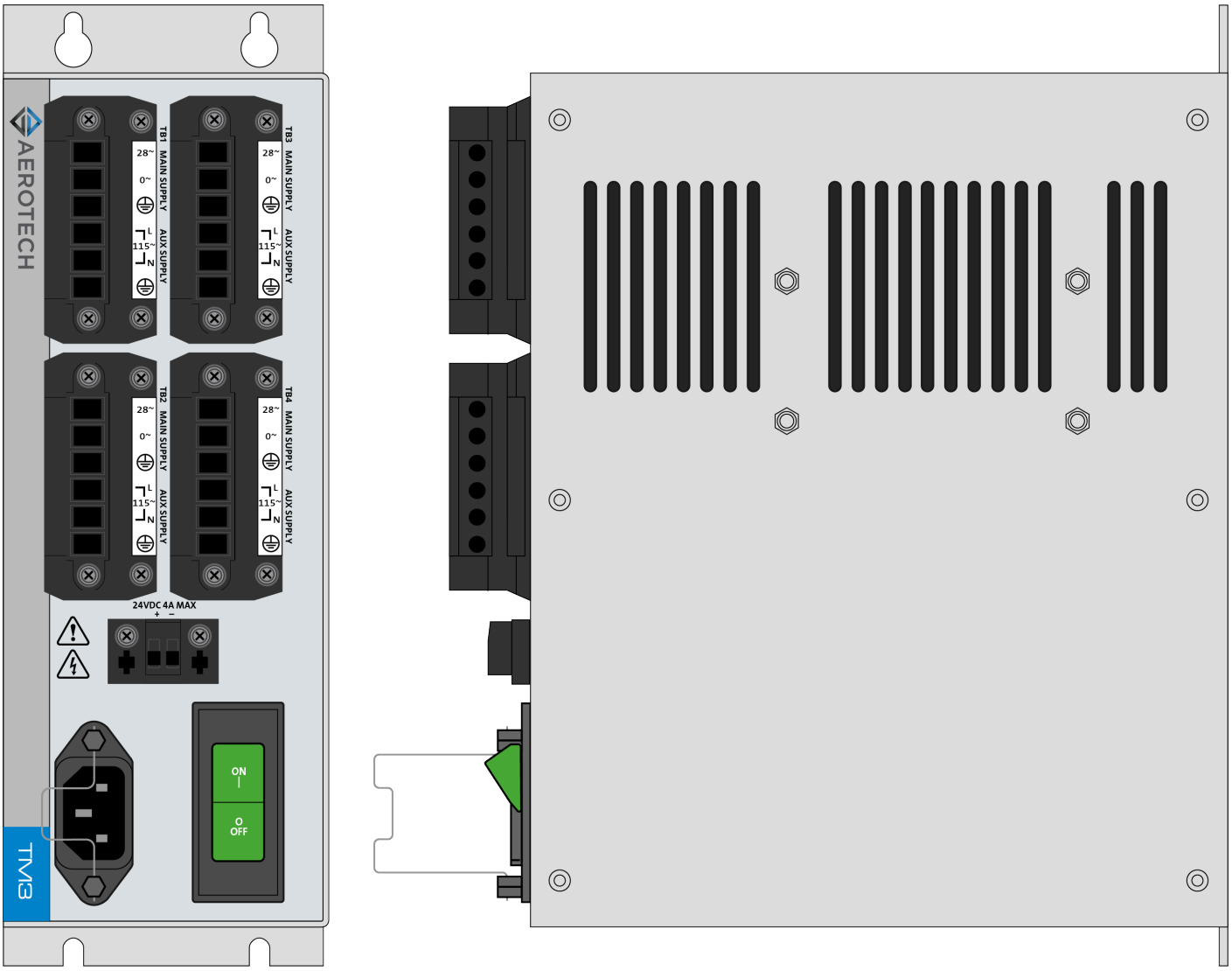
TM3 Transformer Module

HARDWARE MANUAL

Revision 3.02



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Go to the Global Technical Support Portal for information and support about your Aerotech, Inc. products. The website supplies software, product manuals, Help files, training schedules, and PC-to-PC remote technical support. If necessary, you can complete Product Return (RMA) forms and get information about repairs and spare or replacement parts. To get help immediately, contact a service office or your sales representative. Include your customer order number in your email or have it available before you call.

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EU Declaration of Conformity

Manufacturer	Aerotech, Inc.
Address	101 Zeta Drive Pittsburgh, PA 15238-2811 USA
Product	TM3
Model/Types	All

CE

This is to certify that the aforementioned product is in accordance with the applicable requirements of the following directive(s):

2014/35/EU	Low Voltage Directive
EU 2015/863	Directive, Restricted Substances (RoHS 3)

and has been designed to be in conformity with the applicable requirements of the following standard(s) when installed and used in accordance with the manufacturer's supplied installation instructions.

EN 61010-1:2010	Safety Requirements for Electrical Equipment

Authorized Representative:


/ Jochen Jäger
Operations Manager
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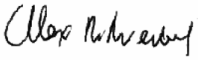
90768 Fürth
Germany

Engineer Verifying Compliance:


/ Alex Weibel
Aerotech, Inc.
101 Zeta Drive
Pittsburgh, PA 15238-2811
USA

Date: 11/26/2024

UKCA Declaration of Conformity

Manufacturer	Aerotech, Inc.
Address	101 Zeta Drive Pittsburgh, PA 15238-2811 USA
Product	TM3
Model/Types	All

To which this declaration relates, meets the essential health and safety requirements and is in conformity with the relevant UK Legislation listed below:

Electrical Equipment (Safety) Regulations 2016
Hazardous Substances in Electrical and Electronic Equipment Regulations 2012

Using the relevant section of the following UK Designated Standards and other normative documents when installed in accordance with the installation instructions supplied by the manufacturer.

EN 61010-1:2010 Safety Requirements for Electrical Equipment

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USA

Date: 11/26/2024

Agency Approvals

The TM3 transformers have been tested by the following NRTL(s) and have been certified to the standards that follow:

Approval:	CUS NRTL
Approving Agency:	TÜV SÜD America Inc.
Certificate #:	U8 068995 0026
Standards:	CAN/CSA C22.2 No. 61010-1:2012 , UL 61010-1:2012

Visit https://www.tuev-sued.de/product-testing/certificates to view Aerotech's TÜV SÜD certificates. Type the certificate number listed above in the search bar or type "Aerotech" for a list of all Aerotech certificates.

Safety Procedures and Warnings

IMPORTANT: This manual tells you how to carefully and correctly use and operate the transformer module.

- Read all parts of this manual before you install or operate the transformer module or before you do maintenance to your system.
- To prevent injury to you and damage to the equipment, obey the precautions in this manual.
- All specifications and illustrations are for reference only and were complete and accurate as of the release of this manual. To find the newest information about this product, refer to www.aerotech.com.

If you do not understand the information in this manual, contact Aerotech Global Technical Support.

IMPORTANT: This product has been designed for light industrial manufacturing or laboratory environments. If the product is used in a manner not specified by the manufacturer:

- The protection provided by the equipment could be impaired.
- The life expectancy of the product could be decreased.

Safety notes and symbols are placed throughout this manual to warn you of the potential risks at the moment of the safety note or if you fail to obey the safety note.

The voltage can cause shock, burn, or death.

You are at risk of physical injury.
You could damage the transformer module.

A surface can be hot enough to burn you.

Your actions, the temperature of the system, or the condition of the atmosphere that surround the system could start a fire.

Components are sensitive to electrostatic discharge.

Unsecured cables could cause you to:

- trip and fall
- drag the product off of its mounting location
- damage the cable connections.

A blue circle symbol is an action or tip that you should obey. Some examples include:

- General tip
- Read the manual/section
- Wear protective safety equipment (eye protection, ear protection, gloves)
- If applicable, do not lift unassisted

DANGER: To decrease the risk of electrical shock, injury, death, and damage to the equipment, obey the precautions that follow.

1. Restrict access to the transformer module when it is connected to a power source.
2. Before you do maintenance to the equipment, disconnect the electrical power.
3. Before you connect wires to this product, disconnect the electrical power.
4. To decrease the risk of electrical shock and injury, you must supply operators with the necessary precautions and protection from live electrical circuits.
5. Make sure that all components are grounded correctly and that they obey the local electrical safety requirements.
6. Make sure that you install the necessary precautions to supply safety and protection to the operator.

DANGER: System travel can cause crush, shear, or pinch injuries. Restrict access to all motor and stage parts while your system is connected to a power source.

WARNING: To prevent damage to the equipment and decrease the risk of electrical shock and injury, obey the precautions that follow.

1. Make sure that all system cables are correctly attached and positioned.
2. Do not use the cables or the connectors to lift or move this product.
3. Use this product only in environments and operating conditions that are approved in this manual.
4. Only trained operators should operate this equipment.

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Chapter 1: Transformer Module

The TM3 transformer module provides and distributes isolated AC and/or DC bus supply voltages for up to four Aerotech controllers. It is configured at the factory to provide 28 VAC, 56 VAC, 40 VDC, 80 VDC or a combination of these voltages with a maximum transformer output power capability of 300 watts.

The TM3 also provides Control Supply outputs to power the control power inputs of up to four Aerotech products and a 24 VDC power supply that provides the user with 24 VDC output with a current capacity of up to 4 A (up to 1 A on a TM3 purchased before April 2016). Other features of the TM3 include a soft-start circuit to limit inrush current and a voltage selector that can be configured for AC input voltages of 100 VAC, 115 VAC, 200 VAC, or 230 VAC.

