

70 WATTS

SINGLE/MULTI OUTPUT DC-DC

FEATURES:

- Compact 2.5" x 4.5" x 1.2" Size
- 2 Year Warranty
- 18-36VDC Input
- One to Four Outputs
- 4242VDC Reinforced Insulation
- Under/Overvoltage Lockout
- Size/Pin Compatible with REL-70 Series
- IEC 60601-1 3rd ed. Medical Cert.
- IEC 62368-1 2nd ed. Certification
- 0-70°C Operating Temperature
- RoHS Compliant
- Optional Chassis/Cover
- Power Good Signal



CHASSIS/COVER



OPEN FRAME

SAFETY SPECIFICATIONS

Underwriters Laboratories File E137708/E140259	UL 62368-1:2014, 2 nd 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 National and Group Deviations)	IEC 62368-1:2014, 2 nd Edition IEC 60601-1:2005/A1:2012
TUV SUD America	EN 62368-1:2014, 2 nd Edition EN 60601-1:2006/A1:2013
RoHS Directive (Recast)	(2015/863/EU of March 2015)
Restriction of the Use of Certain Hazardous Substances in EEE Regulations 2012 SI No. 3032 + 2019 SI No.492	

MODEL LISTING

MODEL	OUTPUT 1	OUTPUT 2	OUTPUT 3	OUTPUT 4
DC2-70-4001	+3.3V/6A	+5V/5A	+12V/2A ₍₁₈₎	-12V/2A ₍₁₈₎
DC2-70-4002	+5V/6A	+3.3V/5A	+12V/2A ₍₁₈₎	-12V/2A ₍₁₈₎
DC2-70-4003	+5V/6A	+3.3V/5A	+15V/2A ₍₁₈₎	-15V/2A ₍₁₈₎
DC2-70-4004	+5V/6A	-5V/5A	+12V/2A ₍₁₈₎	-12V/2A ₍₁₈₎
DC2-70-4005	+5V/6A	-5V/5A	+15V/2A ₍₁₈₎	-15V/2A ₍₁₈₎
DC2-70-4006	+5V/6A	+24V/2A	+12V/2A ₍₁₈₎	-12V/2A ₍₁₈₎
DC2-70-4007	+5V/6A	+24V/2A	+15V/2A ₍₁₈₎	-15V/2A ₍₁₈₎
DC2-70-3001	+5V/6A	+12V/2A		-12V/2A
DC2-70-3002	+5V/6A	+15V/2A		-15V/2A
DC2-70-2001	+3.3V/6A	+5V/5A		
DC2-70-2002	+5V/6A	+12V/4A		
DC2-70-2003	+5V/6A	+24V/2A		
DC2-70-2004	+12V/3A	-12V/3A		
DC2-70-2005	+15V/3A	-15V/2A		
DC2-70-1001	2.5V/14A ₍₁₇₎			
DC2-70-1002	3.3V/14A ₍₁₇₎			
DC2-70-1003	5V/14A ₍₁₇₎			
DC2-70-1004	12V/5.8A			
DC2-70-1005	15V/4.7A			
DC2-70-1006	24V/2.9A			
DC2-70-1007	28V/2.5A			
DC2-70-1008	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:

CH - Chassis	I/O - Isolated Outputs
CO - Cover	TS - Terminal Strip
BD - Reverse Input Protection	

DC2-70

OUTPUT SPECIFICATIONS

Total Output Power at 50°C ₍₁₎ (See Derating Chart)	50W 70W	Convection Cooled _(16, 18) 300LFM Forced-Air Cooled _(15, 17, 19)
Output Voltage Centering	Output 1: Output 2: Output 3: Output 4:	± 0.5% (All outputs at 50% load) ± 5.0% ± 5.0% ± 5.0%
Output Voltage Adjust Range	Output 1:	95 - 105%
Load Regulation	Output 1: Output 2: (4001-5 Models) (2001 Model) Output 3: Output 4:	0.5% (10-100% load change) 5.0% 8.0% 8.0% 5.0% 5.0%
Source Regulation	Outputs 1 - 4:	0.5%
Cross Regulation	Outputs 2 - 4:	5.0%
Output Noise	Outputs 1 - 4:	1.0%
Turn on Overshoot		None
Transient Response	Outputs 1 - 4	
Voltage Deviation		5.0%
Recovery Time		500µs
Load Change		50% to 100%
Output Overvoltage Protection	Output 1:	110% to 150%
Output Overpower Protection		110-160% rated Pout, cycle on/off, auto recovery
Start Up Time		4 Seconds

INPUT SPECIFICATIONS

Input Voltage Range	18-36 VDC
Input Under-Voltage Lockout	
Turn-On Voltage	14.5-17.5 VDC
Turn-Off Voltage	14.0-17.0 VDC
Input Overvoltage Shutdown	37.0-43.0 VDC
Maximum Input Current	5.5 A
Reflected Ripple Current	5 %
Efficiency	78% Typ., Full Power, 24VDC, varies by model

ENVIRONMENTAL SPECIFICATIONS

Ambient Operating Temperature Range	0°C to +70°C Derating: See Power Rating Chart
Ambient Storage Temp. Range	-40°C to +85°C
Temperature Coefficient	Outputs 1 - 4: 0.02%/°C
Altitude	3,000m ASL - Operating - Medical 60601-1 5,000m ASL - Operating - ITE/AV - 62368-1 12,192m ASL - Non-Operating

