

Rail systems demand quality power.
CCI delivers with specialised, rugged
and reliable DC/DC products.



Computer
Control
Instrumentation

Proudly Distributed by

LEGEND
POWER SYSTEMS

CCI DC/DC Power Supplies are innovative, reliable, robust and have established a reputation for excellence since their introduction in 1984.

Locomotive clients such as Alstom, QR/Aurizon, Pacific National, Victrack, Goninan, EDI, Tait and Transfield have been utilising CCI Products for decades across geographies including Australia and New Zealand.

Since the merger of Computer Control Instrumentation in 2011 with ASX listed Legend Corporation, the full range of converters is now manufactured by Legend at its Hendon Semiconductors facility in Adelaide, South Australia, a state of the art manufacturing facility with ISO 9001 and is certified by SAI Global to the following quality levels:

- Medical Device Certification ISO 13485
- FMEA on all products and process according to SAEJ-1739
- Final Production testing
- SPC charting and analysis
- IPC-J-STD-001E, IPC-A-610E and IPC-771/7721
- Extensive life test qualification capability
- NATA accredited test laboratory
- Environmental Certification ISO 14001
- Test and Calibration Certification ISO 17025

CCI Converters - Innovation at its best

The range of CCI compact converters cover most on board locomotive voltages ranging from 24Vdc to 110Vdc. All converters are fully isolated and operate at high efficiency to minimise heat and increase reliability and lifetime. Electronic current sensing is used instead of an output fuse to further increase reliability and reduce maintenance.

CCI's converters are compact for their rated power. Synchronous rectification and full bridge converter topology is utilised for small size and high efficiency, that is typically around 95% at full load.

The latest WR range of converters were fully tested to the EN50155 standard and were proved to operate from -25°C to 85°C at full load (Category T3). The converters also exceed the EN50121-3-2 requirements and meet the more stringent EN55011 standards and are therefore suitable for powering the latest digital (or analog) radios.





Computer Control Instrumentation



Why use CCI?

If you want trustworthy, robust and efficient products that have been proven in the field for decades then CCI branded products are the right choice. The CCI brand is backed by a company that is professional, innovative, client focussed and strives to produce products to the highest quality standards. Legend Corporation is committed to implementing and maintaining group wide Quality Assurance Certification ISO 9001.



In support of our policy of continuous product improvement we reserve the right to change materials and specifications without notice. Drawings, where used, are not to scale. All dimensions are in millimetres and sizes given are approximate. Where possible, technical msds data sheets are made available on the website. All products should be installed and used in accordance with manufacturer's instructions provided. Warning: products may be the subject of registered designs and patents. Refer to website for terms and conditions on warranty.

Legend Power Systems

AU T: 1800 769 370 | E: sales@legendpower.com.au | W: legendpower.com.au
NZ T: 0800 77 69 69 | E: sales@legendpower.co.nz | W: legendpower.co.nz

LEGEND
POWER SYSTEMS



Computer Control Instrumentation supply a range of DC to DC converters used in locomotive applications. CCI has a range of compact converters covering common locomotive voltages ranging from 24Vdc to 110Vdc. All converters are isolated and operate at high efficiency, minimising heat and increasing reliability. Electronic current sensing is also used instead of an output fuse to further increase reliability and reduce maintenance. Models are typically from 90 to 95% efficient at full load. For further information on the range available, refer to the table below.

Page No.	Product Part No.	DC In Voltage	DC Out Voltage	Output Watts/Amps	Technical Drawing	Description and Usage – Note: Typical usage only – not limited to these applications
5	MR50E-13V6-4A	72V	13.6V	50W - 4A	Page 28	Radio, Vigilance, Telemetry, Low power
6	MR50E-24V-2A	72V	24V	50W - 2A	Page 28	Radio, Vigilance, Telemetry, Low power
7	MR50EF-24V-2A	72V	24V	50W - 2A	Page 28	Radio, Telemetry, Low power with 72V batt, V/freq. out
8	MR150E-13V6-10A	72V	13.6V	150W -10A	Page 28	Radio, Vigilance, Telemetry, Low power
9	MR150E-24V-6A	72V	24V	150W - 6A	Page 28	Radio, Vigilance, Telemetry, Smart Fuel PLC, Med power
10	MR200E-13V6-15A	72V	13.6V	200W - 15A	Page 28	Radio, Vigilance, Telemetry, Med power
11	MR200E-24V-8A	72V	24V	200W - 8A	Page 28	Radio, Washers & Wipers, Med power
12	MR400E-13V6-30A	72V	13.6V	400W - 30A	Page 28	Radio, Vigilance, Telemetry, Wipers, High power
13	MR400E-24V-16A	72V	24V	400W - 16A	Page 28	Radio, Vigilance, Telemetry, Wipers, High power
14	MR400E-27V-15A	72V	27V	400W - 15A	Page 28	Solves some 24V applications where 24 Volts is too low
15	MR850E-13V6-60A	72V	13.6V	850W - 60A	Page 29	In lieu of alternator & battery setups, for high current use
16	MR850E-24V-35A	72V	24V	850W - 35A	Page 29	In lieu of alternator & battery setups, for high current use
17	WR150E-13V6-10A	72-110V	13.6V	150W - 10A	Page 28	Radio, Vigilance Telemetry, Med power
18	WR150EQ-13V6-10A	72-110V	13.6V	150W - 10A	Page 28	Radio, Vigilance Med power, Qld Circular Connector
19	WR150E-20V-6A	72-110V	20V	150W - 6A	Page 28	Specifically created for powering/charging laptops
20	WR150E-24V-6A	72-110V	24V	150W - 6A	Page 28	Radio, Vigilance, PLC, Med power
21	WR200E-13V6-15A	72-110V	13.6V	200W - 15A	Page 28	Radio, Vigilance, PLC, Med power
22	24WR200E-13V6-15A	24V	13.6V	200W - 15A	Page 30	Radio, Vigilance, PLC, Med power
23	32MR400E-64V-6A	32V	64V	400W - 6A	Page 28	For powering 72V Radios or other equipment, from 32V
24	48MR200E-13V6-15A	48V	13.6V	200W - 15A	Page 28	48V Battery supply, Radio, Vigilance, Telemetry, Med power
25	48MR400E-13V6-30A	48V	13.6V	400W - 30A	Page 28	48V Battery supply, Radio, Vigilance, Telemetry, High power
26	48MR400EB-27V-15A	34-60V	27V	400W - 15A	Page 28	Steam turbine/alternator DC input to 24V battery charging
27	Rail Battery Chargers: SC4A, SLX678-10 and SLX678-15 (All Rail Battery Chargers for use in signalling applications)					
28	Enclosure Dimensions and Mounting Details for Models up to 400W (See Product Part No. and columns above to reference)					
29	Enclosure Dimensions and Mounting Details for Models over 400W (See Product Part No. and columns above to reference)					
30	Enclosure Dimensions and Mounting Details for 24WR200E-13V6-15A (See Page 22 for details)					
31	Note Page					
If a suitable unit is not in the above list please contact us to discuss your requirements – we design, engineer & manufacture locally.						



50W DC/DC Rail Power Supply

Input 72V Nominal (55-90Vdc) Isolated Output 13.6Vdc at 4A

APPLICATION

DC/DC Power Supply for Locomotive applications. The MR series DC/DC converters have been designed to operate with the 72Vdc supply voltage commonly found in most locomotives & operate at high efficiency to minimise heat and increase reliability. The MR series use electronic current sensing instead of an output fuse to further increase reliability and reduce maintenance. If the supply becomes overloaded it will cycle the output on and off whilst the problem persists and afterwards resume normal operation.



MR50E-13V6-4A

Part No. MR50E-13V6-4A

Features	Benefits	Advantage
No External Fins	Operates in position with restricted airflows	No special ventilation required, install it anywhere
Fan-less & Fuse-less Design	High Reliability	Fans & Fuses do fail – eliminating them increases the reliability
90+% Efficiency	No Ventilation Ports Required	Reduces dust ingress which increases reliability
Compact Size	Ease of mounting position	Small size allows for mounting unit right where you need it

Specifications	MR50E-13V6-4A
Input Voltage	55 – 90Vdc (Must be over 60V to start running)
Output Voltage	13.6Vdc (+50/-0mV)
Output Power	50W
Regulation (62 < Vin < 90V, Iout = 4A)	Vout = 13.6V < 1% Error
Regulation (55 < Vin < 62V, Iout = 4A)	Vout = 12.0V – 13.6V
Input Fuse	2A
Output Fuse	No Fuse – Internal Protection
Input LED, ON if Input is	55 – 90Vdc (Once unit running)
Output LED, ON if Output is	> 12Vdc
Efficiency	Typically > 90% at Full Load
Isolation	I/P to O/P 1kV Minimum (Tested)
Isolation	I/P to GND 1kV Minimum (Tested)
Isolation	O/P to GND 500V Minimum (Tested)
Ripple & Noise (RMS)	< 50mV (Typically < = 25mV @ 4A & Vin = 60 – 90V)
Operating Temperature	0° – 60°C
Weight	950g
Dimensions	184L x 111W x 63H (mm)

In support of our policy of continuous product improvement we reserve the right to change materials and specifications without notice. Drawings, where used, are not to scale. All dimensions are in millimetres and sizes given are approximate. Where possible, technical msds data sheets are made available on the website. All products should be installed and used in accordance with manufacturer's instructions provided. Warning: products may be the subject of registered designs and patents. Refer to website for terms and conditions on warranty.



