Bi-directional DC-DC Converter for Hybrid Electric and Fuel Cell Systems

US Hybrid

ISO 9001:2008 REGISTERED FIRM

PRODUCT OVERVIEW:

The Bi-Directional DC-DC series of converters utilizes advanced Digital Power Processing with a high frequency magnetic design. It has a broad band dynamic response that provides an efficient regulation of voltage and current. Both inputs and outputs have limit protections for voltage, current and power. The high frequency magnetic design is a proven technology that has superior performance, response, flexibility and reliability. High efficiency and power density.

It comes with extensive diagnostics via CAN-J1939 or RS232.

FEATURES:

- Input and output Voltage Range: 100-650V_{DC}
- Input Current: 200A continuous.
- Efficiency: 96% rated
- Ground voltage isolation detection and fault protection.
- Short Circuit, Over Current, Over/Under Voltage and Over Temperature protection.
- CAN command, control and diagnostics. Output voltage can be regulated via CAN/Analog command.
- Input and output voltages, currents, power and temperature reporting
- Parallelable with fault tolerance operation.
- Cascaded multi-phases Converter.

MODEL NUMBER:

BDC2 □ □ □ □ □ □

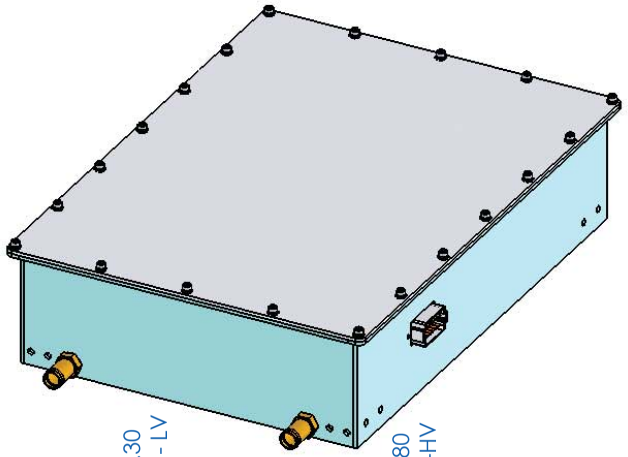
Input Voltage	V-out	Control	Rsvd
M: 150-300V_{DC} H: 300-450V_{DC}	20: 200V_{DC} 45: 450V_{DC} 65: 650V_{DC}	C: CAN A: Analog 0: Fixed	

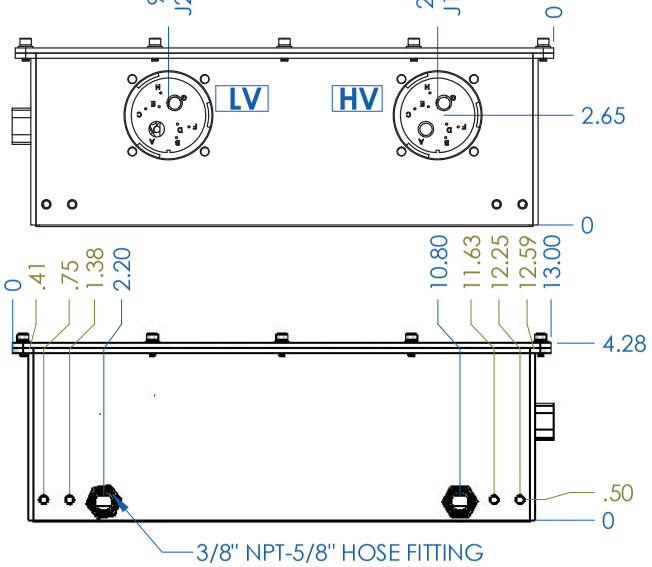
APPLICATIONS:

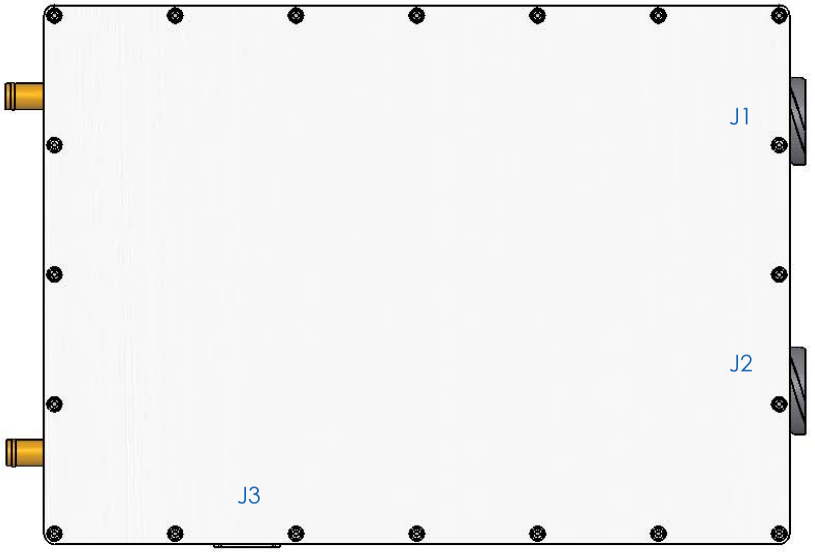
Hybrid Electric and Fuel Cell Vehicles and Renewable Energy Systems.

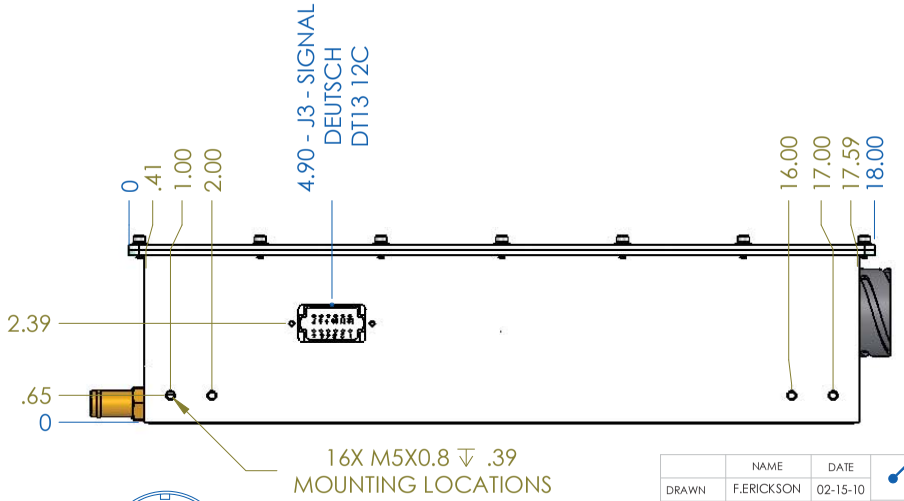
Signal Connector DEUTSCH DT15-12PA	
1	GND
2	PWR_ON (Opto, 10-30V)
3	12V_POS
4	12V_NEG
5	VOUT_ANALOG_CMD
6	ANALOG_RTN
7	#FAULT (active low OC)
8	CAN_H
9	CAN_L
10	RS232_RX
11	RS232_TX
12	#PROGRAM
Power Connector: ITT , Tyco (Option)	

Line regulation (±10%)	±2 %
Load regulation	±2%
Ripple	< ±1% + 500 mVp-p
Load transient (10-90%)	< 5% typical
Response time	250 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 +105°C
Efficiency	> 96%
Isolation resistance	> 1 MΩ at 700Vdc
Weight (kg)	21 kg.









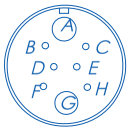
J1 - PIN Table	
A	HV-
B	-
C	HV+
D	-
E	-
F	-

J2 - PIN Table	
A	LV-
B	-
C	-
D	-
E	LV+
F	-

J3 - PIN Table	
1	GND
2	PWR_EN
3	12V+
4	12V_RTN
5	ANALOG_CMD
6	ANALOG_RTN
7	#FAULT
8	CAN_H
9	CAN_L
10	RS232_RX
11	RX232_TX
12	#EXT_BOOT

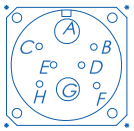
NOTES: UNLESS OTHERWISE SPECIFIED

1. BDC 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. SIGNAL MATING CONNECTOR: DEUTSCH P/N# DT06-12SC.



MATING CONNECTOR
Y/YHB08F 32-15SN-B-F80-A123
(FOR REFERENCE ONLY)

CONNECTOR ON UNIT
Y/YHB02F 32-15SN-B-F80-A123



	NAME	DATE
DRAWN	F.ERICKSON	02-15-10
CHECKED		
ENG APPR.		
MFG APPR.		
Q.A.		

US HYBRID

TITLE:
BDC - 200
OUTLINE & MOUNTING

SIZE	DWG. NO.	REV
B	CV040000D-	-
SCALE: 1:3		SHEET 1 OF 1

DWG. CV040000D- REV - DATE 02-15-10