Triple DC-AC Inverter for Auxiliary Motor Drives

PRODUCT OVERVIEW:

The DA08, is an integrated three 3-Φ Inverters "Triverter" with independent Control, fuse protection with one J1939 CAN and DC connection with soft charge option, and dedicated dc contactors with input and output filters meeting most stringent EMI/EMC and protection requirements. Triverter is designed for variable speed auxiliary drives such as electric driven air compressor, hydraulic system and A/C compressor for medium- and heavy- duty and off-road vehicle applications. The inverter is capable of driving induction motors and permanent magnet motors. It utilizes advanced digital control to implement VVVF or sensor-less vector control with J1939 CAN control, communication and diagnostics. The unit can drive motors up to 400 Hz drive frequency.

FEATURES:

- DC Input Voltage Range: 250-750Vdc, 1100Vdc surge.
- AC output Voltage: 3-Phase 0-208Vrms or 0-380Vrms
- Chassis Isolation Fault Detection
- Inverter Efficiency: > 96%
- Output Current: 50 Arms
- Control: VVVF or Field Oriented Sensor-less
- Number of Units: Single, Double or Triple
- Adaptability: Induction and PM motor.
- Control and Command: CAN Bus, Customer configurable

Model Number:

DA08 □□ □□□ □□

Input Voltages	V-output	Control	Rsvd
MV: 250-450V_{DC} HV: 550-750V_{DC}	208 rms 380 rms	C: CAN 0: Fixed	

APPLICATIONS:

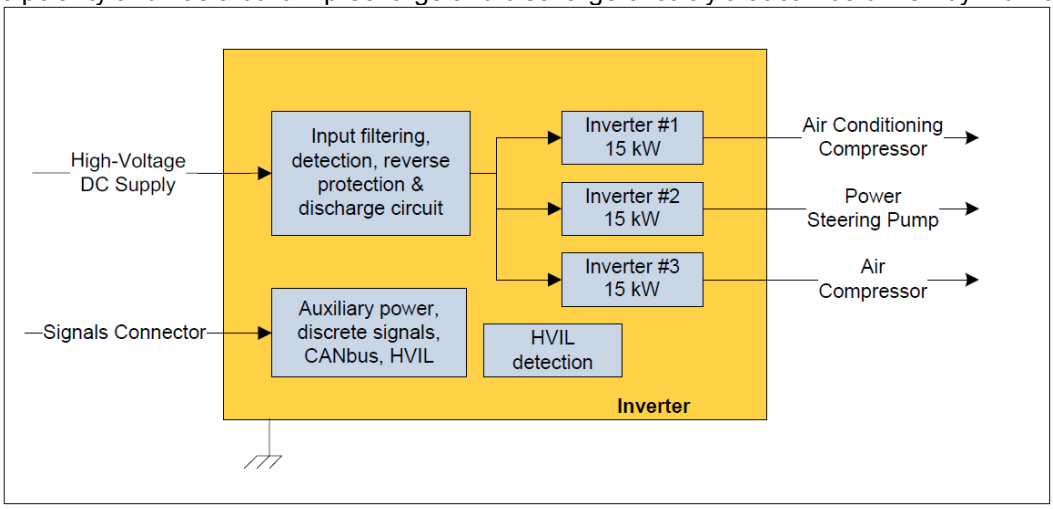
Electric, Hybrid and Fuel Cell transit bus, MD/HD trucks and off-road applications. DA08 can be customized to meet your most stringent applications requirements.

Signal Connector: DEUTSCH DRC23-24PA			
1	AUX_PWR	13	HVIL_OUT
2	AUX_RTN	14	CANA_H
3	BIAS_ENABLE	15	CANB_H
4	#EXT_BOOT1	16	RS232_TX_1
5	#EXT_BOOT2	17	RS232_TX_2
6	#EXT_BOOT3	18	RS232_TX_3
7	HVIL_IN	19	AIN_1
8	CANA_L	20	AIN_2
9	CANB_L	21	AIN_3
10	#CAN_BOOT1	22	RS232_RX_1
11	#CAN_BOOT2	23	RS232_RX_2
12	#CAN_BOOT3	24	RS232_RX_3

Line regulation (±10%)	±1%
Load regulation - RPM	±2%
Response time	¼ Cycle typical
Control Strategy	VVVF or Field Oriented Control
Output protection	Overcurrent/load and short circuit
Cooling	Liquid cooled < 60°C, 20 Lpm
Operating temperature	-35°C to +85°C
Load de-rating	2.5% /°C from 60°C liquid
Storage temperature	-40°C to +105°C
Efficiency	96%
Isolation resistance	> 10 MΩ at 1000Vdc
Weight	14.52 kg.
Environmental Rating	IP66

BLOCK DIAGRAM

The DA08 consists of three independent inverters that can be controlled separately controlled through CAN or analog inputs. Each channel is protected from output overloads and short circuit. In addition, the whole unit is protected against input reverse polarity and has a built in precharge and discharge circuitry that can be driven by individual channels.

