INTEGRATED POWER DESIGNS

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REL-110 SERIES OPERATING INSTRUCTIONS

INPUT RATING: 100-240VAC, 2 A, 50-60 Hz.

OUTPUT RATING: 110 Watts Maximum Total Continuous Output Power with 300 LFM Forced Air.
80 Watts Maximum Total Continuous Output Power Convection Cooled.
65 Watts Maximum Total Continuous Output Power Convection Cooled with Chassis and Cover.

MODEL LISTING:

Model	Output 1(1)	Output 2(1)	Output 3(2)	Output 4(2)
REL-110-4001	+3.3VDC/10A(3)	+5VDC/6A	+12VDC/2A	-12VDC/2A
REL-110-4002	+5VDC/10A(3)	+3.3VDC/6A	+12VDC/2A	-12VDC/2A
REL-110-4003	+5VDC/10A(3)	+3.3VDC/6A	+15VDC/2A	-15VDC/2A
REL-110-4004	+5VDC/10A(3)	-5VDC/6A	+12VDC/2A	-12VDC/2A
REL-110-4005	+5VDC/10A(3)	-5VDC/6A	+15VDC/2A	-15VDC/2A
REL-110-4006	+5VDC/10A(3)	+24VDC/2A	+12VDC/2A	-12VDC/2A
REL-110-4007	+5VDC/10A(3)	+24VDC/2A	+15VDC/2A	-15VDC/2A
REL-110-4009	+5VDC/10A(3)	+24VDC/2A	+7VDC/2.5A	-7VDC/2.5A
REL-110-4010	9VDC/6A	24VDC/2A	12VDC/2A	12VDC/2A
REL-110-4011	+32VDC/2A	-32VDC/2A	+12VDC/2A	-12VDC/2A
REL-110-4012(6)	+5VDC/10A(3)	-9VDC/3A	+15VDC/2A	-15VDC/2A
REL-110-3001	+5VDC/10A(3)	+12VDC/3A	-----	-12VDC/3A
REL-110-3002	+5VDC/10A(3)	+15VDC/2A	-----	-15VDC/2A
REL-110-3003	+8VDC/5A	-8VDC/1A	-----	+30VDC/1A
REL-110-3004	+9VDC/3A	+24VDC/3A	+13VDC/2A	-----
REL-110-3005	5VDC/12A	9.5VDC/1A	-----	9.5VDC/1A
REL-110-3006(6)	5VDC/7A	15VDC/3.5A	-----	-15VDC/2A
REL-110-3007(7)	20V/2.5A	12V/2.5A	-----	12V/2.5A
REL-110-2001	+3.3VDC/10A(3)	+5VDC/6A	-----	-----
REL-110-2002	+5VDC/10A(3)	+12VDC/5A	-----	-----
REL-110-2003	+5VDC/10A(3)	+24VDC/3A	-----	-----
REL-110-2004	+12VDC/5A	-12VDC/4A	-----	-----
REL-110-2005	+15VDC/4A	-15VDC/3A	-----	-----
REL-110-2006	+18VDC/4A	-18VDC/3A	-----	-----
REL-110-2007(7)	+6V/10A	+7.5V/6A	-----	-----
REL-110-1001	2.5VDC/22A(4)	-----	-----	-----
REL-110-1002	3.3VDC/22A(4)	-----	-----	-----
REL-110-1003	5VDC/22A(4)	-----	-----	-----
REL-110-1004	12VDC/9.2A	-----	-----	-----
REL-110-1005	15VDC/7.3A	-----	-----	-----
REL-110-1006	24VDC/4.6A	-----	-----	-----
REL-110-1007	28VDC/3.9A	-----	-----	-----
REL-110-1008	48VDC/2.3A	-----	-----	-----

NOTES:

1. Total current from Outputs 1 and 2 must not exceed 12 Amps with convection cooling.
2. Total current from Outputs 3 and 4 must not exceed 3 Amps with convection cooling.
3. Rated 8 Amps maximum with convection cooling.
4. Rated 16 Amps maximum with convection cooling.
5. A suffix may be added to the model number to indicate the following optional configurations: (CH-chassis, CO-cover, IO-isolated outputs, TS-terminal strip, WT-Low Temperature Turn On).
6. Approved to UL/CSA 62368-1 only.
7. Approved to EN 62368-1 only.

DECLARATION OF CONFORMITY

Manufacturer: Integrated Power Designs, Inc.
Manufacturer's Address: 300 Stewart Road, Wilkes-Barre, PA 18706 USA
Product Type: Switchmode AC-DC Power Supply

Declares all models listed above including all options are in compliance with the following European Community Directives:

Low Voltage Directive 2014/35/EU of 26 February 2014
RoHS Directive 2015/863/EU of 31 March 2015

As well as with the requirements set out in the Laws of the United Kingdom relating to and applying the following standards:

Electrical Equipment (Safety) Regulations 2016 SI No. 1101
BS EN 62368-1:2014
Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2012 SI No. 3032 + 2019 SI No.492

In addition, all models are Certified to be in compliance with applicable requirements of UL 62368-1:2014, ANSI/AAMI ES60601-1:2005/AMD2 :2021, IEC 62368-1:2014 and IEC 60601-1:2005/A2:2020 including all EU national deviations, CAN/CSA C22.2 NO. 62368-1-14, CAN/CSA-C22.2 No.60601-1:14 , AM1:2014, AM2:2022, EN 62368-1:2014 and EN 60601-1:2006/A2:2021.