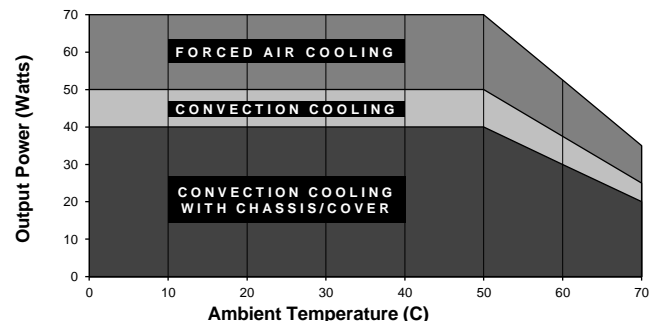
GENERAL SPECIFICATIONS

Means of Protection	
Primary to Secondary	2MOOP (Means of Operator Protection)
Primary to Ground	1MOOP (Means of Operator Protection)
Secondary to Ground	Operational Insulation/Consult factory for 1MOPP)
Dielectric Strength _(7, 8)	
Reinforced Insulation	4242 VDC, Primary to Secondary
Basic Insulation	2121 VDC, Primary to Ground
Operational Insulation	707 VDC, Secondary to Ground
Power Good Signal ₍₁₁₎	Logic high with input voltage above Vin min.
Remote Sense (singles only) ₍₉₎	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

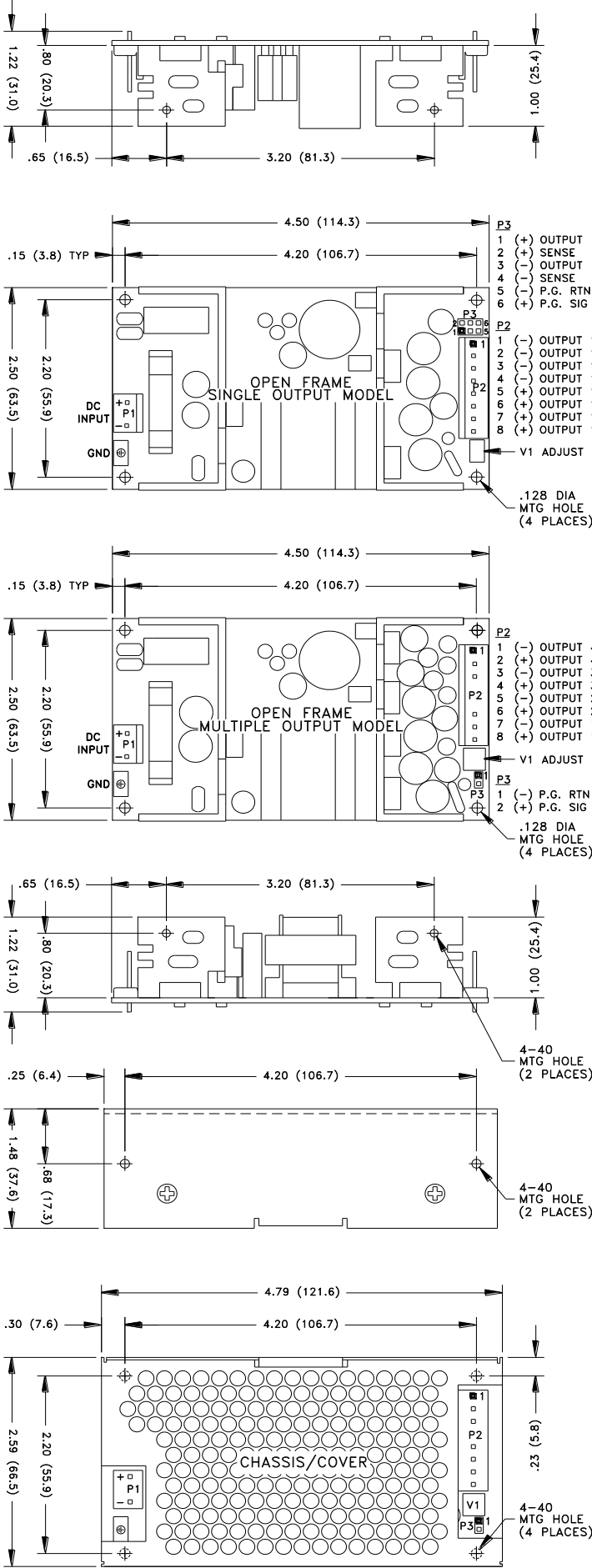
Electrostatic Discharge	EN61000-4-2	±8KV contact/ ±15KV air discharge	A
Electrical Fast Transients/Bursts	EN61000-4-4	±2KV, 5KHz/100KHz	A
Surge Immunity	EN61000-4-5	±2KV line to earth/ ±1KV line to line	A

MAXIMUM OUTPUT POWER vs. AMBIENT TEMPERATURE



All specifications are maximum at 25°C/70W unless otherwise stated, may vary by model and are subject to change without notice.

DC2-70 SERIES MECHANICAL SPECIFICATIONS



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.
- 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.
- 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.
- Power Good feature provides a logic-high signal from an open collector transistor when DC input reaches minimum operating voltage.
- 300LFM minimum of airflow must be maintained one inch above all points of top-side components or cover when forced-air cooling is required.
- Total Power must not exceed 50W with convection cooling on open-frame models except where noted.
- Total Power must not exceed 70W with 300LFM forced-air cooling on open-frame models.
- 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.
- Rated 10A maximum with convection cooling.
- Rated 1.5A maximum with convection cooling.

CONNECTOR SPECIFICATIONS

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