

300E

DC-DC Power Converter

(Document Rev A03, 09/01/2015)



**High Voltage 300Vdc Input
Single +28Vdc Output, 3700W Max**

Market: Military, Industrial

Application: Electric Vehicle

Features

- High Voltage Balanced DC Input.
- CanBus communication available.
- Designed to meet portions of Mil-Std-810F environmental specs.*
- Designed to meet portions of Mil-Std-461F EMI specifications.*
- Ruggedized IP67 rated enclosure.

* Contact AEGIS Power Systems for specific details.

Table 1: Maximum Ratings

Parameter	Rating	Unit	Notes
Vin max range	238-362	Vdc	
Temperature range	-40 to +65	°C	
Liquid Cooling	2.5	LPM	Nominal Flow
Output power	3700	W	
Input power	4353	W	
+28Vdc output	3700	W	

Product Highlights

This extremely robust IP67 rated dc-dc converter has a filtered high voltage 300Vdc input with a single high power output of +28Vdc capable of 3.7KW. This COTS solution works well for Mil-cots and Industrial applications for electric vehicles such as buses, trucks, and other ground or water utility electric vehicles.

AEGIS Power Systems, Inc. specializes in the front end design, development, and manufacture of Rapid Response Custom Switching Power Supplies for defense, industrial, telecomm, aircraft, shipboard, rack mount, electric powered vehicle, and Mil-Cots military power supply applications.

Contact Aegis for specific details on what portions of a particular military standard is offered for this power supply or what can be done for your particular military power supply application.

Specifications: (25°C, nominal line, 100% load unless otherwise specified).

DC Input Voltage: 300Vdc Nominal, 238-362Vdc maximum range, 283-371Vdc nominal range.
15mSec Normal transient, See Figure 2.

DC Input Current: 14.5 Amps Typical @ 300Vdc input.

Input Power: 4353W Typical.

Efficiency: 85% Typical.

Startup Time: 700mS Maximum.

Output Voltage: +28Vdc, set at factory.

Output Power: 3700W Max @ +28Vdc Output.

Output Current: 132A Max @ +28Vdc Output.

Current Sharing: Power Converters can be connected in parallel for higher current capability.

Over Voltage Protection: Output Voltage typical 115%. Recycle input power to reset (1minute off).

Temperature Regulation: $\pm 0.02\%$ per degree C.

Set Point: $\pm 2.5\%$, 0-100% Load.

Line/Load Regulation: $\pm 2.5\%$, 0-100% Load.

Output Ripple: 1.5% of Vout Pk-Pk (20Mhz BW).

Current Limit: Short Circuit Protected, Auto Restart.

Temperature: -40°C to +65°C Operating at base plate with 60°C coolant temp @ 2.5 LPM flow,
-40°C to +100°C Non-Operating.
Over Temp Thermal Shutdown 90°C $\pm 2^\circ\text{C}$ on base plate, automatic recovery.

Cooling: Aluminum Liquid Cooled Base Plate, ¼" Threaded Inlet/outlet Fittings with ¼"
Aluminum Hose Barbs.

Size: 7" W, 3.0" H, 16.0" L (18.0" L with Connectors and Fittings.)(See Drawing.)

Weight: 19 lb Typical.

Environmental: IP67 Metal Enclosure and Connectors.

Connector: **Input Connector:** 8 pin IP67 Mil-C-26482 circular bayonet.

Output Connections: Bolt thru Terminal Lugs with 3/8-16" Threads.

Shock: Designed to meet Mil-Std-810F, Method 516.5, Procedure I.

Vibration: Designed to meet Mil-Std-810F, Method 514.5, Procedure I.

Humidity: 0-95% Non-condensing.

EMI: Designed to meet MIL-STD-461F CE102, CS101 Electro-Magnetic Interference.

Communication Option: J1939 compatible CanBus, ISO11898, CAN 2.0B, 29 Bit Identifier
(125Khz, 250Khz, or 500kHz Can Bus rates available).

