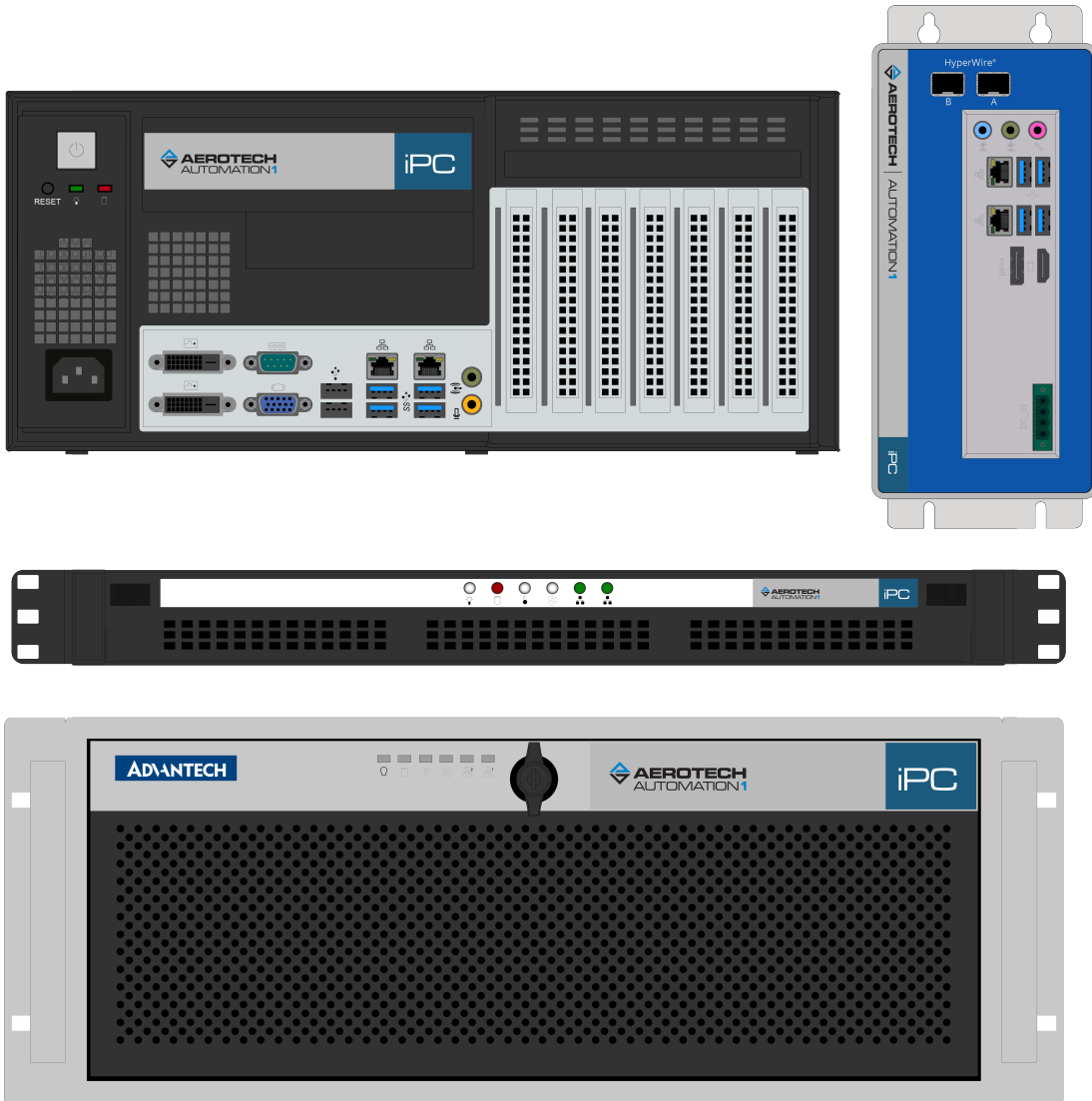




# Automation1 iPC Intelligent Industrial PC

## HARDWARE MANUAL

Revision 1.02



## GLOBAL TECHNICAL SUPPORT

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.

This manual contains proprietary information and may not be reproduced, disclosed, or used in whole or in part without the express written permission of Aerotech, Inc. Product names mentioned herein are used for identification purposes only and may be trademarks of their respective companies.

