SINGLE/MULTI OUTPUT AC-DC

FEATURES:

- Compact 2.5 x 4.5" x 1.2" Size
- 2 Year Warranty
- Universal 85-264V Input
- One to Four Outputs
- High Efficiency
- 0-70°C Operating Temperature
- IEC 60601-1 3rd ed. Medical Cert.
- IEC 62368-1 2nd Certification
- IEC 60601-1-2 4th ed. EMC
- Class B Emissions per EN55011/32
- 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, 2^{nd} Edition AAMI/ANSI ES60601-1:2005/(R) 2012(R)2021 CAN/CSA-C22.2 No. 60601-1:2014:2022



CB Reports/Certificates (including all IEC 62368-1:2014, 2nd Edition National and Group Deviations)

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 RoHS Directive (Recast) (2014/35/EU of February 2014) (2011/65/EU of June 2011)

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 LIGHT						
MODEL NO.	OUTPUT 1	OUTPUT 2	OUTPUT 3	OUTPUT 4		
REL-70-4001	+3.3V/6A	+5V/5A	+12V/2A(21)	-12V/2A ₍₂₁₎		
REL-70-4002	+5V/6A	+3.3V/5A	+12V/2A(21)	-12V/2A(21)		
REL-70-4003	+5V/6A	+3.3V/5A	+15V/2A(21)	-15V/2A(21)		
REL-70-4004	+5V/6A	-5V/5A	+12V/2A(21)	-12V/2A(21)		
REL-70-4005	+5V/6A	-5V/5A	+15V/2A(21)	-15V/2A(21)		
REL-70-4006	+5V/6A	+24V/2A	+12V/2A(21)	-12V/2A(21)		
REL-70-4007	+5V/6A	+24V/2A	+15V/2A(21)	-15V/2A(21)		
REL-70-4009	6.7V/5A	5V/4A	+15V/2A(21)	-15V/2A ₍₂₁₎		
REL-70-3001	+5V/6A	+12V/2A		-12V/2A(21)		
REL-70-3002	+5V/6A	+15V/2A		-15V/2A(21)		
REL-70-3003	+5.1V/6A	+7.5V/2A		-7.5V/2A(21)		
REL-70-3004	+3.3V/6A	+7V/5A	+12V/2A(21)			
REL-70-2001	+3.3V/6A	+5V/5A				
REL-70-2002	+5V/6A	+12V/4A				
REL-70-2003	+5V/6A	+24V/2A				
REL-70-2004	+12V/3A	-12V/3A				
REL-70-2005	+15V/3A	-15V/2A				
REL-70-2006	+5.5V/6A	-5.5V/5A				
REL-70-1001	2.5V/14A ₍₂₀₎					
REL-70-1002	3.3V/14A(20)					
REL-70-1003	5V/14A ₍₂₀₎					
REL-70-1004	12V/5.8A					
REL-70-1005	15V/4.7A					
REL-70-1006	24V/2.9A					
REL-70-1007	28V/2.5A					
REL-70-1008	48V/1.5A					

