ASEM 6300B Book Mount Box PCs and 6300T Book Mount Box Thin Clients

Catalog Numbers 6300B-BMA, 6300B-BMB, 6300B-BMF, 6300B-BMN, 6300B-DRA, 6300B-DRF, 6300B-DRN, 6300T-BA, 6300T-BB

AB QUALITY

Allen-Bradley

by **ROCKWELL AUTOMATION**

Important User Information

Read this document and the documents listed in the additional resources section about installation, configuration, and operation of this equipment before you install, configure, operate, or maintain this product. Users are required to familiarize themselves with installation and wiring instructions in addition to requirements of all applicable codes, laws, and standards.

Activities including installation, adjustments, putting into service, use, assembly, disassembly, and maintenance are required to be carried out by suitably trained personnel in accordance with applicable code of practice.

If this equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.

In no event will Rockwell Automation, Inc. be responsible or liable for indirect or consequential damages resulting from the use or application of this equipment.

The examples and diagrams in this manual are included solely for illustrative purposes. Because of the many variables and requirements associated with any particular installation, Rockwell Automation, Inc. cannot assume responsibility or liability for actual use based on the examples and diagrams.

No patent liability is assumed by Rockwell Automation, Inc. with respect to use of information, circuits, equipment, or software described in this manual.

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Throughout this manual, when necessary, we use notes to make you aware of safety considerations.

WARNING: Identifies information about practices or circumstances that can cause an explosion in a hazardous environment, which may lead to personal injury or death, property damage, or economic loss.

ATTENTION: Identifies information about practices or circumstances that can lead to personal injury or death, property damage, or economic loss. Attentions help you identify a hazard, avoid a hazard, and recognize the consequence.

IMPORTANT Identifies information that is critical for successful application and understanding of the product.

These labels may also be on or inside the equipment to provide specific precautions.

SHOCK HAZARD: Labels may be on or inside the equipment, for example, a drive or motor, to alert people that dangerous voltage may be present.

BURN HAZARD: Labels may be on or inside the equipment, for example, a drive or motor, to alert people that surfaces may reach dangerous temperatures.

ARC FLASH HAZARD: Labels may be on or inside the equipment, for example, a motor control center, to alert people to potential Arc Flash. Arc Flash will cause severe injury or death. Wear proper Personal Protective Equipment (PPE). Follow ALL Regulatory requirements for safe work practices and for Personal Protective Equipment (PPE).

The following icon may appear in the text of this document.

Identifies information that is useful and can help to make a process easier to do or easier to understand.

Table of Contents

About This Publication

This user manual is a guide for the following ASEM™ 6300B book mount box PC and ASEM 6300T book mount thin client catalog numbers:

💡 See the product label on the side of your product to locate its specific catalog number.

Table 1 – Catalog Number List

Catalog Number		Description	Front Panel Doors
6300B-	BMA	Box PC	None
	BMB		One or Two
	BMF		None
	BMN		
	DRA		
	DRF		
	DRN		
6300T-	BAB	Book mount box thin client	None
	BAD		
	BBB		
	BBD		

This user manual provides procedures to the following:

- Installation
- Operation
- Configuration of System Settings
- Configuration of BIOS Firmware
- Maintenance and Service
- Troubleshooting

The following catalog numbers are A general knowledge of automation technology is needed to understand and follow the instructions in this publication.

Knowledge of personal computers and Microsoft Windows® operating systems is required to understand and follow the instructions in this publication.

Download Associated Files

Download UEFI, BIOS firmware, operating system (OS), and access product release notes from the Product Compatibility and Download Center at rok.auto/pcdc.

Summary of Changes

This publication contains the following new or updated information. This list includes substantive updates only and is not intended to reflect all changes.

Topic	Page
Updated Approximate Dimensions section	10
Added information regarding ASEM 6300B Edge Box PCs intended for use with FactoryTalk Edge Manager	28

Terminology

Throughout this manual, the term "6300B box PC or 6300T thin client**"** is used to refer to the 6300B book mount box PC and 6300T book mount thin client catalog numbers listed in .

Acronyms

Throughout this manual various acronyms are used. See Table 2 to identify the full term and definition.

Table 2 - Acronyms

Acronym	Full Term	Definition
DIP	Dual in-line package	Arrangement of switches used to select the operating mode of a device
EMI	Electromagnetic Interference	Also known as radio frequency interference, unwanted noise, or interference in an electrical path or circuit that is caused by an outside source; EMI can cause electronics to operate poorly, malfunction or stop performing completely
ESD	Electrostatic Discharge	Release of static electricity when two objects come into contact
HID	Human Interface Device	Hardware that enables a user to interact with a computer or mobile device
HMI	Human Machine Interface	Software and hardware that allows human operators to monitor the state of a process under control, modify control settings to change the control objective, and manually override automatic control operations
LCD	Liquid-crystal display	A type of flat-panel screen
LED	Light-emitting diode	A semiconductor light source that emits light when current flows through it
OS	Operating System	Software that controls the operation of a PC and directs the processing of programs
PC	Personal Computer	General term for the 6300 industrial computer
PCAP	Projective Captive	(versus Resistive) type of touch screen
POST	Power on self test	Set of routines that are performed by firmware or software immediately after a panel PC is powered on, to determine if the hardware is working as expected
PXE	Pre-boot Execution Environment	A set of standards that enables a panel PC to load an operating system (OS) over a network connection
RTC	Real-time clock	A computer clock, usually in the form of an integrated circuit that is solely built for keeping time
SSD	Solid-state Drive	Computer data storage option that functions without any moving parts
UEFI	Unified Extensible Firmware Interface	An interface used for the OS to automatically load from the pre-boot operating environment to an OS that simplifies the boot process and saves time
UPS	Uninterruptible Power Supply	Electrical device that provides emergency power to a load when the input power source or mains power fails

Additional Resources

These documents contain additional information concerning related products from Rockwell Automation. You can view or download publications at rok.auto/literature.

