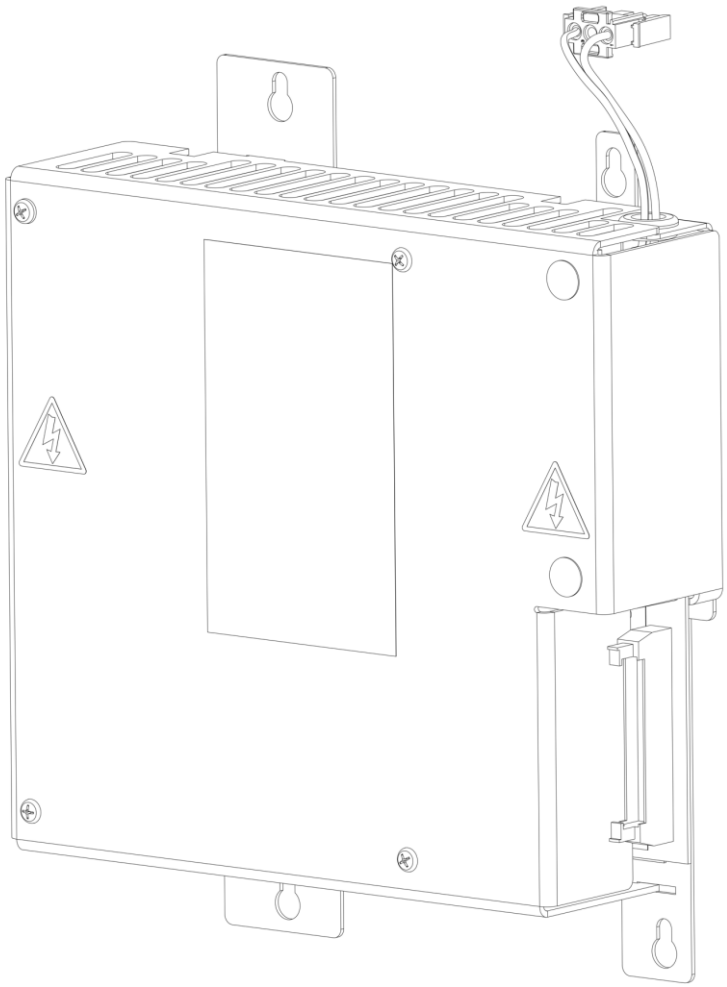

REV 02

December 7th, 2022

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Contents

1. Introduction

- The MVC3003 family of Delta SMPS units provide the electronic supplies for the Delta Transistor Bridge Module and the MV3000 Delta Controller in systems operating from 380-690VAC.
- MV3000 Delta modules are used in a variety of applications including general industrial, marine propulsion and renewable energy.
- The SMPS unit derives its supply from the DC link.
- The following table gives the Avid Model Numbers applicable to this Data Sheet:

MODEL NUMBERS*1	Description
MVC3003-4001-A MVC3003-4001-REMAN MVC3003-4002-A MVC3003-4002-REMAN	Standard SMPS for System Voltages between 380-525 VAC using Air Cooled DELTA modules
MVC3003-4003-A MVC3003-4003-REMAN	Standard SMPS for non-renewable energy applications. Standard accuracy DC link feedback is provided to the controller. Extended voltage and delayed over-voltage trip are not implemented.
MVC3003-4030-A MVC3003-4030-REMAN	Extended voltage SMPS for use in the Delta 1 position, typically in marine or renewable energy applications. High accuracy DC link feedback is provided to the controller. Extended voltage and delayed over-voltage trip are implemented.
MVC3003-4025-A MVC3003-4025-REMAN	Extended voltage SMPS for use in the Delta 2 to 6 position, typically of marine or renewable energy applications. No DC link feedback is provided to the controller. A single extended voltage non-delayed over-voltage trip is implemented (intended as a back-up for the over-voltage protection provided by the '-4030 unit in the Delta 1 position).

*1: "-A" and "-REMAN" indicate the grade of a module.
Models designated "-A" are brand-new units. Those designated "-REMAN" have been fully remanufactured and tested according to Avid's stringent procedures.
Unless otherwise stated, all information in this Data Sheet applies identically to "-A" and "-REMAN" grades.

