

PR BX

POWERBOX Defense Line 600
DBB Series
600W
AC/DC Conduction Cooled

Description

The DBB, very compact and low profile 600W AC/DC power supply in chassis format, incorporates input filtering, input and output protections, very robust mechanical mounting and connection, conformal coating and MIL-STD options required in most of the severe environment for industrial, defense applications. The PSU provides high reliability, high efficiency, input-to-output isolation, soft start and active very low inrush circuit, overtemperature protection, input over/undervoltage lockout. The PSU is configurable with 1 to 3 outputs in many output voltages from 3V3 to 48VDC, other outputs are even possible as semi-standard versions, they are continuously short-circuit proof. The 100°C baseplate allows operation in high temperature environment.

Features

85-264 VAC input voltage ranges , PFC
1-3 isolated outputs
200*127* 40mm very low profile
Industrial or ruggedized versions
Active very low inrush current
Many output configurations are available
Conduction cooled 100°C baseplate
Safety IEC/EN 60950-1, RoHS lead-free-solder compliant

Input

Operating input voltage	85-264VAC. 100-350VDC.
Frequency	44Hz min, 50Hz typ, 440Hz max.
Power factor	0.96 typ, 0.98 max, 230VAC, 50Hz, Pnom.
Input current	16A at Vin min.
No-load input power	15W at Vin typ.
Peak inrush current	4A typ, 10A max at Vin max
Start-up time	2s typ, 5s max
Input fuse	A fuse mounted inside the psu protects against damages in case of a failure.
Fuse type	Littlefuse, 10A, 0451010.MRL.
Transient protection	Yes, automatic recovery.

Output

Parallel operation	Yes, active current sharing Parallel only identical outputs (voltage and power)
Redundant operation	Requires external oring diodes.
Hold-up time	See manual
Output current limitation	All outputs are protected against short circuit
Overvoltage protection	Incorporated on each output, latching.
Remote on/off	An isolated INHIB signal disable corresponding output voltage when connected to RTN.
Output voltage adjustment	90-110%Vnom.
Remote sense	V1, V2, total drop <0.5V, positive line drop <0.25V.
Powergood & LED	Each output, referenced to RTN, OK-closed.
Auxiliary bias voltage	Limited to 200mA.

Environmental

Operating ambient temp.	-20°C to +71°C, see derating (T-option -40°C).
Heatsink temperature	-20°C to +100°C (T-option -40°C).
Storage temperature	-40°C to +125°C.
Thermal considerations	Baseplate should not exceed 100°C.
Thermal protection	105°C +/-5°C baseplate, automatic recovery.



Damp heat	MIL STD 810F Proc. 507.4
Shock	MIL STD 810F Proc. 516.5
Vibrations	MIL STD 810F Proc. 514.5

General

MTBF	MIL-HDBK-217F, GB, 40°C baseplate, 285000h
Electric strenght	Input to earth 1500Vrms. Input to output 3000Vrms. Output to earth 500Vrms.
Insulation resistance	>100Mohms.
Dimensions	200 x 127 x 40mm.
Weight	Approx 1,02 kg.
Case	Aluminum natural.

Standards

Safety standards	Built to meet IEC60950-1.
EMC	
Surges	Built to meet EN61000-4-5, 1kV, Criteria B. 2kV, Criteria A.
Electrostatic discharge	Built to meet EN61000-4-2, 8000V, Critiera B.
Fast transients/burst	Built to meet EN61000-4-4, 4000V, Critiera B.
Harmonics	Built to meet EN61000-3-2.
Flickers	Built to meet EN61000-3-3. Built to meet EN61000-4-3, -6, -11.

