45 WATTS

MULTI OUTPUT AC-DC

FEATURES:

- Compact 2.5" x 4.25" x 1.0" Size
- 3 Year Warranty
- Universal 85-264V Input
- · Dual, Triple or Quad Outputs
- 86% Peak Efficiency
- 85% Average Efficiency • <1W No Load Input Power</p>
- 0-70°C Operating Temperature RoHS Compliant
- · Optional Chassis/Cover

• IEC 60601-1-2 4th ed. EMC

IEC 60601-1 3rd ed. Medical Cert.
IEC 62368-1 2nd ed. Certification

Class B Emissions per EN55011/32



		CAN/CSA-C22.2 No. 60601-1:2014
IECEE SCHEME	CB Reports/Certificates (including all National and Group Deviations)	IEC 62368-1:2014, 2nd Edition IEC 60601-1:2005/A1:2012
	TUV SUD America	EN 62368-1:2014, 2nd Edition EN 60601-1:2006/A1:2013
CE	Low Voltage Directive RoHS Directive (Recast)	(2014/35/EU of February 2014) (2015/863/EU of March 2015)
UK CA	Electrical Equipment (Safety) Regulat Restriction of the Use of Certain Haze 2012 SI No. 3032 + 2019 SI No. 492	ions 2016 SI No. 1101 ardous Substances in EEE Regulations

2012 SI No. 3032 + 2019 SI No.492

MODEL LISTING							
MODEL	OUTPUT 1	OUTPUT 2	OUTPUT 3	OUTPUT 4			
GRN-45-4001	+3.3V/5.0A	+5.0V/5.0A	+12V/1.0A	-12V/1.0A			
GRN-45-4002	+5.0V/5.0A	-5.0V/5.0A	+12V/1.0A	-12V/1.0A			
GRN-45-4003	+5.0V/5.0A	+24V/1.0A	+12V/1.0A	-12V/1.0A			
GRN-45-4004	+5.0V/5.0A	+24V/1.0A	+15V/1.0A	-15V/1.0A			
GRN-45-3001	+5.0V/5.0A		+12V/1.0A	-12V/1.0A			
GRN-45-3002	+5.0V/5.0A		+15V/1.0A	-15V/1.0A			
GRN-45-2001	+5.0V/5.0A	+24V/1.0A					
GRN-45-2002	+5.0V/5.0A	+12V/2.0A					
GRN-45-2003	+12V/2.0A	-12V/2.0A					
GRN-45-2004	+15V/2.0A	-15V/2.0A					

ORDERING INFORMATION

Consult factory for alternate output configurations. Consult factory for positive, negative or floating outputs.⁽¹⁴⁾ Please specify the following optional features when ordering:

CH - Chassis CO - Cover

OVP - Overvoltage Protection I/O - Isolated Outputs (consult factory)

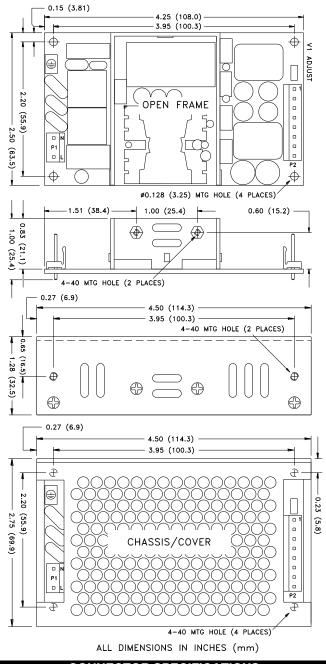
All specifications are maximum at 25°C/45W unless otherwise stated, may vary by model and are subject to change without notice.