Contact Aegis Power Systems with your exact requirements for a Part Number designation.
Specifications subject to change without notice.

Figure 1: Input Wiring Diagram

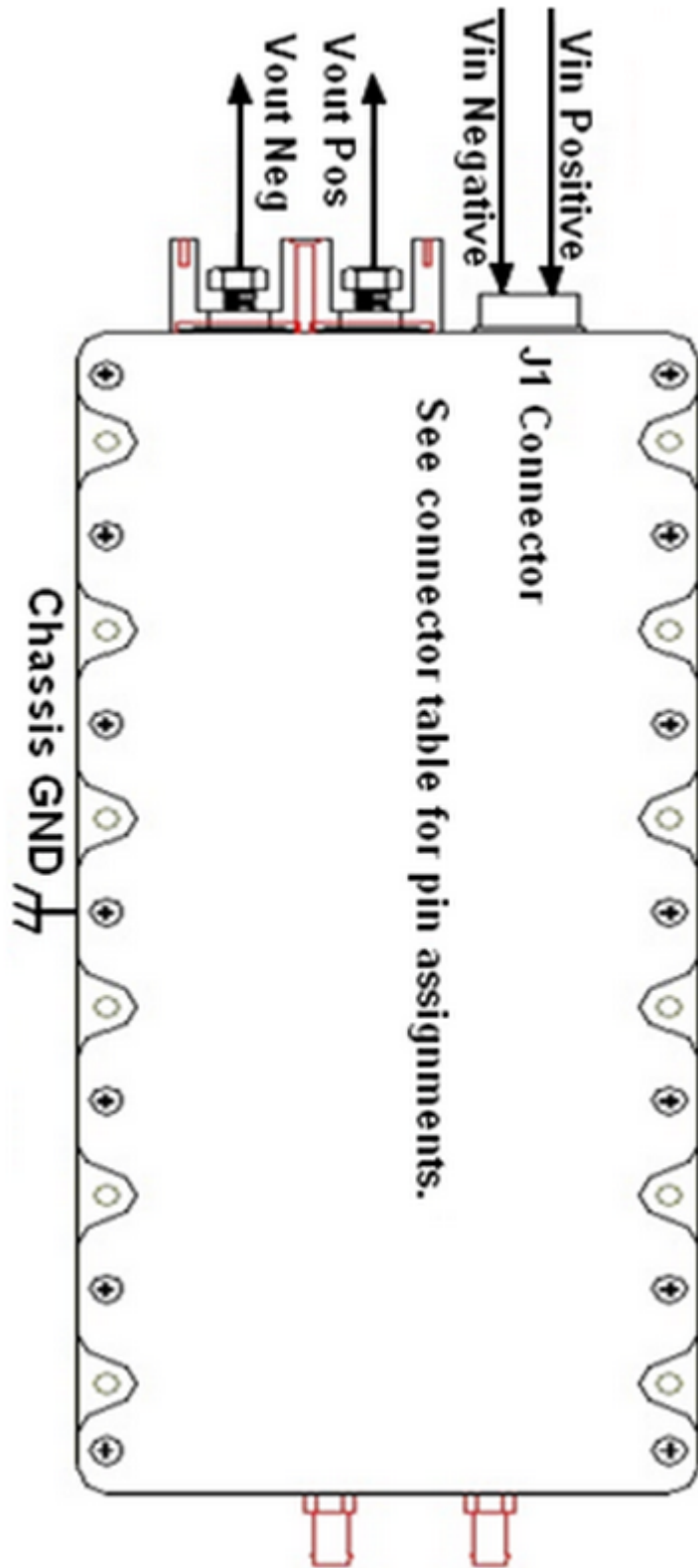
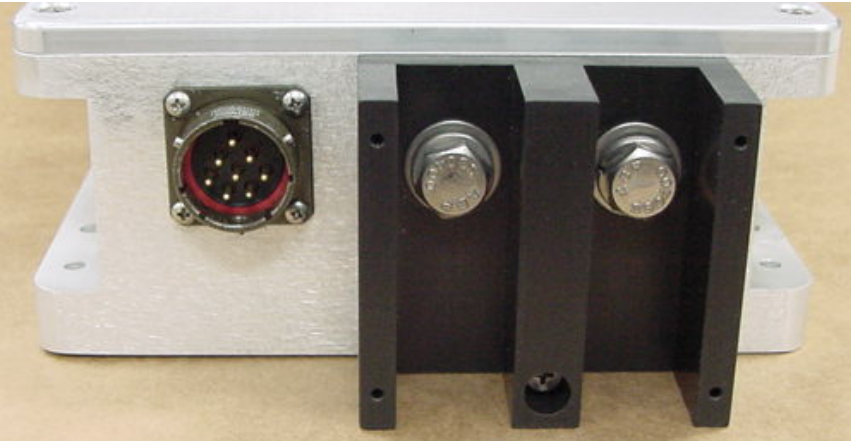




