



16.6-160VDC Input Range DC-DC Converter Single Output

100 Watts Railway Switching Power Supplies HDR100-110J Series



Features

- 100W Metal Box Format
- 16.6-160VDC 10:1 Wide Input Range
- Design to Meet EN50155 Railway Standard
- Wide Operating Temperature Range of -40 °C To +85 °C
- Free Air Convection
- Using 125 °C Long Life Solid Capacitors
- CE Marking Level 3 Compliance



Specification

Input

Input Voltage	16.6-160VDC, nominal 110VDC
Input Current (F-L)	4.65A at 24VDC/1.0A at 110VDC
(no-load)	0.08A at 24VDC/0.03A at 110VDC
Soft Star	Installed
Inrush Current	Peak 27A at nominal 110VDC
Input Connector	V-H or M-T MA412-500M2B

Output

Output Connector	M-T MA412-500M2B
Line Regulation	Typical 0.2%
Load Regulation	Typical $\pm 1\%$
Total Regulation	Typical $\pm 2\%$
Noise & Ripple	Typical 1% Peak-Peak
Adjustability	Factory Set
Output Trim	Available

Protection

Over Voltage	Built-in
Over Current	Installed
Over Load	Typical 130% maximum load fully protected against output overload or short circuit

Over Temperature	Thermostat
Input-Under & Over-Voltage	Installed

Input Reverse Voltage	Installed
Conformal Coating	Available

General

Efficiency	Typical 86.6% at 16.6VDC Typical 90.5% at 48 VDC Typical 90.6% at 110 VDC
Switching Frequency	110KHz at nominal I/P 110VDC
Dielectric Withstand	I/P-O/P: 3000VAC I/P-GND:1500VAC O/P-GND:1000VAC
Circuit Topology	Resonant ZVS & Fix-Flyback circuit
Transient Response	Peak transient < 300mV & recovers within 3mS for 25% load-change
Power Density	3.75Watts/Cubic Inch

Environmental

Operating Temperature	-40 °C to +85 °C with de-rating
Storage Temperature	-45 °C to +90 °C
Cooling	Convection-cooled

Safety/EMC

Emissions (conducted)	CISPR EN55022 Class B
Safety Standard	IEC60950-1 Class I
CE Standard	Meet Level 3 Criteria A
Vibration	Six degree-of-freedom random 10Hz-150Hz, 10G
Radiated Susceptibility	EN61000-4-3 Level X (20V/m)
Surge	EN61000-4-5 Level 3, L-L 2KV,L-G 2KV
Conducted Disturbance	EN61000-4-6 Level X (20V/m)

Notes:

- (1) All measurement are at nominal input, full load and +25°C unless otherwise specifications.
- (2) Due to requests in market and advances in technology, specifications subject to change without notification.
- (3) A warm-up time 10 minutes is required after cold start at temperature from -40°C to +0°C.
- (4) 125°C OS-CON Long-life Solid capacitors are installed in secondary circuits.

Output voltage & current rating chart

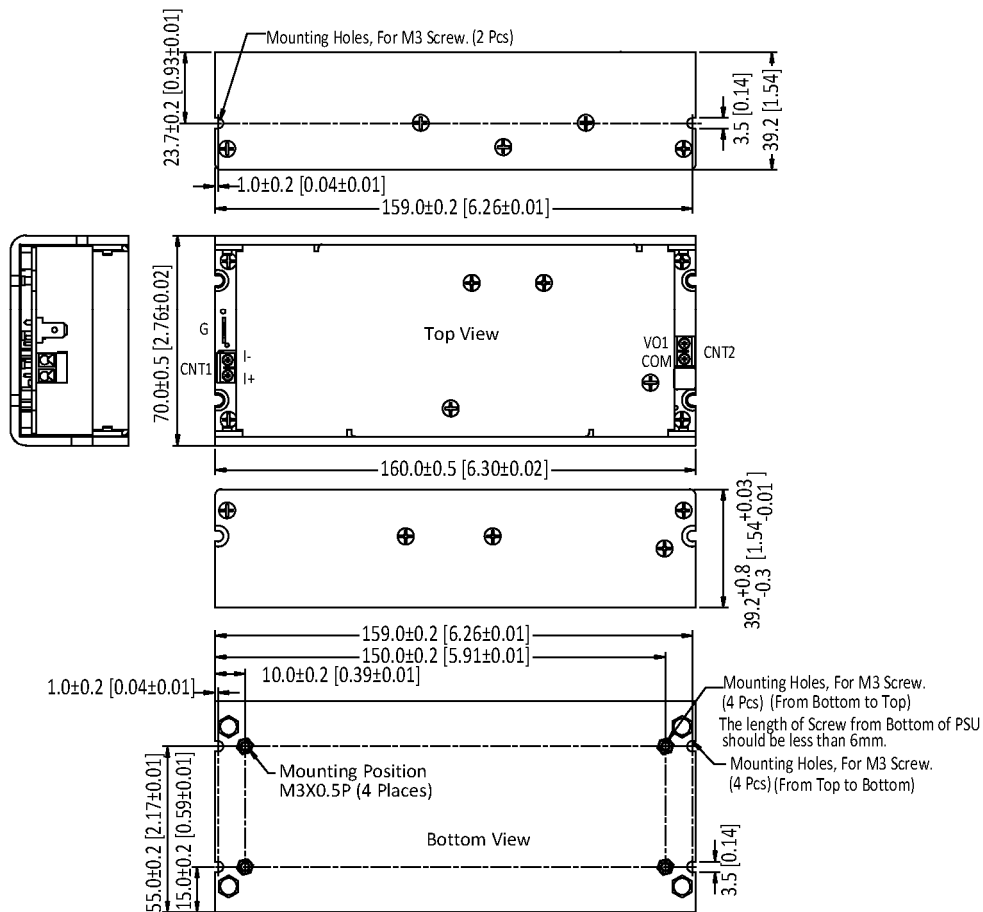
Single Output

Model No.	Min.	Typ.	V1★ Volt.	Max.	Peak
HDR100-110J-120830	0A	8.3A	12V	8.3A	10.00A
HDR100-110J-240420	0A	4.2A	24V	4.2A	5.50A
HDR100-110J-480210	0A	2.1A	48V	2.1A	2.75A
HDR100-110J-530190	0A	1.9A	53V	1.9A	2.30A

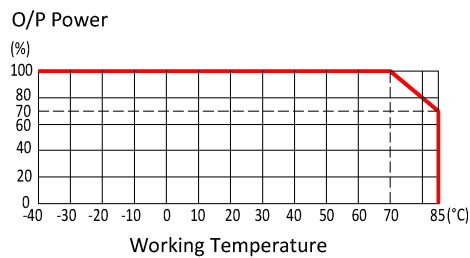
Symbol: ★ "OVP" built-in

Notes: Maximum o/p power 100W for convection cooling.

Mechanical Dimensions (All dimensions are in mm[inch])



Derating Chart



Immunity to environmental conditions

Condition	Standard	EN5015512.2.1 & 12.2.6	EN5015512.2.4
I/P:16.6-110VDC O/P:100W(Fanless)		Pass Class S2 & Class C2	Pass Class TX & Column 3

Pin assignment

Assignment	I+	I-	GND	V1	DC COM
Pin #	CNT1-I+	CNT1-I-	GND	CNT2-VO1	CNT2-COM