Options

Description

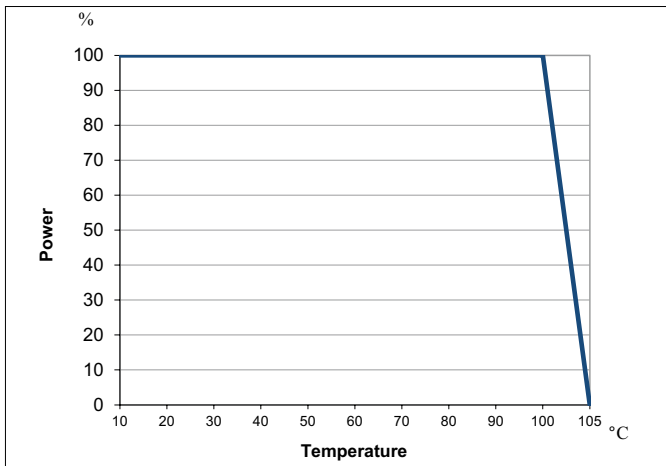
MIL-STD ruggedized (-M)	Meet MIL-STD 461E CE102, MIL-STD 1399-300A, MIL-STD810E shock & vibrations. No laboratory certification.
-40°C operation (-T)	The thermal grade of the DC/DC converters used and other components are changed to comply with low ambient temperature.
Conformal coating (-V)	During manufacturing process , when V option is specified, components and pcb are covered with an acrylic coating to address high level of ambient humidity application.
Heatsink (-H, -H1)	-H: a 15 mm heatsink is mounted on the baseplate with longitudinal fins. -H1: a 15 mm heatsink is mounted on the baseplate with transversal fins.
IP enclosure (-IP)	IP65 sealed enclosure.

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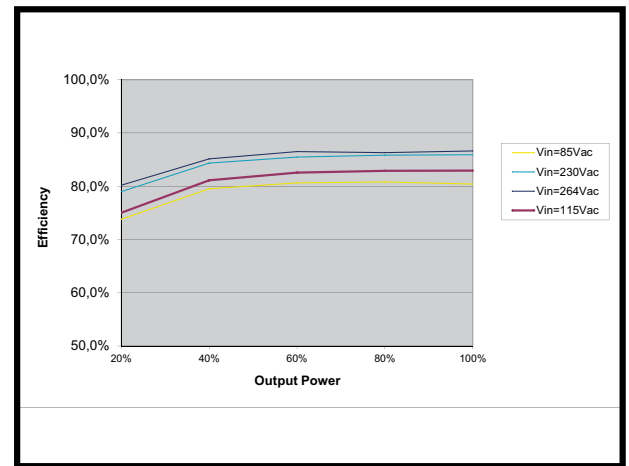
Output		3V3		5V		12V		15V		24V		28V		48V		Unit	
Characteristics	Conditions	min	typ	max	min	typ	max	min	typ	max	min	typ	max	min	typ	max	Unit
Output voltage		3V3		5		12		15		24		28		48		V	
Trim range	Factory set 3	3.6	4.5	5.5	10.8	13.2	13.5	16.5	21.6	26.2	25.2	30.8	43.2	51.8		V	
Overvoltage protection		4.5		6.5		14.9		18.5		29.1		34		58		V	
Output noise	20Mhz	100		100		150		150		150		150		200		mVpp	
Efficiency		75		83		85		84		85		83		84		%	
Load regulation	Vin nom	1		1		0.5		0.5		0.4		0.4		0.4		%	
M board		includes 1 M module below															
Output current		0	80	0	80	0	50	0	40	0	25	0	21.5	0	12.5	A	
Max power		264		400		600		600		600		600		600		W	
Output current limit		92	104	92	108	57.5	67.5	46	56	29	39	24	29	14	17	A	
m board		includes up to 2 m modules below															
Output current		0	45	0	40	0	25	0	20	0	12.5	0	10.7	0	6.25	A	
Max power		150		200		300		300		300		300		300		W	
Output current limit		54	64	46	52	29	35	23	26	14.5	17	12.5	14.5	7.2	8.2	A	
μ board		includes up to 3 μ modules below															
Output current		0	22.7	0	20	0	12.5	0	10	0	6.25	0	5.3	0	3.1	A	
Max power		75		100		150		150		150		150		150		W	
Output current limit		25	31	23	26	14.5	17	11	14	7.2	8.2	6.2	7	3.6	4.4	A	

General conditions: 25°C ambient. For each output voltage max. power configuration.

