

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

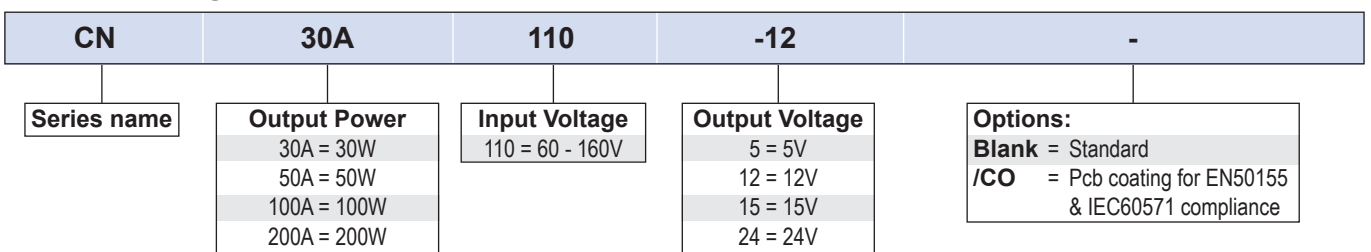
The rugged quarter and half brick 30 to 200W CN-A110 series of isolated DC-DC converters operate from a wide 60 to 160V input. With an input to baseplate isolation of 2,000Vac and 3,000Vac input to output, the series is designed for use on 110V nominal input rail and substation power systems. In addition, 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



| 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

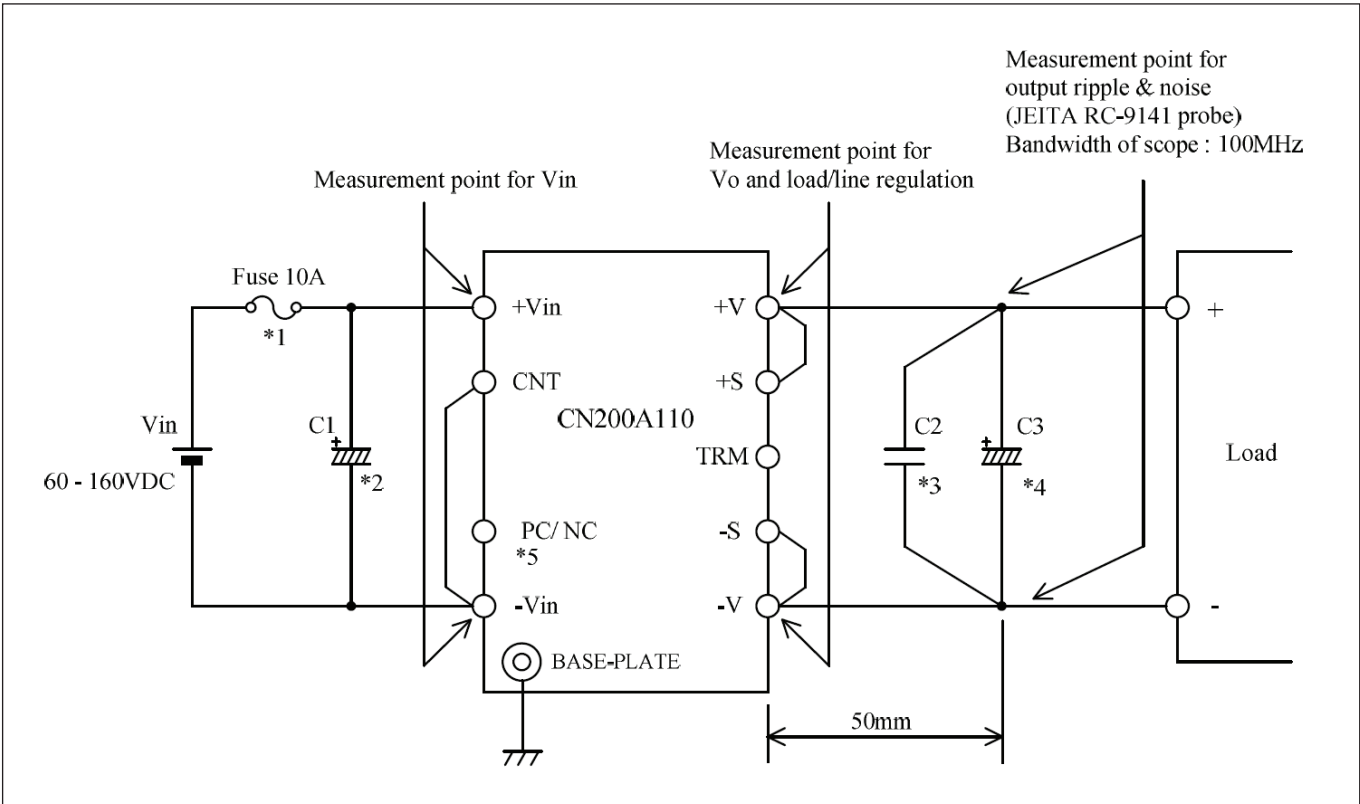
See website for detailed specifications, test methods and installation manual