50W DC/DC Rail Power Supply

Input 72V Nominal (55-90Vdc) Isolated Output 24Vdc at 2A

APPLICATION

DC/DC Power Supply for Locomotive applications. The MR series DC/DC converters have been designed to operate with the 72Vdc supply voltage commonly found in most locomotives & operate at high efficiency to minimise heat and increase reliability. The MR series use electronic current sensing instead of an output fuse to further increase reliability and reduce maintenance. If the supply becomes overloaded it will cycle the output on and off whilst the problem persists and afterwards resume normal operation.



MR50E-24V-2A

Part No. **MR50E-24V-2A**

Features	Benefits	Advantage
No External Fins	Operates in position with restricted airflows	No special ventilation required, install it anywhere
Fan-less & Fuse-less Design	High Reliability – No output Fuse Electronic current limit	Fans & Fuses do fail - eliminating them increases the reliability
90+% Efficiency	No Ventilation Ports Required	Reduces dust ingress which increases reliability
Compact Size	Ease of mounting position	Small size allows for mounting unit right where you need it

Specifications	MR50E-24V-2A
Input Voltage	55 – 90Vdc (Must be over 60V to start running)
Output Voltage	24.1Vdc (+/- 100mV)
Output Power	50W
Regulation (60 < Vin < 90V, Iout = 2A)	Vout = 24.1V < 1% Error
Regulation (55 < Vin < 60V, Iout = 2A)	Vout = 22V – 24.1V
Input Fuse	1.6A
Output Fuse	No Fuse – Internal Protection
Input LED, ON if I/P is	55 – 90Vdc (Once unit is running)
Output LED, ON if O/P is	> 20Vdc
Efficiency	Typically > 90% at Full Load
Isolation	I/P to O/P 1kV Minimum (Tested)
Isolation	I/P to GND 1kV Minimum (Tested)
Isolation	O/P to GND 500V Minimum (Tested)
Ripple & Noise (RMS)	< 100mV (Typically <= 50mV @ 2A & Vin = 60 – 90V)
Operating Temperature	0° – 60°C
Weight	730g
Dimensions	184L x 111W x 63H (mm)



50W DC/DC Rail Power Supply

Input 72V Nominal (55-90Vdc) Isolated Output 24Vdc at 2A

APPLICATION

DC/DC Power Supply for Locomotive applications. The MR Series operate at high efficiency to minimise heat and increase reliability. Electronic current sensing is used instead in lieu of an output fuse to increase reliability and reduce maintenance. If the supply becomes overloaded it will cycle the output on and off whilst the problem persists and afterwards resume normal operation. The "MR50EF" has a digital isolated output, providing a frequency proportional to the input voltage for battery monitoring and telemetry use, this model also extends input voltage operation down to 35V once running (at reduced output voltage).



MR50EF-24V-2A

Part No. **MR50EF-24V-2A**

Features	Benefits	Advantage
No External Fins	Operates in position with restricted airflows	No special ventilation required, install it anywhere
Fan-less & Fuse-less Design	High Reliability – No output Fuse Electronic current limit	Fans & Fuses do fail - eliminating them increases the reliability
90+% Efficiency	No Ventilation Ports Required	Reduces dust ingress which increases reliability
Compact Size	Ease of mounting position	Small size allows for mounting unit right where you need it

Specifications	MR50EF-24V-2A
Input Voltage	35 – 90Vdc (Must be over 50V to start running)
Output Voltage	24.1Vdc (+/- 100mV)
Output Power	50W
Regulation (58 < Vin < 90V, Iout = 2A)	Vout = 24.1V < 1% Error
Regulation (35 < Vin < 58V, Iout = 2A)	Vout = 14V – 24.1V
Input Fuse	1.6A
Output Fuse	No Fuse – Internal Protection
Input LED, ON if I/P is	Within range 40 – 90Vdc
Output LED, ON if O/P is	> 22Vdc
Isolated Frequency Output	From 400Hz = 40.0V to 900Hz = 90.0V error +/- 0.2V
Efficiency	Typically > 90% at Full Load
Isolation	I/P to O/P 1kV Minimum (Tested)
Isolation	I/P to GND 1kV Minimum (Tested)
Isolation	O/P to GND 500V Minimum (Tested)
Ripple & Noise (RMS)	< 100mV (Typically < = 50mV @ 2A & Vin = 55 – 90V)
Operating Temperature	0° – 60°C
V-F Pin Out	Left to Right (from Fuse) - +5V, Fout, Spare, Gnd/0V
Weight	850g
Dimensions	184L x 111W x 63H (mm)

In support of our policy of continuous product improvement we reserve the right to change materials and specifications without notice. Drawings, where used, are not to scale. All dimensions are in millimetres and sizes given are approximate. Where possible, technical msds data sheets are made available on the website. All products should be installed and used in accordance with manufacturer's instructions provided. Warning: products may be the subject of registered designs and patents. Refer to website for terms and conditions on warranty.



150W DC/DC Rail Power Supply

Input 72V Nominal (55-90Vdc) Isolated Output 13.6Vdc at 10A

APPLICATION

DC/DC Power Supply for Locomotive applications. The MR series DC/DC converters typically operate above 95% efficiency at full load over the specified input range. The MR converters have been designed to operate with the 72Vdc supply voltage commonly found in most locomotives. The MR series uses electronic current sensing instead of a fuse for increased efficiency and reliability. If the supply becomes overloaded it will cycle the output on and off whilst the problem persists and afterwards resume normal operation. The supply is able to handle loads requiring a high surge current to operate such as lamps and motors.



MR150E-13V6-10A

Part No. MR150E-13V6-10A

Features	Benefits	Advantage
No External Fins	Operates in position with restricted airflows	No special ventilation required, install it anywhere
Fan-less & Fuse-less Design	High Reliability	Fans & Fuses do fail - eliminating them increases the reliability
90+% Efficiency	No Ventilation Ports Required	Reduces dust ingress which increases reliability
Compact Size for rated power	Ease of mounting position	Small size allows for mounting unit right where you need it

Specifications	MR150E-13V6-10A
Input Voltage	55 – 90Vdc (Must be over 60V to start running)
Output Voltage	13.6Vdc (+/- 50mV)
Regulation (60 < Vin < 90V, Iout = 10A)	Vout = 13.6V < 1% Error
Regulation (55 < Vin < 60V, Iout = 10A)	Vout = 11.5V – 13.6V
Input Fuse	4A
Output Fuse	No Fuse – Internal Protection
Input LED, ON if I/P is	Within range 55 – 90Vdc (Once unit is running)
Output LED, ON if O/P is	> 12Vdc
Efficiency	Typically > 95% at Full Load
Isolation	I/P to O/P 1kV Minimum (Tested)
Isolation	I/P to GND 1kV Minimum (Tested)
Isolation	O/P to GND 500V Minimum (Tested)
Ripple & Noise (RMS)	< 50mV (Typically < = 25mV @ 10A & Vin = 60 – 90V)
Operating Temperature	0° – 60°C
Weight	950g
Dimensions	184L x 111W x 63H (mm)



150W DC/DC Rail Power Supply

Input 72V Nominal (55-90Vdc) Isolated Output 24Vdc at 6A

APPLICATION

DC/DC Power Supply for Locomotive applications. The MR series DC/DC converters typically operate above 95% efficiency at full load over the specified input range. The MR converters have been designed to operate with the 72Vdc supply voltage commonly found in most locomotives. The MR series uses electronic current sensing instead of a fuse for increased efficiency and reliability. If the supply becomes overloaded it will cycle the output on and off whilst the problem persists and afterwards resume normal operation. The supply is able to handle loads requiring a high surge current to operate such as lamps and motors.



MR150E-24V-6A

Part No. MR150E-24V-6A

Features	Benefits	Advantage
No External Fins	Operates in position with restricted airflows	No special ventilation required, install it anywhere
Fan-less & Fuse-less Design	High Reliability	Fans & Fuses do fail - eliminating them increases the reliability
90+% Efficiency	No Ventilation Ports Required	Reduces dust ingress which increases reliability
Compact Size for rated power	Ease of mounting position	Small size allows for mounting unit right where you need it

Specifications	MR150E-24V-6A
Input Voltage	55 – 90Vdc (Must be over 60V to start running)
Output Voltage	24.1Vdc (+/- 100mV)
Regulation (60 < Vin < 90V, Iout = 6A)	Vout = 24.1V < 1% Error
Regulation (55 < Vin < 60V, Iout = 6A)	Vout = 22V – 24.1V
Input Fuse	4A
Output Fuse	No Fuse – Internal Protection
Input LED, ON if I/P is	Within range 55 – 90Vdc (Once unit is running)
Output LED, ON if O/P is	> 20Vdc
Efficiency	Typically > 95% at Full Load
Isolation	I/P to O/P 1kV Minimum (Tested)
Isolation	I/P to GND 1kV Minimum (Tested)
Isolation	O/P to GND 500V Minimum (Tested)
Ripple & Noise (RMS)	< 100mV (Typically <= 50mV @ 6A & Vin = 60 – 90V)
Operating Temperature	0° – 60°C
Weight	950g
Dimensions	184L x 111W x 63H (mm)

In support of our policy of continuous product improvement we reserve the right to change materials and specifications without notice. Drawings, where used, are not to scale. All dimensions are in millimetres and sizes given are approximate. Where possible, technical msds data sheets are made available on the website. All products should be installed and used in accordance with manufacturer's instructions provided. Warning: products may be the subject of registered designs and patents. Refer to website for terms and conditions on warranty.