Table 2: Connector Information

		<p>Front View of Power Supply</p> <p>Circular Input Connector (MIL-C-26482 Series 1)</p> <p>Two 3/8" Stud Output Connector (IP67 Rated)</p>																		
<p>Input Connector: (MIL-C-26482 Series 1)</p> <table border="1"> <thead> <tr> <th>Pin #</th> <th>Signal</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>Vin POS VDC</td> </tr> <tr> <td>B</td> <td>Vin POS VDC</td> </tr> <tr> <td>C</td> <td>Vin NEG VDC</td> </tr> <tr> <td>D</td> <td>Vin NEG VDC</td> </tr> <tr> <td>E</td> <td>CANBUS LOW</td> </tr> <tr> <td>F</td> <td>CANBUS HIGH</td> </tr> <tr> <td>G ⁽¹⁾</td> <td>IGNITION VOLTAGE IN (+8 to +35VDC) (Alternate Power Source for the Canbus)</td> </tr> <tr> <td>H ⁽²⁾</td> <td>IGNITION VOLTAGE RETURN</td> </tr> </tbody> </table>		Pin #	Signal	A	Vin POS VDC	B	Vin POS VDC	C	Vin NEG VDC	D	Vin NEG VDC	E	CANBUS LOW	F	CANBUS HIGH	G ⁽¹⁾	IGNITION VOLTAGE IN (+8 to +35VDC) (Alternate Power Source for the Canbus)	H ⁽²⁾	IGNITION VOLTAGE RETURN	 <p>P/N AB0521001608PN00</p> <p>Customer Mate P/N's Connector: AB0561001608SN00 Cable Clamp: AB050027083300</p>