ORDERING INFORMATION

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

I/O - Isolated Outputs CH - Chassis CO - Cover TS - Terminal Strip

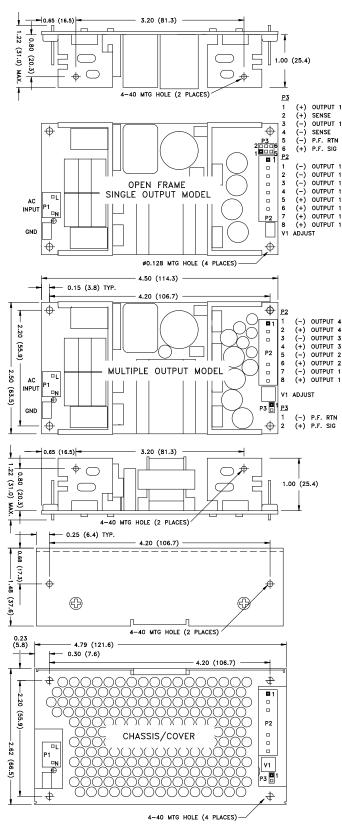
WT - Low Temperature Turn On

Earth Leakage Touch Current <300μA NC, <1000μA SFC Power Fail Signal ₍₁₄₎ Logic low with input power failure 10 ms minimum prior to Output 1 dropping 1% Remote Sense (singles only) ₍₁₀₎ 250mV compensation of output cable losses Mean-Time Between Failures 100,000 Hours min., MIL-HDBK-217F, 25° C, GB Weight 0.60 Lbs. Open Frame 1.00 Lbs. Chassis and Cover EMC SPECIFICATIONS (IEC 60601-1-2:2014, 4 TH 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 Surge Immunity 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 A Magnetic Field Immunity EN 61000-4-8 30A/m, 60 Hz. A Voltage Dips EN 61000-4-11 0% Ur, 0.5 cycles, 0-315° 100/240V A/A Voltage Interruptions EN 61000-4-11 0% Ur, 25/30 cycles, 0° 100/240V B/A Voltage Interruptions EN 61000-4-11 0% Ur, 300 cycles, 0° 100/240V B/A Radiated Emissions EN 55011/32 <td< th=""><th></th><th>KCL-</th><th>70</th></td<>		KCL-	70
Total Output Power at 50°C ₁₁ (See Derating Chard) Output Voltage Centering Output 1: ±0.5% (All outputs at 50% load) Output Voltage Adjust Range Output 1: ±0.5% (All outputs at 50% load) Output Voltage Adjust Range Output 1: 5.0% (10-100% load change) Output Voltage Adjust Range Output 1: 0.5% (10-100% load change) Output 2: 5.0% (4001-5) 8.0% (4001-5) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (200	OUT	PUT SPECIF	ICATIONS
Output Voltage Centering Output 1: ± 0.5% £ 0.5% (All outputs at 50% load) Output Voltage Adjust Range Output 1: 0.5% £ 0.5% (10-100% load change) Output 1: 0.5% £ 0.5% (10-100% load change) Output 1: 0.5% (10-100% load change) Output 3: 5.0% £ 0.5% (4001-5) 8.0% £ 0.5% (4001-5) 8.0% £ 0.5% Corcus Regulation Output 3: 5.0% £ 0.5% £ 0.5% £ 0.5% Cross Regulation Outputs 1-4: 0.5% £ 0.5% £ 0.5% £ 0.5% Cross Regulation Outputs 1-4: 1.0% £ 0.5% £ 0.5% £ 0.5% Cross Regulation Outputs 1-4: 1.0% £ 0.5% £ 0.5% £ 0.5% £ 0.5% £ 0.5% £ 0.5% £ 0.5% £ 0.5% £ 0.5% £ 0.5% £ 0.5% £ 0.5% £ 0.5% £ 0.5% £ 0.5% £ 0.5% £ 0.5% £ 0.5% £ 0.5% £ 0.5% £ 0.5% £ 0.5% £ 0.5% £ 0.5% £ 0.5% £ 0.5% £ 0.5% £ 0.5% £ 0.5% £ 0.5% £ 0.5% £ 0.5% £ 0.5%	Total Output Power at 50°C ₍₁₎	50W	Convection Cooled ₍₁₆₎₍₁₈₎
Output Voltage Adjust Range			
Output Voltage Adjust Range	Output Voltage Centering		, , ,
Load Regulation	Output Voltage Adjust Dange	•	
Output 2:			
(401-5) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.0% (2001) 8.	Load Regulation		
Cooling S. 0%			
Output 5.0%			8.0%
Source Regulation		•	
Cross Regulation Outputs 1 - 4: 1.0% Output Noise Outputs 1 - 4: 1.0% Transient Response Outputs 1 - 4: 50% Voltage Deviation 5.0% Recovery Time 5.00µS Load Change Output 1: 110% to 150% Output Overpower Protection 110-160% rated Pout, cycle on/off, auto recovery Hold Up Time 16mS min., Full Power, 85V Input Start Up Time 14 Seconds, 120V Input INPUT SPECIFICATIONS Protection Class 1 Source Voltage 85 – 264 Volts AC Frequency Range 47 - 63 Hz Peak Inrush Current 40A Efficiency 78% Typ., Full Power, 230V, varies by model Power Factor 0.95 (Full Power, 230V) Environmental Protection Power Factor 0.95 (Full Power, 230V, varies by model Power Factor 0.95 (Full Power, 230V, varies by model Power Factor 0.95 (Full Power, 230V, varies by model Protection 0.95 (Full Power, 230V, varies by model Protection 0.95 (Full Power, 230V) Emperature Range <t< td=""><td></td><td></td><td></td></t<>			
