

HEV2400

Electric Vehicle DC-DC Converter

(Document Rev A09 09/17/15)



336Vdc Input, Single 2400W Output

Market: Mil-Cots, Industry

Application: Electric Powered Vehicles

Features

- 336Vdc Input Nominal
FCC Class "A" EMI*
- Single Output @ 2400W
- Canbus Available
- Customization for other options
may be available upon request.

* Designed to meet portions of this spec.

Table 1: Maximum Ratings

Parameter	Rating	Unit	Notes
Vin max range	250 - 425	Vdc	
Temperature	-40 to +65	°C	2.5 LPM Coolant Flow
Output Power	2400	W	(1200W & 1800W available)
Input power	2926	W	Typical for 2400W units
+13.8Vdc output	2340	W	Refer Table 2 (Outputs)
+24Vdc output	2400	W	Refer Table 2 (Outputs)
+28Vdc output	2400	W	Refer Table 2 (Outputs)
+48Vdc output	2400	W	Refer Table 2 (Outputs)

Product Highlights

This liquid cooled, input filtered, dc-dc power converter is the power supply solution for Electric Vehicles. A single output is available from four factory configured output selections (+13.8Vdc, +24Vdc, +28Vdc, and +48Vdc) at a maximum of 2400W available; 1200W and 1800W models are also available. This robust solution works well for Industrial or Mil-cots applications and is designed to meet portions of MIL-STD-810F vibration and shock and FCC Class "A" EMI requirements. When compared to electric vehicle or hybrid electric vehicle power converter supplies using conventional technology, this liquid cooled dc-dc power converter provides users with higher efficiency (82%), lower weight (10 lbs), and higher power (up to 2400W).

AEGIS Power Systems, Inc. specializes in the front end design, development, and manufacture of Rapid Response Custom Switching Power Supplies for Mil-COTS, defense, industrial, telecomm, aircraft, shipboard, rack mount, and electric powered vehicle applications. Contact Aegis for specific details on what portions of a particular military standard is offered for this power converter power supply.

SPECIFICATIONS

(Typical at 25°C, nominal line and 100% load, unless otherwise specified.)

Input voltage:	336Vdc Nominal, 250Vdc to 425Vdc Range. Input Voltage withstand 425Vdc-500Vdc <100mS.
Input current:	8.7 Amps Typical @ 336Vdc input, 11.7 Amps @ 250Vdc input.
Input power:	2926 Watts Typical.
Output power:	2340/2400W depending on Vout. (1200W and 1800W available). See Table 2.
Holdup time:	Contact Aegis.
Output voltages:	+13.8Vdc, +24Vdc, +28Vdc, or 48Vdc. Factory configured. See table 2.
Efficiency:	82% Typical.
Output ripple:	1.5% of Vout Pk-Pk (20Mhz BW). See table 2.
Current Limit:	Short circuit protected with automatic recovery.
Start up time:	700mS Maximum.
Voltage set point:	± 2.5%.
Line/Load regulation:	± 2.5%.
Temperature regulation:	± 0.02% / °C.
Temperature:	–40°C to +65°C Operating baseplate temperature max.
Cooling:	Aluminum Liquid Cooled Base Plate, ¼" Threaded Inlet/Outlet Fittings. 2.5 LPM Glycol Mix flow.
Package:	IP67 rated enclosed aluminum case on aluminum water cooled base plate.
Dimensions:	7" W x 3" H x 12" L including connectors and barb fittings. See Attached Drawing.
Weight:	10 lbs. Typical.
Connector:	Input: 6 pin rectangle snap on Molex 150L. Output: Two 3/8" threaded studs.
Vibration:	Designed to meet portions of MIL-STD-810F, Method 514.5, Procedure I.
Shock:	Designed to meet portions of MIL-STD-810F, Method 516.5, Procedure I.
Humidity:	0 – 95% non-condensing.
EMI:	Designed to meet FCC Class "A" EMI.
Communication option:	CAN 2.0B, J1939 compatible ISO11898 Canbus with 29 Bit Identifier. Configurable to 125Khz, 250Khz or 500kHz. Seven signals: Vin, Vout, Iin, Iout, Hi Temp Alarm, Temp Shutdown, and Output Disable Command.

Specifications subject to change without notice.

