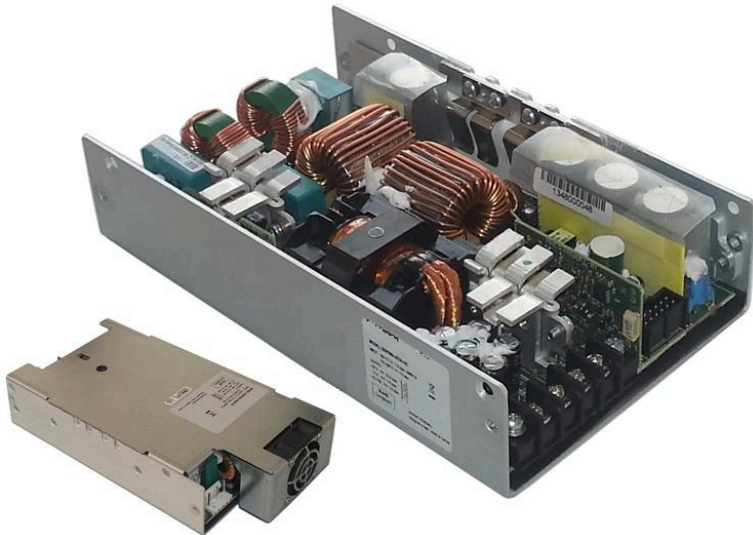


2XMOPP MEDICAL, 600 W AC-DC COMPACT, EFFICIENT POWER SUPPLY

DDP600 Series



Certifications



Applications



FEATURES

- » Universal input voltage range (85 – 305 V_{AC})
- » Input surge current limiting
- » 800 W peak power (up to 10 s)
- » High efficiency up to 94%
- » 24, 28, 36 and 48 V_{DC} standard output voltages
- » Low stand-by consumption (<0.35 W)
- » Active PFC, EN61000-3-2 compliant (Class C, >25% load).
- » Low earth / touch leakage current
- » Fan speed control circuit
- » Over temperature, OV, OC and SC protections.
- » Stand by +5 V, 1.5 A and auxiliary / fan 12 V_{DC}, 1 A outputs.
- » Built-in current share signal for parallel operation
- » Remote On / Off signal
- » Power good and remote sense signals
- » U-chassis and enclosed packages fits 1U applications
- » Medical safety approval to IEC 60601-1 3rd edition, including Risk Management Assessment, 2x MoPP rated and BF appliances compatible.
- » IEC 60601-1-2 4th edition EMC compliant.
- » LED lighting safety approval to UL8750
- » RoHS 3 compliant (Directive EU 2015/863)
- » Medical version compatible with 4000 m altitude operation

MARKET SEGMENTS AND APPLICATIONS

- » Video Wall Display and SSL Lighting
- » Industrial Process Control and Automation
- » Telecommunications
- » Laboratory / Analysis Equipment
- » Test and Measurement Equipment
- » Medical applications

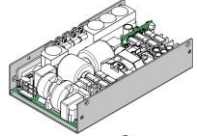
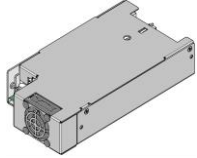
PRODUCT DESCRIPTION

The DDP600 series of industrial and medical grade AC-DC power supplies provide the compact form factor and high efficiency that the marketplace demands. The series provides a steady 600 W of regulated DC power through the full 85 to 305 V_{AC} input range, all in a 4.2 x 7.0 x 1.6” form factor. The DDP600 is available in a U-frame chassis or enclosed with a built-in front mounted fan to facilitate system integration. By converting energy at up to 94% efficiency, the DDP600 generates less heat, facilitating optimal thermal management in space constrained environments, resulting in very high reliability. The series comes in 24, 28, 36 and 48 V_{DC} standard output voltages and offers auxiliary 12 V_{DC} and +5 V_{DC} stand-by outputs. Available control signals include Power Good (P_OK), Remote On / Off (PS_Inhibit) and Sense terminals (RS+, RS-). The DDP600 features a built-in I-share circuit for parallel operation between power units to enhance total power. An optional OR-ing external circuit can be provided to allow N+1 redundant operation. The enclosed unit can deliver full output power from -20 to 60 °C. The same is true for the U-frame variant when providing it with a 500 LFM airflow. Both units can be operated up to 70 °C with output power derating. When natural convection cooled, the U-frame variant can deliver a steady 400 W up to 50 °C ambient. A built-in fan speed control circuit in the enclosed version ensures proper air flow in every working environment, minimizing operational noise and enhancing its service life time.

Protection features include High Breaking capacity fuses on both AC lines, input under voltage lockout (IUV), output over-current (OC), output short-circuit (SC), output over-voltage (OV) and over-temperature (OT). The DDP600 series complies with the 3rd edition of the IEC 60601-1 safety standard for medical equipment including Risk Management Assessment, offers 2x MoPP means of patient protection, and is

suitable for BF rated applied parts under certain conditions. The series also complies with the 2nd edition of the IEC 60950-1 and IEC 62368-1 standards for Audio Video and IT equipment and UL8750 for lighting applications. The series meets the EN55032 EMC limits of Class B for conducted and radiated emissions as well as the IEC/EN 61000-3, IEC/EN 61000-4 and IEC/EN 60601-1-2 4th edition EMC standards.