Output Noise Outputs 1 − 4: 1.0% Turn on Overshoot None Transient Response Outputs 1 − 4: 1.0% Voltage Deviation 5.0% 5.0% Recovery Time 5.0% to 100% 110 + 160% rated Pout, cycle on/off, auto recovery Hold Up Time 110 + 160% rated Pout, cycle on/off, auto recovery Hold Up Time 16mS min., Full Power, 85V Input INPUT SPECIFICATIONS INPUT SPECIFICATI			
Turn on Overshoot			
Transient Response			1.070
Voltage Deviation 5.0% Recovery Time Load Change 50% to 100%			
Load Change	•		
Output Overpower Protection		500μS	
10-160% rated Pout, cycle on/off, auto recovery		50% to 100%	
Hold UP Time			
Start Up Time			
NPUT SPECIFICATIONS 1			
Protection Class			
Source Voltage			CATIONS
Peak Inrush Current		85 – 264 Volts A	AC .
Peak Inrush Current 40A			
Power Factor			
## ENVIRONMENTAL SPECIFICATIONS Ambient Operating	Efficiency		
Ambient Operating Temperature Range Ambient Storage Temp. Range Ambient Storage Temp. Range - 40°C to + 85°C Temperature Coefficient Outputs 1 - 4: 0.02%/°C 3,000m ASL - Operating - Medical 60601-1 5,000m ASL - Operating - ITE/AV - 62368-1 12,192m ASL - Non-Operating GENERAL SPECIFICATIONS Means of Protection Primary to Secondary Primary to Ground Secondary to Ground Operational Insulation Dielectric Strength(8,9) Reinforced Insulation Doperational Insulation Operational Insulation Operational Insulation Operational Insulation Casage Current Earth Leakage Touch Current Earth Leakage Touch Singles only) ₍₁₀₎ Dielectric Singles only) ₍₁₀₎ Eemote Sense (singles only) ₍₁₀₎ Dielectric Strength(8,9) Remote Sense (singles only) ₍₁₀₎ Remote Sense (singles only) ₍₁₀₎ Electrostatic Discharge Radiated Electromagnetic Field Electrical Fast Transients/Bursts EN 61000-4-5 EN 61000-4-8 BN 61000-4-1 EN 61000-4-8 BN 61000-4-1 EN 61000-4			
Temperature Range Derating: See Power Rating Chart Ambient Storage Temp. Range - 40°C to + 85°C Temperature Coefficient Outputs 1 - 4: 0.02%/°C 3,000m ASL - Operating - Medical 60601-1 Altitude 5,000m ASL - Operating - ITE/AV - 62368-1 12,192m ASL - Non-Operating GENERAL SPECIFICATIONS Means of Protection Primary to Secondary Primary to Ground Secondary Operational Insulation (Consult factory for 1MOPP) Primary to Ground Secondary Operational Insulation (Consult factory for 1MOPP) Dielectric Strength(8, 9) Reinforced Insulation Secondary 2121 VDC, Primary to Secondary 2121 VDC, Primary to Ground Operational Insulation 707 VDC, Secondary to Ground Deakage Current Earth Leakage 300μA NC, <1000μA SFC Touch Current <100μA NC, <500μA SFC Power Fail Signal(14) Logic low with input power failure 10 ms minimum prior to Output 1 dropping 1% Remote Sense (singles only)(10) 250mV compensation of output cable losses Mean-Time Between Failures 100,000 Hours min., MIL-HDBK-217F, 25° C, GB Weight 0.60 Lbs. Open Frame 1.00 Lbs. Chassis and Cover EMIC SPECIFICATIONS (IEC 60601-1-2:2014, 4 TH ED /IEC 61000-6-2:2005) Electrostatic Discharge EN 61000-4-2 ±8KV contact / ±15KV air discharge ARadiated Electromagnetic Field EN 61000-4-3 80MHz-2.7GHz, 10V/m, 80% AM AB Lelectrical Fast Transients/Bursts EN 61000-4-4 ±2 KV, 5KHz/100KHz EN 61000-4-8 30A/m, 60 Hz. AN Magnetic Field Immunity EN 61000-4-8 30A/m, 60 Hz. AN Magnetic Field Immunity EN 61000-4-8 30A/m, 60 Hz. AN Magnetic Field Immunity EN 61000-4-1 0% Uτ, 25/30 cycles, 0° 100/240V A/A 40% Uτ, 10/12 cycles, 0° 100/240V B/A 70% Uτ, 25/30 cycles, 0° 100/240V B/B ARdiated Emissions EN 55011/32 Class B Conducted Emissions EN 55011/32 Class B Harmonic Current Emissions EN 61000-3-2 Class A			PECIFICATIONS