Resource	Description
ASEM 6300B Book Mount Box PCs and 6300T Book Mount Thin Client Installation Instructions, publication 6300B-IN001	Provides basic installation guidelines and instructions for 6300B book mount box PCs and 6300T book mount thin clients.
ASEM 6300 Industrial Computer and Monitor Specifications Technical Data, publication IC-TD003	Provides technical specifications about all 6300 industrial PCs, thin clients, and monitors.
Wall-mount and DIN Rail Brackets for 6300B Box PCs and 6300T Thin Clients, publication 6300V-IN002.	Provides installation instructions to secure 6300V-BWALLA wall-mount brackets or 6300V-BDINA DIN rail bracket to a 6300B box PC or 6300T thin client.
FactoryTalk Edge Manager User Manual, publication 95055-UM007-EN-P	Provides instructions on operating the FactoryTalk Edge Manager, applicable to applicable to these catalog numbers with EVE-OS installed: • 6300B-BMBDNE-3DBAE01FNNBNN-NN1S • 6300B-BMBDNE-3DBAE01NNNBNN-NN1S • 6300B-BMBDNE-7EDAE01FNNDNN-NN1S • 6300B-BMBDNE-7EDAE01NNNDNN-NN1S
FactoryTalk Edge Manager Quick Start Guide, publication 95055-QS003-EN-P	Provides quick start instructions for FactoryTalk Edge Manager, applicable to these catalog numbers with EVE-OS installed: • 6300B-BMBDNE-3DBAE01FNNBNN-NN1S • 6300B-BMBDNE-3DBAE01NNNBNN-NN1S • 6300B-BMBDNE-7EDAE01FNNDNN-NN1S • 6300B-BMBDNE-7EDAE01NNNDNN-NN1S
Trusted Platform Module Overview, article 000007452	Provides information on Intel Trusted Platform Module (TPM).
ThinManager® User Guide, publication TM-UM001	Provides instructions to define sources, deploy content, configure devices, and user access between a server and thin clients.
Ethernet Reference Manual, ENET-RM002	Describes basic Ethernet concepts, infrastructure components, and infrastructure features.
System Security Design Guidelines Reference Manual, SECURE-RM001	Provides guidance on how to conduct security assessments, implement Rockwell Automation products in a secure system, harden the control system, manage user access, and dispose of equipment.
UL Standards Listing for Industrial Control Products, publication CMPNTS-SR002	Assists original equipment manufacturers (OEMs) with construction of panels, to help confirm that they conform to the requirements of Underwriters Laboratories.
American Standards, Configurations, and Ratings: Introduction to Motor Circuit Design, publication IC-AT001	Provides an overview of American motor circuit design that is based on methods that are outlined in the NEC.
Industrial Components Preventive Maintenance, Enclosures, and Contact Ratings Specifications, publication IC-TD002	Provides a quick reference tool for Allen-Bradley® industrial automation controls and assemblies.
Safety Guidelines for the Application, Installation, and Maintenance of Solid-state Control, publication SGI-1.1	Designed to harmonize with NEMA Standards Publication No. ICS 1.1-1987 and provides general guidelines for the application, installation, and maintenance of solid-state control in the form of individual devices or packaged assemblies incorporating solid-state components.
Industrial Automation Wiring and Grounding Guidelines, publication 1770-4.1	Provides general guidelines for installing a Rockwell Automation industrial system.
Product Certifications website, rok.auto/certifications.	Provides declarations of conformity, certificates, and other certification details.
EtherNet/IP™ Network Devices User Manual, ENET-UM006	Describes how to configure and use EtherNet/IP devices to communicate on the EtherNet/IP network.

Notes:

About

The ASEM™ 6300B book mount box PCs and ASEM 6300T book mount thin clients have a fanless design, which is optimal for applications that require low maintenance. The most compact PCs in this family (Cat. No. 6300B-B*) and box thin clients (Cat. No. 6300T-B*) feature Intel® (Apollo Lake) Atom™ processors. Slightly larger box PC models (Cat. No. 6300B-BMBx) feature Intel Core™ i-class processors for mid-size applications.

6300B-BMAx and 6300T-BAx1   6300B-BMBx

Features

The following features are available for 6300B-BMB:

- Various I/O ports to include: Ethernet LAN, USB 3.0 (Type A), USB 2.0 (Type A), RS-232 (DB9M), and DVI-D
- One CFast card slot
- Up to two PCIe/expansion slots
- Extractable SSD storage
- Fanless design for 24V DC SELV input power
- Available with Microsoft Windows 10 IoT Enterprise 2019 LTSC
- ThinManager® ready

The following features are available for all other 6300B box PCs and 6300T thin clients:

- Various I/O ports to include: two Ethernet LAN, two USB 3.0 (Type A), and a DisplayPort video output that supports up to 4K high resolution
- Fanless design for 24V DC SELV input power
- ThinManager ready
- For the 6300B box PCs only:
    - available with Microsoft Windows® 10 Internet of Things (IoT) Enterprise 2019 LTSC
    - SSD storage (no drives in 6300T thin clients)

Approximate Dimensions

Dimensions are shown in millimeters (inches). Dimensions are not intended to be used for manufacturing purposes.

Figure 1 - 6300B-BMA, 6300T-BAB, 6300B-DRA, and 6300T-BAD [mm (in.)]

6300B-BMA, 6300T-BAB

Front View (Vertical Upright)   Side View

4.50 (0.18)   39.40 (1.55)   8.00 (0.31)   1.50 (0.06)   100.00 (3.94)

4x Ø4.00 (0.16)

20.00 (0.79)

127.50 (5.02)   100.00 (3.94)

8.00 (0.31)

36.00 (1.42)   8.00 (0.31)   20.00 (0.79)

6300B-DRA, 6300T-BAD

Front View (Vertical Upright)   Side View

39.54 (1.56)   101.50 (4.00)

33.90 (1.33)

100.00 (3.94)   32.34 (1.27)   100.00 (3.94)

33.76 (1.33)

6.95 (0.27)   25.50 (1.00)   6.95 (0.27)   20.00 (0.79)
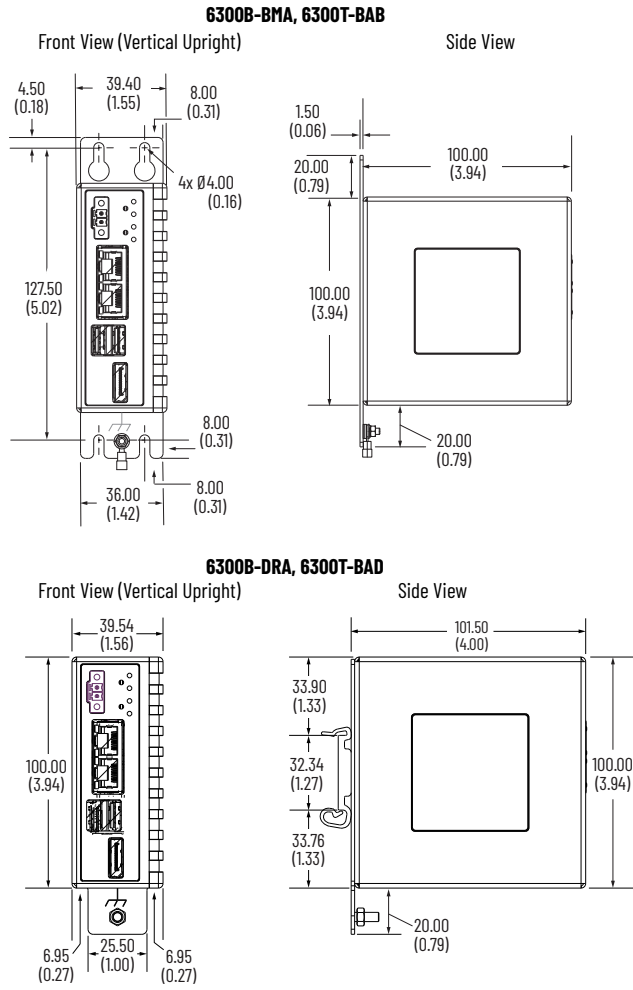
Figure 2 - 6300B-BMBE...J Box PC [mm (in.)]