Derating Curve

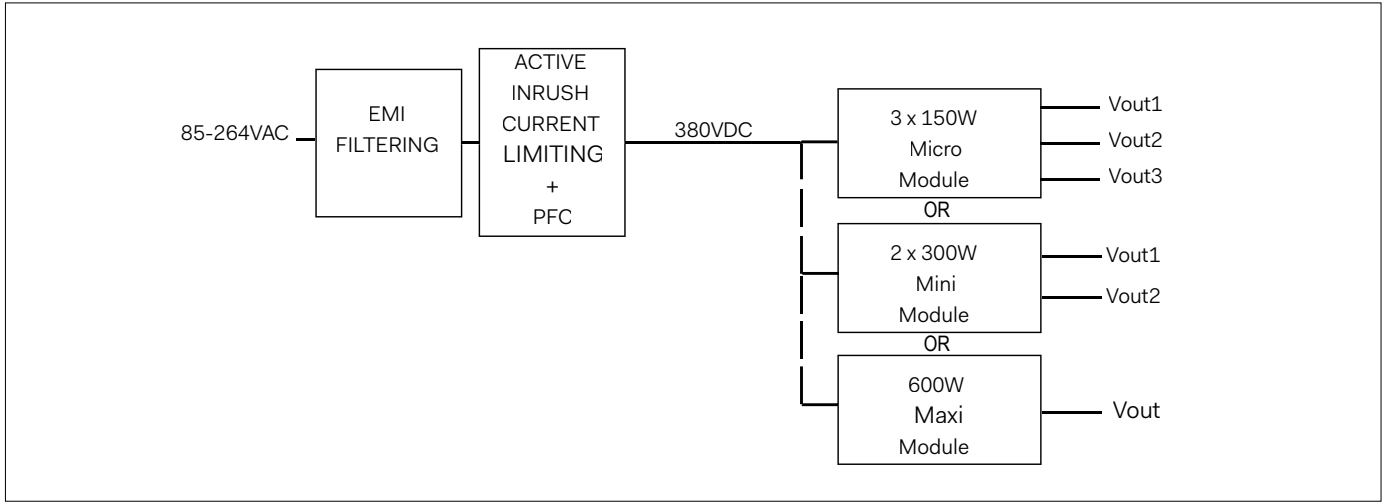


Efficiency curve