Figure 1-1: TM3 Transformer Module

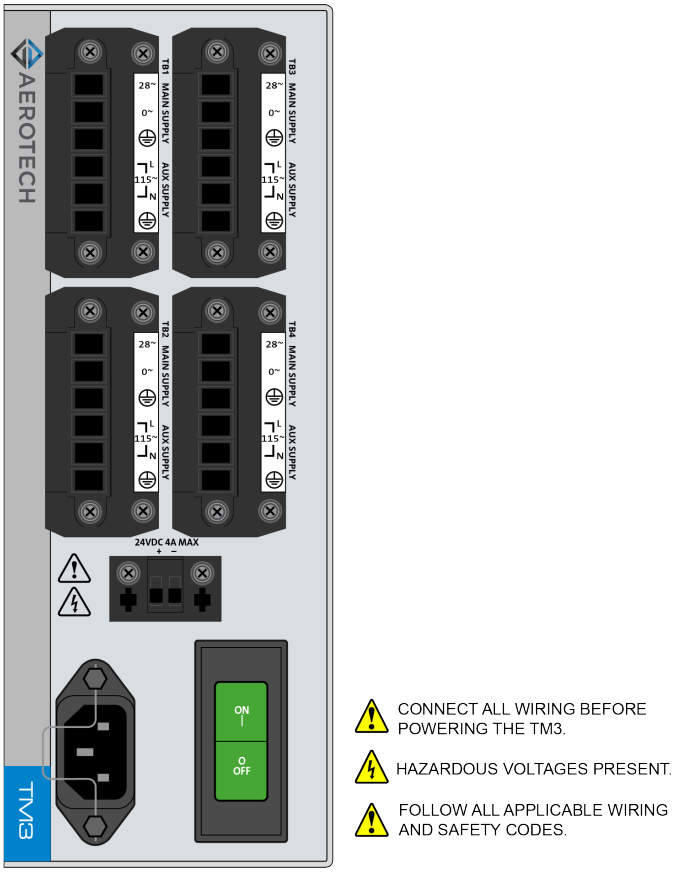


Table 1-1: TM3 Configuration Options

TM3 0.3 kVA Isolation Transformer		
Line Voltage		
-A	115 VAC Input Line Voltage	
-B	230 VAC Input Line Voltage	
-C	100 VAC Input Line Voltage	
-D	200 VAC Input Line Voltage	
Output Bus Voltage	**VBus1**	**VBus2**
-28VAC-28VAC	28 VAC for 40 VDC Bus	
-56VAC-56VAC	56 VAC for 80 VDC Bus	
-40VDC-40VDC	40 VDC	
-80VDC-80VDC	80 VDC	
-40B-40B	±40 VDC	
-30B-30B	±30 VDC	
-20B-20B	±20 VDC	
-10B-10B	±10 VDC	
-40BAUXAC-40BAUXAC	±40 VDC with Aux AC	
-56VACCT-56VACCT	56 VAC center tap for 80 VDC Bus	
Bus Split	**VBus1**	**VBus2**
/1-3	Output 1	Output 2, 3, and 4
/2-2	Output 1 and 2	Output 3 and 4
/3-1	Output 1, 2, and 3	Output 4
/NOSPLIT	VBus1 and VBus2 tied together and wired to all axes	
Power Supply		
PS24-1	24 VDC, 4 A power supply for brake control	
Brake Cable		
C24-xx (example: C24-15)	Two conductor brake cable with flying leads. "-xx" = cable length • -06 = 0.6 m • -09 = 0.9 m • -12 = 1.2 m • -15 = 1.5 m • -18 = 1.8 m	
Output Cables		
/C#yy-xx (example: /C2AB-12)	Control and Bus cable for Aerotech drives. "C#" = output number • C1 is for output 1 • C2 is for output 2 • C3 is for output 3 • C4 is for output 4 "yy" = drive type • AB = HPe/CP drive • AL = GCL drive • AM = MP drive • ML = ML drive "-xx" = cable length • -06 = 0.6 m • -09 = 0.9 m • -12 = 1.2 m • -15 = 1.5 m • -18 = 1.8 m	
Line Cord Options		
/US115VAC	US 115 VAC compatible line cord	
/US230VAC	US 230 VAC compatible line cord	
/ENGLAND	U.K. compatible line cord	
/GERMANY	German compatible line cord	
/ISRAEL	Israel compatible line cord	
/INDIA	India compatible line cord	
/AUSTRALIA	Australia compatible line cord	

1.1. Electrical Specifications

Table 1-2: Electrical Specifications

AC Input Configurations	100 VAC, 115 VAC, 200 VAC or 230 VAC
Peak AC Input Inrush Current	32 Apk
Operating Frequency	50/60Hz
Maximum Continuous Transformer Output Power	300 Watts, Max. @ 20°C
Peak Transformer Output Power	400 Watts, Max. @ 20°C
Short Circuit / Over Current Protection	AC input breaker/switch 100/115 VAC 10 A, 200/230 VAC 5 A (Supplementary protection only)
	100 VAC / 115 VAC configurations contain 4 A Slow Blow fuse connected to transformer primary winding
	200 VAC / 230 VAC configurations contain 3 A Slow Blow fuse connected to transformer primary winding
Thermal Production	Integral transformer thermal switch is normally closed. Thermal switch opens when internal temperature of transformer reaches 110°C.
Secondary Winding Configuration	8 VAC (10 VDC Bus)
	15 VAC (20 VDC Bus)
	21 VAC (30 VDC Bus)
	28 VAC (40 VDC Bus)
	56 VAC (80 VDC Bus)
+24 VDC Output	4 A maximum user supply (1 A maximum for TM3 units purchased before April, 2016)

1.2. Installation and Mounting

WARNING: To prevent damage to the equipment and decrease the risk of electrical shock and injury, obey the precautions that follow.

- Allow all system components to adjust to room temperature before they are installed.
- Do not install or apply power to system components if there is condensed moisture on the components.
- Securely mount all system components before you connect cables and apply power.

Refer to Table 1-3 for more information.

1.2.1. Handling and Transportation

WARNING: Do not use the cables or the connectors to lift or move this product.

Pick up and hold the TM3 by the chassis. If you need to transport the transformer module to a different location, place it into a protective antistatic bag and then into a box with the appropriate packing material.

1.2.2. Mechanical Specifications

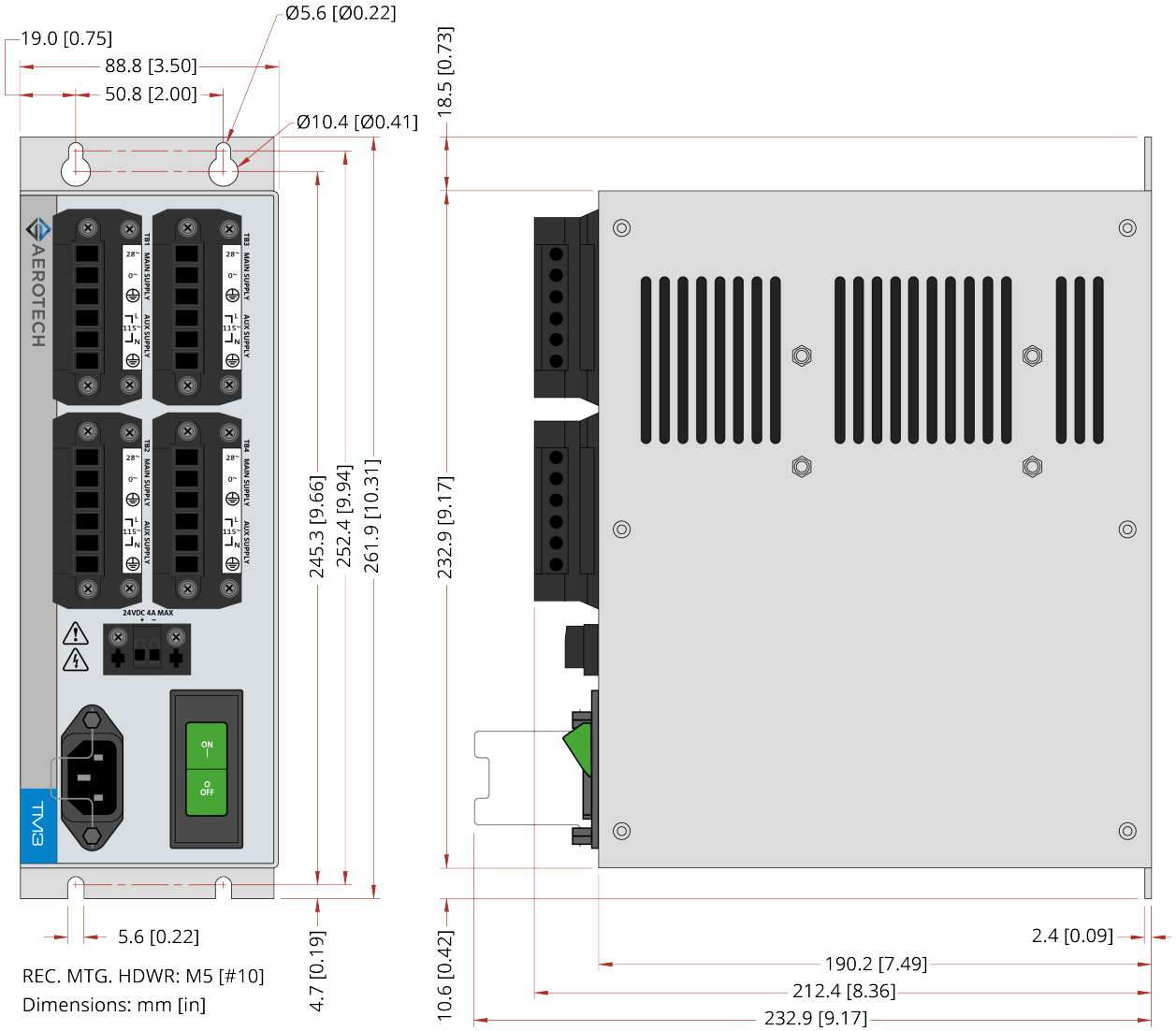
1.2.2.1. Mounting and Cooling

Table 1-3: Mounting Specifications

		TM3
Customer-Supplied Enclosure		IP54 Compliant
Weight		5.72 kg (12.6 lbs)
Mounting Hardware		M5 [#10] screws (four locations, not included)
Mounting Orientation		Vertical (typical)
Dimensions		Refer to Section 1.2.2.2.
Minimum Clearance	Airflow	~25 mm
	Connectors	~100 mm
(Optional) Customer-Supplied Cooling		Direct air into the bottom vents of a vertically or horizontally mounted TM3 enclosure to achieve the optimal cooling airflow.
Operating Temperature		Refer to Section 1.2.3.