Model Coding and Output Ratings 1/2

Model Grade and Output Power	Output Voltages	Packages ITE/ME: DDP600-	
ITE/ME: DDP600-	24 V _{DC} : US24-	U-Chassis: UC	 
	28 V _{DC} : US28-		
	36 V _{DC} : US36-		
	48 V _{DC} : US48-		

Model Code	V _{AC} Range [V _{RMS}]	V ₁ Nominal [V _{DC}]	I ¹ [A]		I ² [A]		I _{5B} [A]		Mounting Orientation	Cooling [LFM]	Max Combined Output Power [W]	
			50°C	70°C	50°C	70°C	50°C	70°C			50°C	70°C
DDP600-US24-FF1	85-305	24	25 1	21.12	1	0,5	1.5	1	-	-	600 1	500
DDP600-US24-UC	85-180	24	25	17.12	1	0.5	1.2	0.8	-	600	600	400
DDP600-US24-UC	180-305	24	25	17.12	1	0.5	1.2	0.8	-	500	600	400
DDP600-US24-UC	85-180	24	13.12	5.12	1	0.5	0.8	0.5	Horizontal	Nat. Conv.	310	125
DDP600-US24-UC	180-305	24	14.12	7.12	1	0.5	1	0.5	Horizontal	Nat. Conv.	350	165
DDP600-US24-UC	85-180	24	14.12	6.12	0.9	0.5	0.8	0.4	Vertical	Nat. Conv.	340	155
DDP600-US24-UC	180-305	24	16.12	8.12	1	0.5	0.9	0.4	Vertical	Nat. Conv.	390	195
DDP600-US28-FF2	85-305	28	21.4 2	18.12	1	0.5	1.5	1	-	-	600 2	500
DDP600-US28-UC	85-180	28	21.4	12.12	1	0.5	1.2	0.8	-	600	600	400
DDP600-US28-UC	180-305	28	21.4	12.12	1	0.5	1.2	0.8	-	500	600	400
DDP600-US28-UC	85-180	28	11.12	4.12	1	0.5	0.8	0.5	Horizontal	Nat. Conv.	310	125
DDP600-US28-UC	180-305	28	12.5	6.12	1	0.5	1	0.5	Horizontal	Nat. Conv.	350	165
DDP600-US28-UC	85-180	28	12.12	5.12	0.9	0.5	0.8	0.4	Vertical	Nat. Conv.	340	155
DDP600-US28-UC	180-305	28	14.12	7.12	1	0.5	0.9	0.4	Vertical	Nat. Conv.	390	195
DDP600-US36-FF3	85-305	36	16.7 3	14.12	1	0,5	1.5	1	-	-	600 3	500
DDP600-US36-UC	85-180	36	16.7	11.12	1	0.5	1.2	0.8	-	600	600	400
DDP600-US36-UC	180-305	36	16.7	11.12	1	0.5	1.2	0.8	-	500	600	400
DDP600-US36-UC	85-180	36	9.12	3.12	1	0.5	0.8	0.5	Horizontal	Nat. Conv.	310	125
DDP600-US36-UC	180-305	36	10.12	4.12	1	0.5	1	0.5	Horizontal	Nat. Conv.	350	165
DDP600-US36-UC	85-180	36	9.12	4.12	0.9	0.5	0.8	0.4	Vertical	Nat. Conv.	340	155
DDP600-US36-UC	180-305	36	11.12	5.12	1	0.5	0.9	0.4	Vertical	Nat. Conv.	390	195
DDP600-US48-FF4	85-305	48	12.5 4	10.12	1	0,5	1.5	1	-	-	600 4	500
DDP600-US48-UC	85-180	48	12.5	8.12	1	0.5	1.2	0.8	-	600	600	400
DDP600-US48-UC	180-305	48	12.5	8.12	1	0.5	1.2	0.8	-	500	600	400
DDP600-US48-UC	85-180	48	6.12	3.12	1	0.5	0.8	0.5	Horizontal	Nat. Conv.	310	125
DDP600-US48-UC	180-305	48	7.12	3.12	1	0.5	1	0.5	Horizontal	Nat. Conv.	350	165
DDP600-US48-UC	85-180	48	7.12	3.12	0.9	0.5	0.8	0.4	Vertical	Nat. Conv.	340	155
DDP600-US48-UC	180-305	48	8.12	4.12	1	0.5	0.9	0.4	Vertical	Nat. Conv.	390	195


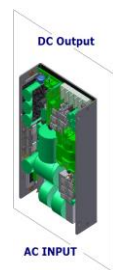

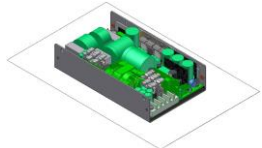

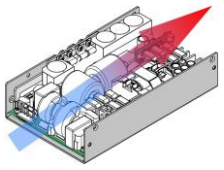

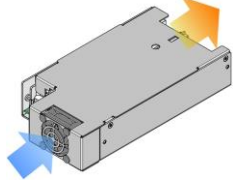

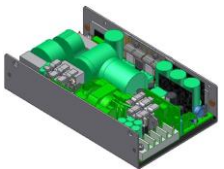
¹ DDP600-US24-FF: 25 A / 600 W up to 60 °C ambient

² DDP600-US28-FF: 21.4 A / 600 W up to 60 °C ambient

³ DDP600-US36-FF: 16.7 A / 600 W up to 60 °C ambient

⁴ DDP600-US48-FF: 12.5 A / 600 W up to 60 °C ambient

Model Coding and Output Ratings 2/2

<p style="text-align: center;">Nominal Output Power De-rating</p>	<p>Natural Convection U-Chassis Package Vertical Mounting 180 – 305 V_{AC}</p> 	
<p style="text-align: center;">Peak Output Power De-rating</p>	<p>Natural Convection U-Chassis Package Horizontal Mounting 180 – 305 V_{AC}</p> 	
	<p>Forced Air Cooling U-Chassis Package</p> <p>>500 LFM At 180 – 305 V_{AC}</p> <p>>600 LFM At 85 – 180 V_{AC}</p> 	
	<p>Enclosed Front Mounted Fan</p> <p>85 – 305 V_{AC}</p> 	
	<p>Natural Convection</p> <p>Any Orientation</p> <p>85 – 305 V_{AC}</p> 	

