DC-DC Converter for Hybrid Electric and Fuel Cell Systems

PRODUCT OVERVIEW:

The DC07 Series of converters has been designed for medium and heavy duty hybrid electric and fuel cell vehicles. It uses our advanced Digital and Analog processing and high frequency ZVS switching to achieve high power density with low noise.

FEATURES:

- DC Input Voltage Range: 250-900Vdc
- DC output range: 12-30Vdc
- Efficiency: 95% rated, > 94% from 40% to 100% load.
- Output Current: 240A at 27.8V, 7.4 kW, or 300A at 13.6V.
- Ground voltage isolation detection and fault protection.
- Short Circuit, Over Current, Over/Under Voltage and Over Temp protection.
- Output voltage 12 V to 30 V, programmable via CAN.
- Input and output voltages, currents, power and temperature reporting.
- CAN command, control and diagnostics. Output voltage can be regulated via CAN/Analog command.
- Can be used in parallel configurations.
- Low noise ZVS/ZCS architecture.

PART NUMBERING:

DC07☐☐ ☐☐ ☐ ☐☐

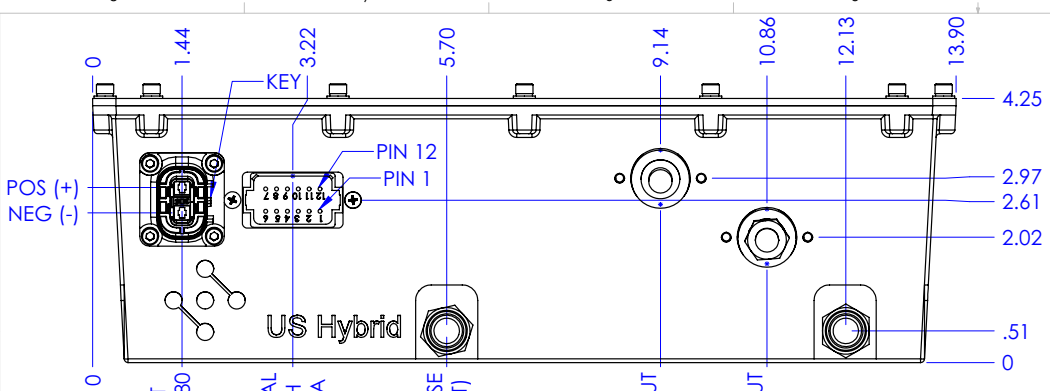
Input Voltages	V-output	Control	Rsvd
MV: 250-450Vdc HV: 450-900Vdc	12: 12Vdc 24: 24Vdc	C: CAN 0: Fixed	

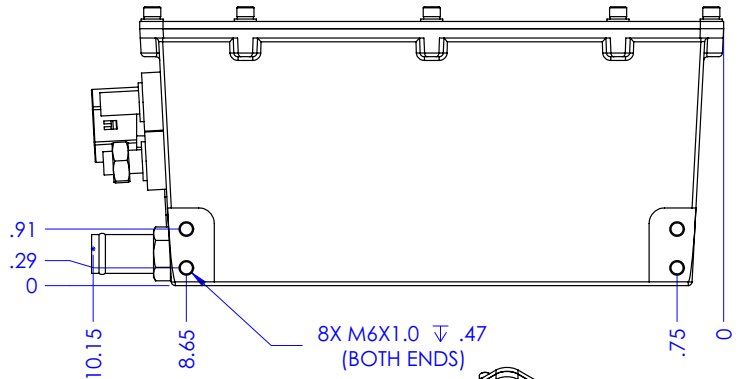
APPLICATIONS:

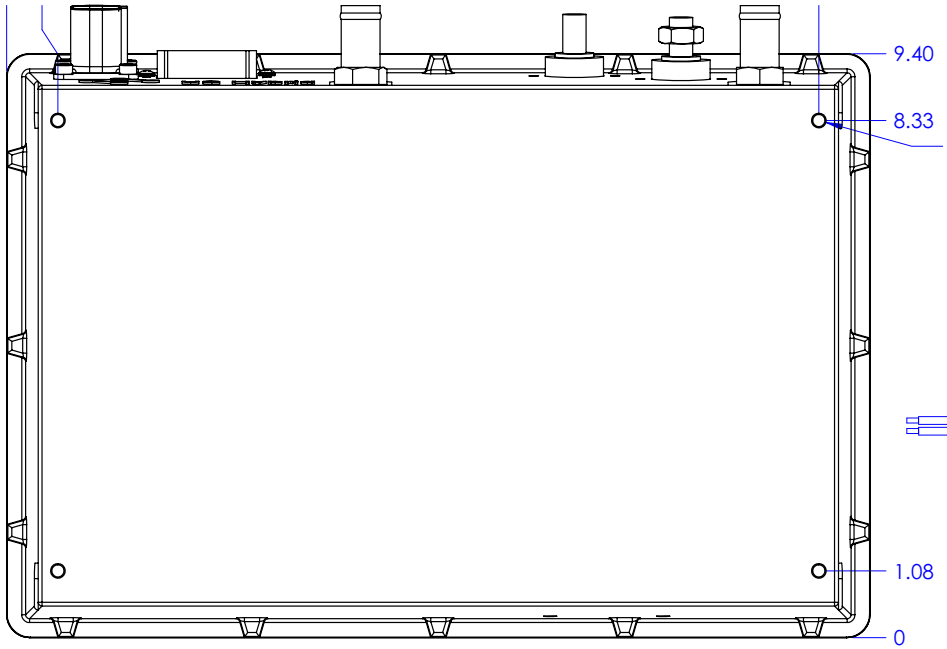
Electric, Hybrid and Fuel Cell Vehicles, Light Rail, Off-road equipment and Battery Charging systems.

