MDP1200 UC/PC Free Air Series

Main Features

- Universal input voltage range, 85 – 305 V_{AC}, MoOP; 85 – 264 V_{AC}, MoPP
- Input inrush current limiting
- 750 W rated power (900 W peak for <10 s)
- High efficiency up to 94%
- Single 24 and 48 V_{DC} output voltage available
- Active PFC, EN61000-3-2 compliant (Class C, >25% load)
- Low earth / touch leakage current
- Over temperature, OV, OC and SC protections
- +12 V, 0.3 A; +5 V, 0.72 A Stand by outputs
- Built-in current sharing and OR-ing for parallel operation and N+1 redundancy
- Remote On / Off signal
- Power good and remote sense signals
- All packages fit 1U applications (1.6" profile)
- Medical safety approval to IEC 60601-1 3rd edition, 2x MoPP rated and BF appliances compatible
- IEC 60601-1-2 4th edition EMC compliant
- RoHS 3 compliant (Directive EU 2015/863)
- Up to 4000 m altitude operation (MoPP)
- PMBus™ digital power-management protocol supported

BF APPLIANCES COMPATIBLE

Description

The medical grade MDP1200 UC and PC series of AC-DC power supplies offer increased embedded power in two (2) compact 1U compatible packages, high energy efficiency and wide versatility being optimised for free-air cooling environment.

The series provides a steady 750 W of regulated DC power through 180-305 V_{AC} and 600 W through 85-137 V_{AC} input voltage ranges in a single output of 24 or 48 V_{DC}.

The MDP1200 series come in a U-shaped 1.6" high package (UC) and a variant providing protective vented cage on both AC and DC sides (PC), to facilitate system integration.

By converting AC power at a 94% typical efficiency rate, the MDP1200 series generates very little heat allowing for optimal thermal management.

The series offers a 12 V_{DC}, 0.3 A and a 5 V_{DC}, 0.7 A stand-by outputs and the full set of protection features including 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 MDP1200 UC and PC series supports digital power management over the PMBus™ communications protocol enabling interoperation with and easy integration into a system. In addition, analogue control signals include Power Good (P_OK), Remote On / Off (+/-PS_Inhibit) and Sense terminals (RS^+, RS^-).

Multiple MDP1200 units may be used in parallel mode for redundancy and / or higher power, made possible with the internal OR-ing and current sharing functions.

Being the series conceived and optimised to be operated at free-air cooling environment, therefore without any fan, it is particularly suitable for those environment sensitive to acoustical noise.

The MDP1200 Free Air series complies with the 3rd edition of the IEC60601-1 and ANSI/AAMI ES/EN 60601-1 safety standards for medical equipment requiring 2x MoPP protection grade. It is suitable for BF rated medical equipment under specific conditions.

The MDP1200 Free Air series meets the EN 60601-1-2 EMC limits of Class B for conducted and radiated emissions as well as the IEC/EN61000-3 for flicker and harmonics content. It also meets the IEC 60601-1-2 4th edition for EM immunity.

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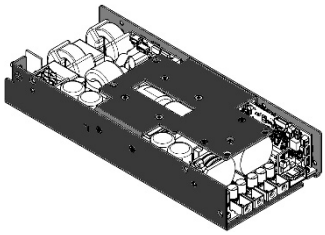
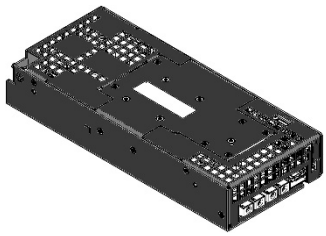
Market Segments and Applications

- X-Ray / CT Scanner
- Dental Equipment
- Laboratory / Analysis Equipment
- Medical Devices / Applications

Model Coding and Output Ratings

Model Code	Output Voltages	Packages and Cooling	
Medical Grade: **MDP1200**	*24 VDC:* **-US24-** *48 VDC:* **-US48-**	 *U-Chassis* *Natural Convection Cooling:* **-UC**	 *U-Chassis + Protective Cages* *Natural Convection Cooling:* **-PC**

Output Parameter	24 V		48 V	
	180-305 V_{AC} 163-300 V_{DC}	85-137 V_{AC} 120-163 V_{DC}	180-305 V_{AC} 163-300 V_{DC}	85-137 V_{AC} 120-163 V_{DC}
V1 Nom Voltage	24 V_{DC}		48 V_{DC}	
V1 Adjust Range	±5% V_{NOM}			
V1 Rated Power	750 W	600 W	750 W	600 W
V1 Rated Current	31.2 A	25 A	15.6 A	12.5 A
V1 Line Regulation	±0.1%			
V1 Load Line Cross Regulation	±2%			
V1 Ripple & Noise	1 % Peak-to-peak			
V1 Transient response	±5 %V1 to 25 % load change at 1 A/µs			
V1 Over Current Protection	<46.8 A		<23.4 A	
V1 Over Voltage protection	116 % V_{NOM} < V_{OUT} < 145 % V_{NOM}			
V1 Max Out Capacitance	16000 µF		8000 µF	
12 V_{SB} Nominal Voltage	12 V_{DC} (stand-by output voltage is referred to the same V1 output voltage return)			
12 V_{SB} Rated Current	0.3 A (maximum +12 V_{SB} and +5 V_{SB} combined output power is 3.6 W)			
12 V_{SB} Ripple & Noise	120 mV Peak-to-peak			
12 V_{SB} Line Cross Regulation	±5 %			
5 V_{SB} Nominal Voltage	5 V_{DC} (stand-by output voltage is referred to the same V1 output voltage return)			
5 V_{SB} Rated Current	0.72 A (maximum +12 V_{SB} and +5 V_{SB} combined output power is 3.6 W)			
5 V_{SB} Ripple & Noise	50 mV Peak-to-peak			
5 V_{SB} Load, line cross Regulation	±5 %			

