

# DC50 dc-dc converter for Fuel Cell electric vehicles



## PRODUCT OVERVIEW:

The DC50 dc-dc power has been designed for medium and heavy-duty fuel cell electric vehicles. It uses advanced multi-phases magnetics and SiC power devices utilizing advanced digital control with secondary analog controller and high frequency magnetics, achieving high power density and efficiency with J1939 command, control, communications and diagnostics

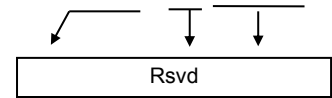
## FEATURES:

- DC Input Voltage Range: 70-170V<sub>DC</sub>
- DC output range: 250Vdc to 450Vdc, CAN control
- Efficiency: 95% rated
- Input Current: 550A max.
- Rated Power: 50kW
- Over Current, Over/Under Voltage and Over Temp protection.
- Input and output voltages, currents, power and temperature reporting.
- CAN command, control and diagnostics. Output voltage can be regulated via CAN.
- Can be used in parallel configurations.
- IP67 Rated, (IP69 optional)



## PART NUMBERING:

DC 50 □ □ □ □ □ □



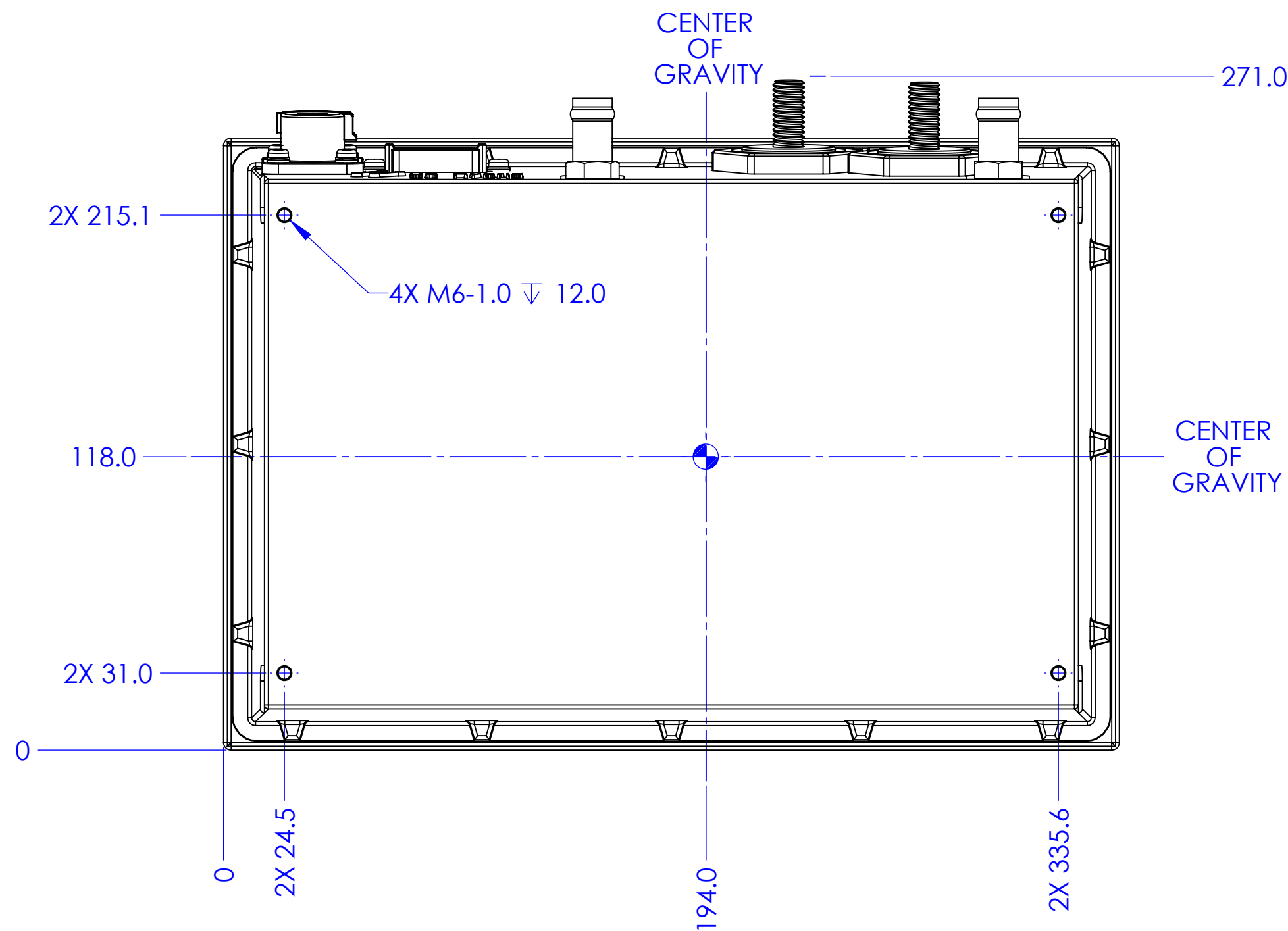
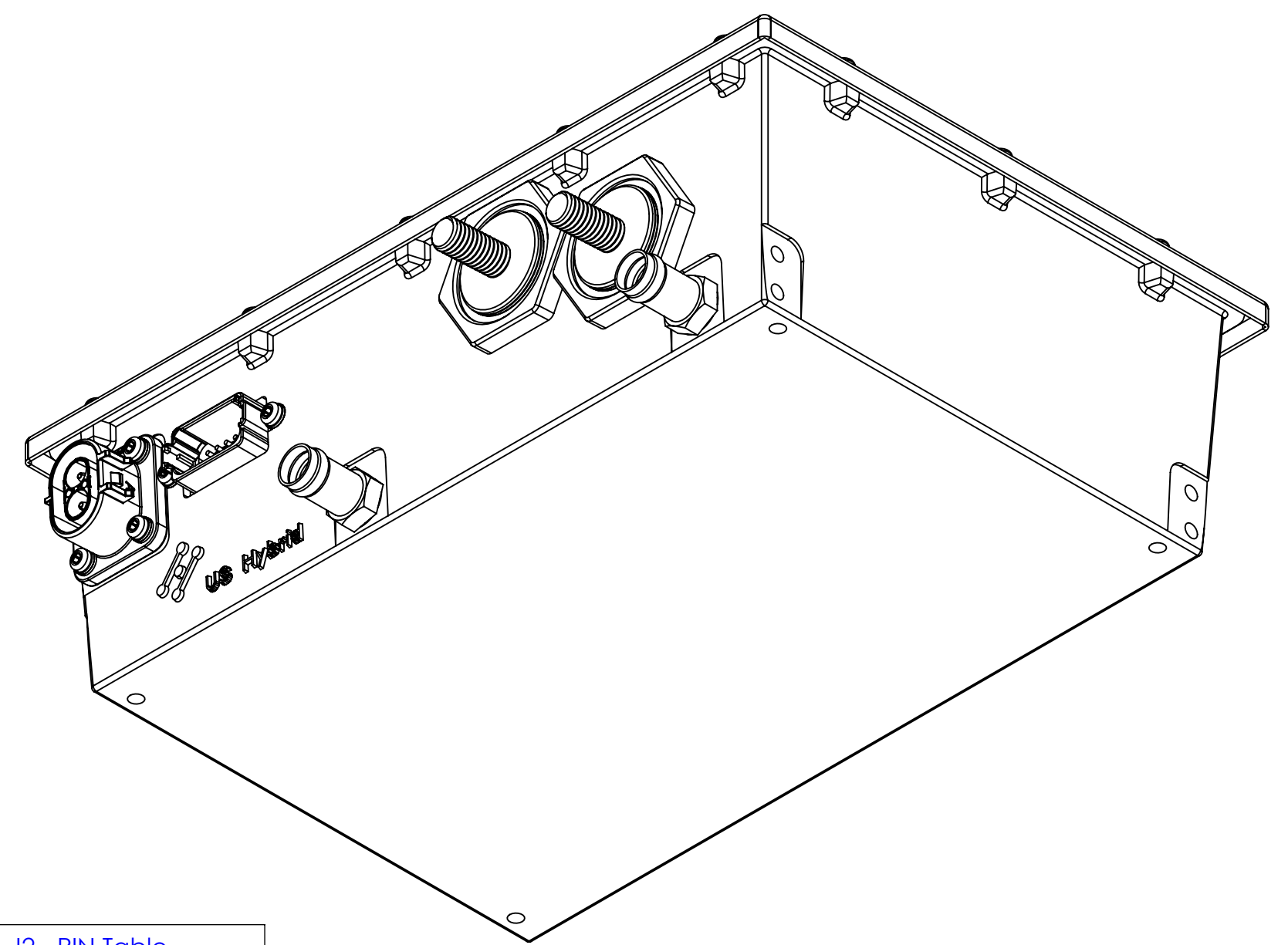
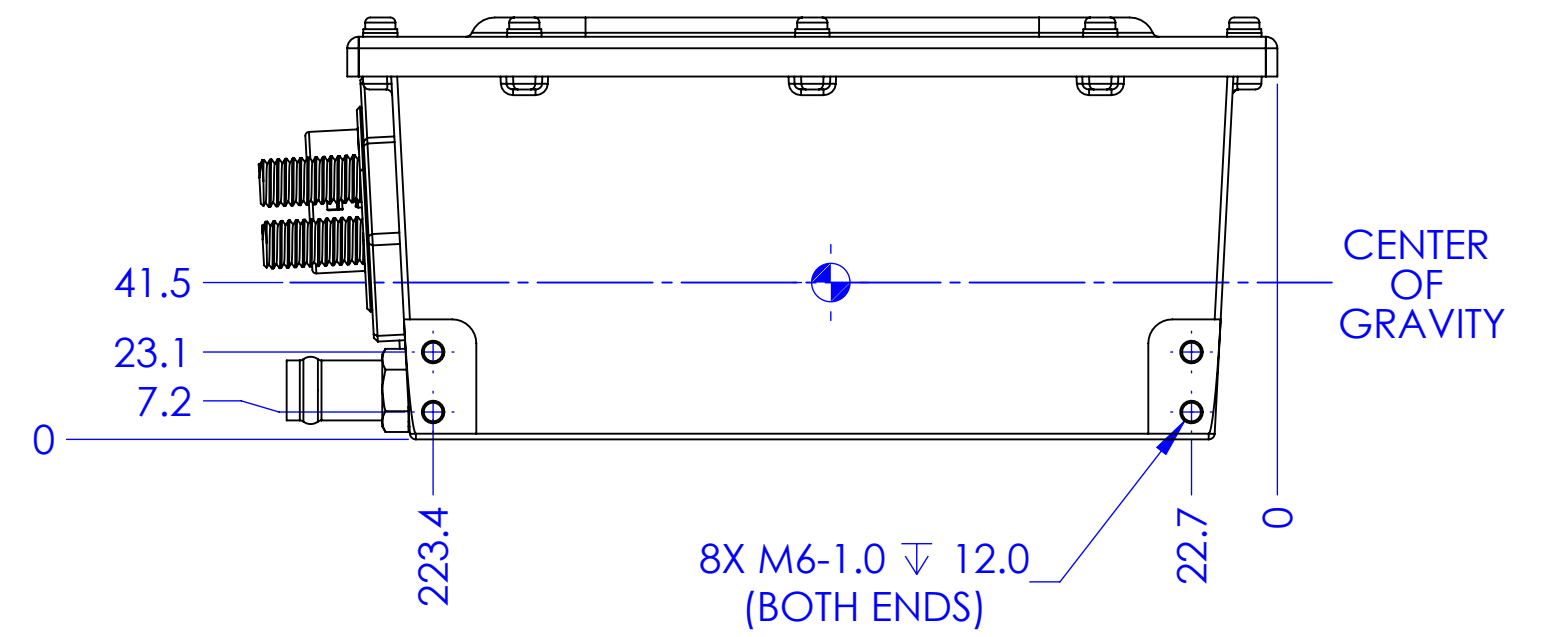
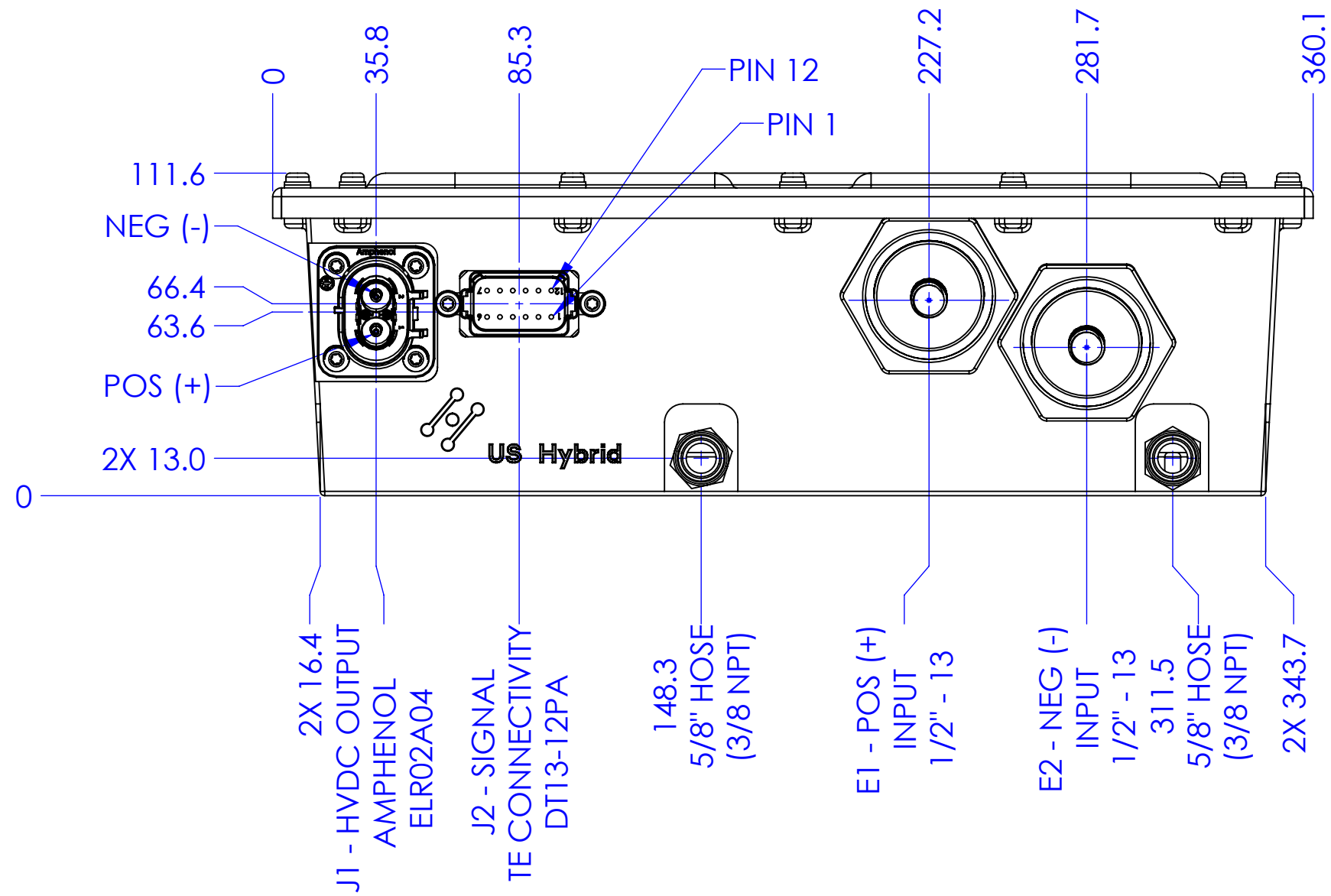
## APPLICATIONS:

