

# HDPC-2 High Density Power Converter

## Military DC-DC Converter



### Description

The PerkinElmer Optoelectronics DC-DC Converters, available in 1, 2 and 3 output configurations, offer military electronics designers outstanding flexibility in DC power distribution. The converters are small and lightweight, facilitating decentralized packaging. They can be PC-Board mounted near the load or installed in a centrally located, multiple output power supply. Their high-efficiency operation conserves power and simplifies thermal design, while delivering tightly regulated DC power under dynamic line and load conditions. Additional tailoring can be achieved through N+1 redundancy, paralleling and external synchronization.

### Features

- High reliability
- High efficiency
- Fixed frequency switching
- MIL-SPEC Design, Workmanship, Environments
- Remote sense (Main output)
- $\pm 5\%$  Voltage adjust
- External sync capability
- Remote ON/OFF
- Parallelable
- Full-Mil components
- Nuclear hardened
- NAVMAT (Derating)
- NAVMAT ESS
- All Hermetic components
- EMI Filter (additional filtering required for full MIL-STD-461 compliance)
- Weight less than .35 lbs.
- MTBF @ 100W single output configuration:
  - 315,000 hour MTBF +65°C baseplate (Naval sheltered)
  - 82,000 hour MTBF +65°C baseplate (Airborne, uninhabited, fighter)
  - 175,000 hour MTBF +65°C baseplate (Ground, mobile)
  - 2,589,000 hour MTBF +25°C baseplate (Ground, benign)
- Custom inputs and outputs available

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## DC Input Voltage Characteristics

Nominal	Minimum	Maximum	Applicable Specs
28	18	50	MIL-STD-704 MIL-STD-1275
155	100	250	MIL-STD-1399
270	125	440	MIL-STD-704

## General Characteristics

Isolation	Input to output and to chassis: 1 $\mu$ A @ 750Vdc Output to chassis: 1 $\mu$ A @ 50Vdc
Operating Baseplate Temperature Range	-55°C to +85°C
Efficiency (rated load)	> 80% typical
Reliability Prediction (single output configuration @ 100W, MIL-HDBK-217F)	124,000 hours MTBF, 65°C baseplate, AUF 217,000 hours MTBF, 65°C baseplate, GM 345,000 hours MTBF, 65°C baseplate, NS 3,680,000 hours MTBF, 25°C baseplate, GB

## DC Output Characteristics

No. of Outputs	Output No.	Output Voltage	Voltage Set Point	Rated Power	Current Limit, Max.	Ripple & Noise (0-20 MHz)	Over-voltage Protection	Load Regulation (No load to rated load)	Line Regulation
1	1	3.3V, 5V, 6V, 12V, 15V, 28V and 40V	$V_O \pm 1\%$	up to 150W	150% of rated current	2% P-P, rated load	110%-135% $V_O$	0.5% $V_O$	0.5% $V_O$
	2	+15V	$V_O \pm 1\%$	62W	5.0A	2% P-P, rated load	110%-135% $V_O$	3.0% $V_O$	3.0% $V_O$
2	-15V	62W		5.0A					
2	1	+12V		62W	7.8A	2% P-P, rated load	110%-135% $V_O$	3.0% $V_O$	3.0% $V_O$
	2	-12V							
3	1	5V	$V_O \pm 1\%$	77W note (2)	38.0A	2% P-P, rated load	110%-135% $V_O$	0.5% $V_O$ cross regulated	0.5% $V_O$ cross regulated
	2&3	+/-12V	note (1)	24W ea. note (2)	3.0A	4% P-P, rated load 2%			
	1	5V	$V_O \pm 1\%$	65W note (2)	38.0A	P-P, rated load	110%-135% $V_O$	0.5% $V_O$ cross regulated	0.5% $V_O$ cross regulated
	2&3	+/-15V	note (1)	30W ea. note (2)	3.0A	4% P-P, rated load 2%			
	1	5V	$V_O \pm 1\%$	50W note (2)	38.0A	P-P, rated load	110%-135% $V_O$	0.5% $V_O$ cross regulated	0.5% $V_O$ cross regulated
	2&3	+/-19V	note (1)	38W ea. note (2)	3.0A	4% P-P, rated load			

Notes: (1) Output Nos. 2 and 3 track in proportion to Output No. 1  
(2) Output No. 1 has a 2.0 Amp minimum load; Outputs Nos. 2 and 3 have a minimum load of 0.3 Amp. Outputs Nos. 2 and 3 are isolated and paralleable. Maximum combined output for Outputs Nos. 1, 2 and 3 is 125 W.

## Other DC Output Characteristics

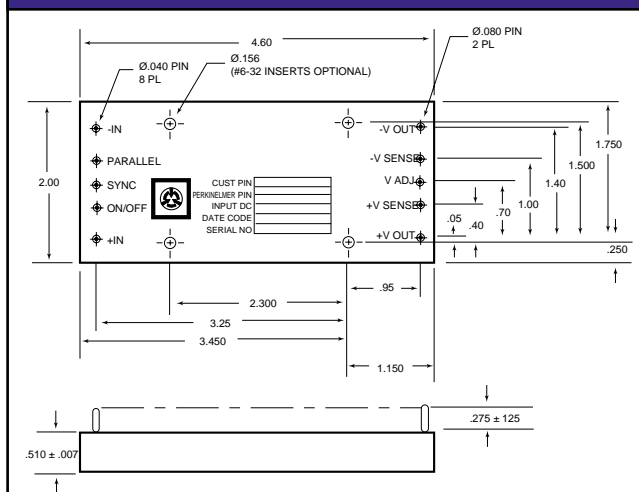
Output Transient Response (50% step load, normal line)	<150 $\mu$ Sec; Max Excursion $\pm 10\%V_O$
Line Transient Response (min. to max. line)	<150 $\mu$ Sec; Max Excursion $\pm 5\%V_O$
Turn-on/off Time (Power on/off and Remote on/off)	10 mSec
Output Adjust	$\pm 5\%$ nominal $V_O$
Parallel Operation Current Sharing	$\pm 10\%$ rated load – Output 1
Output Sense Range	0.5Vdc from nominal – Output 1
Temperature Drift (average over operating range)	0.02% $V_O/^\circ\text{C}$ – Output 1

For more information email us at [opto@perkinelmer.com](mailto:opto@perkinelmer.com) or visit our web site at [www.perkinelmer.com/opto](http://www.perkinelmer.com/opto)

Note: All specifications subject to change without notice.

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## Outline Dimensions



  
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