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Input Specifications

Specification	Test Conditions / Notes		Min.	Nominal	Max.	Units
AC Input Voltage	PS starts at 85 V_{AC} at all load conditions Operating input voltage range MDP1200 is designed to operate with a square or trapezoidal input voltage wave form (i.e. from UPS)		85	100-277	305	V_{RMS}
DC Input Voltage	Built in fuses has been safety certified up to 250V_{DC}. Operating the MDP1200 above that limit up to 300 V_{DC}, does require an external fuse protection. (*)		120	-	300	V_{DC}
Input Frequency			47	50/60	63	Hz
Input Current	At 180 V_{AC}, 750 W, 50 / 60 Hz At 85 V_{AC}, 600 W load, 50 / 60 Hz 163 V_{DC}, 750W 120 V_{DC}, 600 W		-	-	5.0 8.7 5.6 6.0	A_{RMS} A
Inrush Current (peak)	At power-on asserted Cold start, 25 °C ambient, full load Any point of the AC input sine	230 V_{AC} 277 V_{AC}	- -	- -	30 50	A
Fusing (*)	High breaking, 16 / 20 A, 277 V_{AC} (250 V_{DC}) on each AC lines.		-	-	16 / 20	A
Efficiency	**24, 48V variants:** At 120 V_{AC}, 20% rated load 50% rated load 100% rated load At 230 V_{AC}, 20% rated load 50% rated load 100% rated load		85 92 92 87 93 94	- - - - - -	- - - - - -	%
Input Power Consumption	At power on, no load, 100-277 V_{AC} range UC/PC Stand by, no load, nominal 100-277 V_{AC} range		- -	6.0 3.5	- - -	W
Power Factor	Any nominal input line voltage, 50/60 Hz, from 50 to 100% maximum load		0.95	-	-	-
THDi	From 50 to 100% rated load, 100-277 V_{AC}, 50/60 Hz.		-	-	20	%
Harmonic Current Fluctuations and Flicker	Complies with EN 61000-3-2 at 230 V_{AC}, 50/60 Hz, Class A, D. Complies with EN 61000-3-2 Class C at 230 V_{AC}, 50/60 Hz, >300 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)		- - -	170 300 -	- - 450	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

(*) Suggested fuse SIBA 5012434.16 and fuse holder SIBA 5105805.1

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 6% load.	-	24 48	-	V
V1 Output Power Rating	UC, PC variants at 180-305 V_{AC} UC, PC variants at 85 – 137 V_{AC} Peak, <10 s, after P_Ok asserted high			750 600 900	W
$12V_{SB}$ Output Voltage		-	12	-	V
$12V_{SB}$ Output Current	UC and PC packages up to 70 °C	-	-	0.3	A
$5V_{SB}$ Output Voltage		-	5	-	V
$5V_{SB}$ Output Current	UC and PC packages up to 70 °C	-	-	0.72	A
V1 Voltage Adjustment Range	Manually by push up and down buttons	-	-	±5	%V1
V1 Load-Line-Cross Regulation	V_{AC}: 85 – 305 V_{RMS}; I1: 0 – 100%	-	-	±2	%V1
$5V_{SB}$, $12V_{SB}$ Load-Line-Cross regulation	V_{AC}: 85 – 305 V_{RMS}; I_{SB}: 0 – 100%	-	-	±5	%V_{SB}
V1 Line Regulation	V_{AC}: 85 – 305 V_{RMS}	-	-	±0.1	%V1
Transient Response: V1, $12V_{SB}$, $5V_{SB}$ Voltage Deviation	25% load changes at 1 A/µs 24 V_{DC} at 1000 µF load / I_{OUT}> 2.5 A 48 V_{DC} at 560 µF load / I_{OUT}> 1.25 A 12 V_{SB}, 5 V_{SB} at 0-2200 µF load	-	-	±5	%V1 %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	-	150	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})	- - -	- - -	1700 2200 500	ms
Turn-on Overshoot		- -	- -	10 10	%V1 %V_{SB}
V1 Hold-up Time	At nominal V_{IN}, full load SEMI F47-0706 compliant at ≥208 V_{AC} 50 % sag (104 V) 30 % sag (145 V) 20 % sag (166 V)	10 200 500 1000	- - - -	- - - -	ms
Minimum Load	V1, 12 V_{SB}, 5 V_{SB}	0	-	-	A
Maximum Load Capacitance	V1: 24 V_{DC} V1: 48 V_{DC}	- -	- -	16000 8000	µF
V1 Current Sharing Accuracy	Parallel operation up to four units. Two units in parallel at I1 rated load. I-Share signals connected together. RS^+, RS^- signals connected together and to the load. Max load at start up 750 W, operating 1250 W, 180÷305 V_{AC} Max load at start up 600 W, operating 1000 W, 85÷137 V_{AC}	40	-	60	%I1
V1 Remote Sense	RS^+ and RS^- power path voltage loss compensation	-	-	0.36	V