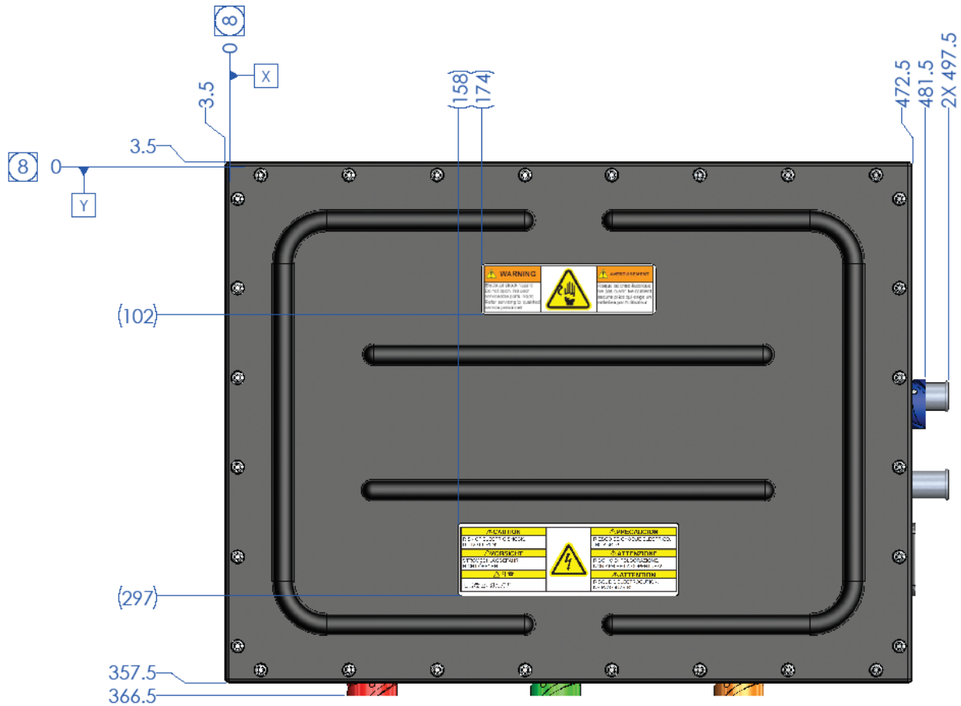


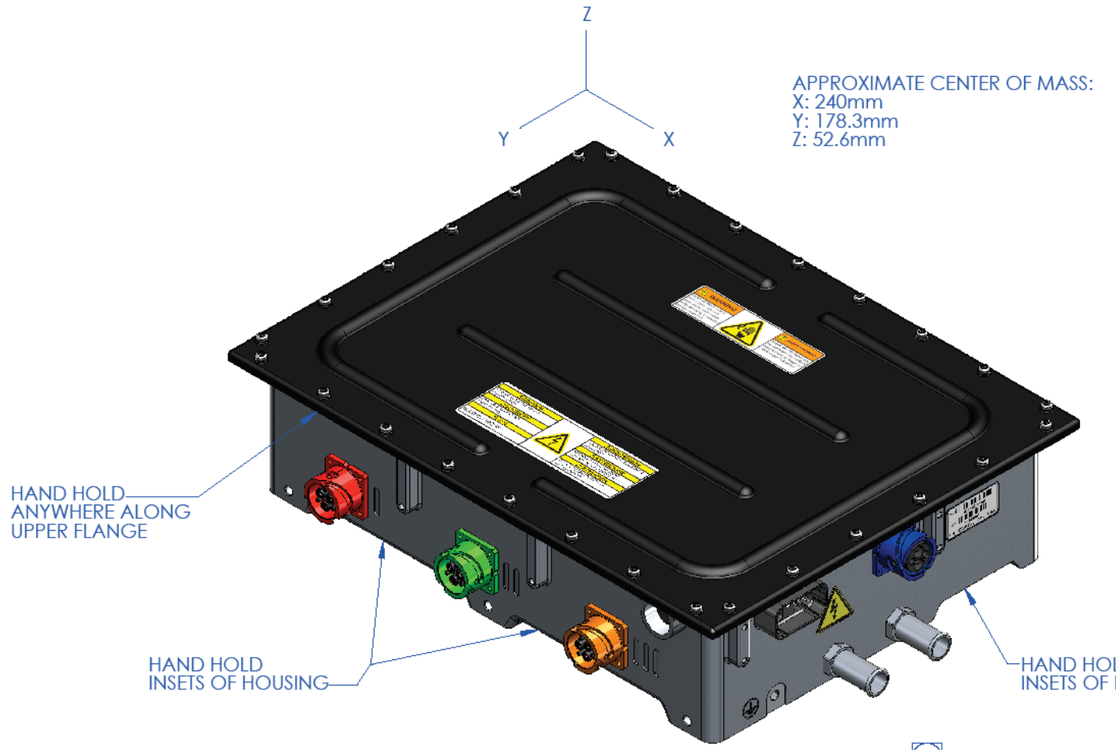
AGENCY APPROVALS

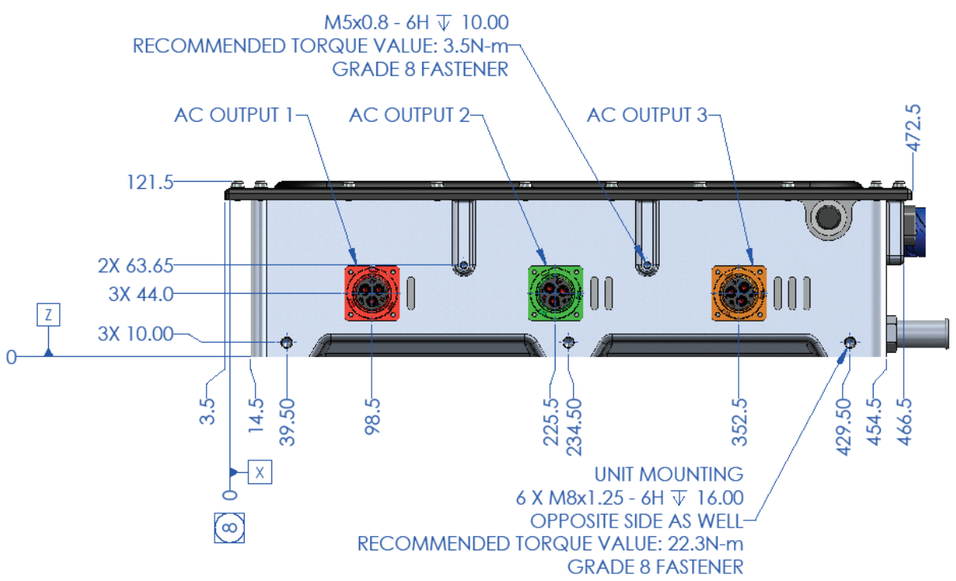
The DA08 has been tested against the following rigorous Environmental and EMC standards:

ENVIORNMENTAL TESTS	
DESCRIPTION	**SPECIFICATIONS**
Random Vibration	ISO 16750-3 (2007) Code Z
Sine Vibration	ISO 16750-3 (2007) Code Z
Storage Temperature	ISO 16750-4, IAW IEC 60068-2-1 (cold) ISO 16750-4, IAW IEC 60068-2-2 (hot)
Operating Temperature	ISO 16750-4, IAW IEC 60068-2-1 (cold) ISO 16750-4, IAW IEC 60068-2-2 (hot)
Humidity Cyclic	ISO 16750-4 section 5.6
Chemical Loads	ISO 16750-5 section 5.1, Diesel Fuel, Engine Oil, Coolant, Battery Fluid
Ingress	ISO 20653/ IEC60529 IP66