2. WARNINGS & SAFETY INSTRUCTIONS

- Care has been taken with the design of this product to ensure that it is safe. However, in common with all products of this type, misuse can result in injury or death. Therefore, it is very important that the instructions in this document and on the product are observed during transportation, commissioning, operation, maintenance and disposal.

- This Data Sheet must be regarded as part of the product. It should be stored with the product and must be passed on to any subsequent owner or user.

- Local safety laws and regulations must always be observed.

- Persons working on the product must be suitably skilled and should have been trained in that work for these products.

- The product is a component designed for incorporation in installations, apparatus and machines.

- The SMPS and Delta module to which it is connected may be connected to more than one live circuit.

- Wait at least ***EIGHT*** minutes after isolating all supplies and check that the voltage between DC+ and DC- has reduced to a safe level before working on the equipment. Especially ***DO NOT*** unplug TB1 from a Delta before it is safe to do so.

- When used with liquid-cooled Delta systems, surfaces on the coolant pipes of the Delta system can reach high temperatures and remain hot for some time after power is removed. Ensure that all coolant has reached safe temperature and the equipment is suitably drained and isolated before the external pipework is disconnected from the equipment.

- The product must not be used as a single item safety system. In applications where maloperation of the product could cause danger, additional means must be used to prevent danger to persons.

- Product approvals and certifications will be invalidated if the product is transported, used or stored outside its ratings or if the instructions in this manual are not observed.

- In The European Union:
  - Products within the scope of the Low Voltage Directive 2014/35/EU are CE marked.
  - The product complies with the essential protection requirements of the EMC directive 2014/30/EC, when installed and used as described in this manual.
  - The requirements of the EMC Directive should be established before any installation, apparatus or machine, which incorporates the product, is taken into service.
  - A machine must not be taken into service until the machine has been declared in conformity with the provisions of the Machinery (Safety) Directive, 2006/42/EC.

- In The United Kingdom:
  - Products within the scope of the Electrical Equipment (Safety) Regulations 2016 are UKCA marked.
  - The product complies with the essential protection requirements of the Electromagnetic Compatibility Regulations 2016, when installed and used as described in this manual.
  - The requirements of the EMC Regulations should be established before any installation, apparatus or machine, which incorporates the product, is taken into service.
  - A machine must not be taken into service until the machine has been declared in conformity with the provisions of the Supply of Machinery (Safety) Regulations.

3. Disposal

- This equipment or any part of the equipment should be disposed of in accordance with the laws of the country of use.

- Modern high technology materials have been used in the manufacture of the equipment to ensure optimum performance. Care has been taken with the selection of these materials to minimize risks to health and safety. However, some materials require special consideration during the disposal.

4. Related Documents

- Failure to comply with any of the general requirements for installation, operation and maintenance provided in the technical manuals will significantly increase the risk of maloperation, fire or electric shock.
  - T1689 Air Cooled Delta Technical Manual.
  - T1693 Liquid Cooled Delta Technical Manual.
  - T1676 MV3000 Getting Started Manual.
  - T1679 MV3000 Software Technical Manual.
  - T1930 MV3000e Delta Mains Voltage Monitor Instruction Sheet.

5. Standards and Specifications

5.1 Environmental

Function	Specification
Operating Temperature Range	- 0°C to +50°C (+32°F to 104°F)
Operating Relative Humidity	5 to 95% (non-condensing)
Operating Altitude	1000 m (3280 ft.)
Storage Temperature	-25 to +55°C (-13°F to 131°F)
Storage Relative Humidity	5 to 95% non-condensing
Storage Altitude	Not critical below 40°C (104°F)
Transport Temperature	-25 to +70°C (-13°F to 158°F)
Transport Relative Humidity	≤ 95% RH non-condensing
Transport Altitude	Not critical below 40°C (104°F)
Vibration, drop	IEC 60721-3-2 Class 2M1
Vibration	IEC 60721-3-3 Class 2M1 & EN50178
Cooling Air (pollution and dust)	Pollution Degree 2 (IEC 60664-1, UL 840, CSA C22.2 No. 0.2-93) i.e. clean, free from dust, condensation and conductive or corrosive gases.