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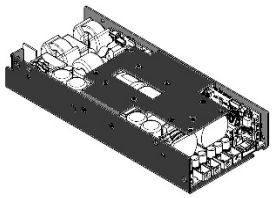
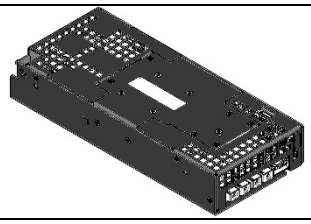
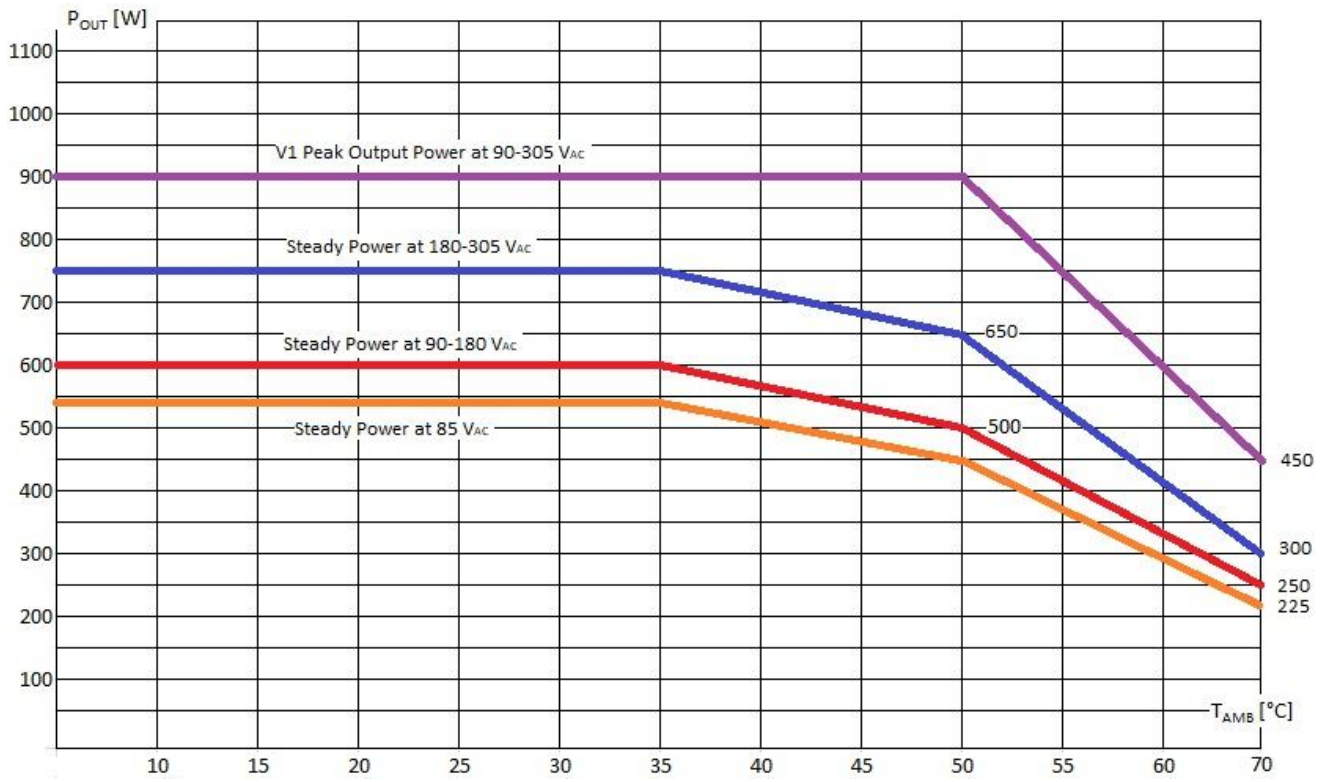
Output Power De-Rating Curves

U-Chassis Natural convection cooling **(UC)** Horizontal mounting		U-Chassis and Protective Cover Natural convection cooling **(PC)** Horizontal mounting	

V1 P_{OUT} to T_{AMB}



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PMBus

The MDP1200 does support communication according the PMBus 1.2 protocol via SDA, SCL and #SMBALERT signals as defined in the SMBus Specification version 2.0.
The power supply shall not load the SMBus if it has no input power (SCL & SDA lines should go to High-Z).
The pull-up resistors (2.2 kΩ) for these signals shall be external to the power supply and referenced to an external +3.3V bus voltage.
The DSP circuits inside the power supply are powered by the standby output.
The PMBus is active whatever input power is applied to the power supply or a parallel redundant power supply in the system, provided that their $12V_{SB}$ are connected in parallel.
Maximum speed of SMBus is 100 kHz.
The ADDR0 and ADDR1 signals, are inputs to the power supply that control the PMBus address assigned to the power supply.
On the system side, the ADDR0 and ADDR1 signals will either be connected to return through a 1 kΩ pull-down resistor or connected to +3.3V external bus voltage through a 1 kΩ pull-up resistor.
The address shall be derived from the logic of this pin as indicated on Outline Drawing and Connections section.
The power supply is a slave only on SMBus device.

