



**C.M. TECHNOLOGY**

Designed and Manufactured in Australia

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## PRODUCT SHORTFORM

Rev. A4

Tel: +61 (2) 9764 5655

### Railway Panel-mount DC-DC Converter

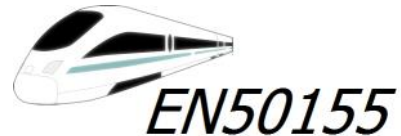


## RailGroup P110 Series

*The RailGroup P110 Series is a panel-mount DC-DC Converter.*

*Available in 12V & 24V DC Output configurations.*

- Long life electrolytic capacitors
- 100% full load burn in tested
- Built-in constant current limiting circuit
- Overload/Overvoltage/Over temperature protection
- Compact panel form factor (200mm or 300 mm)
- Two year warranty



#### Available Configurations

<b>P110 12 (200 mm)</b>	12V, 8.4 A, Single
<b>P110 12 (300 mm)</b>	12V, 8.4 A, Single
<b>P110 24 (200 mm)</b>	24V, 4.2 A, Single
<b>P110 24 (300 mm)</b>	24V, 4.2 A, Single

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**Specifications for RailGroup P110 12V type:**

<b>Output DC Voltage</b>	12V
<b>Output Rated Current</b>	8.4A
<b>Current Range</b>	0-8.4A
<b>Rated Power</b>	100.8W
<b>Ripple &amp; Noise (Maximum)</b>	120mVpeak-to-peak
<b>Voltage Tolerance</b>	±2.0%
<b>Line Regulation</b>	±0.2%
<b>Load Regulation</b>	±1.0%
<b>Setup, Rise Time</b>	800ms
<b>Hold up Time (Typical)</b>	3-30ms at full load
<b>Input Voltage Range (Continuous)</b>	67.2-143V DC
<b>Input Voltage Range (1 second)</b>	57.6-154V DC
<b>Efficiency (Typical)</b>	91%
<b>Input DC Current (Typical)</b>	1.2A/110V
<b>Inrush Current (Typical)</b>	30A/110V DC
<b>Overload Protection</b>	105-135% rated output power
<b>Overvoltage Protection</b>	13.8 - 16.2V
<b>EMS Immunity</b>	EN61000-4-2,3,4,6,8,11, ENV50204, EN 50155 (EN50121-3-2) Light industrial, Criteria A
<b>EMS Emission</b>	EN55022 (CISPR22) Conduction Emission Class A, Radiation Emission Class B, EN50155 (EN50121-3-2)
<b>Isolation Resistance</b>	Input-Output, Input-Ground, Output-Ground: 100 MΩ/500V DC/25°C/70%RH
<b>Withstand Voltage</b>	Input-Output: 4KV DC, Input-Ground: 2.5KV DC, Output-Ground: 2.5KV DC
<b>Safety Standards</b>	IEC60950-1, EN50155 (IEC60571)
<b>MTBF</b>	254.1Khrs min. MIL-HDBK-217F (25°C)
<b>Vibration</b>	10 ~ 500Hz, 5G 10min./1cycle, 60min. each along X, Y, Z axis
<b>Working Temperature</b>	-40°C ~ +55°C (No derating)
<b>Working Humidity</b>	20% ~ 95% Room Humidity Non-condensing
<b>Storage Temperature &amp; Humidity</b>	-40°C ~ +85°C, 10% ~ 95% Room Humidity


