HiTRON

16.6-160VDC Input Range DC-DC Converter Hot-Swap CompactPCI Quad Output 310 Watts Railway Switching Power Supplies HDRC255P-110J-490(E) Series

Features

- 310W 3U X 8HP CPCI Package
- 16.6-160VDC 10:1 Wide Input Range
- Meet EN50155 Class S2 & C2 compliance
- Suitable for CPCI Express Application
- Wide Operating Temp. -40˚C t +85˚C
- N+1 Redundancy/Hot-Swappable
- 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/120W)	6A at 24VDC 1.3A at 110VDC
(F-L/310W)	7.5A at 48VDC, 3.3A at 110VDC
(No-Load)	0.35A at 24VDC, 0.45A at 110VDC
Soft Star	Installed
Inrush Current	Peak 27A at nominal 110VDC
Input Connector	Positronic 47-pin PCIH47M400A1

Output

Output Connector	Positronic 47-pin PCIH47M400A1
Line Regulation	Typical 0.2%
Load Regulation	V1/V2 typical ±1%, V3 typical ±2% V4 typical ±5%
Noise & Ripple	Typical 1% Peak-Peak
Remote Sense	Available at V1,V2 & V3
Adjustability	Available at V1, V2 & V3
Current Sharing	Available at V1, V2 & V3
Output Trim	Available at V1/2[ADJ #]

Protection

Over Voltage	Built-in at all outputs
Over Current	Installed in each rail.
Over Load	Typical 120% max. load fully protected against output overload or short circuit
Over Temperature	Installed NTC for thermal sensor at [DEG#] pin
Input-Under & Over-Voltage	Installed
Input Reverse Voltage	Installed
Conformal Coating	Available

General

Efficiency (120W)	Typical 85% at 24VDC
(310W)	88% at 48VDC & 89% at 110VDC
Switching Frequency	120KHz at nominal I/P 110VDC
Dielectric Withstand	I/P-O/P: 3000VAC I/P-GND:1500VAC O/P-GND:1000VAC
Circuit Topology	Resonant Forward circuit
Transient Response	Peak transient < 300mV & recovers within 3mS for 25% load-change
Remote ON/OFF	Available at [INH#] & [EN#] pins
Power Fail Signal	Available at [FAL#] pin
Power OK Signal	Available for all outputs
Status LED	<Green> means valid input voltage <Red> means a critical fault
N+1 Redundancy	Internal OR-ing diodes
Hot-Swappable	Available
Power Density	2.2-5.5 Watts/Cubic Inch

Environmental

Operating Temperature	-40 °C to +85 °C with de-rating
Storage Temperature	-45°C to +90°C
Cooling	150-310W:400-600LFM moving air 90-120W:Convection air (Fanless)

Safety/EMC

Emissions (conducted)	CISPR EN55032 Class A
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℃ 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) Tantalum capacitors connected to system is suggested for bettering Ripple & Noise against operating temperature from -40°C to +0°C.
(5) 125°C OS-CON Long-life Solid capacitors are installed in secondary circuits.