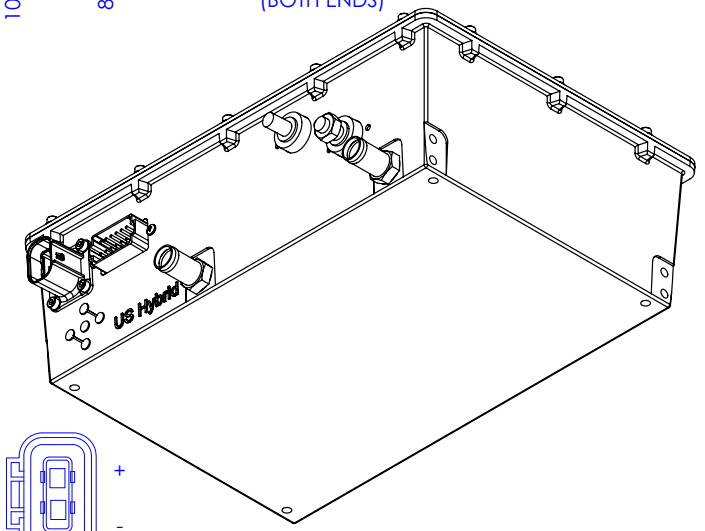
Signal Connector: DEUTSCH DT15-12PA	
1	GND
2	BIAS_ENABLE
3	CAN_H
4	CAN_L
5	RS232_TX
6	RS232_RX
7	GND
8	#CDC_ FAULT
9	EXT_BIAS
10	# BOOT_SCI
11	RESERVED
12	RESERVED
Power Connector: LAPP 52106990 (SKINDICHT)	

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 < 60°C, 12 Lpm
Operating temperature	-20°C to +70°C
Load de-rating	2.5% /°C from 60°C liquid
Storage temperature	-40°C to +85°C
Efficiency	> 94% (40%-100% load)
Isolation resistance	> 1 MΩ at 700Vdc
Weight	9 kg.

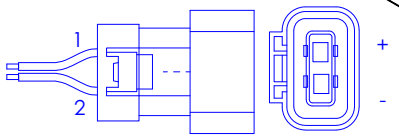








HVA280



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

NOTES: UNLESS OTHERWISE SPECIFIED
1. DC/DC CONVERTER WEIGHT: 10.0 kg (22 LBS.).
2. COOLANT: 50/50 ETHYLENE GLYCOL / WATER.
3. MIN FLOW: 11.4L / MIN (3.0 GPM).
4. PRESSURE DROP: 9.65 kPa (1.6 PSI)@MINIMUM FLOW.
5. PRESSURE DROP: 14.05 kPa (2.1 PSI)@40°C.
6. INLET TEMP: -20°C TO 60°C.

NOTES: CONTINUED
7. OPTIONAL 3/8 NPT HOSE FITTINGS: 3/4" , 3/8" OR 90 DEG. FITTINGS.
8. TORQUE 3/8" FASTENERS TO 150 LB/IN.
9. INPUT MATING CONNECTOR: TYCO HVA280 (P/N# 1587902-9).
10. SIGNAL MATING CONNECTOR: DEUTSCH P/N# DT06-12SA.

	NAME	DATE
DRAWN	F.ERICKSON	3-11-11
CHECKED		
ENG APPR.		
MFG APPR.		
Q.A.		

US HYBRID

TITLE:
275A DC-DC CONVERTER
OUTLINE & MOUNTING

SIZE	DWG. NO.	REV
B	DC070000D-	-

SCALE: 1:2 | SHEET 1 OF 1

DWG. DC070000D- | REV - | DATE 3-11-11