For a comprehensive description of MDP1200 PMBus management, do refer to the application note, “AN_MDP-DDP1200 PMBus Mgt_Rev00”. Examples of MDP1200 parameters available through communication bus are:

- Input voltage status
- Output voltages +V1 measured value
- Output current on +V1 measured value
- Current sharing status
- Thermal health measured value
- Power-On / Working hours
- Product information
- Status information

Failures shall be reported by PMBus for all failure types:

- Protections failure (OV, OC, OT)
- Voltages out of specification.

Base Signals / Controls (Accessible From Signal Connector P204)

Signal	Notes	Min	Typ.	Max	Unit
+PS_Inhibit (Active High)	Input low voltage (I_{IN}= 0 µA) Input high voltage (I_{IN}= 500 µA at 5.5 V) V1 disabled when PS_Inhibit is pulled high V1 enabled when PS_Inhibit is floating or low $5V_{SB}$ and $12V_{SB}$ not affected by PS_Inhibit	0 2.5	- -	0.8 5.5	V
-PS_Inhibit (Active Low)	Input low voltage (I_{IN}= -800 µA at 0 V) Input high voltage (I_{IN}= -200 µA at 2.5 V) (I_{IN}= 700 µA at 5.5 V) V1 disabled when -PS_Inhibit is pulled low V1 enabled when -PS_Inhibit is floating or high $5V_{SB}$ and $12V_{SB}$ not affected by -PS_Inhibit	0 2.5	- -	0.8 5.5	V
Power_OK (*) (PS_OK)	Logic level low (<10 mA sinking) Logic level high (200 µA sourcing) Low to high time after V1 in regulation Power down warning time	- 2.4 150 2	- - - -	0.7 3.45 350 -	V ms
I_Share	The I_SHARE signals shall be daisy chained among power supplies operating in parallel. On a single power supply operating it provides current measurement on V1 output. On multiple power supplies operating in parallel, it provides current measurement on master V1output.				
SDA, SCL, #SMBALERT, ADDR0, ADDR1	These are signals which support PMBus communication protocol as specified in the application note AN_MDP-DDP1200 PMBus Mgt_Rev00.				
RSVD RX, RSVD TX	Mainly intended for internal Efore use, these RX and TX signals - available at the output signal connector P204 - may be used to access some DSP functions (monitoring, threshold settings, debug functions). These signals work as an UART Rx/Tx port and can also work as a RS-232 Rx/Tx port by building in the "RS-232 LINE DRIVERS/RECEIVERS" IC				
$5V_{SB}$ Output (**)	Active and in regulation after an 85<V_{AC}<305 is applied Not affected by PS_Inhibit. Available on P204, pin#4	-	-	500	ms
$12V_{SB}$ Output (***)	Active and in regulation after an 85<V_{AC}<305 is applied Not affected by PS_Inhibit. Available on P204, pin#16	-	-	500	ms

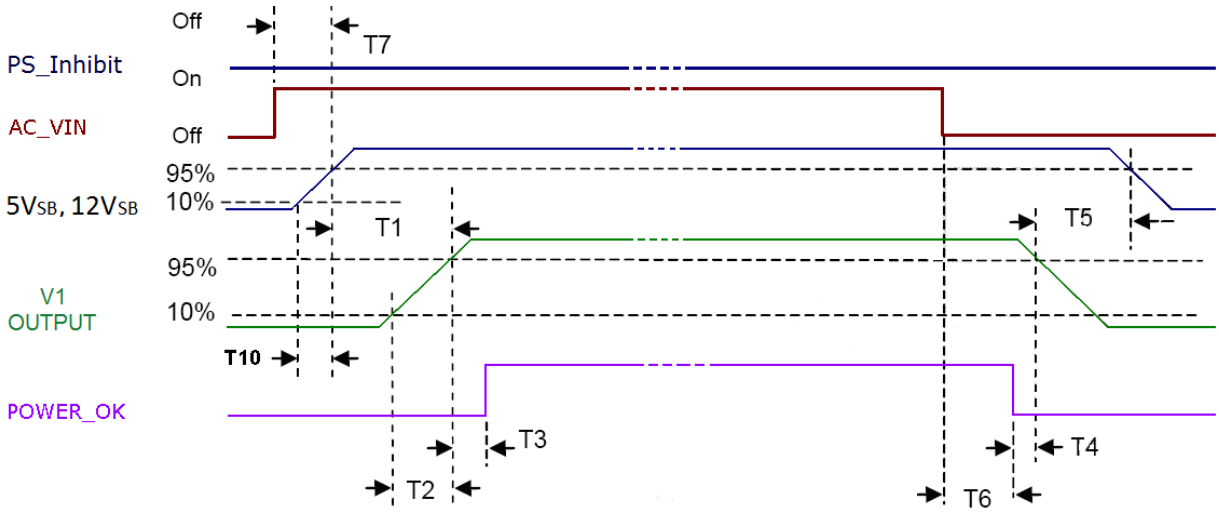
(*) When V1 is On, a P_OK low may indicates V1 under voltage condition. When two MDP1200 operate in parallel, P_OK low in one unit indicates that it is not sharing the expected amount of current (current sharing fault). A 3.3 kΩ internal pull up to a 3.3 V internal reference voltage is used; do not add any other external pull up.

