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POWERBOX Industrial Line PHB300W-110S Series 300W 4:1 Single Output DC/DC Converter

Features

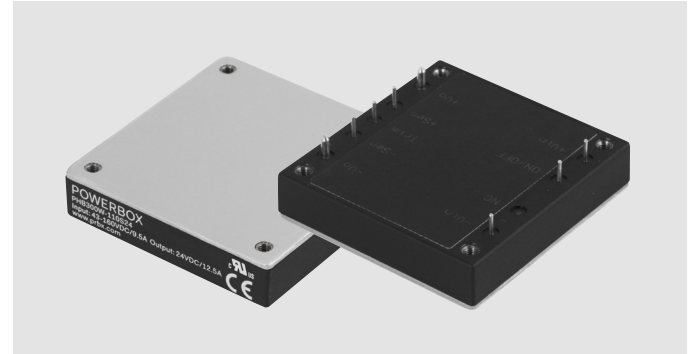
300W isolated output
Efficiency to 91%
Low no load power consumption
Fixed switching frequency
4:1 input range
Regulated outputs
Input under-voltage protection
Over temperature protection
Over voltage/current protection
Remote ON/OFF
Half-brick size meet industrial standard
UL60950-1 2nd (basic insulation) approval
CB test certificate IEC60950-1
Meet EN50155 with external circuits
Shock & vibration meet EN50155 (EN61373)
Fire & smoke meet EN45545-2
5000m operating altitude

Input

Voltage range	110V	43-160V
Input surge voltage	110V (100ms max)	200VDC max
Under voltage lockout	Power up	42VDC
	Power down	39VDC
Positive logic remote on/off (see note 4&5)		
Input filter	Pi type.	

Output

Voltage accuracy	±1.0% max.			
Transient response	Recovery time	<250µs		
	25% step load change			
External trim adj. range	±10%.			
Ripple and noise	5V	60mV RMS	120mV pk-pk max	
	20MHz BW	12V	80mV RMS	150mV pk-pk max
		24V	120mV RMS	240mV pk-pk max
		28V	140mV RMS	280mV pk-pk max
		48V	220mV RMS	480mV pk-pk max
Temperature coefficient	±0.02%/°C.			
Short circuit protection	Continuous.			
Line regulation ¹	±0.2% max.			
Load regulation ²	±0.2% max.			
Overvoltage protection	115-140%, trip range, % Vo nom.			
Current limit	110-160% nominal output.			
Start up time	35ms typ.			



Environmental

Operating temperature	-40°C to +100°C.
Storage temperature	-55°C to +125°C.
Thermal shutdown	Case temperature 110°C typ.
Humidity	95% RH max, non-condensing.

General

Efficiency	See table.	
Isolation voltage	Input/output, input/case	3000VDC min
	Output/case	500VAC min
Isolation resistance	10 ⁸ ohm min.	
Isolation capacitance	3000pF typ.	
Switching frequency	300kHz typ.	
MTBF	MIL-STD-217F, GB, 25°C.	
	48V	9000Khrs typ
	Others	600Khrs typ
Case material	Aluminum baseplate with plastic case.	
Dimension	57.9 x 61.0 x 12.7 mm.	
Weight	114.	

Standards

Safety standards	UL60950-1 2nd (basic insulation).
EMC ⁷	EN50155 (EN50121-3-2) with external filter.
Shock/vibration	EN50155 (EN61373).
Environmental	EN50155 (EN60068-2-1, 2, 30).
Fire & smoke	Meet EN45545-2.