Input Specifications

Specification	Test Conditions / Notes	Min.	Nominal	Max.	Units
AC Input Voltage	PS starts and operates at 85 V _{AC} at all load conditions	85	100-277	305	V _{RMS}
DC Input Voltage		170	-	300	V _{DC}
Input Frequency	440 Hz with reduced PFC and output power rating - Consult factory for details.	47	50/60	440	Hz
Input Current	RMS at 180 V _{AC} , maximum load, 50 / 60 Hz RMS at 85 V _{AC} , maximum load, 50 / 60 Hz	-	-	4.0 8.5	A
Inrush Current (peak)	Cold start, 25 °C ambient, full load				
	115 V _{AC}	-	-	20	A
	230 V _{AC}	-	-	30	A
Fusing	High breaking, 10A, 250V on each AC lines.	-	-	10	A
Efficiency	At 115 V_{AC} 20% rated load 50% rated load 100% rated load At 230 / 277 V_{AC} 20% rated load 50% rated load 100% rated load	- - - - - - -	89 93 92 90 94 94	- - - - - -	%
Input Power Consumption	Power on, 115 V _{AC} , no load Power on, 230 V _{AC} , no load Stand by, 115, 230 V _{AC} , no load	- - -	- - -	5 4 0.35	W
Power Factor	From 50 to 100% of rated load, 230, 115 V _{AC} , 50 / 60 Hz input voltages.	1.12	-	-	-
THDi	From 50 to 100% rated load, 115, 230, 277 V _{AC} 50 / 60 Hz.	-	-	20	%
Harmonic Current	Complies with EN 61000-3-2 at 230 V _{AC} , 50/60 Hz, Class A, D.				
Fluctuations and Flicker	Complies with EN 61000-3-2 Class C at 230 V _{AC} , 50/60 Hz, >150 W load. Complies with EN 61000-3-3 at nominal voltages and full load.				
Earth Leakage Current	Normal conditions 115 V _{RMS} , 60 Hz 230 V _{RMS} , 50 Hz 264 V _{RMS} , 60 Hz (worst case) 277 V _{RMS} , 60 Hz	- - - -	130 240 - 350	- - 400 -	μA
Touch Leakage Current	264 V_{RMS}, 60 Hz Normal Condition (NC) Single Fault Condition (SFC)	- -	- -	100 500	μA
Patient Leakage Current	264 V_{RMS}, 60 Hz Normal Condition (NC) Single Fault Condition (SFC)	- -	- -	100 500	μA

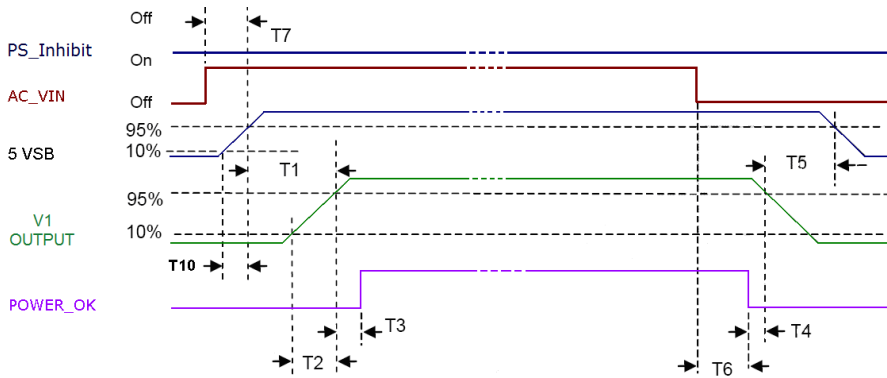
Output Specifications

Specification	Test Conditions / Notes	Min.	Nom.	Max.	Units
V1 Output Voltages	±0.5% set point accuracy RS+ closed on +V1, RS- closed on V1 RTN, at 20% load.	-	24 28 36 48	-	V
V1 Output Power Rating	Convection cooling (see graph above) Forced air cooling (see graph above) Peak (less than 10 s, after P_OK high)	- - -	- - -	400 600 800	W
V2 Output Voltage	V1 at nominal voltage	10.5	12.12	14.12	V
V2 Output Current	Convection / forced air cooling	-	-	1	A
5 V _{SB} Output Voltage	±3% set point accuracy, 20% load.	-	5	-	V
5 V _{SB} Output Current	Front fan package U chassis package	- -	- -	1.5 1.2	A
V1 Voltage Adjustment Range	Manually by potentiometer	-	-	±5	%V1
V1 Load-Line-Cross Regulation	V _{AC} : 85 – 305 V _{RMS} ; I1: 0 – 100%	-	-	±2	%V1
5 V _{SB} Load-Line-Cross regulation	V _{AC} : 85 – 305 V _{RMS} ; I5SB: 0 – 100%	-	-	±5	%5 V _{SB}
V1 Line Regulation	V _{AC} : 85 – 305 V _{RMS}	-	-	±0.1	%V1
Transient Response: V1, 5 V _{SB} Voltage Deviation	25% load changes at 1 A/μs 24V at 1000 μF load / I _{OUT} > 2.5 A 28V at 1000 μF load / I _{OUT} > 2.5 A 36V at 680 μF load / I _{OUT} > 1.9 A 48V at 560 μF load / I _{OUT} > 1.25 A 5VSB at 560 μF load / I _{OUT} > 0.1 A	-	-	±5	%V1 %5 V _{SB}
V1 Ripple and Noise	Rated load, Peak-to-peak, 20 MHz BW. (100 nF ceramic, 10 μF tantalum at load)	-	-	1	%V1
V1 Start-up Rise Time	85 < V _{IN} < 305, any load conditions.	10	-	100	ms
Start-up Delay	V1 in regulation after de-asserting PS_Inhibit V1 in regulation after AC is applied (worst case: 85 V _{AC}) 5 V _{SB} in regulation after AC is applied (worst case: 85 V _{AC})	- - -	- - -	450 2050 1500	ms
Turn-on Overshoot		- -	- -	10 10	%V1 %V _{SB}
V1 Hold-up Time	At nominal VIN, full load	16	-	-	ms
Minimum Load	V1, V2 and 5 V _{SB}	0	-	-	A
Maximum Load Capacitance	V1: 24 V _{DC} V1: 28 V _{DC} V1: 36 V _{DC} V1: 48 V _{DC}	- - - -	- - - -	16000 15000 12000 8000	μF
V1 Current Sharing Accuracy	Two units in parallel at I1 rated load. VS-Logic and I-Share signals connected together. RS+, RS- signals connected together and to the load.	45.5	-	54.5	%I1

