30-200W, 60 to 160V Input DC-DC Converters

https://product.tdk.com/en/power/cn-a
www.emea.lambda.tdk.com/cn-a



Industrial Railway

The rugged quarter and half brick 30 to 200W CN-A110 series of isolated DC-DC converters operate from a wide 60 to 160V input. With an input to baseplate isolation of 2,000Vac and 3,000Vac input to output, the series is designed for use on 110V nominal input rail and substation 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-A110 series features remote sense, remote on/off and output voltage adjustment. The 200W model also offers active current share for parallel or redundant operation (12 - 24V models).

Features	Benefits
• Wide Input Range	• Supports 110V Input Rail and Substation Systems
• Quarter and Half Brick Packages	• Less Board Area Needed
• Certified to IEC 62368-1, Designed to Meet IEC 61373	• Easier System Compliance
• Current Share Function (200W Model)	• Can be Paralleled for Higher Power Applications
• No Derating at High Ambient Temperatures	• Greater Useable Power

Model Selector

Model	Output Voltage (V)	Output Voltage Adjustment (V)	Output Current (A)	Maximum Power (W)	Input Current (A) (110V input, 100% load)	Efficiency (%)(1)
CN30A110-5	5	4.5 - 6.0	6	30.0	0.34	83
CN50A110-5	5	4.5 - 6.0	10	50.0	0.55	84
CN100A110-5	5	4.5 - 6.0	20	100.0	1.05	85
CN200A110-5	5	4.5 - 6.0	40	200.0	2.16	85
CN30A110-12	12	10.8 - 13.2	2.5	30.0	0.34	84
CN50A110-12	12	10.8 - 13.2	4.2	50.4	0.55	86
CN100A110-12	12	10.8 - 13.2	8.4	100.8	1.05	88
CN200A110-12	12	10.8 - 13.2	16.7	200.4	2.09	88
CN30A110-15	15	13.5 - 16.5	2	30.0	0.34	84
CN50A110-15	15	13.5 - 16.5	3.4	51.0	0.55	86
CN100A110-15	15	13.5 - 16.5	6.7	100.5	1.05	88
CN200A110-15	15	13.5 - 16.5	13.4	201.0	2.10	88
CN30A110-24	24	21.6 - 26.4	1.3	31.2	0.34	84
CN50A110-24	24	21.6 - 26.4	2.1	50.4	0.55	86
CN100A110-24	24	21.6 - 26.4	4.2	100.8	1.05	88
CN200A110-24	24	21.6 - 26.4	8.4	201.6	2.11	88

Part Numbering Scheme

CN	30A	110	-12	-

Series name

Output Power
30A = 30W
50A = 50W
100A = 100W
200A = 200W

Input Voltage
110 = 60 - 160V

Output Voltage
5 = 5V
12 = 12V
15 = 15V
24 = 24V

Options:
Blank = Standard
/CO = Pcb coating for EN50155 & IEC60571 compliance

Related Products

Type	Part Number(s)	Description
Heat Sink	HAQ-10T	CN30A to 100A 25mm transverse fins
Heat Sink	HAH-10T	CN200A 25mm transverse fins
Heat Sink	HAH-15T	CN200A 38mm transverse fins
Heat Sink	HAH-15L	CN200A 38mm longitudinal fins

Specifications

Model		CN-A110
Input		
Input Voltage Range	Vdc	60 - 160
Efficiency	-	See model selector table
Conducted & Radiated EMI	-	EN55011/EN55032-A, FCC Class A, VCCI-A (External components are required, consult Evaluation Data)
Immunity	-	See model immunity table below
Safety Certifications and Markings	-	IEC/UL/CSA/EN62368-1, 60950-1, CE Mark and UKCA Mark. Designed to meet EN45545-2

Immunity

Test	Standard	Test Level	Criteria	Notes
ESD	EN61000-4-2	Air ±8kV and contact ±6kV	A	See IEC61000 immunity test report on website for external filtering circuitry
Radiated Susceptibility	EN61000-4-3	80M -1GHz: 10V/m	A	
Electrical Fast Transient Burst	EN61000-4-4	±2kV	A	
Surge	EN61000-4-5	Common, Normal ±2kV	A	
Conducted Susceptibility	EN61000-4-6	10Vrms	A	
Magnetic Fields	EN61000-4-8	30A/m	A	

