

# SS-250W, IM-225W

PRODUCT MANUAL Version 1.0

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## Section 1: Supporting Documents

Please refer to <https://www.cascadiamotion.com/documents> or the relative product page for additional documentation to support this manual. Specific useful documents are listed below.

- [Inverter Support Documentation](#)
- 0C-0011 – iM-225W CAD
- 0C-0012 – SS-250W CAD
- 0C-0009 – iM-225W Stacked CAD
- 0A-0055 – iM-225W (CID)
- 0A-0076 – SS250W Base (CID)
- 0A-0112 – SS250W, HV AFT (CID)
- 0A-0113 – SS250W, HV TOP (CID)
- 0A-0116 – CM200i (CID)
- 0A-0118 – iM-225W, Stacked (CID)

## Section 2: Cooling

**CAUTION: Inverter will be damaged if operated without cooling fluid.**

### Section 2.1 – Overview

The iM-225W & SS-250W motors are cooled via a Water Ethylene Glycol (WEG) coolant jacket surrounding the motor's stator. Coolant is pumped through the inverter (for integrated units only) and motor via a customer furnished coolant pump.

### Section 2.2 – Integrating with the Coolant Loop

See SS-250W base motor CID 0A-0076 for information on location and orientation of the coolant loop hardware.

#### SS-250W

- Two 16 mm barbed fittings are provided for connection to the vehicles cooling circuit. Coolant can be run in either direction.

#### iM225W

- The drive module is furnished with a hose directing coolant from the inverter to motor.
- A 16 mm barbed fitting is provided on the inverter for connection to coolant in to the inverter.
- A 16 mm barbed fitting is provided on the motor for connection to coolant out of the motor to the radiator.
- ***Always pump coolant through the inverter before the motor***

### Section 2.3 – Specification & Connections

- Coolant mixture - 50% E.G. and 50% Water by volume
- Minimum coolant flow rate – 12 LPM