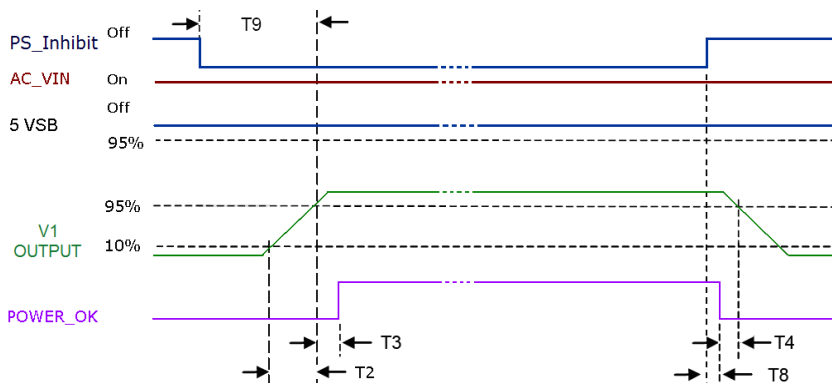
Signals / Controls and Timing

Signal	Notes	Min	Typ.	Max	Unit
+PS_Inhibit	Active high. Input low voltage	0	-	1.5	V
	Input high voltage ($I_{IN} = 300 \mu A$)	3.5	-	5.5	V
	V1 and V2 disabled when PS_Inhibit is pulled high				
	5 V _{SB} not affected by PS_Inhibit				
	V1 and V2 enabled when PS_Inhibit is open or low				
-PS_Inhibit	Active low (reverse control, same voltage levels)				
P_OK5	Logic level low (<10 mA sinking)	-	-	0.7	V
	Logic level high (100 μA sourcing)	2.4	-	5.5	V
	Low to high time after V1 in regulation	40	-	350	ms
	Power down warning time	1	-	-	ms
5 V_{SB} Output	Active and in regulation after a $85 < V_{AC} < 305$ is applied	-	-	1500	ms
	5 V _{SB} not affected by PS_Inhibit				

⁵ When V1 is On, a P_OK low may indicate V1 under voltage condition. When two DDP600 operate in parallel, P_OK low in one unit indicates that it is not sharing the expected amount of current (current sharing fault). A 10 k Ω internal pull up to 5VSB is used; do not add any other external pull up.



12 V _{SB} /5 V _{SB} On to V1 On	250 ms ≤ T1 ≤ 550 ms
V1 rise time	10 ms ≤ T2 ≤ 100 ms
5 V _{SB} rise time	3 ms ≤ T10 ≤ 40 ms
V1 On – POWER_OK delay	200 ms ≤ T3 ≤ 350 ms
Power down warning	T4 ≥ 1 ms
V1 Off 5 V _{SB} Off	T5 ≥ 0.5 s (V1 load > 25 W)
AC Off to POWER_OK low	T6 ≥ 15 ms
AC_On 5 V _{SB} turn on time	T7 ≤ 1.5 s



V1 rise time	10 ms ≤ T2 ≤ 100 ms
V1 On – POWER_OK delay	200 ms ≤ T3 ≤ 350 ms
Turn-Off warning	T4 ≥ 1 ms
PS_Inhibit – POWER_OK low timing	T8 ≤ 2 ms
PS_Inhibit – V1 On delay	T9 ≤ 450 ms

