THORLABS

GPS011-EC
GPS011-US
GPS011-JP

Galvo Scanner System
Linear Power Supply

User Guide



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Chapter 1 Overview

The GPS011 power supplies are low noise, linear supplies designed to minimize electrical interference for maximum system resolution when using Galvo Scanning Systems. The supplies allow two driver cards to be powered via separate 2 m power cables supplied with the galvo units. An AC adapter with a 1.6 m cable enables convenient positioning in any application.

The internal transformer provides voltage conversion from a selectable range of mains voltages to the lower operating voltage required to generate the ±15 Volt DC supply. It also allows electrical isolation between the hazardous primary mains voltage and the SELV secondary supply.

There are external fuses that provide additional protection and a thermal fuse that will disconnect the supply if it senses that the temperature of the unit exceeds a safe limit.

The units are supplied with the input voltage and fuses configured to be compatible in the region to which they are shipped. No further adjustment should be necessary.

Chapter 2 Safety Information

For the continuing safety of the operators of this equipment, and the protection of the equipment itself, the operator should take note of the Warnings, Cautions and Notes throughout this handbook and, where visible, on the product itself.



Warning: Risk of Electrical Shock

Given when there is a risk of electrical shock.



Warning

Given when there is a risk of injury to users.



Caution

Given when there is a possibility of damage to the product.

Note

Clarification of an instruction or additional information.

2.1 General Warnings and Cautions

Warning

The safety of any system incorporating this equipment is the responsibility of the person performing the installation.

The unit must be connected only to an earthed (grounded) mains power outlet.



If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.

No maintenance required. No user serviceable parts. If the unit fails, contact technical support.

Disconnect the power supply before cleaning the unit. Never allow water to get inside the case. Do not saturate the unit. Do not use any type of abrasive pad, scouring powder or solvent, e.g., alcohol or benzene.

Chapter 3 Installation and Operation

3.1 Environmental Conditions

Warning

Operation outside the following environmental limits may adversely affect operator safety.

The unit is designed for indoor use only.

To ensure reliable operation, the unit should not be exposed to corrosive agents or excessive moisture, heat or dust.

The unit is not designed to be used in explosive environments.

If the unit has been stored at a low temperature or in an environment of high humidity, it must be allowed to reach ambient conditions before being powered up.

3.2 Connecting the PSU to the Driver Card

Caution

Always ensure the power supply unit is isolated from the mains before connecting to the driver cards. Do not connect the driver cards to a 'live' external power supply. Doing so carries the risk of PERMANENT damage to the cards. Always power up the driver cards by connecting the power supply when the mains power is switched off. Similarly, to power down the driver cards, disconnect the power supply from the mains before disconnecting from the cards.

Under some operating conditions (e.g., the maximum current is drawn for prolonged periods), the unit can become quite hot (around 45 °C). Always ensure adequate ventilation to the unit. Do not cover the vent holes in the case. Do not place other items on top of or against the unit.

1. The circular 3-pin connector on the power output cable and the OUTPUT socket on the PSU are fitted with alignment keyways to ensure connection in correct orientation. Check for orientation of the alignment keyways, then make connections as referred in Figure 1.
2. Screw the outer casing of the plug clockwise until the connector is fully fastened.

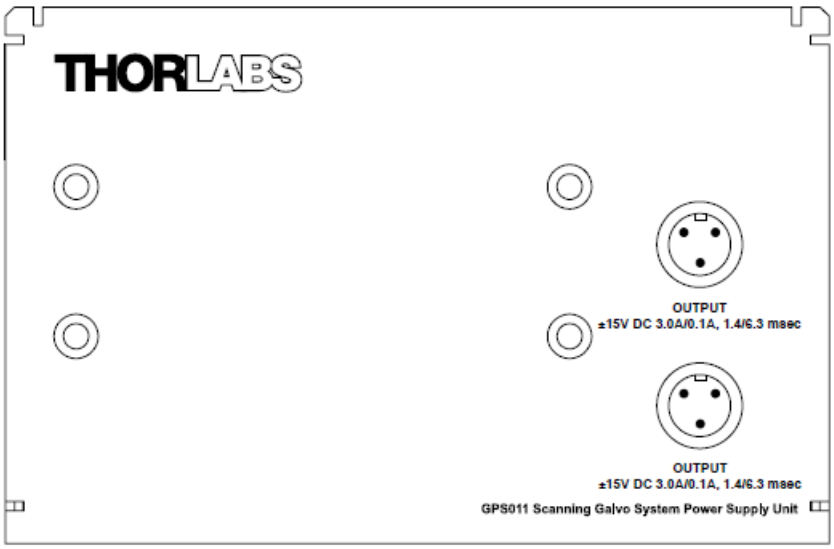


Figure 1 Connecting the Power Supply to the PSU

3. Push the 3-way crimp housing on the other end of the cable into the driver card connector J10. Ensure the connector is properly locked in position.