Ambient Storage Temp. Range			
Temperature Coefficient			
3,000m ASL – Operating – Medical 60601-1 5,000m ASL – Operating – ITE/AV – 62368-1 12,192m ASL – Non-Operating GENERAL SPECIFICATIONS Means of Protection Primary to Secondary Primary to Ground Secondary to Ground Secondary to Ground Operational Insulation (Consult factory for 1MOPP) Dielectric Strength(s, 9) Reinforced Insulation Basic Insulation Operational Insulation Operational Insulation Coperational Insulation Operational Insulation(Consult factory for 1MOPP) Dielectric Strength(s, 9) Reinforced Insulation Operational Insulation(Consult factory for 1MOPP) 5656 VDC, Primary to Secondary Of Conucle Operational Insulation Operational Insulation Operational Insulation(Consult factory for 1MOPP) Dielectric Strength(s, 9) Reinforced Insulation Operational Insulation(Consult factory for 1MOPP) 5656 VDC, Primary to Secondary Oscondary Operational Insulation Operational Insulation(Consult factory for 1MOPP) Dielectric Strength(s, 9) No Operational Insulation(Consult factory for 1MOPP) Dielectric Strength(s, 9) Reinforced Insulation Operational Insulation(Consult factory for 1MOPP) Dielectric Strength(s, 9) No Operational Insulation Operational Ins			
Altitude 5,000m ASL – Operating – ITE/AV – 62368-1 12,192m ASL – Non-Operating GENERAL SPECIFICATIONS Means of Protection Primary to Secondary Primary to Ground 2MOPP (Means of Patient Protection) Secondary to Ground 3Perational Insulation (Consult factory for 1MOPP) Dielectric Strengthig, 9) Reinforced Insulation 5656 VDC, Primary to Secondary Basic Insulation 2121 VDC, Primary to Ground 707 VDC, Secondary to Ground Operational Insulation 707 VDC, Secondary to Ground Deakage Current Earth Leakage 300µA NC, <1000µA SFC Touch Current <100µA NC, <500µA SFC Touch Current <100µA NC, <500µA SFC Power Fail Signal(14) Logic low with input power failure 10 ms minimum prior to Output 1 dropping 1% Remote Sense (singles only)(10) 250mV compensation of output cable losses Mean-Time Between Failures 100,000 Hours min., MIL-HDBK-217F, 25° C, GB Weight 0.60 Lbs. Open Frame 1.00 Lbs. Chassis and Cover EMCSPECIFICATIONS (IEC 60601-1-2:2014, 4 TH ED./IEC 61000-6-2:2005) Electrostatic Discharge EN 61000-4-2 ±8KV contact / ±15KV air discharge ARdiated Electromagnetic Field EN 61000-4-3 80MHz-2.7GHz, 10V/m, 80% AM ABIEctrical Fast Transients/Bursts EN 61000-4-4 ±2 KV, 5KHz/100KHz ABIEctrical Fast Transients/Bursts EN 61000-4-5 ±2 KV line to earth / ±1 KV line to line ABIGNOBLE EN 61000-4-8 30A/m, 60 Hz. Voltage Dips EN 61000-4-11 0% UT, 0.5 cycles, 0-315° 100/240V A/ABIGNOBLE EN 61000-4-11 0% UT, 10,55 cycles, 0-315° 100/240V A/ABIGNOBLE EN 61000-4-11 0% UT, 10,55 cycles, 0-315° 100/240V A/ABIGNOBLE EN 61000-4-11 0% UT, 300 cycles, 0° 100/240V B/ABIGNOBLE EN 61000-3-2 Class B Radiated Emissions EN 65011/32 Class B Conducted Emissions EN 65011/32 Class B Harmonic Current Emissions EN 61000-3-2 Class A	Temperature Coefficient		
CENERAL SPECIFICATIONS	Altitudo	5,000m ASL - C	Decrating - Medical 60601-1
GENERAL SPECIFICATIONS Means of Protection Primary to Secondary Secondary to Ground Secondary to Ground Dielectric Strength _(8,9) Reinforced Insulation Departional Insulation Depa	Ailliude	12 192m ASI =	Non-Operating