Protection Features

Specification	Test Conditions / Notes	Min.	Nominal	Max.	Units
Input Under Voltage	Auto-recovering, hiccup mode.	58	65	75	V _{AC}
Input Fuse	High breaking, 10 A, 250 V on L and L1.	-	-	10	A
Over Current	At nominal input voltages V1: Hiccup mode, auto-recovering (>10 s) V1: Hiccup mode, auto-recovering (<10 s) V2: PTC limiting, auto-recovering. 5 V_{SB}: Hiccup mode, auto-recovering: UC package FF package	108 135 - 1.3 1.6	- - - - -	132 163 - 3.6 3.6	%I _{Rated} %I _{Rated} - A A
Short Circuit	At nominal input voltages V1: Hiccup mode, auto-recovering. V2: PTC limiting, auto-recovering. 5 V _{SB} : Hiccup mode, auto-recovering.	-	-	-	
Over Voltage	V1, Power shut down, latch off. 5 V _{SB} : Hiccup mode, auto-recovering.	120 -	- -	145 150	%V _{NOM}
Over Temperature (on primary stage)	Shut down, latch off.	-	-	-	°C
Over Temperature (on secondary side)	Hiccup mode, auto-recovering.	-	-	-	°C
Isolation: Input-to-Output	Reinforced (2x MoPP). Production tested at 4242 V _{DC}	5660 4000	- -	- -	V _{DC} V _{AC}
Isolation: Input-to-Earth	Basic (1x MoPP) Production tested at 2121 V _{DC}	2121 1500	- -	- -	V _{DC} V _{AC}
Isolation: V1/5V _{SB} to V2	Basic	100	-	-	V _{AC}
Isolation: Output-to-Earth	Basic (1x MoPP)	1500	-	-	V _{AC}
Means Of Protection: Primary to secondary	2x MoPP (IEC 60601-1 3rd edition) at 100 – 250 V _{AC} , 50/60 Hz up to 4000 m 2x MoPP (IEC 60601-1 3rd edition) at 100 – 277 V _{AC} , 50/60 Hz up to 3000 m 2x MoOP (IEC 60601-1 3rd edition) at 100 – 277 V _{AC} , 440 Hz (50/60 Hz)				
Means Of Protection: Primary to Protection Earth	1x MoPP (IEC 60601-1 3rd edition) at 100 – 250 V _{AC} , 50/60 Hz up to 4000 m 1x MoPP (IEC 60601-1 3rd edition) at 100 – 277 V _{AC} , 50/60 Hz up to 3000 m 1x MoOP (IEC 60601-1 3rd edition) at 100 – 277 V _{AC} , 440 Hz (50/60 Hz)				
Means Of Protection: Secondary to Protection Earth	1x MoPP (IEC 60601-1 3rd edition) at 100 – 250 V _{AC} , 50/60 Hz up to 4000 m 1x MoPP (IEC 60601-1 3rd edition) at 100 – 277 V _{AC} , 50/60 Hz up to 3000 m (U-chassis variant only) 1x MoOP (IEC 60601-1 3rd edition) at 100 – 277 V _{AC} , 440 Hz (U-chassis variant only)				
Equipment Protection Class	Class I, compatible with BF (Body Floating) ME				

Environmental Specifications

Specification	Test Conditions / Notes	Min	Nominal	Max	Units
Operating Temperature Range	No de-rating up to 50°C	-20	-	50	°C
Operating Temperature Range with De-rating	See de-rating curves and conditions in the Output Specifications section	-	-	70	°C
Storage Temperature		-40	-	85	°C
Humidity	RH, Non-condensing Operating. Non-operating	-	-	90 95	% %
Operating Altitude	MoPP (100 – 250 V _{AC} , 50/60 Hz) MoPP (100 – 277 V _{AC} , 50/60 Hz) MoOP, ITE grade Power de-rating above 1800 m	- - -	- - -	4000 3000 5000	m
Shock	EN 60068-2-27 Operating: Half sine, 30 g, 18 ms, 3 axes, 6x each (3 positive and 3 negative). Non-Operating: Half sine, 50 g, 11 ms, 3 axes, 6x each (3 positive and 3 negative).				
Vibration	EN 60068-2-64 Operating: Sine, 10 – 500 Hz, 1 g, 3 axes, 1 oct/min., 60 min. Random, 5 – 500 Hz, 0.02 g ² /Hz, 1 gRMS, 3 axes, 30 min. Non-Operating: 5 – 500 Hz, 2.46 gRMS (0.0122 g ² /Hz), 3 axes, 30 min.				
MTBF	Full Load, 40 °C ambient 80% Duty cycle, Telcordia SR-332 Issue 2	300.00.00	-	-	Hours
Useful Life	Worst nominal V _{IN} , 80% load, 40 °C ambient.	-	4	-	Years

Electromagnetic Compatibility (EMC) – Emissions

Phenomenon	Conditions / Notes	Standard	Equipment/Performance Class
Conducted	115, 230, 277 V _{RMS} . Maximum load.	EN 55032 (ITE) EN 55011 (ISM) EN 60601-1-2 (Medical) FCC Part 15	B
Radiated	At 10 m distance	EN 55032 (ITE) EN 55011 (ISM) EN 60601-1-2 (Medical) FCC Part 15	B6
Line Voltage Fluctuation and Flicker	At 20%, 50% and 100% maximum load. Nominal input voltages	EN 61000-3-3	
Harmonic Current Emission	230 V _{AC} input voltage, 50 / 60 Hz	EN 61000-3-2	A, D
	230 V _{AC} 50 / 60 Hz, >150 W load	EN 61000-3-2	C

