

200-300W, 43 to 160V Input DC-DC Converters

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Industrial



Railroad



The rugged half brick 200W and 300W CN-B110 series of isolated DC-DC converters operate from a very wide 43 to 160V input. With an input to baseplate isolation of 2,500Vac and 3,000Vac input to output, the series is designed for use on 72V or 110V nominal input rail power systems. In addition, the baseplate cooled modules meet the rolling stock IEC 61373 Category 1, Class B shock / vibration standards and are designed to meet EN 45545-2 (Fire protection on railway vehicles). As standard the CN-B110 series features active current share for parallel or redundant operation, remote sense, remote on/off, output voltage adjustment and a power good signal. An optional 12V 0.01A auxiliary voltage, replacing the power good signal, is also available.

Features	Benefits
• Wide Input Range	• Supports 72V and 110V Input Rail Systems
• Half Brick Package	• Less Board Area Needed
• Certified to IEC 62368-1, 61373 and Designed to Meet EN45545-2	• Easier System Compliance
• Current Share Function	• Can be Paralleled for Higher Power Applications
• Very Minimal Derating at High Ambient Temperatures	• Greater Useable Power

Model Selector								
Model	Output Voltage (V)	Output Voltage Adjustment (V)	Output Current (A)	Maximum Power (W)	Load Reg (mV)	Line Reg (mV)	Input Current at 110Vdc input (A)	Efficiency (%) (100% load, nominal input)
CN200B110-12	12	9.6 - 14.4	16.7	200.4	96	48	2.0	90
CN300B110-12	12	9.6 - 14.4	25	300.0	96	48	3.1	89.5
CN200B110-13.8	13.8	9.66 - 14.35	14.5	200.1	96	48	2.0	91
CN300B110-13.8	13.8	9.66 - 14.35	21.7	299.5	96	48	3.0	90.5
CN200B110-15	15	12 - 18	13.4	201.0	120	60	2.1	90
CN300B110-15	15	12 - 18	20	300.0	120	60	3.1	90
CN200B110-24	24	19.2 - 26.4	8.4	201.6	192	96	2.1	90
CN300B110-24	24	19.2 - 26.4	12.5	300.0	192	96	3.1	90

CN	300B	110	-12	/T
Series Name	Output Power 200B = 200W 300B = 300W	Input Voltage 110 = 43 - 160V	Output Voltage 12 = 12V 13.8 = 13.8V 15 = 15V 24 = 24V	Options: /AUX = 12V Auxiliary Voltage /T = Non-threaded 3.3mm diameter mounting holes /LC = Latching OVP and OTP /CO = Board coating

Related Products		
Type	Part Numbers	Description
Heatsink	HAH-10L	Half brick 25mm longitudinal fins
Heatsink	HAH-10T	Half brick 25mm transverse fins
Heatsink	HAH-15L	Half brick 38.1mm longitudinal fins

Specifications		
Model		CN-B110
Input		
Input Voltage Range	Vdc	43 - 160
Efficiency	-	See model selector table
Conducted & Radiated EMI	-	EN55011-A, EN55032-A with external components. See evaluation data on website.
Immunity	-	See model immunity table below
Safety Certifications and Markings	-	IEC/UL/CSA/EN62368-1, CE Mark and UKCA Mark. Designed to meet EN45545-2.

Immunity				
Test	Standard	Test Level	Criteria	Notes: See IEC61000 immunity test report on website for external filtering circuitry
ESD	EN61000-4-2	Air and contact $\pm 8\text{kV}$	A	
Radiated Susceptibility	EN61000-4-3	80M -1GHz: 20V/m 1.4 - 2.0GHz: 10V/m 2.0 - 2.7GHz: 5V/m 2.7 - 6.0GHz: 3V/m	A	
Electrical Fast Transient Burst	EN61000-4-4	$\pm 4\text{kV}$	A	Signal pins: $\pm 2\text{kV}$
Surge	EN61000-4-5	$\pm 2\text{kV}$ and $\pm 4\text{kV}$	A	Common mode: 4kV with surge absorbers Common mode: 2kV without surge arrestors Normal mode: : 2kV without surge arrestors
Conducted Susceptibility	EN61000-4-6	10Vrms	A	
Magnetic Fields	EN61000-4-8	100A/m	A	