(**) The $5V_{SB}$ outputs of two or more MDP1200s operating in parallel, cannot be connected in parallel in turn, since doing so results in power supplies damage.

(***) The $12V_{SB}$ outputs of two or more MDP1200s operating in parallel can be connected in parallel in turn, taking into account that the maximum available power will not be higher of a single operating power supply one.

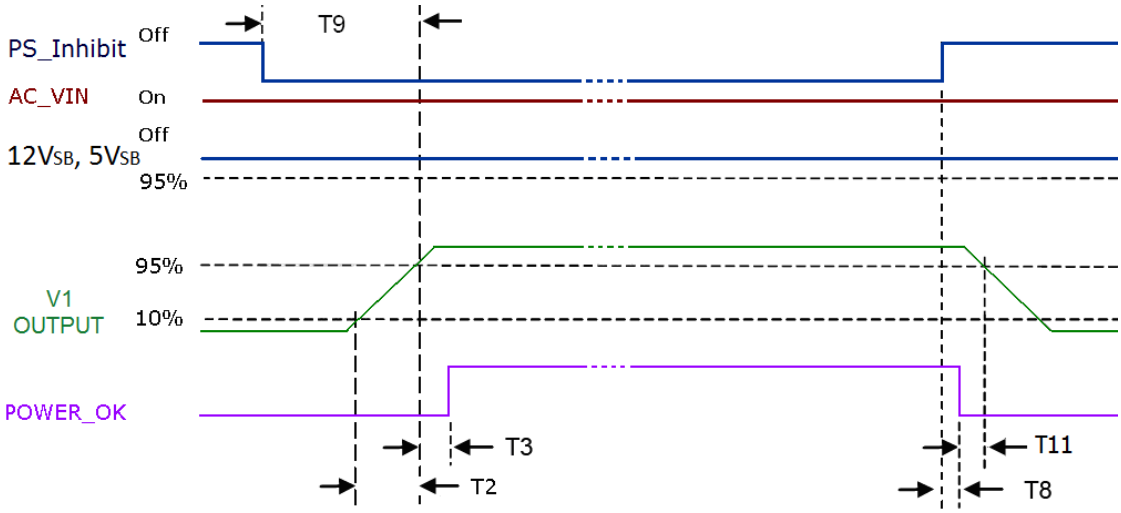
Base Signals / Controls Timing

AC/DC input Off-to-On and On-to-Off timings:



$12V_{SB}/5V_{SB}$ On to V1 On	250 ms ≤ T1 ≤ 1700 ms
V1 rise time	10 ms ≤ T2 ≤ 150 ms
$12V_{SB}/5V_{SB}$ rise time	3 ms ≤ T10 ≤ 150 ms
V1 On – POWER_OK delay	150 ms ≤ T3 ≤ 350 ms
Power down warning	T4 ≥ 2 ms
V1 Off to $12V_{SB}/5V_{SB}$ Off	T5 ≥ 0.5 s (V1 load > 25 W)
AC Off to POWER_OK low	T6 ≥ 8 ms
AC_On to $12V_{SB}/5V_{SB}$ On	T7 ≤ 500 ms

PS_Inhibit Off-to-On and On-to-Off timings:



V1 rise time	10 ms ≤ T2 ≤ 150 ms
V1 On – POWER_OK delay	150 ms ≤ T3 ≤ 350 ms
Turn-Off_warning	T11≥1 ms
PS_Inhibit – POWER_OK low delay	T8 ≤ 3 ms
PS_Inhibit – V1 On delay	T9 ≤ 1700 ms