5.2 Electrical

SMPS Type	Timed Overvoltage Level (DC)	Instantaneous Overvoltage Level (DC)	Minimum DC Voltage for Operation	Output Power
MVC3003-4001	Not Available	784 V	400 V	Suitable for MVD300, MVD282, MVD377 & MVD500-4501. Not to be used for other applications.
MVC3003-4002		882 V	450 V	
MVC3003-4003		1172 V	560 V	Suitable for MVD500-4701, MVDL800 and MVDL1000 modules. Not to be used for other applications.
MVC3003-4030	1188V (±1%)	1262V (±1%)		
MVC3003-4025	Not Available	1290V nominal		

5.3 Dimensions and Weights

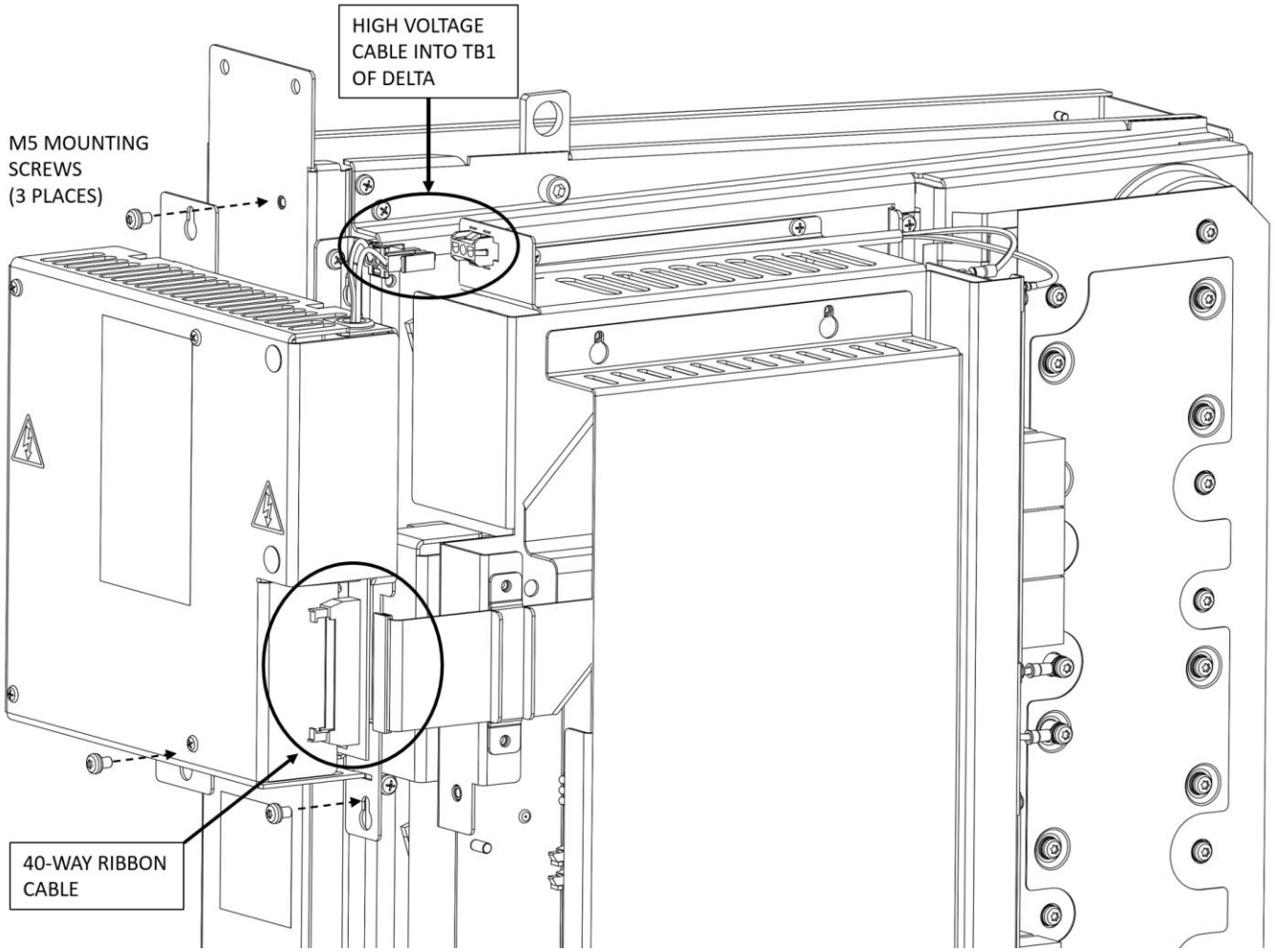
Specification	*Value*
Dimensions	***Height***: 220mm (8.66in), ***Width***: 215mm (8.46in), ***Depth***: 65mm (2.56in)
Weight	***MVC3003-4030***: 1.8kg (4lbs), ***MVC3003-4001/4025***: 1.5kg (3.3lbs)