Specifications		
Model		CN-B110
Output		
Output Voltage Tolerance	%	± 1
Output Voltage Adjustment	%	See model selector
Switching Frequency	kHz	300 (fixed)
External Load Capacitance	μF	30000 maximum
Ripple & Noise	mV	12 to 15V outputs: 150, 24V output: 240
Temperature Coefficient	%/ $^{\circ}\text{C}$	0.02
Minimum Load	-	No minimum load required
Overcurrent Protection	%	102 - 150. Constant current mode. When the converter output drops below 40%, the unit will enter hiccup mode until the overload is removed. With the /LC option, the module will enter hiccup mode for several cycles and then maintain a constant current.
Overvoltage Protection	%	12V, 15V: 125-145, 13.8V: 109-126, 24V: 115-135. Auto recovery or latching (/LC option)
Overtemperature Protection	$^{\circ}\text{C}$	Operates at 105-120 baseplate. Auto recovery or latching (/LC option)
Remote Sense		Yes
Remote On/Off	-	Negative Logic ON: Short ($<0.8\text{V}$), OFF: Open or 4 to 30V
DC Good Signal (IOG)	-	Open collector: Low = Output good
Auxiliary Voltage	-	/AUX option (replaces DC good signal) 10 to 14V, 0.01A
Parallel Operation	-	Up to 11 modules. 2 to 5 units, derate to 95% of rated current, 6 to 11 units, derate to 90% of rated current
Environmental		
Operating Temperature	$^{\circ}\text{C}$	-40 to +100 (Baseplate), -40 to +85 (ambient) full power except CN300B110-24 when input voltage is less than 60V. See derating curves.
Storage Temperature	$^{\circ}\text{C}$	-40 to +100
Humidity (non condensing)	%RH	5 - 95 (Operating & Storage)
Cooling	-	Conduction
Altitude	m	5,000
Withstand Voltage (For 1 minute)	Vac	Input to baseplate 2,500, input to output 3,000, output to baseplate 500 for 1 minute
Vibration (Non operating)	-	10-55Hz (Sweep for 1 min.) Amplitude 0.825mm Constant (Maximum 49.0m/s ²) X,Y,Z 1 hour each. IEC61373 Category 1, Grade B
Shock (Non operating)	-	196.1m/s ² . IEC61373 Category 1 Grade B

Specifications

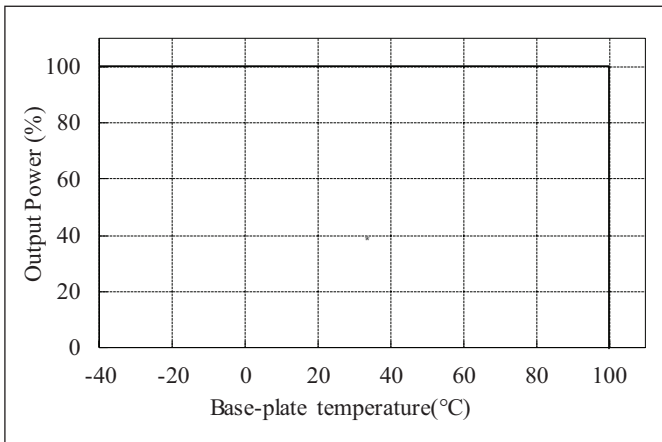
Model			CN-B110
Input			
Weight (Typ)	g		100
Size (LxWxH)	mm		61 x 57.9 x 12.7
Size (LxWxH)	Inches		2.4 x 2.28 x 0.5
MTBF - Telcordia SR-332 issue 3*	Hours		9,382,649
Warranty	yrs		5

Notes

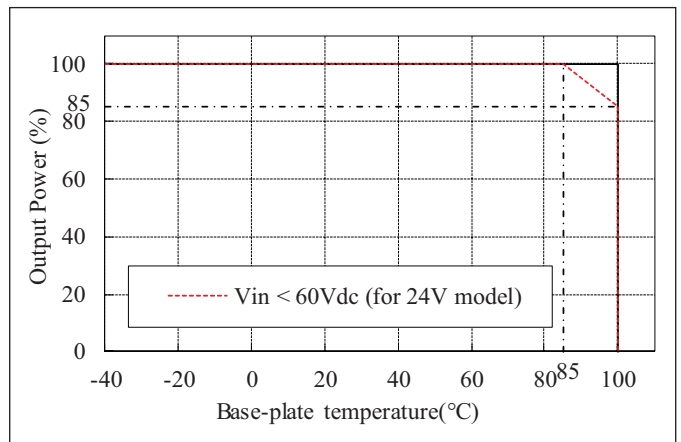
See website for detailed specifications, test methods and installation manual

* Full load, CN300B110-24, 25°C baseplate temperature. See reliability data on website for other temperatures.

