

185 WATTS

SINGLE/MULTI OUTPUT AC-DC

FEATURES:

- Compact 4.2" x 7.0" x 1.5" 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 ed. Certification
- IEC 60601-1-2 4th ed. EMC
- Class B Emissions per EN55011/32
- RoHS Compliant
- Optional Remote Inhibit/Enable
- 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 NO. OUTPUT 1⁽²¹⁾ OUTPUT 2⁽²¹⁾ OUTPUT 3⁽²⁰⁾ OUTPUT 4⁽²⁰⁾

REL-185-4001	+3.3V/20A ⁽²²⁾	+5V/10A	+12V/2A	-12V/2A
REL-185-4002	+5V/20A ⁽²²⁾	+3.3V/10A	+12V/2A	-12V/2A
REL-185-4003	+5V/20A ⁽²²⁾	+3.3V/10A	+15V/2A	-15V/2A
REL-185-4004	+5V/20A ⁽²²⁾	-5V/10A	+12V/2A	-12V/2A
REL-185-4005	+5V/20A ⁽²²⁾	-5V/10A	+15V/2A	-15V/2A
REL-185-4006	+5V/20A ⁽²²⁾	+24V/3A	+12V/2A	-12V/2A
REL-185-4007	+5V/20A ⁽²²⁾	+24V/3A	+15V/2A	-15V/2A
REL-185-3001	+5V/20A ⁽²²⁾	+12V/5A		-12V/3A
REL-185-3002	+5V/20A ⁽²²⁾	+15V/4A		-15V/3A
REL-185-2001	+3.3V/20A ⁽²²⁾	+5V/10A		
REL-185-2002	+5V/20A ⁽²²⁾	+12V/8A		
REL-185-2003	+5V/20A ⁽²²⁾	+24V/4A		
REL-185-2004	+12V/10A	-12V/6A		
REL-185-2005	+15V/8A	-15V/5A		
REL-185-2006	+15V/6A	+24V/4A		
REL-185-2007	+35V/3.5A	+12V/5.2A		
REL-185-1001	2.5V/37A ⁽²³⁾			
REL-185-1002	3.3V/37A ⁽²³⁾			
REL-185-1003	5V/37A ⁽²³⁾			
REL-185-1004	12V/15.4A			
REL-185-1005	15V/12.3A			
REL-185-1006	24V/7.7A			
REL-185-1007	28V/6.6A			
REL-185-1008	48V/3.8A			
REL-185-1009	6.3V/29A ⁽²³⁾			

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
CO – Cover
TS – Terminal Strip

RE – Remote Inhibit
I/O – Isolated Outputs
WT – Low Temperature Turn On

REL-185

OUTPUT SPECIFICATIONS

Total Output Power at 50°C ₍₁₎ (See Derating Chart)	135W 185W	Convection Cooled ₍₁₆₎₍₁₈₎ Forced-Air Cooled ₍₁₅₎₍₁₇₎₍₁₉₎
Output Voltage Centering	Output 1: Output 2: Output 3: Output 4:	± 0.5% ± 5.0% ± 5.0% ± 5.0% (All outputs at 50% load)
Output Voltage Adjust Range	Output 1:	95 - 105%
Load Regulation	Output 1: Output 2: (4001,4,5, 2001) (4002,4003) Output 3: Output 4:	0.5% 5.0% 10.0% 15.0% 5.0% 5.0% (10-100% load change) (10-100% load change) (20-100% load change) (20-100% load change) (10-100% load change) (10-100% load change)
Source Regulation	Outputs 1 – 4:	0.5%
Cross Regulation	Outputs 2 – 4:	6.0%
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
Hold Up Time		16ms min., Full Power, 85V Input
Start Up Time		5 Seconds, 120V Input

INPUT SPECIFICATIONS

Protection Class	I
Source Voltage	85 – 264 Volts AC
Frequency Range	47 – 63 Hz
Peak Inrush Current	40A
Efficiency	82% Typical, Full Power, 230V, varies by model
Power Factor	0.95 (Full Power, 230V)

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	2MOPP (Means of Patient Protection)
Primary to Ground	1MOPP (Means of Patient Protection)
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
Operational Insulation	707 VDC, Secondary to Ground
Leakage 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 Inhibit (optional)	Contact closure inhibits all outputs
Remote Sense ₍₁₀₎	250mV compensation of output cable losses
Mean-Time Between Failures	100,000 Hours min., MIL-HDBK-217F, 25° C, GB
Weight	1.70 Lbs. Open Frame/ 2.70 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 _r , 0.5 cycles, 0-315° 0% U _r , 1 cycles, 0° 40% U _r , 10/12 cycles, 0° 70% U _r , 25/30 cycles, 0°	100/240V A/A 100/240V A/A 100/240V B/A 100/240V B/A
Voltage Interruptions	EN 61000-4-11	0% U _r , 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 Fluctuations/Flicker	EN 61000-3-3	Compliant	

All specifications are maximum at 25°C/185W unless otherwise stated, may vary by model and are subject to change without notice.