1.2.2.2. Dimensions

Figure 1-2: Dimensions



1.2.3. Environmental Specifications

The environmental specifications are listed below.

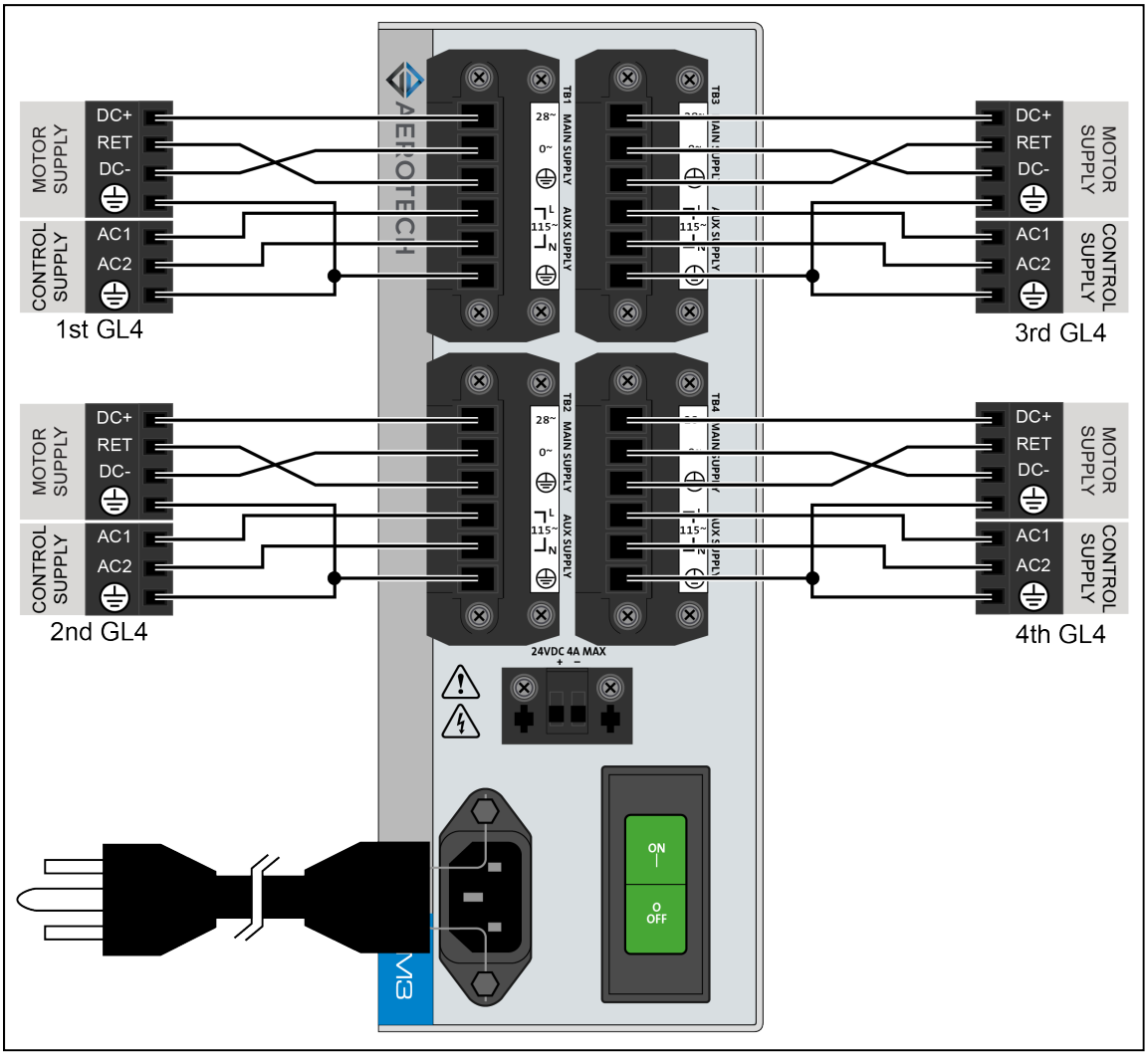
Table 1-4: Environmental Specifications

Ambient Temperature	Operating: 5 °C to 40 °C (41 °F to 104 °F)
	Storage: -20 °C to 70 °C (-4 °F to 158 °F)
Humidity Non-condensing	The maximum relative humidity is 80% for temperatures that are less than 31 °C and decreases linearly to 50% relative humidity at 40 °C.
Operating Altitude	0 m to 2,000 m (0 ft to 6,562 ft) above sea level.
Pollution	Pollution Degree 2 Typically only nonconductive pollution occurs.
Operation	Use only indoors
Environment	Indoor, Light Industrial Manufacturing, Laboratory

1.2.4. System Interconnection

System interconnection examples are shown below. Cables can be purchased from Aerotech.

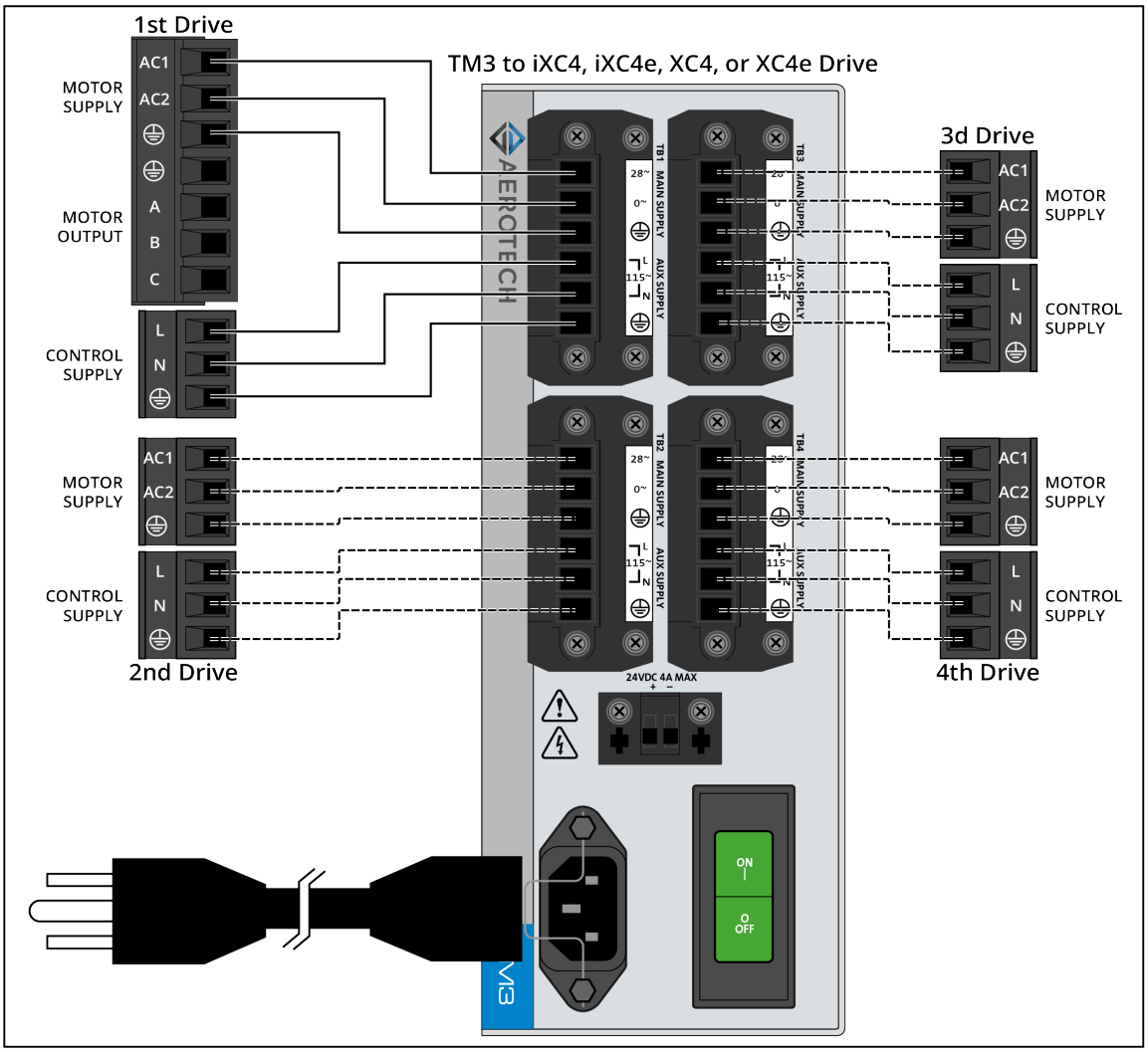
Figure 1-3: System Interconnect Example (GL4)



HAZARDOUS VOLTAGES PRESENT. CONNECT ALL WIRING BEFORE POWERING THE TM3. FOLLOW ALL APPLICABLE WIRING AND SAFETY CODES.

1. For GL4 application, the TM3 must be configured for a Bipolar Motor Supply as shown.
2. The TM3 depicted is labeled for 115V line voltage (other line cord/voltage options are available).
3. Recommended Wiring Specifications: Wire Size 1.3 mm^2 (16AWG), Conformity UL / <HAR>CE.