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<p>Output Studs: (IP67 Rated) (NexTek Threaded Feed-Thru)</p> <table border="1"> <thead> <tr> <th>Stud</th> <th>Signal</th> </tr> </thead> <tbody> <tr> <td>Red</td> <td>Positive Output</td> </tr> <tr> <td>Black</td> <td>Negative Output</td> </tr> </tbody> </table>	Stud	Signal	Red	Positive Output	Black	Negative Output	 <p>P/N HPR-CO23 P/N HPR-CO22</p>													
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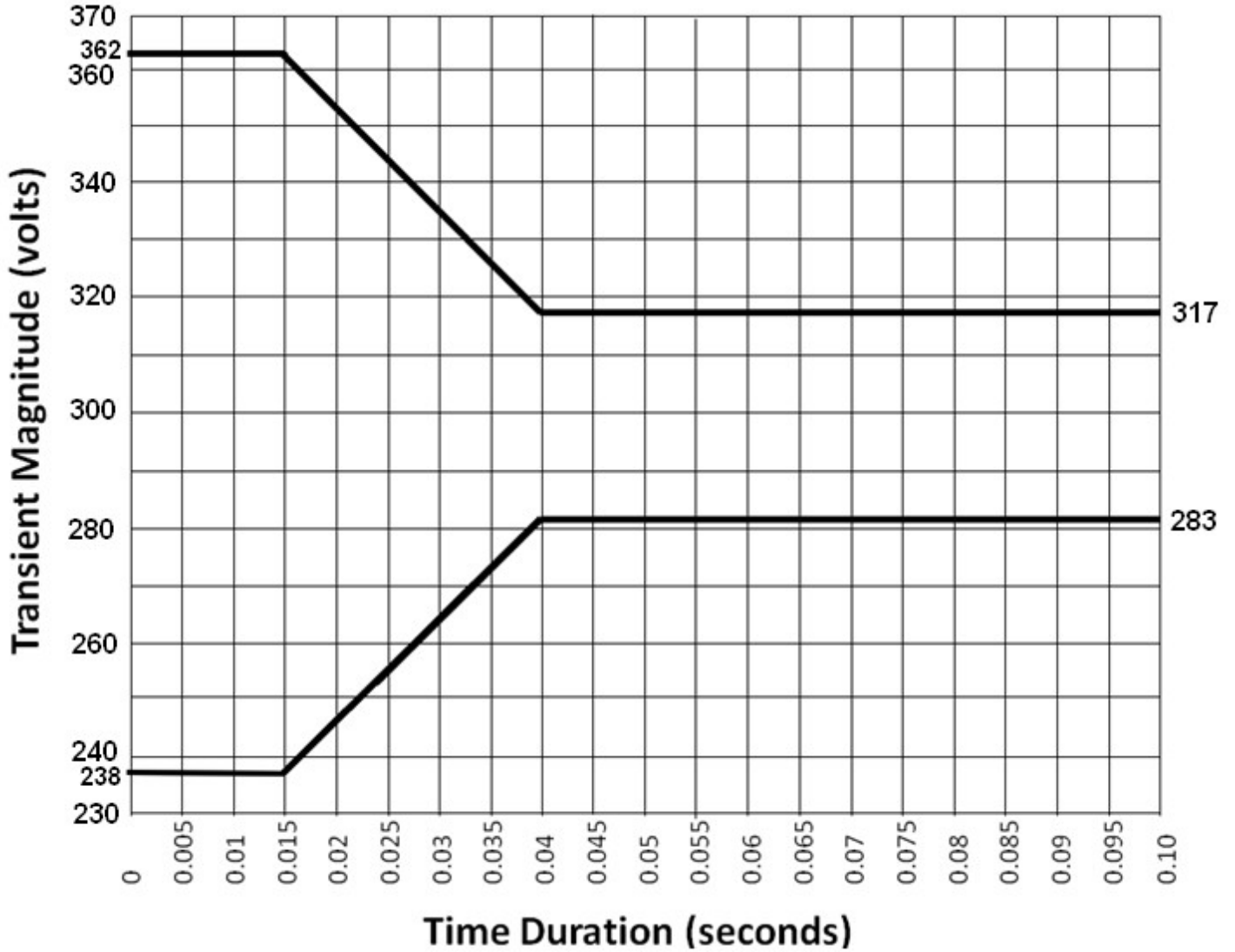
(1) Canbus is powered internally from the power converter's output bus. If the power converter output is inhibited, the Canbus powers off. Canbus power can be maintained with an alternate source connected to Pin G and H. Canbus power can also be maintained with the connection of a battery to the Power converter's output terminals.

(2) Note: Pin H is common to Output Return.