INTEGRATED POWER DESIGNS 300 Stewart Road ■ Wilkes-Barre, PA 18706 ■ Phone: (570) 824-4666 ■ Fax: (570) 824-4843 ■ Email: sales@ipdpower.com ■ Web: www.ipdpower.com

APPLICATIONS INFORMATION

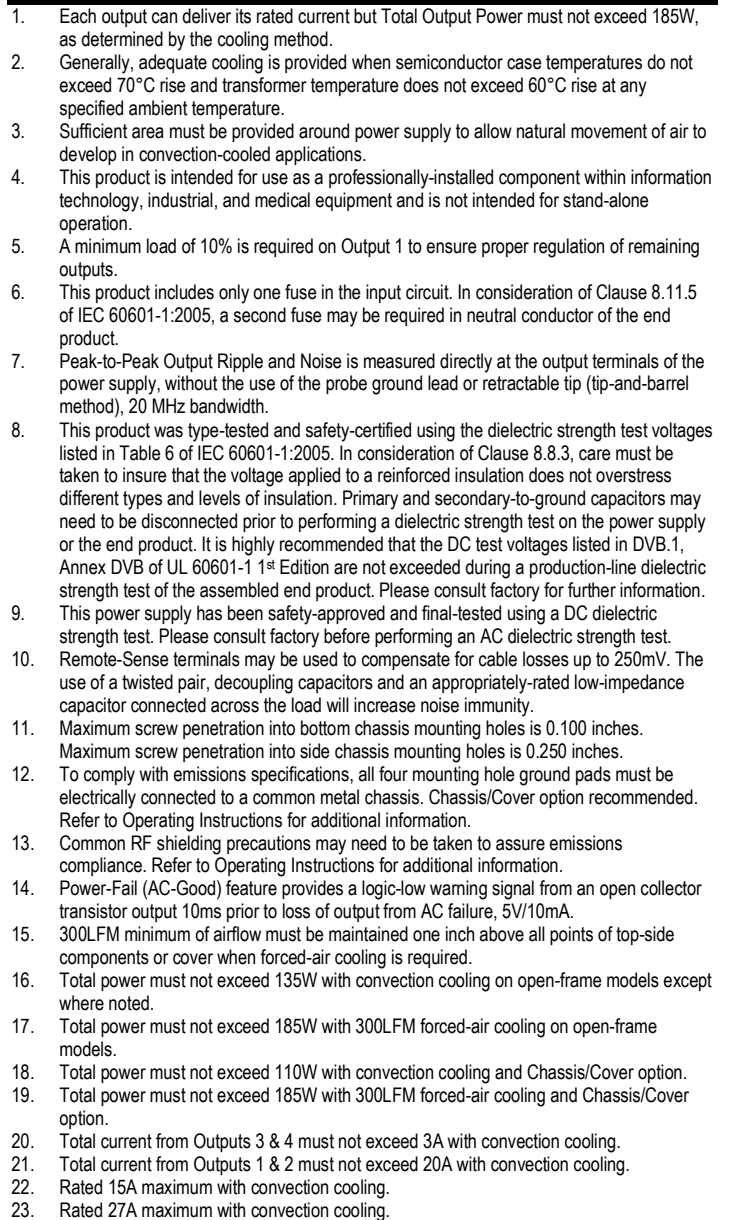


Figure 1 is a 3D bar chart illustrating the relationship between Output Power (Watts) and Ambient Temperature (C) for three different cooling methods. The Y-axis represents Output Power (Watts) from 0 to 190. The X-axis represents Ambient Temperature (C) from 0 to 70. The Z-axis represents the cooling methods: Forced Air Cooling, Convection Cooling, and Convection Cooling with Chassis/Cover. The chart shows that output power decreases as ambient temperature increases, with Forced Air Cooling maintaining the highest power levels.

Ambient Temperature (C)	Forced Air Cooling (Watts)	Convection Cooling (Watts)	Convection Cooling with Chassis/Cover (Watts)
0	180	130	110
10	175	125	105
20	170	120	100
30	165	115	95
40	160	110	90
50	155	105	85
60	150	100	80
70	145	95	75

P1	AC Input	0.156 friction lock header mates with Molex 09-50-3031 or equivalent crimp terminal housing with Molex 2478 or equivalent crimp terminal.
P2	DC Output (Single)	6-32 screw down terminal mates with #6 ring tongue terminal. (10 in-lb max)
P2	DC Output (Multiple)	0.156 friction lock header mates with Molex 09-50-3161 or equivalent crimp terminal housing with Molex 2478 or equivalent crimp terminal.
G	Ground	0.187 quick disconnect terminal.
P3	Option/Sense (Single)	0.100 friction lock header mates with Molex 50-57-9008 or equivalent crimp terminal housing with Molex type 71851 or equivalent crimp terminal.
P3	Option/Sense (Multiple)	0.100 breakaway header mates with Molex 22-55-2081 or equivalent crimp terminal housing with Molex type 71851 or equivalent crimp terminal.