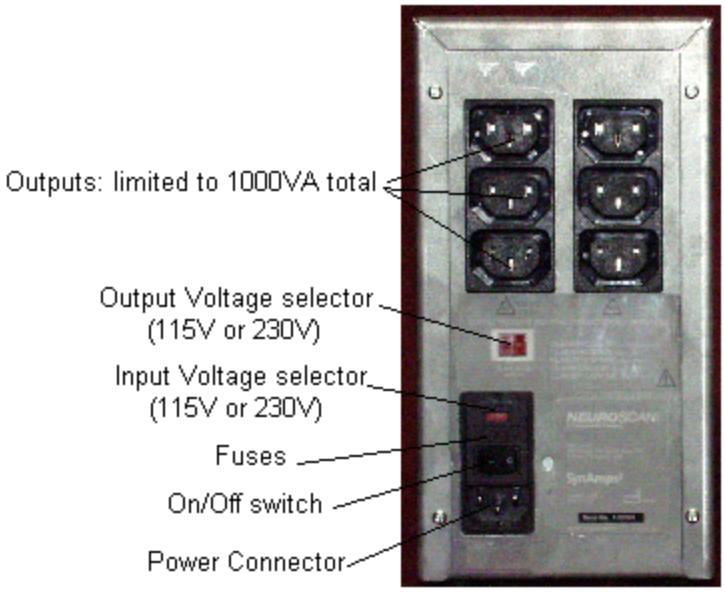
1. Power Unit
2. Power Unit cord
3. Four reverse power cords
4. Power Unit User Manual

As you remove the components from the boxes, examine them for any obvious damage due to shipment. Save the box in case you need to return the unit for repairs.

## Connecting the Components

*Turn off and unplug all computers, monitors, printers, etc., before connecting the Power Unit to the rest of the system.*

The Power Unit provides isolation through a transformer from line power. Input and output voltages are selected via switches. All IT (Information Technology) devices attached to the system must be powered through the Power Unit.




*All components connected to the SCAN, STIM, SynAmps RT or other units MUST be powered by the Power Unit* (STIM may be powered by the separate isolation transformer sent with it). Connect the power cables to the computers, monitors, printer, STIM box, System Unit(s) or other devices to the upper power connectors on the back of the Power Unit.

*Make sure you have the input and output voltages set correctly for 115 or 230V*. *If you have the output voltage set to 230 for a 115V device, damage may occur to that device.* To set the input voltage, you will need to use a small pin to gently pry open the black panel. The red fuse assembly can be removed and rotated such that the desired setting is displayed in the small window in the panel. The correct fuses should be installed: 10A for 115V, and 5A for 230V.

Connect the AC power cable from the back of the Power Unit to a grounded AC wall plug. Verify that there is a true earth ground in the building (otherwise, you may experience 50Hz or 60Hz line noise interference in the recordings).

The Power Unit contains an isolation transformer that is rated at 1000 watts. While that should be sufficient to safely power the components mentioned, you should verify that you are not surpassing that limit. A fully loaded System Unit with four amplifier/headboxes attached consumes a maximum of 150W. The demand will come primarily from your computer(s), monitor(s) and any peripherals. The wattage demands are usually displayed on the back of the components (or in their documentation). Neuroscan is not responsible for damage to the Power Unit resulting from an overload.

After all of the components are connected, turn on the Power Unit first, then turn on the other components one at a time (to reduce the wattage demand on the Power Unit). After turning the Power Unit off, it is recommended to let the unit "cool down" for approximately one minute before turning it on again. There may otherwise be a risk of blowing a fuse in the unit or possibly tripping the wall outlet circuit breaker.

# 5 POWER UNIT SPECIFICATIONS

The Power Unit is intended for 120 or 230VAC and 50/60Hz input frequency. DO NOT USE OTHER VOLTAGES OR FREQUENCIES.

| Output voltage (VAC) | Output current (Amps) | Output Power* (VA) |
|---|---|---|
| 120/240 | 8.34/4.17 | 1000 |

* Maximum total output power of the Power Unit, whether one or more outlets are used.

**Power Cord Requirements**:
Input: The power cord must be appropriately approved by testing agency for the country where the Power Unit is operated, such as UL/CSA/VDE/SEMKO/<HAR> etc. For the US and Canadian market, a HOSPITAL GRADE plug is required.

One end (plug) must be appropriate for the wall receptacle, the other to fit in the power inlet of the Power Unit; this end must be of appliance type, IEC-320 female plug. The power cord must have grounding.

Minimum wire diameter: AWG 16 (1.00mm2)
Length recommended: Less than 12 feet

**Fuse Requirements**:
The fuse in the power entry module protects the Power Unit from overloads and short circuits. If the wrong fuse is used, there may be danger to person operating equipment connected to it, or, potential damage to equipment connected to the Power Unit. The fuses must be UL and CSA approved and marked for North American use and VDE/EN approved and marked for European use. Use only SLOW BLOW type (T-type) fuse in this equipment.

| 120V in | 240V in |
|---|---|
| 10AT | 5AT |

**DO NOT USE FUSES WITH HIGHER AMP RATING**.

# 6 TROUBLESHOOTING

DO NOT ATTEMPT TO REPAIR. WARRANTY WILL BE VOID IF UNAUTHORIZED REPAIR WORK HAS BEEN CARRIED OUT.

No output power:

1. Verify that the Power Unit is connected and that the power switch is ON (1).
2. With all power in, and power out disconnected from the Power Unit, verify that

the fuses in the power entry module are operating.
3. Use another wall outlet.
4. Check wall outlet circuit breaker.
5. If you have any other problems with the Power Unit, please contact Neuroscan (see page 2 for contact information).

If you notice **any** Mechanical Damage: Contact Neuroscan for return instructions (see page 2 for contact information).