GRN-45

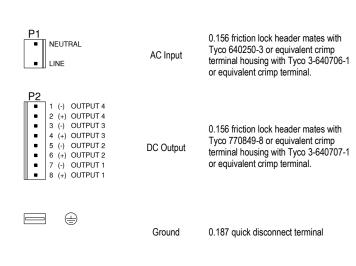
OUTP	UT SPECIF	ICATION	S		
Output Power at 50°C(1)	45W	85-264 Vin			
(See Derating Chart)					
Voltage Centering	Output 1:	±0.5%	(All outputs at 50% load)		
	Outputs 2 - 4:	±5.0%			
Voltage Adjust Range	Output 1:	95-105%	(0.4000/1		
Load Regulation	Output 1:	±0.5%	(0-100% load change)		
Course Degulation	Outputs 2 - 4:	±5.0%	(10-100% load change)		
Source Regulation	Outputs 1 - 4: Outputs 2 - 4:	0.5%			
Cross Regulation Ripple & Noise	Outputs 2 - 4. Outputs 1 - 4	1.0%			
Turn On Overshoot	<1%	1.0 /0			
Transient Response	Output recovers to within 1% of initial set point due to a				
			maximum, 4% maximum		
	deviation.				
Overvoltage Protection	Latching, Output 1 between 110% and 150% of rated output				
	voltage (optional)				
Overpower Protection			on/off, auto recovery		
Hold-Up Time	16ms typical, full power, 115V input				
Start-Up Time	1 sec., 115/230V input				
Output Rise Time	25ms typical No minimum load required				
Minimum Load(5)					
		ATIONS			
Protection Class Source Voltage	 95	a darating abo	~~t\		
Frequency Range	85 – 264 VAC (se 47 – 63 Hz	e uerating cha	ai (<i>)</i>		
Input Protection(6)		lalav fusa 150	0A breaking capacity		
Peak Inrush Current	50A max. at 230		or stouking odpaolity		
Peak Efficiency	86%	•			
Average Efficiency		6. 50%. 75%. a	and 100% rated load)		
Light Load Efficiency	85%, 115/230 Vir				
No Load Input Power	<1W, 115/230 Vii				
ENVIRON	IENTAL SP	ECIFICA	TIONS		
Cooling	Free air convection				
Ambient Operating	0°C to + 70°C				
Temperature Range	Derating: see pov	ver rating char	t		
Ambient Storage Temp. Range	- 40°C to + 85°C				
0 / D / / · · · · ·	00.000/	longing			
Operating Relative Humidity Range	20-90% non-cond				
Operating Relative Humidity Range Altitude	3,000m ASL - Op	erating			
Altitude	3,000m ASL - Op 12,192m ASL - N	erating			
Altitude Temperature Coefficient	3,000m ASL - Op 12,192m ASL - N 0.02%/°C	erating on-Operating			
Altitude Temperature Coefficient Vibration	3,000m ASL - Op 12,192m ASL - N 0.02%/°C 2.5G swept sine,	erating on-Operating 7-2000Hz, 1 oc	tave/min, 3 axis, 1 hour each.		
Altitude Temperature Coefficient Vibration Shock	3,000m ASL - Op 12,192m ASL - N 0.02%/°C 2.5G swept sine, 20G, 11 ms, 3 ax	erating on-Operating 7-2000Hz, 1 oc is, 3 each dire	ction.		
Altitude Temperature Coefficient Vibration Shock	3,000m ASL - Op 12,192m ASL - N 0.02%/°C 2.5G swept sine,	erating on-Operating 7-2000Hz, 1 oc is, 3 each dire	ction.		
Altitude Temperature Coefficient Vibration Shock GENER Means of Protection	3,000m ASL - Op 12,192m ASL - N 0.02%/°C 2.5G swept sine, 20G, 11 ms, 3 ax RAL SPECIE	erating on-Operating 7-2000Hz, 1 oc is, 3 each dire FICATION	ction. IS		
Altitude Temperature Coefficient Vibration Shock GENER Means of Protection Primary to Secondary	3,000m ASL - Op 12,192m ASL - N 0.02%/°C 2.5G swept sine, 20G, 11 ms, 3 ax ALSPECIO	erating on-Operating 7-2000Hz, 1 oc is, 3 each dire FICATION of Patient Prote	ction. IS ection)		
Altitude Temperature Coefficient Vibration Shock GENEF Means of Protection Primary to Secondary Primary to Ground	3,000m ASL - Op 12,192m ASL - N 0.02%/°C 2.5G swept sine, 20G, 11 ms, 3 ax PAL SPECI 2MOPP (Means of 1MOPP (Means of	erating on-Operating 7-2000Hz, 1 oc is, 3 each dire FICATION of Patient Prote or Patient Prote	ction. IS ection) ection)		
Altitude Temperature Coefficient Vibration Shock CENER Means of Protection Primary to Secondary Primary to Ground Secondary to Ground	3,000m ASL - Op 12,192m ASL - N 0.02%/°C 2.5G swept sine, 20G, 11 ms, 3 ax PAL SPECI 2MOPP (Means of 1MOPP (Means of	erating on-Operating 7-2000Hz, 1 oc is, 3 each dire FICATION of Patient Prote or Patient Prote	ction. IS ection)		
Altitude Temperature Coefficient Vibration Shock GENEF Means of Protection Primary to Secondary Primary to Ground	3,000m ASL - Op 12,192m ASL - N 0.02%/°C 2.5G swept sine, 20G, 11 ms, 3 ax AL SPECI 2MOPP (Means of 1MOPP (Means of Operational Insul	erating on-Operating 7-2000Hz, 1 oc is, 3 each direr FICATION of Patient Prote or Patient Prote ation(Consult f	ction. IS action) actory for 1MOPP)		
Altitude Temperature Coefficient Vibration Shock CENEF Means of Protection Primary to Secondary Primary to Ground Secondary to Ground Dielectric Strength(8, 9)	3,000m ASL - Op 12,192m ASL - N 0.02%/°C 2.5G swept sine, 20G, 11 ms, 3 ax RAL SPECII 2MOPP (Means of 1MOPP (Means of Operational Insul 5656 VDC, Prima 2121 VDC, Prima	erating on-Operating 7-2000Hz, 1 oc is, 3 each dire- FICATION of Patient Prote ation(Consult f ary to Seconda ny to Ground	ction. IS ection) ection) factory for 1MOPP)		
