

P R B X

POWERBOX Defense Line 300
DBC Series
300W
AC/DC Conduction Cooled

Description

The DBC, very compact and low profile 300W 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 2 outputs in many output voltages from 3.3V 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
1-2 isolated outputs
200*80*40mm very low profile
Industrial or ruggedized versions
Active very low inrush current
Many output configurations available
Conduction cooled 100°C baseplate
Safety IEC/EN 60950-1, RoHS lead-free-solder compliant

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)	Thermal resistance: 1.8°C/W at natural convection, 0.6°C/W at 2m/s. -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 option (-IP)	Full IP65 enclosed mechanical available.

Electrical Input Data

Operating input voltage	85-264VAC. 120-350VDC.
Frequency	47Hz min, 50Hz typ, 440Hz max.
Power factor	0.96 typ, 230VAC, 50Hz, Pnom.
Input current	4.5A at Vin min.
No-load input power	8W at Vin typ.
Peak inrush current	3A Vin max.
Start-up time	1s typ.
Input fuse	A fuse mounted inside the psu protects against damages in case of a failure.
Fuse type	Schurter, 5A, 3403.0173L.
Transient protection	VDR and common mode input filter.



Electrical Output Data

Redundant operation	Requires external oring diodes.
Paralleling operation	Active current share of identical m-boards with PR signal.
Hold-up time	Yes.
Output current prot.	Constant current mode, automatic recovery.
Overvoltage protection	Typically >120%Vnom, latching type.
Remote on/off	An isolated INHIB signal disable corresponding output voltage when connected to RTN.
Voltage adjustment	90-110%Vnom by build in trimmer or external 0.6-1.25V signal referred to RTN.
Remote sense	V1, V2, total drop <0.5V, positive line drop <0.25V.
Powergood	Common opto-isolated signal referred to RTN. Closed=OK. LED for each output.
Auxiliary bias voltage	5VDC, 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.		
Over temp. protection	105°C ±5°C base plate, autorecovery <70°C.		
Damp heat	MIL STD 810 Proc. 507-2.		
Shock	MIL STD 810 Proc. 516.3		
Vibrations	MIL STD 810 Proc. 514-5.		
MTBF/MIL-HDBK-217F	Heatsink	GB	GF
	40°C	285000 hrs	165000 hrs
	70°C	139500 hrs	82300 hrs
	100°C	86500 hrs	51000 hrs

General

Electric strenght	Input to earth 1500Vrms.
	Input to output 3000Vrms.
	Output to earth 500Vrms.
Insulation resistance	>100Mohms.
Dimensions	200 x 80 x 40mm.
Weight	660g approx.
Case	Aluminum natural.

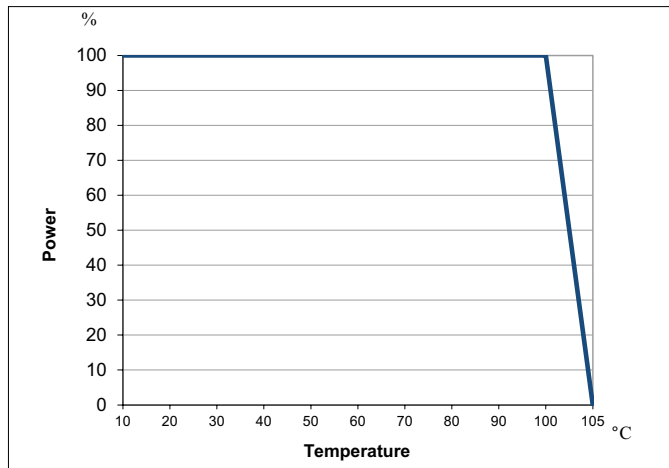
Standards

Safety standards	Built to meet IEC60950-1, EN60950-1.
EMC	
Surges	Built to meet EN61000-4-5, 1kV, Criteria B. 2kV, Criteria A.
Electrostatic discharge	Built to meet EN61000-4-2, 8000V, Criteria B.
Fast transients/burst	Built to meet EN61000-4-4, 4000V, Criteria B.
Harmonics	Built to meet EN61000-3-2.
Flickers	Built to meet EN61000-3-3.
	Built to meet EN61000-4-3, -6, -11.