6300B-BMBDNE*, 6300B-BMBDNF*, 6300B-BMBDNG*

Front View (Vertical Upright)   Side View

4.20
(0.17)   5.50
(0.22)

19.00
(0.75)

256.50
(10.10)

268.00
(10.55)   230.00
(9.06)

4.50   50.00   6.00
(0.18)   (1.97)   (0.24)

20.00   90.00   20.00   19.00
(0.79)   (3.54)   (0.79)   (0.75)

225.00
(8.86)

Top View

90.00
(3.54)
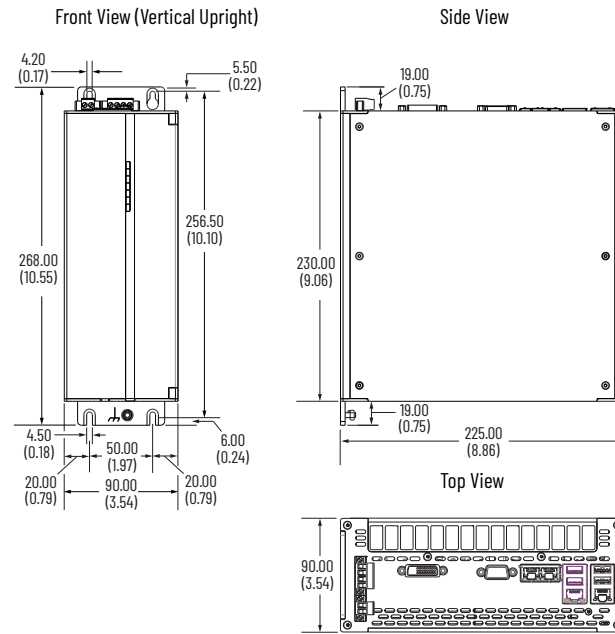
6300B-BMBDNH*, 6300B-BMBDNI*, and 6300B-BMBDNJ*

Front View (Vertical Upright)   Side View

5.50   4x Ø4.00   4x Ø 9.00
(0.22)   (0.16)   (0.35)

4.00
(0.16)

19.00
(0.75)

256.50
(10.10)

268.00
(10.55)   230.00
(9.06)

100.00   6.00
(3.94)   (0.24)

25.00   150.00   25.00   19.00
(0.98)   (5.91)   (0.98)   (0.75)

225.00
(8.86)

Top View

150.00
(5.91)
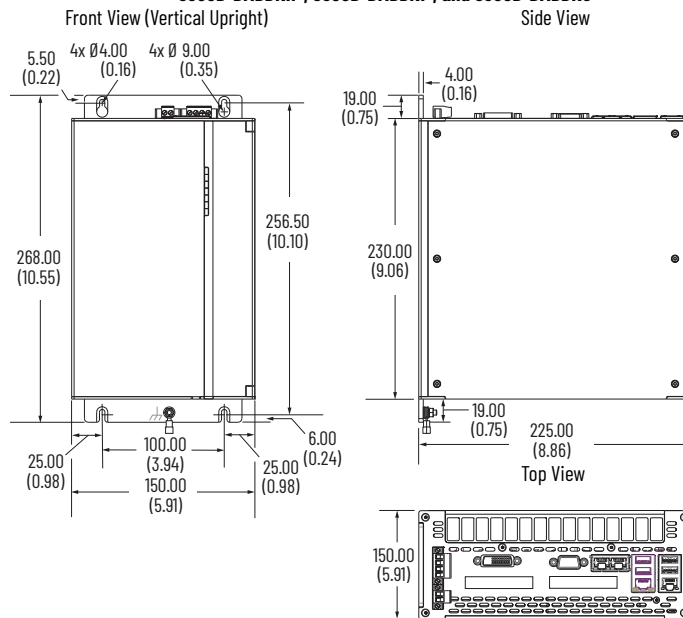
Figure 3 – 6300B-BMF, 6300B-BMN, and 6300T-BBB [mm (in.)]

6300B-BMF

Front View (Vertical Upright)   Side View

6300B-BMN, 6300T-BBB

Front View (Vertical Upright)   Side View
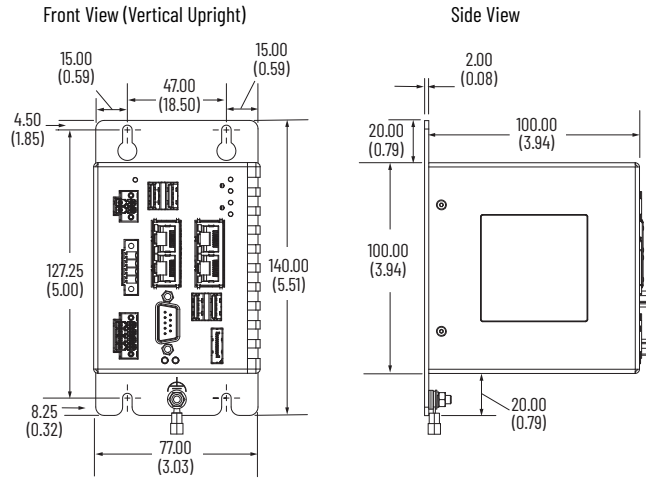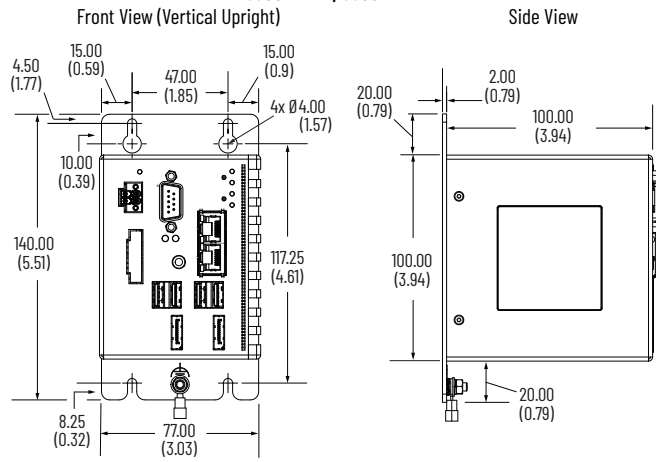
Figure 4 - 6300B-DRF, 6300B-DRN, and 6300T-BBD [mm (in.)]

6300B-DRF

Front View (Vertical Upright)   Side View

6300B-DRN, 6300T-BBD

Front View (Vertical Upright)   Side View
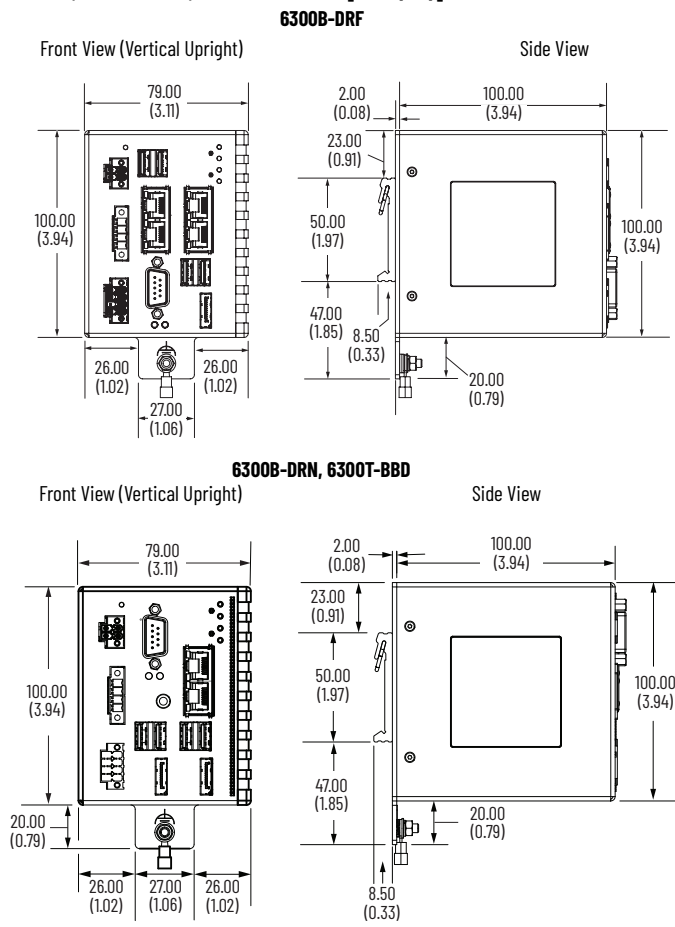
Peripheral Connections