Protection Features

Specification	Test Conditions / Notes	Min.	Nominal	Max.	Units
Input Under Voltage	Auto-recovering, hiccup mode.	58	75	82	V_{AC}
Input Fuse	High breaking, 16 / 20 A, 277 V_{AC} (250 V_{DC}) on each AC lines.	-	-	16/20	A
Over Current	At nominal input voltages V1: Hiccup mode, auto-recovering 5 V_{SB}: Auto-recovering 12 V_{SB}: Hiccup mode, auto-recovering	- - -	- - -	150 - -	$\%I1_{Rated}$ A A
Short Circuit	At nominal input voltages V1: Hiccup mode or latch 5 V_{SB}: Auto-recovery 12 V_{SB}: Hiccup mode, auto-recovering.	-	-	-	
Over Voltage	V1, Power shut down, latch off. 12 V_{SB}, Hiccup mode, auto-recovering.	116 -	- -	145 150	$\%V_{NOM}$
Over Temperature (ambient)	Hiccup mode, auto-recovering.	70	-	-	°C
Over Temperature (on secondary side)	Hiccup mode, auto-recovering.	-	-	-	°C
Isolation: Primary-to-Secondary	Reinforced	5660 4000	- -	- -	V_{DC} V_{AC}
Isolation: Input-to-Earth	Basic Production tested at 2642 V_{DC}	2642 1865	- -	- -	V_{DC} V_{AC}
Isolation: Output-to-Earth	Basic	1500	-	-	V_{AC}
Means Of Protection: Primary to secondary	2x MoPP (IEC 60601-1 3rd edition) at 90 – 264 V_{AC}, 50/60 Hz (120-300 V_{DC}) up to 4000 m 2x MoOP (IEC 60601-1 3rd edition) at 90 – 305 V_{AC}, 50/60 Hz (120-300 V_{DC}) up to 4000 m				
Means Of Protection: Input to Protection Earth	1x MoPP (IEC 60601-1 3rd edition) at 90 – 264 V_{AC}, 50/60 Hz (120-300 V_{DC}) up to 4000 m 1x MoOP (IEC 60601-1 3rd edition) at 90 – 305 V_{AC}, 50/60 Hz (120-300 V_{DC}) up to 4000 m				
Means Of Protection: Output to Protection Earth	1x MoPP (IEC 60601-1 3rd edition) at 100 – 250 V_{AC}, 50/60 Hz up to 4000 m				
Equipment Protection Class	Class I, compatible with BF (Body Floating) ME (Medical Equipment)				

Environmental Specifications

Specification	Test Conditions / Notes	Min	Nominal	Max	Units
Operating Temperature Range	No de-rating up to 35 °C See de-rating curves above MDP1200 starts at -40 °C upon warm up delay	-20	-	35	°C
Operating Temperature Range with De-rating	See de-rating curves and conditions in the Output Specifications section	-	-	70	°C
Storage Temperature **Transportation Temperature**	As per IEC/EN 60721-3-1 Class 1K4 As per IEC/EN 60721-3-2 Class 2K4	-40	-	85	°C
Humidity	RH, Non-condensing Operating. Non-operating	-	-	90 95	% %
Operating Altitude	MoPP (90 – 264 V_{AC}, 50/60 Hz, 120 – 300 V_{DC}) MoOP (90 – 305 V_{AC}, 50/60 Hz) Power de-rating above 1800 m	- -	- -	4000 4000	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 g_{RMS}, 3 axes, 30 min. Non-Operating: 5 – 500 Hz, 2.46 g_{RMS} (0.0122 g^2/Hz), 3 axes, 30 min.				
MTBF	Full load, 25 °C ambient, 100% duty cycle, Full load, 40 °C ambient, 75% duty cycle Telcordia SR-332 Issue 2	700.000 600.000	- -	- -	Hours
Useful Life	Nominal V_{IN}, 80% load, 40 °C ambient (IPC 9592)	-	3	-	Years

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Electromagnetic Compatibility (EMC) – Emissions

Phenomenon	Conditions / Notes	Standard	Equipment/Performance Class
Conducted	115, 230 V_{RMS}, Maximum load.	EN 60601-1-2 (Medical)	B
Radiated		EN 60601-1-2 (Medical)	B (*)
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, >300 W load	EN 61000-3-2	C

(*) Performance referred to the enclosed PC package with additional HF chokes on input, output power and signal cables. In any case, radiated emission relevant to both UC and PC package variants, should be assessed at system level.

Electromagnetic Compatibility (EMC) – Immunity

Phenomenon	Conditions / Notes	Standard	Test Level	Criteria
	Reference standard for the medical version	**EN 60601-1-2, 4th Edition**		
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, 20-2700 MHz, 1 KHz, 80% AM.	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, 80% AM	EN 61000-4-6	3	A
Dips and Interruptions	**200 – 264 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 (de-rate to 500 W)
	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 240 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

(**) Performance referred to 5VSB, 12VSB and V1 (PS_OK goes to low level after 8 ms as per timing described at page 8