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## EU Declaration of Conformity

<b>Manufacturer</b>	Aerotech, Inc.
<b>Address</b>	101 Zeta Drive Pittsburgh, PA 15238-2811 USA
<b>Product</b>	Automation1 iPC
<b>Model/Types</b>	Control Cabinet PCs: -CC04, -CC05 Desktop PC: -DT01 1U Rack Mounted PC: -R013 4U Rack Mounted PC: -R402

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

2014/30/EU	Electromagnetic Compatibility (EMC)
2014/35/EU	Low Voltage Directive
2011/65/EU	RoHS 2 Directive
EU 2015/863	Amendment RoHS 3 Directive

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.

<b>-CC04/-CC05 (Control Cabinet PCs)</b>
EN 55011: 2009 +A1: 2010 (Group 1, Class A) EN 55032: 2015 +AC: 2016 (Class A) CISPR 32: 2015 +COR1: 2016 (Class A) EN 61000-6-4: 2007 +A1:2011 EN 61000-3-2: 2014 (Class D) / EN 61000-3-3:2013 EN 55024: 2010 +A1: 2015 / EN 61000-6-2: 2005 +AC:2005 EN 61000-4-2:2009 / EN 61000-4-3: 2006 +A1: 2008 +A2: 2010 EN 61000-4-4:2012 / EN 61000-4-5: 2014 / EN 61000-4-6: 2014 +AC:2015 EN 61000-4-8:2010 / EN 61000-4-11:2004
<b>-DT01 (Desktop PC)</b>
EN 55011: 2009 +A1: 2010 (Group 1, Class A) EN 55032: 2015 +AC: 2016 (Class A) EN 61000-6-4: 2007 +A1:2011 CISPR 32: 2015 +COR1: 2016 (Class A) EN 61000-3-2: 2014 (Class A) / EN 61000-3-3:2013 EN 55024: 2010 +A1: 2015 / EN 61000-6-2: 2005 +AC:2005 EN 61000-4-2:2009 / EN 61000-4-3: 2006 +A1: 2008 +A2: 2010 EN 61000-4-4:2012 / EN 61000-4-5: 2014 / EN 61000-4-6: 2014 +AC:2015 EN 61000-4-8:2010 / EN 61000-4-11: 2004 +A1:2017

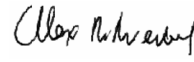
**-R103 (1U Rack Mounted PC), -R402 (4U Rack Mounted PC)**

EN 55011: 2009 +A1: 2010 (Group 1, Class A)  
EN 55032: 2015 +AC: 2016 (Class A)  
EN 61000-6-4: 2007 +A1:2011  
EN 61000-3-2: 2014 (Class D) / EN 61000-3-3:2013  
EN 55024: 2010 +A1: 2015 / EN 61000-6-2: 2005 +AC:2005  
EN 61000-4-2:2009 / EN 61000-4-3: 2006 +A1: 2008 +A2: 2010  
EN 61000-4-4:2012 / EN 61000-4-5: 2014 / EN 61000-4-6: 2014 +AC:2015  
EN 61000-4-8:2010 / EN 61000-4-11:2004

**Authorized  
Representative**

/ Simon Smith, European Director

Aerotech Ltd  
The Old Brick Kiln, Ramsdell, Tadley  
Hampshire RG26 5PR  
UK

**Engineer Verifying  
Compliance**

/ Alex Weibel

Aerotech, Inc.  
101 Zeta Drive  
Pittsburgh, PA 15238-2811  
USA  
6/30/2021

**Date**

## Agency Approvals

**Manufacturer** Aerotech, Inc.  
**Address** 101 Zeta Drive  
Pittsburgh, PA 15238-2811  
USA  
**Product** Automation1 iPC  
**Model/Types** Control Cabinet PCs: -CC04, -CC05  
Desktop PC: -DT01  
1U Rack Mounted PC: -R013  
4U Rack Mounted PC: -R402

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

FCC Part 15, Subpart B  
ANSI C63.4-2014  
ICES-003 Issue 6: 2016  
CISPR 22: 2008  
CAN/CSA-CISPR 22-10

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## Chapter 1: Automation1 iPC