Standards

Safety standards	UL60950-1 approval.
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Note:

1. Measured from high line to low line.
2. Measured from full load to zero load.
3. Output ripple and noise measured with 10µF aluminum solid capacitor and 1µF ceramic capacitor across output. (5V: 47µF polymer tantalum capacitor and 1µF ceramic capacitor across output).
4. Logic compatibility open collector ref to -Input
Module on >3.5Vdc to 160Vdc or open circuit
Module off 0 to <1.2Vdc
5. Suffix "N" to the model number with negative logic remote on/off
Module on 0 to <1.2Vdc
Module off >3.5Vdc to 160Vdc or open circuit
6. An external input capacitor 220µF for all models are recommended to reduce input ripple voltage.
7. For information about EN50155 and RIA12, refer to application note.
8. Suffix "-C" to the model number with clear mounting insert. (3.2mm DIA).

POWERBOX Industrial Line
PHB300W-110S Series
300W 4:1 Single Output
DC/DC Converter

Model Number	Input Voltage	Output Voltage	Output Current		Input Current		Efficiency 2)	Capacitive Load Max
			Min	Max	No Load	Full Load		
PHB300W-110S05	43-160 VDC	5 VDC	0 mA	60 A	10 mA	3099 mA	88 %	2200uF
PHB300W-110S12	43-160 VDC	12 VDC	0 mA	25 A	10 mA	3030 mA	90 %	1000uF
PHB300W-110S24	43-160 VDC	24 VDC	0 mA	12.5 A	10 mA	3064 mA	89 %	560uF
PHB300W-110S28	43-160 VDC	28 VDC	0 mA	10.7 A	10 mA	3064 mA	89%	470uF
PHB300W-110S48	43-160 VDC	48 VDC	0 mA	6.25 A	10 mA	2997 mA	91 %	220uF

Notes:

1. Nominal input voltage 110VDC.
2. Measure at nominal input voltage.

Mechanical

Case HB

All Dimensions In Inches(mm)
 Tolerances Inches: X.XX= ±0.02 , X.XXX= ±0.010
 Millimeters: X.X= ±0.5 , X.XX=±0.25

Mounting Inserts
 M3*0.5 Through 4pl.

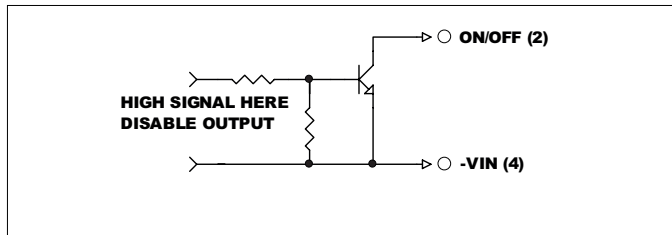
BOTTOM VIEW

Dimensions (Inches [mm]):
 Total width: 2.40 [61.0]
 Pin 1-2 distance: 2.00 [50.8]
 Pin 2-3 distance: 1.400 [35.56]
 Pin 3-4 distance: 0.600 [15.24]
 Pin 4-5 distance: 1.90 [48.3]
 Total length: 2.28 [57.9]

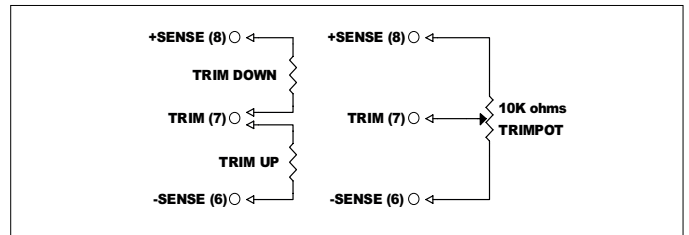
Side View Dimensions:
 Pin 1-2 distance: 0.18 min [4.6]
 Pin 2-3 distance: 0.50 [12.7]
 Pin 3-4 distance: 2-φ0.080 [2.03]
 Pin 4-5 distance: 7-φ0.040 [1.02]

Pin	Function
1	+V Input
2	ON/OFF
3	CASE
4	-V Input
5	-V Output
6	-Sense
7	Trim
8	+Sense
9	+V Output

Remote On/Off Control



External Output Trimming



Specifications are subject to change without notice.