200W DC/DC Rail Power Supply

Input 72V Nominal (55-90Vdc) Isolated Output 13.6Vdc at 15A

APPLICATION

DC/DC Power Supply for Locomotive applications. The MR series DC/DC converters typically operate above 95% efficiency at full load over the specified input range. The MR converters have been designed to operate with the 72Vdc supply voltage commonly found in most locomotives. The MR series uses electronic current sensing instead of a fuse for increased efficiency and reliability. If the supply becomes overloaded it will cycle the output on and off whilst the problem persists and afterwards resume normal operation. The supply is able to handle loads requiring a high surge current to operate such as lamps and motors.



MR200E-13V6-15A

Part No. MR200E-13V6-15A

Features	Benefits	Advantage
No External Fins	Operates in position with restricted airflows	No special ventilation required, install it anywhere
Fan-less & Fuse-less Design	High Reliability	Fans & Fuses do fail - eliminating them increases the reliability
90+% Efficiency	No Ventilation Ports Required	Reduces dust ingress which increases reliability
Compact Size for rated power	Ease of mounting position	Small size allows for mounting unit right where you need it

Specifications	MR200E-13V6-15A
Input Voltage	55 – 90Vdc (Must be over 60V to start running)
Output Voltage	13.6Vdc (+/- 50mV)
Regulation (60 < Vin < 90V, Iout = 15A)	Vout = 13.6V < 1% Error
Regulation (55 < Vin < 60V, Iout = 15A)	Vout = 11.5V – 13.6V
Input Fuse	4A
Output Fuse	No Fuse – Internal Protection
Input LED, ON if I/P is	Within range 55 – 90Vdc (Once unit is running)
Output LED, ON if O/P is	> 12Vdc
Efficiency	Typically > 95% at Full Load
Isolation	I/P to O/P 1kV Minimum (Tested)
Isolation	I/P to GND 1kV Minimum (Tested)
Isolation	O/P to GND 500V Minimum (Tested)
Ripple & Noise (RMS)	< 50mV (Typically < = 25mV @ 15A & Vin = 60 – 90V)
Operating Temperature	0° – 60°C
Weight	950g
Dimensions	184L x 111W x 63H (mm)



200W DC/DC Rail Power Supply

Input 72V Nominal (55-90Vdc) Isolated Output 24Vdc at 8A

APPLICATION

DC/DC Power Supply for Locomotive applications. The MR series DC/DC converters typically operate above 95% efficiency at full load over the specified input range. The MR converters have been designed to operate with the 72Vdc supply voltage commonly found in most locomotives. The MR series uses electronic current sensing instead of a fuse for increased efficiency and reliability. If the supply becomes overloaded it will cycle the output on and off whilst the problem persists and afterwards resume normal operation. The supply is able to handle loads requiring a high surge current to operate such as lamps and motors.



MR200E-24V-8A

Part No. **MR200E-24V-8A**

Features	Benefits	Advantage
No External Fins	Operates in position with restricted airflows	No special ventilation required, install it anywhere
Fan-less & Fuse-less Design	High Reliability	Fans & Fuses do fail - eliminating them increases the reliability
90+% Efficiency	No Ventilation Ports Required	Reduces dust ingress which increases reliability
Compact Size for rated power	Ease of mounting position	Small size allows for mounting unit right where you need it

Specifications	MR200E-24V-8A
Input Voltage	55 – 90Vdc (Must be over 60V to start running)
Output Voltage	24.1Vdc (+/- 100mV)
Regulation (60 < Vin < 90V, Iout = 8A)	Vout = 24.1V < 1% Error
Regulation (55 < Vin < 60V, Iout = 8A)	Vout = 22V – 24.1V
Input Fuse	4A
Output Fuse	No Fuse – Internal Protection
Input LED, ON if I/P is	Within range 55 – 90Vdc (Once unit is running)
Output LED, ON if O/P is	> 20Vdc
Efficiency	Typically > 95% at Full Load
Isolation	I/P to O/P 1kV Minimum (Tested)
Isolation	I/P to GND 1kV Minimum (Tested)
Isolation	O/P to GND 500V Minimum (Tested)
Ripple & Noise (RMS)	< 100mV (Typically <= 50mV @ 8A & Vin = 60 – 90V)
Operating Temperature	0° – 60°C
Weight	950g
Dimensions	184L x 111W x 63H (mm)

In support of our policy of continuous product improvement we reserve the right to change materials and specifications without notice. Drawings, where used, are not to scale. All dimensions are in millimetres and sizes given are approximate. Where possible, technical msds data sheets are made available on the website. All products should be installed and used in accordance with manufacturer's instructions provided. Warning: products may be the subject of registered designs and patents. Refer to website for terms and conditions on warranty.



400W DC/DC Rail Power Supply

Input 72V Nominal (55-90Vdc) Isolated Output 13.6Vdc at 30A

APPLICATION

DC/DC Power Supply for Locomotive applications. The MR series DC/DC converters typically operate above 95% efficiency at full load over the specified input range. The MR converters have been designed to operate with the 72Vdc supply voltage commonly found in most locomotives. The MR series uses electronic current sensing instead of a fuse for increased efficiency and reliability. If the supply becomes overloaded it will cycle the output on and off whilst the problem persists and afterwards resume normal operation. The supply is able to handle loads requiring a high surge current to operate such as lamps and motors.



MR400E-13V6-30A

Part No. MR400E-13V6-30A

Features	Benefits	Advantage
No External Fins	Operates in position with restricted airflows	No special ventilation required, install it anywhere
Fan-less & Fuse-less Design	High Reliability	Fans & Fuses do fail - eliminating them increases the reliability
90+% Efficiency	No Ventilation Ports Required	Reduces dust ingress which increases reliability
Compact Size for rated power	Ease of mounting position	Small size allows for mounting unit right where you need it

Specifications	MR400E-13V6-30A
Input Voltage	55 – 90Vdc (Must be over 60V to start running)
Output Voltage	13.6Vdc (+/- 50mV)
Regulation (60 < Vin < 90V, Iout = 30A)	Vout = 13.6V < 1% Error
Regulation (55 < Vin < 60V, Iout = 30A)	Vout = 11.5V – 13.6V
Input Fuse	10A
Output Fuse	No Fuse – Internal Protection
Input LED, ON if I/P is	Within range 55 – 90Vdc (Once unit is running)
Output LED, ON if O/P is	> 12Vdc
Efficiency	Typically > 95% at Full Load
Isolation	I/P to O/P 1kV Minimum (Tested)
Isolation	I/P to GND 1kV Minimum (Tested)
Isolation	O/P to GND 500V Minimum (Tested)
Ripple & Noise (RMS)	< 50mV (Typically < = 25mV @ 30A & Vin = 60 – 90V)
Operating Temperature	0° – 60°C
Weight	950g
Dimensions	184L x 111W x 63H (mm)



400W DC/DC Rail Power Supply

Input 72V Nominal (55-90Vdc) Isolated Output 24Vdc at 16A

APPLICATION

DC/DC Power Supply for Locomotive applications. The MR series DC/DC converters typically operate above 95% efficiency at full load over the specified input range. The MR converters have been designed to operate with the 72Vdc supply voltage commonly found in most locomotives. The MR series uses electronic current sensing instead of a fuse for increased efficiency and reliability. If the supply becomes overloaded it will cycle the output on and off whilst the problem persists and afterwards resume normal operation. The supply is able to handle loads requiring a high surge current to operate such as lamps and motors.



MR400E-24V-16A

Part No. **MR400E-24V-16A**

Features	Benefits	Advantage
No External Fins	Operates in position with restricted airflows	No special ventilation required, install it anywhere
Fan-less & Fuse-less Design	High Reliability	Fans & Fuses are susceptible to failure – eliminating them increases reliability
90+% Efficiency	No Ventilation Ports Required	Reduces dust ingress which increases reliability
Compact Size for rated power	Ease of mounting position	Small size allows for mounting unit right where you need it

Specifications	MR400E-24V-16A
Input Voltage	55 – 90Vdc (Must be over 60V to start running)
Output Voltage	24.1Vdc (+/- 100mV)
Regulation (60 < Vin < 90V, Iout = 16A)	Vout = 24.1V < 1% Error
Regulation (55 < Vin < 60V, Iout = 16A)	Vout = 22V – 24.1V
Input Fuse	10A
Output Fuse	No Fuse – Internal Protection
Input LED, ON if I/P is	Within range 55 – 90Vdc (Once unit is running)
Output LED, ON if O/P is	> 20Vdc
Efficiency	Typically > 95% at Full Load
Isolation	I/P to O/P 1kV Minimum (Tested)
Isolation	I/P to GND 1kV Minimum (Tested)
Isolation	O/P to GND 500V Minimum (Tested)
Ripple & Noise (RMS)	< 100mV (Typically < = 50mV @ 16A & Vin = 60 – 90V)
Operating Temperature	0° – 60°C
Weight	950g
Dimensions	184L x 111W x 63H (mm)

In support of our policy of continuous product improvement we reserve the right to change materials and specifications without notice. Drawings, where used, are not to scale. All dimensions are in millimetres and sizes given are approximate. Where possible, technical msds data sheets are made available on the website. All products should be installed and used in accordance with manufacturer's instructions provided. Warning: products may be the subject of registered designs and patents. Refer to website for terms and conditions on warranty.