**IMPORTANT:** 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](http://www.aerotech.com).

**Table 1-1: Ordering Options**

<b>Hardware</b>	
-CC05	Control cabinet iPC; i7 processor; SSD; HyperWire 6.03 minimum
-CC04	Control cabinet iPC; i5 processor; SSD; HyperWire 6.03 minimum
-R402	4U 19" rack mount iPC; i7 processor; SSD; HyperWire 6.03 minimum
-R103	1U 19" rack mount iPC; i7 processor; SSD; HyperWire 6.03 minimum
-DT01	Desktop tower IPC; i7 processor; SSD; HyperWire 6.03 minimum
<b>Software</b>	
-MDK01	Automation1 MDK is installed (default).
-MDK00	No Automation1 MDK software is installed.
-SMC01	Automation1 iSMC is installed (default).
-SMC00	No Automation1 iSMC controller is installed.
<b>Operating System (Required)</b>	
-OS03	Windows 10 LTSC 64-bit operating system (default)
<b>Motion Bus Hardware</b>	
-MB03	HyperWire motion bus through a PCIe interface card
-MB00	No motion bus interface card
<b>Automation Bus Hardware</b>	
-AB04	EtherCAT interface card - HyperWire-PCIe add-on
-AB03 <sup>(3)</sup>	EtherCAT interface card and Ethernet expansion card
-AB01 <sup>(3)</sup>	Ethernet expansion card
-AB00	No EtherCAT/PROFINET interface card or Ethernet expansion cards (default)
(3) Ethernet expansion card can be used for PC Modbus connections	
<b>HMI Package</b>	
-HMI04	24" LED monitor, USB keyboard with integral touch pad
-HMI03	24" LED monitor, USB keyboard, and mouse
-HMI02	USB keyboard with integral touch pad
-HMI01	USB keyboard and mouse
-HMI00	No HMI package (default)
<b>AC Adapter</b>	
-AC1	AC Adapter for PC power
-AC0	No AC Adapter
<b>Line Cord</b>	
-LC0	No line cord (default)
-LC1	US 115 VAC line cord
-LC2	US 230 VAC line cord
-LC3	UK compatible line cord
-LC5	Israel compatible line cord
-LC6	India compatible line cord
-LC7	Australia compatible line cord

## 1.1. Specifications



**IMPORTANT:** PC specifications subject to change without notice. Please contact factory for most up to date information. Refer to your third-party motherboard documentation to determine your current specifications.

**Table 1-2: Automation Motion Server Specifications (Control Cabinet / Desktop PC)**

	-CC05	-CC04	-DT01
Description	Control cabinet PC	Control cabinet PC	Desktop PC
A3200 Version	6.x and above	6.x and above	6.x and above
Processor	Intel i7-7700	Intel i5-7500	Intel i7-7700
RAM	16 GB	16 GB	16 GB
Operating System <sup>(1)</sup>	Windows 10 LTSC	Windows 10 LTSC	Windows 10 64-bit
Hard Disk Space	256 GB SSD	128 GB SSD	512 GB SSD
USB 3.0 Connections	4	4	4
USB 2.0 Connections	N/A	N/A	N/A
Input Power	24 VDC	24 VDC	100-240 V, 2-4 A, 50-60 Hz
Display Connections	Display Port HDMI	Display Port HDMI	VGA DVI-D <sup>(2)</sup>
Available PCI/PCIe Expansion Slots <sup>(3)</sup>	N/A	N/A	1 x PCIe x16 2 x PCIe x4 3x PCI
DVD Drive	No	No	Yes
Drive Interface	HyperWire	HyperWire	HyperWire
LAN	10/100/1000 Mbit (Qty. 2)	10/100/1000 Mbit (Qty. 2)	10/100/1000 Mbit (Qty. 2)
Modbus Support	Yes (Ethernet)	Yes (Ethernet)	Yes (Ethernet)
EtherCAT/PROFINET Support	Available	Available	Available
Power Supply	Optional AC Adapter	Optional AC Adapter	180 W
<p>(1) To avoid machine disruption, Aerotech disables automatic updates on Windows PCs that are shipped from Aerotech. To customize your update settings, refer to Microsoft's Windows documentation or Aerotech's User Guide to Windows 10 Updates.</p> <p>(2) Refer to <a href="#">Section 1.5</a> for configuration details.</p> <p>(3) After the HyperWire card is installed.</p>			