**Specifications for RailGroup P110 24V type:**

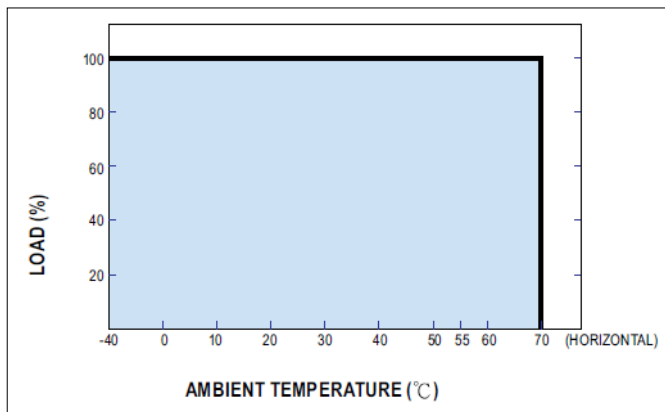
<b>Output DC Voltage</b>	24V
<b>Output Rated Current</b>	4.2A
<b>Current Range</b>	0-4.2A
<b>Rated Power</b>	100.8W
<b>Ripple &amp; Noise (Maximum)</b>	150mVpeak-to-peak
<b>Voltage Tolerance</b>	±2.0%
<b>Line Regulation</b>	±0.2%
<b>Load Regulation</b>	±1.0%
<b>Setup, Rise Time</b>	800ms
<b>Hold up Time (Typical)</b>	3-30ms at full load
<b>Input Voltage Range (Continuous)</b>	67.2-143V DC
<b>Input Voltage Range (1 second)</b>	57.6-154V DC
<b>Efficiency (Typical)</b>	90%
<b>Input DC Current (Typical)</b>	1.2A/110V
<b>Inrush Current (Typical)</b>	30A/110V DC
<b>Overload Protection</b>	105-135% rated output power
<b>Overvoltage Protection</b>	27.6 - 32.4V
<b>EMS Immunity</b>	EN61000-4-2,3,4,6,8,11, ENV50204, EN 50155 (EN50121-3-2) Light industrial, Criteria A
<b>EMS Emission</b>	EN55022 (CISPR22) Conduction Emission Class A, Radiation Emission Class B, EN50155 (EN50121-3-2)
<b>Isolation Resistance</b>	Input-Output, Input-Ground, Output-Ground: 100 MΩ/500V DC/25°C/70%RH
<b>Withstand Voltage</b>	Input-Output: 4KV DC, Input-Ground: 2.5KV DC, Output-Ground: 2.5KV DC
<b>Safety Standards</b>	IEC60950-1, EN50155 (IEC60571)
<b>MTBF</b>	254.1Khrs min. MIL-HDBK-217F (25°C)
<b>Vibration</b>	10 ~ 500Hz, 5G 10min./1cycle, 60min. each along X, Y, Z axis
<b>Working Temperature</b>	-40°C ~ +55°C (No derating)
<b>Working Humidity</b>	20% ~ 95% Room Humidity Non-condensing
<b>Storage Temperature &amp; Humidity</b>	-40°C ~ +85°C, 10% ~ 95% Room Humidity



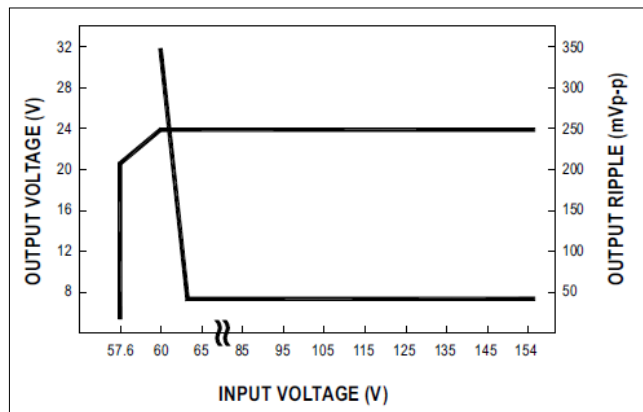
### Overview:

The RailGroup P110 Series has been designed to suit the unique requirements of DC-DC converters used in railway applications.

The RailGroup P110 Series has been designed for any Railway application with DC supplies ranging from 68 to 143 volts.



*Derating Curve*



*Static Characteristics (24V)*

The RailGroup P110 Series is an example of a generic approach to locomotive power system requirement.

Manufactured using switchmode technologies, the RailGroup P110 series is designed for a high energy efficiency of >90%. This relatively high efficiency allows convection cooling with a maximum 70°C ambient working temperature. Our high quality components are mounted on a compact panel form factor (200mm or 300 mm) allowing for flexible mounting configurations.

The finished DC-DC converters are all burnt in at full load to provoke any infant mortality failures, with some products held on long term burn-in.

The RailGroup P110 Series is compliant with the Australian C-Tick Standard.