Specifications

Model		CN30-A110	CN50-A110	CN100-A110	CN200-A110
Output					
Output Voltage Tolerance	%	±1			
Output Voltage Adjustment	-	See model selector			
Switching Frequency	kHz	400			300
Line Regulation	mV	5V: 20, 12V: 48: 15V: 60, 24V: 96			
Load Regulation	mV	5V: 40, 12V: 96: 15V: 120, 24V: 192			
External Load Capacitance	uF	10,000			
Ripple & Noise	mV	5V: 100, 12V & 15V: 150, 24V: 240			
Temperature Coefficient	%/°C	0.02			
Minimum Load	-	No minimum load required			
Overcurrent Protection	%	105 - 140. Auto recovery			
Overvoltage Protection	%	125 - 145 (2)			
Overtemperature Protection	°C	Operates at 105-120 baseplate. Auto recovery.			
Remote Sense	-	Yes			
Remote On/Off	-	Negative Logic ON: Short (<0.8V), OFF: Open or 4 to 35V			
Parallel Operation (3 Units Maximum)	-	Not possible			12, 15 and 24V models only
Environmental		**CN-A110**			
Operating Temperature	°C	-40 to +100 (Baseplate)			
Storage Temperature	°C	-40 to +100			
Humidity (non condensing)	%RH	5 - 95 (Operating & Storage)			
Cooling	-	Conduction			
Altitude	m	3,000			
Withstand Voltage (For 1 minute)	Vac	Input to baseplate 2,000, input to output 3,000, output to baseplate 500 for 1 minute			
Isolation Resistance	MΩ	>100 at 25°C, 70%RH & Output - Baseplate 500VDC			
Vibration (Non operating)	-	10-55Hz (Sweep for 1min.) 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			
Other		**CN30-A110**	**CN50-A110**	**CN100-A110**	**CN200-A110**
Weight (Typ)	g	70	70	70	100
Size (LxWxH)	mm	57.9 x 36.8 x 12.7			57.9 x 61 x 12.7
Size (LxWxH)	Inches	2.28 x 1.45 x 0.5			2.28 x 2.4 x 0.5
MTBF - Telcordia SR-332 issue 3*	Hours	1,979,165			1,634,969
Warranty	yrs	5			

Notes

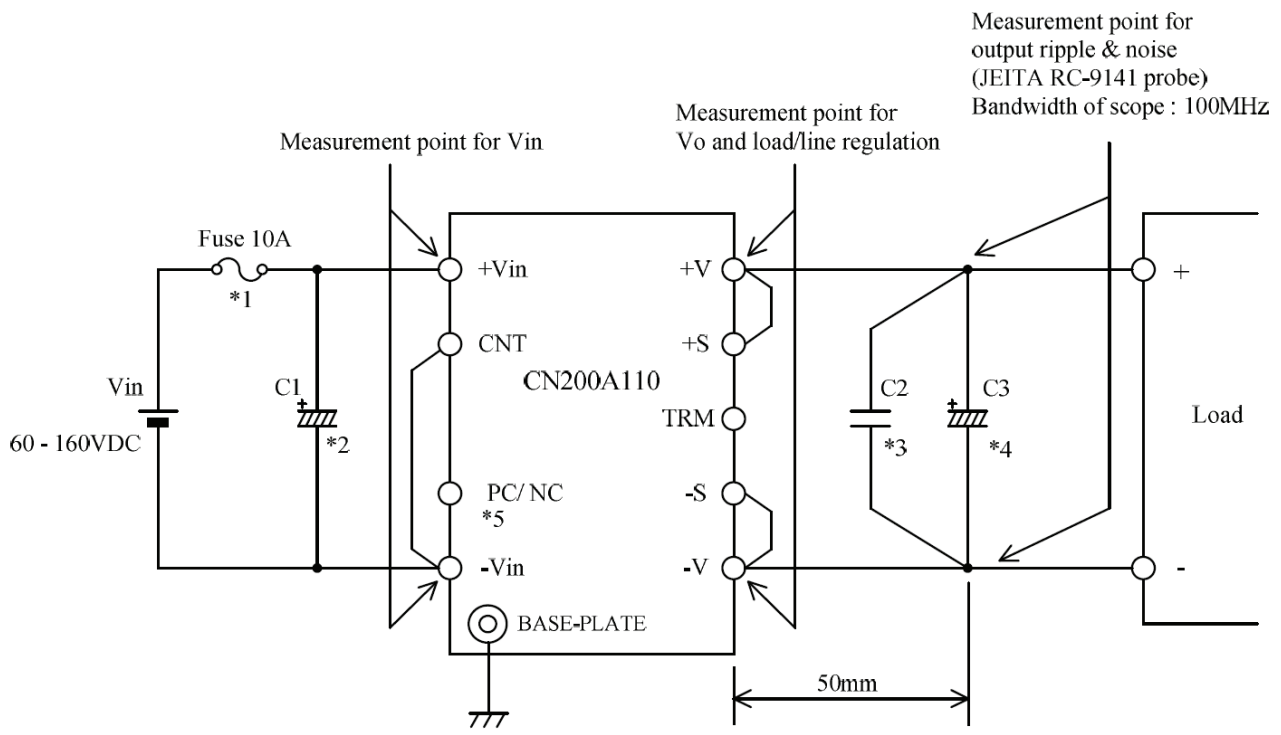
See website for detailed specifications, test methods and installation manual