400W DC/DC Rail Power Supply

Input 72V Nominal (55-90Vdc) Isolated Output 27Vdc at 15A

APPLICATION

DC/DC Power Supply for Locomotive applications. The MR series DC/DC converters typically operate above 95% efficiency at full load over the specified input range. The MR converters have been designed to operate with the 72Vdc supply voltage commonly found in most locomotives. The MR series uses electronic current sensing instead of a fuse for increased efficiency and reliability. If the supply is overloaded it will cycle the output on and off whilst the problem persists and afterwards resume normal operation. The supply can handle loads requiring a high surge current to operate such as lamps and motors. Solves issues running some "24V" equipment where 24V is too low.



MR400E-27V-15A

Part No. **MR400E-27V-15A**

Features	Benefits	Advantage
No External Fins	Operates in position with restricted airflows	No special ventilation required, install it anywhere
Fan-less & Fuse-less Design	High Reliability	Fans & Fuses are susceptible to failure – eliminating them increases reliability
90+% Efficiency	No Ventilation Ports Required	Reduces dust ingress which increases reliability
Compact Size for rated power	Ease of mounting position	Small size allows for mounting unit right where you need it

Specifications	MR400E-27V-15A
Input Voltage	55 – 90Vdc (Must be over 60V to start running)
Output Voltage	27Vdc (+/- 100mV)
Regulation (60 < Vin < 90V, Iout = 15A)	Vout = 27V < 1% Error
Regulation (55 < Vin < 60V, Iout = 15A)	Vout = 25V – 27V
Input Fuse	10A
Output Fuse	No Fuse – Internal Protection
Input LED, ON if I/P is	Within range 55 – 90Vdc (Once unit is running)
Output LED, ON if O/P is	> 20Vdc
Efficiency	Typically > 95% at Full Load
Isolation	I/P to O/P 1kV Minimum (Tested)
Isolation	I/P to GND 1kV Minimum (Tested)
Isolation	O/P to GND 500V Minimum (Tested)
Ripple & Noise (RMS)	< 200mV (Typically < = 100mV @ 15A & Vin = 60 – 90V)
Operating Temperature	0° – 60°C
Weight	950g
Dimensions	184L x 111W x 63H (mm)



850W DC/DC Rail Power Supply

Input 72V Nominal (55-90Vdc) Isolated Output 13.6Vdc at 60A

APPLICATION

DC/DC Power Supply used in Rail applications. The MR series power supply operates from the 72Vdc commonly available in locomotives. The MR has a tightly regulated output specifically designed to operate typical equipment in the driver cabin such as radios and communications units, computers, system controls, PLCs windscreen wipers etc.

Part No. MR850E-13V6-60A



MR850E-13V6-60A

Features	Benefits	Advantage
Tightly Regulated – low noise design	Minimal generated electromagnetic inference	Provides a reliable stable supply for communication devices PLC's etc
4 Separately fused auxiliary outputs 3 & 4 with stepped delays of 0.5s & 1s	Stagger high start-up surge currents by using external relays powered from the delayed auxiliary outputs	High start currents from multiple loads can be managed allowing a smaller supply matched to the running current
Single high current connector output	High current to a specific load or wired to an external distribution point	High current output is electronically fused for minimal losses and auto restarts after an overload

Specifications	MR850E-13V6-60A
Input Voltage	55 – 90Vdc (Must be over 60V to start running)
Output Voltage	13.6Vdc (+/-200mV @ 72V In 60A load)
Main Output Fuse	Electronic Fuse 60A – With Auto restart
Regulation (60 < Vin < 90V, Iout = 60A)	Vout = 13.6V < 2% error
Regulation (55 < Vin < 60V, Iout = 60A)	12.3V – 13.6V
Input Fuse	15A x 2 (separate fuses for the 72V + & - inputs)
Output Fuse	4 x Separate auxiliary fused outputs
Input LED is ON if I/P is	Within range 55 – 90Vdc (Once unit is running)
Output LED is ON if O/P is	> 11.5Vdc
Efficiency	Typically 95% at Full Load
Isolation	I/P to O/P 500V Minimum (Tested)
Isolation	I/P to GND 500V Minimum (Tested)
Isolation	O/P to GND 10Mohm Minimum (Tested)
Ripple & Noise (RMS)	< 250mV (Typically < 150mV @ 60A)
Operating Temperature	0° – 60°C
Weight	2.5kg
Dimensions	278L x 164.5W x 64H (mm)

In support of our policy of continuous product improvement we reserve the right to change materials and specifications without notice. Drawings, where used, are not to scale. All dimensions are in millimetres and sizes given are approximate. Where possible, technical msds data sheets are made available on the website. All products should be installed and used in accordance with manufacturer's instructions provided. Warning: products may be the subject of registered designs and patents. Refer to website for terms and conditions on warranty.



850W DC/DC Rail Power Supply

Input 72V Nominal (55-90Vdc) Isolated Output 24Vdc at 35A

APPLICATION

DC/DC Power Supply used in Rail applications. The MR series power supply operates from the 72Vdc commonly available in locomotives. The MR has a tightly regulated output specifically designed to operate typical equipment in the driver cabin such as computers, system controls, PLCs windscreen wipers, washers and air conditioning equipment.

Part No. MR850E-24V-35A



MR850E-24V-35A

Features	Benefits	Advantage
Tightly Regulated – low noise design	Minimal generated electromagnetic inference	Provides a reliable stable supply for PLCs and other sensitive devices
4 Separately fused auxiliary outputs 3 & 4 with stepped delays of 0.5s & 1s	Stagger high start-up surge currents by using external relays powered from the delayed auxiliary outputs	High start currents from multiple loads can be managed allowing a smaller supply matched to the running current
Single high current connector output	High current to a specific load or wired to an external distribution point	High current output is electronically fused for minimal losses and auto restarts after an overload

Specifications	MR850E-24V-35A
Input Voltage	55 – 90Vdc (Must be over 60V to start running)
Output Voltage	24Vdc (+/-200mV @ 72V In 35A load)
Main Output Fuse	Electronic Fuse 35A – With Auto restart
Regulation (60 < Vin < 90V, Iout = 35A)	Vout = 24V < 2% error
Regulation (55 < Vin < 60V, Iout = 35A)	22V – 24V
Input Fuse	1.5A x 2 (separate fuses for the 72V + & - inputs)
Output Fuse	4 x Separate auxiliary fused outputs
Input LED is ON if I/P is	Within range 55 – 90Vdc (Once unit is running)
Output LED is ON if O/P is	> 22Vdc
Efficiency	Typically 95% at Full Load
Isolation	I/P to O/P 500V Minimum (Tested)
Isolation	I/P to GND 500V Minimum (Tested)
Isolation	O/P to GND 10Mohm Minimum (Tested)
Ripple & Noise (RMS)	< 200mV (Typically < 150mV @ 35A)
Operating Temperature	0° – 60°C
Weight	2.5kg
Dimensions	278L x 164.5W x 64H (mm)



150W DC/DC Rail Power Supply

Input 96V Nominal (53-140Vdc) DC Output 13.6Vdc at 10A

APPLICATION

DC/DC Power Supply used in Locomotive applications. The input range of the WR150E extends to cover applications where 72Vdc or 110Vdc is the primary power source in locomotive applications. The unit operates continuously during dips and surges ranging between 40V – 385V. Accurate trimming of the output voltage is achieved with a non volatile memory digital trim circuit. High intensity Green LEDs for Vin and Vout OK are located at each end of the power supply. Tested and certified to all important aspects of EN50155.

Part No. WR150E-13V6-10A



WR150E-13V6-10A

Features	Benefits	Advantage
No External Fins	Operates in position with restricted airflows	No special ventilation required, install it anywhere
Fan-less & Fuse-less Design	High Reliability	Fans & Fuses are susceptible to failure – eliminating them increases reliability
90+% Efficiency	No Ventilation Ports Required	Reduces dust ingress which increases reliability
Wide Range	Operational in 72Vdc or 110Vdc applications	Flexibility in change out and stocking regimes

Specifications	WR150E-13V6-10A
Input Voltage	53 – 140Vdc (For regulation < 1% error)
Output Voltage	13.6Vdc (+/- 50mV)
Regulation (53 < Vin < 140V, Iout = 10A)	Vout = 13.6V < 1% Error
Regulation (44 < Vin < 53V, Iout = 10A)	Vout = 11.1V – 13.6V
Input Fuse	4A
Output Fuse	No Fuse – Internal Protection
Input LED, ON if I/P is	Within Range 40 – 140Vdc (Vin > 45V to start)
Output LED, ON if O/P is	> 12Vdc
Output Overload Function (No Fuse)	Electronic sense, shutdown >105% & Auto restart
Efficiency	Typically > 93% at Full Load
Isolation	I/P to O/P 2kV Minimum (Tested)
Isolation	I/P to GND 1kV Minimum (Tested)
Isolation	O/P to GND 500V Minimum (Tested)
Ripple & Noise (RMS)	< 20mV (53V < Vin < 140V)
Operating Temperature	-25° – 70°C
Weight	810g
Dimensions	184L x 111W x 63H (mm)

In support of our policy of continuous product improvement we reserve the right to change materials and specifications without notice. Drawings, where used, are not to scale. All dimensions are in millimetres and sizes given are approximate. Where possible, technical msds data sheets are made available on the website. All products should be installed and used in accordance with manufacturer's instructions provided. Warning: products may be the subject of registered designs and patents. Refer to website for terms and conditions on warranty.