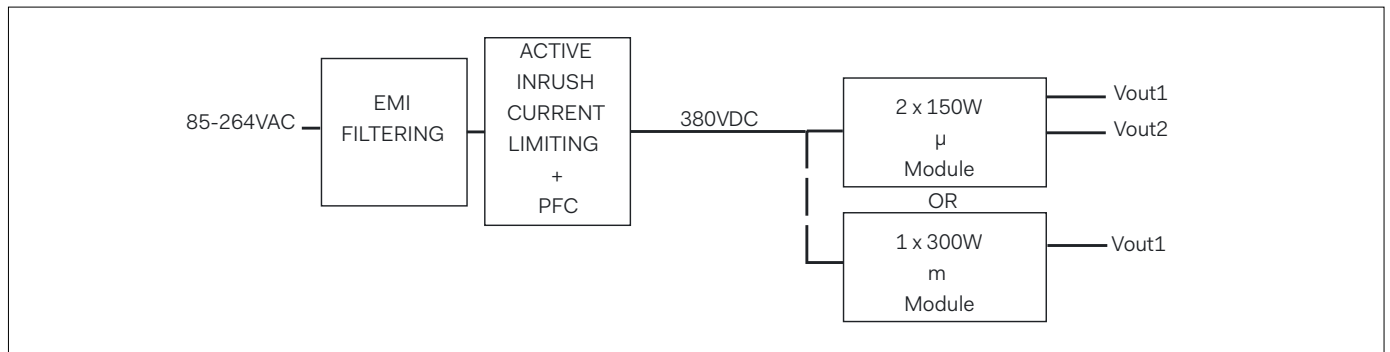
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Output		3V3		5V		12V		15V		24V		28V		48V		Unit	
Characteristics	Conditions	min	typ	max	min	typ	max	min	typ	max	min	typ	max	min	typ	max	Unit
Output voltage		3V3		5		12		15		24		28		48		V	
Trim range	Factory set 3	3.6	4.5	5.5	10.8	13.2	13.5	16.5	21.6	26.2	25.2	30.8	43.2	52.8		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		84		83		84		%	
Load regulation	Vin nom	1		1		0.5		0.5		0.4		0.4		0.4		%	
m board		Each includes up to 1 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		Each includes up to 2 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	