**Table 1-3: Automation Motion Server Specifications (Rack Mount PCs)**

	<b>-R103</b>	<b>-R402</b>
Description	1U rack mount	4U rack mount
A3200 Version	6.x and above	6.x and above
Processor	Intel i7-7700T	Intel i7-7700
RAM	16 GB	16 GB
Operating System <sup>(1)</sup>	Windows 10 64 bit	Windows 10 64 bit
Hard Disk Space	256 GB SSD	512 GB SSD
USB 3.0 Connections	4	4
USB 2.0 Connections	N/A	N/A
Input Power	100-240 V, 2-4 A, 50-60 Hz	100-240 V, 2-4 A, 50-60 Hz
Display Connections	<ul style="list-style-type: none"> <li>• VGA</li> <li>• DVI-D<sup>(2)</sup></li> </ul>	<ul style="list-style-type: none"> <li>• VGA</li> <li>• DVI-D<sup>(2)</sup></li> </ul>
Available PCI/PCIe Expansion Slots <sup>(3)</sup>	N/A	<ul style="list-style-type: none"> <li>• 1 x PCIe x16</li> <li>• 2 x PCIe x4</li> <li>• 3 x PCI</li> </ul>
DVD Drive	Yes	Yes
Drive Interface	HyperWire	HyperWire
LAN	10/100/1000 Mbit (Qty. 2)	10/100/1000 Mbit (Qty. 2)
Modbus Support	N/A	Yes (Ethernet)
EtherCAT/PROFINET Support	N/A	Available
Power Supply	350 W	400 W
<p>(1) To avoid machine disruption, Aerotech disables automatic updates on Windows PCs that are shipped from Aerotech. To customize your update settings, refer to Microsoft's Windows documentation or Aerotech's User Guide to Windows 10 Updates.</p> <p>(2) Refer to <a href="#">Section 1.5</a> for configuration details.</p> <p>(3) After the HyperWire card is installed.</p>		

### 1.2. Remote Server Operation

Only one of the available Ethernet ports will be configured for use with the remote server. Refer to the figures below to determine which port you should use for each Automation1 iPC hardware configuration.

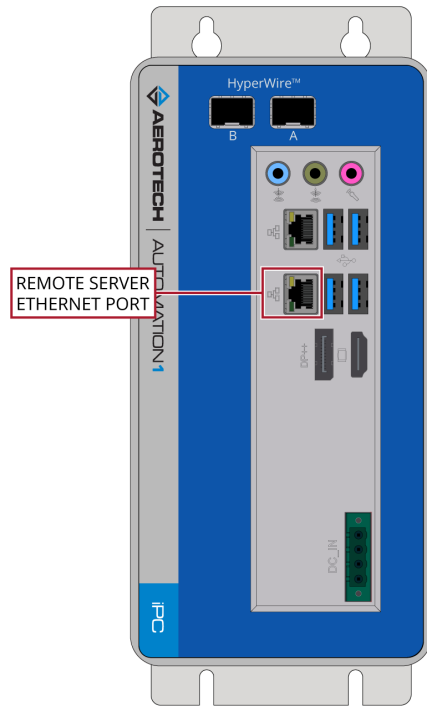


Figure 1-1: -CC04/-CC05 Connector View (typical)