Fuel Cell Electric Vehicles, Battery charging systems, Renewable Energy systems, etc. Customized to meet your most stringent applications requirements.

Signal Connector: DEUTSCH DT15-12PA	
1	GND
2	BIAS_ENABLE
3	CAN_H
4	CAN_L
5	RS232_TX
6	RS232_RX
7	GND
8	#CDC_FAULT
9	EXT_BIAS
10	#BOOT_SCI
11	RESERVED
12	RESERVED
<b>Output: Tyco</b>	
<b>Input: Stud</b>	

Line regulation (±10%)	±1 %
Load regulation	±2%
Ripple	< ±1% + 100 mVp-p
Load transient (10-90%)	< 5% typical
Response time	50 ms typical
Turn-on rise time	Soft-start, 450 ms typical
Output protection	Overload and short circuit
Cooling	Liquid cooled 65°C, 12 Lpm
Operating temperature	-30°C to +85°C
Load de-rating	2.5% /°C from 65°C liquid
Storage temperature	-40°C to +105°C
Efficiency	97%
Isolation resistance	> 1 MΩ at 450Vdc
Weight	11kg
Environmental Rating	IP67 (IP69 Optional)
EMI/EMC	FCC Class A, MIL Optional

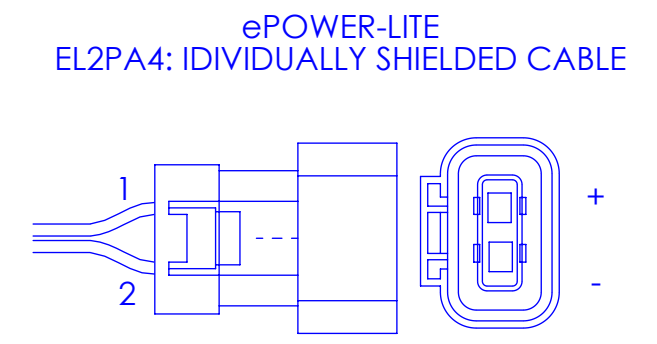
**Integrated Component Solutions for Clean Mobility & Energy Conservations**



J2 - PIN Table

SIGNAL_GND	1
BIAS_ENABLE	2
CAN_H	3
CAN_L	4
RS232_TX	5
RS232_RX	6
SIGNAL_GND	7
#CDC_FLT	8
EXT_BIAS	9
#_BOOT	10
RESERVED	11
RESERVED	12

MATING PART:  
TE CONNECTIVITY  
P/N: DT06-12SA



- NOTES: UNLESS OTHERWISE SPECIFIED
- DC/DC CONVERTER WEIGHT: 10.9 kg (24.0 LBS.).
  - COOLANT: 50/50 ETHYLENE GLYCOL / WATER.
  - MIN FLOW: 11.4L / MIN (3.0 GPM).
  - PRESSURE DROP: 9.65 kPa (1.6 PSI)@MINIMUM FLOW.
  - PRESSURE DROP: 14.05 kPa (2.1 PSI)@40°C.
  - INLET TEMP: -20°C TO 60°C.

- NOTES: CONTINUED
- OPTIONAL 3/8 NPT HOSE FITTINGS: 3/4" , 3/8" OR 90 DEG. FITTINGS.
  - TORQUE 3/8" FASTENERS TO 150 LB/IN.

UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MM [INCHES] TOLERANCES: ANGULAR: MACH ± .5° BEND ± .5° ONE PLACE DECIMAL ± .25 TWO PLACE DECIMAL ± .05	NAME	DATE	<b>US HYBRID</b> TITLE: <b>DC-DC CONVERTER, 50kW</b> SIZE DWG. NO. REV <b>C DC500000D A</b> SCALE: 1:2 SHEET 1 OF 1	
	DRAWN	ALEX N.		29OCT19
	CHECKED			
	ENG APPR.			
INTERPRET GEOMETRIC TOLERANCING PER:	Q.A.			
MATERIAL	PROPRIETARY AND CONFIDENTIAL			
FINISH	THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF US HYBRID. ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF US HYBRID IS PROHIBITED.			
DO NOT SCALE DRAWING				

29OCT19 DC500000D