Derating Curve

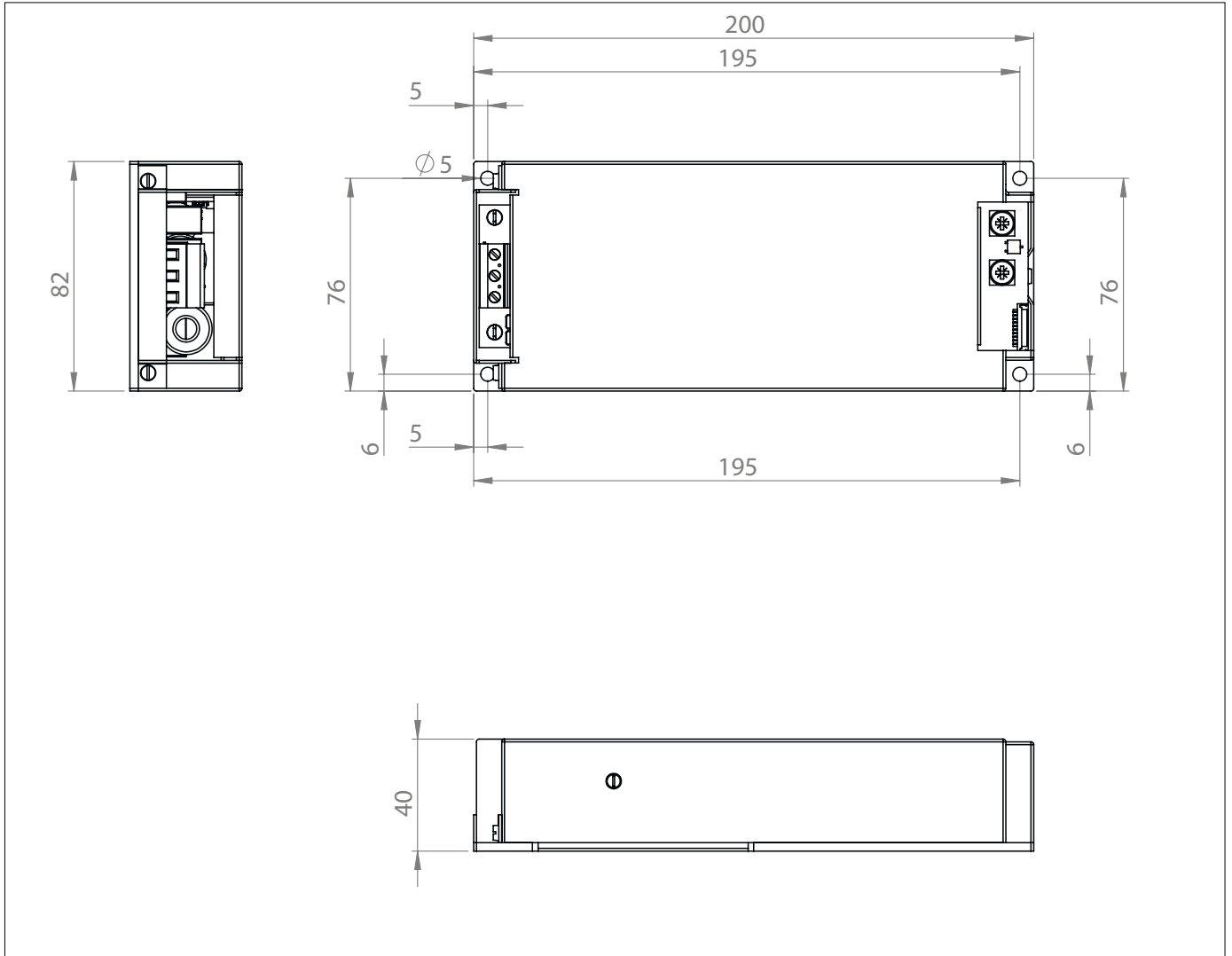


Block Diagram



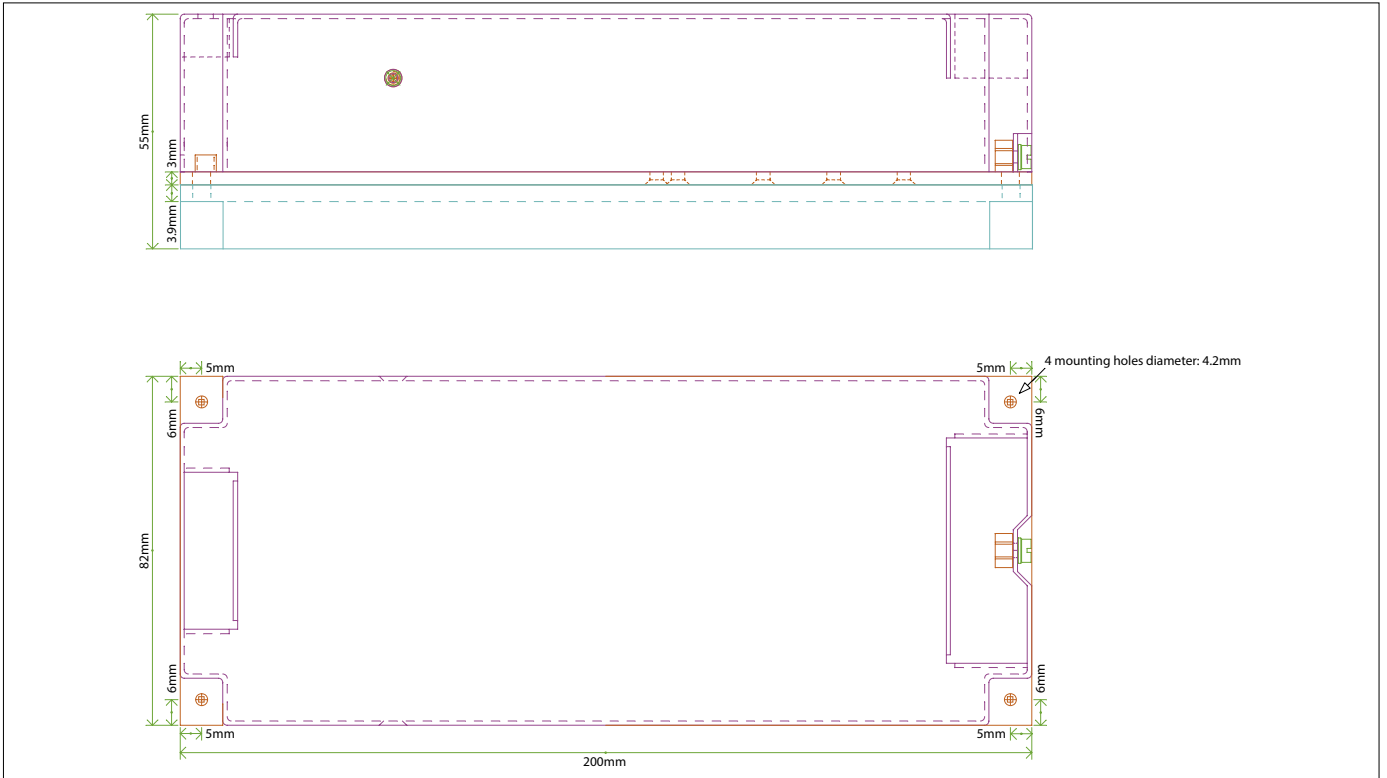
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Mechanical