Electromagnetic Compatibility (EMC) – Immunity

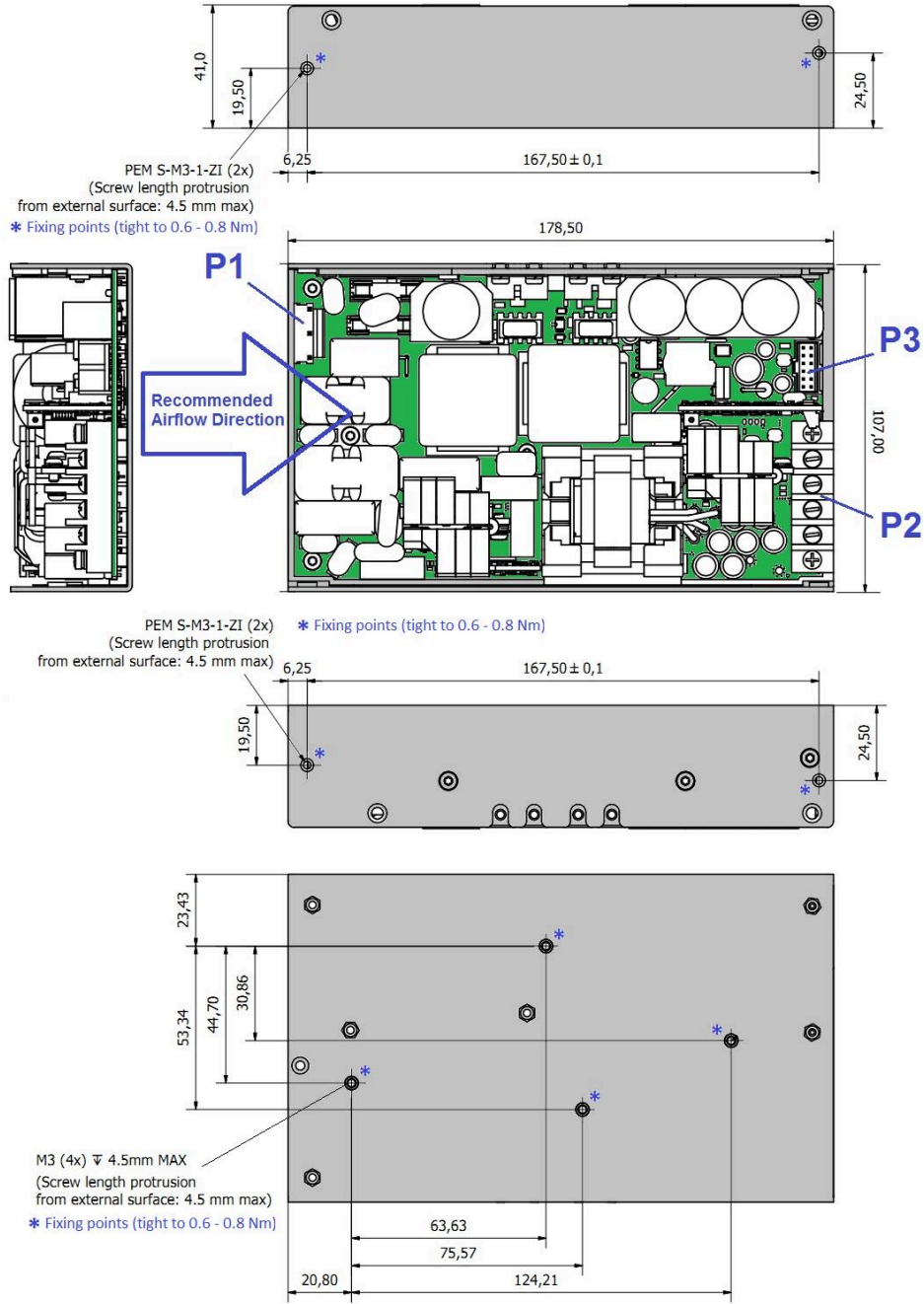
Phenomenon	Conditions / Notes	Standard	Test Level	Criteria
	Reference standard for the medical version Reference standards for ITE Reference standard for Industrial/IMS equipment	EN 60601-1-2, 4th edition EN 55024 EN 61000-6-2		
ESD	15 kV air discharge, 8 kV contact, at any point of the system.	EN 61000-4-2	4	A
Radiated Field	10 V/m, 80-1000 MHz, 1 KHz/2 Hz 80% AM. Dwell time is 3 sec for 2 Hz modulation Dwell time is 1 sec for 1KHz modulation	EN 61000-4-3	3	A
Electric Fast Transient	±2 kV on AC power port for 1 minute	EN 61000-4-4	3	A
Surge	±2 kV line to line; ± 4 kV line to earth on AC power port	EN 61000-4-5	4	A
Conducted RF Immunity	10 V _{RMS} , 0,15-80 MHz, 1 kHz/2 Hz 80% AM	EN 61000-4-6	3	A
Dips and Interruptions	200 – 277 V_{AC}:			
	Drop-out to 0% for 10 ms	EN61000-4-11		A
	Dip to 40% for 5 cycles (100 ms)	EN61000-4-11		A
	Dip to 70% for 25 cycles (500 ms)	EN61000-4-11		A
	Drop-out to 0% for 5 s	EN61000-4-11		B
	100 – 127 V_{AC}:			
	Drop-out to 0% for 10 ms	EN 61000-4-11		A
	Dip to 40% for 5 cycles (100 ms)	EN 61000-4-11		A (de-rate to 150 W)
Dip to 70% for 25 cycles (500 ms)	EN 61000-4-11		A (de-rate to 400 W)	
Drop-out to 0% for 5 s	EN 61000-4-11		B	

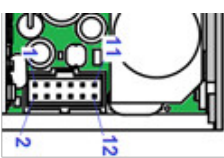
Safety Agencies Approvals

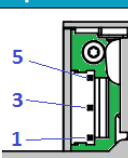

Certification Body	Safety Standards and file numbers	Category
CSA/UL	CSA C22.2 No. 60950-1, UL 60950-1 and UL 62368-1	Audio Video and Information Technology Equipment
	CSA C22.2 No.60601-1, ANSI/AAMI ES60601-1 3rd edition + A1 Including Risk Management Assessment	Medical
	UL8750, CSA C22.2 No 250.13	Lighting
IEC IECCE CB Certification	IEC/EN 60950-1 and IEC/EN 62368-1	Audio Video and Information Technology Equipment
	IEC/EN 60601-1 3rd edition+A1 Including Risk Management Assessment	Medical
CE	Directive 2014/35/EU: Electrical Safety: Low Voltage electrical equipment (LVD)	Audio Video and Information Technology Equipment
	Directive 93/42/CEE: Safety Requirement of the Medical Device	Medical
	Directive 2014/30/EU: Electromagnetic Compatibility (EMC)	
	Directive EU 2015/863: RoHS 3	
Designed to meet IEC/EN/UL/CSA 61010-1 2nd edition		