6. Fitting Instructions

6.1 Air Cooled Delta Module

- One MV SMPS fits directly onto the front of each MV Delta Transistor Bridge Module.

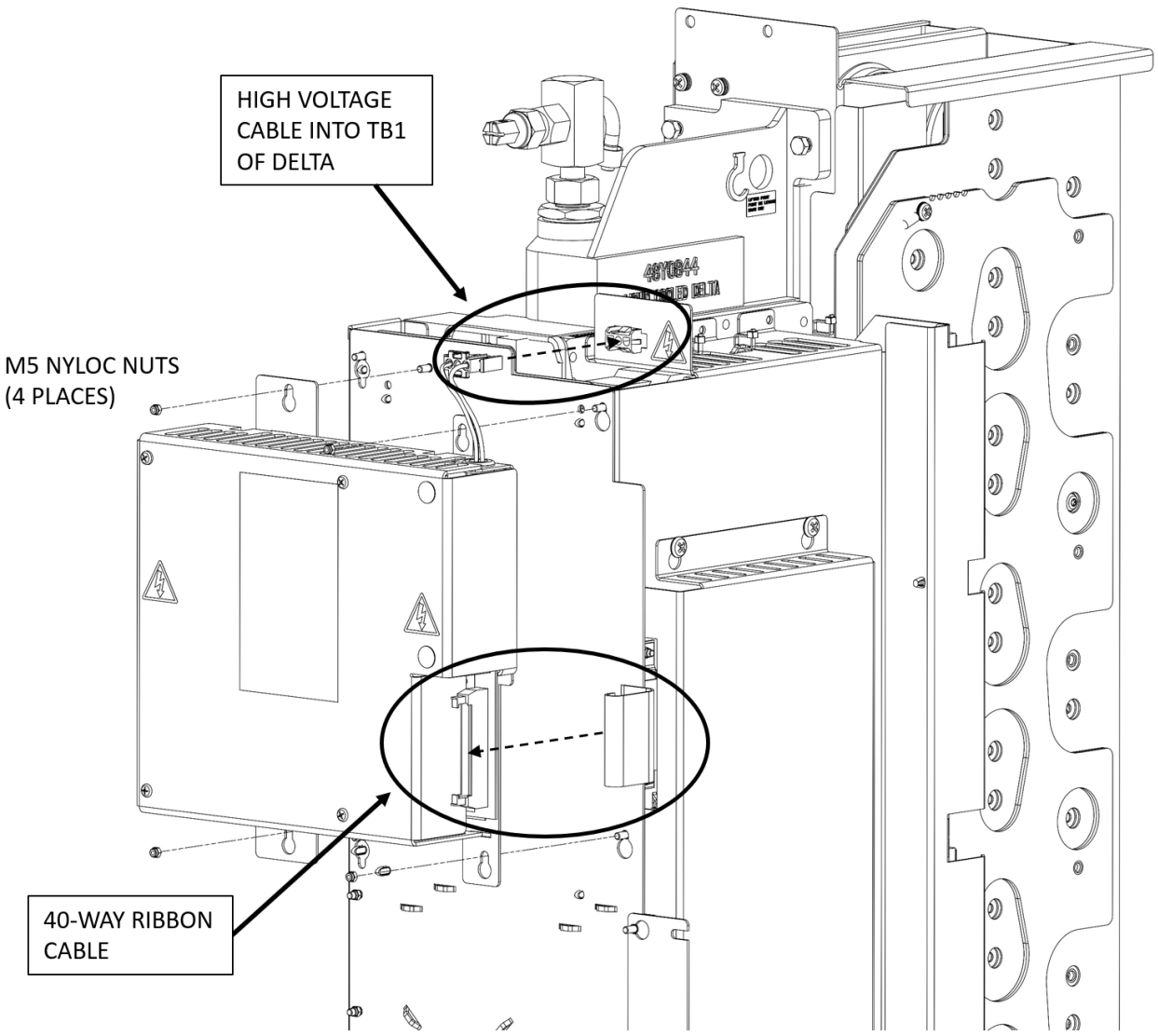
1. Install the Delta module in its cabinet together with all power connections before fitting the SMPS unit.
2. Loosely fix the two M5 pozi-head fixing screws (with captive spring washer) to the upper face of the module as shown below.
3. Mount the SMPS unit onto the two M5 fixing screws on the Delta module and fully tighten the screws.
4. If fitted, remove the blanking plug from TB1 on the front of the Delta module and connect the DC cable assembly to TB1.
5. Connect the 40-way ribbon cable from PL3 on the Delta to the SMPS (this is via PL22 on the 20X4321 PCB (-4003 & -4025 models) or PL2 on the 20X4344 PCB (-4030 model):