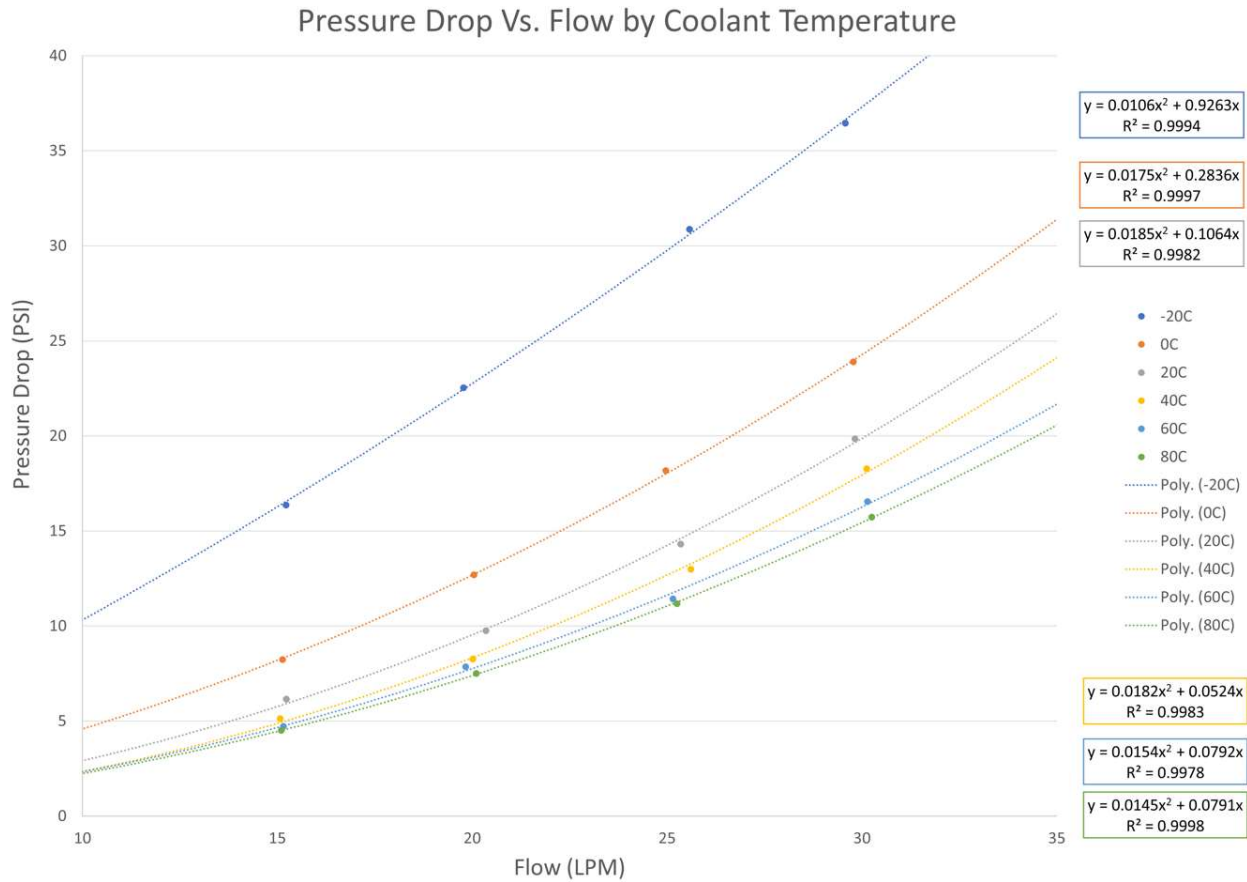


Figure 2.1 - Flow Rate vs Pressure Drop iM-225W

### Section 3: Wiring

**CAUTION: Do not remove High Voltage Cover or Inverter. Repairs to high voltage components to be performed by authorized personnel only.**

#### 3.1 Motor to Inverter LV Connection

See CID for motor LV connector position and orientation. The connector is PN is DTM04-12PA.

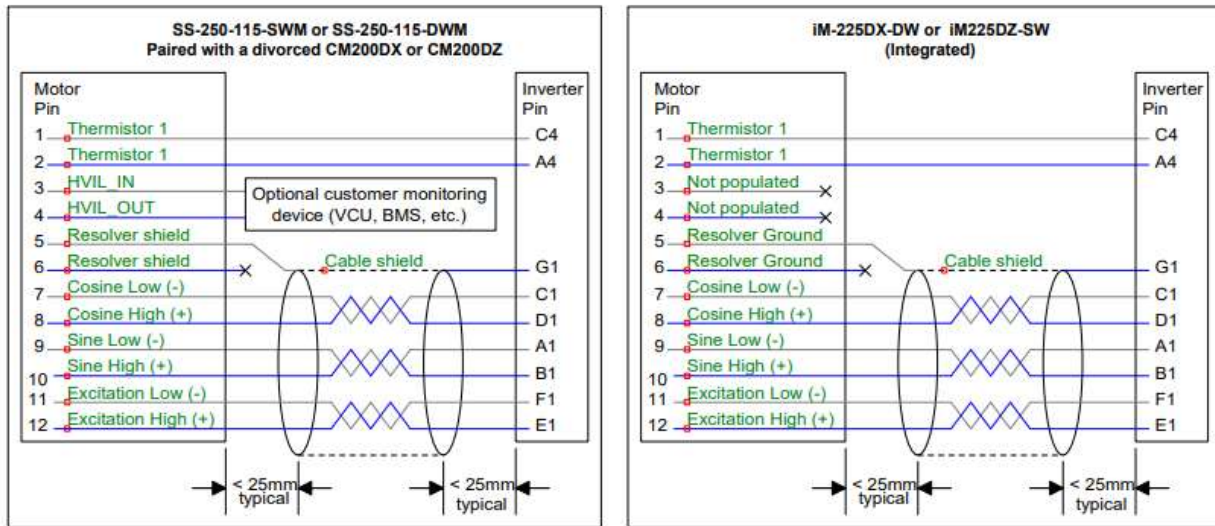
Mating Connector Kit for Motor LV Connection (Cascadia Motion PN: G1-0057):

- (1) Connector housing, DTM06-12SA
- (14) Contact, 1062-20-0122
- (1) WM-12S Wedge Lock, 12P, WM-12s

Pinout and installation:

- For Sine, Cosine, and Excitation use 20AWG twisted pair within a single shielded cable as seen below, or use 20AWG twisted pair, each within its own shielded cable.