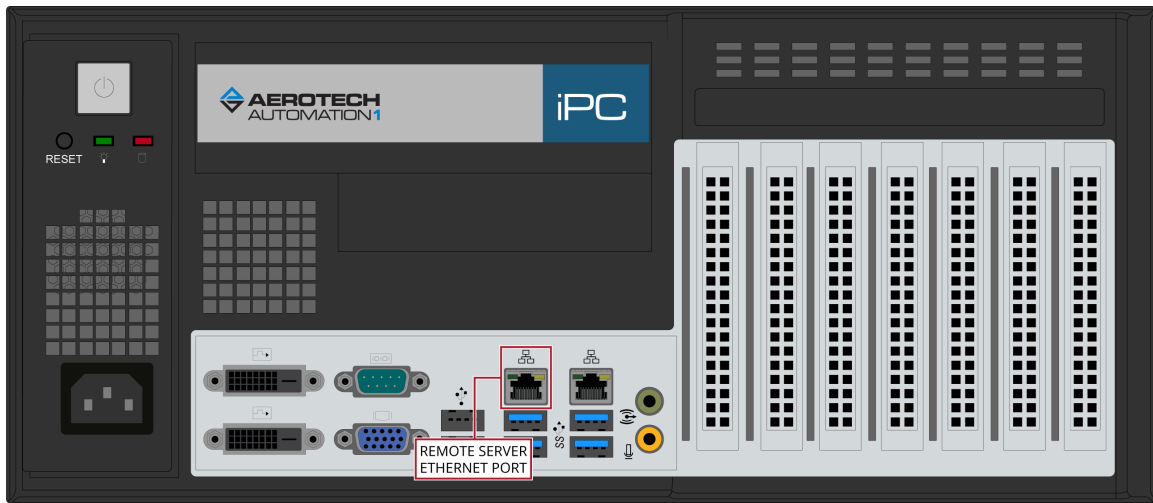
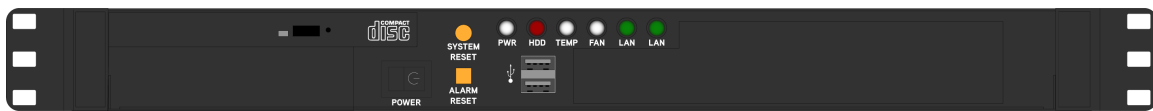
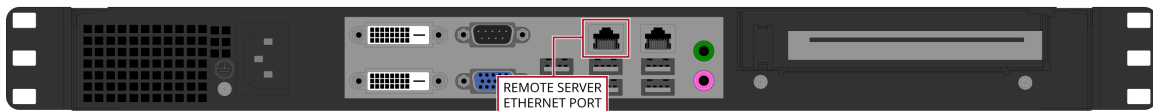


Figure 1-2: -DT01 Connector View (typical)



FRONT VIEW (cover panel removed)

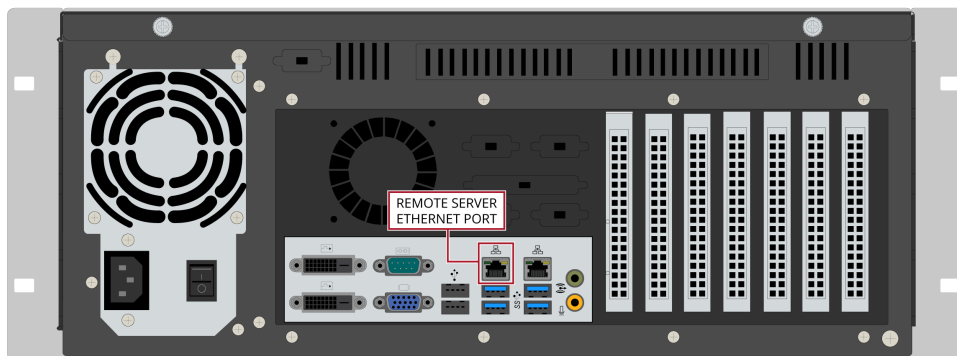


REAR VIEW

Figure 1-3: -R103 Connector View (typical)



FRONT VIEW (Panel Open)



REAR VIEW

Figure 1-4: -R402 Connector View (typical)

### 1.3. Dimensions



**IMPORTANT:** Aerotech continually improves its product offerings; listed options may be superseded at any time. All drawings and illustrations are for reference only and were complete and accurate as of this manual's release. Refer to [www.aerotech.com](http://www.aerotech.com) for the most up-to-date information.



Figure 1-5: Desktop Computer Dimensions (-DT01)