150W DC/DC Rail Power Supply

Input 96V Nominal (53-140Vdc) DC Output 13.6Vdc at 10A with Circular Connector

APPLICATION

DC/DC Power Supply used in Locomotive applications. The input range of the WR150E extends to cover applications where 72Vdc or 110Vdc is the primary power source in locomotive applications. The unit operates continuously during dips and surges ranging between 40V – 385V. Accurate trimming of the output voltage is achieved with a non volatile memory digital trim circuit. High intensity Green LEDs for Vin and Vout OK are located at each end of the power supply. Tested and certified to all important aspects of EN50155. This model contains a circular power connector, as used by Queensland Rail.



WR150EQ-13V6-10A

Part No. **WR150EQ-13V6-10A**

Features	Benefits	Advantage
No External Fins	Operates in position with restricted airflows	No special ventilation required, install it anywhere
Fan-less & Fuse-less Design	High Reliability	Fans & Fuses are susceptible to failure – eliminating them increases reliability
90+% Efficiency	No Ventilation Ports Required	Reduces dust ingress which increases reliability
Wide Range	Operational in 72Vdc or 110Vdc applications	Flexibility in change out and stocking regimes

Specifications	WR150EQ-13V6-10A
Input Voltage	53 – 140Vdc (For regulation < 1% error)
Output Voltage	13.6Vdc (+/- 50mV)
Regulation (53 < Vin < 140V, Iout = 10A)	Vout = 13.6V < 1% Error
Regulation (44 < Vin < 53V, Iout = 10A)	Vout = 11.1V – 13.6V
Input Fuse	4A
Output Fuse	No Fuse – Internal Protection
Input LED, ON if I/P is	Within Range 40 – 140Vdc (Vin > 45V to start)
Output LED, ON if O/P is	> 12Vdc
Output Overload Function (No Fuse)	Electronic sense, shutdown >105% & Auto restart
Efficiency	Typically > 93% at Full Load
Isolation	I/P to O/P 2kV Minimum (Tested)
Isolation	I/P to GND 1kV Minimum (Tested)
Isolation	O/P to GND 500V Minimum (Tested)
Ripple & Noise (RMS)	< 20mV (53V < Vin < 140V)
Operating Temperature	-25° – 70°C
Weight	810g
Dimensions	184L x 111W x 63H (mm)



150W DC/DC Rail Power Supply

Input 96V Nominal (48-140Vdc) DC Output 20Vdc at 6A

APPLICATION

DC/DC Power Supply used in Locomotive applications. The input range of the WR150E extends to cover applications where 72Vdc or 110Vdc is the primary power source in locomotive applications. The unit operates continuously during dips and surges ranging between 40V – 385V. Accurate trimming of the output voltage is achieved with a non volatile memory digital trim circuit. High intensity Green LEDs for Vin and Vout OK are located at each end of the power supply.

Part No. WR150E-20V-6A



WR150E-20V-6A

Features	Benefits	Advantage
No External Fins	Operates in position with restricted airflows	No special ventilation required, install it anywhere
Fan-less Design	High Reliability	Fans are susceptible to failure – the lack of a fan increases reliability
90+% Efficiency	No Ventilation Ports Required	Reduces dust ingress which increases reliability
Wide Range	Operational in 72Vdc or 110Vdc applications	Flexibility in change out and stocking regimes

Specifications	WR150E-20V-6A
Input Voltage	48 – 140Vdc (For regulation < 1% error)
Output Voltage	20Vdc (+/-100mV)
Regulation (48 < Vin < 140V, Iout = 6A)	Vout = 20V < 1% Error
Input Fuse	4A
Output Fuse	No Fuse – Internal Protection
Input LED, ON if I/P is	Within Range 40 – 140Vdc (Vin > 45V to start)
Output Overload Function (No Fuse)	Electronic Sense Shutdown > 105% & Auto Restart
Efficiency	Typically > 93% at Full Load
Isolation	I/P to O/P 2kV Minimum (Tested)
Isolation	I/P to GND 1kV Minimum (Tested)
Isolation	O/P to GND 500V Minimum (Tested)
Ripple & Noise (RMS)	< 40mV (48V < Vin < 140V)
Operating Temperature	-25° – 70°C
Weight	910g
Dimensions	184L x 111W x 63H (mm)

In support of our policy of continuous product improvement we reserve the right to change materials and specifications without notice. Drawings, where used, are not to scale. All dimensions are in millimetres and sizes given are approximate. Where possible, technical msds data sheets are made available on the website. All products should be installed and used in accordance with manufacturer's instructions provided. Warning: products may be the subject of registered designs and patents. Refer to website for terms and conditions on warranty.



150W DC/DC Rail Power Supply

Input 96V Nominal (53-140Vdc) DC Output 24Vdc at 6A

APPLICATION

DC/DC Power Supply used in Locomotive applications. The input range of the WR150E extends to cover applications where 72Vdc or 110Vdc is the primary power source in locomotive applications. The unit operates continuously during dips and surges ranging between 40V – 385V. Accurate trimming of the output voltage is achieved with a non volatile memory digital trim circuit. High intensity Green LEDs for Vin and Vout OK are located at each end of the power supply. Tested and certified to all important aspects of EN50155.



WR150E-24V-6A

Part No. **WR150E-24V-6A**

Features	Benefits	Advantage
No External Fins	Operates in position with restricted airflows	No special ventilation required, install it anywhere
Fan-less Design	High Reliability	Fans are susceptible to failure – the lack of a fan increases reliability
90+% Efficiency	No Ventilation Ports Required	Reduces dust ingress which increases reliability
Wide Range	Operational in 72Vdc or 110Vdc applications	Flexibility in change out and stocking regimes

Specifications	WR150E-24V-6A
Input Voltage	53 – 140Vdc (For regulation < 1% error)
Output Voltage	24.1Vdc (+/-100mV)
Regulation (53 < Vin < 140V, Iout = 6A)	Vout = 24.1V < 1% Error
Regulation (44 < Vin < 53V, Iout = 6A)	Vout = 19.5V – 24.1V
Input Fuse	4A
Output Fuse	No Fuse – Internal Protection
Input LED, ON if I/P is	Within Range 40 – 140Vdc (Vin > 45V to start)
Output Overload Function (No Fuse)	Electronic Sense Shutdown > 105% & Auto Restart
Efficiency	Typically > 93% at Full Load
Isolation	I/P to O/P 2kV Minimum (Tested)
Isolation	I/P to GND 1kV Minimum (Tested)
Isolation	O/P to GND 500V Minimum (Tested)
Ripple & Noise (RMS)	< 50mV (53V < Vin < 140V)
Operating Temperature	-25° – 70°C
Weight	810g
Dimensions	184L x 111W x 63H (mm)



200W DC/DC Rail Power Supply

Input 96V Nominal (53-140Vdc) DC Output 13.6Vdc at 15A

APPLICATION

DC/DC Power Supply used in Locomotive applications. The input range of the WR200E extends to cover applications where 72Vdc or 110Vdc is the primary power source in locomotive applications. The unit operates continuously during dips and surges ranging between 40V – 385V. Accurate trimming of the output voltage is achieved with a non volatile memory digital trim circuit. High intensity Green LEDs for Vin and Vout OK are located at each end of the power supply. Tested and certified to all important aspects of EN50155.



WR200E-13V6-15A

Part No. **WR200E-13V6-15A**

Features	Benefits	Advantage
No External Fins	Operates in position with restricted airflows	No special ventilation required, install it anywhere
Fan-less & Fuse-less Design	High Reliability	Fans & Fuses are susceptible to failure – eliminating them increases reliability
90+% Efficiency	No Ventilation Ports Required	Reduces dust ingress which increases reliability
Wide Range	Operational in 72Vdc or 110Vdc applications	Flexibility in change out and stocking regimes

Specifications	WR200E-13V6-15A
Input Voltage	53 – 140Vdc (For regulation < 1% error)
Output Voltage	13.6Vdc (+/- 50mV)
Regulation (53 < Vin < 140V, Iout = 15A)	Vout = 13.6V < 1% Error
Regulation (44 < Vin < 53V, Iout = 15A)	Vout = 11.1V – 13.6V
Input Fuse	4A
Output Fuse	No Fuse – Internal Protection
Input LED, ON if I/P is	Within Range 40 – 140Vdc (Vin > 45V to start)
Output LED, ON if O/P is	> 12Vdc
Output Overload Function (No Fuse)	Electronic sense, shutdown >105% & Auto restart
Efficiency	Typically > 93% at Full Load
Isolation	I/P to O/P 2kV Minimum (Tested)
Isolation	I/P to GND 1kV Minimum (Tested)
Isolation	O/P to GND 500V Minimum (Tested)
Ripple & Noise (RMS)	< 20mV (53V < Vin < 140V)
Operating Temperature	-25° – 70°C (At Full Load)
Weight	810g
Dimensions	184L x 111W x 63H (mm)

In support of our policy of continuous product improvement we reserve the right to change materials and specifications without notice. Drawings, where used, are not to scale. All dimensions are in millimetres and sizes given are approximate. Where possible, technical msds data sheets are made available on the website. All products should be installed and used in accordance with manufacturer's instructions provided. Warning: products may be the subject of registered designs and patents. Refer to website for terms and conditions on warranty.