The following figure shows the I/O ports for peripheral connections to 6300B box PCs and 6300T thin clients.

The I/O port and slot locations of your shipped product may vary from the drawings that are shown in Figure 5.

IMPORTANT	To comply with EN 61326-1, the following cable types must be shielded: Digital I/O, DisplayPort, DVI-D, Ethernet LAN, RS-232 DB9M, RVL, USB 2.0, and USB 3.0. All I/O cables must be used only indoors, and USB cables must be less than 3 m (9.84 ft) in length.

Figure 5 - I/O Port and Peripheral Slot Locations
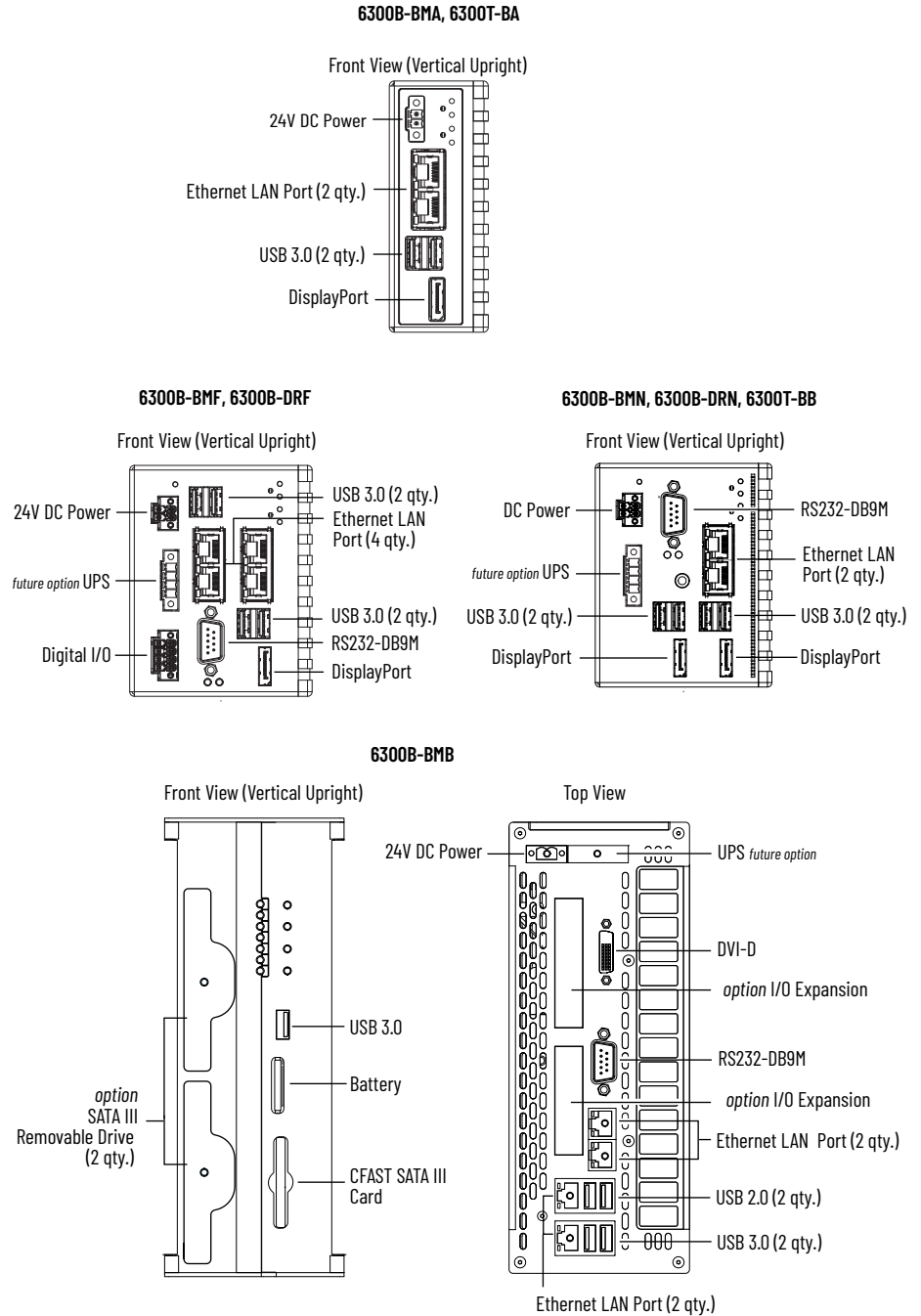
Installation

Follow these installation guidelines and procedures for your ASEM™ 6300B box PCs and ASEM 6300T thin client.

Unpack the Product

Before you unpack your product, inspect the shipping carton for damage. If damage is visible, immediately contact the shipper and request assistance. Otherwise, proceed with unpacking.

Keep the original packing material in case the product must be returned for repair or transported to another location.

Your ASEM 6300B book mount box PC or 6300B book mount box thin client ship with the following parts: factory-installed book mount bracket, DC power connector assembly kit, and installation instructions (publication 6300B-IN001).

Installation Precautions

Read and follow these precautions for you install the box PC or box thin client.

Environment and Enclosure Information

> ⚠️ **ATTENTION:** This equipment is intended for use in a Pollution Degree 2 industrial environment, in overvoltage Category II applications (as defined in IEC 60664-1), at altitudes up to 2000 m (6561 ft) without derating.
> This equipment is considered Group 1, Class A industrial equipment according to IEC/EN 61326-1. Without appropriate precautions, there can be potential difficulties with electromagnetic compatibility in other environments due to conducted as well as radiated disturbance.
> This equipment is considered open equipment, which means it must be mounted in an enclosure where the equipment can be operated from the front panel.
> The enclosure in which this equipment is installed must be accessed only with a key or tool, and only by trained and authorized personnel.
> In addition to this publication, see the following:
> Industrial Automation Wiring and Grounding Guidelines, publication 1770-4.1, for more installation requirements.
> UL 50, CSA C22.2 No. 94.1, and IEC 60529, as applicable, for explanations of the degrees of protection provided by enclosures

UL/cUL Mark Compliance

Equipment with the UL/cUL mark complies with the requirements of UL 61010-1, UL 61010-2-201, CSA C22.2 No. 61010-1, and CSA C22.2 No. 61010-2-201. A copy of the certificate of compliance is available at rok.auto/certifications.