Altitude Temperature Coefficient Vibration Shock CEENER Means of Protection Primary to Secondary Primary to Ground Secondary to Ground Dielectric Strength(8, 9) Reinforced Insulation Basic Insulation Operational Insulation	3,000m ASL - Op 12,192m ASL - N 0.02%/°C 2.5G swept sine, 20G, 11 ms, 3 ax ALSPECI 2MOPP (Means 1MOPP (Means Operational Insul 5656 VDC, Prima	erating on-Operating 7-2000Hz, 1 oc is, 3 each dire- FICATION of Patient Prote ation(Consult f ary to Seconda ny to Ground	ction. IS ection) ection) factory for 1MOPP)		
Altitude Temperature Coefficient Vibration Shock GENEF Means of Protection Primary to Secondary Primary to Ground Secondary to Ground Dielectric Strength(e, 9) Reinforced Insulation Basic Insulation Operational Insulation Leakage Current	3,000m ASL - Op 12,192m ASL - N 0.02%/°C 2.5G swept sine, 20G, 11 ms, 3 ax PAL SPECI 2MOPP (Means of 1MOPP (Means of Operational Insul 5656 VDC, Prima 707 VDC, Seco	erating on-Operating 7-2000Hz, 1 oc is, 3 each dire ECATION of Patient Prote or Patient Prote ation(Consult f ury to Seconda ny to Ground ndary to Grour	ction. IS ection) ection) factory for 1MOPP)		
Altitude Temperature Coefficient Vibration Shock GENEF Means of Protection Primary to Secondary Primary to Ground Secondary to Ground Dielectric Strength(8, 9) Reinforced Insulation Basic Insulation Operational Insulation Leakage Current Earth Leakage	3,000m ASL - Op 12,192m ASL - N 0.02%/°C 2.5G swept sine, 20G, 11 ms, 3 ax ALISPECII 2MOPP (Means of 0Perational Insul 56556 VDC, Prima 2121 VDC, Prima 707 VDC, Secon <300µA NC, <10	erating on-Operating 7-2000Hz, 1 oc is, 3 each dire ECATION of Patient Prote or Patient Prote ation(Consult f ury to Seconda ny to Ground ndary to Groun 00µA SFC	ction. IS ection) ection) factory for 1MOPP)		
Altitude Temperature Coefficient Vibration Shock CEENEF Means of Protection Primary to Secondary Primary to Ground Secondary to Ground Dielectric Strength(8, 9) Reinforced Insulation Basic Insulation Operational Insulation Leakage Current Earth Leakage Touch Current	3,000m ASL - Op 12,192m ASL - N 0.02%/°C 2.5G swept sine, 20G, 11 ms, 3 ax AL SPECI 2MOPP (Means of 1MOPP (Means of 0perational Insul 5656 VDC, Prima 707 VDC, Secol <300µA NC, <10 <100µA NC, <50	erating on-Operating 7-2000Hz, 1 oc is, 3 each dire ECATION of Patient Prote or Patient Prote ation(Consult f ury to Seconda ny to Ground ndary to Groun 00µA SFC	ction. IS ection) ection) factory for 1MOPP)		
Altitude Temperature Coefficient Vibration Shock CEENEF Means of Protection Primary to Secondary Primary to Ground Secondary to Ground Dielectric Strength(8, 9) Reinforced Insulation Basic Insulation Operational Insulation Leakage Current Earth Leakage Touch Current Switching Frequency	3,000m ASL - Op 12,192m ASL - N 0.02%/°C 2.5G swept sine, 20G, 11 ms, 3 ax AL SPECI 2MOPP (Means of 1MOPP (Means of 0perational Insul 5656 VDC, Prima 2121 VDC, Prima 707 VDC, Secol <300µA NC, <10 <100µA NC, <50 100 KHz	erating on-Operating 7-2000Hz, 1 oc is, 3 each dire ECATION of Patient Prote or Patient Prote ation(Consult f ation(Consult f vry to Seconda up to Ground ndary to Ground 00µA SFC 0µA SFC	ction. IS ection) ection) actory for 1MOPP) ry rd		
Altitude Temperature Coefficient Vibration Shock CENER Means of Protection Primary to Secondary Primary to Ground Secondary to Ground Dielectric Strength(8, 9) Reinforced Insulation Basic Insulation Operational Insulation Leakage Current Earth Leakage Touch Current Switching Frequency Mean-Time Between Failures	3,000m ASL - Op 12,192m ASL - N 0.02%/°C 2.5G swept sine, 20G, 11 ms, 3 ax AL SPECI 2MOPP (Means of 0perational Insul 5656 VDC, Prima 2121 VDC, Prima 707 VDC, Seco <300µA NC, <10 <100µA NC, <50 100 KHz >400,000 hours,	erating on-Operating 7-2000Hz, 1 oc is, 3 each dire FICATION of Patient Prote ation(Consult f ry to Seconda ry to Ground ndary to Ground ndary to Ground 00µA SFC 0µA SFC MIL-HDBK-211	ction. IS action) actory for 1MOPP) ry rd 7F, 25° C, GB		
Altitude Temperature Coefficient Vibration Shock CEENER Means of Protection Primary to Secondary Primary to Ground Secondary to Ground Dielectric Strength(8, 9) Reinforced Insulation Basic Insulation Operational Insulation Leakage Current Earth Leakage Touch Current Switching Frequency Mean-Time Between Failures Weight	3,000m ASL - Op 12,192m ASL - N 0.02%/°C 2.5G swept sine, 20G, 11 ms, 3 ax ALSPECI 2MOPP (Means of Operational Insul 5656 VDC, Prima 2121 VDC, Prima 707 VDC, Seco <300µA NC, <10 <100µA NC, <50 100 KHz >400,000 hours, 0.48 lbs. Ope	erating on-Operating 7-2000Hz, 1 oc is, 3 each dire- FICATION of Patient Prote ation(Consult f ry to Seconda ry to Ground ndary to Ground ndary to Ground 00µA SFC 0µA SFC MIL-HDBK-211 in frame / 0.62	ction. IS action) actory for 1MOPP) ry rd 7F, 25° C, GB Ibs. Chassis and cover		
