

# PR BX

## 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, Pnom.  
Input current 2.5A max at Vin min.  
No-load input power 5W at Vin typ.  
Peak inrush current 1A Vin 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 1,25V/max 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.

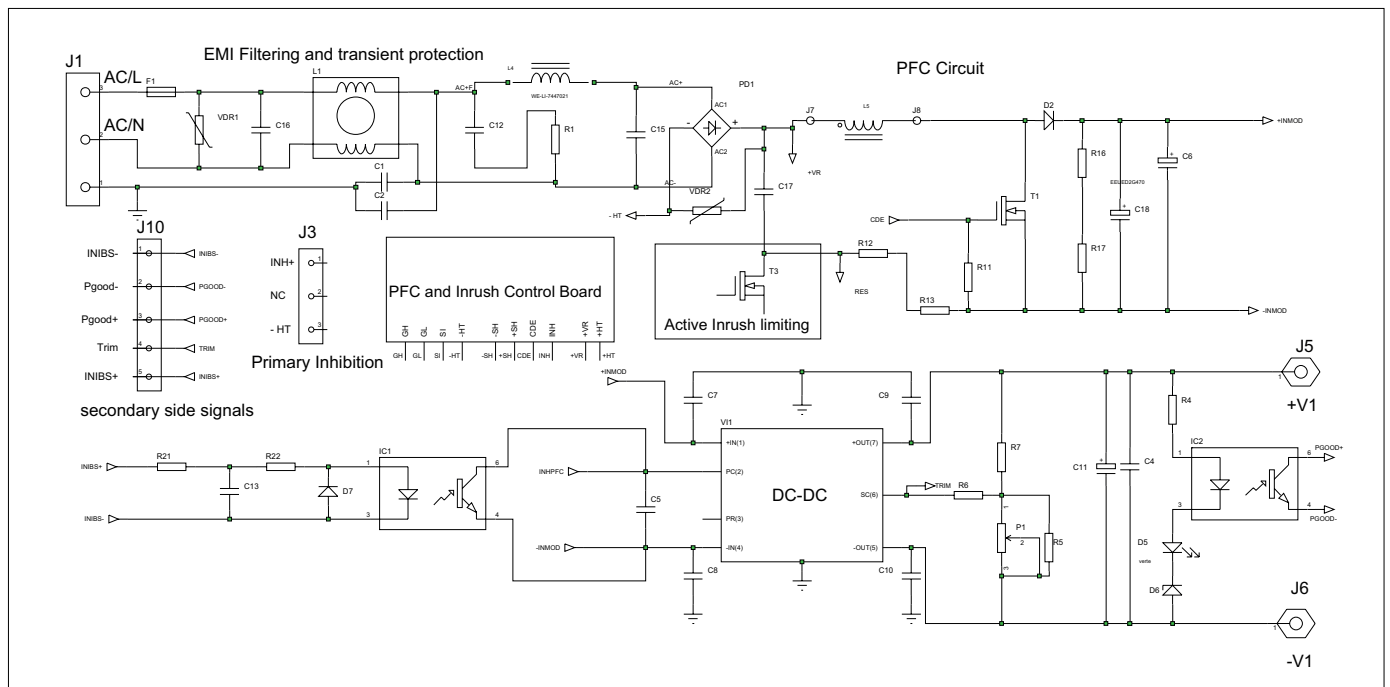
### Standards

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.

