

P R B X

POWERBOX Defense Line 150
DBD Series
150W Single Output
AC/DC Switch Mode Power Supply

Description

The DBD, very compact and low profile AC/DC power supply in chassis format, incorporates input filtering, input and output protections, very robust mechanical mounting and connection, optional 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 current limitation, overtemperature protection and input over/undervoltage lockout. The PSU is configurable in many output voltages from 2V to 48VDC, other possibilities are even possible as semi-standard versions, they are continuously short-circuit proof. The 100°C baseplate operation allows operation in high temperature environment.

Features

85-264 VAC Input voltage ranges , PFC
1 isolated output
Active very low inrush current limiting circuit
165*61*35mm very low profile
Industrial or ruggedized for hard environment
Many output configurations available
Conduction cooled 100°C baseplate
Safety IEC/EN 60950-1, RoHS lead-free-solder compliant

Electrical Input Data

Operating input voltage	85-264VAC. 100-350VDC.
Frequency	47Hz min, 50Hz typ, 440Hz max.
Power factor	0.96 typ, 230VAC, 50Hz, P _{nom} .
Input current	2.5A max at V _{in} min.
No-load input power	5W at V _{in} typ.
Peak inrush current	1A V _{in} max, active circuit.
Start-up time	0.7s typ.

Environmental

Operating ambient temp.	-20°C to +85°C (T-option -40°C to +100°C).
Heatsink/baseplate	-20°C to +100°C (T-option -40°C to +100°C).
Storage temperature	-40°C to +125°C (T-option -40°C to +125°C).
MTBF	Heatsink temp 40°C, GB 302750, GF 172566.
	Heatsink temp 70°C, GB 145320, GF 84558.
	Heatsink temp 100°C, GB 88644, GF 52426.



Signals

Powergood	Isolated Open collector Pgood+, Pgood-, closed if Vout is in its normal range (30Vdc/10mA max.)
Secondary inhibit	Output disabled if 5V TTL (30Vdc max.) between INIBS+ and INIBS-, enabled if 0V or open. This signal is isolated by optocoupler.
Primary inhibit	Output disabled if INH+ shorted to -HT. This signal is referenced to the primary side (not isolated) , it has to be handle with care (external isolated contact, noise and transient filtered).
Led	A green led placed at the output on the topside indicates output voltage is ON.
Adjustment	A potentiometer at the output side allows output voltage variation from -50% to +10% of Vnom. The TRIM signal allows output voltage to be adjusted by an external voltage 0,6 to 1,25Vmax voltage referred to -OUT.

Options

H	15mm heatsink included (longitudinal).
H1	15mm heatsink included (transversal).
M	MIL-STD 810 ruggedized, MIL-STD 461 CE102 EMI.
T	-40°C operation.
V	Conformal coating.
IP	IP65 enclosure with MIL38999 connectors.