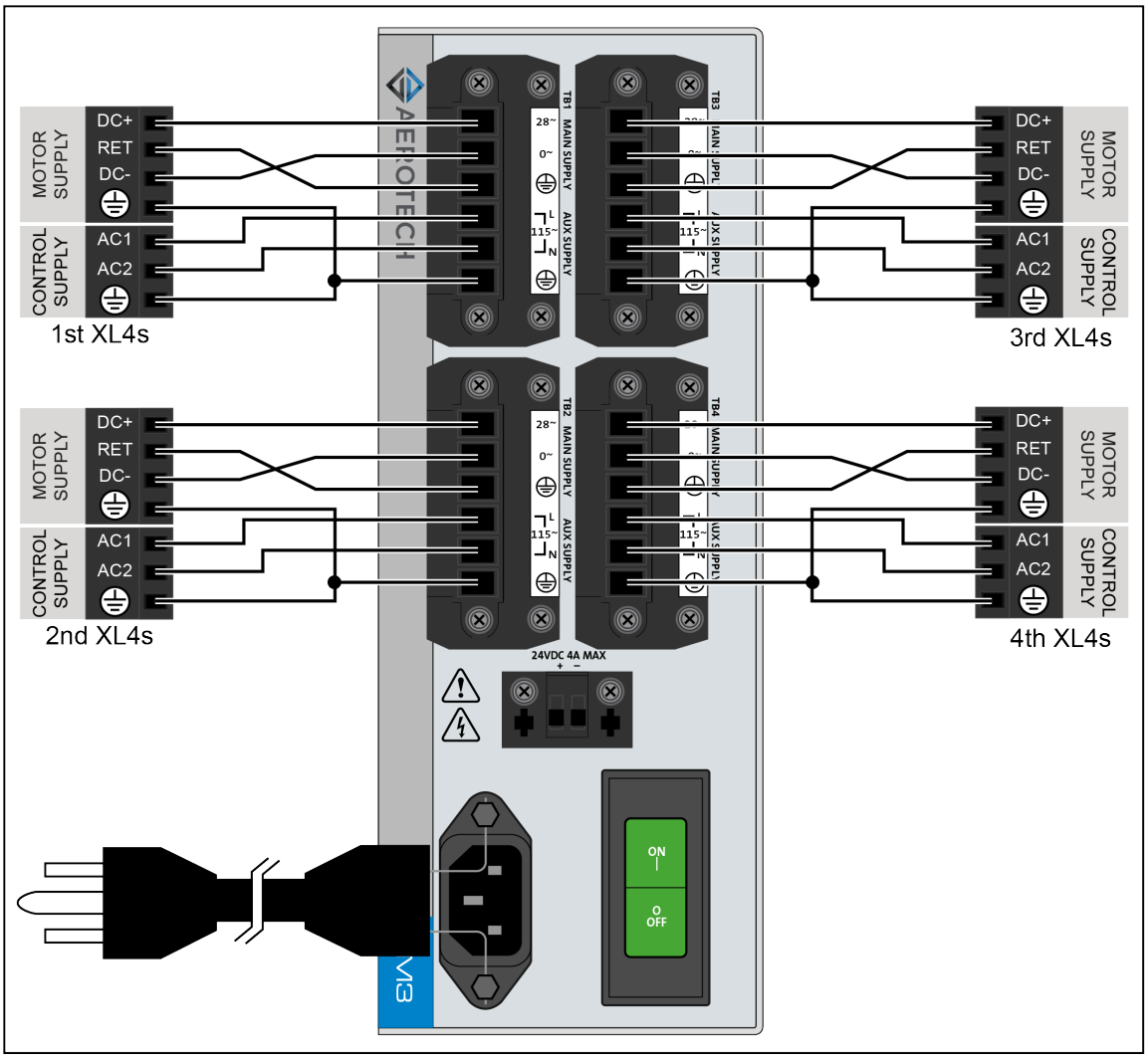
Figure 1-4: System Interconnect Example (iXC4/XC4 and iXC4e/XC4e)



HAZARDOUS VOLTAGES PRESENT. CONNECT ALL WIRING BEFORE POWERING THE TM3. FOLLOW ALL APPLICABLE WIRING AND SAFETY CODES.

1. For Drive application, the TM3 must be configured for a Unipolar Motor Supply as shown.
2. The TM3 depicted is labeled for 115V line voltage (other line cord/voltage options are available).
3. Recommended Wiring Specifications: Wire Size 1.3 mm^2 (16AWG), Conformity UL / <HAR>CE.

Figure 1-5: System Interconnect Example (XL4s)



HAZARDOUS VOLTAGES PRESENT. CONNECT ALL WIRING BEFORE POWERING THE TM3. FOLLOW ALL APPLICABLE WIRING AND SAFETY CODES.

1. For XL4s application, the TM3 must be configured for a Bipolar Motor Supply as shown.
2. The TM3 depicted is labeled for 115V line voltage (other line cord/voltage options are available).
3. Recommended Wiring Specifications: Wire Size 1.3 mm^2 (16AWG), Conformity UL / <HAR>CE.

Aerotech Automation1 iXL2, XL2, iXL2e, or XL2e Series Drives

Contact the factory for information on how to configure the TM3 to support iXL2, XL2, iXL2e, or XL2e series drives.

Aerotech Automation1 iXC2, XC2, iXC2e, or XC2e Series Drives

Contact the factory for information on how to configure the TM3 to support iXC2, XC2, iXC2e, or XC2e series drives.

1.2.5. AC Power Input

DANGER: The voltage from this product can kill you. To decrease the risk of electrical shock, injury, and death, you must obey the precautions that follow.

1. The AC Power inlet power connection is the Mains disconnect.
2. Make sure that the applied AC voltage matches the voltage listed on the rating tag.
3. Before you connect wires to this product, disconnect the electrical power.
4. Make sure that all components are grounded correctly and that they obey the local electrical safety requirements.

Supply AC power to the TM3 through the AC inlet located next to the power switch/circuit breaker. Use the standard line cord that is supplied with the transformer module. The AC power input ratings are listed on the power label on the TM3 transformer module.

1.2.6. Power Output Connections (TB1-TB4)

Each output connector provides two supply sources: a Main Supply output and an Aux Supply output.

The **MAIN SUPPLY** output is an application-dependent AC or DC voltage. The output is designed to be connected to the Motor Supply connection of an Aerotech controller. The MAIN SUPPLY is normally referenced to ground. A fuse in the TM3 primary circuit provides short circuit protection for the MAIN SUPPLY output.

The **AUX SUPPLY** output is an application-dependent AC or DC voltage. The output is designed to be connected to the Control Supply connection of an Aerotech controller. AUX SUPPLY outputs that are configured for off-line AC power are protected by a switch/circuit breaker. This is the green rocker-switch located on the front panel near the AC power inlet. For operation instructions, refer to Section 1.3. Operation.

- For 100 & 115 V configurations, the switch/circuit breaker is a 10 A rated part.
- For 200 & 230 V configurations, the switch/circuit breaker is a 5 A rated part.

AUX SUPPLY outputs that are configured for DC power are protected by fuses in the primary circuit of the TM3 transformer module.

Table 1-5: Power Output Connections (TB1-TB4)

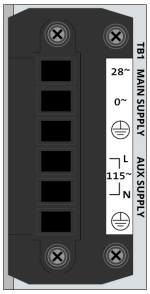
Pin	Description	Connector
1	AC or DC output	
2	AC or DC output	
3	Protective Ground (required for safety)	
4	AC or DC output	
5	AC or DC output	
6	Protective Ground (required for safety)	

Table 1-6: Motor Supply Mating Connector Ratings

Specification		Description
Type		6-Pin Terminal Block
Part Numbers		Aerotech: ECK02596
		Phoenix: 1248128(1)
Conductor Cross Section	One conductor, stranded with ferrule and plastic sleeve	10...24 AWG (0.2...4 mm^2)
	Two conductors (same cross-section), stranded, twin ferrule with plastic sleeve	12...20 AWG (0.5...2.5 mm^2)
Tightening Torque		0.5...0.6 N·m
Conductor Insulation Strip Length		7 mm (0.25 in)

(1) Refer to the manufacturer website for additional information.

1.2.7. +24 VDC Output [PS24-1]

The +24 VDC output has a maximum current output of 4 amps @ 20º C. The 24 VDC output is accessible at the 2-pin terminal block connector. The negative side of the 24 V supply is connected to chassis (ground).

Table 1-7: +24 VDC Output Connections

Pin	Label	Description	Connector
1	+	+24 VDC Output	
2	-	- Side of supply (connected to chassis, ground)	

Table 1-8: +24 VDC Output Connector Ratings

Specification		Description
Type		2-Pin Terminal Block
Part Numbers		Aerotech: ECK02389
		Phoenix: 1756256(1)
Conductor Cross Section	One conductor, stranded with ferrule and plastic sleeve	12...24 AWG (0.2...2.5 mm^2)
	Two conductors (same cross-section), stranded, twin ferrule with plastic sleeve	12...20 AWG (0.5...2.5 mm^2)
Tightening Torque		0.5...0.6 N·m
Conductor Insulation Strip Length		7 mm (0.25 in)
(1) Refer to the manufacturer website for additional information.		

IMPORTANT: For a TM3 purchased before April 2016:

The +24 VDC output has a maximum current output of 1 amps @ 20º C.

