

Inner Range

10A PFC Smart Power Supply. P/N: 996095

INSTALLATION MANUAL

Overview

The 10A Power Factor Corrected (PFC) Smart PSU is designed primarily as a battery-backed supply for Integrity Modules that support the 10-way 'External Power' bus connection. e.g. IAC, ILAM, SLAM, 8-32 Zone LAN Expander, Ethernet Bridge, etc. One Module can be connected with the 10-way cable provided. Additional Modules can be connected to V+/V- using the Ancillary PSU Cable P/N: 996794. Status & faults may be monitored and/or reported via dedicated Host Module System Inputs. *See p4.* The PSU can also be used as a general purpose, battery-backed, 13.75V supply to power legacy or 3rd party equipment via the plug-on screw terminals. e.g. Electric locks.

The product is supplied as an assembled, enclosed unit for use in larger Integrity enclosures and does not require installers to be specially certified. It features a high reliability design that offers exceptional stability when used with the recommended battery type and is also compatible with Proximity/Wireless type readers.

Specifications

Input Voltage / Frequency: 110 to 240V AC +10%/-11% / 50/60Hz +/-5%

Input Current: 2.0 Amp maximum.

Fuse Rating (F1) T2.5A / 250V~

Output Voltage: 13.75V DC up to 10A.

Maximum O/P Current. V+ (P2 & T3 loads combined): 8.0A continuous maximum.

Battery Charger: 2.0A nominal. 2.5A maximum if V+ load is 7.5A or less.

NOTE: When running from the AC Supply, the total of all long-term loads (including battery charging) must not exceed 10.0 Amps. Short-term loads of up to 12A are supported by drawing current from the Battery for a period limited by Battery capacity & charge state.

Output Ripple: 50mV RMS max. @ Iout = 8.0A.

Load Regulation: +0.75% (100mV) / -1.5% (200mV) @ Iout = 0.1A to 10A

Battery Type & Capacity: 12V Sealed Lead Acid Battery. 7AH min. 18 - 45AH recommended depending on requirements.

Low Battery Alarm: Normal = 11.7V. During Battery Testing = 11.1V

Low Battery Restore: (Fully Charged) = 13.3V & <150mA charge current.

Batt. Deep Discharge Protect: 10.4V when running. 11V at power-up.

Deep Discharge Recovery: 12.5V

Battery replacement period: 5 years maximum. Refer to battery manufacturers recommendations & relevant local standards.

Dimensions/Weight: L: 274mm. W: 100mm. H: 64mm. Weight: 1.1 kg

Operating Environment: 0° to 49° Celsius / 32° to 120° F. (Ambient) 15% to 85% Relative humidity (non-condensing)

Parts List

- Integrity 10A PFC Smart Power Supply. (Tested assembly with T3 & T4 connectors fitted)
- Installation Manual. (This document) - 1 x Right-angle IEC Mains Cable*
- Installation Kit containing:
 - 1 x Chassis Earth Cable* - 4 x M4 x 5mm screws*
 - 1 x Integrity 10-Way PSU Cable. 430mm (P/N: 996792) - 5 x M4 Shakeproof Washers*
 - 1 x Heavy Duty Battery Cable. e.g. For 18AH Battery - 1 x M4 Hex Nut*
 - 1 x 2-Way 5mm Plug-in Screw Terminal. For Battery Cable. - 1 x M4 x 10mm Screw
 - 2 x Insulated Female 4.8mm QC Terminals. To replace ring terminals for 6.5 - 9AH Battery.

* If this product is supplied in an enclosure, these items will be pre-installed.

Optional Parts (Purchased separately)

- Eyelet to Eyelet Battery Cable. For connecting Heavy Duty Batteries in parallel. P/N: 999067
- Ancillary/3rd Party PSU Cable. For powering an additional LAN Module from T3. P/N: 996794
- Fixed Mains Wiring Kit. (North America Only) Must be installed by a suitably qualified person. P/N: 999070

Additional Documentation

See the relevant Controller, host Module &/or Enclosure installation manual for additional installation, wiring or current load details:

- Integrity Security Controller. P/N: 636001
- Inception Controller. P/N: 636300
- Intelligent LAN Access Module. P/N: 636018
- Standard LAN Access Module. P/N: 636012
- Integrity Wide Body Enclosure. P/N: 635204OPT
- Inner Range High Security Enclosure. P/N: 635230
- Integrity Access Controller. P/N: 636035
- 8-32 Zone LAN Expander Module. P/N: 636005
- Encrypted LAN Expander Module. P/N: 636105
- LAN Ethernet Bridge. P/N: 636088
- Integrity Xtra Large Enclosure. P/N: 635203PE8

Regulatory Information

UL294 Requirements (North America)

- Wiring methods shall be in accordance with the National Electrical Code (ANSI/NFPA70), local codes, and the authorities having jurisdiction.
- The Integriti 3A Smart Power Supply is acceptable for indoor use only and must be installed within the protected premises.
- The AC power cord must not be plugged into an outlet controlled by a switch.
- All cabling must be UL Listed and/or Recognized wire
- All interconnecting devices must be UL Listed.
- Connect outputs to power limited sources only.
- 0.25in (6.5mm) spacing must be maintained between Power-limited and Non Power-limited circuits.
e.g. The Battery cable or a Transformer Secondary Winding output.
- AC Mains Fuse Replacement: (Located in the primary terminal block if Transformer is installed) CAUTION - FOR CONTINUED PROTECTION AGAINST THE RISK OF FIRE, REPLACE WITH ONLY THE SAME TYPE AND RATING OF FUSE. To reduce the risk of fire, replace only with same type and rating of fuse.

FCC Statement (North America)

Information to the user (FCC Part 15.105)

Class B Product:

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules.

These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency

energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment to an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Warning: Any changes or modifications not expressly approved by Inner Range Pty Ltd could void the user's authority to operate the equipment.

ISED (Canada)

L'émetteur/récepteur exempt de licence contenu dans le présent appareil est conforme aux CNR d'Innovation, Sciences et Développement économique Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :

1. L'appareil ne doit pas produire de brouillage;
2. L'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

CAN ICES-3 (B) / NMB-3(B)

Installation

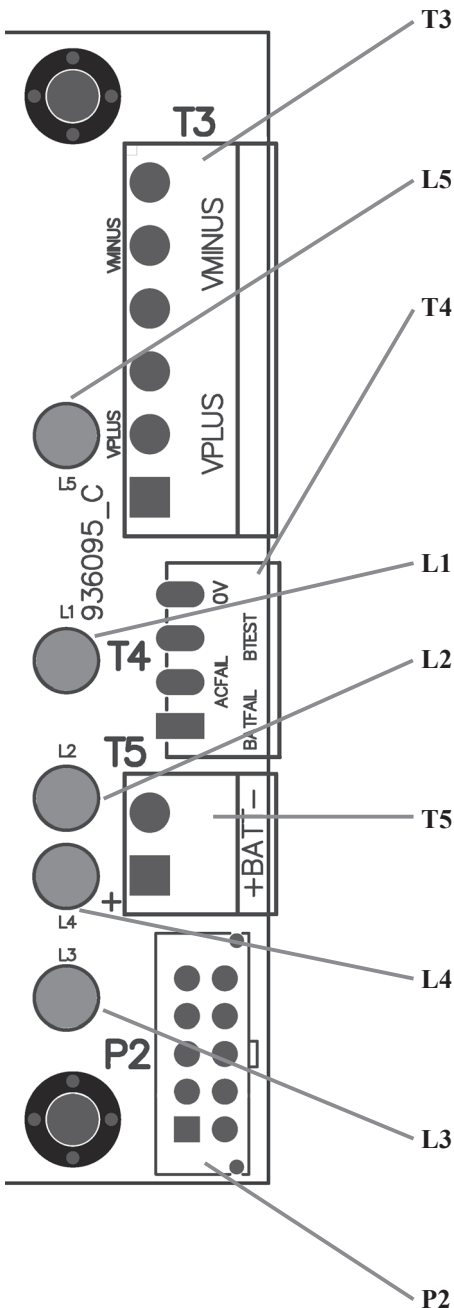
Fire Protection. This product must be installed into a suitable non-flammable equipment enclosure ensuring that the enclosure has been installed onto a non-flammable surface and away from all flammable materials. Any Conduit entry points that have the knockout removed but are not used, must also be resealed using Conduit Plugs.