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

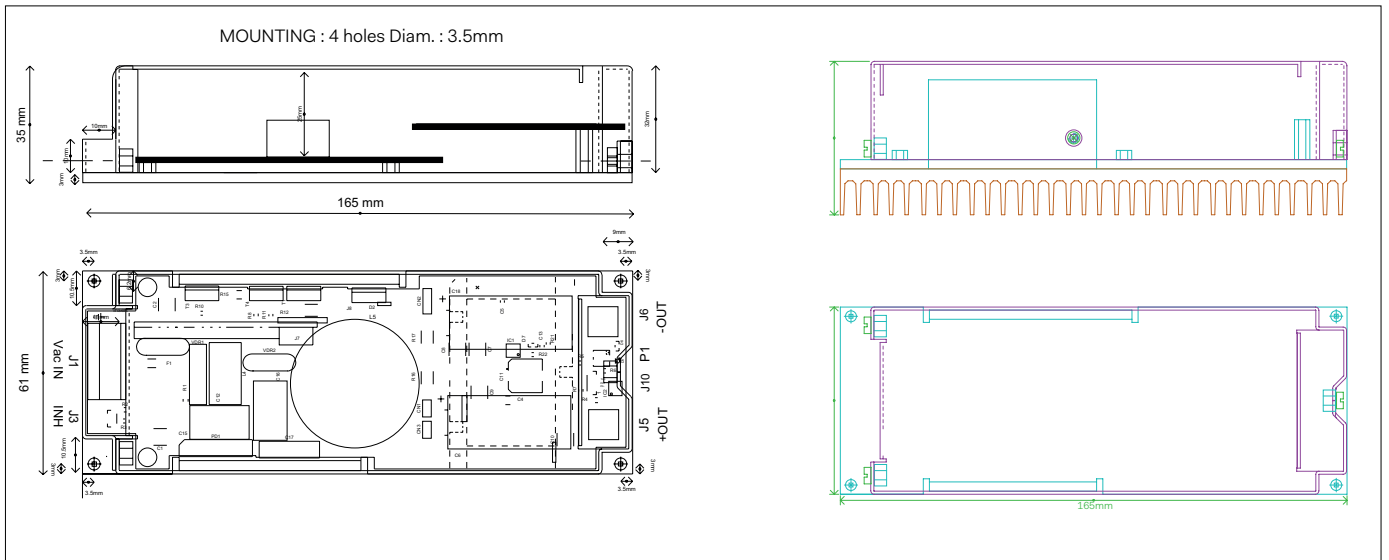
Output		2		3V3		5V		8V		12V		15V		24V		28V		48V				
Characteristics	Conditions	min	typ	max	min	typ	max	min	typ	max	min	typ	max	min	typ	max	min	typ	max	Unit		
Output voltage		2			3V3			5		8		12		15	24	28		48		V		
Trim range	Factory set	1.5	2.2	2.5	3.6	2.5	3.6	2.5	5.5	6	8.8	6	13.2	7.5	16.5	12	26.2	15	30.8	24	51.8	V
Overvoltage protection			2.9		4.5		4.5		6.5		10.1		14.9		18.5		29.1		34		58	V
Output noise	20Mhz	80			75		75		150		100		100		100		100		100		150	mVpp
Efficiency		73			75		83		82		85		84		84		83		84		84	%
Load regulation	Vin nom	1			1		1		0.5		0.5		1		0.5		0.5		0.5		0.5	%
<b>μ module 75W (50W for 2V, 3V3, 5V)</b>																						
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		75	W
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			A
<b>μ module 150W (75W for 3V3, 100W for 5V and 8V)</b>																						
Output current		0	22.7	0	20	0	12.5	0	12.5	0	10	0	6.25	0	5.3	0	3.1					A
Max power		75			100		100		150		150		150		150		150		150		150	W
Output current limit		25	31		23	26	14.5	17	14.5	17	11	14	7.2	8.2	6.2	7	3.6	4.4				A