European Union Directive Compliance

This computer meets the European Union Directive requirements when installed within the European Union or EEA regions and have the CE marking. A copy of the declaration of the conformity is available at rok.auto/certifications.

> ⚠️ **ATTENTION:** This equipment is intended to operate in an industrial or control room environment, which uses some form of power isolation from the public low-voltage mains. Obtain permission from the local power authority before you connect any computer configuration that draws more than 75 W of AC power directly from the public mains.
> All I/O cables must be used only indoors.

Connect peripheral cables to the appropriate I/O ports on the computer. To comply with EN 61326-1, see for the required cable types.

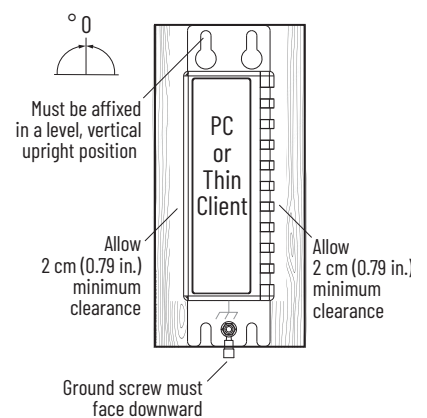# Prepare for Installation

Installation Guidelines

Follow these guidelines to make sure that your computer provides service with excellent reliability.

- When choosing the installation site, consider the following:
  - The site must have sufficient power
  - The site must be indoors
  - The site must not expose the computer to direct sunlight
- The computers can operate in a surrounding air temperature as follows:
  - 0...55 °C (32...131 °F) with the Intel Atom x5 processor
  - 0...50 °C (32...122 °F) with the Intel Atom x7 processor, and Intel Core i3 and i5 processors
  - 0...45 °C (32...113 °F) with Intel Core i7 processors [a]
  - The surrounding air temperature must not exceed the maximum temperature for your computer, especially when the computer is mounted in an enclosure.
  - For catalog number 6300B-BMBx: An active fan cooling is needed when you use expansion cards with total power consumption between 10...20 W, with 20 W as the maximum.
  - The computers can be stored in a surrounding air temperature range of -10...+60 °C (14...140 °F).
  - The humidity of the ambient air must not exceed 80% noncondensing.

Mounting Requirements

Follow these requirements to mount your box PC or thin client.

- Choose a suitable, ergonomic mounting height.
- Your PC must be mounted in a vertical, upright position with the ground screw facing downward.
- You must provide a minimum clearance of 2 cm (0.79 in.) around the perimeter of your box PC or thin client. This clearance accommodates for air circulation necessary for cooling.


0°

Must be affixed in a level, vertical upright position

PC or Thin Client

Allow 2 cm (0.79 in.) minimum clearance

Allow 2 cm (0.79 in.) minimum clearance

Ground screw must face downward

(a)   Temperature range without forced ventilation. With forced ventilation, 0...50 °C (0...122 °F).

DC Power Supply Guidelines

Follow these guidelines to select the DC power supply for the computer.

- The computer must be powered with a voltage of 24V DC (18...32V DC input voltage range).
- The nominal output power must be 25% larger than the drained power.
- The output voltage rise time has to be less than 100 ms.
- Consider the working temperature and the thermal derating of the power supply.
- The inrush current is represented in the following figure.
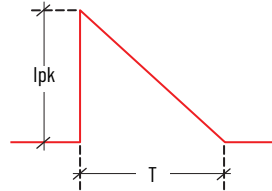
Symbol	Definition	6300B-BMAx, 6300T-BAx1	6300B-BMBx
Ipk	Peak current	10 A	<13 A
T	Pulse width time	400 μs	0.2 ms

Required Tools and Hardware

You need the following tools to install and connect your box PC or thin client.

For All Installations
• Drill and 4 mm drill bit • #2 Phillips screwdriver • Adjustable torque screwdriver with bits • M4x20 stainless steel screws (quantity of 4) • Safety glasses • Wire stripper/crimper/cutter tool • Various I/O shielded cables (see Peripheral Connections on page 14 for proper selection) • DC power supply (see DC Power Supply Guidelines on page 17 for proper selection)
For Optional Book Mount to DIN Rail Conversion
• Cat. No. 6300V-BDINA DIN rail kit
For Optional Book Mount to Wall Mount Conversion
• Cat. No. 6300V-BWALLA wall mount kit
For Maintenance Steps
• T6 TORX screwdriver

Mounting

Follow these instructions to mount your 6300B box PC or 6300T thin client.

> Select models feature optional PCIe slots, removable drive slots, and/or CFAST slot. Before attaching to a mounting surface, add peripherals to your box PC or thin client. See Figure 5 on page 14 for slot locations and Maintenance and Service on page 47 for guidance on installation of peripherals.

Use of Book Mount or Wall Mount Brackets

> **IMPORTANT** Before you proceed, be sure you have met the requirements specified in Prepare for Installation on page 16.

> For 6300 book mount box PCs: An optional book mount to wall mount conversion kit, catalog number 6300V-BWALLA, is available. Refer to the installation instructions, publication 6300V-IN002, shipped with your catalog number 6300V-BWALLA for guidance.

To mount your 6300B box PCs and 6300T thin client to a mounting surface, perform the following steps.

See [Prepare for Installation on page 16](#) and [Approximate Dimensions on page 10](#) for guidance on placement of your 6300B box PCs and 6300T thin client.

1. Place your 6300B box PC or 6300T thin client against the mounting surface with the ground screw facing downward.

2. Level, measure, then mark the top of the four keyhole slots of the book mount bracket.

3. Drill holes in your mounting surface to accommodate for the four M4x20 stainless steel screws (not supplied).

4. Partially tighten the four M4x20 stainless steel screws into the mounting surface, leaving a gap equivalent to the bracket thickness.

5. Align the keyhole slots on the top bracket with the top two screws.

6. Align the slots on the bottom bracket with the bottom two screws.

7. Slide your 6300B box PCs and 6300T thin client downward until all four M4x20 stainless steel screws are at the top of each bracket slot.

8. Fully tighten the four M4x20 stainless steel screws against the mounting surface.
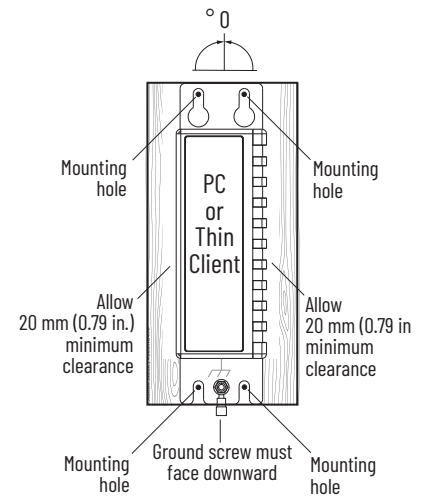
Use of a DIN Rail Bracket

For 6300B-DRF Box PCs

1. Plan your DIN rail installation according to the 6300B-DRF box PC approximate dimensions shown in [Figure 4 on page 13](#).

2. Install your box PC onto the installed DIN Rail according to the DIN rail installation instructions, publication [6300V-IN002](#),shipped with your catalog number 6300V-BDINA DIN rail kit.