Altitude Temperature Coefficient Vibration Shock CENEF Means of Protection Primary to Secondary Primary to Ground Secondary to Ground Dielectric Strength(8, 9) Reinforced Insulation Derational Insulation Leakage Current Earth Leakage Touch Current Switching Frequency Mean-Time Between Failures Weight EMCSPECIFICATIONS	3,000m ASL - Op 12,192m ASL - N 0.02%/°C 2.5G swept sine, 20G, 11 ms, 3 ax AL SPECI 2MOPP (Means of 1MOPP (Means of Operational Insul 5656 VDC, Prima 2121 VDC, Prima 707 VDC, Seco <300µA NC, <10 <100µA NC, <50 100 KHz >400,000 hours, 0.48 lbs. Ope (IEC 60601-1-	erating on-Operating 7-2000Hz, 1 oc is, 3 each dire ECATION of Patient Prote ation(Consult f ry to Seconda ry to Ground ndary to Ground ndary to Ground 00µA SFC 0µA SFC 0µA SFC 0µA SFC 10.62 2:2014, 4 TH	ction. IS action) actory for 1MOPP) ry id 7F, 25° C, GB Ibs. Chassis and cover ad.//IEC 61000-6-2:2005)		
Altitude Temperature Coefficient Vibration Shock CENEF Means of Protection Primary to Secondary Primary to Ground Secondary to Ground Dielectric Strength(8, 9) Reinforced Insulation Basic Insulation Operational Insulation Leakage Current Earth Leakage Touch Current Switching Frequency Mean-Time Between Failures Weight EMCSPECIFICATIONS	3,000m ASL - Op 12,192m ASL - N 0.02%/°C 2.5G swept sine, 20G, 11 ms, 3 ax AL SPECI 2MOPP (Means of 1MOPP (Means of Operational Insul 5656 VDC, Prima 2121 VDC, Prima 707 VDC, Seco <300µA NC, <10 <100µA NC, <50 100 KHz >400,000 hours, 0.48 lbs. Ope (IEC 60601-1- EN 61000-4-2	erating on-Operating 7-2000Hz, 1 oc is, 3 each dire FICATION of Patient Prote ation(Consult f ry to Seconda ry to Ground ndary to Ground ndary to Ground 00µA SFC 0µA SFC 0µA SFC 0µA SFC 0µA SFC 222014, 4 TH ±8KV contac	ction. IS action) actory for 1MOPP) ry id 7F, 25° C, GB Ibs. Chassis and cover act./IEC 61000-6-2:2005) t / ±15KV air discharge A		
Altitude Temperature Coefficient Vibration Shock CENEF Means of Protection Primary to Secondary Primary to Ground Secondary to Ground Dielectric Strength(8, 9) Reinforced Insulation Deational Insulation Leakage Current Earth Leakage Touch Current Switching Frequency Mean-Time Between Failures Weight EMCSPECIFICATIONS Electrostatic Discharge Radiated Electromagnetic Field	3,000m ASL - Op 12,192m ASL - N 0.02%/°C 2.5G swept sine, 20G, 11 ms, 3 ax AL SPECI 2MOPP (Means of 1MOPP (Means of 0perational Insul 5656 VDC, Prima 2121 VDC, Prima 707 VDC, Seco 100 µA NC, <10 <100µA NC, <50 100 KHz >400,000 hours, 0.48 lbs. Ope (IEC 60601-1- EN 61000-4-3	erating on-Operating 7-2000Hz, 1 oc is, 3 each dire FICATION of Patient Prote ation(Consult f ry to Seconda ry to Ground ndary to Ground ndary to Ground 00μA SFC 0μA SFC MIL-HDBK-211 in frame / 0.62 2:2014, 4 TH ±8KV contac 80MHz-2.7G	ction. IS action) actory for 1MOPP) ry id 7F, 25° C, GB Ibs. Chassis and cover ad.//IEC 61000-6-2:2005) t / ±15KV air discharge A Hz, 10V/m, 80% AM A		
Altitude Temperature Coefficient Vibration Shock GENEF Means of Protection Primary to Secondary Primary to Ground Secondary to Ground Dielectric Strength(8, 9) Reinforced Insulation Basic Insulation Leakage Current Earth Leakage Touch Current Switching Frequency Mean-Time Between Failures Weight EMCSPECIFICATIONS Electrostatic Discharge Radiated Electromagnetic Field Electrical Fast Transients/Bursts	3,000m ASL - Op 12,192m ASL - N 0.02%/°C 2.5G swept sine, 20G, 11 ms, 3 ax FAL SPECI 2MOPP (Means of 1MOPP (Means of 0perational Insul 5656 VDC, Prima 707 VDC, Seco <300µA NC, <10 <100µA NC, <50 100 KHz >400,000 hours, 0.48 lbs. Ope S (IEC 60601-1 EN 61000-4-2 EN 61000-4-3 EN 61000-4-4	erating on-Operating 7-2000Hz, 1 oc is, 3 each dire FICATION of Patient Prote ation(Consult f ny to Seconda ny to Seconda ny to Ground ndary to Ground ondary to Ground 00µA SFC 0µA SFC 0µA SFC 2:2014, 4 TH ±8KV contac 80MHz-2.7G ±2 KV, 5KHz	ction. IS action) actory for 1MOPP) ry rd rfF, 25° C, GB lbs. Chassis and cover ed./IEC 61000-6-2:2005) t/±15KV air discharge A Hz, 10V/m, 80% AM A /100KHz A		