Block Diagram

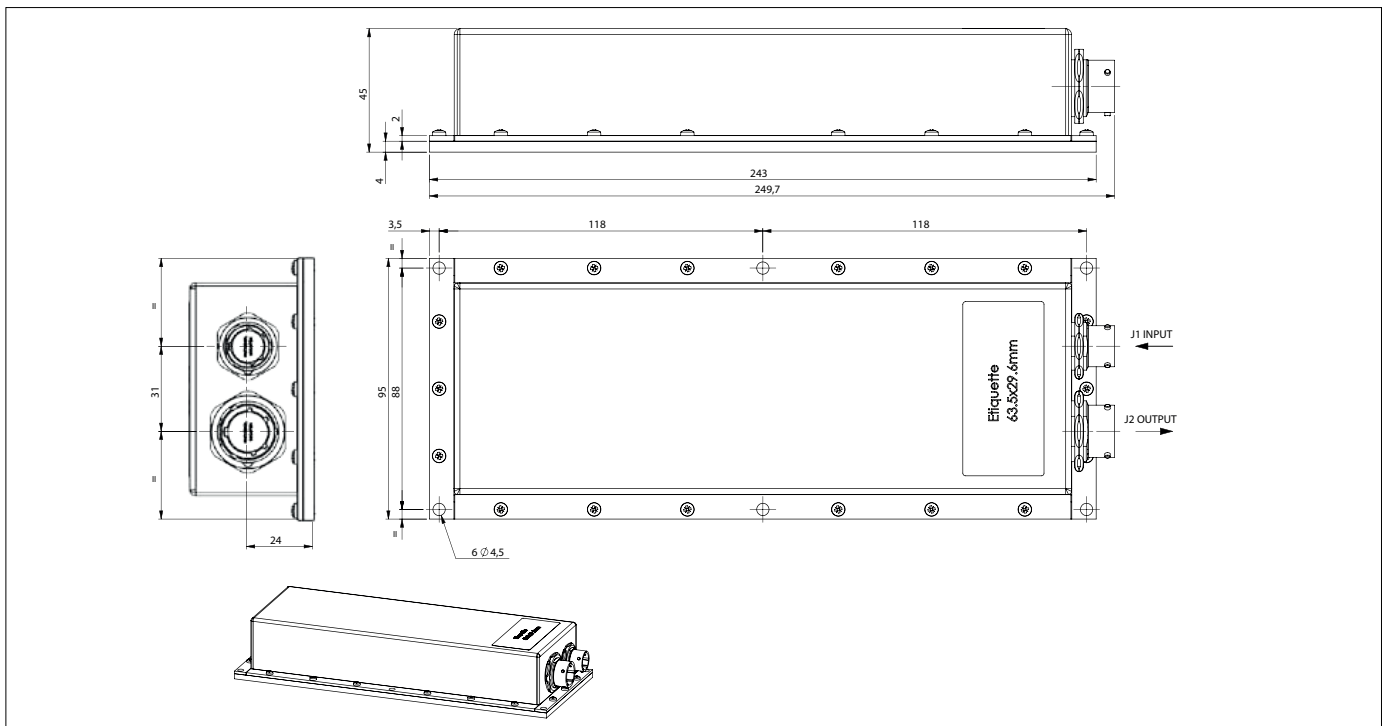


POWERBOX Defense Line 150  
DBD Series  
150W Single Output  
AC/DC Switch Mode Power Supply

Mechanical



Mechanical -IP Version



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

Connector Pin Allocation

Pin	Description	
<b>Input screw type connector GMKDS 3/3-7.62</b>		
J1-1	Earth	
J1-2	AC/N Neutral	
J1-3	AC/L Line	
<b>Output</b>		
J5	OUT+	Würth Press Fit M4 Ref : 7461095
J6	OUT-	Würth Press Fit M4 Ref : 7461095
<b>Input Inhibition signal JST 3 points BM03B-SRSS-TB(LFSN)</b>		
J3-1	INH+	Input referenced Inhibit
J3-2	NC	
J3-3	HT	Input referenced Inhibit
<b>Output Signals JST 5 points BM05B-SRSS-TB(LFSN)</b>		
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