EMC TESTS	
DESCRIPTION	**SPECIFICATIONS**
Conducted Transient Emission	ISO 7637-2 section 4.2
Conducted RF Emission	CISPR 23 ed 3
Conducted Transient Susceptibility - Power Leads	ISO 7637-2 Test Pulse 1, 2, 3a and 3b
Conducted Transient Susceptibility - Signal Leads	ISO 7637-2
Power Supply Quality	Volvo STD 515-003
Radiated Emissions	CISPR 25 ed 3 ALSE
Radiated Susceptibility	ISO 11452-2 & 11452-4
ESD	ISO10605
Immunity to Low Freq Magnetic Field	ISO 11452-8
Immunity Against External Voltage Noise in TV Bus	Volvo STD 525-003
Immunity Against External Voltage Spikes	Volvo STD 525-003
Superimposed Alternating Voltage	ISO 16750 sec 4.4
Slow Decrease and Increase of Supply Voltage	ISO 16750 sec 4.5
Reset Behavior at Voltage Drop	ISO 16750 sec 4.6.2
Reverse Voltage	ISO 16750 sec 4.7
Single Line Interruptions	ISO 16750 sec 4.9.1
Multiple Line Interruptions	ISO 16750 sec 4.9.2
Short Circuit Protection - Signal Lines	ISO 16750 sec 4.10.2
Withstand Voltage	ISO 16750 sec 4.11
Insulation Resistance	ISO 16750 sec 4.12







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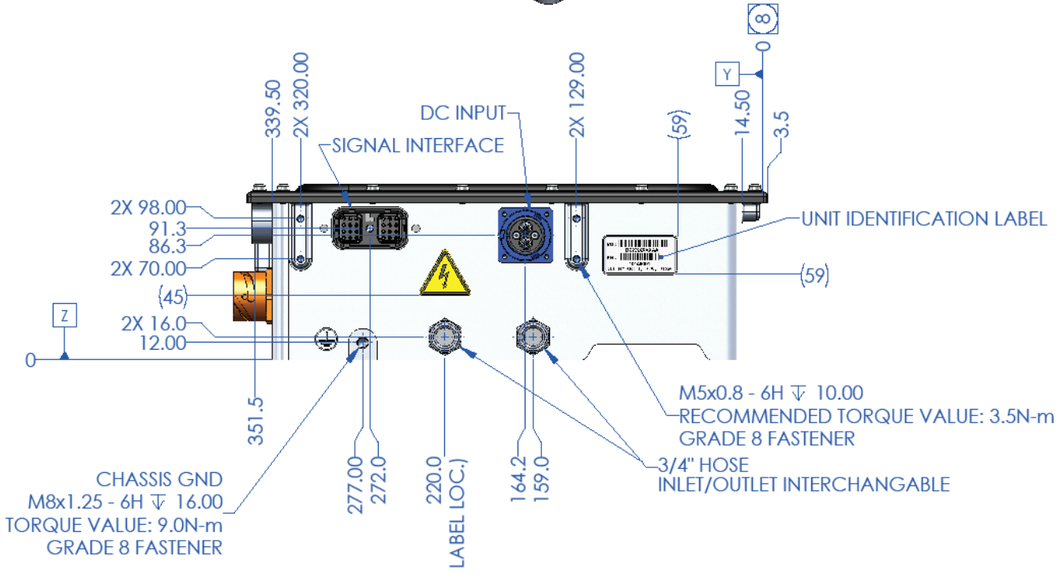

NOTES: UNLESS OTHERWISE SPECIFIED
1. UNIT WEIGHT: 14.52 kg (32 LBS.).
2. COOLANT: 50/50 ETHYLENE GLYCOL / WATER.
3. MINIMUM FLOW RATE: 20.0L / MIN (4.4 GPM).
4. PRESSURE DROP: 10.48 kPa (1.52 PSI) @ 40°C / MINIMUM FLOW.
5. INLET TEMP: -40°C TO 65°C
6. SEE SHEET 2 FOR CONNECTOR PINOUT.
7. UNIT MUST BE INSTALLED WITH VIBRATION ISOLATION MOUNTS.
   RECOMMENDED MOUNTS TECH PRODUCT INC., P/N: 60221
   ALTERNATE: PASCALEX, P/N: SCB35

(8.) ORIGIN DERIVED FROM UPPER CORNER FLANGE OF CHASSIS.

		NAME	DATE
UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MM [INCHES] TOLERANCES: ANGULAR: MACH± .5° ONE PLACE DECIMAL ±1.5 TWO PLACE DECIMAL ±.4	DRAWN	ALEX N.	10MAY16
	CHECKED		
	ENG APPR.		
	MFG APPR.		
INTERPRET GEOMETRIC TOLERANCING PER:	Q.A.		
MATERIAL	PROPRIETARY AND CONFIDENTIAL		
FINISH	THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF U.S. HYBRID. ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF U.S. HYBRID IS PROHIBITED.		

US HYBRID

TITLE: TRIPLE AUXILARY INVERTER

SIZE D | DWG. NO. YDA08A000D | REV B

SCALE: NONE | SHEET 1 OF 3

REV B | DWG YDA08A000D | DATE 10MAY16