Connect Peripheral Cables

IMPORTANT	To comply with EN 61326-1, the following cable types must be shielded: Digital I/O, DisplayPort, DVI-D, Ethernet LAN, RS-232 DB9M, RVL, USB 2.0, and USB 3.0. All I/O cables must be used only indoors, and USB cables must be less than 3 m (9.84 ft) in length.

1. Connect peripheral cables to the appropriate I/O ports on your 6300B box PCs and 6300T thin clients. For available connections, see [Peripheral Connections on page 14](#) for I/O port locations

Grounding and Bonding

Whenever two connected pieces of equipment are far apart, it is possible that their ground connections could be at a different potential level.

To overcome these possible spikes, the following bonding methods are recommended:

- Method 1: Connect the data cable shields to the equipotential bonding rail on both sides before you connect the cable to the interfaces.

- Method 2: Use an equipotential bonding cable (16 mm^2 or 6 AWG) to connect the grounds between this 6300B box PC or 6300T thin client and a connected monitor.

Connect DC Power

IMPORTANT	All DC powered models require a safety extra low voltage (SELV), where SELV is as defined in IEC-61010-2-201, power supply per UL. The power supply is internally protected against reverse polarity.

To minimize ground loop currents and noise, we recommend that DC powered models use only one grounded connection. See Install the Ground Wire for the ground connection on these models.

Install the Ground Wire

1. Turn off the main power switch or breaker.
2. Remove the supplied nut, eyelet terminal, and washers from the ground screw.
3. For earth ground, fasten a 2.5 mm^2 (14 AWG) or larger external wire to the eyelet terminal.
4. Use a ground wire with an insulation color approved by your local inspection authority.
5. Install the ground wire to the ground screw in the following sequence.

Sequence No.	Description
1	Toothed washer
2	Eyelet terminal
3	Washer
4	Lock washer
5	Nut

6. Tighten the nut to the ground screw.
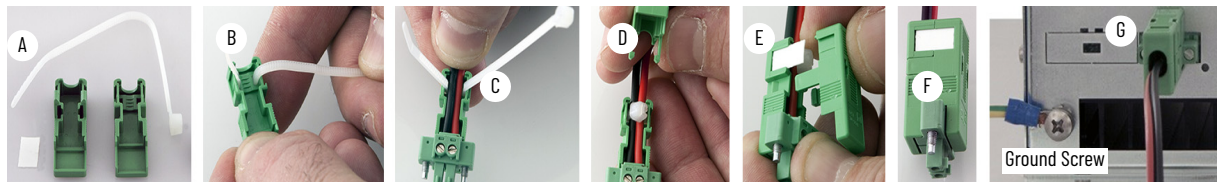
Attach the DC Power Connector Assembly

The factory-supplied DC power connector assembly provides strain relief for the DC power wires by reducing their movement. To assemble and attach the connector assembly, perform the following steps for your particular catalog number.

For 6300B-BMA, 6300B-BMB, 6300B-DRA, and 6300T-BA

Table 3 - DC Terminal Block Connection Specifications

6300B-BMA, 6300B-DRA, 6300T-BA   6300B-BMB

Note No.	Description	6300B-BMAx and 6300T-BAx1	6300B-BMBx
1	DC+ (24V DC nominal) recommended power wire size	1.5 mm^2 (16 AWG)	2.5 mm^2 (14 AWG)
2	DC- (0V DC) recommended power wire size	1.5 mm^2 (16 AWG)	2.5 mm^2 (14 AWG)
3	Stripped wire length	7 mm (0.275 in.)	7 mm (0.275 in.)
4	Torque range to secure DC power wires	0.22...0.25 N•m (0.16...0.18 ft•lb)	0.5...0.6 N•m (0.37...0.4 ft•lb)
5	Torque value to reinstall DC terminal block to chassis	0.3 N•m (0.22 ft•lb)	0.3 N•m (0.22 ft•lb)

Figure 6 - DC Power Connector Assembly Steps

1. Remove the DC terminal block from your product.
2. Open the power connector assembly kit (A of Figure 6) shipped with your product.
3. Insert the cable tie through the slots of the appropriate connector clamp (B of Figure 6).
4. Strip the end of each DC power wire to the length specified (Note No. 3, Table 3).

> **IMPORTANT**   DC power wires must be of stranded copper and sized according to Note No. 1 and Note No. 2, Table 3.

5. Insert each stripped end into the DC terminal block as shown in the graphic of Table 3.
6. Tighten the screws on top of the terminal block to secure the DC power wires to the torque value in Note No. 4, Table 3 on page 20.
7. Slide the connector half with the attached cable tie onto the end of the DC terminal block (C of Figure 6 on page 20).
8. Tighten the cable tie so it is snug against the terminal wires.
9. Use cutting pliers to cut the excess part of the cable tie (D on Figure 6 on page 20).
10. Install the white label supplied with the kit (E of Figure 6 on page 20).

> The white label can be used for identification or other information.

11. Align and install the other connector clamp half to complete the assembly
(F of Figure 6 on page 20).

> When installed correctly, both tabs of the clamp half lock into place.

12. Reconnect the DC terminal block with the connector assembly to the chassis
(G of Figure 6 on page 20).

13. Torque the DC terminal block flange screws to the values in
Note No. 5, Table 3 on page 20.

14. Turn on the main power switch or breaker.

> **ATTENTION:** When you connect power to the thin client or computer
> for the first time, these actions occur:
> • For all PCs: the default UEFI setting automatically starts the computer
>   after it is plugged into a power source.
> • For 6300B machine mount box PCs with a Microsoft Windows operating
>   system (OS): you must read and accept an End User Setup procedure.
>   Do not disconnect power from the system until after the Windows Setup
>   procedure is completed. If power is disconnected during this
>   procedure, it can result in a corrupted system image. If the system
>   image is corrupted, then follow the steps to
>   Restore the OS Image on page 31.

For 6300B-BMF, 6300B-BMN, 6300B-DRF, 6300B-DRN, and 6300T-BB

Table 4 - DC Power Connection Assembly
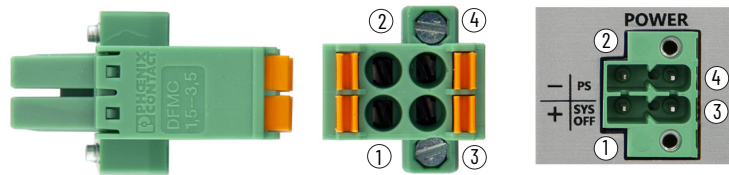
Note No.	Abbreviation	Function
1	+	+ Input voltage (fused)
2	−	- Input voltage
3	SYS OFF	System OFF input
4	PS	Power status output (0.5 A limited)

To assemble and attach the DC power connector assembly, perform the following steps.

1. Remove the DC terminal block from the chassis of your box PC.

2. Strip 10 mm (0.4 in.) from the end of four different-colored wires.

> **IMPORTANT**   Use stranded copper wire sized 1.5 mm^2 (16 AWG) and certified
> for at least 85 °C (185 °F) operation.

3. Press the spring connection tabs on the DC terminal block, and insert each stripped end
of wire according to Table 4 on page 21.