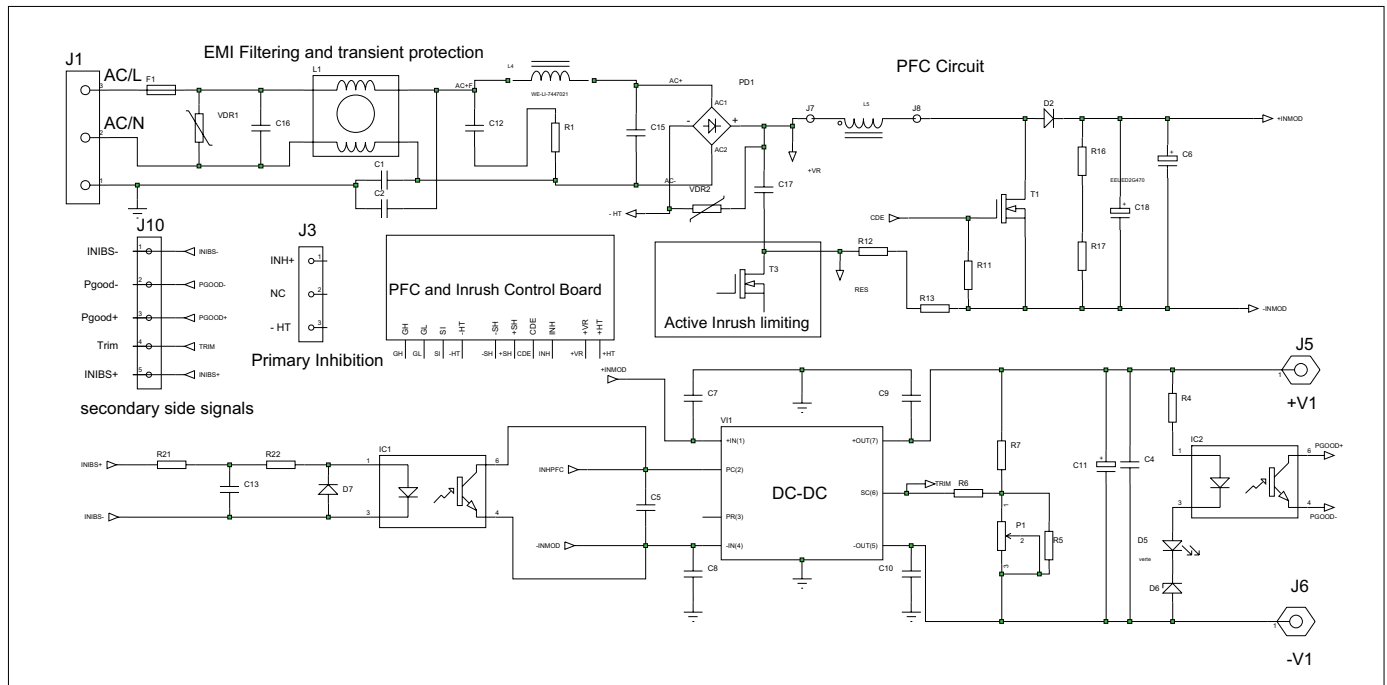
Standards

Safety standards	Built to meet IEC60950-1, EN60950-1.
Option M	Built to meet MIL-STD-461E CE102, MIL-STD-1399-300A, MIL-STD-810E shock & vibrations.
Option V	Built to meet MIL-STD-810E humidity.