Table 3: Electrical Characteristic for 300V System

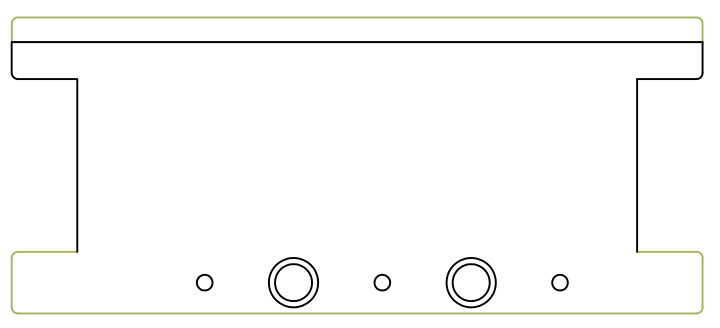
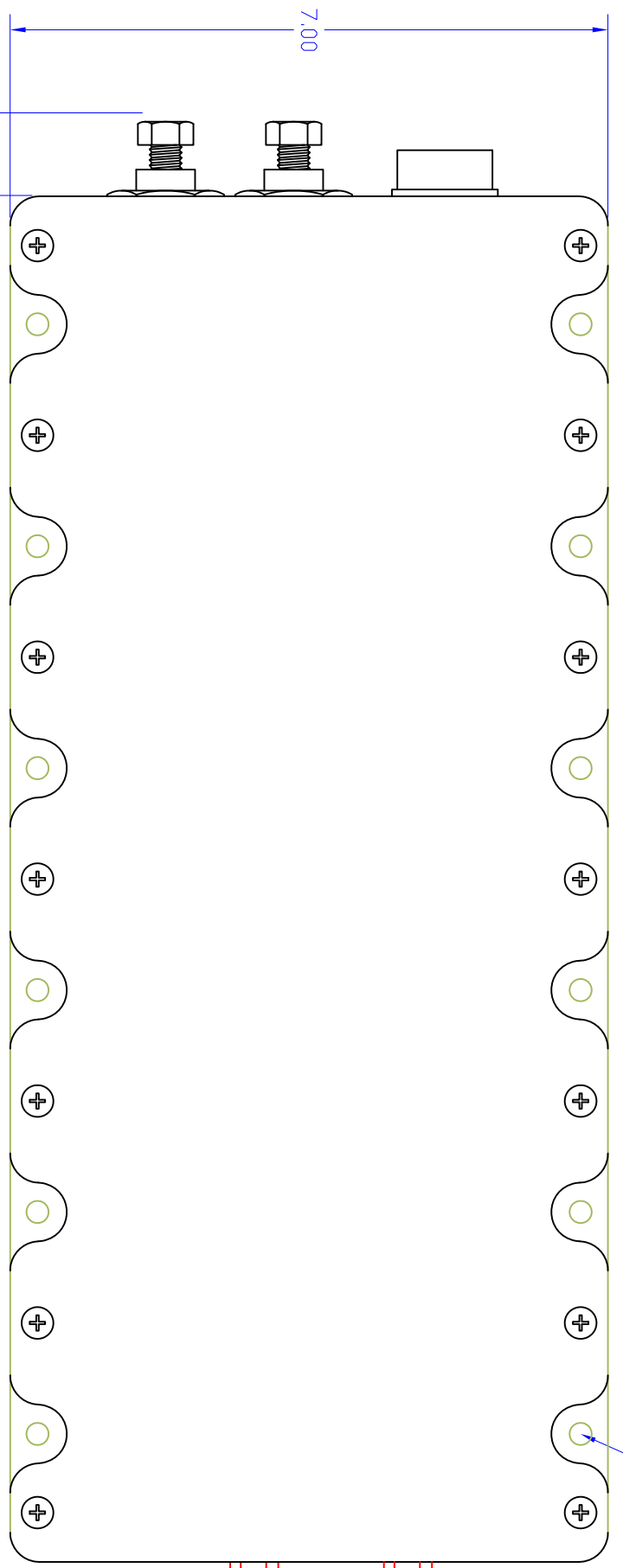
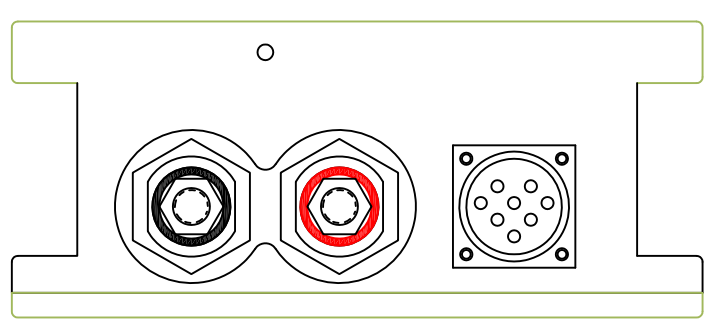
Steady-State Voltage	283-317V (300V +/- 17V)
Normal Transients	238-362V for 15ms (See Figure 2)
Ripple Amplitude	4.5V