4. Release the spring connection tabs after the stripped end of each wire has been fully
inserted in the appropriate terminal connection.

5. Reconnect the DC terminal block to the chassis of your box PC or thin client.

6. Torque the DC terminal block flange screws to 0.3 N•m (0.22 lb•ft).

7. Proceed to Connect the I/O Cables and DC Power.

Connect the I/O Cables and DC Power

IMPORTANT	To comply with EN 61326-1, the following cable types must be shielded: Digital I/O, DisplayPort, DVI-D, LAN, RS-232 DB9M, USB 2.0, and USB 3.0. All I/O cables must be used only indoors, and USB cables must be less than 3 m (9.84 ft) in length.
	Whenever two connected pieces of equipment are far apart, it is possible that their ground connections could be at another potential level.
	To overcome these possible grounding problems, the following bonding methods are recommended:
	Method 1: Connect the data cable shields to the equipotential bonding rail on both sides before connecting the cable to the interfaces.
	Method 2: Use an equipotential bonding cable (16 mm^2 or #6 AWG) to connect the grounds between your 6300B box PC or 6300T thin client and a connected monitor.

IMPORTANT	All DC powered models require a safety extra low voltage (SELV) power supply. The internal power supply is protected against reverse polarity.
	To minimize ground loop currents and noise, we recommend that DC powered models use only one grounded connection. See Install the Ground Wire on page 19 for the ground connection on these models.
	Follow all guidelines as stated in DC Power Supply Guidelines on page 17.

1. Connect shielded I/O cables to your 6300B box PC or 6300T thin client.

   See Figure 5 on page 14 for I/O port locations of your particular model.

2. Connect the DC power to your 6300B box PC or 6300T thin client.

   Light-emitting diode (LED) status indicators illuminate on your 6300B box PC or 6300T thin client.

   > For a description of these LED status indicators, see LED Status Indicators and Buttons on page 23

Operation

Operating Guidelines

Follow these operating guidelines for your ASEM™ 6300B box PC or 6300T thin client.

- When mounted in an enclosure, keep the enclosure door closed during operation. This ensures dust and other airborne contamination do not infiltrate the components within the enclosure. Open the enclosure door only for routine maintenance.
- For book mount box PCs with a Microsoft Windows® operating system (OS), always use the proper power down procedures (such as the Shut Down command) as required.
- After you shut down your 6300B box PC or 6300T thin client, do not power on the computer again until shutdown is complete.

LED Status Indicators and Buttons

When your 6300B box PC or 6300T thin client is powered on, various light-emitting diode (LED) status indicators will illuminate and/or flash.

Table 5 - 6300B-BMB Box PC: Description of LED Status Indicators and Buttons
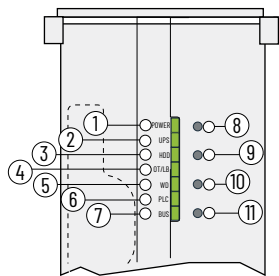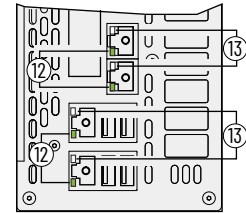
Note. No.	Description	LED Color	Status/Function
			Front View (Vertical Upright) — Top View
1	Power On	No Color	The box PC or thin client is powered off.
		Green	The box PC or thin client is powered on.
		Yellow	The box PC or thin client is safe to power off; the OS has been shut down successfully.
2	UPS (optional)	No Color	No UPS battery pack is installed.
		Green	The box PC or thin client is powered by an external 24V DC source.
		Yellow	The UPS battery pack is disconnected.
		Flashing Green	The external 24V DC source is lost, and the box PC or thin client is powered by the UPS.
3	Mass Storage	Yellow	When lit, access to a mass storage device (SSD or CFast) is happening through a SATA channel.
4	Thermal Alarm / Low Battery	Red	A thermal sensor on the motherboard near the CPU has exceeded the thermal limit of 85 °C (185 °F).
		Flashing Red	The real-time clock (RTC) battery is lower than 2.5V. Replace before the battery goes lower and risks loss of date and time.
5	Watchdog	Green	The watchdog is working.
		Red	The watchdog timer has expired.
6	PLC	—	Not applicable.
7	BUS		
8	Power On Button	—	Turns the box PC on or off.

Table 5 – 6300B-BMB Box PC: Description of LED Status Indicators and Buttons (Continued)

Note. No.	Description	LED Color	Status/Function
9	System Reset	–	Forces an internal reset, as if power was lost temporarily and then returned. **IMPORTANT:** Use system reset only if there are no better options, like keyboard or mouse commands. System reset can cause data loss and corruption to the OS.
10	Watchdog Reset	–	Turns off the watchdog LED (Item 5).
11	PLC Run / Stop / Reset	–	Not implemented.
12	Datalink	No Color	No Datalink is present.
		Green	Datalink is established.
		Flashing Green	Datalink is established and there is data transfer.
13	Data Speed	No Color	10 Mbps
		Green	100 Mbps
		Yellow	1000 Mbps (1 Gbps)

Table 6 – All Other 6300B Box PCs and 6300T Thin Clients: Description of LED Status Indicators and Buttons

Note. No.	Description	LED Color	Status/Function

Note. No.	Description	LED Color	Status/Function
1	Standby / Power On	No color	The box PC or thin client is powered off.
		Green	The box PC or thin client is powered on.
		Yellow	The box PC or thin client is safe to power off. For select models: The OS has been shut down successfully.
		Flashing Green	The box PC or thin client is in a low-power state; the current session information is being stored in RAM.
2	Mass Storage	Yellow	When lit, access to a mass storage device (SSD or CF) is happening through a SATA channel.
3	Warning	–	Not implemented.
4	Thermal Alarm/ Low Battery	Red	A thermal sensor on the motherboard near the CPU has exceeded the thermal limit of 85 °C (185 °F).
		Flashing Red	The clock battery power is below 2.5V; consider replacing. **IMPORTANT:** At 2V, data and time loss is possible.
5	Power / System Reset	–	For the main reset of the system. Press this button once to restart and reset the system state.
6	WDR	–	Not implemented.
7	Datalink	No color	No Datalink is present.
		Green	Datalink is established.
		Flashing Green	Datalink is established and there is data transfer.
8	Data Speed	No color	10 Mbps
		Green	100 Mbps
		Yellow	1000 Mbps (1 Gbps)

Manual Start

Follow these steps to manually start your 6300B box PC or 6300T thin client.

IMPORTANT	The following steps apply when your 6300B box PC or 6300T thin client must be started manually and DC power has been previously connected. See Connect DC Power on page 19 if power has never been connected.

1. Make sure that all necessary peripheral devices are connected to the corresponding I/O ports on your 6300B box PC or 6300T thin client.
2. Make sure any connected components with separate power supplies (such as an external display) are turned on first.
3. Press the system reset power button on the front panel.

   See Peripheral Connections on page 14 for button locations.

Restart (preferred method)

IMPORTANT	These system restart instructions are specifically for 6300B box PCs with the Microsoft Windows OS. For 6300T thin clients: A restart can be performed through ThinManager® software on the server. See the ThinManager User Guide, publication TM-UM001.