- If each pair is within its own shielded cable, all 3 shields must connect to pin G1 at Inverter End, and only one cable shield is required at pin 5, Motor End.
- Resolver ground/shield is NOT Chassis/12V ground. Do not connect it to any chassis ground, motor case or inverter case.
- HVIL (pins 3 and 4 as shown in Figure 3.1) are empty on iM-225W.
- Route all low voltage wires away from all high voltage cables.
- For more Inverter end details see CM Inverter Hardware Manual



**Figure 3.1 – Motor to Inverter Recommended Wiring Harness**

## Section 4: AC/DC Connection

Cascadia Motion offers a wide range of pre-assembled cables in both 35mm<sup>2</sup> and 50mm<sup>2</sup> sizes, at various lengths. Contact Cascadia Motion Sales for additional information.

### Section 4.1 – AC Power

- iM-225W has no external connection for AC power, as it is provided via the integrated inverter.
- For SS250W motors, the high voltage AC connector is an Amphenol PL083X-301-10D10 connector. Information on this connector can be found on the Amphenol website.
- Cascadia Motion sells various cable configurations to mate with the AC connectors on the SS-250W. Contact Cascadia Motion sales for more information.

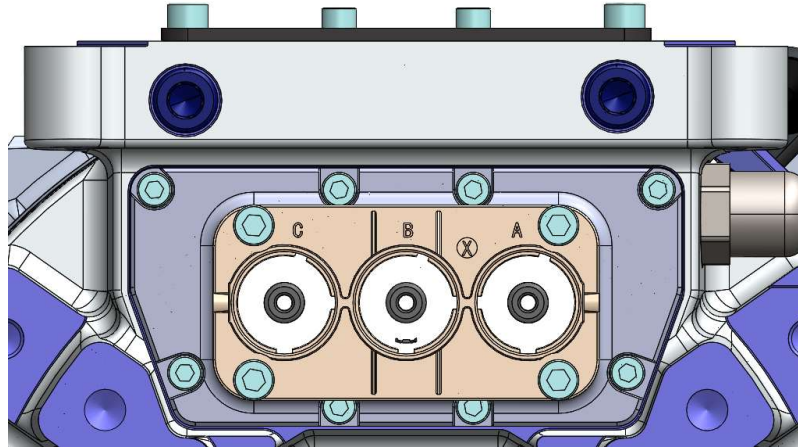


