



US Hybrid



## DC-DC Converter for Hybrid Electric and Fuel Cell Systems

### PRODUCT OVERVIEW:

The DC02 Series of converters has been designed for medium and heavy duty hybrid electric and fuel cell vehicles. It is used in wide variety of applications, both mobile and stationary. It uses our advanced Digital and Analog processing and high frequency ZVS switching to achieve high power density with low noise.

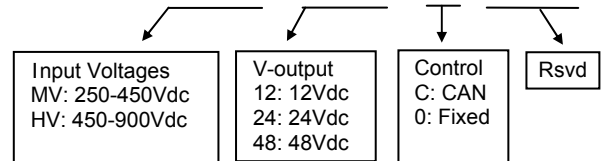


### FEATURES:

- DC Input Voltage Range: 250-900V<sub>dc</sub>
- DC output range: 12-30 V<sub>dc</sub>
- Efficiency: 95% rated, > 94% from 40% to 100% load.
- Output Current: 300A at 27.8V.
- 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:

DC02 □ □ □ □ □ □

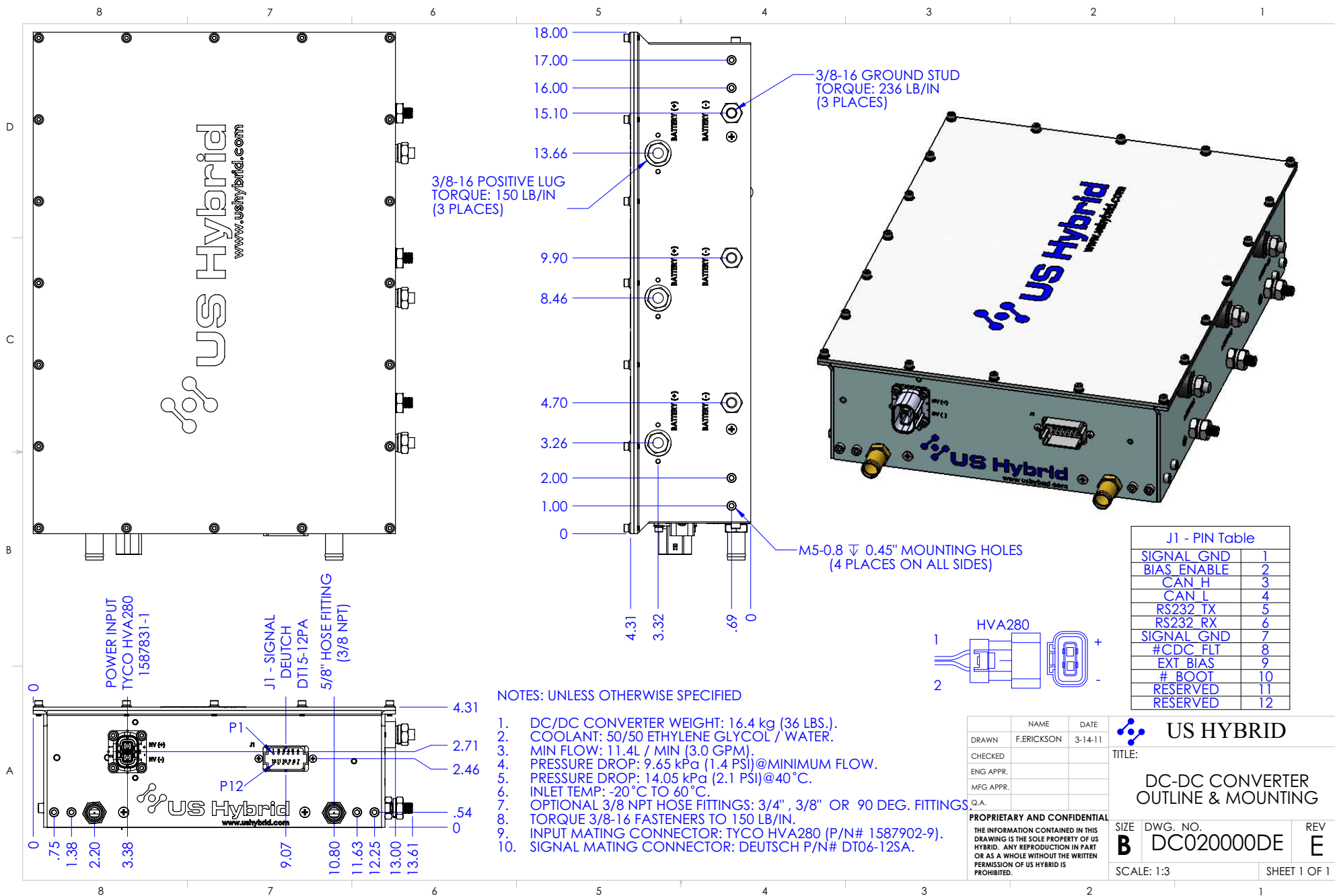


### APPLICATIONS:

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	#BOOT_SCI
9	NC
10	#FAULT (active low OC)
11	RESERVED
12	RESERVED
<b>Power Connector: LAPP 52106990 (SKINDICHT), Tyco, ITT</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 < 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	> 93% (40%-100% load)
Isolation resistance	> 1 MΩ at 700V <sub>dc</sub>
Weight	15 kg.



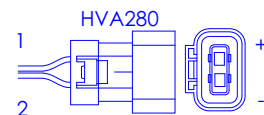
3/8-16 POSITIVE LUG  
TORQUE: 150 LB/IN  
(3 PLACES)

3/8-16 GROUND STUD  
TORQUE: 236 LB/IN  
(3 PLACES)

M5-0.8  $\nabla$  0.45" MOUNTING HOLES  
(4 PLACES ON ALL SIDES)

POWER INPUT  
TYCO HVA280  
1587831-1

J1 - SIGNAL  
DEUTCH  
DT15-12PA  
5/8" HOSE FITTING  
(3/8 NPT)



NOTES: UNLESS OTHERWISE SPECIFIED

1. DC/DC CONVERTER WEIGHT: 16.4 kg (36 LBS.).
2. COOLANT: 50/50 ETHYLENE GLYCOL / WATER.
3. MIN FLOW: 11.4L / MIN (3.0 GPM).
4. PRESSURE DROP: 9.65 kPa (1.4 PSI) @ MINIMUM FLOW.
5. PRESSURE DROP: 14.05 kPa (2.1 PSI) @ 40°C.
6. INLET TEMP: -20°C TO 60°C.
7. OPTIONAL 3/8 NPT HOSE FITTINGS: 3/4", 3/8" OR 90 DEG. FITTINGS.
8. TORQUE 3/8-16 FASTENERS TO 150 LB/IN.
9. INPUT MATING CONNECTOR: TYCO HVA280 (P/N# 1587902-9).
10. SIGNAL MATING CONNECTOR: DEUTSCH P/N# DT06-12SA.

J1 - 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

NAME		DATE		
DRAWN	F.ERICKSON	3-14-11		
CHECKED				
ENG APPR.				
MFG APPR.				
Q.A.				
<b>US HYBRID</b> TITLE: <b>DC-DC CONVERTER          OUTLINE &amp; MOUNTING</b>				
PROPRIETARY AND CONFIDENTIAL 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.		SIZE <b>B</b>	DWG. NO. <b>DC020000DE</b>	REV <b>E</b>
SCALE: 1:3		SHEET 1 OF 1		

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