

110 WATTS

SINGLE OUTPUT AC-DC

FEATURES:

- Compact 3.0" x 5.0" x 1.25" Size
- 3 Year Warranty
- Universal 85-264V Input
- Single Output
- 90% Peak Efficiency
- 87% Average Efficiency
- <300mW No Load Input Power
- IEC 60601-1 3rd ed. Medical Cert.
- IEC 62368-1 2nd ed. Certification
- IEC 60601-1-2 4th ed. EMC
- Class B Emissions per EN55011/32
- 0-70°C Operating Temperature
- RoHS Compliant
- Optional Chassis/Cover



CHASSIS/COVER



OPEN FRAME

SAFETY SPECIFICATIONS



Underwriters Laboratories
File E137708/E140259

UL 62368-1:2014, 2nd Edition
CAN/CSA-C22.2 No. 62368-1-14, 2nd Edition
AAMI/ANSI ES60601-1:2005/(R) 2012/(R)2021
CAN/CSA-C22.2 No. 60601-1:2014:2022



CB Reports/Certificates (including all
National and Group Deviations)

IEC 62368-1:2014, 2nd Edition
IEC 60601-1:2005/A1:2012/A2:2020



TUV SUD America

EN 62368-1:2014, 2nd Edition
EN 60601-1:2006/A1:2013/A2:2021



Low Voltage Directive (2014/35/EU of February 2014)
RoHS Directive (Recast) (2015/863/EU of March 2015)



Electrical Equipment (Safety) Regulations 2016 SI No. 1101
Restriction of the Use of Certain Hazardous Substances in EEE Regulations
2012 SI No. 3032 + 2019 SI No.492

MODEL LISTING

MODEL	OUTPUT	P _{OUT}
GRN-110-1001	3.3V/22A	73W
GRN-110-1002	5.0V/22A	110W
GRN-110-1003	12V/9.2A	110W
GRN-110-1004	15V/7.3A	110W
GRN-110-1005	24V/4.6A	110W
GRN-110-1006	28V/3.9A	110W
GRN-110-1007	48V/2.3A	110W

ORDERING INFORMATION

Consult factory for alternate output configurations.

Please specify the following optional features when ordering:

CH - Chassis
CO - Cover

OV - Overvoltage Protection
WT - Low Temperature Turn On

GRN-110

OUTPUT SPECIFICATIONS

Output Power at 50°C _{T1}	110W	85-264 V _{IN}
(See Derating Chart)		
Voltage Centering	±0.5%	(Output at 50% load)
Voltage Adjust Range	95-105%	
Load Regulation	±0.5%	(0-100% load change)
Source Regulation	0.5%	
Ripple & Noise	1.0%	(1001, 1002 < 3%)
Turn On Overshoot	None	
Transient Response	Output recovers to within 1% of initial set point due to a 50% step load change, 500µs maximum, 5% maximum deviation. (maximum deviation on 1001-8%, 1002-6%)	
Overvoltage Protection	Latching, Between 110% and 150% of rated output voltage (optional)	
Overpower Protection	110% rated P _{OUT} min, cycle on/off, auto recovery	
Hold-Up Time	16ms typical, full power, 115V input	
Start-Up Time	1 sec., 115/230V input	
Output Rise Time	50ms typical	
Minimum Load	No minimum load required	

INPUT SPECIFICATIONS

Protection Class	I
Source Voltage	85-264 VAC (see derating chart)
Frequency Range	47-63 Hz
Input Protection(s)	Internal 4A time delay fuse, 1500A breaking capacity
Peak Inrush Current	50A max. at 230 V
Peak Efficiency	90%
Average Efficiency	87% (1003-1007), 86% (1002), 82% (1001)
Light Load Efficiency	85%, 115/230 V _{IN} , 33% power (1001 >81%)
No Load Input Power	<0.3W, 115/230 V _{IN} , no load (1001<0.5W)

ENVIRONMENTAL SPECIFICATIONS

Cooling	Free air convection
Ambient Operating Temperature Range	0°C to + 70 °C
Derating	see derating chart
Ambient Storage Temp. Range	-40°C to +85°C
Operating Relative Humidity Range	20-90% non-condensing
Altitude	3,000m ASL Operating 12,192m ASL Non-Operating
Temperature Coefficient	0.02%/°C
Vibration	2.5G swept sine, 7-2000Hz, 1 octave/min, 3 axis, 1 hour each.
Shock	20G 11 ms, 3 axis, 3 each direction.

GENERAL SPECIFICATIONS

Means of Protection	
Primary to Secondary	2MOPP (Means of Patient Protection)
Primary to Ground	1MOPP (Means of Patient Protection)
Secondary to Ground	Operational Insulation(Consult factory for 1MOPP)
Dielectric Strength ^(7, 8)	
Reinforced Insulation	5656 VDC, Primary to Secondary
Basic Insulation	2121 VDC, Primary to Ground
Operational Insulation	707 VDC, Secondary to Ground
Leakage Current	
Earth Leakage	<300µA NC, <1000µA SFC
Touch Current	<100µA NC, <500µA SFC
Switching Frequency	65 KHz
Remote Sense ⁽⁹⁾	400 mV compensation of output cable losses
Mean-Time Between Failures	>250,000 hours, MIL-HDBK-217F, 25° C, GB
Weight	0.65 lbs. Open frame / 0.85 lbs. Chassis and cover

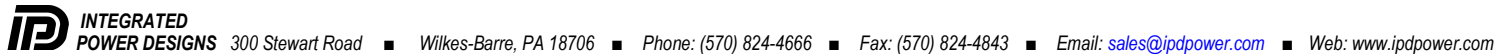
EMC SPECIFICATIONS (IEC 60601-1-2:2014, 4TH ed./IEC 61000-6-2:2005)

Electrostatic Discharge	EN 61000-4-2	±8KV contact / ±15KV air discharge	A
Radiated Electromagnetic Field	EN 61000-4-3	80MHz-2.7GHz, 10V/m, 80% AM	A
Electrical Fast Transients/Bursts	EN 61000-4-4	±2 KV, 5KHz/100KHz	A
Surge Immunity	EN 61000-4-5	±2 KV line to earth / ±1 KV line to line	A
Conducted Immunity	EN 61000-4-6	0.15 to 80MHz, 10V, 80% AM	A
Magnetic Field Immunity	EN 61000-4-8	30A/m, 60 Hz.	A
Voltage Dips	EN 61000-4-11	0% U _T , 0.5 cycles, 0-315° 100/240V A/A 0% U _T , 1 cycles, 0° 100/240V A/A 40% U _T , 10/12 cycles, 0° 100/240V B/A 70% U _T , 25/30 cycles, 0° 100/240V B/A	
Voltage Interruptions	EN 61000-4-11	0% U _T , 300 cycles, 0° 100/240V B/B	
Radiated Emissions	EN 55011/32	Class B	
Conducted Emissions	EN 55011/32	Class B	
Harmonic Current Emissions	EN 61000-3-2	Class A (<100W P _{IN})	
Voltage Fluctuations/Flicker	EN 61000-3-3	Compliant	

All specifications are maximum at 25°C/110W unless otherwise stated, may vary by model and are subject to change without notice.

GRN-110 SINGLE MECHANICAL SPECIFICATIONS





APPLICATIONS INFORMATION

- ### TYPICAL EFFICIENCY vs. LOAD

MAX P_{OUT} vs. AMBIENT TEMPERATURE/INPUT VOLTAGE

REV. BB 3/20/2025