Means of Protection Primary to Secondary Primary to Ground 2MOPP (Means of Patient Protection) Secondary to Ground Operational Insulation(Consult factory for 1MOPP) Dielectric Strength(s, s) Reinforced Insulation Basic Insulation 5656 VDC, Primary to Secondary Operational Insulation 2121 VDC, Primary to Ground Operational Insulation 707 VDC, Secondary to Ground Leakage Current 4100 μA NC, <1000 μA SFC	GENE		
Primary to Ground Secondary to Ground Operational Insulation(Consult factory for 1MOPP) Dielectric Strength(8, 9) Reinforced Insulation 5656 VDC, Primary to Secondary Basic Insulation 2121 VDC, Primary to Ground 707 VDC, Secondary to Ground Operational Insulation 707 VDC, Secondary to Ground Leakage Current Earth Leakage 300μA NC, <1000μA SFC 700μA SFC Touch Current - <100μA NC, <500μA SFC Power Fail Signal(14) Logic low with input power failure 10 ms minimum prior to Output 1 dropping 1% Remote Sense (singles only)(10) 250mV compensation of output cable losses Mean-Time Between Failures 100,000 Hours min., MIL-HDBK-217F, 25° C, GB Weight 0.60 Lbs. Open Frame 1.00 Lbs. Chassis and Cover EMC SPECIFICATIONS (IEC 60601-1-2:2014, 4 TH ED./IEC 61000-6-2:2005) Electrostatic Discharge EN 61000-4-2 ±8KV contact / ±15KV air discharge ARadiated Electromagnetic Field EN 61000-4-3 80MHz-2.7GHz, 10V/m, 80% AM ARAGIAED ELECTICAL Fast Transients/Bursts EN 61000-4-3 80MHz-2.7GHz, 10V/m, 80% AM ARAGIAED ELECTICAL Field Immunity EN 61000-4-8 30A/m, 60 Hz. ARAGIAED EN 61000-4-8 30A/m, 60 Hz. ARAGIAED EN 61000-4-11 0% UT, 0.5 cycles, 0° 100/240V A/ARAGIAED EN 61000-4-11 0% UT, 0.5 cycles, 0° 100/240V A/ARAGIAED EN 61000-4-11 0% UT, 25/30 cycles, 0° 100/240V A/ARAGIAED EN 61000-4-11 0% UT, 25/30 cycles, 0° 100/240V A/ARAGIAED EN 65011/32 Class B Conducted Emissions EN 55011/32 Class B Harmonic Current Emissions EN 61000-3-2 Class A			
Secondary to Ground Operational Insulation(Consult factory for 1MOPP)	Primary to Secondary	2MOPP (Means	of Patient Protection)
Dielectric Strength _(8, 9) Reinforced Insulation Basic Insulation Operational Insulation To7 VDC, Secondary to Ground Operational Insulation Leakage Current Earth Leakage Touch Current Combined Sense (singles only) ₍₁₀₎ Remote Sense (singles only) ₍₁₀₎ R			
Reinforced Insulation Basic Insulation Operational Insulation Operational Insulation Earth Leakage Touch Current Earth Leakage Touch Current Earth Signal ₍₁₄₎ Combined Sense (singles only) ₍₁₀₎ Remote Sense (singles only) ₍₁₀₎ Mean-Time Between Failures Weight O.60 Lbs. Open Frame 1.00 Lbs. Chassis and Cover EMC SPECIFICATIONS (IEC 60601-1-2:2014, 4 TH ED./IEC 61000-6-2:2005) Electrostatic Discharge Radiated Electromagnetic Field EN 61000-4-2 EN 61000-4-3 Electrical Fast Transients/Bursts EN 61000-4-5 Surge Immunity EN 61000-4-5 EN 61000-4-1 Conducted Immunity EN 61000-4-1 Ow UT, 10/12 cycles, 0° 100/240V A/A 40% UT, 10/12 cycles, 0° 100/240V A/A 40% UT, 10/12 cycles, 0° 100/240V A/A 40% UT, 25/30 cycles, 0° 100/240V B/A Radiated Emissions EN 55011/32 Class B En 61000-3-2 Class A		Operational Insu	llation(Consult factory for 1MOPP)
Basic Insulation		5656 \/DC Prim	any to Secondary
Operational Insulation 707 VDC, Secondary to Ground			
Leakage Current <300μA NC, <1000μA SFC			
Touch Current <100μA NC, <500μA SFC	Leakage Current	-,	•