Table 2: Voltage Outputs

Part Number	Vdc out	Watts out	Amps Out	Ripple (20MHz BW)
HEV2400A13-MAOC *	+13.8V	2340W	169.5A	240mVp-p
HEV2400A24-MAOC *	+24V	2400W	85.7A	150mVp-p
HEV2400A28-MAOC *	+28V	2400W	100A	100mVp-p
HEV2400A48-MAOC *	+48V	2400W	50A	100mVp-p
* MAOC designators are selected below in Table 3.				
Refer to HEV General Information and Application Note for Part Number and Connector information.				
Contact Aegis to ensure correct Part Number for your application.				

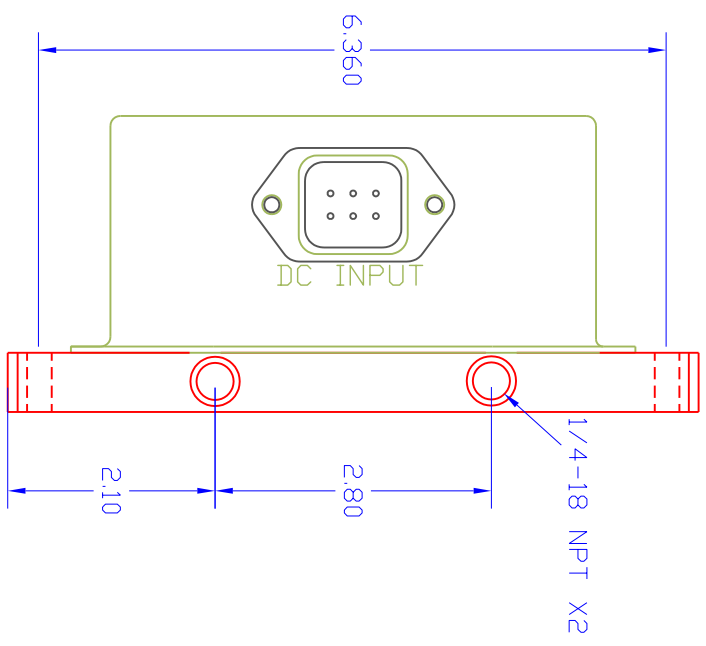
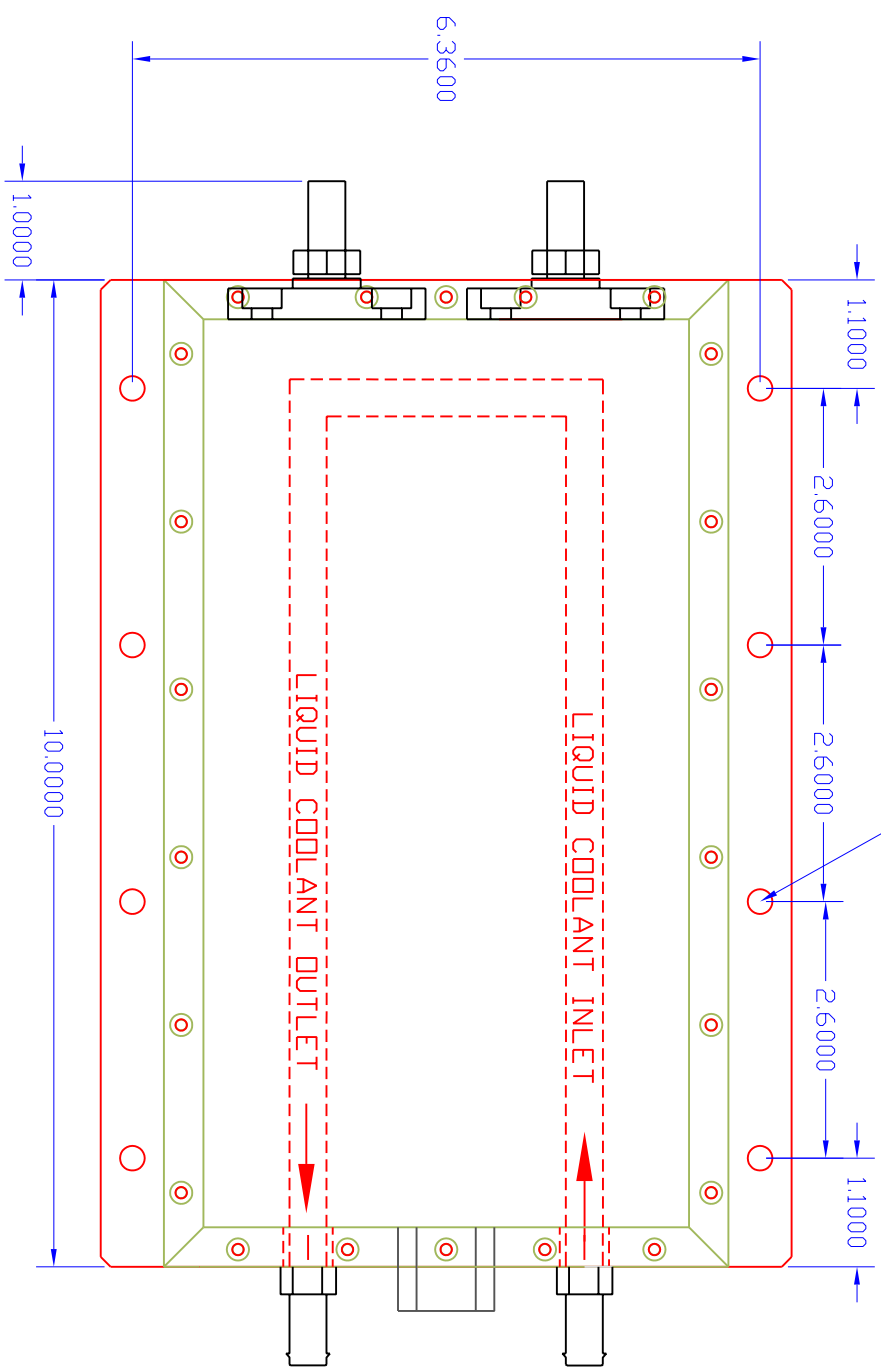
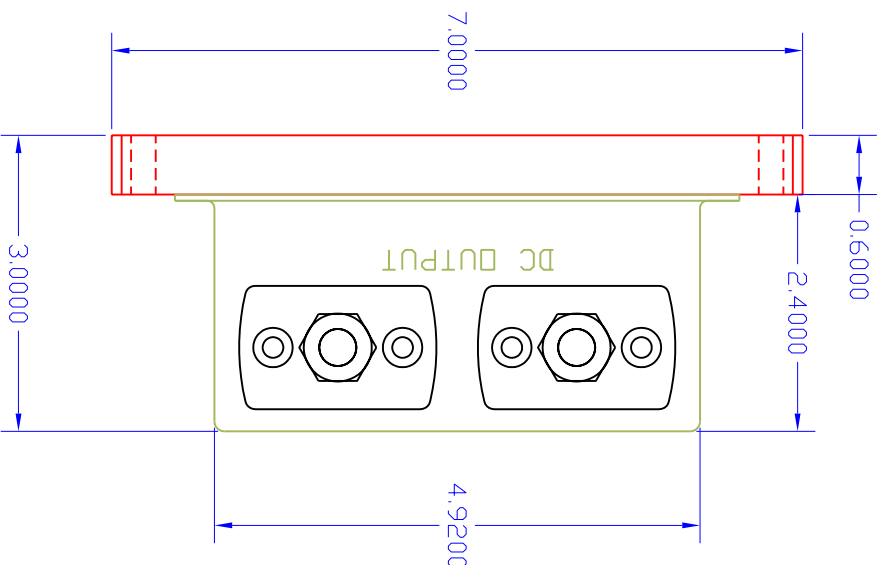
Table 3: Customer selected options (Refer to HEV General Information and Application Notes)