BY: John Thompson - President
John Thompson
PLACE: Integrated Power Designs
300 Stewart Road, Wilkes-Barre, PA 18706 USA
DATE: March 24, 2025

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CLASSIFICATION:

1. Protection against electric shock – Class I.
2. Protection against harmful ingress of water – IPXO (Non-protected), ordinary.
3. Methods of sterilization – None.
4. Suitability for use in an oxygen rich environment – End user responsibility, not evaluated.
5. Mode of operation – Continuous.

WARNING!
RISK OF FIRE!

An open internal fuse indicates a catastrophic failure of circuit component(s). Repair must be by authorized IPD personnel only. Refer to fuse rating on power supply circuit board for rating.

WARNING!
SHOCK HAZARD!

Dangerous voltages are present on some components, printed circuit board traces and heatsinks.

INPUT FUSE:

This product includes a single fuse in the phase lead only. In consideration of IEC 60601-1:2005 Clause 8.11.5, a second fuse may be required in the neutral lead of the end use equipment

SEPERATION:

Primary to secondary creepage distance is 8mm minimum, clearance 5mm minimum (2MOPP). Primary to ground creepage distance is 4mm minimum, clearance 2.5mm minimum (1MOPP). Secondary to ground creepage is 2.3mm minimum, clearance is 1.4mm minimum (Operational Insulation). Required seperation must be maintained in the end use equipment to preserve the established means of protection.

OUTPUTS:

The outputs are not acceptable for patient connection without additional isolation. All outputs are ES1 under normal and single fault conditions unless otherwise indicated.

TEMPERATURES:

The maximum operating temperatures of safety components as defined in the applicable safety standards must not be exceeded after installation in the end use equipment. Output power, ambient air temperature and convection or forced air cooling availability should be considered in the end use equipment.

HIPOT:

In consideration of IEC 60601-1:2005 Clause 8.8.3, care must be taken to insure the voltage applied to a reinforced insulation does not overstress different types and levels of insulation. Breakdown of basic insulation and catastrophic failure of the power supply may result if a test voltage of greater than 1800 VAC is applied between primary and secondary circuits. Each isolating component is factory tested at 4000 VAC minimum prior to installation. Primary and secondary to ground capacitors may need to be disconnected prior to performing a dielectric strength test on the power supply or the end product.

INSTALLATION:

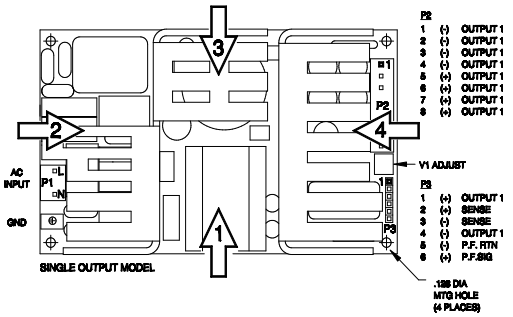
The power supplies included in model listing on reverse side are considered components intended for professional installation into end use equipment. The protective earth (ground) terminal must be bonded to protective earth in the end use equipment.

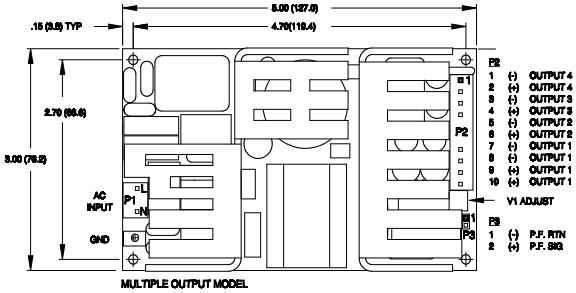
EMISSIONS:

This product was tested for compliance with EN 55032 and EN 55011 Class B conducted and radiated emissions using the techniques listed below and non-inductive load resistors to simulate operation in a typical installation. All or a combination of the following requirements may be necessary to insure compliance in the end use equipment.

1. Installation of the power supply, output cables and loads in a shielded enclosure.
2. Use of optional chassis and cover.
3. Use of shielded I/O cables.
4. Use of ferrite beads on I/O cables.
5. Grounded output returns.

CONNECTIONS / DIMENSIONS:





AIR FLOW DIRECTION:

1. Recommended 2. Good 3. Fair

CONNECTORS:

P1: AC Input – 0.156 inch friction lock header mates with TE Connectivity 640250-3 or equivalent crimp terminal housing with TE Connectivity 3-640706-1 or equivalent crimp terminal.

P2: DC Output (Single Output) – 0.156 inch friction lock header mates with TE Connectivity 770849-8 or equivalent crimp terminal housing with TE Connectivity 3-640707-1 or equivalent crimp terminal.

P2: DC Output (Multiple Output) – 0.156 inch friction lock header mates with TE Connectivity 1-770849-0 or equivalent crimp terminal housing with TE Connectivity 3-640707-1 or equivalent crimp terminal.

G: Protective Earth (Ground) – 0.187 quick disconnect terminal.

P3: Power Fail / Sense (Single and Multiple Output) – 0.100 breakaway header mates with Molex 50-57-9002 or equivalent crimp terminal housing with Molex type 71851 or equivalent crimp terminal.