I R T Electronics Pty Ltd A.B.N. 35 000 832 575
26 Hotham Parade, ARTARMON N.S.W. 2064 AUSTRALIA
National: Phone: (02) 9439 3744 Fax: (02) 9439 7439
International: +61 2 9439 3744 +61 2 9439 7439
Email: sales@irtelectronics.com
Web: www.irtelectronics.com

IRT Power Supply for Eurocard
-48 Vdc to ±16 Vdc
Type PSU-3002/PT-748A

Telstra Serial Item 347/67

Designed and manufactured in Australia

IRT can be found on the Internet at:
http://www.irtelectronics.com

IRT Power Supply for Eurocard
-48 Vdc to ±16 Vdc
Type PSU-3002/PT-748A

Instruction Book

Table of Contents

Section	Page
General description	3
Technical specifications	3
Circuit description	4
Pre-installation	4
Earthing	5
Operational safety	5
Installation & servicing	6
Front & rear panel diagrams	7
Warranty & service	8
Drawing index	9

This instruction book applies to units later than S/N 9508000.

WARNING

Operation of electronic equipment involves the use of voltages and currents that may be dangerous to human life. Maintenance personnel should observe all safety regulations. Do not change components or make adjustments inside the equipment with power **ON** unless proper precautions are observed. Note that under certain conditions dangerous potentials may exist in some circuits even though power controls are in the **OFF** position.

IRT Power Supply for Eurocard
-48 Vdc to ±16 Vdc
Type PSU-3002/PT-748A

General Description

The PSU-3002/PT-748A is designed to provide complementary low voltage DC power supplies required for operation of up to 10 standard IRT Eurocard modules.

The IRT PSU-3002/PT-748A DC-DC converter converts a nominal 48V input voltage to two output supplies, one of +16V and the other -16V with respect to ground.

Two PSU-3002/PT-748A's can be operated redundantly when using an FRU-3001/FR-748A Frame. The redundant power supply facility of the PSU-3002/PT-748A is enabled in each IRT Eurocard module by having the power supply circuit of each module made up of two full wave rectifier circuits with the outputs connected in parallel. This allows the ±16V voltages to be sourced from either PSU-3002/PT-748A.

A front panel LED indicator provides visual confirmation of the presence of the low voltage output.

An alarm relay is also included which will activate the alarm if either +ve or -ve output fails.

The PSU-3002/PT-748A is available in -48 Vdc only and is not configurable by the user.

Technical Specifications

IRT Eurocard Dual Power Supply Module
Type PSU-3002/PT-748A

Power Requirements:

Voltage	48 Vdc ± 25% Positive ground.
Power	1.5 A maximum.
Fusing	1.5 A anti-surge

Output voltages: +16V @ 1.6A
-16V @ 1.6A

Connectors:	DC power input / output	H15MFAV32 male, Faston

Other:

Temperature range		0 - 50° C ambient
Mechanical		Suitable for mounting in FR-748A rack frame
Finish:	Front panel	Grey, silk-screened black lettering & red IRT logo
	Body	Passivated steel with silk-screened black lettering.
Dimensions		6 HP x 3 U x 230 mm

Circuit Description

The PSU-3002/PT-748A consists of two DC-DC converter circuits, each of which provides a 16 Vdc output. The inputs are wired in parallel and the outputs differ only in the grounding of the positive or negative output of the converter.

The DC input circuitry consists of a safety fuse followed by a low value series resistance and overvoltage protection zener diode and a number of RF suppression components.

The front panel LED power indicator and alarm relay are powered from the output rails by way of a series 15 Volt zener diode. If either rail fails there is insufficient voltage to operate the relay and the LED dims sufficiently to indicate the fault condition.

The alarm is shown in the un-energised position. When operating normally the alarm is open circuit. When supply is lost the alarm line is grounded.

Pre-Installation:

Handling:

This equipment may be connected to static sensitive devices and proper static free handling precautions should be observed when disconnecting or reconnecting either the input or the output of the PSU.

Power:

Ensure that operating voltage of unit and local AC mains supply voltage match, and that correct rating fuse is installed for local supply.

Earthing:

Supply earth:

For safety reasons, a connection is made between the IEC connector earth pin, the DC input connector +ve pin and the FRU-3001/FR-748A chassis. No attempt should be made to break this earth connection.

When the PSU-3002/PT-748A is installed in the FRU-3001/FR-748A frame a connection will be made between the above earth and the PSU-3002/PT-748A chassis. This earth is also connected to the centretap output connection of the PSU-3002/PT-748A.

When the PSU-3002/PT-748A is installed in the FRU-2300 frame a connection will be made between the above earth and the PSU-3002/PT-748A chassis. The ±16 Vdc output connection of the PSU-3002/PT-748A is supplied as a floating connection to the busses on the frame. The centretap is not connected.

Power supply output earth:

A connection is made between the output common connection of the PSU-3002/PT-748A and chassis ground within the PSU-3002/PT-748A.