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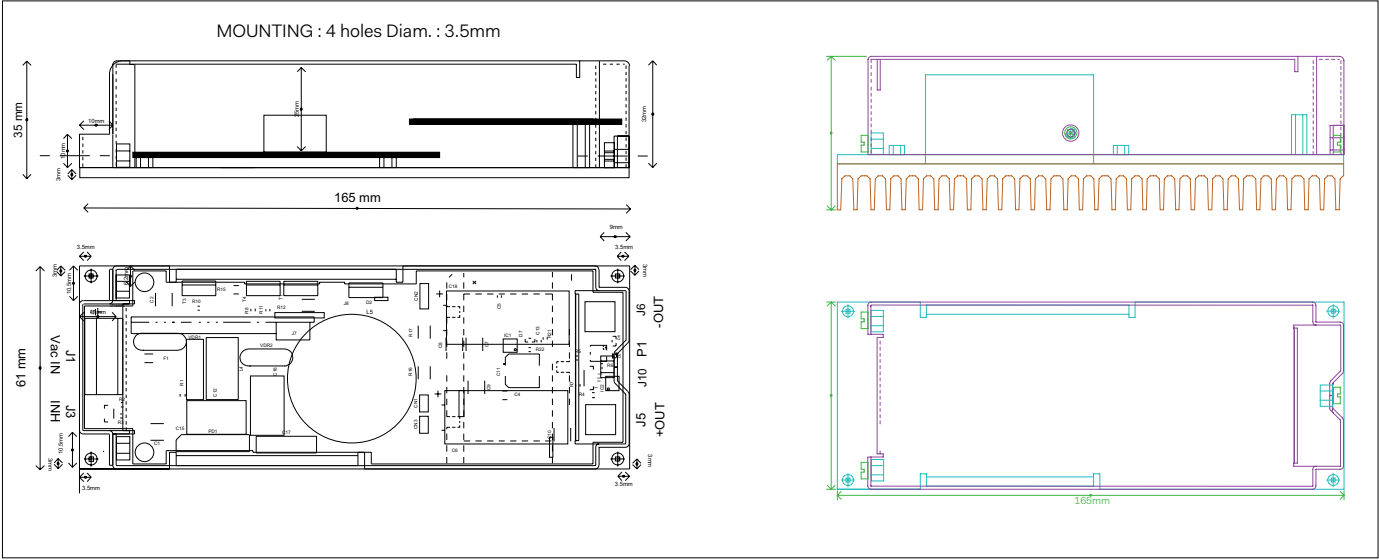
Output		2		3V3		5V		8V		12V		15V		24V		28V		48V	
Characteristics	Conditions	min	typ	max	min	typ	max	min	typ	max	min	typ	max	min	typ	max	min	typ	max
Output voltage		2			3V3			5		8		12		15		24		28	48
Trim range	Factory set	1.5	2.2	2.5	3.6	2.5	5.5	6	8.8	6	13.2	7.5	16.5	12	26.2	15	30.8	24	51.8
Overtoltage protection			2.9		4.5		6.5		10.1		14.9		18.5		29.1		34		58
Output noise	20Mhz	80			75		75		150		100		100		100		100		150
Efficiency		73			75		83		82		85		84		84		83		84
Load regulation	Vin nom	1			1		1		0.5		0.5		1		0.5		0.5		0.5
μ module 75W (50W for 2V, 3V3, 5V)																			
Output current		0	25	0	15	0	10		0	6.25	0	5	0	3.13	0	2.7	0	1.56	A
Max power		50			50		50		75		75		75		75		75		75
Output current limit		29	34		17.5	20.6	11.5	13.5		7.2	8.5	5.8	6.8	3.6	4.25	3.1	3.7	1.8	2.2
μ module 150W (75W for 3V3, 100W for 5V and 8V)																			
Output current		0			22.7	0	20	0	12.5	0	12.5	0	10	0	6.25	0	5.3	0	3.1
Max power					75		100		100		150		150		150		150		150
Output current limit					25	31	23	26	14.5	17	14.5	17	11	14	7.2	8.2	6.2	7	3.6