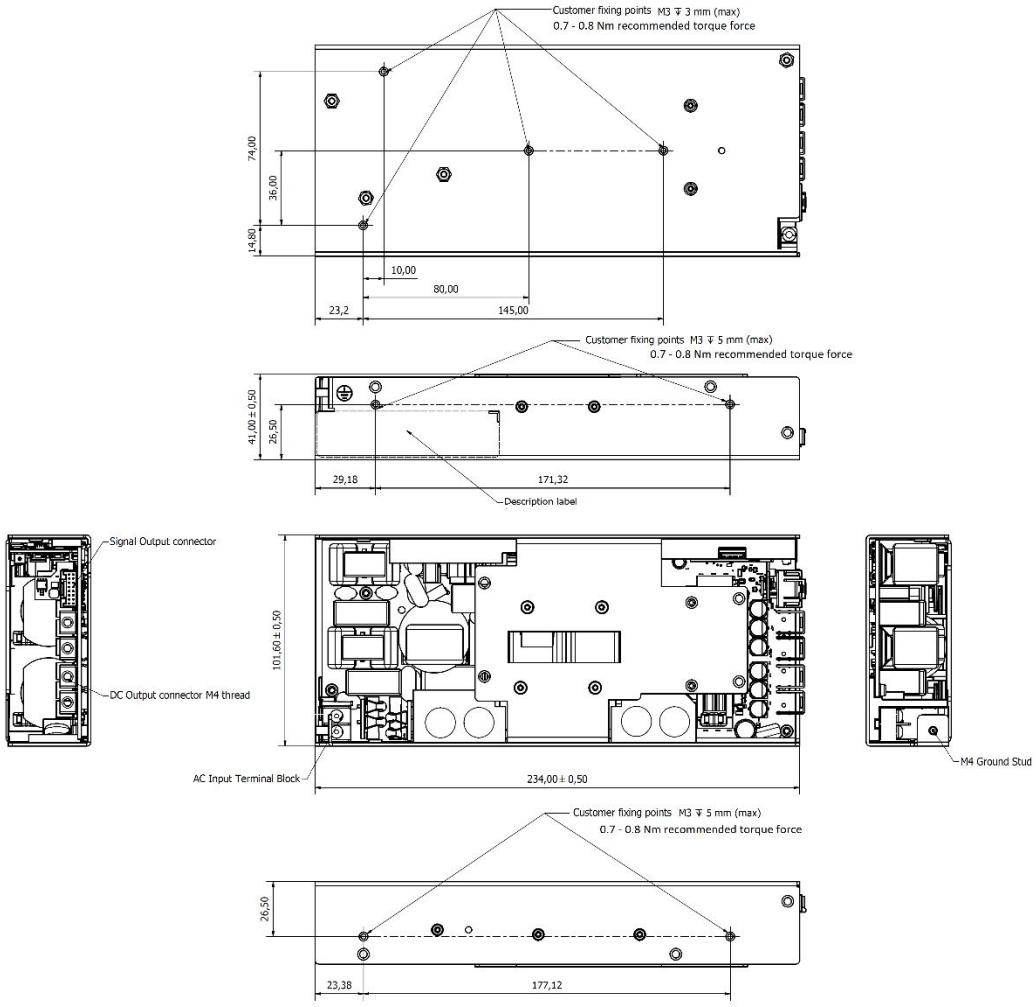
Safety Agencies Approvals

Certification Body	Safety Standards and file numbers	Category
CSA / UL	CSA C22.2 No.60601-1, ANSI/AAMI ES60601-1 3rd Edition + A1	Medical
IEC IECEE CB Certification	IEC/EN 60601-1 3rd edition+A1	Medical
CE	Directive 93/42/CEE: Safety Requirement of the Medical Device	Medical
	Directive 2014/30/EU: Electromagnetic Compatibility (EMC)	
	Directive EU 2015/863: RoHS 3	
	Meets all essential requiremets of the standard IEC/EN/UL/CSA 61010-1 2nd edition	

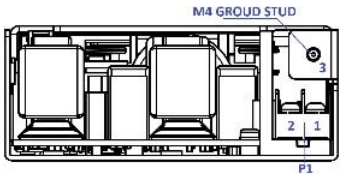
Outline Drawing and Connections – U-Chassis (-UC)

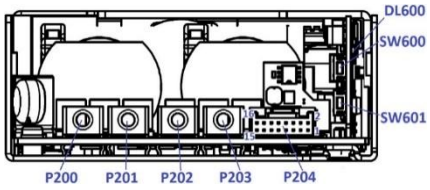
Overall dimensions: 101.6 x 234 x 41.0 mm (4.00 x 9.21 x 1.61 in)

Weight: 1087 g (2.40 lb)



AC INPUT CONNECTIONS	DC OUTPUT CONNECTIONS	SIGNAL CONNECTOR	ADDITIONAL CONTROL FUNCTIONS
P1: AMTEK TB25C-B02P-13-00A-L M4 GROUND STUD	**P200, P201, P202, P203:** BRASS M4 THREADED TERMINAL (tight to 0.8-1Nm, max deep screws 7 mm)	**P204:** MOLEX 501876-1640	**SW600, SW601, DL600:**





Ref.	Function
1	Line 1
2	Line 2
3	Protection Earth

Ref.	Function	
	24V Optional	24 / 48V
P200	+V1	+V1
P201	+V1	-
P202	V1 RTN	V1 RTN
P203	V1 RTN	-

Ref.	Function
1	RMT (-)
2	RMT (+)
3	I-SHARE
4	$+5V_{SB}$
5	PS_INHIBIT
6	PS_OK
7	SCL
8	SDA
9	#SMBALERT
10	ADDR0
11	-PS_INHIBIT
12	ADDR1
13	RSVD_RX (OUT)
14	RSVD_TX (OUT)
15	RTN
16	$+12V_{SB}$