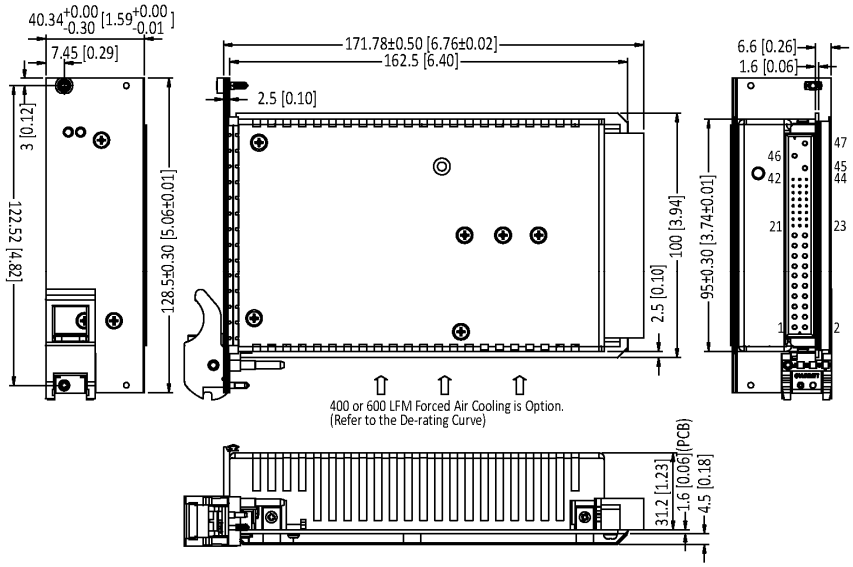
Output voltage & current rating chart

Quad Output

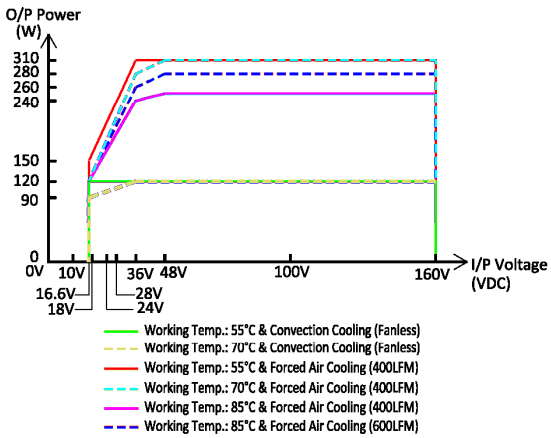
Model No.	Volt.	Volt.	Min. (Redundant)	Min. (Single Unit)	Typ. (Convection-cooled)	Typ. (Forced-cooled)	Max. (Convection-cooled)	Max. (Forced-cooled)	Peak
HDRC255P-110J-490(E)	V1	+5VDC	0.5A	0A	10A	20A	10A	33A	35A
	V2	+3.3VDC	0A	0A	5A	20A	10A	33A	35A
	V3	+12VDC	0A	0A	4A	11A	10A	20A	23A
	V4	-12VDC	0A	0A	0.5A	1A	2A	2A	3A

Notes: (1) Maximum o/p power: 90-120W for convection cooling, 150-310W for 400 or 600LFM Forced air cooling.
(2) Maximum load is the continuous operating load of each rail. But the maximum load of each rail can't be drawn from all outputs at the same time.
(3) Total combined current of V1 & V2 should be ≦ 50A.
(4) Minimum load is only required when PSUs do run in parallel.

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



Derating Chart



Immunity to environmental conditions

Standard / Condition	EN5015512.2.1 & 12.2.6	EN5015512.2.4
I/P: 24-110VDC O/P: 90-120W (Fanless)	Pass Class S2 & Class C2	Pass Class TX & Column 1 Pass Class TX & Column 2 Pass Class TX & Column 3
I/P: 24-110VDC O/P: 310W	Pass Class S2	Pass Class TX & Column 1
I/P: 24-110VDC O/P: 150 -310W	Pass Class S2	Pass Class TX & Column 1 Pass Class TX & Column 2
I/P: 24-110VDC O/P: 120-310W	Pass Class S2	Pass Class TX & Column 3 Pass Class TX & Column 4

Pin assignment

Assignment	-Vin	+Vin	GND	V1	V1 S+	V1 Adj.	V1 C.S.	V2		V2 S+	V2 Adj.
Pin #	47	46	45	1,2,3,4	30	29	35	13,14,15,16,17,18		33	32
Assignment	V2 C.S.	V1/V2 S-	V3	V3 S+	V3 C.S.	V4	DC COM	EN#	DEG#	INH#	FAL#
Pin #	41	34	20	36	44	21	5,6,7,8,9,10,11 12,19,22,24	27	38	39	42