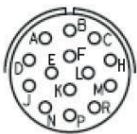
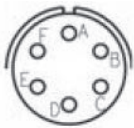
DBD - $\mu$ - *
2 50
3V3 50
3V3 75
5 50
5 100
8 100
12 75
12 150
15 75
15 150
24 75
24 150
28 75
28 140
48 75
48 150

**\*) 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

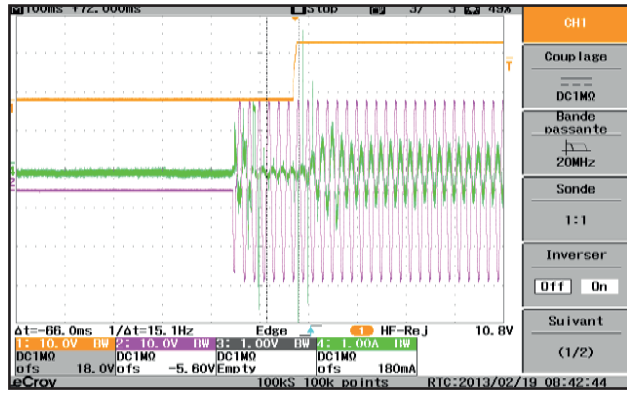
Pin	Description	
<b>Input connector AMPHENOL SOCAPEX - 45107A106P50</b>		
A	INH+	Input referenced inhibit
B	AC/L Line	
C	NC	
D	Earth	
E	-HT	Input referenced inhibit RTN
F	AC/N Neutral	
<b>Output connector AMPHENOL SOCAPEX - 45107A12-14S50</b>		
B	OUT+	
C	OUT+	
F	OUT+	
H	OUT+	
L	OUT-	
M	OUT-	
P	OUT-	
R	OUT-	
A	INIBS+	Secondary referenced inhibit
D	INIBS-	Secondary referenced inhibit
E	TRIM	Output voltage adjustment
N	PGOOD-	Output OK signal emitter
J	PGOOD+	Output OK signal collector
K	NC	



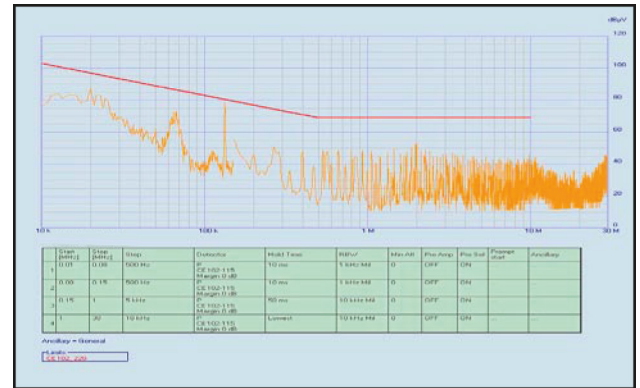
POWERBOX Defense Line 150  
 DBD Series  
 150W Single Output  
 AC/DC Switch Mode Power Supply

Waveforms

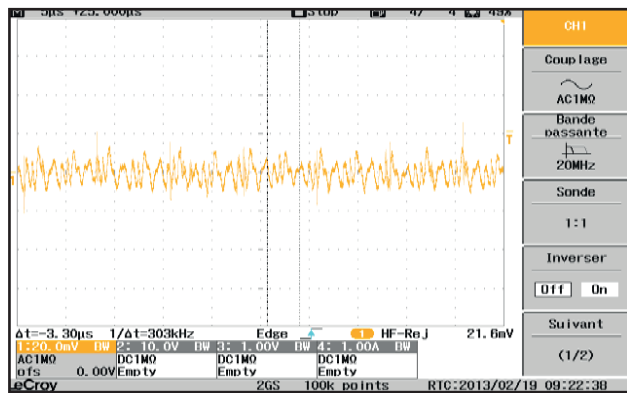
Inrush current



Output ripple DBD-1575



MIL-STD 461 CE102 DBD-1575



EN55022A conducted DBD-1575