200W DC/DC Rail Power Supply

Input 24V Nominal (17-31Vdc) DC Output 13.6Vdc at 15A

APPLICATION

DC/DC Power Supply used in Locomotive applications. A fully isolated Rail DC/DC Power Supply for use in 24V applications where an isolated 13.6V output is required. This unit is ideal for high vibration Locomotive or transport applications with compliance to EN50155. The wide input range of the 24WR200E-13V6-15A extends from 17V to 31V continuous. The unit continues to operate despite dips and surges from 14V – 34V.



24WR200E-13V6-15A

Part No. 24WR200E-13V6-15A

Features	Benefits	Advantage
No External Fins	Operates in position with restricted airflows	No special ventilation requirements
Fan-less Design	High Reliability	Fans are susceptible to failure – the lack of a fan increases reliability
90+% Efficiency	Minimal internal heat generation	Increased MTBF
Wide Range	Operates reliably despite poor quality of 24V supply	Copes with dips and surges from 14V to 34V

Specifications	24WR200E-13V6-15A
Input Voltage	17 – 31Vdc (For regulation < 2% error)
Output Voltage	13.6Vdc (+/- 50mV)
Regulation (17 < Vin < 31V, Iout = 15A)	Vout = 13.6V < 2% Error
Output Current	15A continuous 20A surge for 1 second
Input Safety Fuse	20A non user replaceable
Output Overload Function (No Fuse)	Electronic sense, shutdown >105% & Auto restart
Transient Performance (Dip & Surge) 1 Sec	Low 14.4V & High 33.6V for 1 second - no loss of function
LED Indicator	Power On
Efficiency	Typically > 90% at Full Load
Isolation	I/P to O/P 4kV
Isolation	I/P to GND 2kV
Isolation	O/P to GND 2kV
Ripple & Noise (RMS)	< 100mV (17V < Vin < 31V)
Operating Temperature	-40° – 70°C (At 180W load, no de-rating required)
Weight	1.2kg
Dimensions	216L x 97W x 40H (mm)
Mounting Footprint (4x M4 Screws)	At 4 corners of a rectangle, 208mm x 81mm (See Note below)
MTBF	130k hours minimum @ 25°C

Note: A Mounting Base-Plate is available that adapts this unit to the enclosure footprint on Page 28



400W DC/DC Rail Power Supply

Input 32V Nominal (24-48Vdc) Isolated Output 64Vdc at 6A

APPLICATION

High Efficiency DC/DC Power Supply typically for Locomotive radio applications. This MR series converter was designed to operate a 72V radio from a nominal 32Vdc input supply voltage, common to some locomotives. The 72V radio in question has an input operating range from 50 – 100Vdc, the 64V output from the 32MR400E-64V-6A powers this radio with ease. Only one 72V radio type is now required in store for all 32 & 72Vdc applications. Electronic current sensing is used instead of an output fuse for increased efficiency and reliability. If the supply becomes overloaded it will cycle the output on and off whilst the problem persists and afterwards resume normal operation.



Part No. **32MR400E-64V-6A**

32MR400E-64V-6A

Features	Benefits	Advantage
No External Fins	Operates in position with restricted airflows	No special ventilation required, install it anywhere
Fan-less & Fuse-less Design	High Reliability	Fans & Fuses are susceptible to failure – eliminating them increases reliability
90+% Efficiency	No Ventilation Ports Required	Reduces dust ingress which increases reliability
Compact Size for rated power	Ease of mounting position	Small size allows for mounting unit right where you need it

Specifications	32MR400E-64V-6A
Input Voltage	24 – 48Vdc
Output Voltage	64Vdc (+/- 1V) @ 6A
Regulation (30 < Vin < 48V, Iout = 6A)	Vout = 64V < 1% Error
Regulation (24 < Vin < 30V, Iout = 6A)	Vout = 52V – 64V
Input Fuse	20A
Output Fuse	No Fuse – Internal Protection
Input LED, ON if I/P is	Within Range 24 – 48Vdc (Vin > 28V to start)
Output LED, ON if O/P is	> 50Vdc
Efficiency	Typically > 95% at Full Load
Isolation	I/P to O/P 1kV Minimum (Tested)
Isolation	I/P to GND 1kV Minimum (Tested)
Isolation	O/P to GND 250V Minimum (Tested)
Ripple & Noise (RMS)	< 600mV (Typically <= 250mV @ 6A & Vin = 30 – 48V)
Operating Temperature	0° – 60°C
Weight	900g
Dimensions	184L x 111W x 63H (mm)

In support of our policy of continuous product improvement we reserve the right to change materials and specifications without notice. Drawings, where used, are not to scale. All dimensions are in millimetres and sizes given are approximate. Where possible, technical msds data sheets are made available on the website. All products should be installed and used in accordance with manufacturer's instructions provided. Warning: products may be the subject of registered designs and patents. Refer to website for terms and conditions on warranty.



200W DC/DC Rail Power Supply

Input 48V Nominal (30-60Vdc) Isolated Output 13.6Vdc at 15A

APPLICATION

DC/DC Power Supply for Locomotive applications. This MR series DC/DC converter typically operates above 94% efficiency at full load over the specified input range. The 48MR converters have been designed to operate with the 48Vdc battery supply voltage commonly found in industrial or commercial systems. The MR series output, uses electronic current sensing instead of a fuse for increased efficiency and reliability. If the supply becomes overloaded it will cycle the output on and off whilst the problem persists and afterwards resume normal operation. The supply is able to handle loads requiring a high surge current to operate such as lamps and motors.



48MR200E-13V6-15A

Part No. 48MR200E-13V6-15A

Features	Benefits	Advantage
No External Fins	Operates in position with restricted airflows	No special ventilation required, install it anywhere
Fan-less & Fuse-less Design	High Reliability	Fans & Fuses are susceptible to failure – eliminating them increases reliability
90+% Efficiency	No Ventilation Ports Required	Reduces dust ingress which increases reliability
Compact Size for rated power	Ease of mounting position	Small size allows for mounting unit right where you need it

Specifications	48MR200E-13V6-15A
Input Voltage	30 – 60Vdc
Output Voltage	13.6Vdc (+/- 50mV)
Regulation (36 < Vin < 60V, Iout = 15A)	Vout = 13.6V < 1% Error
Regulation (31 < Vin < 36V, Iout = 15A)	Vout = 12V – 13.6V
Input Fuse	8A
Output Fuse	No Fuse – Internal Protection
Input LED, ON if I/P is	Within Range 30 – 60Vdc (Vin > 36V to start)
Output LED, ON if O/P is	> 12Vdc
Efficiency	Typically > 95% at Full Load (Vin 48V)
Isolation	I/P to O/P 1kV Minimum (Tested)
Isolation	I/P to GND 1kV Minimum (Tested)
Isolation	O/P to GND 500V Minimum (Tested)
Ripple & Noise (RMS)	< 50mV (Typically < = 25mV @ 15A & Vin = 36 – 60V)
Operating Temperature	0° – 60°C
Weight	950g
Dimensions	184L x 111W x 63H (mm)



400W DC/DC Rail Power Supply

Input 48V Nominal (32-60Vdc) Isolated Output 13.6Vdc at 30A

APPLICATION

DC/DC Power Supply for Locomotive applications. This MR series DC/DC converter typically operates around 93% efficiency at full load over the specified input range. The 48MR converters have been designed to operate with the 48Vdc battery supply voltage commonly found in industrial or commercial systems. The MR series output, uses electronic current sensing instead of a fuse for increased efficiency and reliability. If the supply becomes overloaded it will cycle the output on and off whilst the problem persists and afterwards resume normal operation. The supply is able to handle loads requiring a high surge current to operate such as lamps and motors.



48MR400E-13V6-30A

Part No. 48MR400E-13V6-30A

Features	Benefits	Advantage
No External Fins	Operates in position with restricted airflows	No special ventilation required, install it anywhere
Fan-less & Fuse-less Design	High Reliability	Fans & Fuses are susceptible to failure – eliminating them increases reliability
90+% Efficiency	No Ventilation Ports Required	Reduces dust ingress which increases reliability
Compact Size for rated power	Ease of mounting position	Small size allows for mounting unit right where you need it

Specifications	48MR400E-13V6-30A
Input Voltage	32 – 60Vdc
Output Voltage	13.6Vdc (+/- 50mV)
Regulation (38 < Vin < 60V, Iout = 30A)	Vout = 13.6V < 1% Error
Regulation (34 < Vin < 38V, Iout = 30A)	Vout = 12V – 13.6V
Input Fuse	15A
Output Fuse	No Fuse – Internal Protection
Input LED, ON if I/P is	Within Range 32 – 60Vdc (Vin > 38V to start)
Output LED, ON if O/P is	> 12Vdc
Efficiency	Typically > 93% at Full Load (Vin 48V)
Isolation	I/P to O/P 1kV Minimum (Tested)
Isolation	I/P to GND 1kV Minimum (Tested)
Isolation	O/P to GND 500V Minimum (Tested)
Ripple & Noise (RMS)	< 50mV (Typically < = 25mV @ 30A & Vin = 38 – 60V)
Operating Temperature	0° – 60°C
Weight	950g
Dimensions	184L x 111W x 63H (mm)

In support of our policy of continuous product improvement we reserve the right to change materials and specifications without notice. Drawings, where used, are not to scale. All dimensions are in millimetres and sizes given are approximate. Where possible, technical msds data sheets are made available on the website. All products should be installed and used in accordance with manufacturer's instructions provided. Warning: products may be the subject of registered designs and patents. Refer to website for terms and conditions on warranty.