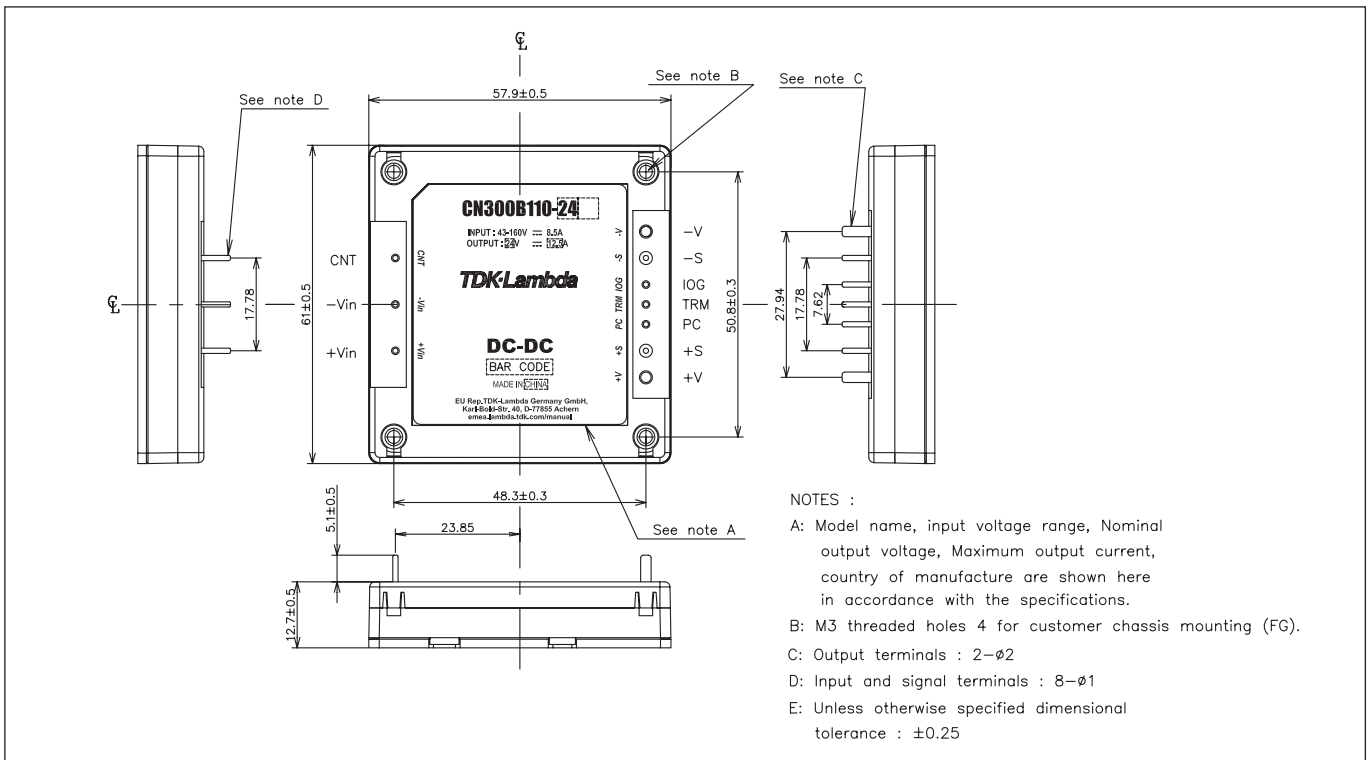
Derating Curves CN200B110



Derating Curves CN300B110



Outline Drawing CN200B110, CN300B110 (Standard Models)





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