Signal earth:

FRU-3001/FR-748A frame:

When the rear assembly of a module is connected to the FRU-3001/FR-748A frame, the signal earth of that rear assembly may or may not be connected to the chassis depending on the particular rear assembly design.
Power supply connections on the rear assembly are not connected to the signal earth on the rear assembly.

When a module is inserted into the FRU-3001/FR-748A frame, a connection is made between the PSU-3002/PT-748A power supply ground and signal earth. Depending on the particular module design, the signal earth may be connected to the front panel of the module and may therefore make a connection to the FRU-3001/FR-748A frame via the front securing screws.

This results in a central earth point on each module for power supply and signal.

FRU-2300 frame:

Although the PSU-3002/PT-748A will physically fit into the FRU-2300 frame, it does not provide the correct voltages for the modules used in this type of frame. To prevent damage a PSU-3002/PT-748A plugged into an FRU-2300 frame will not make electrical contact and will be inoperable.

General:

If a "technical" earth is required for the system, this may be connected to the rack, frame and signal earth according to the requirements of each individual installation. For connection to the signal earth refer to details of connections for particular modules installed in the frame.

Operational Safety:

WARNING

Operation of electronic equipment involves the use of voltages and currents that may be dangerous to human life. Note that under certain conditions dangerous potentials may exist in some circuits when power controls are in the **OFF** position. Maintenance personnel should observe all safety regulations.

Do not make any adjustments inside equipment with power **ON** unless proper precautions are observed. All internal adjustments should only be made by suitably qualified personnel. All operational adjustments are available externally without the need for removing covers or use of extender cards.

Installation & Servicing

The PSU-3002/PT-748A contains no user serviceable parts inside and should not be opened.

In the event of failure of either output, the input operating voltage and front panel input fuse should be checked.

If fault persists the complete unit should be returned to IRT or your local agent for service.

Performance:

One PSU-3002/PT-748A is designed to provide adequate power for an FRU-3001/FR-748A frame equipped with its maximum of ten Eurocard modules under normal conditions. During normal operation, this power is shared between the two supplies mounted in the frame.

This performance is contingent on two power supplies being operational and the AC mains supply input being within the specified range.
Where both an AC and DC supply are fitted in the one frame, the degree of load sharing will be dependent on the AC input voltage to the AC supply. This will directly affect its output voltage whereas the DC supply will continue to supply a constant voltage output over a wide range of input voltages.
Where two PSU-3002/PT-748A's are fitted in the one frame, the degree of load sharing will be dependent on the match in output voltages between the two supplies.

If only one supply is operational or the AC supply voltage to one supply is low, module performance may be affected.
The provision of two power supplies is intended to provide continued operation, during failure of one supply, until the second supply can be restored. Continuous single supply operation is not recommended.

If the AC mains supply input is subject to wide fluctuation, a suitable stabilised source should be installed.
If it is continuously at the lower range of that specified, one of IRT's other PSU's with the required input voltage should be substituted for the PT-701.

FRU-3001/FR-748A Frame:

The PSU-3002/PT-748A should be slid firmly into either of the two double width slots (11 & 12) at the right of the frame. The four retaining screws on the front should then be tightened.

Power to the PSU-3002/PT-748A is supplied from a connector located on the rear of the FRU-3001/FR-748A, immediately to the rear of the module. Care should be taken to observe the correct polarity as marked when connecting DC to this connector.

The alarm output connector is located on the rear of the FRU-3001/FR-748A frame and is common to both supply units when installed. The alarms for both units are in parallel such that when a fault develops in either PSU the alarm output will be grounded.

WARNING - Each PSU-3002/PT-748A dissipates up to 6 Watts and a full frame of ten VA-700's and two PSU-3002/PT-748A's dissipates up to 66 Watts. Ensure that adequate ventilation is available to keep down the operating temperature. If possible, at least 44.5 mm (1 RU) should be left clear above each frame.

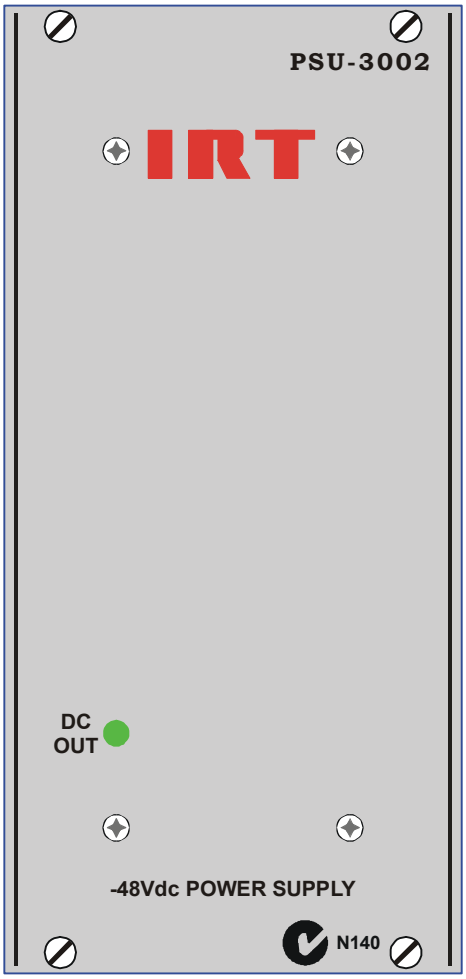
Internal adjustments:

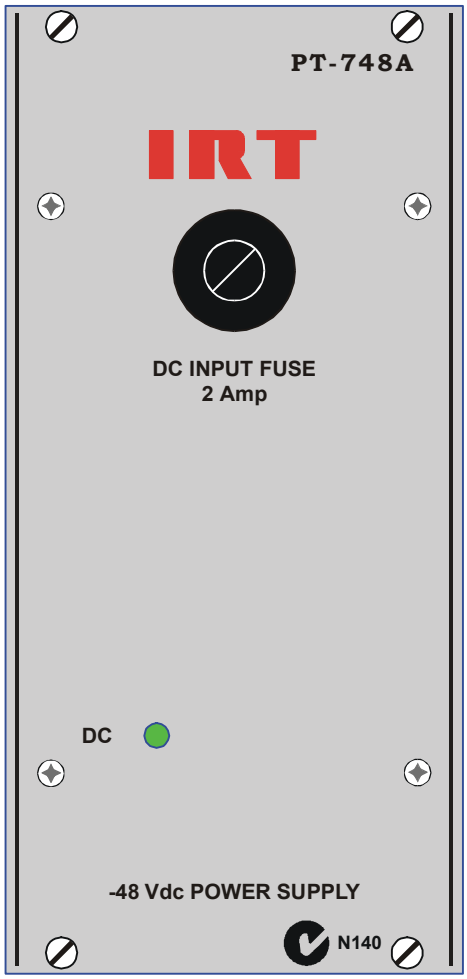
The PSU-3002/PT-748A is factory set for the correct output voltages and should not require re-adjustment unless one of the DC - DC converters is replaced.

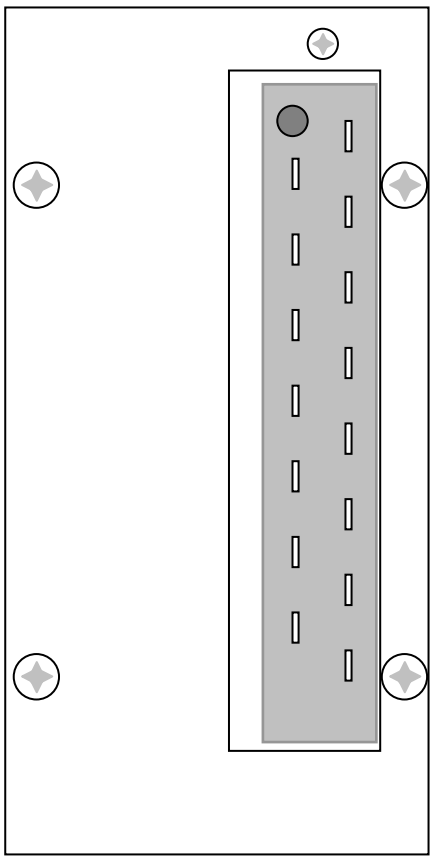
Adjust RV 1 for -16 Vdc
Adjust RV 2 for +16 Vdc

Front & rear panel diagrams

The following front panel and rear assembly drawings are not to scale and are intended to show relative positions of connectors, indicators and controls only.







Warranty & service

Equipment is covered by a limited warranty period of three years from date of first delivery unless contrary conditions apply under a particular contract of supply. For situations when "**No Fault Found**" for repairs, a minimum charge of $A100.00 will apply, whether the equipment is within the warranty period or not.

Equipment warranty is limited to faults attributable to defects in original design or manufacture. Warranty on components shall be extended by IRT only to the extent obtainable from the component supplier.

Equipment return:

Before arranging service ensure that the fault is in the unit to be serviced and not in associated equipment. If possible, confirm this by substitution.

Before returning equipment contact should be made with IRT or your local agent to determine whether the equipment can be serviced in the field or should be returned for repair.

The equipment should be properly packed for return observing antistatic procedures.

The following information should accompany the unit to be returned:

1. A fault report should be included indicating the nature of the fault
2. The operating conditions under which the fault initially occurred.
3. Any additional information which may be of assistance in fault location and remedy.
4. A contact name and telephone and fax numbers.
5. Details of payment method for items not covered by warranty.
6. Full return address.
7. For situations when "**No Fault Found**" for repairs, a minimum charge of $A100.00 will apply, whether the equipment is within the warranty period or not.

Please note that all freight charges are the responsibility of the customer.

The equipment should be returned **to the agent who originally supplied the equipment or, where this is not possible**, to IRT direct as follows.

Equipment Service
IRT Electronics Pty Ltd
26 Hotham Parade
ARTARMON
N.S.W. 2064
AUSTRALIA

Phone: 61 2 9439 3744 Fax: 61 2 9439 7439
Email: service@irtelectronics.com

Drawing index

Drawing #	Sheet #	Description
804601	1	PSU-3002 schematic diagram
803655	1	PT-748A schematic diagram