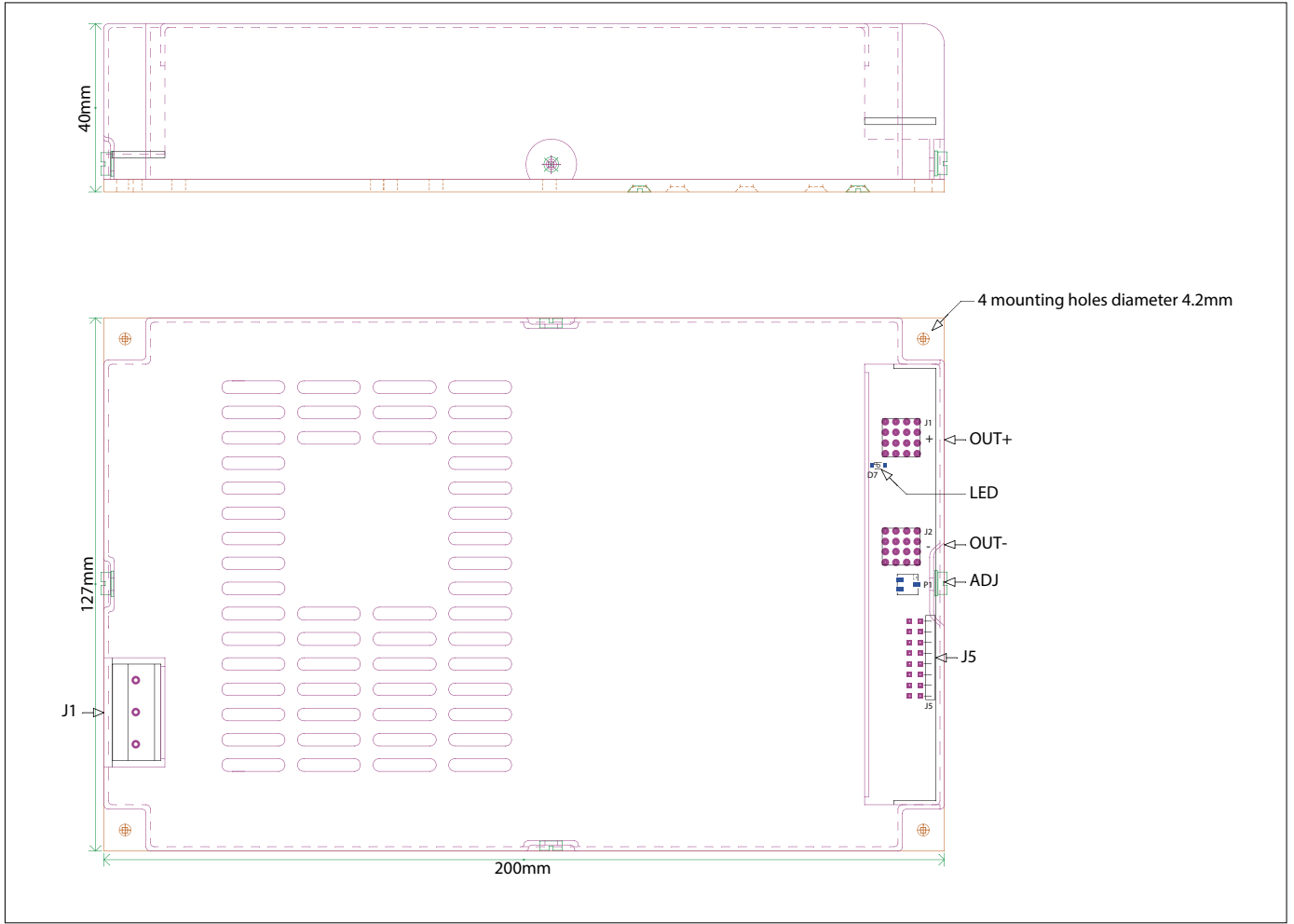
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Block Diagram