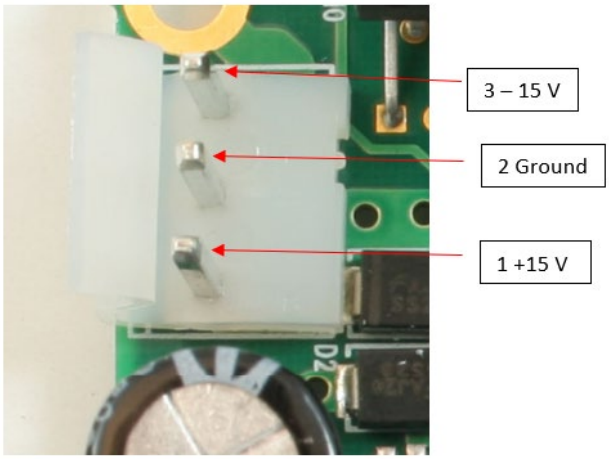


Figure 2 J10 power Connector Pin Identification

4. Repeat item (3) for the remaining card (if used).

3.3 Connecting the AC Power

The unit must be connected only to an earthed (grounded) mains power outlet.

> **Note**
>
> The unit is supplied with input voltage and fuses configured to be compatible in the region to which it was shipped. No further adjustment should be necessary.

1. Connect the power cord to the socket on the rear panel of the unit. Refer Figure 3.

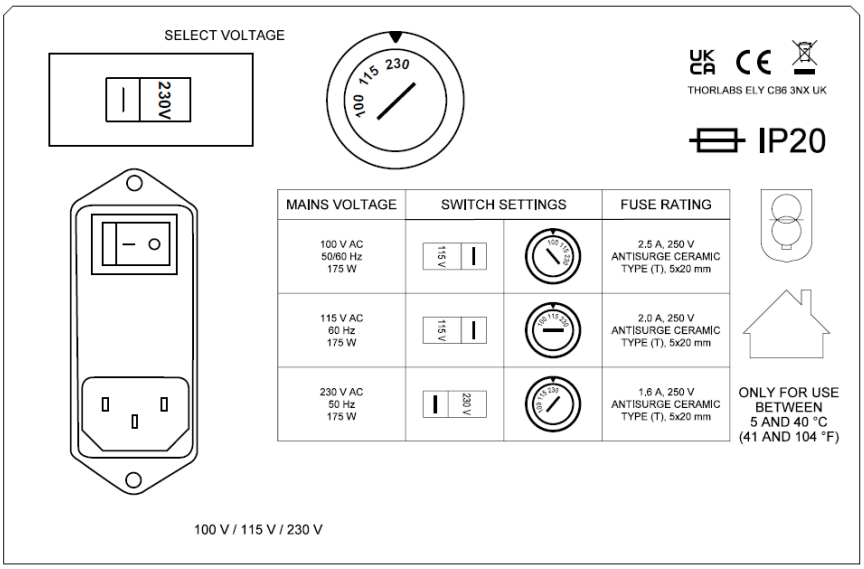


Figure 3 Rear Panel EC and US Models

2. Ensure that the correct voltage range and fuse rating for your region is selected.

> **Caution**
>
> Selecting the incorrect voltage range or fuse will damage the unit. Ensure that both switches are set to the correct position for your region and that the fuse fitted is of the correct rating, as indicated by the screen print on the rear panel.