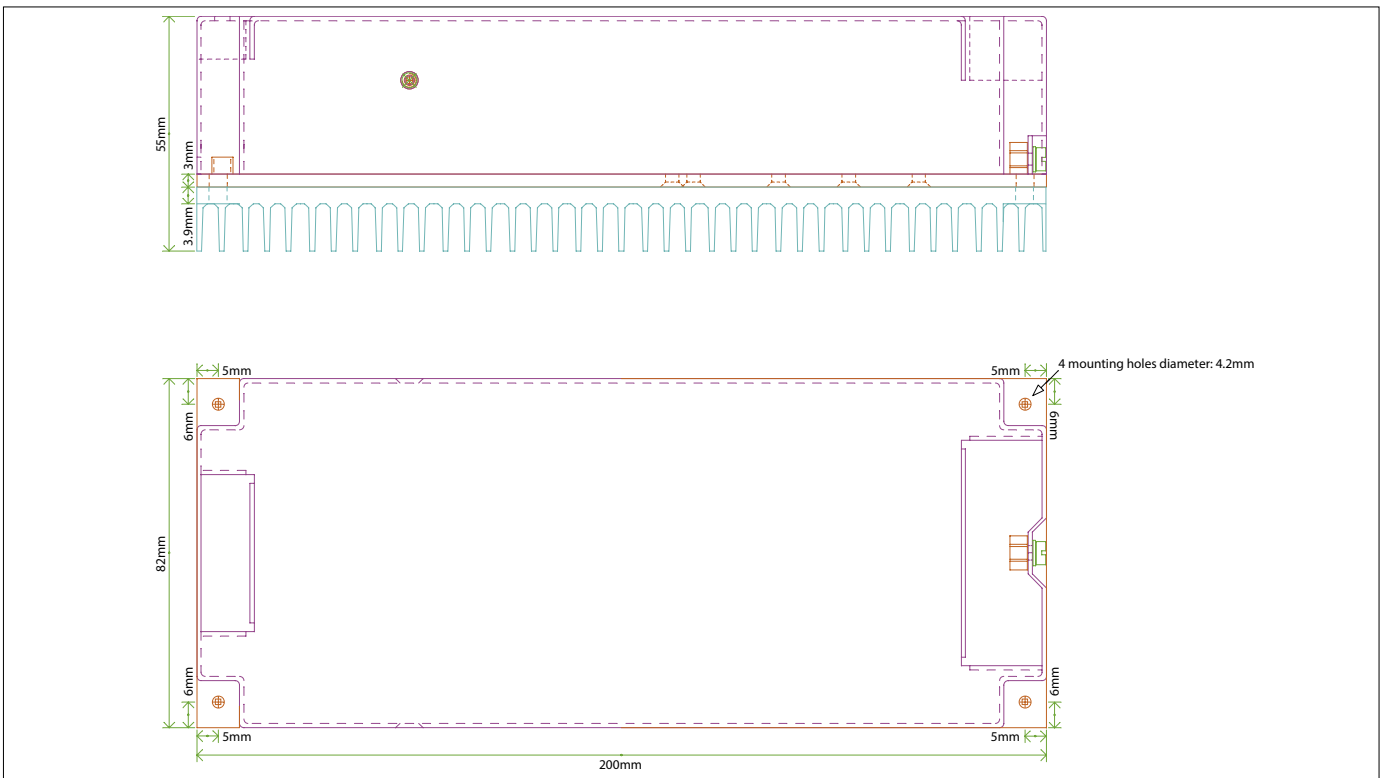


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Mechanical - H Option



Mechanical - H1 Option



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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
Output m-board power connector		
OUT1+	J1	Würth Pres Fit M3 Ref : 7461093
OUT1-	J2	Würth Pres Fit M3 Ref : 7461093
Output µ-board power connectors		
OUT1+	J3	Würth Pres Fit M3 Ref : 7461093
OUT1-	J4	Würth Pres Fit M3 Ref : 7461093
OUT2+	J1	Würth Pres Fit M3 Ref : 7461093
OUT2-	J2	Würth Pres Fit M3 Ref : 7461093
Signals Würth 690368191472 Female Male 2*7 pins		
µ-board	m-board	
J5-1 : ACFAIL	J3-1 : ACFAIL	
J5-2 : PGOOD	J3-2 : PGOOD	
J5-3 : RTN	J3-3 : RTN	
J5-4 : INHIB	J3-4 : NC	
J5-5 : +5VAUX	J3-5 : +5VAUX	
J5-6 : S1+	J3-6 : NC	
J5-7 : S1-	J3-7 : NC	
J5-8 : ADJ1	J3-8 : NC	
J5-9 : NC	J3-9 : PR1	
J5-10 : NC	J3-10 : NC	
J5-11 : NC	J3-11 : INHIB	
J5-12 : S2+	J3-12 : S1+	
J5-13 : S2-	J3-13 : S1-	
J5-14 : ADJ2	J3-14 : ADJ1	