Power Fail Signal ₍₁₄₎ Logic low with input power failure 10 ms minimum prior to Output 1 dropping 1% Remote Sense (singles only) ₍₁₀₎ 250mV compensation of output cable losses Mean-Time Between Failures 100,000 Hours min., MIL-HDBK-217F, 25° C, GB Weight 0.60 Lbs. Open Frame 1.00 Lbs. Chassis and Cover EMC SPECIFICATIONS (IEC 60601-1-2:2014, 4 TH 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 A Conducted 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 100/240V A/A Woltage Interruptions EN 61000-4-11 0% U _T , 25/30 cycles, 0° 100/240V B/A 100/240V B/A Voltage Interruptions EN 61000-4-11 0% U _T , 300 cycles, 0° 100/240V B/B 100/240V B/B Radiated Emissions EN 55011/32 Class B Class B Harmonic Current Emissions EN 61000-3-2 Class A	Earth Leakage		
Minimum prior to Output 1 dropping 1% Remote Sense (singles only) ₍₁₀₎ 250mV compensation of output cable losses			
Remote Sense (singles only)(10) 250mV compensation of output cable losses	Power Fail Signal ₍₁₄₎		
Mean-Time Between Failures 100,000 Hours min., MIL-HDBK-217F, 25° C, GB Weight 0.60 Lbs. Open Frame 1.00 Lbs. Open Frame 1.00 Lbs. Chassis and Cover EMC SPECIFICATIONS (IEC 60601-1-2:2014, 4 TH 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% UT, 0.5 cycles, 0° 100/240V A/A Woltage Interruptions EN 61000-4-11 0% UT, 25/30 cycles, 0° 100/240V B/A Voltage Interruptions EN 61000-4-11 0% UT, 300 cycles, 0° 100/240V B/B Radiated Emissions EN 55011/32 Class B Conducted Emissions	Pamoto Conco (singles only)		
Weight	Mean-Time Retween Failures		
1.00 Lbs. Chassis and Cover			
EMC SPECIFICATIONS (IEC 60601-1-2:2014, 47" 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% UT, 0.5 cycles, 0-315° 100/240V A/A Wut, 1 cycles, 0° 100/240V B/A 100/240V B/A Voltage Interruptions EN 61000-4-11 0% UT, 25/30 cycles, 0° 100/240V B/A Radiated Emissions EN 55011/32 Class B Conducted Emissions EN 55011/32 Class B Harmonic Current Emissions EN 61000-3-2 Class A	· ·	1.00 Lbs. Ch	assis and Cover
Electrostatic Discharge	EMC SPECIFICATION		
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% UT, 0.5 cycles, 0-315° 100/240V A/A 0% UT, 1 cycles, 0° 100/240V A/A 40% UT, 10/12 cycles, 0° 100/240V B/A Voltage Interruptions EN 61000-4-11 0% UT, 25/30 cycles, 0° 100/240V B/B Radiated Emissions EN 55011/32 Class B Conducted Emissions EN 61000-3-2 Class A	Electrostatic Discharge	EN 61000-4-2	±8KV contact / ±15KV air discharge 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% UT, 0.5 cycles, 0-315° 100/240V A/A 0% UT, 1 cycles, 0° 100/240V B/A 40% UT, 10/12 cycles, 0° 100/240V B/A 70% UT, 25/30 cycles, 0° 100/240V B/A Voltage Interruptions EN 61000-4-11 0% UT, 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	Radiated Electromagnetic Field		80MHz-2.7GHz, 10V/m, 80% AM 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% UT, 0.5 cycles, 0-315° 100/240V A/A 0% UT, 1 cycles, 0° 100/240V B/A 40% UT, 10/12 cycles, 0° 100/240V B/A 70% UT, 25/30 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			
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			
Voltage Dips			
0% U _T , 1 cycles, 0° 100/240V A/A			
40% U _T , 10/12 cycles, 0° 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	Voltage Dips	EN 61000-4-11	
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			
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			
Radiated Emissions EN 55011/32 Class B Conducted Emissions EN 55011/32 Class B Harmonic Current Emissions EN 61000-3-2 Class A	Voltage Interruptions	FN 61000-4-11	
Conducted Emissions EN 55011/32 Class B Harmonic Current Emissions EN 61000-3-2 Class A			
Harmonic Current Emissions EN 61000-3-2 Class A			
Voltage Fluctuations/Flicker EN 61000-3-3 Compliant	Harmonic Current Emissions		
	Voltage Fluctuations/Flicker	EN 61000-3-3	Compliant