3. Plug the power cord into the wall socket.

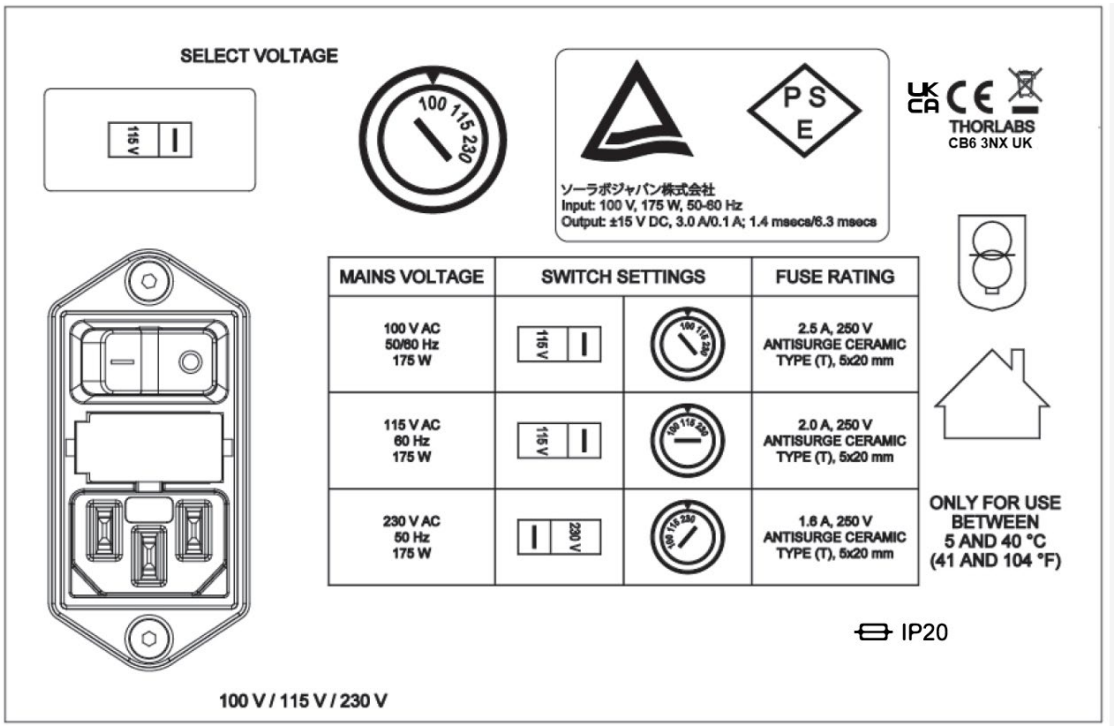


Figure 4 Rear Panel JP Models

3.4 Using the Power Supply Unit

1. Make connections and voltage selection settings as detailed in section 3.2 and section 3.3.
2. Make the Power switch on the rear panel to '— ' position.
3. To disconnect the power, move the switch to the '0' position.

3.5 Power Connection Pin Out

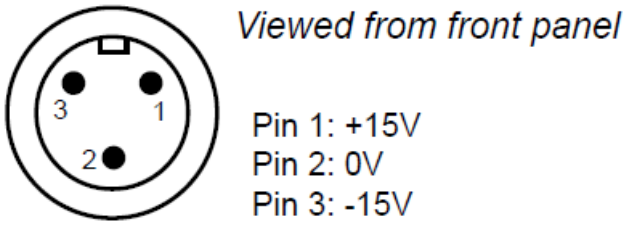


Figure 5 Front Panel Power Out Connector Pin Out Details

Chapter 4 Specifications

Parameter #	Value
Input Voltage Range	Switchable as follows: 100 VAC 50 or 60 Hz 115 VAC 60 Hz 230 VAC 50 Hz
Output Voltage	±15 VDC 3.0 A/0.1 A, 1.4/6.3 ms (Maximum Duty Cycle)[a]
Fuse Type	Input Voltage Dependent: 100 V: T2.5 A Anti-Surge Ceramic 115 V: T2.0 A Anti-Surge Ceramic 230 V: T1.6 A Anti-Surge Ceramic
Housing Dimensions (W x D x H)	179 mm x 274 mm (Max) x 122 mm (7.05" x 10.79" x 4.8")
Weight	4.73 kg (10.4 lbs)

a. 1.4/6.3 ms is the maximum duty cycle for drawing maximum current. This means that if the unit outputs ±15 V at 3.0 A for 1.4 ms, it must then output a maximum of 0.14 A for 6.3 ms otherwise the unit may get hot with the risk of a potential thermal cutout.

Chapter 5 Certifications and Compliance



EU Declaration of Conformity

Manufacturer: Thorlabs LTD

Address: 204 Lancaster Way, Ely, CB6 3NX

We hereby declare under our sole responsibility that:

Product: **GPS011-EC, GPS011-US and GPS011-JP**

Product description: **1D and 2D Galvo System Linear Power Supply**

is/are in conformity with the following directive(s):

2014/35/EU	Low Voltage Directive (LVD)
2011/65/EU	Restriction of Use of Certain Hazardous Substances (RoHS), including 2015/863
2014/30/EU	Electromagnetic Compatibility (EMC) Directive

and (harmonized) standards / technical specifications :

EN 61010-1	Safety Requirements for Electrical Equipment for Measurement, Control and Laboratory Use.	2010 + A1:2019 + AC:2019
EN IEC 63000	Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances	2018
EN 61326-1	Electrical Equipment for Measurement, Control and Laboratory Use - EMC Requirements	2013

I hereby declare that the equipment named has been designed to comply with the relevant sections of the above referenced specifications and complies with all applicable Essential Requirements of the Directives.

Signed: Keith Dhese

Name: Keith Dhese *On:* 5/15/2024

Position: General Manager

CE

Chapter 6 Thorlabs Worldwide Contacts

For technical support or sales inquiries, please visit us at www.thorlabs.com/contact for our most up-to-date contact information.



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