Figure 2: NORMAL TRANSIENTS



ZONE	REV	DESCRIPTION	DATE	APPROVED
A01	INITIAL RELEASE	xxx	5/7/12	NVM
A02	Remove water port (top)	xxx	5/7/12	NVM
A03	PRODUCTION DRAWING	xxx	5/22/12	NVM

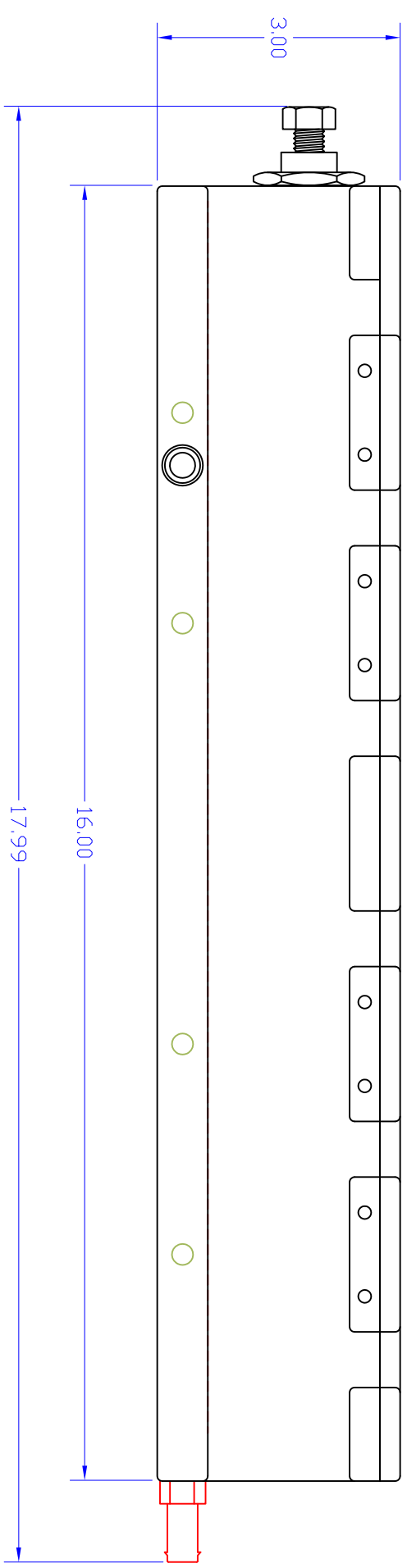
NOTES: UNLESS OTHERWISE SPECIFIED
 1. INTERPRET DIMENSIONS AND TOLERANCES PER ANSI Y14.5M-1994.
 2. MATERIAL:
 3. FINISH:



12X, Ø.250" THRU, (MOUNTING HOLES)

1/4" HOSE BARB, 2X

CAD MAINTAINED. CHANGES SHALL BE INCORPORATED BY THE DESIGN ACTIVITY



A

B

C

D

UNLESS OTHERWISE SPECIFIED, DIMENSIONS IN INCHES FRACTIONS DECIMALS ANGLES DEGREES			
* N/A	.xx ± .02	* .5	
	.xxx ± .005		
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CONTRACT NO.	APPROVALS	DATE	TITLE
	MVM	4/26/12	600E3700 MECHANICAL OUTLINE
	SEE NOTE 2		AEGIS P/N: 600E3700
	SEE NOTE 3		MURPHY, NORTH CAROLINA
FINISH	DO NOT SCALE DRAWING	DO NOT SCALE DRAWING	
QUALITY			
SCALE 1/1	SIZE F30M NO. D	DWG NO. 06ES8	REV A03
		600E3700-M00	
		SHEET 1 OF 1	

A

B

C

D