1.2.8. Soft-Start Voltage Selector Overview

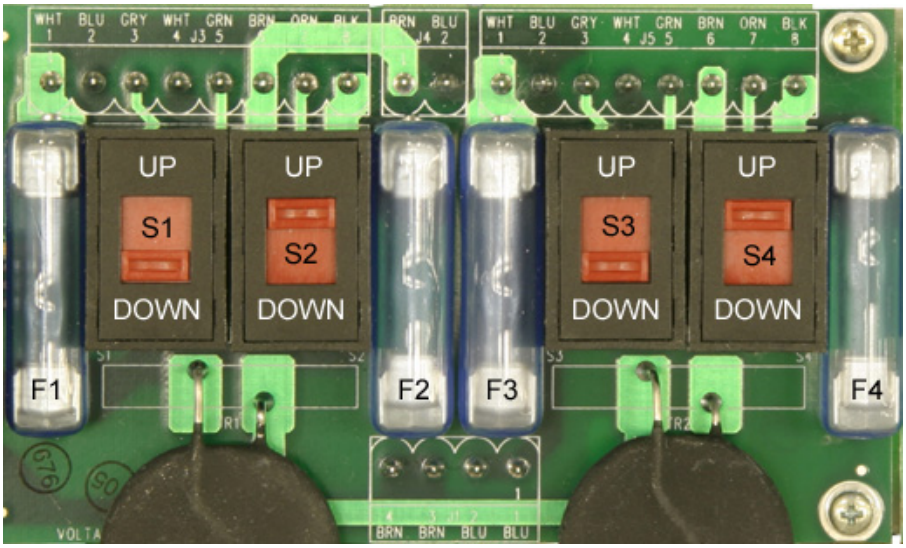
The Soft-Start / Voltage Selector Board (Figure 1-6) is used to limit AC inrush current during turn-on. You can also use the board to configure the TM3 for different AC line input voltages.

DANGER: If you must remove the cover and access any internal components be aware of the risk of electric shock.

1. Disconnect the Mains power connection.
2. Wait at least one (1) minute after you remove the power supply before you set the Voltage Selector switches.

This board can only be accessed if you remove the outer cover of the TM3.

Figure 1-6: Soft-Start / Voltage Select Board



WARNING: You could damage the system if the S1 through S4 switches are incorrectly set for the applied AC power input voltage.

Table 1-9: Soft-Start/Voltage Selector Switch Settings

	Switch Settings			
	S1	**S2**	**S3**	**S4**
100 VAC	UP	DN	UP	DN
115 VAC	UP	UP	UP	UP
200 VAC	DN	DN	DN	DN
230 VAC	DN	UP	DN	UP

1.3. Operation

DANGER: The voltage from this product can kill you. To decrease the risk of electrical shock, injury, and death, you must obey the precautions that follow.

1. The AC Power inlet power connection is the Mains disconnect.
2. Make sure that the applied AC voltage matches the voltage listed on the rating tag.
3. Before you connect wires to this product, disconnect the electrical power.
4. Make sure that all components are grounded correctly and that they obey the local electrical safety requirements.

When power is applied to the transformer box and the power switch is in the ON position the Green power switch will be illuminated. The power switch can also be left in the ON position and the power to the transformer module can be turned ON and OFF remotely.

Chapter 2: Maintenance

IMPORTANT: For your own safety and for the safety of the equipment:

- Do not remove the cover of the TM3
- Do not attempt to access the internal components.

DANGER: If you must remove the covers and access any internal components be aware of the risk of electric shock.

1. Disconnect the Mains power connection.
2. Wait at least one (1) minute after removing the power supply before doing maintenance or an inspection. Otherwise, there is the danger of electric shock.
3. All tests must be done by an approved service technician. Voltages inside the controller and at the input and output power connections can kill you.

Table 1-10: Troubleshooting

Symptom	Possible Cause and Solution
No output power	The TM3 might not be receiving input power. • Make sure that the Power Switch is ON and illuminated. • Make sure that AC Mains is connected to the TM3 inlet. • Make sure that there is AC power to the TM3. If the power switch is illuminated, check the state of the F1 and F2 fuses on Soft-Start / Voltage Select board.
Power switch will not stay on	There could be an overload or short on output. • Remove all output cables. • Locate the short and correct the problem.
Output turns off after TM3 unexpectedly	The transformer inside the chassis could be too hot. This could mean that the air flow to or through the chassis is inadequate or that the power rating of the transformer has been exceeded. Make sure that: • the Main Supply outputs are not overloaded. • the TM3 is configured for the AC line voltage supplied to it. • the Voltage Selector switches on Soft-Start / Voltage Select board are set correctly. Fix or increase the air flow through the chassis.
F1 or F2 fuse on the Soft-Start / Voltage Selector board opens	• Make sure that the fuse is the correct value and type. • Check for a short or overload on the outputs. • Make sure that the Voltage Selector switches on Soft-Start / Voltage Select board are set correctly.
There is no +24 Volt output	Make sure that +24V supply is not overloaded or shorted (disconnect the +24V connector to check).

2.1. Fuse Replacement

The TM3 transformer Module contains two user-replaceable fuses (F1 and F2) located on the Soft-Start / Voltage Select board (Figure 1-6). Both fuses are located in the primary circuit of the transformer module and function to protect the transformer against shorts and severe overloads on the transformer output. Both fuses are Slow Blow type fuses in order to handle the high inrush currents when the TM3 is turned on.

Table 1-11: TM3 Fuse Replacement Part Numbers

Fuse	Configuration	Third Party P/N	Aerotech P/N	Size
F1	100VAC (-C) 115 VAC (-A)	Littelfuse PN: 313004	EIF00104	4 A. S. B. (3AG)
F2	200 VAC (-D) 230 VAC (-B)	Littelfuse PN: 313003	EIF00103	3 A. S. B. (3AG)

2.2. Preventative Maintenance

DANGER: The voltage from this product can kill you. To decrease the risk of electrical shock, injury, and death, you must obey the precautions that follow.

1. Restrict access to the transformer module when it is connected to a power source.
2. Before you do maintenance to the equipment, disconnect the electrical power.
3. Before you connect wires to this product, disconnect the electrical power.

Do an inspection of the TM3 and the external wiring one time each month. It might be necessary to do more frequent inspections based on:

- The operating conditions of the system.
- How you use the system.

Table 1-12: Preventative Maintenance

Check	Action to be Taken
Examine the chassis for hardware and parts that are damaged or loose. It is not necessary to do an internal inspection.	Repair all damaged parts.
Do an inspection of the cooling vents.	Remove all material that collected in the vents.
Examine the work area to make sure there are no fluids and no electrically conductive materials.	Do not let fluids and electrically conductive material go into the TM3.
Examine all cables and connections to make sure they are correct.	Make sure that all connections are correctly attached and not loose. Replace cables that are worn. Replace all broken connectors.

Cleaning

Use a clean, dry, soft cloth to clean the TM3. If necessary, use a cloth that is moist with water or isopropyl alcohol. If you use a moist cloth, make sure that moisture does not go into the transformer module. Also make sure that it does not go onto the outer connectors and components. Internal contamination from the cleaning solution can cause corrosion and electrical short circuits.

Do not clean the labels with a cleaning solution because it might remove the label information.

Appendix A: Warranty and Field Service

Aerotech, Inc. warrants its products to be free from harmful defects caused by faulty materials or poor workmanship for a minimum period of one year from date of shipment from Aerotech. Aerotech's liability is limited to replacing, repairing or issuing credit, at its option, for any products that are returned by the original purchaser during the warranty period. Aerotech makes no warranty that its products are fit for the use or purpose to which they may be put by the buyer, whether or not such use or purpose has been disclosed to Aerotech in specifications or drawings previously or subsequently provided, or whether or not Aerotech's products are specifically designed and/or manufactured for buyer's use or purpose. Aerotech's liability on any claim for loss or damage arising out of the sale, resale, or use of any of its products shall in no event exceed the selling price of the unit.

THE EXPRESS WARRANTY SET FORTH HEREIN IS IN LIEU OF AND EXCLUDES ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, BY OPERATION OF LAW OR OTHERWISE. IN NO EVENT SHALL AEROTECH BE LIABLE FOR CONSEQUENTIAL OR SPECIAL DAMAGES.

Return Products Procedure

Claims for shipment damage (evident or concealed) must be filed with the carrier by the buyer. Aerotech must be notified within thirty (30) days of shipment of incorrect material. No product may be returned, whether in warranty or out of warranty, without first obtaining approval from Aerotech. No credit will be given nor repairs made for products returned without such approval. A "Return Materials Authorization (RMA)" number must accompany any returned product(s). The RMA number may be obtained by calling an Aerotech service center or by submitting the appropriate request available on our website (www.aerotech.com). Products must be returned, prepaid, to an Aerotech service center (no C.O.D. or Collect Freight accepted). The status of any product returned later than thirty (30) days after the issuance of a return authorization number will be subject to review.

Visit Global Technical Support Portal for the location of your nearest Aerotech Service center.

Returned Product Warranty Determination

After Aerotech's examination, warranty or out-of-warranty status will be determined. If upon Aerotech's examination a warranted defect exists, then the product(s) will be repaired at no charge and shipped, prepaid, back to the buyer. If the buyer desires an expedited method of return, the product(s) will be shipped collect. Warranty repairs do not extend the original warranty period.

Fixed Fee Repairs - Products having fixed-fee pricing will require a valid purchase order or credit card particulars before any service work can begin.

All Other Repairs - After Aerotech's evaluation, the buyer shall be notified of the repair cost. At such time the buyer must issue a valid purchase order to cover the cost of the repair and freight, or authorize the product(s) to be shipped back as is, at the buyer's expense. Failure to obtain a purchase order number or approval within thirty (30) days of notification will result in the product(s) being returned as is, at the buyer's expense.

Repair work is warranted for ninety (90) days from date of shipment. Replacement components are warranted for one year from date of shipment.

Rush Service

At times, the buyer may desire to expedite a repair. Regardless of warranty or out-of-warranty status, the buyer must issue a valid purchase order to cover the added rush service cost. Rush service is subject to Aerotech's approval.