Outline Drawing and Connections

OVERALL DIMENSIONS: 107.0 x 178.5 x 41.0 mm (4.21 x 7.03 x 1.61 in)
WEIGHT: 820 g (1.8 lb)

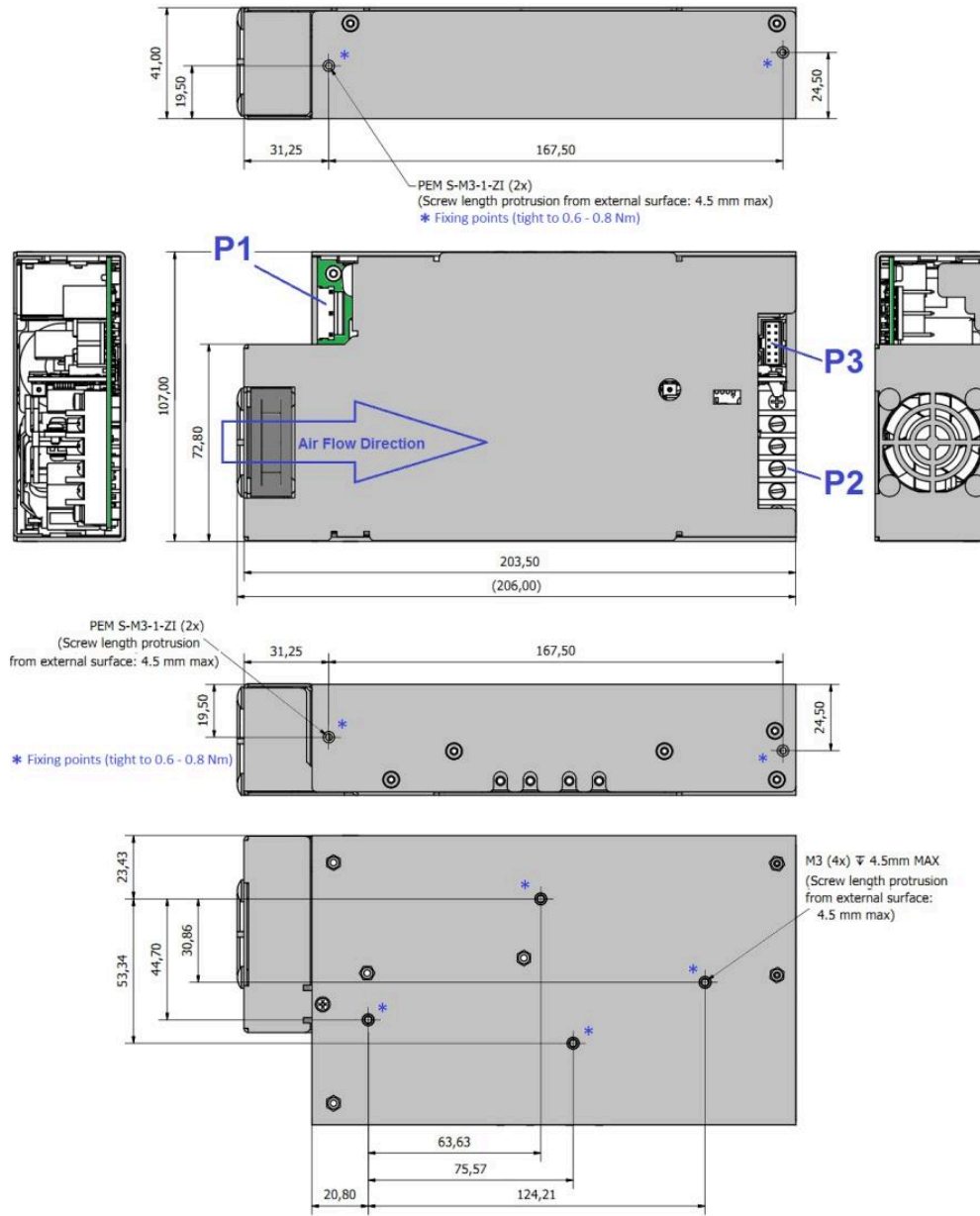


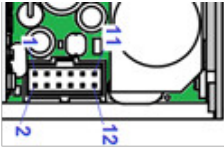
Signals Connector - P3																											
Molex 90130-1112 Mates with Molex 90142-0012 (housing) Molex 90119-0109 (terminal) Use 22-24 AWG wires 	<table border="1"> <thead> <tr> <th>Pin Ref.</th> <th>Function</th> </tr> </thead> <tbody> <tr><td>1</td><td>RTN</td></tr> <tr><td>2</td><td>-V2</td></tr> <tr><td>3</td><td>+5V_{SB}</td></tr> <tr><td>4</td><td></td></tr> <tr><td>5</td><td>RS-</td></tr> <tr><td>6</td><td>RS+</td></tr> <tr><td>7</td><td>+PS_Inhibit</td></tr> <tr><td>8</td><td>I-Share</td></tr> <tr><td>9</td><td>P_OK</td></tr> <tr><td>10</td><td>VS_Logic</td></tr> <tr><td>11</td><td>-PS_Inhibit</td></tr> <tr><td>12</td><td>RTN</td></tr> </tbody> </table>	Pin Ref.	Function	1	RTN	2	-V2	3	+5V _{SB}	4		5	RS-	6	RS+	7	+PS_Inhibit	8	I-Share	9	P_OK	10	VS_Logic	11	-PS_Inhibit	12	RTN
	Pin Ref.	Function																									
	1	RTN																									
	2	-V2																									
	3	+5V _{SB}																									
	4																										
	5	RS-																									
	6	RS+																									
	7	+PS_Inhibit																									
	8	I-Share																									
	9	P_OK																									
	10	VS_Logic																									
11	-PS_Inhibit																										
12	RTN																										