* Full load, 24V output, 40°C baseplate temperature. See reliability data on website for other temperatures.

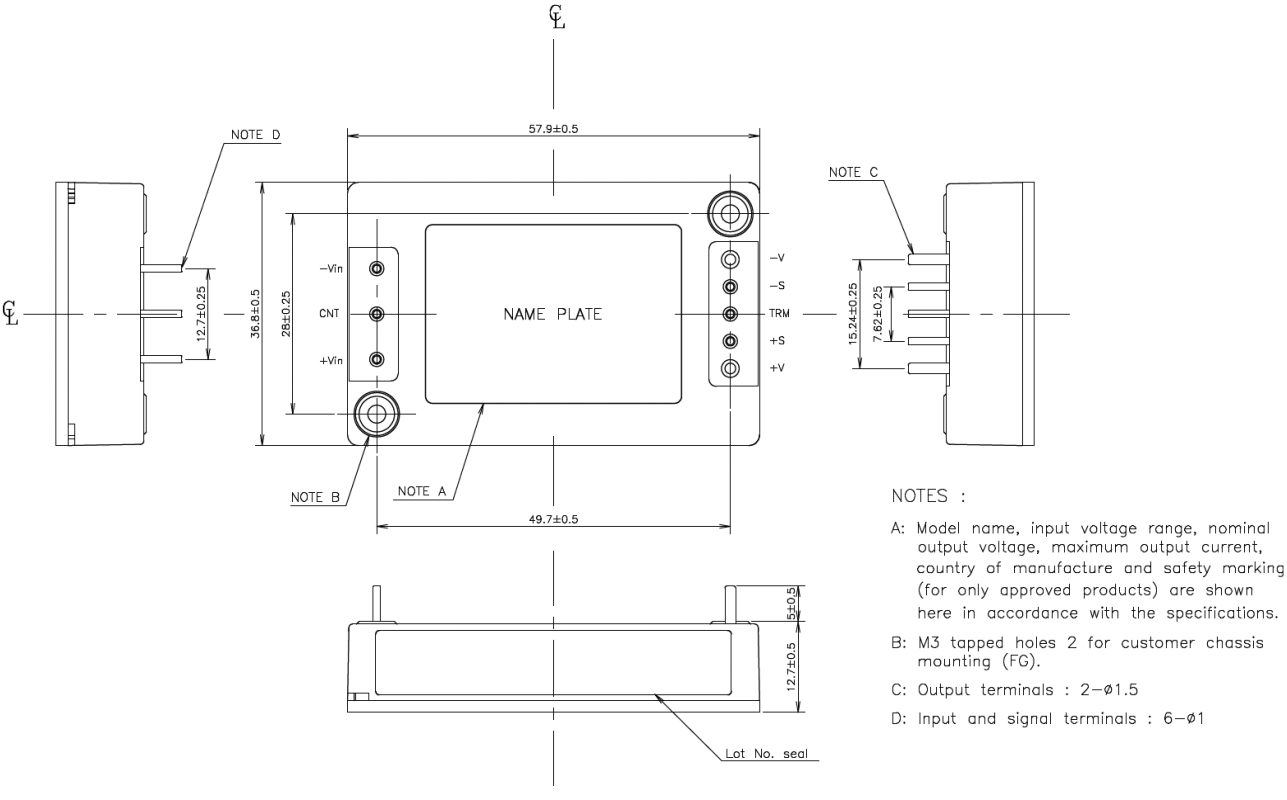
(1) 80% of Maximum Output current

(2) Cycle input or remote on/off to reset

Basic Connection for the CN200A110



Outline Drawing CN30A to CN100A110



NOTES :