400W DC/DC Rail Power Supply

Input 48V Nominal (34-60Vdc) Isolated Output 27Vdc at 15A

APPLICATION

DC/DC Power Supply/Battery Charger for Steam Locomotive applications. This MR series DC/DC converter typically operates above 93% efficiency at full load over the specified input range. This 48MR converter has been specially designed to operate with the rectified and filtered 32Vac alternator, driven from a steam turbine, to charge 2 x 12V cells for communications. The Charge current is 15A but as the alternator output falls the charge current is also reduced which is ideal as it does not unduly load the turbine further. Input can withstand runaway turbine – up to 90Vdc.



48MR400EB-27V-15A

Part No. 48MR400EB-27V-15A

Features	Benefits	Advantage
No External Fins	Operates in position with restricted airflows	No special ventilation required, install it anywhere
Fan-less & Fuse-less Design	High Reliability	Fans & Fuses are susceptible to failure – eliminating them increases reliability
90+% Efficiency	No Ventilation Ports Required	Reduces dust ingress which increases reliability
Compact Size for rated power	Ease of mounting position	Small size allows for mounting unit right where you need it

Specifications	48MR400EB-27V-15A
Input Voltage	34 – 60Vdc
Output Voltage	27.2Vdc (+/- 25mV)
Regulation (44 < Vin < 60V, Iout = 15A)	Vout = > 27V, Iout = 14.5A < 1% Error
Regulation (34 < Vin < 44V, Iout = 15A)	Vout = 22V – 27V, Iout 5A – 14.5A
Input Fuse	12A
Output Fuse	No Fuse – Internal Protection
Input LED, ON if I/P is	Within Range 34 – 60Vdc (Vin > 40V to start)
Output LED, ON if O/P is	> 22Vdc
Efficiency	Typically > 95% at Full Load
Isolation	I/P to O/P 1kV Minimum (Tested)
Isolation	I/P to GND 1kV Minimum (Tested)
Isolation	O/P to GND 500V Minimum (Tested)
Ripple & Noise (RMS)	< 100mV (Typically < = 50mV @ 15A & Vin = 44 – 60V)
Operating Temperature	0° – 60°C
Weight	950g
Dimensions	184L x 111W x 63H (mm)



Rail Chargers also available

SC4A, SLX678-10 and SLX678-15

INPUT 80-265 VAC, ISOLATED OUTPUT 2.3V @ 4A

- CCI Rail battery charger range used in signalling applications – 4A
- Short circuit protection
- Current limited output
- Temperature compensated
- Float - voltage adjustment
- Wide input voltage range
- Industry standard clips onto DIN rail - no screws required

Part No. SC4A



INPUT 110-240 VAC, ISOLATED OUTPUT 6, 7 & 8 CELL @ 10A

- ARTC Approved
- CCI Rail battery charger range used in signalling applications – 10A
- Alarms within minutes of a battery circuit fault
- Current limited output
- Temperature compensated
- Float - voltage adjustment
- Pluggable connectors - no wires exposed

Part No. SLX678-10



INPUT 110-240 VAC, ISOLATED OUTPUT 6, 7 & 8 CELL @ 15A

- ARTC Approved
- CCI Rail battery charger range used in signalling applications – 15A
- Alarms within minutes of a battery circuit fault
- Current limited output
- Temperature compensated
- Float - voltage adjustment
- Pluggable connectors - no wires exposed

Part No. SLX678-15



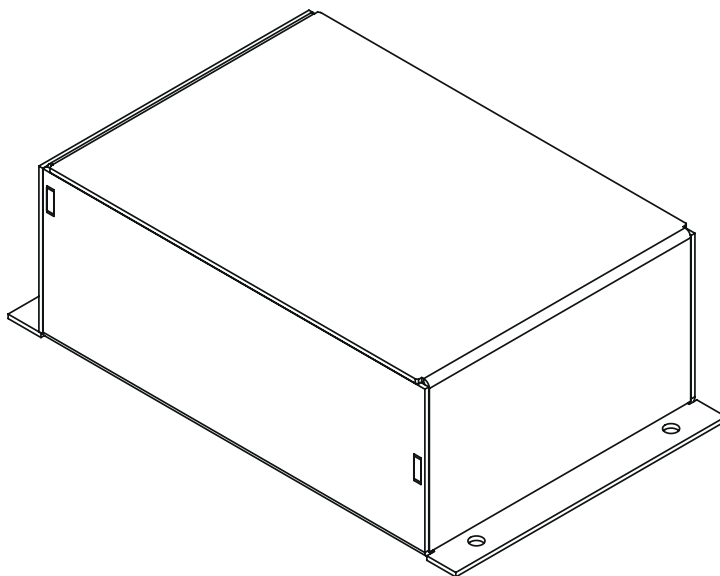
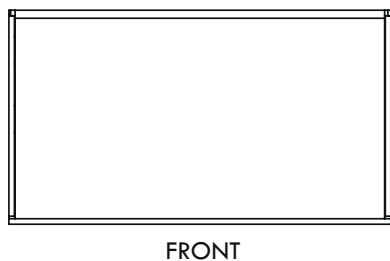
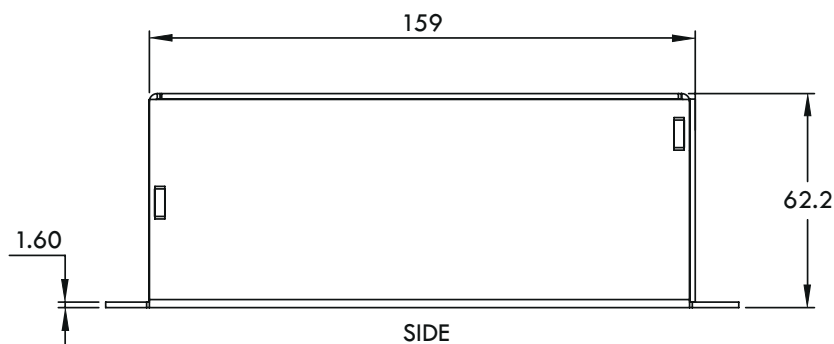
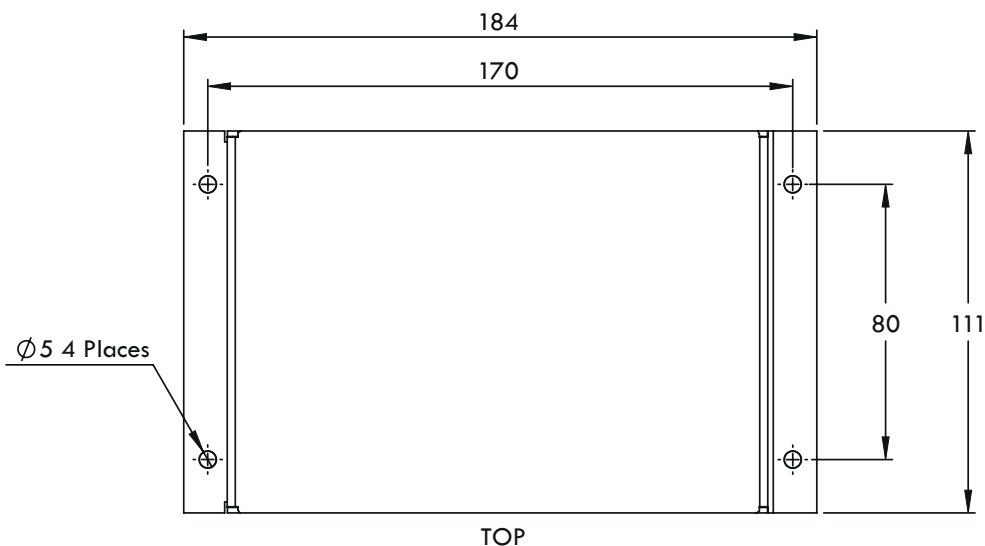
In support of our policy of continuous product improvement we reserve the right to change materials and specifications without notice. Drawings, where used, are not to scale. All dimensions are in millimetres and sizes given are approximate. Where possible, technical msds data sheets are made available on the website. All products should be installed and used in accordance with manufacturer's instructions provided. Warning: products may be the subject of registered designs and patents. Refer to website for terms and conditions on warranty.