6.2 Liquid Cooled Delta Module

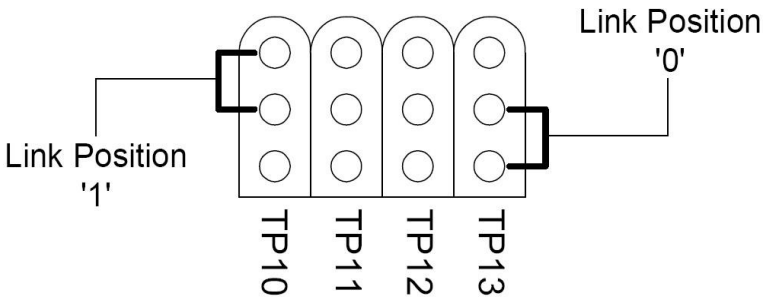
- One MV SMPS fits directly onto the front of each MV Delta Transistor Bridge Module.

1. Install the Delta module in its cabinet together with all power connections before fitting the SMPS unit.
2. Mount the SMPS unit onto the SMPS back plate, using the three locating tabs and secure with three M5 Nyloc nuts (supplied with the Transistor Bridge) onto the M5 studs
3. If fitted, remove the blanking plug from TB1 on the front of the Delta module and connect the DC cable assembly to TB1.
4. Connect the 40-way ribbon cable from PL3 on the Delta to the SMPS (this is via PL22 on the 20X4321 PCB (-4003 & -4025 models) or PL2 on the 20X4344 PCB (-4030 model).



6.3 Configuring The Timed Overvoltage Trip Delay

- MVC3003-4030 is fitted with 20X4344 daughter board. This board contains the configuration links for the Timed Overvoltage trip duration. The table below shows the link settings and their corresponding duration.



- An abbreviated version of the table is shown on the PCB legend.

20X4344 Configuration Links				Trip Delay (seconds)
TP10	TP11	TP12	TP13	
0	0	0	0	0.0
0	0	0	1	0.5
0	0	1	0	1.0
0	0	1	1	1.5
0	1	0	0	2.0
0	1	0	1	2.5
0	1	1	0	3.0
0	1	1	1	3.5
1	0	0	0	4.0
1	0	0	1	4.5
1	0	1	0	5.0
1	0	1	1	5.5
1	1	0	0	6.0
1	1	0	1	6.5
1	1	1	0	7.0
1	1	1	1	7.5

- It will be necessary to temporarily remove the polycarbonate cover from the SMPS to make these settings.
- This must be done only when all power has been removed from Delta modules for at least eight minutes.
- The cover MUST be re-installed prior to energizing the Delta module and SMPS.

7. Maintenance, Service and Support

- MVC3003-40XX modules contain no user-serviceable parts.
- Periodically remove any dust build-up from the ventilation slots using clean, dry compressed air.
- Please refer to your local technical support center with any queries about this product.
- Avid Controls Inc. may be contacted directly at:

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8. Document Revision History

Rev.	Date	Author	Changes
00	9th Aug 2020	M Woods	Original Issue
01	7th June 2022	M Woods	Over-volts delay settings table corrected. Update for REMAN and other minor changes.
02	7th Dec 2022	M Woods	4001 & 4002 Models added plus minor changes to Introduction