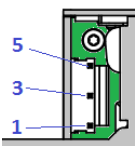

AC Input Connector - P1									
Molex 26-62-4051 Mates with Molex 09-93-0500 (housing) Molex 08-52-0071 (terminal phosphor bronze, tin finishing) Use 18 AWG minimum wires 	<table border="1"> <thead> <tr> <th>Pin ref.</th> <th>Function</th> </tr> </thead> <tbody> <tr><td>1</td><td>L1</td></tr> <tr><td>3</td><td>L</td></tr> <tr><td>5</td><td>PE</td></tr> </tbody> </table>	Pin ref.	Function	1	L1	3	L	5	PE
	Pin ref.	Function							
	1	L1							
3	L								
5	PE								
DC Output Connector - P2									
KARSON 520-041-2-1-00 or equivalent (tight to 0.8-1.0 Nm) 	<table border="1"> <thead> <tr> <th>Pin Ref.</th> <th>Function</th> </tr> </thead> <tbody> <tr><td>1 - 2</td><td></td></tr> <tr><td>3 - 4</td><td>V1 RTN</td></tr> </tbody> </table>	Pin Ref.	Function	1 - 2		3 - 4	V1 RTN		
	Pin Ref.	Function							
1 - 2									
3 - 4	V1 RTN								

Outline Drawing and Connections

OVERALL DIMENSIONS: 107.0 x 206.0 x 41.0 mm (4.21 x 8.11 x 1.61 in)
WEIGHT: 1055 g (2.32 lb)



Signals Connector - P3																											
Molex 90130-1112 Mates with Molex 90142-0012 (housing) Molex 90119-0109 (terminal) Use 22-24 AWG wires 	<table border="1"> <thead> <tr> <th>Pin Ref.</th> <th>Function</th> </tr> </thead> <tbody> <tr><td>1</td><td>RTN</td></tr> <tr><td>2</td><td>-V2</td></tr> <tr><td>3</td><td>+5V_{SB}</td></tr> <tr><td>4</td><td>+V2</td></tr> <tr><td>5</td><td>RS-</td></tr> <tr><td>6</td><td>RS+</td></tr> <tr><td>7</td><td>+PS_Inhibit</td></tr> <tr><td>8</td><td>I-Share</td></tr> <tr><td>9</td><td>P_OK</td></tr> <tr><td>10</td><td>VS_Logic</td></tr> <tr><td>11</td><td>-PS_Inhibit</td></tr> <tr><td>12</td><td>RTN</td></tr> </tbody> </table>	Pin Ref.	Function	1	RTN	2	-V2	3	+5V _{SB}	4	+V2	5	RS-	6	RS+	7	+PS_Inhibit	8	I-Share	9	P_OK	10	VS_Logic	11	-PS_Inhibit	12	RTN
	Pin Ref.	Function																									
	1	RTN																									
	2	-V2																									
	3	+5V _{SB}																									
	4	+V2																									
	5	RS-																									
	6	RS+																									
	7	+PS_Inhibit																									
	8	I-Share																									
	9	P_OK																									
	10	VS_Logic																									
11	-PS_Inhibit																										
12	RTN																										

AC Input Connector - P1									
Molex 26-62-4051 Mates with Molex 09-93-0500 (housing) Molex 08-52-0071 (terminal phosphor bronze, tin finishing) Use 18 AWG minimum wire 	<table border="1"> <thead> <tr> <th>Pin ref.</th> <th>Function</th> </tr> </thead> <tbody> <tr><td>1</td><td>L1</td></tr> <tr><td>3</td><td>L</td></tr> <tr><td>5</td><td>PE</td></tr> </tbody> </table>	Pin ref.	Function	1	L1	3	L	5	PE
	Pin ref.	Function							
	1	L1							
3	L								
5	PE								
DC Output Connector - P2									
KARSON 520-041-2-1-00 or equivalent (tight to 0.8-1.0 Nm) 	<table border="1"> <thead> <tr> <th>Pin Ref.</th> <th>Function</th> </tr> </thead> <tbody> <tr><td>1 - 2</td><td>+V1</td></tr> <tr><td>3 - 4</td><td>V1 RTN</td></tr> </tbody> </table>	Pin Ref.	Function	1 - 2	+V1	3 - 4	V1 RTN		
	Pin Ref.	Function							
1 - 2	+V1								
3 - 4	V1 RTN								

Specifications appearing in Inission's catalogues and brochures as well as any oral statements are not binding. All descriptions, drawings and other particulars (including dimensions, materials and performance data) given by Inission are as accurate as possible but, being given for general information, and are not binding on Inission. Inission makes thus no representation or warranty as to the accuracy of such material. We assume no liability other than as agreed in the terms of the individual contracts and we reserve the right to make technical modifications in the

course of our product development. Our product information solely describes our goods and services and is in no way to be construed or interpreted as a quality or condition guarantee. The aforesaid shall not relieve the customer of its obligation to verify the suitability of our Products for the use or application intended by the purchaser. Customers are responsible for their products and applications. Inission assumes no liability from the use of its products outside of specifications. No license is granted to any intellectual property rights by this document.