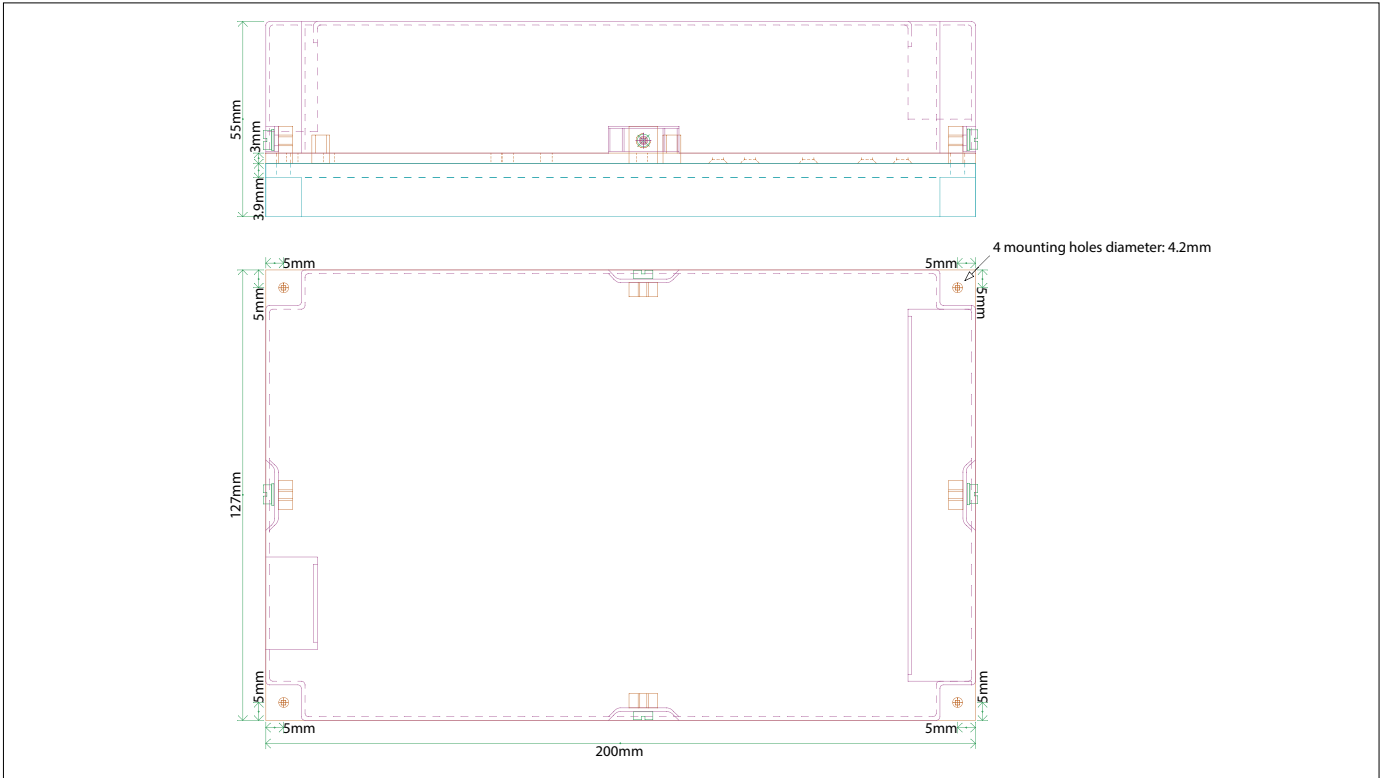
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Mechanical