- 1) The 10A PFC Smart Power Supply may be supplied pre-installed in an Inner Range Powered Enclosure or supplied as a kit for use in a variety of the larger Inner Range enclosures. *See the Integriti Product Catalogue for compatible enclosures.*
- 2) When supplied as a kit, the Unit is installed in the Inner Range Enclosure using the four M4x5mm Screws & M4 Shakeproof Washers supplied. In compatible enclosures, a set of four M4 threaded holes are provided in the base that match the pairs of mounting holes on each end of the Power Supply. Orient the Power Supply so that the IEC cable socket is nearest the mains cable entry point in the base of the enclosure.
- 3) Feed the IEC Mains Cable through the cable entry at the bottom of the enclosure and secure with the cable entry plate & strain relief grommet provided with the enclosure. Ensure that an adequate length of the cable is retained within the enclosure to allow the IEC Plug to be connected to the Power Supply without strain.
- 3) If the optional Fixed Mains Wiring Kit is required, the associated Fuse Block, Mains Pigtail Cable and wiring must be installed by a suitably qualified person.
- 4) When installing the wiring, ensure that the required spacing is maintained between the Battery Cable, Mains Cable and any wiring connected to power-limited circuits. *See UL294 requirements above.*

Connections & Indicator LEDs.

LED Details:

SLOW Flash = 1 pulse/sec.
 FAST Flash = 4 pulses/sec.



- IEC 110 - 240V AC Mains power socket. (Rear Panel)**
Do not connect until all other wiring is complete.
- Earth Earth Terminal. (Rear Panel)** If the Chassis Earth Cable is not already installed, connect the female QC terminal to the male QC terminal on the Power Supply, then secure the eyelet to the threaded stud provided on the base using a Shakeproof Washer and M4 Locking Nut. If the base does not have a stud, fix the eyelet to the chassis using the M4 x 10mm Screw, Shakeproof Washer & M4 Nut provided, to ensure a reliable electrical connection.
- T3 13.75 VDC Generic Power output.** 6-Way 5mm Plug-in Screw Terminal.
See Note 3 below. An additional Module may be powered from this connection using the Ancillary PSU Cable P/N: 996794. T3 may be used simultaneously with P2, providing the combined nominal current does not exceed 8.0A.
- L5 (RED) V+ Fault.** ON: V+ output and the bus connection (P2) outputs are off. This will possibly be due to excessive load or short circuit caused by wiring or a device connected to T3. When excess load is removed, O/P will reset.
- T4 Low-level monitoring & control.** 4-Way 3.5mm Plug-in Screw Terminal connector for low-level monitoring and control in legacy or 3rd party systems.
 BATTFAIL: ‘Low Battery’ Open Collector Output. *See Note 1 below.*
 ACFAIL: ‘AC Fail’ Open Collector Output. *See Note 1 below.*
 BTEST: Battery Charger control input.
 Switch to 0V to perform Battery Testing. *See Note 2 below.*
 0V: Common 0V terminal for FAIL outputs & “BATTEST” input.
- L1 (GRN) AC OK** ON: AC Mains Input is present.
OFF: Mains input absent. PS is running from Battery only.
- L2 (RED) BATT Fault.** OFF: Battery OK. No Battery Test running.
ON: Battery Missing, Low Voltage or Failed Test.
SLOW Flash: Battery Test in progress.
FAST Flash: Battery Test Failed.
- T5 Battery connection.** Plug-in Screw Terminal for 12V, SLA Battery (typically 18 AH). Use the supplied Red (+) & Black (-) Battery Cables & 2-Way 5mm Connector. For 6.5 to 9AH Battery, replace Ring Terminals with supplied 4.8mm QC Terminals. **Check polarity before connecting Battery.** *See Note 4 below.*
- L4 (GRN) BATT Chrg.** OFF: No Battery is connected.
ON: Battery fully charged.
SLOW Flash: Charging.
FAST Flash: Battery discharging.
- L3 (RED) PSU Bus Connection Fault.** If ON, one or more outputs on the 10-way bus connection (P2) are turned off. This will possibly be due to excessive load or a short circuit caused by wiring or a device connected to the host Module. When excess load is removed, O/P will reset after a short delay.
- P2 10-way PS bus connection.** Connect a compatible Integriti Module using the supplied cable for power, monitoring and control. *See Note 4 below.*

IMPORTANT NOTES:

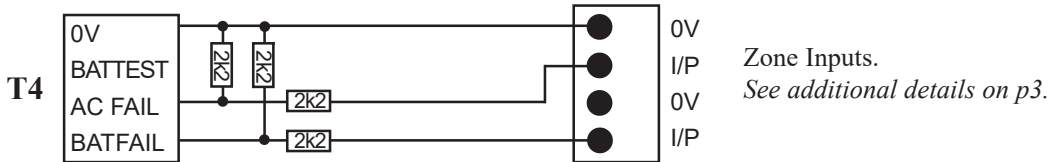
- 1) BATTFAIL and ACFAIL are Open Collector outputs that can switch up to 100mA. Both outputs are ON (switched to 0V) for OK, and OFF (open circuit) to indicate a fault. This allows connection to Zone Inputs using EOL Resistors. *See diagram on p4.*
- 2) T4 “BATTEST” Input must not be used if an Integriti Module is connected to P2 via the Integriti 10-way PSU bus cable.
- 3) Devices powered from this supply must be rated to operate with a power supply of up to 14 VDC.
- 4) P2 (10-Way PS Bus Connection) and T5 (‘BATT’) are in-cabinet connections. Wiring connected to these terminals must not exit the enclosure.

Low-level Fault Monitoring

If the Power Supply is not connected to a compatible Inner Range Controller or LAN Module via the 10-way bus connection, AC Fail and Low Battery conditions may still be monitored via the low-level Open-Collector outputs provided.

The following diagram shows how to connect these outputs to Zone Inputs. Default Integrati/Inception End-Of-Line (EOL) Resistor values are shown as an example.

The Zone Inputs can then be programmed to monitor &/or report these states as required.



Testing & Troubleshooting

Pre Power Up Testing

The following checks are performed with all AC power and Batteries disconnected.

Physically inspect cabling for any signs of cable damage or short circuits.

Unplug P2 and remove the V+ connections from the Circuit Board.

Using an ohmmeter, check for short circuits between each +ve wire and a) the V- connection, and b) the metal chassis. Restore the P2 and V+ connections.

Power Up Testing

Apply AC power and connect the Battery. Perform the following tests with a DC Voltmeter.

Measure the DC Voltage between the BATTERY + and - output Terminals on the Power Supply. +13.75V +/- 2%

Measure the DC Voltage between the V+ and V- output Terminals on the Power Supply. +13.75V +/- 2%

Check the FAULT and STATUS LEDs. See p? for details.

Power Supply System Inputs. Monitoring and Reporting.

Inner Range Modules that support the 10-way “External Power” connector, also provide dedicated System Inputs for monitoring and/or reporting any Smart Power Supply problems. Once connected to its host Module, the status of Smart Power Supply System Inputs can be viewed in the Integrati Software/Inception Browser or via the LCD Terminal Test Menu. <MENU>, 4, 1.

The following System Inputs are provided:

- Low Battery/No Battery
- AC fail
- Low Volts
- PS Fail
- Battery Test Fail
- Detector Fuse Fail
- LAN Fuse Fail

See the Integrati Programming Reference manual or Inception Browser Configuration Menu for details.

System Commissioning and Routine Maintenance

Procedures for a range of Commissioning and Routine Maintenance Tests are provided in the document:

“Inner Range. Integrati (or Inception) Security and Access Controllers. Manufacturers recommended routine maintenance.”

Routine Maintenance Testing should be performed at intervals of not less than one year, or more frequently as required by relevant regulations, and/or as agreed with the customer.

Overcurrent Protection & Fuses

V+ (T3) and the three 13.75V outputs provided on the 10-way bus connector (P2) are individually protected by electronic fuses.

If activated, when the excess load or short circuit is removed from the relevant O/P, normal operation will resume after a short delay.

F1 Mains Input Fuse. NOT User Servicable. If blown, return unit to supplier for repair.

F2 Battery Safety Fuse. NOT User Servicable. If blown, return unit to supplier for repair.

Disclaimer: While every effort has been made to ensure the accuracy of this manual, the manufacturer and/or its agents assume no responsibility or liability for any errors or omissions. Due to ongoing development, this manual is subject to change without notice.

Inner Range Pty. Ltd. Australia

Email: enquiries@innerrange.com Web: www.innerrange.com