On-site Warranty Repair

If an Aerotech product cannot be made functional by telephone assistance or by sending and having the customer install replacement parts, and cannot be returned to the Aerotech service center for repair, and if Aerotech determines the problem could be warranty-related, then the following policy applies:

Aerotech will provide an on-site Field Service Representative in a reasonable amount of time, provided that the customer issues a valid purchase order to Aerotech covering all transportation and subsistence costs. For warranty field repairs, the customer will not be charged for the cost of labor and material. If service is rendered at times other than normal work periods, then special rates apply.

If during the on-site repair it is determined the problem is not warranty related, then the terms and conditions stated in the following “On-Site Non-Warranty Repair” section apply.

On-site Non-Warranty Repair

If any Aerotech product cannot be made functional by telephone assistance or purchased replacement parts, and cannot be returned to the Aerotech service center for repair, then the following field service policy applies:

Aerotech will provide an on-site Field Service Representative in a reasonable amount of time, provided that the customer issues a valid purchase order to Aerotech covering all transportation and subsistence costs and the prevailing labor cost, including travel time, necessary to complete the repair.

Service Locations

https://www.aerotech.com/contact-sales.aspx?mapState=showMap

USA, CANADA, MEXICO
Aerotech, Inc.
Global Headquarters

CHINA
Aerotech China
Full-Service Subsidiary

GERMANY
Aerotech Germany
Full-Service Subsidiary

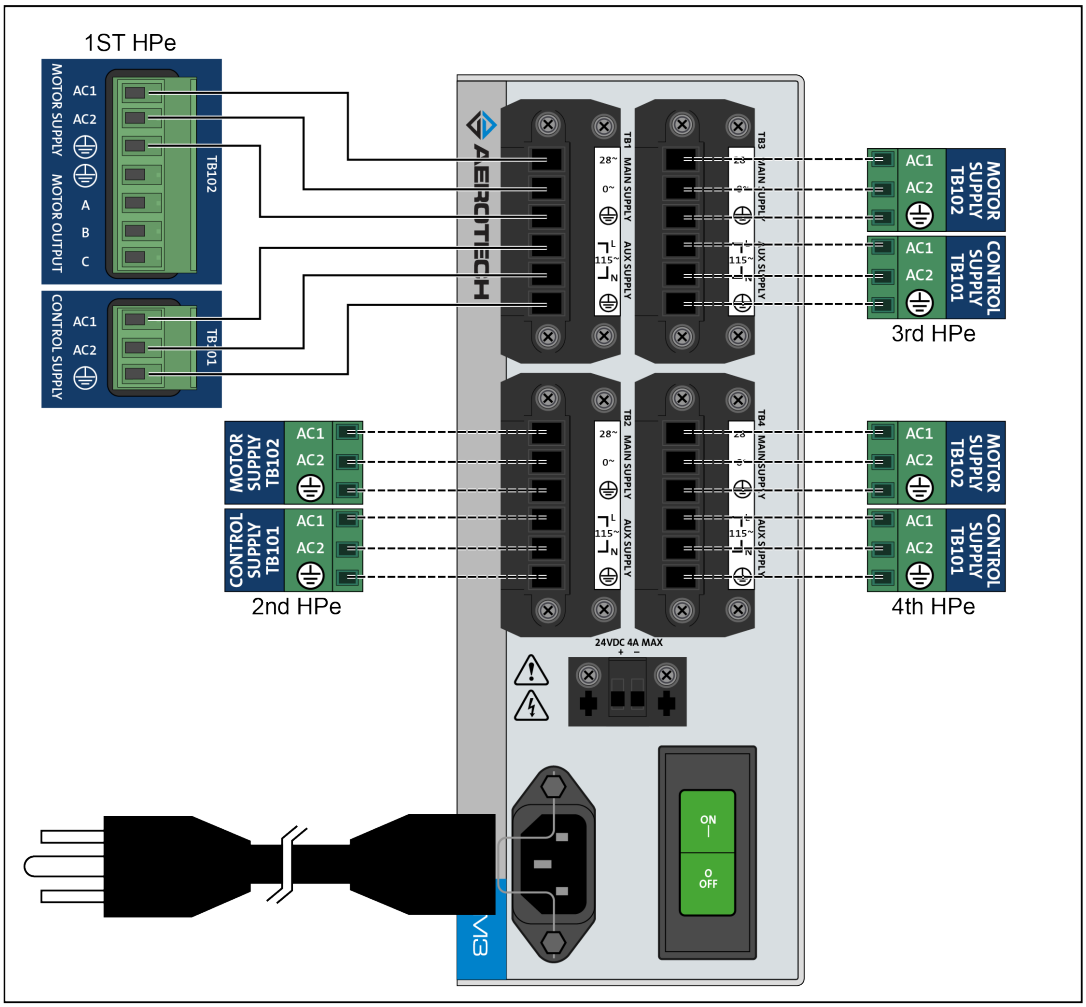
TAIWAN
Aerotech Taiwan
Full-Service Subsidiary

UNITED KINGDOM
Aerotech United Kingdom
Full-Service Subsidiary

Appendix B: Legacy System Interconnection

System interconnection examples are shown below. Cables can be purchased from Aerotech.

Figure B-1: System Interconnect Example (HPe)



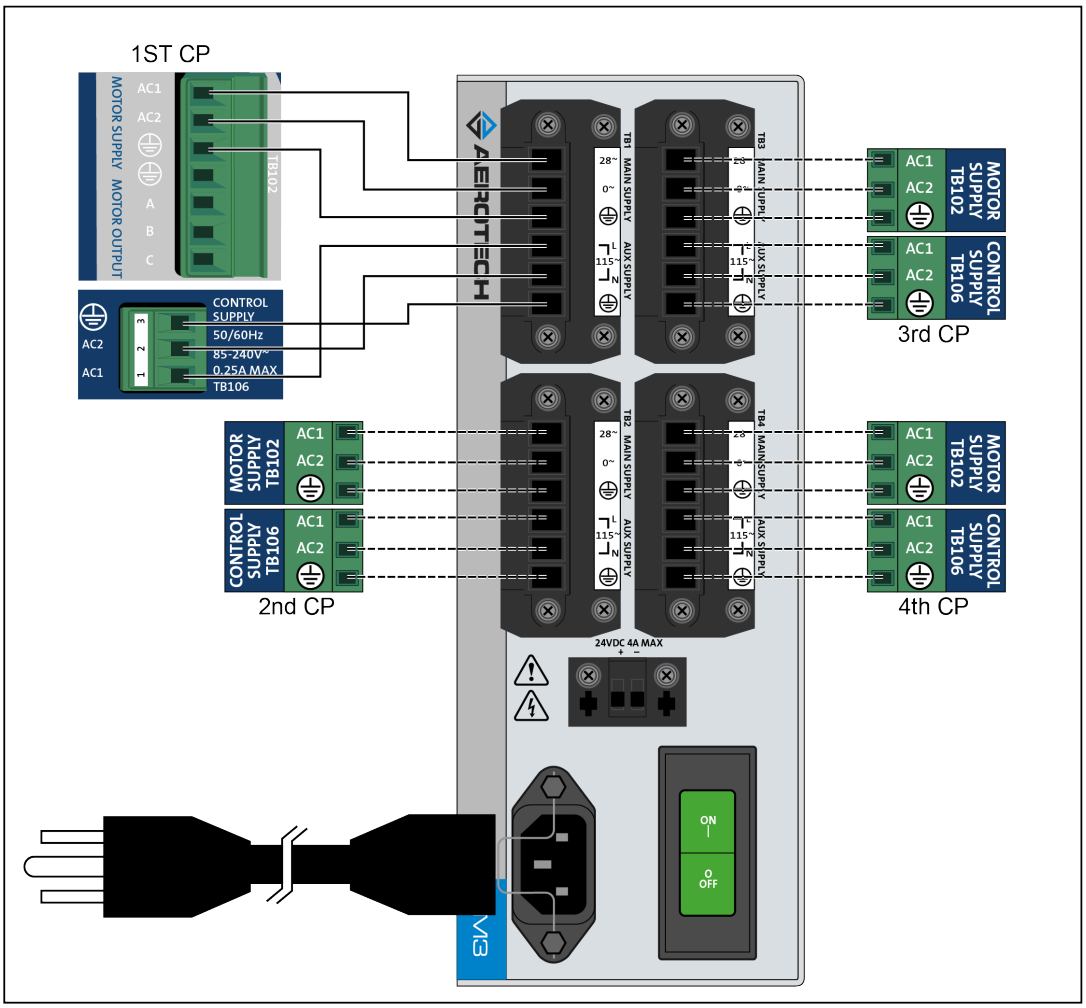
HAZARDOUS VOLTAGES PRESENT

CONNECT ALL WIRING BEFORE POWERING THE TM3.

FOLLOW ALL APPLICABLE WIRING AND SAFETY CODES.

1. Wiring Specifications: 1.3 mm^2 (#16 AWG) 300 V wire.
2. Control Supply output voltage (115 VAC in this example) is always the same as the AC Input Voltage to the unit.