Altitude Temperature Coefficient Vibration Shock GENEF Means of Protection Primary to Secondary Primary to Ground Secondary to Ground Dielectric Strength(e. 9) Reinforced Insulation Basic Insulation Leakage Current Earth Leakage Touch Current Switching Frequency Mean-Time Between Failures Weight EMCSPECIFICATIONS Electrostatic Discharge Radiated Electromagnetic Field Electrical Fast Transients/Bursts Surge Immunity	3,000m ASL - Op 12,192m ASL - N 0.02%/°C 2.5G swept sine, 20G, 11 ms, 3 ax PAL SPECIN 2MOPP (Means of 1MOPP (Means of 00perational Insul 5656 VDC, Prima 707 VDC, Secon <300µA NC, <10 <100µA NC, <50 100 KHz >400,000 hours, 0.48 lbs. Ope CIEC 60601-1 EN 61000-4-2 EN 61000-4-3 EN 61000-4-5	erating on-Operating 7-2000Hz, 1 oc is, 3 each dire ECATION of Patient Prote ation(Consult f nry to Seconda nry to Seconda nry to Ground ndary to Ground 00μA SFC 0μA SFC 0μA SFC 2:2014, 4 TH ±8KV contac 800Hz-2.7G ±2 KV, 5KHz ±2 KV, 5KHz	ction. IS action) actory for 1MOPP) ry rd rg rd rg rg rd rg rg rd rg rg rg rg rd rg rg rg rg rg rg rg rg rg rg		
Altitude Temperature Coefficient Vibration Shock GENEF Means of Protection Primary to Secondary Primary to Ground Secondary to Ground Dielectric Strength(8, 9) Reinforced Insulation Basic Insulation Uperational Insulation Leakage Current Earth Leakage Touch Current Switching Frequency Mean-Time Between Failures Weight EMCSPECIFICATIONS Electrostatic Discharge Radiated Electromagnetic Field Electrical Fast Transients/Bursts Surge Immunity Conducted Immunity	3,000m ASL - Op 12,192m ASL - N 0.02%/°C 2.5G swept sine, 20G, 11 ms, 3 ax ALSPECI 2MOPP (Means of 1MOPP (Means of 0perational Insul 56556 VDC, Prima 2121 VDC, Prima 707 VDC, Secon <300µA NC, <10 <100µA NC, <50 100 KHz >400,000 hours, 0.48 lbs. Ope (IEC 60601-1 -1 EN 61000-4-3 EN 61000-4-3 EN 61000-4-5 EN 61000-4-6	erating on-Operating 7-2000Hz, 1 oc is, 3 each dire ECATION of Patient Prote ation(Consult f or Patient Prote ation(Consult f ury to Seconda ny to Ground ondary to Ground ondary to Ground ondary to Ground ondary to Ground ondary to Ground ondary to Ground mtary to Seconda ny to Seconda ny to Seconda ny to Seconda to Seconda on Seconda atom (Consult f atom (Cons	ction. IS action) actory for 1MOPP) ry rd ry rd rfF, 25° C, GB lbs. Chassis and cover act./IEC 61000-6-2:2005) t/±15KV air discharge A Hz, 10V/m, 80% AM A <i>i</i> (100KHz A earth / ±1 KV line to line A kz, 10V, 80% AM A		
Altitude Temperature Coefficient Vibration Shock GENEF Means of Protection Primary to Secondary Primary to Ground Secondary to Ground Dielectric Strength(8, 9) Reinforced Insulation Dassic Insulation Leakage Current Earth Leakage Touch Current Switching Frequency Mean-Time Between Failures Weight EMCSDECIFICATIONS Electrostatic Discharge Radiated Electromagnetic Field Electrical Fast Transients/Bursts Surge Immunity Conducted Immunity Magnetic Field Immunity	3,000m ASL - Op 12,192m ASL - N 0.02%/°C 2.5G swept sine, 20G, 11 ms, 3 ax ALSPECI 2MOPP (Means of 1MOPP (Means of 0perational Insul 5656 VDC, Prima 2121 VDC, Seco 100 KHz >400,000 hours, 0.48 lbs. Ope (IEC 60601-1 -1 EN 61000-4-3 EN 61000-4-3 EN 61000-4-4 EN 61000-4-8	erating on-Operating 7-2000Hz, 1 oc is, 3 each dire FICATION of Patient Prote or Patient Prote ation(Consult f ury to Seconda ry to Ground ndary to Ground ndary to Ground 00µA SFC 0µA SFC 0µA SFC 0µA SFC 2:2014, 4 TH ±8KV contac 800Hz-2.7G ±2 KV, 5KHz ±2 KV line to 0.15 to 80MH 300A/m, 60 Hz	ction. IS action) actory for 1MOPP) ry rd ry rd rg ry rd rg ry rd ry rd ry rd ry rd ry rd ry ry rd ry ry rd ry ry rd ry ry rd ry ry ry ry rd ry ry ry ry ry ry ry ry ry ry		
Altitude Temperature Coefficient Vibration Shock GENEF Means of Protection Primary to Secondary Primary to Ground Secondary to Ground Dielectric Strength(8. 9) Reinforced Insulation Basic Insulation Uperational Insulation Leakage Current Earth Leakage Touch Current Switching Frequency Mean-Time Between Failures Weight Electrostatic Discharge Radiated Electromagnetic Field Electrical Fast Transients/Bursts Surge Immunity Conducted Immunity	3,000m ASL - Op 12,192m ASL - N 0.02%/°C 2.5G swept sine, 20G, 11 ms, 3 ax ALSPECI 2MOPP (Means of 1MOPP (Means of 0perational Insul 56556 VDC, Prima 2121 VDC, Prima 707 VDC, Secon <300µA NC, <10 <100µA NC, <50 100 KHz >400,000 hours, 0.48 lbs. Ope (IEC 60601-1 -1 EN 61000-4-3 EN 61000-4-3 EN 61000-4-5 EN 61000-4-6	erating on-Operating 7-2000Hz, 1 oc is, 3 each dire FICATION of Patient Prote or Patient Prote ation(Consult f ry to Seconda ndary to Ground ndary to Ground ndary to Ground 00µA SFC 0µA SFC 0µA SFC 0µA SFC 0µA SFC 12:2014, 4 TH ±8KV contac 80MHz-2.7G ±2 KV, 5KHz ±2 KV, 5KHz ±2 KV, 5KHz ±2 KV, 5KHz ±2 KV, 5KHz ±2 KV, 5KHz ±2 KV, 5KHz	ction. IS action) actory for 1MOPP) ry id 7F, 25° C, GB Ibs. Chassis and cover act./IEC 61000-6-2:2005) t / ±15KV air discharge A Hz, 10V/m, 80% AM A /100KHz A earth / ±1 KV line to line A earth / ±1 KV line to line A earth / ±1 KV line to line A color, 0-315° 100/240V A/A		
