Isolated DC-DC Converter for Fuel Cell and Alternative Energy Systems

US Hybrid

PRODUCT OVERVIEW:

The **Isolated DC-DC converters** utilizes advanced Digital Power Processing, advanced magnetic and power devices with ZVS operation, providing high efficiency with fast dynamic bandwidth response for voltage, current and power regulations with input and output voltage and current and power limits control. The cost effective high frequency proven magnetic design with robust redundant control provides fast response, flexibility, reliability, light weight and volume product for Fuel Cell and alternative energy industry. Extensive J1939 CAN diagnostics.

FEATURES:

- Galvanic ally Isolated DC-DC,
- Input range: 175-600V_{DC}.
- Output range: MV:280 -500 or HV: 550-750V_{DC}
- Input Current: 550A
- Power Input: 100kW
- Ground voltage isolation detection and protection.
- Efficiency: 95%
- Short Circuit, OC, O/U V and OT protection.
- Parallelable with fault tolerance operation.
- CAN J1939 command, control and diagnostics. Vout control via CAN
- Environmental rating IP67 (IP69 Option)
- Option to control cooling fan and pump through discrete outputs
- Integrated safety disconnects and fusing on the input and output.

PART NUMBERING:

CV38☐☐☐☐☐☐

Config: consult company

APPLICATIONS:

Fuel Cell Systems, Smart Grid, Renewable, energy systems, UPS, battery charger.

Signal Connector:

Deutsch: DT04-6P-CL09

Output Power Connector:

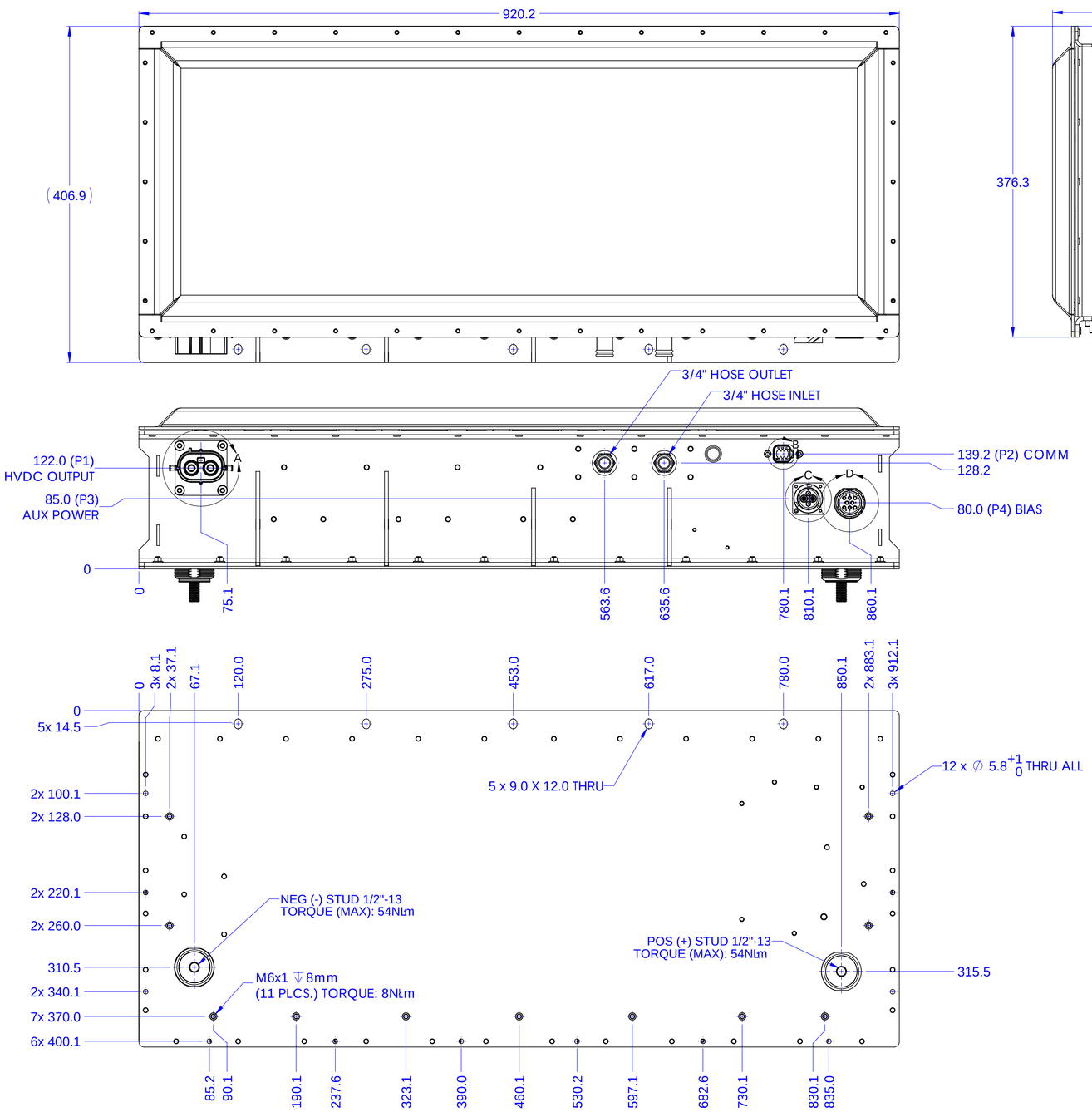
Tyco 9-2141227-1

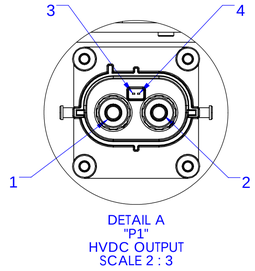
Input Power Connectors:

Customized

Line regulation (±10%)	±0.5%
Load regulation	±0.5%
Ripple	< ±1% + 300 mVp-p
Load transient (10-90%)	< 6% typical overshoot
Response time	100 ms typical
Turn-on rise time (wake up to full power)	Soft-start, (0.1-2 sec, adjustable)
Output protection	Temp, Voltage, current and short
Cooling	WEG < 60°C 12 Lpm
Operating temperature (ambient)	-30°C to +65°C,
Load de-rating	10% /°C from 60°C
Storage temperature	-40°C to +105°C
Efficiency	95%
Isolation resistance	> 1 MΩ at 700Vdc
Weight	44kg
Bias Supply	11V_{DC} - 30V_{DC}

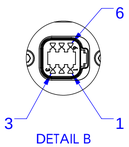
Integrated Components Solutions for Clean Mobility & Energy Conservation





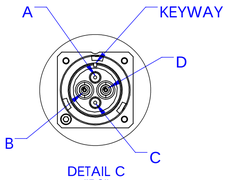
DETAIL A
"P1"
HVDC OUTPUT
SCALE 2 : 3

CONNECTOR PINOUT POSITION: "P1" HVDC OUTPUT MANUFACTURER: TE P/N: 1-2141227-1	
TERMINAL	SIGNAL NAME
1	HVOUT -
2	HVOUT +
3	HVIL_SND
4	HVIL_RCV



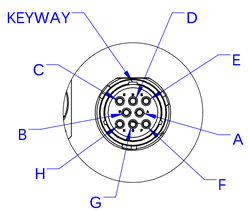
DETAIL B
"P2"
COMM
SCALE 2 : 3

CONNECTOR PINOUT POSITION: "P2" COMM MANUFACTURER: TE P/N: DT04-6P-CL09	
TERMINAL	SIGNAL NAME
1	CAN_H
2	CAN_L
3	BIAS_ENABLE
4	BOOT_SCI
5	RS232_RX
6	RS232_TX



DETAIL C
"P3"
AUX POWER
SCALE 2 : 3

CONNECTOR PINOUT POSITION: "P3" AUX POWER MANUFACTURER: AMPHENOL P/N: C52-730969-24S	
TERMINAL	SIGNAL NAME
A	HVIL_RCV
B	AUX_PWR +
C	HVIL_SND
D	AUX_PWR -



DETAIL D
"P4"
BIAS
SCALE 2 : 3

CONNECTION PINOUT POSITION: "P4" BIAS MANUFACTURER: TE P/N: HDP24-18-8PN	
TERMINAL	SIGNAL NAME
A	+24Vdc
B	-24Vdc
C	+12Vdc
D	+12Vdc
E	N/C
F	N/C
G	HVDC-
H	HCDV+

NOTES: UNLESS OTHERWISE SPECIFIED

1. UNIT WEIGHT (DRY): 49.9 kg (110 LBS.).
2. COOLANT: 50/50 ETHYLENE GLYCOL / WATER, 1.57L FLUID VOLUME.
3. MINIMUM FLOW RATE: 12.0L / MIN (3.17 GPM).
4. PRESSURE DROP: 10.48 kPa (1.52 PSI) @ 40 C / MINIMUM FLOW.
5. MAXIMUM OPERATING PRESSURE: 15 PSI
6. INLET TEMP: -40˚C TO 65˚C
7. SEE SHEET 2 FOR CONNECTOR PINOUT.
8. CG = APPROXIMATE CENTER OF GRAVITY.
9. UNIT MUST BE INSTALLED WITH VIBRATION ISOLATION MOUNTS.

PRELIMINARY
NOT A CONTROLLED COPY

UNLESS OTHERWISE SPECIFIED:		NAME	DATE
DIMENSIONS ARE IN MM [INCHES] TOLERANCES: ANGULAR: MACH± .5° ONE PLACE DECIMAL ±1 TWO PLACE DECIMAL ±.5	DRAWN	ALEX N.	1/15/2018
	CHECKED		
THIRD ANGLE PROJECTION	ENG APPR.		
	MFG APPR.		
INTERPRET GEOMETRIC TOLERANCING PER:	Q.A.		
MATERIAL	COMMENTS:		
FINISH			

US HYBRID

TITLE:
80kW Isolated
Boost Converter

SIZE	DWG. NO.	REV
D	CV380000D	C
SCALE: 1:3		SHEET 1 OF 1

C
REV
CV380000D
DWG
1/15/2018
DATE