Figure B-2: System Interconnect Example (CP)



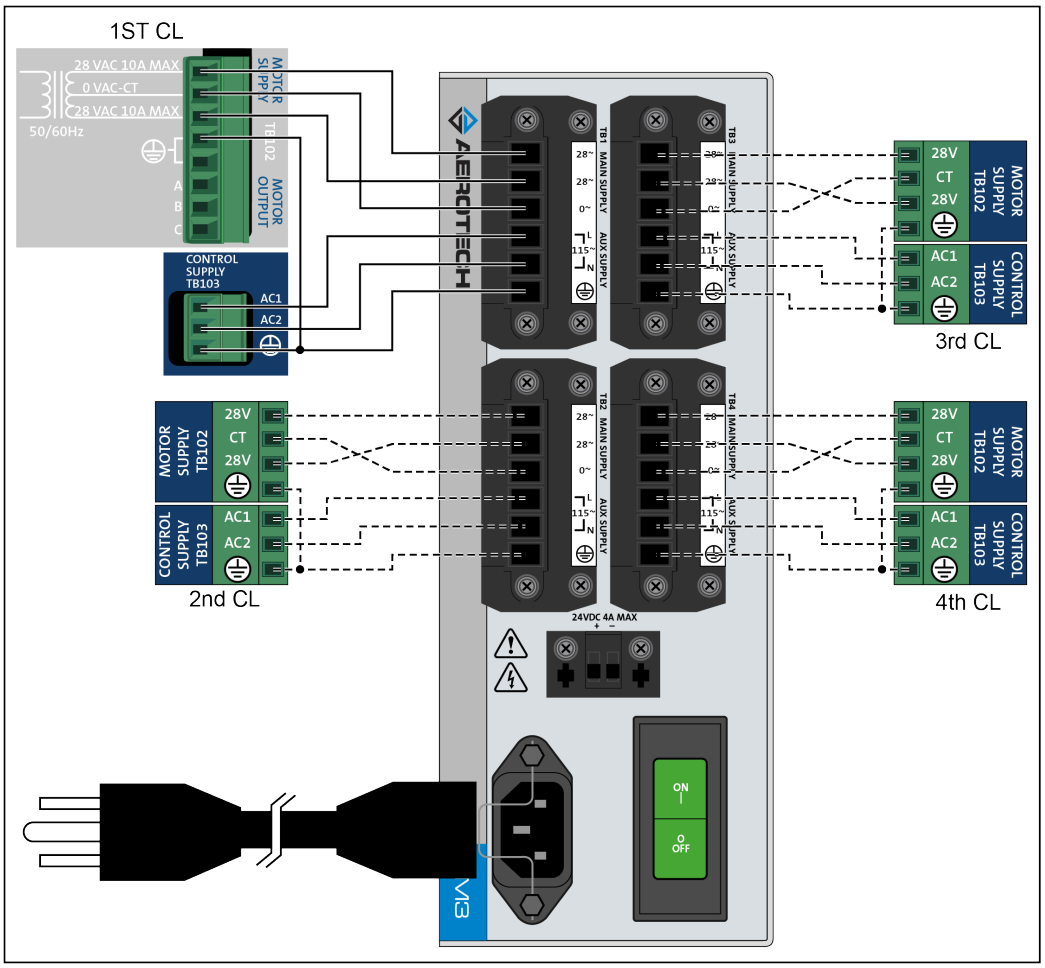
HAZARDOUS VOLTAGES PRESENT

CONNECT ALL WIRING BEFORE POWERING THE TM3.

FOLLOW ALL APPLICABLE WIRING AND SAFETY CODES.

1. Wiring Specifications: 1.3 mm^2 (#16 AWG) 300 V wire.
2. Control Supply output voltage (115 VAC in this example) is always the same as the AC Input Voltage to the unit.

Figure B-3: System Interconnect Example (CL)



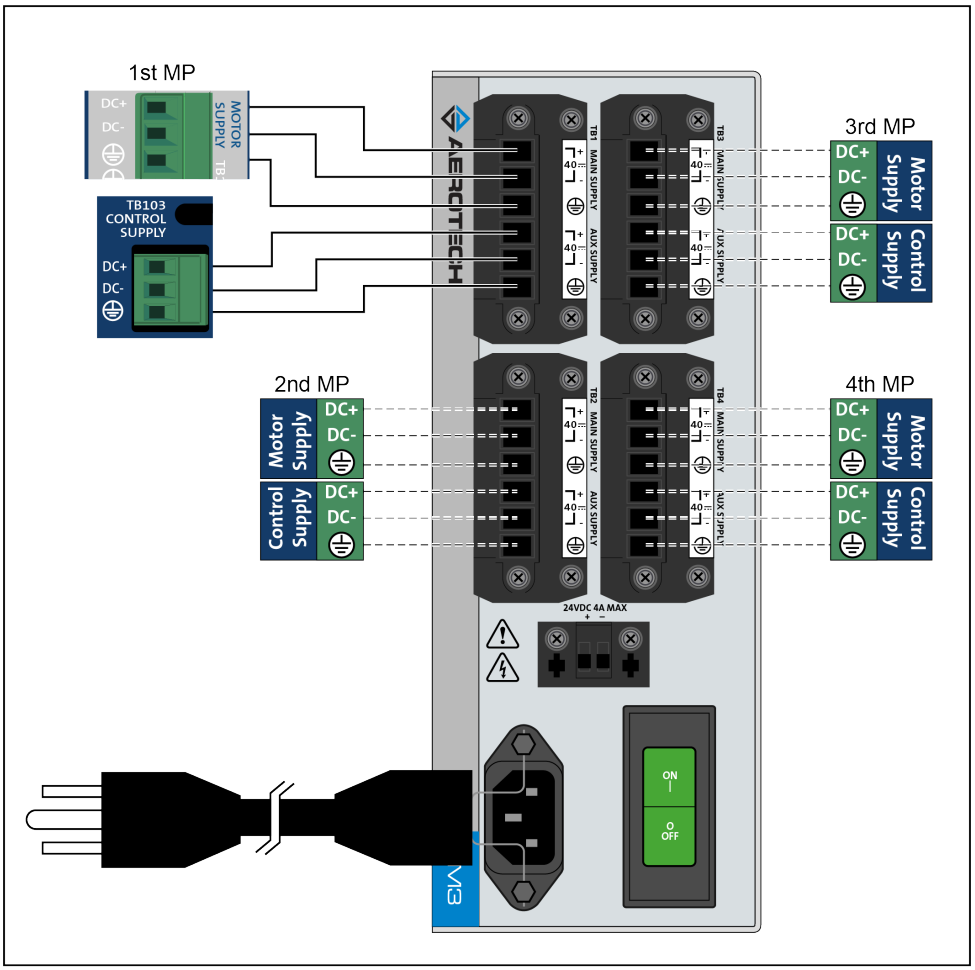
HAZARDOUS VOLTAGES PRESENT

CONNECT ALL WIRING BEFORE POWERING THE TM3.

FOLLOW ALL APPLICABLE WIRING AND SAFETY CODES.

1. The TM3 or TM5 must be configured for 56CT VAC output.
2. Transformer Wiring: 0.5 mm^2 (#20 AWG) 300 V wire.
3. Control Supply output voltage (115 VAC in this example) is always the same as the AC Input Voltage to the unit.

Figure B-4: System Interconnect Example (MP)



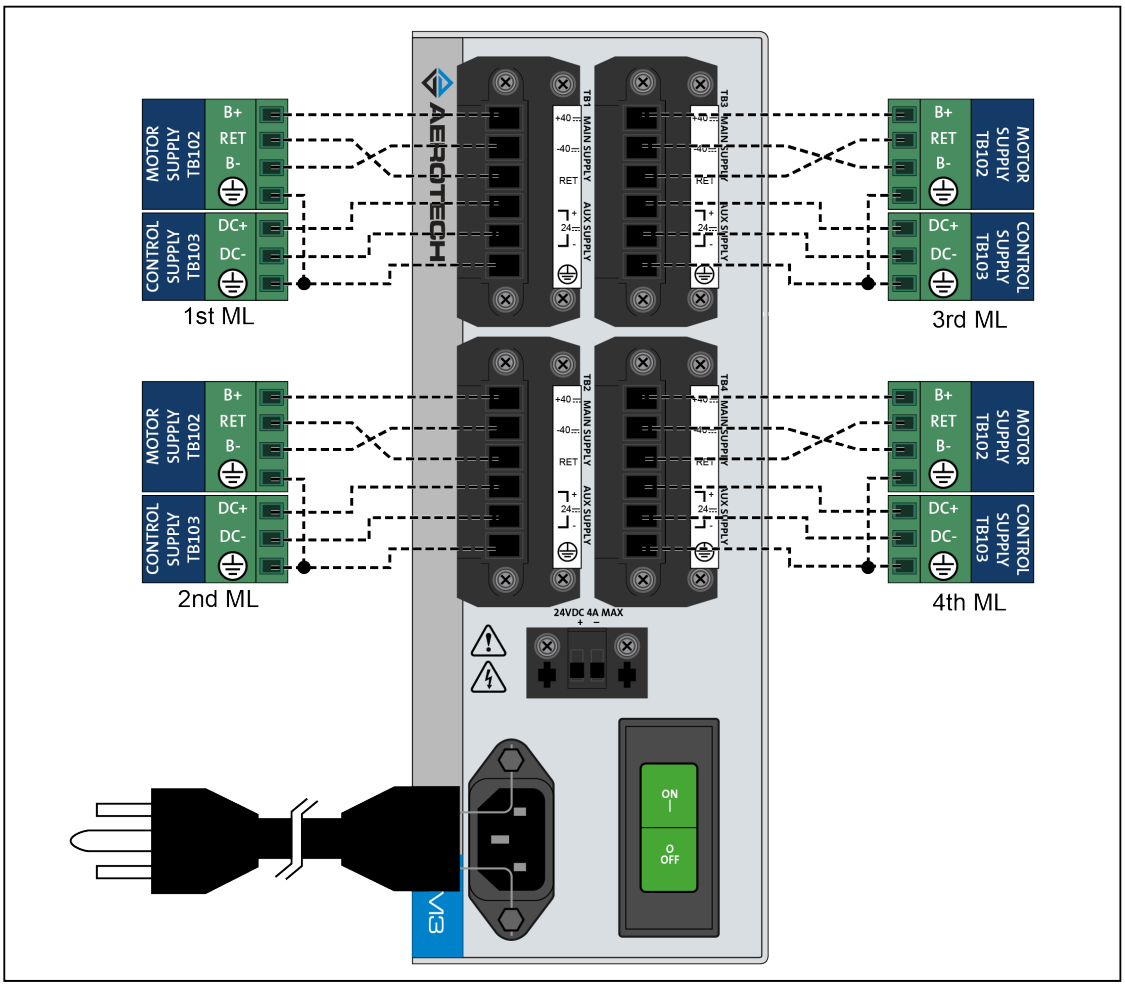
HAZARDOUS VOLTAGES PRESENT

CONNECT ALL WIRING BEFORE POWERING THE TM3.