Altitude Temperature Coefficient Vibration Shock GENEF Means of Protection Primary to Secondary Primary to Ground Secondary to Ground Dielectric Strength(8, 9) Reinforced Insulation Dassic Insulation Leakage Current Earth Leakage Touch Current Switching Frequency Mean-Time Between Failures Weight EMCSDECIFICATIONS Electrostatic Discharge Radiated Electromagnetic Field Electrical Fast Transients/Bursts Surge Immunity Conducted Immunity Magnetic Field Immunity	3,000m ASL - Op 12,192m ASL - N 0.02%/°C 2.5G swept sine, 20G, 11 ms, 3 ax ALSPECI 2MOPP (Means of 1MOPP (Means of 0perational Insul 5656 VDC, Prima 2121 VDC, Seco 100 KHz >400,000 hours, 0.48 lbs. Ope (IEC 60601-1 -1 EN 61000-4-3 EN 61000-4-3 EN 61000-4-4 EN 61000-4-8	erating on-Operating 7-2000Hz, 1 oc is, 3 each dire ECATION of Patient Prote or Patient Prote ation(Consult f ry to Seconda ry to Ground ndary to Ground ndary to Ground 00µA SFC 0µA SFC 0µA SFC 0µA SFC 0µA SFC 0µA SFC 0µA SFC 10,15 22014, 4TH ±8KV contac 80MHz-2.7G ±2 KV, 5KHz ±2 KV line to 0.15 to 80MH 30A/m, 60 Hz 0% UT, 0.5 c; 0% UT, 1 cyc	ction. IS action) actory for 1MOPP) ry id 7F, 25° C, GB Ibs. Chassis and cover ad./IEC 61000-6-2:2005) t / ±15KV air discharge A Hz, 10V/m, 80% AM A /100KHz A earth / ±1 KV line to line A Iz, 10V, 80% AM A /100KHz A earth / ±1 KV line to line A iz, 00% 0% AM A z. A ycles, 0-315° 100/240V A/A les, 0° 100/240V A/A		
Altitude Temperature Coefficient Vibration Shock GENEF Means of Protection Primary to Secondary Primary to Ground Secondary to Ground Dielectric Strength(8, 9) Reinforced Insulation Dassic Insulation Leakage Current Earth Leakage Touch Current Switching Frequency Mean-Time Between Failures Weight EMCSDECIFICATIONS Electrostatic Discharge Radiated Electromagnetic Field Electrical Fast Transients/Bursts Surge Immunity Conducted Immunity Magnetic Field Immunity	3,000m ASL - Op 12,192m ASL - N 0.02%/°C 2.5G swept sine, 20G, 11 ms, 3 ax FAL SPECIF 2MOPP (Means of 1MOPP (Means of 00perational Insul 5656 VDC, Prima 2121 VDC, Prima 707 VDC, Seco <300µA NC, <10 <100µA NC, <50 100 KHz >400,000 hours, 0.48 lbs. Ope S (IEC 60601-1 EN 61000-4-2 EN 61000-4-2 EN 61000-4-2 EN 61000-4-8 EN 61000-4-11	erating on-Operating 7-2000Hz, 1 oc is, 3 each dire FICATION of Patient Prote ation(Consult f ny to Seconda ry to Ground ndary to Ground 100µA SFC 0µA SFC 0µA SFC 0µA SFC 0µA SFC 122014, 41 ⁴¹ ±8KV contac 80MHz-2.7G ±2 KV, 5KHz ±2 KV line to 0.15 to 80MH 30A'UT, 0.5 0% UT, 1 cyc 40% UT, 10/1 70% UT, 25/3	ction. IS action) actory for 1MOPP) ry id 7F, 25° C, GB Ibs. Chassis and cover action t/±15KV air discharge A Hz, 10V/m, 80% AM A /100KHz A earth /±1 KV line to line A iz, 10V, 80% AM A /100KHz A earth /±1 KV line to line A iz, 10V, 80% AM A (cles, 0°100/240V A/A 2 cycles, 0°100/240V B/A io cycles, 0°100/240V B/A		
Altitude Temperature Coefficient Vibration Shock GENEF Means of Protection Primary to Secondary Primary to Ground Secondary to Ground Dielectric Strength(8, 9) Reinforced Insulation Basic Insulation Leakage Current Earth Leakage Touch Current Switching Frequency Mean-Time Between Failures Weight EMCCSPECIFICATIONS Electrostatic Discharge Radiated Electromagnetic Field Electrical Fast Transients/Bursts Surge Immunity Conducted Immunity Magnetic Field Immunity Voltage Interruptions	3,000m ASL - Op 12,192m ASL - N 0.02%/°C 2.5G swept sine, 20G, 11 ms, 3 ax PAL SPECI 2MOPP (Means of 1MOPP (Means of 0.0perational Insul 5656 VDC, Prima 707 VDC, Seco <300µA NC, <10 <100µA NC, <50 100 KHz >400,000 hours, 0.48 lbs. Oppe (IEC 60601-1-1 EN 61000-4-3 EN 61000-4-3 EN 61000-4-8 EN 61000-4-11 EN 61000-4-11	erating on-Operating 7-2000Hz, 1 oc is, 3 each dire ECATION of Patient Prote ation(Consult f or Patient Prote ation(Consult f ury to Seconda ny to Ground ondary to Ground on	ction. IS action) actory for 1MOPP) ry id 7F, 25° C, GB Ibs. Chassis and cover action t/±15KV air discharge A Hz, 10V/m, 80% AM A /100KHz A earth /±1 KV line to line A iz, 10V, 80% AM A /100KHz A earth /±1 KV line to line A iz, 10V, 80% AM A (cles, 0°100/240V A/A 2 cycles, 0°100/240V B/A io cycles, 0°100/240V B/A		