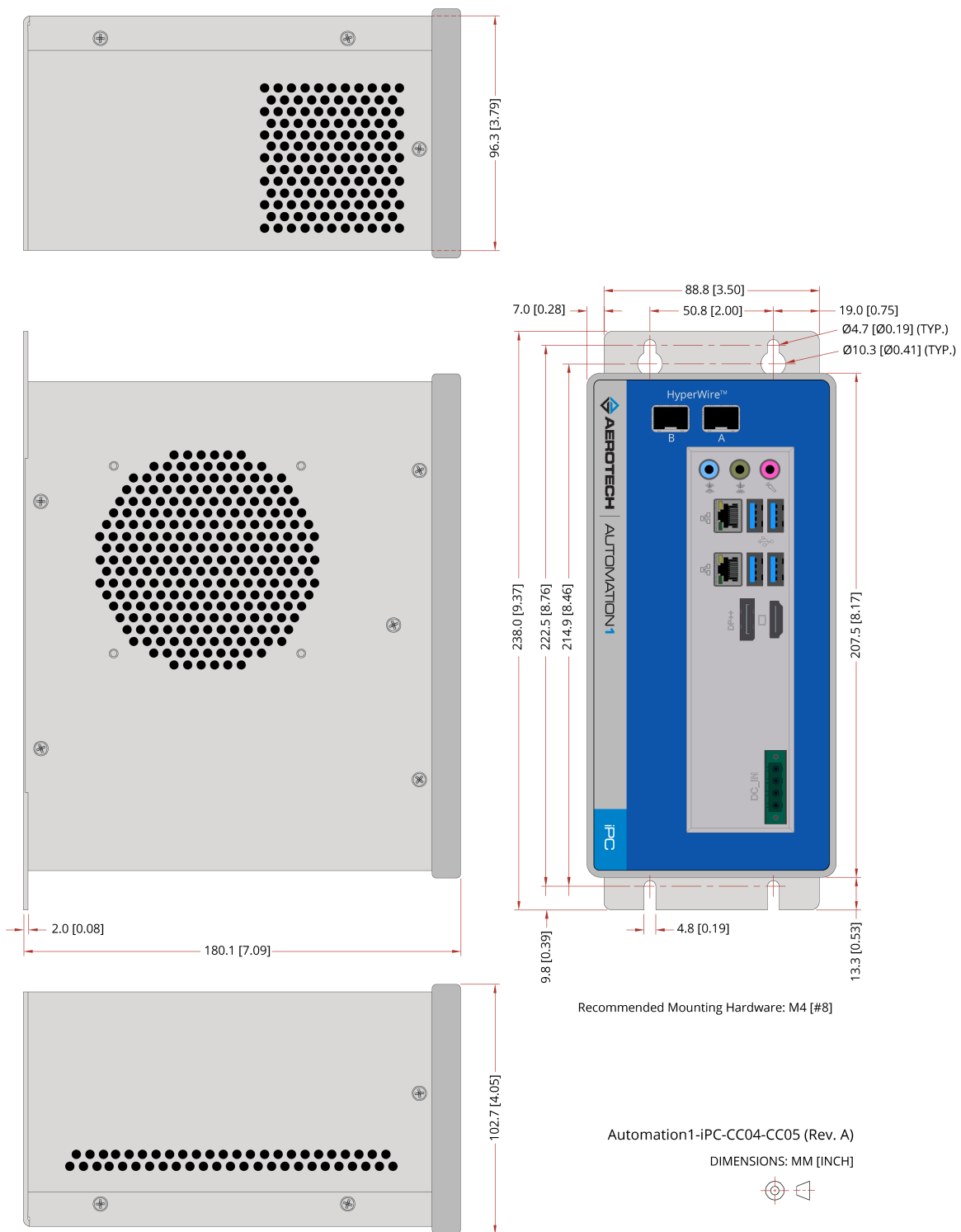


Figure 1-6: Control Cabinet Dimensions (-CC04/-CC05)