Block Diagram

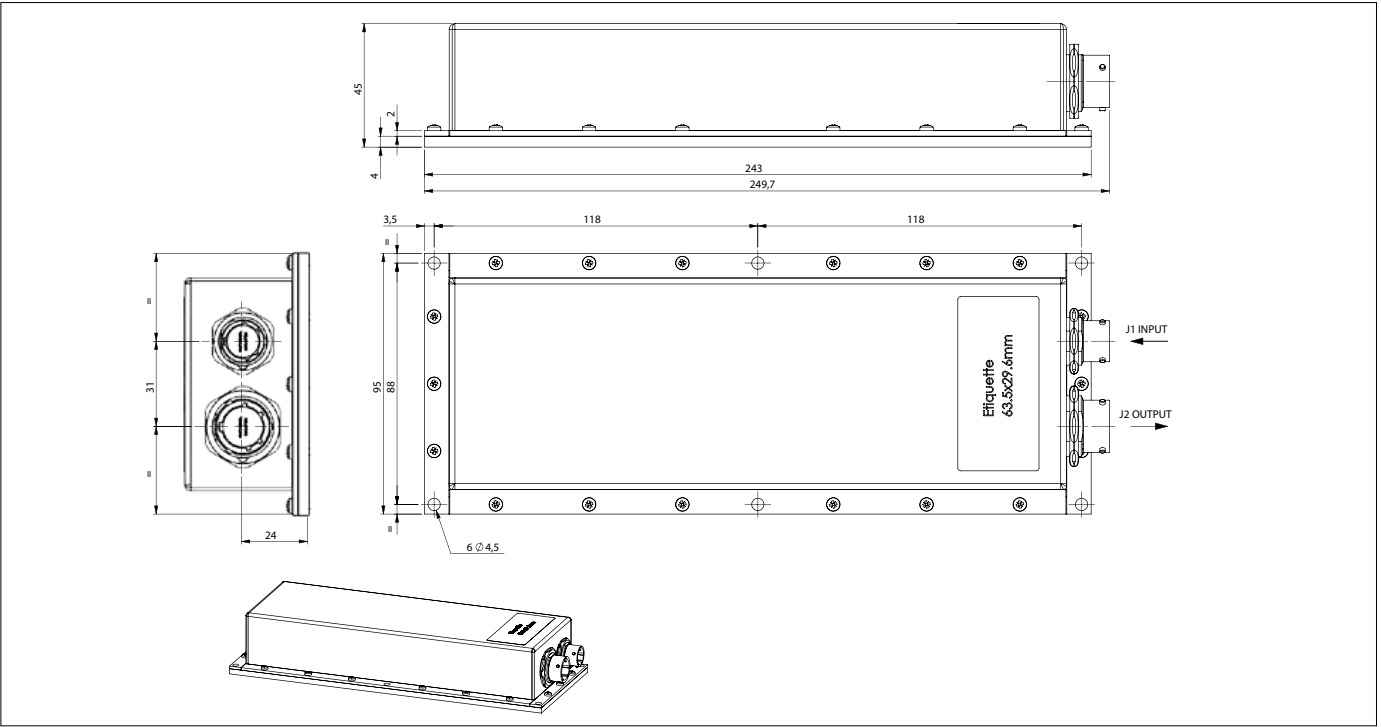


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Mechanical



Mechanical -IP Version



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Connector Pin Allocation

Pin	Description	
Input screw type connector GMKDS 3/3-7.62		
J1-1		Earth
J1-2		AC/N Neutral
J1-3		AC/L Line
Output		
J5	OUT+	Wurth Press Fit M4 Ref : 7461095
J6	OUT-	Wurth Press Fit M4 Ref : 7461095
Input Inhibition signal JST 3 points BM03B-SRSS-TB(LFSN)		
J3-1	INH+	Input referenced Inhibit
J3-2		NC
J3-3 -	HT	Input referenced Inhibit
Output Signals JST 5 points BM05B-SRSS-TB(LFSN)		
J10-1	INIBS-	Secondary referenced Inhibit
J10-2	PGOOD-	Output Ok signal Emitter
J10-3	PGOOD+	Output Ok signal Collector
J10-4	TRIM	Output voltage Adjustment
J10-5	INIBS+	Secondary referenced Inhibit

How to Order

DBD - μ - *)	
2	50
3V3	50
3V3	75
5	50
5	100
8	100
12	75
12	150
15	75
15	150
24	75
24	150
28	75
28	140
48	75
48	150

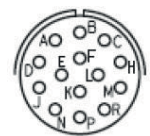
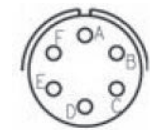
*) Options

H: 15mm Heatsink longitudinal fins
H1: 15mm Heatsink transversal fins
M : Ruggedized
T : -40°C
V : Conformal coating
IP: IP65 Enclosure