Altitude Temperature Coefficient Vibration Shock GENEF Means of Protection Primary to Secondary Primary to Ground Secondary to Ground Dielectric Strength(8, 9) Reinforced Insulation Dassic Insulation Leakage Current Earth Leakage Touch Current Switching Frequency Mean-Time Between Failures Weight EMCSDECIFICATIONS Electrostatic Discharge Radiated Electromagnetic Field Electrical Fast Transients/Bursts Surge Immunity Conducted Immunity Magnetic Field Immunity Voltage Dips Voltage Interruptions Radiated Emissions	3,000m ASL - Op 12,192m ASL - N 0.02%/°C 2.5G swept sine, 20G, 11 ms, 3 ax CALSPECIN 2MOPP (Means of 1MOPP (Means of 0.0perational Insul 56556 VDC, Prima 2121 VDC, Prima 707 VDC, Seco <300µA NC, <10 <100µA NC, <50 100 KHz >400,000 hours, 0.48 lbs. Op CIEC 60601-1 EN 61000-4-3 EN 61000-4-2 EN 61000-4-3 EN 61000-4-11 EN 61000-4-11 EN 61000-4-11 EN 55011/32	erating on-Operating 7-2000Hz, 1 oc is, 3 each dire ECATION of Patient Prote of Patient Prote ation(Consult f ory to Seconda nry to Seconda nry to Seconda ndary to Ground 00µA SFC 0µA SFC 2:2014, 4TH ±8KV contac 80MHz-2.7G ±2 KV SKHz ±2 KV SKHz ±2 KV SKHz 0% UT, 0.5 cp 0% UT, 0.5 cp 0% UT, 0.5 cp 0% UT, 0.5 cp 0% UT, 10,5 cp 0% UT, 10,7 cp 40% UT, 10,7 cp 0% UT, 300 cp 0% UT, 300 cp 0% UT, 300 cp	ction. IS action) actory for 1MOPP) ry id 7F, 25° C, GB Ibs. Chassis and cover action t/±15KV air discharge A Hz, 10V/m, 80% AM A /100KHz A earth /±1 KV line to line A iz, 10V, 80% AM A /100KHz A earth /±1 KV line to line A iz, 10V, 80% AM A (cles, 0°100/240V A/A 2 cycles, 0°100/240V B/A io cycles, 0°100/240V B/A		
Attitude Temperature Coefficient Vibration Shock GENEF Means of Protection Primary to Secondary Primary to Ground Secondary to Ground Dielectric Strength(8.9) Reinforced Insulation Basic Insulation Leakage Current Earth Leakage Touch Current Switching Frequency Mean-Time Between Failures Weight EMCSDECIFICATIONS Electrostatic Discharge Radiated Electromagnetic Field Electrical Fast Transients/Bursts Surge Immunity Conducted Immunity Voltage Dips Voltage Interruptions Radiated Emissions Conducted Emissions	3,000m ASL - Op 12,192m ASL - N 0.02%/°C 2.5G swept sine, 20G, 11 ms, 3 ax ALSPECI 2MOPP (Means of 1MOPP (Means of 00 perational Insul 5656 VDC, Prima 2121 VDC, Seco 100 KHz >400,000 hours, 0.48 lbs. Ope (IEC 60601-1 EN 61000-4-2 EN 61000-4-3 EN 61000-4-3 EN 61000-4-11 EN 61000-4-11 EN 61000-4-11 EN 55011/32 EN 55011/32	erating on-Operating 7-2000Hz, 1 oc is, 3 each dire ECATION of Patient Prote of Patient Prote ation(Consult f ory to Seconda nry to Seconda nry to Seconda ndary to Ground 00µA SFC 0µA SFC 2:2014, 4TH ±8KV contac 80MHz-2.7G ±2 KV, 5KHz ±2 KV, 5KHz ±2 KV, 5KHz ±0% Ur, 0.5 cp 0% Ur, 1 cyc 40% Ur, 0.5 cp 0% Ur, 1 cyc 40% Ur, 10, 20 cc 0% Ur, 300 cc Class B Class B	ction. IS action) actory for 1MOPP) ry id 7F, 25° C, GB Ibs. Chassis and cover action t/±15KV air discharge A Hz, 10V/m, 80% AM A /100KHz A earth /±1 KV line to line A iz, 10V, 80% AM A /100KHz A earth /±1 KV line to line A iz, 10V, 80% AM A (cles, 0°100/240V A/A 2 cycles, 0°100/240V B/A io cycles, 0°100/240V B/A		
Altitude Temperature Coefficient Vibration Shock GENEF Means of Protection Primary to Secondary Primary to Ground Secondary to Ground Dielectric Strength(8.9) Reinforced Insulation Basic Insulation Leakage Current Earth Leakage Touch Current Switching Frequency Mean-Time Between Failures Weight EMCSDECIFICATIONS Electrostatic Discharge Radiated Electromagnetic Field Electrical Fast Transients/Bursts Surge Immunity Conducted Immunity Magnetic Field Immunity Voltage Dips Voltage Interruptions Radiated Emissions	3,000m ASL - Op 12,192m ASL - N 0.02%/°C 2.5G swept sine, 20G, 11 ms, 3 ax CALSPECIN 2MOPP (Means of 1MOPP (Means of 0.0perational Insul 56556 VDC, Prima 2121 VDC, Prima 707 VDC, Seco <300µA NC, <10 <100µA NC, <50 100 KHz >400,000 hours, 0.48 lbs. Op CIEC 60601-1 EN 61000-4-3 EN 61000-4-2 EN 61000-4-3 EN 61000-4-11 EN 61000-4-11 EN 61000-4-11 EN 55011/32	erating on-Operating 7-2000Hz, 1 oc is, 3 each dire ECATION of Patient Prote of Patient Prote ation(Consult f ory to Seconda nry to Seconda nry to Seconda ndary to Ground 00µA SFC 0µA SFC 2:2014, 4TH ±8KV contac 80MHz-2.7G ±2 KV SKHz ±2 KV SKHz ±2 KV SKHz 0% UT, 0.5 cp 0% UT, 0.5 cp 0% UT, 0.5 cp 0% UT, 0.5 cp 0% UT, 10,5 cp 0% UT, 10,7 cp 40% UT, 10,7 cp 0% UT, 300 cp 0% UT, 300 cp 0% UT, 300 cp	ction. IS action) actory for 1MOPP) ry id 7F, 25° C, GB Ibs. Chassis and cover action t/±15KV air discharge A Hz, 10V/m, 80% AM A /100KHz A earth /±1 KV line to line A iz, 10V, 80% AM A /100KHz A earth /±1 KV line to line A iz, 10V, 80% AM A (cles, 0°100/240V A/A 2 cycles, 0°100/240V B/A io cycles, 0°100/240V B/A		