All specifications are maximum at $25^{\circ}\text{C}/70\text{W}$ unless otherwise stated, may vary by model and are subject to change without notice.



REL-70 MECHANICAL SPECIFICATIONS

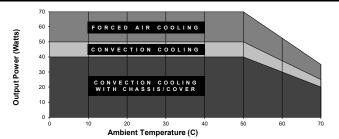


ALL DIMENSIONS IN INCHES (mm)

APPLICATIONS INFORMATION

- Each output can deliver its rated current but Total Output Power must not exceed 70W, as determined by the cooling method.
- 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.
- 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.
- A minimum load of 10% is required on Output 1 to ensure proper regulation of remaining outputs.
- This product includes only one fuse in the input circuit. In consideration of Clause 8.11.5 of IEC 60601-1:2005, a second fuse may be required in 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 IEC 60601-1:2005. 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 test on the power supply or the end product. It is highly recommended that the DC test voltages listed in DVB.1, Annex DVB of UL 60601-1 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.
- Remote-Sense terminals may be used to compensate for cable losses up to 250mV (single output models only). The use of a twisted pair, decoupling capacitors and an appropriately-rated low-impedance capacitor connected across the load will increase noise immunity.
- Maximum screw penetration into bottom chassis mounting holes is 0.100 inches.
 Maximum screw penetration into side chassis mounting holes is 0.250 inches.
- 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.
- Power-Fail (AC-Good) feature provides a logic-low warning signal from an open collector transistor output 10ms prior to loss of output from AC failure, 5V/10mA.
- 300LFM minimum of airflow must be maintained one inch above all points of top-side components or cover when forced-air cooling is required.
- 16. Total power must not exceed 50W with convection cooling on open-frame models.
- 17. Total power must not exceed 70W with 300LFM forced-air cooling on open-frame models.
- 18. Total power must not exceed 40W with convection cooling and Chassis/Cover option.
- Total power must not exceed 70W with 300LFM forced-air cooling and Chassis/Cover option.
- 20. Rated 10A with convection cooling.
- 21. Rated 1.5A with convection cooling.

MAXIMUM OUTPUT POWER vs. AMBIENT TEMPERATURE



		CONNECTOR SPECIFICATIONS
P1	AC Input	0.156 friction lock header mates with Tyco 640250-3 or
		equivalent crimp terminal housing with Tyco 3-640706-1 or
		equivalent crimp terminal.
P2	DC Output	0.156 friction lock header mates with Tyco 770849-8 or
	(Single)	equivalent crimp terminal housing with Tyco 3-640707-1 or
		equivalent crimp terminal.
P2	DC Output	0.156 friction lock header mates with Tyco 770849-8 or
	(Multiple)	equivalent crimp terminal housing with Tyco 3-640707-1 or
		equivalent crimp terminal.
G	Ground	0.187 quick disconnect terminal.
P3	P.F./Sense	0.100 breakaway header mates with Molex 22-55-2061 or
	(Single)	equivalent crimp terminal housing with Molex type 71851 or
		equivalent crimp terminal.
P3	Power Fail	0.100 breakaway header mates with Molex 50-57-9002 or
	(Multiple)	equivalent crimp terminal housing with Molex type 71851 or
		equivalent crimp terminal.