Figure 4.1 – HV AC Connector for SS-250W

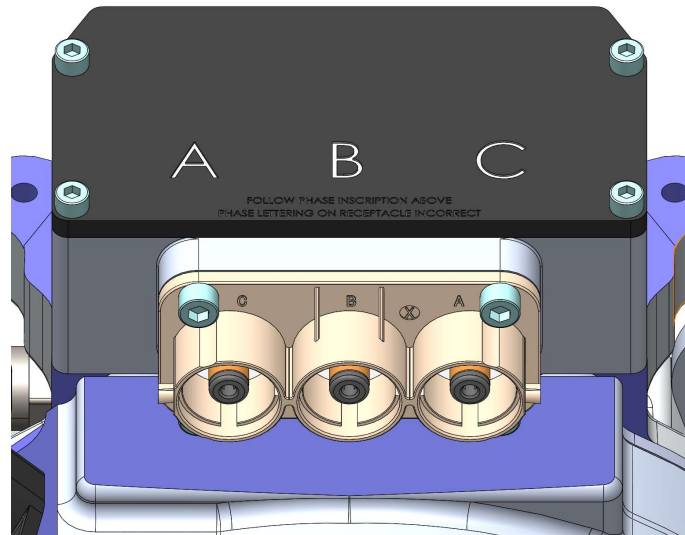
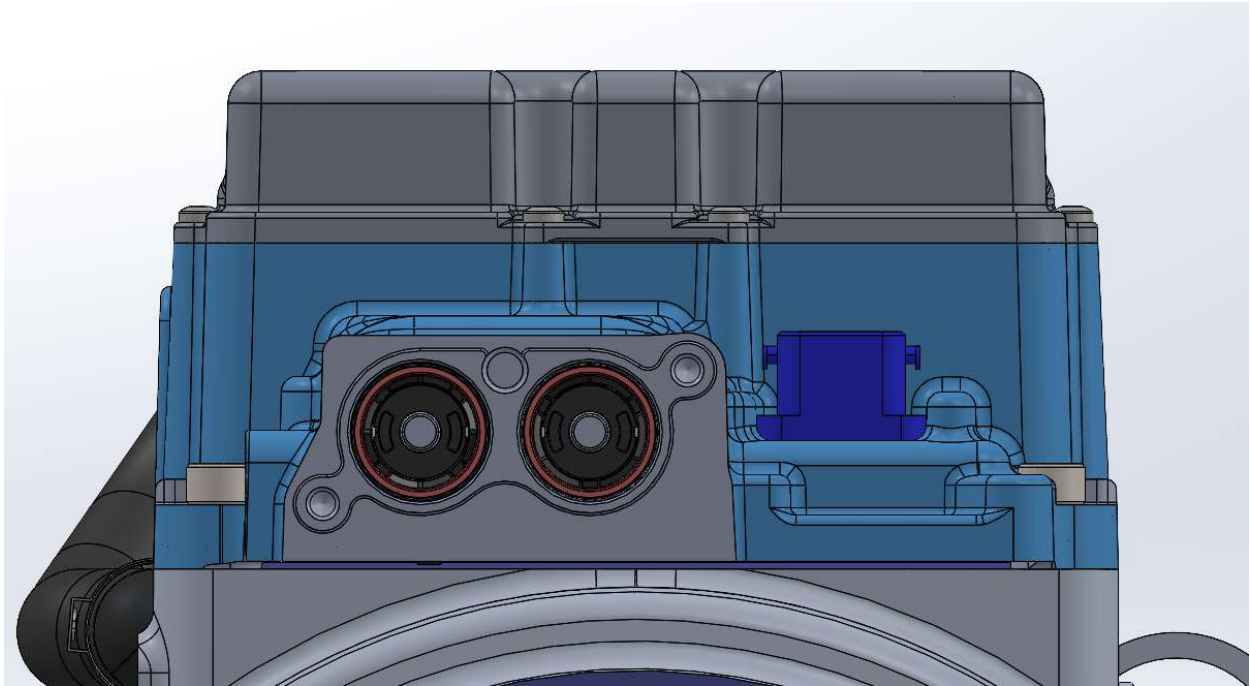


Figure 4.2 - HV AC Connector for SS-250W HV TOP

- **Note:** The orientation of the Amphenol connector on the SS-250W HV TOP motor is reversed such that Phase A and Phase C are swapped. Follow the Phase Orientation inscribed on the lid when connecting AC Power Cables. See Figure 4.2.

#### Section 4.2 – DC Power

- Stand-alone motor has no high voltage DC connection
- The DC connection for iM-225W is via a Rosenberger H4L102-00-005B-BA connector. This connector has been integrated into the inverter.
- Cascadia Motion sells various cable configurations to mate with the DC connectors on the iM-225W. Contact Cascadia Motion sales for more information.



**Figure 4.3 – HV DC Connector for iM-225W**

Connector	Description	Key	Mating
Amphenol PL083X-301-10D10	Standalone HV AC connector	X-coded, compatible with Amphenol female 3 pole, HVIL, X coded connectors	Straight - PL183X-301-XX 90° - PL283X-301-XX
Rosenberger H4L102-00-005B-BA	iM-225 DC (+/-)	BA key, compatible with Rosenberger 2 pole, HVIL, BA keyed connectors	See Inverter Hardware Manual

**Table 4.1 – AC/DC Connection Information**