GRN-45 MULTI MECHANICAL SPECIFICATIONS



CONNECTOR SPECIFICATIONS

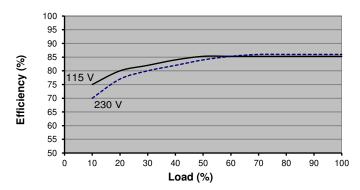


APPLICATIONS INFORMATION

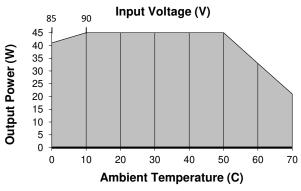
- 1. Each output can deliver its rated current but Total Output Power must not exceed 45W.
- Generally, adequate cooling is provided when semiconductor case temperatures do not exceed 70°C rise and transformer temperature does not exceed 60°C rise at any specified ambient temperature.
- Sufficient area must be provided around power supply to allow natural movement of air to develop in convection-cooled applications.
- 4. This product is intended for use as a professionally-installed component within information technology, industrial, and medical equipment and is not intended for stand-alone operation.
- Minimum load is not required for reliable operation; however, a 10% load may be required on Output 1 when loading Outputs 2, 3 or 4.
- This product includes only one fuse in the input circuit. In consideration of clause 8.11.5 of IEC 60601-1-1:2005, a second fuse may be required in neutral conductor of the end product.
- Peak-to-Peak Output Ripple and Noise is measured directly at the output terminals of the power supply, without the use of the probe ground lead or retractable tip (tip-and-barrel method), 20 MHz bandwidth.
- 8. This product was type-tested and safety-certified using the dielectric strength test voltages listed in Table 6 of IEC60601-1:2005. In consideration of clause 8.8.3, care must be taken to insure that the voltage applied to a reinforced insulation does not overstress different types and levels of insulation. Primary and secondary-to-ground capacitors may need to be disconnected prior to performing a dielectric strength type test on the power supply or the end product. It is highly recommended that the DC test voltage listed in DVB.1, annex DVB of UL60601-1 1ST Edition are not exceeded during a production-line dielectric strength test of the assembled end product. Please consult factory for further information.
- This power supply has been safety-approved and final-tested using a DC dielectric strength test. Please consult factory before performing an AC dielectric strength test.
- Maximum screw penetration into bottom chassis mounting holes is 0.100 inches. Maximum screw penetration into side chassis mounting holes is 0.188 inches.
- Common RF shielding precautions may need to be taken to assure emissions compliance. Refer to operating instructions for additional information.
- 12. To comply with emissions specifications, all four mounting hole pads must be electrically connected to a common metal chassis. Chassis/Cover option is recommended. Refer to Operating Instructions for additional information.
- Common RF shielding precautions may need to be taken to assure emissions compliance. Refer to Operating Instructions for additional information.
- 14. Optional Output Configuration (consult factory).
 - V2 can be configured positive, negative or floating with respect to V1.
 - V3 can be configured positive or floating with respect to V1 and must share a common return with V4.
 - V4 can be configured negative or floating with respect to V1 and must share a common return with V3.

TYPICAL EFFICIENCY vs. LOAD

(Model GRN-45-3001 Efficiency shown)



MAX Pout vs. AMBIENT TEMPERATURE/INPUT VOLTAGE



Derating requirements - Derate from 100% load at 50°C to 50% load at 70°C. - Derate from 100% load at 90Vin to 90% load at 85Vin.