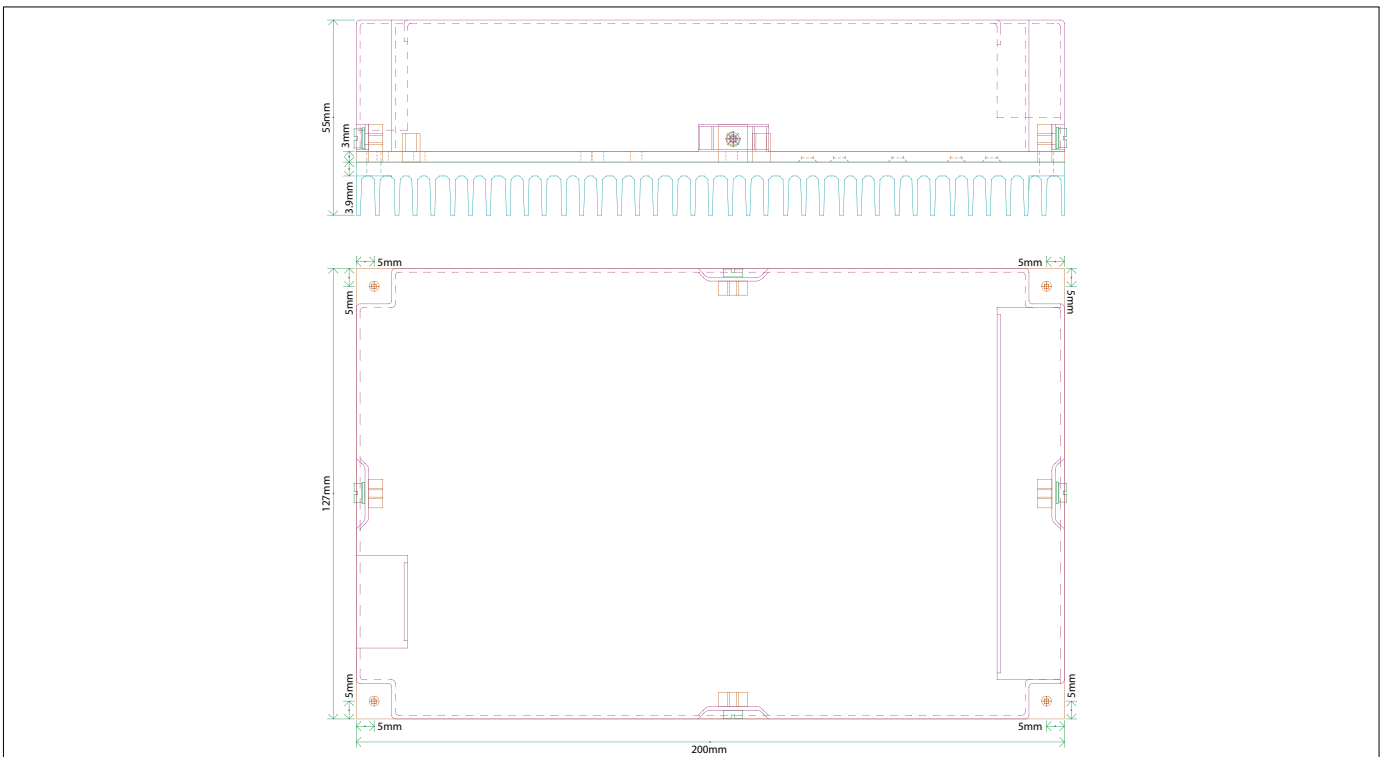


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Mechanical - H Option

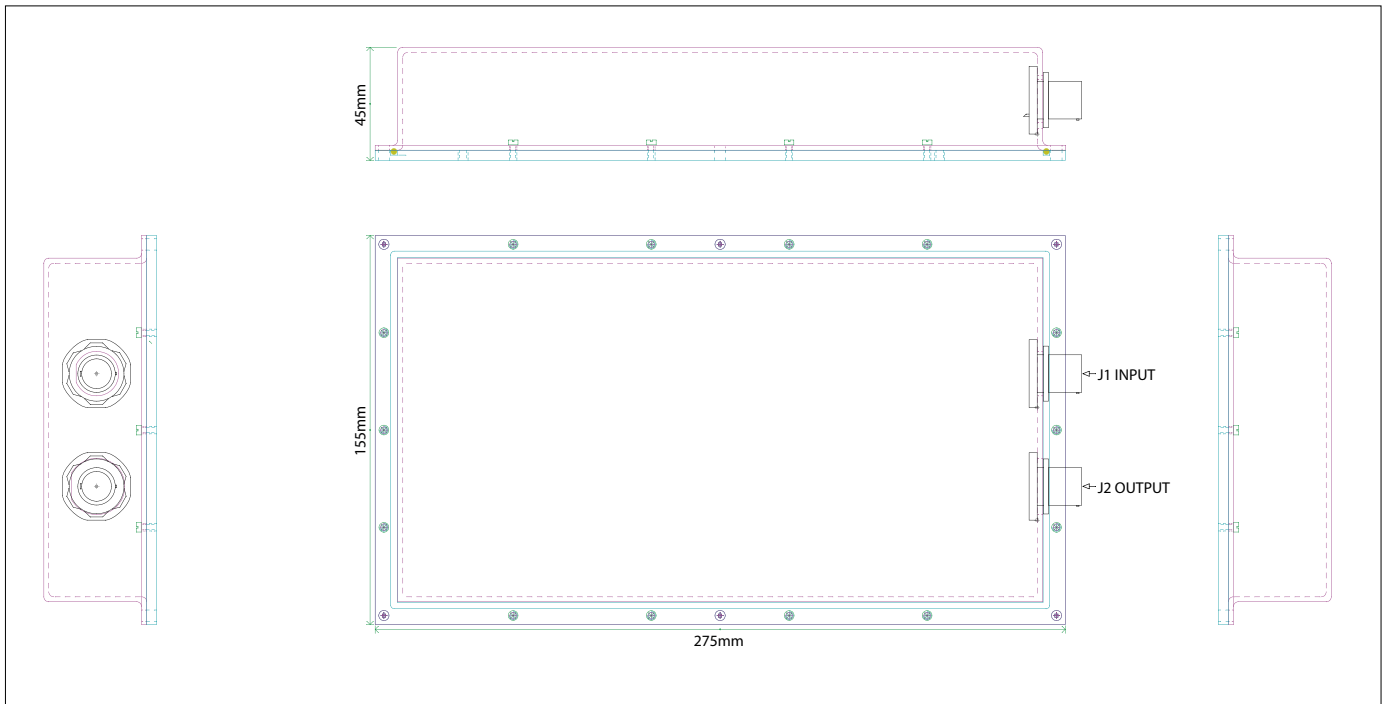


Mechanical - H1 Option



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Mechanical - IP Option



Pin Connection

Description	Pin	Connector
Input screw type connector GMKDS 3/3-7.62		
1	J1-1	Earth
2	J1-2	Neutral AC/N
3	J1-3	Line AC/L
Signals Würth 690368191472 Female Male 2*7 pins		
μ-board	m-board	M-board
J5-1 : ACFAIL	J5-1 : ACFAIL	J5-1 : ACFAIL
J5-2 : PGOOD	J5-2 : PGOOD	J5-2 : PGOOD
J5-3 : RTN	J5-3 : RTN	J5-3 : RTN
J5-4 : INHIB	J5-4 : INHIB	J5-4 : NC
J5-5 : +5VAUX	J5-5 : +5VAUX	J5-5 : +5VAUX
J5-6 : S1+	J5-6 : S1+	J5-6 : NC
J5-7 : S1-	J5-7 : S1-	J5-7 : NC
J5-8 : ADJ1	J5-8 : ADJ1	J5-8 : NC
J5-9 : NC	J5-9 : PR1	J5-9 : PR1