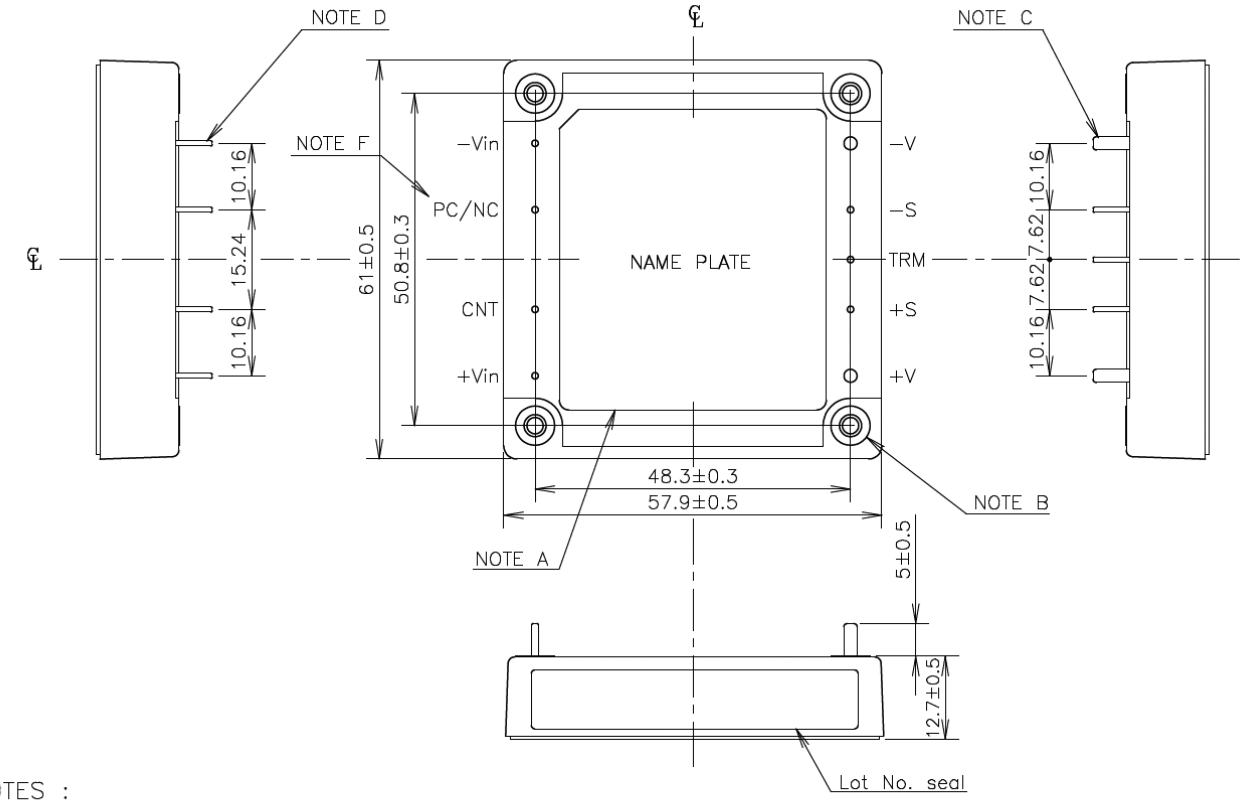
A: Model name, input voltage range, nominal output voltage, maximum output current, country of manufacture and safety marking (for only approved products) are shown here in accordance with the specifications.

B: M3 tapped holes 2 for customer chassis mounting (FG).

C: Output terminals : 2−ø1.5

D: Input and signal terminals : 6−ø1

Outline Drawing CN200A110



NOTES :

A: Model name, input voltage range, nominal output voltage, maximum output current, country of manufacture and safety marking (for only approved products) are shown here in accordance with the specifications.

B: M3 tapped holes 4 for customer chassis mounting (FG).

C: Output terminals : 2–ø2.0

D: Input and signal terminals : 7–ø1

E: Unless otherwise specified dimensional tolerance : ±0.25

F: 5V output model : NC
12V, 15V, 24V output models : PC



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