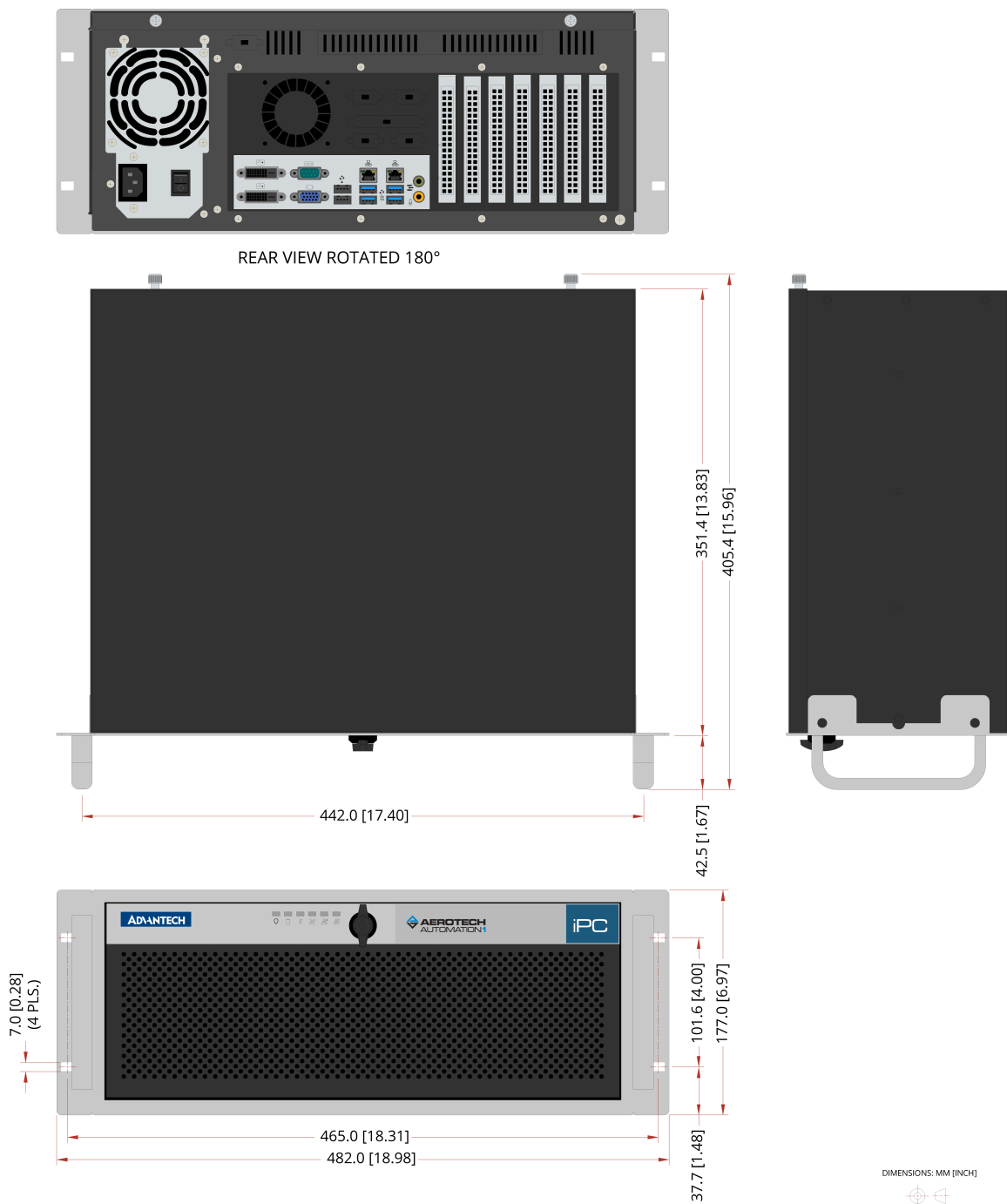
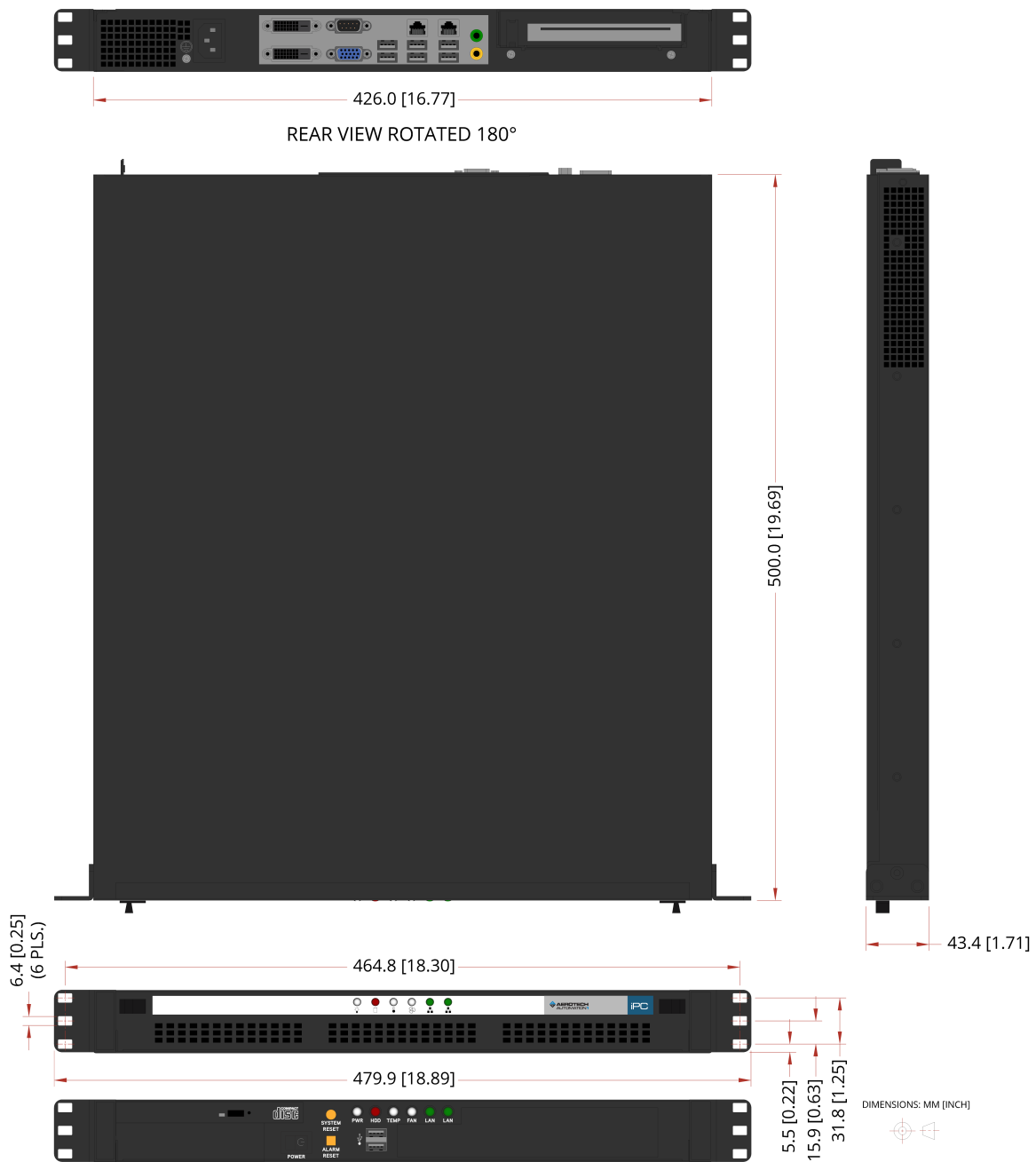