Ref.	Function
SW600	V1_ADJ (UP)
SW601	V1_ADJ (DOWN)
DL600	Bi-colour LED
Off	No AC/DC input power provided
Blinking Green	Input power good, standby active, V1 inhibited
Steady Green	V1 Active
Steady or Blinking red	Power Supply Fault

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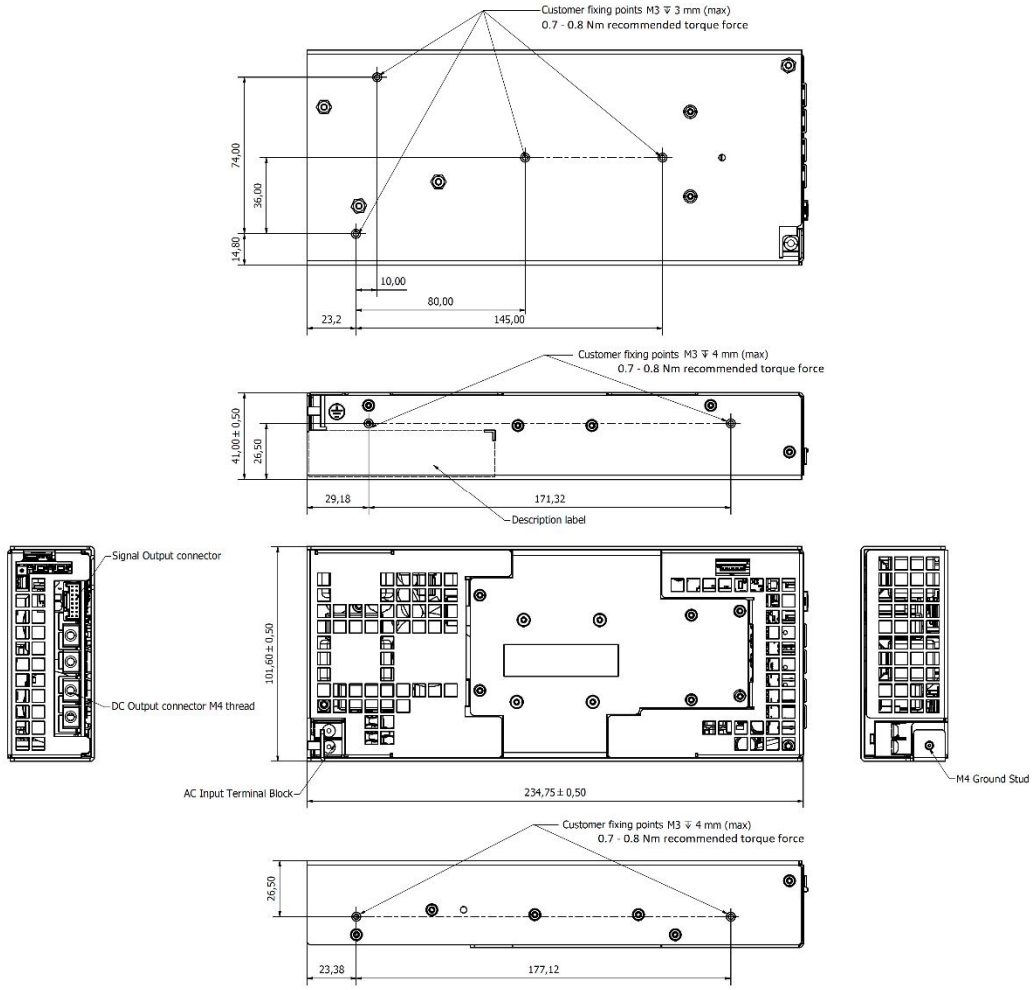
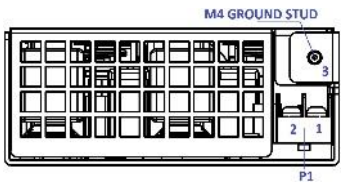
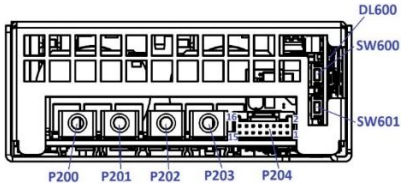
Outline Drawing and Connections –U-Chassis + Perforated Covers (-PC)

Overall dimensions: 101.6 x 234.7 x 41.0 mm (4.0 x 9.21 x 1.61 in)
Weight: 1125 g (2.48 lb)



AC INPUT CONNECTIONS	DC OUTPUT CONNECTIONS	SIGNAL CONNECTOR	ADDITIONAL CONTROL FUNCTIONS
P1: AMTEK TB25C-B02P-13-00A-L M4 GROUND STUD	**P200, P201, P202, P203:** BRASS M4 THREADED TERMINAL (tight to 0.8-1Nm, max deep screws 7 mm)	**P204:** MOLEX 501876-1640	**SW600, SW601, DL600:**





Ref.	Function
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Ref.	Function	
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P200	+V1	+V1
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Protection Earth Connection Instructions