-MAOC*	Monitor, Alarms, Options, and Canbus ID Selections
-NNNN	NO Canbus or Discrete Monitoring, alarms, options, Canbus, or custom changes.
-ASNN	125Khz Canbus, Standard Alarms, No Custom Options, Standard Canbus ID address

- BSNN	250Khz Canbus, Standard Alarms, No Custom Options, Standard Canbus ID address
- CSNN	500Khz Canbus, Standard Alarms, No Custom Options, Standard Canbus ID address
- ASAN	125Khz Canbus, Standard Alarms, Input Cable Connected Status, Standard Can ID
- BSAN	250Khz Canbus, Standard Alarms, Input Cable Connected Status, Standard Can ID
-CSAN	500Khz Canbus, Standard Alarms, Input Cable Connected Status, Standard Can ID
- ASNA	125Khz Canbus, Standard Alarms, Customer specified Canbus Address
- BSNA	250Khz Canbus, Standard Alarms, Customer specified Canbus Address
-CSNA	500Khz Canbus, Standard Alarms, Customer specified Canbus Address
- DSEN*	Discrete Monitoring, Standard Alarms, Input Cable Connected Status, Remote Output Disable, and NO custom changes. (Comes with a 12 pin rectangle input connector). Full P/N HEV2400B13DSEN for 13.8Vdc output.
Contact Aegis to ensure correct Part Number for your application.	
Common and popular power supply models listed below.	
HEV1200A13-NNNN 1200W , Standard Case, 6 pin input, 13.8Vdc output, No monitoring or options.	
HEV1800A13-NNNN 1800W , Standard Case, 6 pin input, 13.8Vdc output, No monitoring or options.	
HEV2400A13-NNNN 2400W , Standard Case, 6 pin input, 13.8Vdc output, No monitoring or options.	
HEV2400A13-NNEN 2400W , Standard Case, 6 pin input, 13.8Vdc output, Cable Connect Status, Remote on/off.	
HEV2400A13-BSNN 2400W , Standard Case, 6 pin input, 13.8Vdc output, 250Khz Canbus, Standard Alarms.	
HEV2400A28-NNEN 2400W , Standard Case, 6 pin input, 28Vdc output, Cable Disconnect Alarm, Remote on/off.	
HEV2400A28-BSNN 2400W , Standard Case, 6 pin input, 28Vdc output, 250Khz Canbus, Standard Alarms.	

REVISONS		DATE	APPROVED
ZONE	REV	DESCRIPTION	
A01	REV	INITIAL RELEASE	MVS
A02	UPDAT		DSR

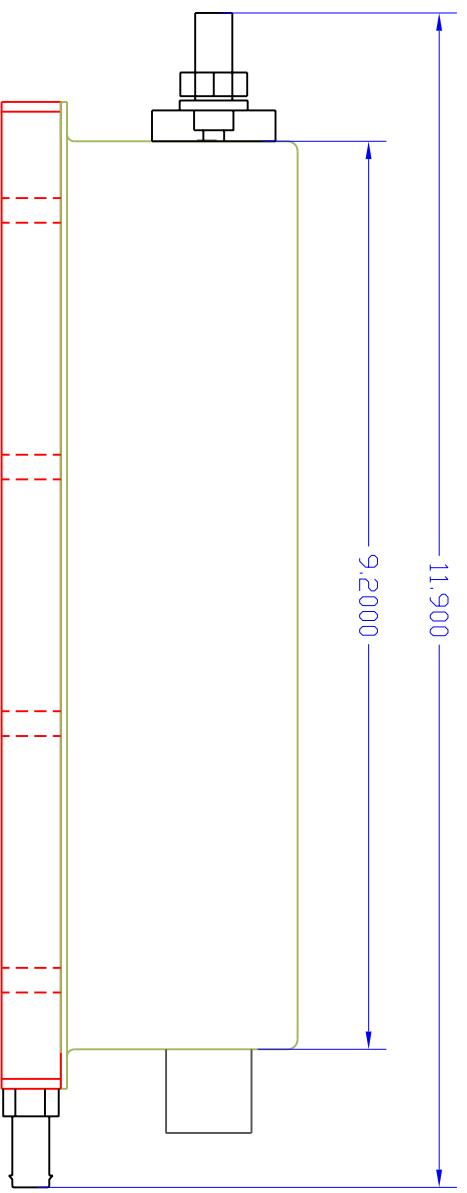
8X, Ø.250" THRU, (MOUNTING HOLES)



VDC OUTPUT PANEL MOUNT TERMINALS
 POSITIVE OUTPUT, P/N BLUE SEA 2204,
 RED BASE, 3/8" THREADED STUD
 NEGATIVE OUTPUT, P/N BLUE SEA, 2203,
 BLACK BASE, 3/8" THREADED STUD

- INPUT CONNECTOR MOLEX 19425-0611
 CUSTOMER MATE MOLEX 19418-0010
 VDC INPUT CONNECTOR PINDUT
1. INPUT POSITIVE
 2. N/C (AVAILABLE FOR OPTION)
 3. INPUT RETURN
 4. INPUT POSITIVE
 5. N/C (AVAILABLE FOR OPTION)
 6. INPUT RETURN

CAD MAINTAINED. CHANGES SHALL BE
 INCORPORATED BY THE DESIGN ACTIVITY.



8 7 6 5 4 3 2 1

UNLESS OTHERWISE SPECIFIED,
 DIMENSIONS ARE IN INCHES.
 FRACTIONS DECIMALS DEGREES
 * N/A * .02 * .5
 *** * .005

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 AEGIS P/N: HEVXXX-XXX PR
 MURPHY, NORTH CAROLINA

DO NOT SCALE DRAWING	FINISH	SCALE 1/1	REV
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