Figure 1-7: 4U Rack Mount Chassis Dimensions (-R402)





**Figure 1-8: 1U Rack Mount Chassis Dimensions (-R103)**

## 1.4. AC Power Setting

You can change the BIOS setting on the PC so that, in the event of a power failure, you will not need to access the PC to manually turn the PC back on. Use this item to select AC power state when power is re-applied after a power failure.

**Table 1-4: BIOS Settings**

PC Type	BIOS Category	Settings
-CC04 -CC05	State after G3	Power On
-R103	Restore AC Power Loss	S0 State
-R402	Restore AC Power Loss	S0 State
-DT01	Restore AC Power Loss	S0 State

## 1.5. DVI Monitor Configuration (-R103, -R402, -DT01 PC Options)

To let the Windows OS operate without a monitor connected, both the AIMB-785 motherboard and the standard Advantech-provided BIOS are configured to report to the Windows OS that a VGA monitor is always connected as the default primary display. If you connect a single DVI monitor to one of the rack mount (-R103 or -R402) or desktop (-DT01) computers, the BIOS will continue to report to Windows that the VGA monitor is also connected. You will need to update the Windows Display settings to get the system to correctly identify the DVI monitor. Either duplicate the Windows desktop to both monitors or identify and set the DVI monitor as the primary display.

## 1.6. Environmental Specifications

**Table 1-5: Environmental Specifications**

<b>Ambient Temperature</b>	Operating: 0° to 40°C
	Storage: -30° to 85°C
<b>Humidity Non-condensing</b>	The maximum relative humidity is 80% for temperatures that are less than 31°C and decreases linearly to 50% relative humidity at 40°C.
<b>Operating Altitude</b>	0 m to 2,000 m above sea level.
	If you must operate this product above 2,000 m or below sea level, contact Aerotech, Inc.
<b>Pollution</b>	Pollution Degree 2
	Typically only nonconductive pollution occurs.
<b>Operation</b>	Use only indoors

## 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](http://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

<http://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: Revision History

Revision	Description
1.02	Updated Section: Declaration of Conformity ( <a href="#">EU Declaration of Conformity</a> )
1.01	Updates: <ul style="list-style-type: none"><li>• The -R103 processor has been updated: <a href="#">Table 1-3</a></li></ul>
1.00	New Manual

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