Connector Pin Allocation -IP Version

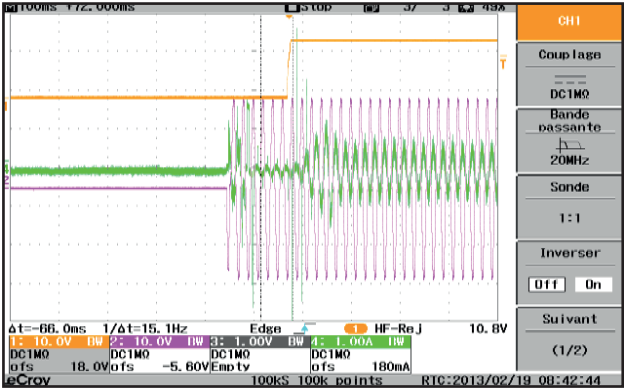
Pin	Description	
Input connector AMPHENOL SOCAPEX - 45107A106P50		
A	INH+	Input referenced inhibit
B	AC/L Line	
C	NC	
D	Earth	
E	-HT	Input referenced inhibit RTN
F	AC/N Neutral	

Output connector AMPHENOL SOCAPEX - 45107A12-14S50		
B	OUT+	
C	OUT+	
F	OUT+	
H	OUT+	
L	OUT-	
M	OUT-	
P	OUT-	
R	OUT-	
A	INIBS+	Secondary referenced inhibit
D	INIBS-	Secondary referenced inhibit
E	TRIM	Output voltage adjustment
N	PGOOD-	Output OK signal emittor
J	PGOOD+	Output OK signal collector
K	NC	

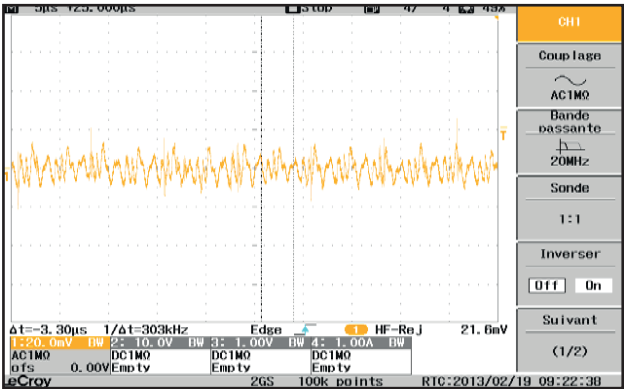


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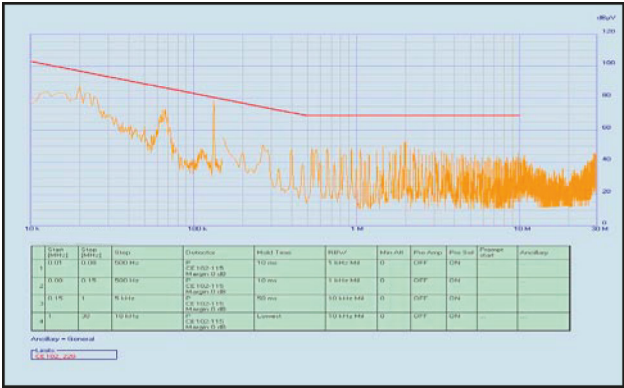
Waveforms
Inrush current



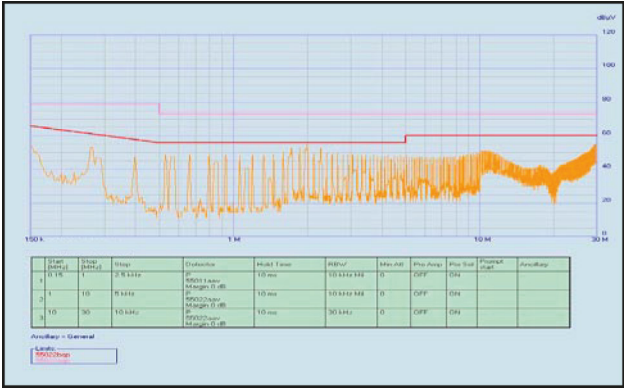
MIL-STD 461 CE102 DBD-1575



Output ripple DBD-1575



EN55022A conducted DBD-1575



Authorised, valued-added distributor

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