J5-10 : NC	J5-10 : NC	J5-10 : NC
J5-11 : ADJ2	J5-11 : PR2	J5-11 : INHIB
J5-12 : S2+	J5-12 : S2+	J5-12 : S1+
J5-13 : S2-	J5-13 : S2-	J5-13 : S1-
J5-14 : ADJ3	J5-14 : ADJ2	J5-14 : ADJ1
Output M-board power connectors		
OUT+	J1	Würth Press-Fit M4 Ref : 7461095
OUT-	J2	Würth Press-Fit M4 Ref : 7461095
Output m-board power connectors		
OUT1+	J1	Würth Press-Fit M3 Ref : 7461093
OUT1-	J2	Würth Press-Fit M3 Ref : 7461093
OUT2+	J3	Würth Press-Fit M3 Ref : 7461093
OUT2-	J4	Würth Press-Fit M3 Ref : 7461093
Output μ-board power connectors		
OUT1+	J1-1	Würth Press-Fit M3 Ref : 7461093
OUT1-	J1-2	Würth Press-Fit M3 Ref : 7461093
OUT2+	J1-3	Würth Press-Fit M3 Ref : 7461093
OUT2-	J1-4	Würth Press-Fit M3 Ref : 7461093
OUT3+	J1-6	Würth Press-Fit M3 Ref : 7461093
OUT3-	J1-7	Würth Press-Fit M3 Ref : 7461093