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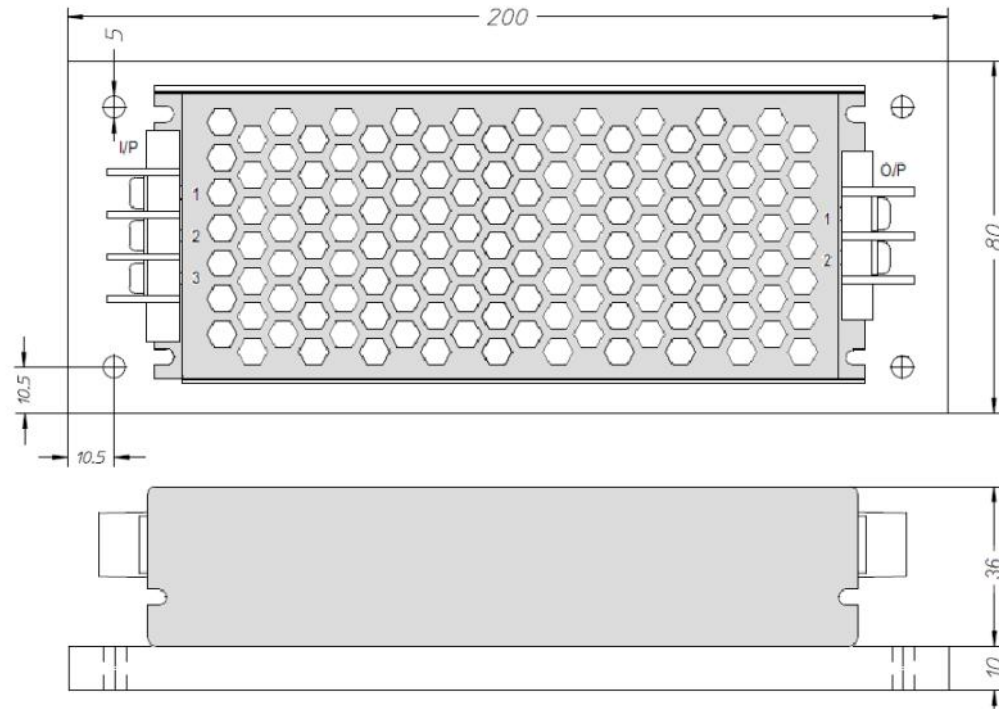
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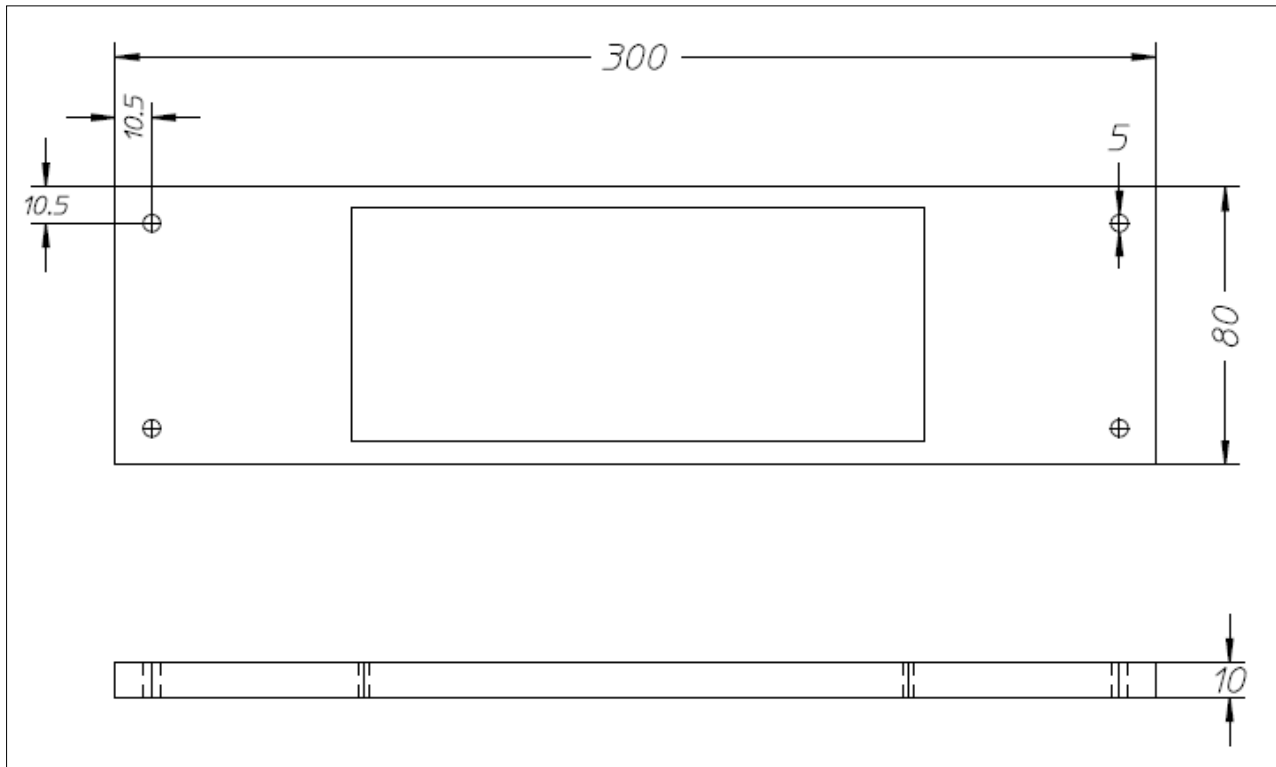
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### Dimensions P110 Series (200mm):



### Dimensions P110 Series (300mm):



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