Enclosure Dimensions and Mounting Details

For Models up to 400W

Product Part No.
MR50E-13V6-4A
MR50E-24V-2A
MR50EF-24V-2A
MR150E-13V6-10A
MR150E-24V-6A
MR200E-13V6-15A
MR200E-24V-8A
MR400E-13V6-30A
MR400E-24V-16A
MR400E-27V-15A
WR150E-13V6-10A
WR150EQ-13V6-10A
WR150E-20V-6A
WR150E-24V-6A
WR200E-13V6-15A
32MR400E-64V-6A
48MR200E-13V6-15A
48MR400E-13V6-30A
48MR400EB-27V-15A

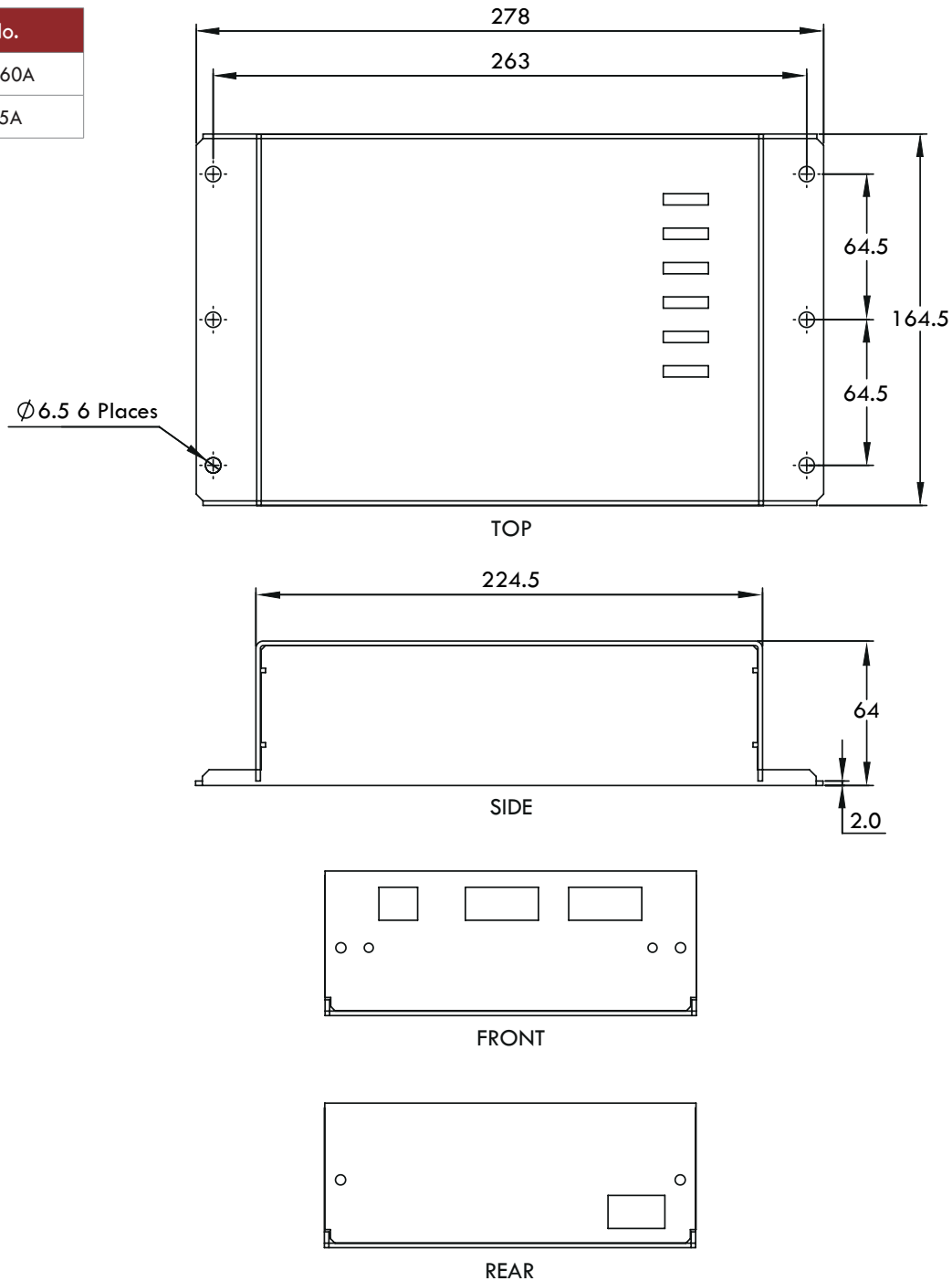




Enclosure Dimensions and Mounting Details

For Models over 400W

Product Part No.
MR850E-13V6-60A
MR850E-24V-35A



In support of our policy of continuous product improvement we reserve the right to change materials and specifications without notice. Drawings, where used, are not to scale. All dimensions are in millimetres and sizes given are approximate. Where possible, technical msds data sheets are made available on the website. All products should be installed and used in accordance with manufacturer's instructions provided. Warning: products may be the subject of registered designs and patents. Refer to website for terms and conditions on warranty.

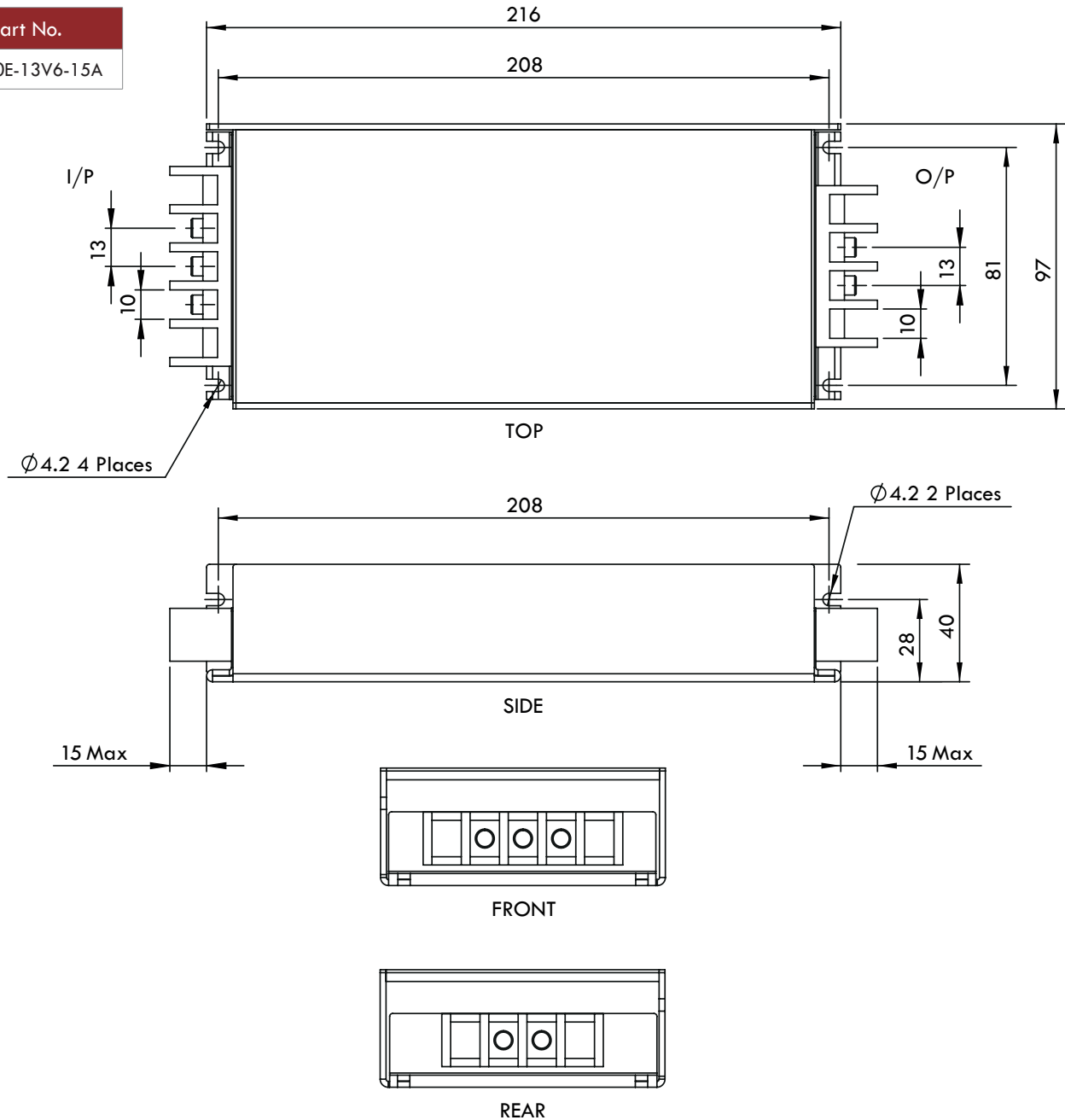


Enclosure Dimensions and Mounting Details

24WR200E-13V6-15A – 200W DC/DC, Input 24V Nominal (17-31VDC) DC Output 13.6VDC at 15A

Product Part No.

24WR200E-13V6-15A



31



Proudly Distributed By:

Legend Power Systems Australia

8 Distribution Place, Seven Hills, NSW 2147
PO Box 72, Seven Hills, NSW 2147
T +61 2 9678 5000 F +61 2 9678 5071



AU

Legend Power Systems New Zealand

7B Carmont Place, Mt Wellington, Auckland, New Zealand, 1060
PO Box 132022, Sylvia Park, Auckland, New Zealand, 1644
T +64 8 0067 7797 F +64 8 0067 7769



NZ

CCIDCLPSA4 1115

In support of our policy of continuous product improvement we reserve the right to change materials and specifications without notice. Drawings, where used, are not to scale. All dimensions are in millimetres and sizes given are approximate. Where possible, technical msds data sheets are made available on the website. All products should be installed and used in accordance with manufacturer's instructions provided. Warning: products may be the subject of registered designs and patents. Refer to website for terms and conditions on warranty.

Legend Power Systems

AU T: 1800 769 370 | E: sales@legendpower.com.au | W: legendpower.com.au
NZ T: 0800 77 69 69 | E: sales@legendpower.co.nz | W: legendpower.co.nz

LEGEND
POWER SYSTEMS