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

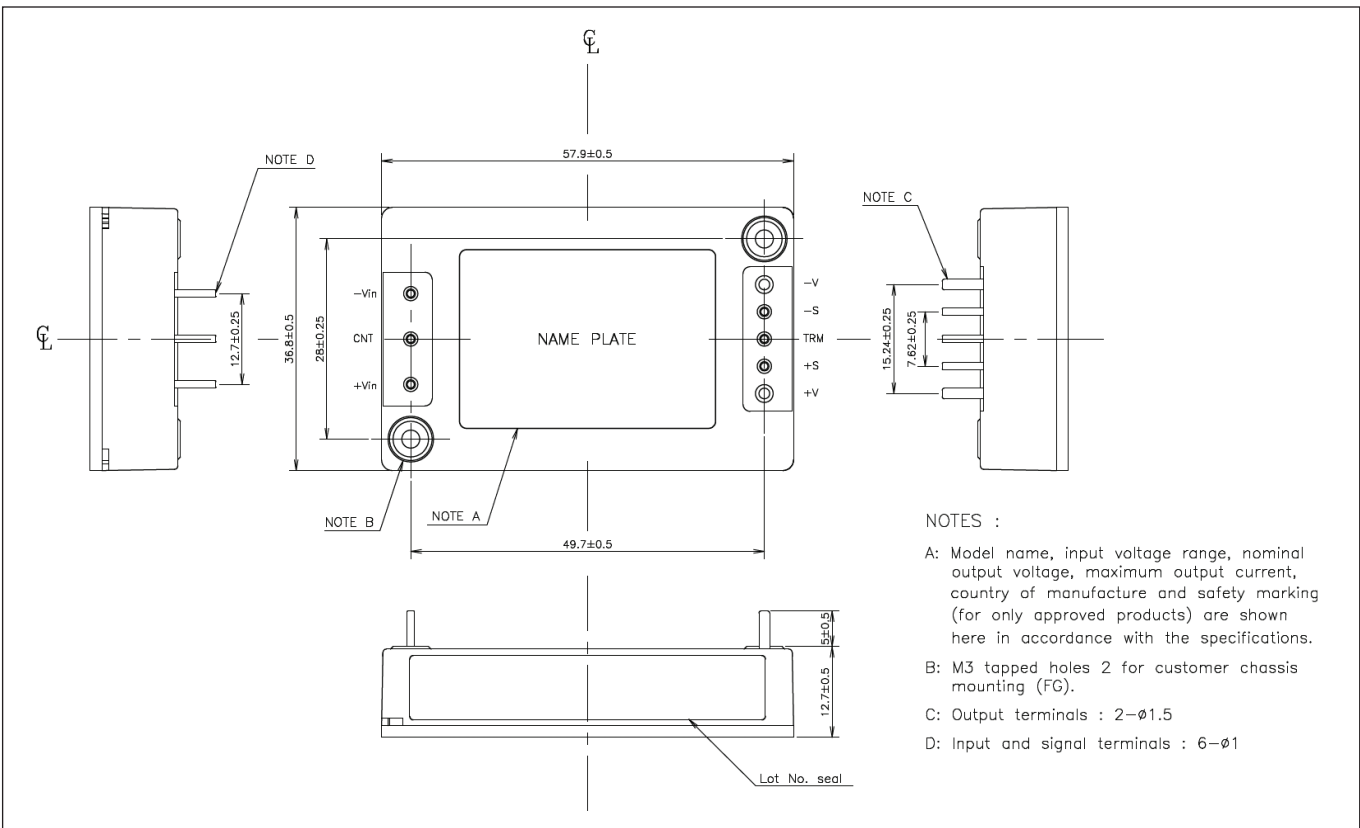
(1) 80% of Maximum Output current

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

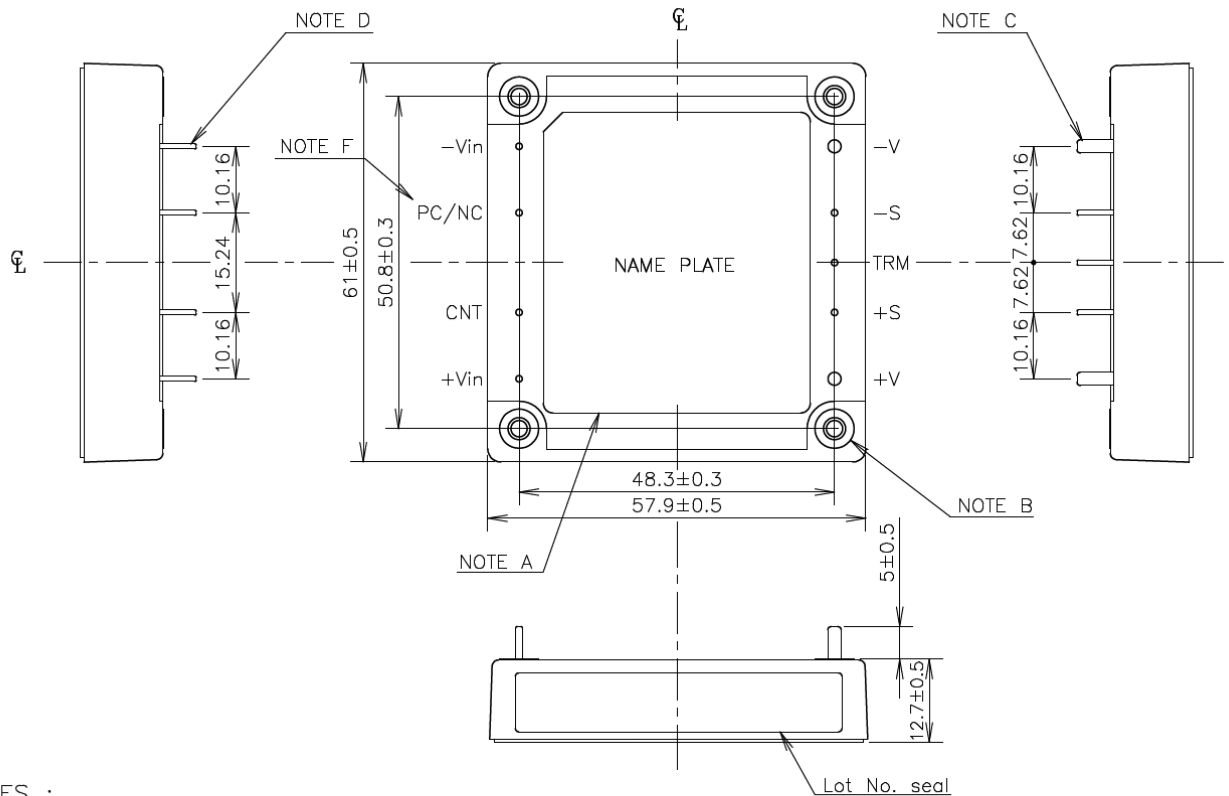
Basic Connection for the CN200A110



Outline Drawing CN30A to CN100A110



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- ϕ 2.0
- D: Input and signal terminals : 7- ϕ 1
- E: Unless otherwise specified dimensional tolerance : ± 0.25
- F: 5V output model : NC
12V, 15V, 24V output models : PC



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