FOLLOW ALL APPLICABLE WIRING AND SAFETY CODES.

1. The TM3 must be configured for ±40 VDC or ±80 VDC output.
2. Transformer Wiring: 0.5 mm^2 (#20 AWG) 300 V wire.
3. The Auxiliary Supply has been relabeled Control Supply as of April 2007.

Figure B-5: System Interconnect Example (ML)



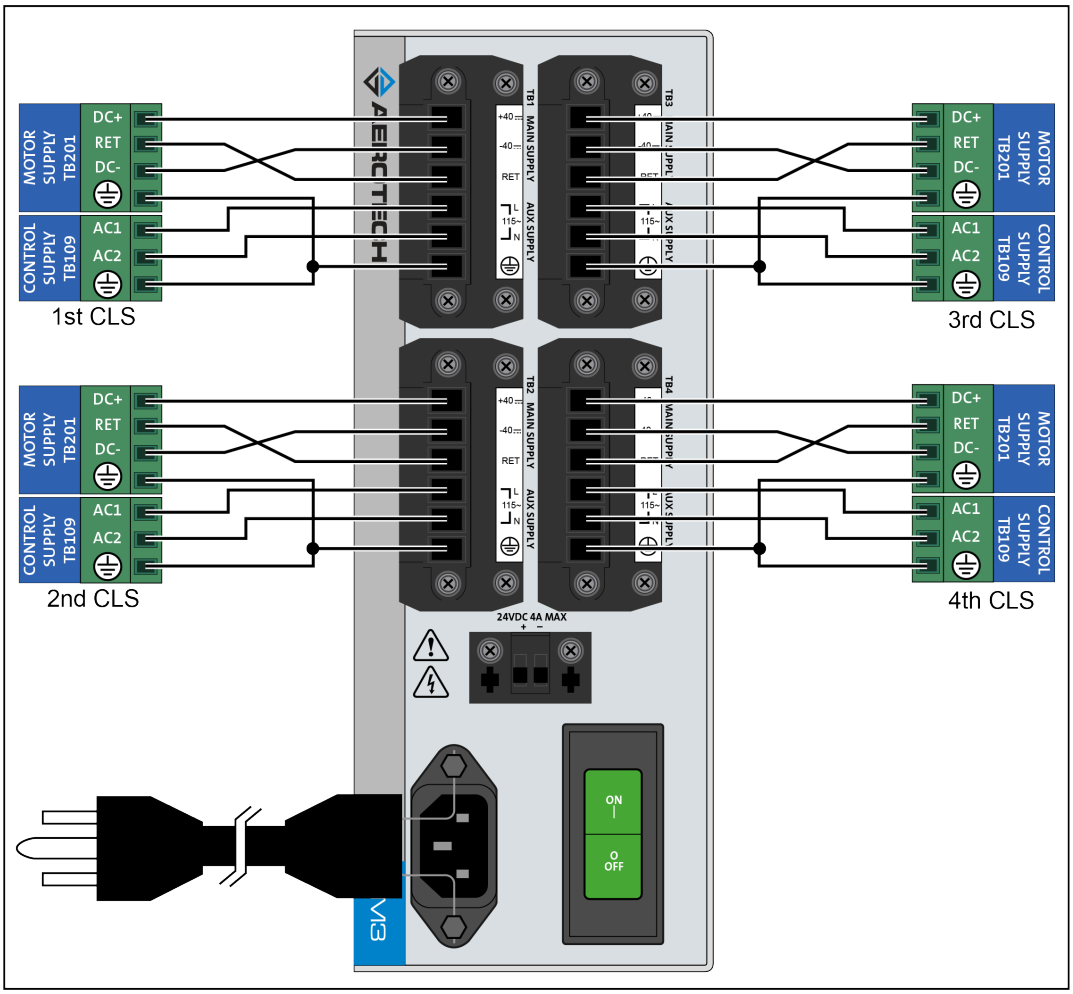
HAZARDOUS VOLTAGES PRESENT

CONNECT ALL WIRING BEFORE POWERING THE TM3.

FOLLOW ALL APPLICABLE WIRING AND SAFETY CODES.

1. The TM3 must be configured for a bipolar bus (-40B, -30B, -20B, or -10B). The TM3 depicted is labeled for -40B.
2. Transformer Wiring: 0.5 mm^2 (#20 AWG) 300 V wire.

Figure B-6: System Interconnect Example (Nmark CLS)



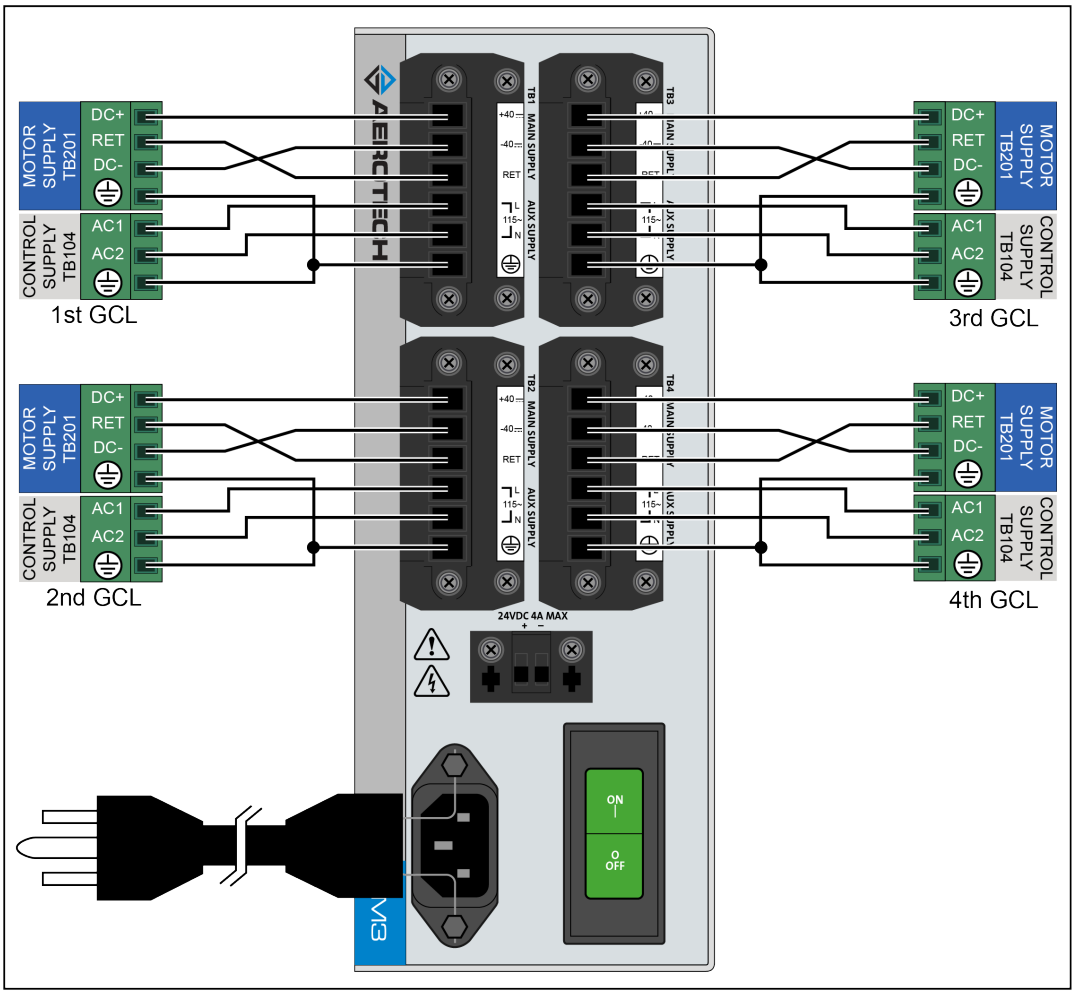
HAZARDOUS VOLTAGES PRESENT

CONNECT ALL WIRING BEFORE POWERING THE TM3.

FOLLOW ALL APPLICABLE WIRING AND SAFETY CODES.

1. The TM3 must be configured for a bipolar bus (-40B AUX AC).
2. The TM3 depicted is labeled for 115V line voltage (230V TM3 option available).
3. Transformer Wiring: 1.3 mm^2 (#16 AWG) 300 V wire.

Figure B-7: System Interconnect Example (Nmark GCL)



HAZARDOUS VOLTAGES PRESENT

CONNECT ALL WIRING BEFORE POWERING THE TM3.

FOLLOW ALL APPLICABLE WIRING AND SAFETY CODES.

1. The TM3 must be configured for a bipolar bus (-40B AUX AC).
2. The TM3 depicted is labeled for 115V line voltage (230V TM3 option available).
3. Transformer Wiring: 1.3 mm^2 (#16 AWG) 300 V wire.

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Appendix C: Revision History

Revision	Description
3.02	Updated: EU Declaration of Conformity (Page 5)
3.01	New Section: UKCA Declaration of Conformity
3.00	General Update
2.02	Revision changes have been archived. If you need a copy of this revision, contact Aerotech Global Technical Support.
2.01	
2.00	
1.02	
1.01	
1.00	

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