IMPORTANT	A system restart is always the preferred method over a system reset, as a system reset can cause data loss and possible corruption to the Microsoft Windows OS.

An external display, keyboard, and mouse are required to perform these steps.

1. Choose one of the following two methods to restart:
   - Method 1: From the Start menu, click 'Power', then click 'Restart' **or**
   - Method 2: Press Ctrl+Alt+Delete, then click 'Restart'.

   Once the restart initiates, your 6300B machine mount box PC will:

   a. clear the RAM,
   b. start the POST,
   c. initialize peripheral devices, then
   d. load the Microsoft Windows OS.

System Reset

For 6300B Box PC

IMPORTANT	These system restart instructions are specifically for 6300B box PCs with the Microsoft Windows OS.

IMPORTANT	Performing a system reset can cause data loss and possible corruption to the Microsoft Windows OS. Only perform a system reset of your 6300B machine mount box PC if: (1) there is no other means to restart (such as an unresponsive keyboard and mouse command) or (2) power has been temporarily interrupted and remains unresponsive when power returns.

1. Press the system reset button on your 6300B box PC.
   See [Peripheral Connections on page 14](#) for the location of the button.
2. Monitor the following activities on your external display after the reset:
   a. RAM clears,
   b. POST initiates,
   c. peripheral devices (such as printers or drives) initialize, and
   d. the operating system loads.

For 6300T Thin Client PC

1. See the ThinManager User Guide, publication [TM-UM001](#), for system reset instructions.

Shut Down

For 6300B Book Mount Box PCs

IMPORTANT	The instructions in this section are only for 6300B box PCs with a Windows OS.

An external display, keyboard, and mouse are required to perform these steps.

1. Choose one of the following two methods to shut down your 6300B box PC:
   - Method 1: From the Start menu, click or choose Shut Down **or**
   - Method 2: Press Ctrl+Alt+Delete, and then click or choose Shut Down.

For 6300T Thin Client PCs

1. See the ThinManager User Guide, publication [TM-UM001](#), for shut down instructions.

Configuration of System Settings

An external display, keyboard, mouse, and USB drive (16 GB minimum) are required to perform the steps in this chapter.

IMPORTANT	Do not insert your USB drive until instructed to do so.

Use the Setup Utility

About the Setup Utility

Your 6300B box PC or 6300T thin client features a setup utility. This setup utility is a hardware configuration program that is built into the unified extensible firmware interface (UEFI) and accessible through the power on self test (POST). The setup utility lets you change the system configuration to include the following modifications:

Table 7 - Modifications Through the Setup Utility

Pull-down Menu	Modification
Main (default menu)	change the system date and time as part of a commissioning step [1] [2]
	view the UEFI version (within System Information) and system memory [3]
Advanced	redefine communication ports to help prevent conflicts and modify network configuration when a LAN with a pre-boot execution environment (PXE) is needed
Chipset	review the chipset of the motherboard on your box PC
Security	add/change passwords or modify security settings when system security is required
Boot	change the boot device order to prioritize storage devices
Save and Exit	save and exit the setup utility

(1) A commissioning step occurs when: (a) your box PC is initially powered on, (b) a Windows OS image is restored (6300B book mount box PC only), or (c) the UEFI is upgraded.
(2) You can also modify this setting in the Windows OS through Control Panel > Date and Time.
(3) You can also view this setting in the Windows OS. Type "info" in the Search field of the Windows task bar, then click "System Information".

View and Modify Settings

The setup utility is accessible through the POST (power on self test). Follow these steps to access and modify options within the setup utility:

1. Manually start or restart your box PC. See or .

   The POST initiates.

2. Press 'F2' to access the setup utility from the POST.

   To temporarily change the boot order, press F10 to directly access the Boot menu.

3. Use the numeric keypad on your connected keyboard to modify the setup utility. See Table 7 to navigate to the applicable menu.

Back Up/Restore OS Image

The following catalog numbers are ASEM™ 6300B Edge Box PCs intended for use with FactoryTalk® Edge™ Manager:

- 6300B-BMBDNE-3DBAE01FNNBNN-NN1S
- 6300B-BMBDNE-7EDAE01FNNDNN-NN1S
- 6300B-BMBDNE-3DBAE01NNNBNN-NN1S
- 6300B-BMBDNE-7EDAE01NNNDNN-NN1S

These catalog numbers have a unique Edge Virtualization Engine operating system (EVE-OS) orchestrated from FactoryTalk Edge Manager.

If you have sent the product to be returned or repaired, the device software and data has been erased and the EVE-OS has been reinstalled.

For more information on FactoryTalk Edge Manager, see publication 95055-UM007-EN-P and publication 95055-QS003-EN-P.

Installation Steps

Before you can back up or restore the Windows® OS image, you must perform the following steps:

- Step 1: Download the Accessory Files
- Step 2: Install the USB Drive Utility
- Step 3: Create a Bootable USB drive

Step 1 — Download the Accessory Files

You must be registered with the Rockwell Automation PCDC website and accept the User Agreement before you can download files.

1. Navigate to rok.auto/pcdc.
2. Click 'Drivers and Firmware' from Downloads section at the far left of the website.
3. Type "6300B-B" in the search field.
4. Follow the instructions on the PCDC site to find your accessory files.
5. Select and download the accessory files with an ISO and BAT file extension.

IMPORTANT   Do not change the file name of the downloaded batch (BAT) file.

Step 2 — Install a USB Drive Utility

Rufus, a commonly used, no-cost USB drive utility, is referenced in the upcoming sections of this chapter. Download Rufus from https://rufus.ie/en/.

Other utilities can offer slightly different methods to create a bootable USB drive. In those cases, follow their instructions.

6. Install a USB drive utility of your choice to your box PC.
7. Follow the USB drive utility manufacturer's on-screen instructions for proper installation.

Step 3 — Create a Bootable USB Drive

8. Connect your USB drive (16 GB minimum) to back or front of your box PC.
   See Peripheral Connections on page 14 for USB port locations.

The following steps apply only to the Rufus USB Drive Utility. The steps for other drive utilities may be different. Pull-down selections are still applicable.

9. Launch the Rufus USB drive utility. A popup screen appears.
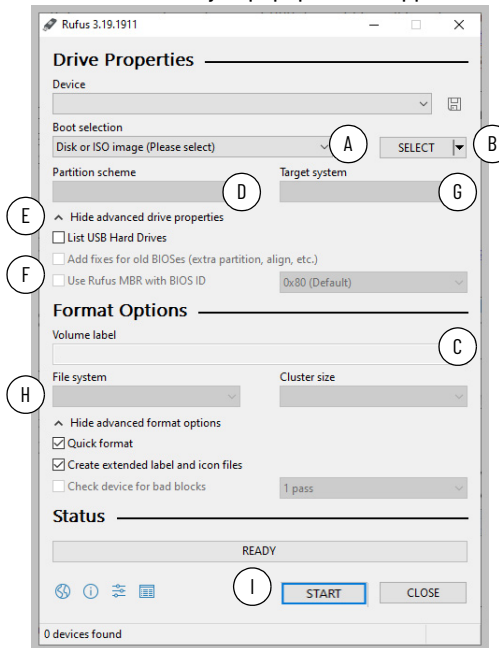
10. Select 'Disk or ISO image (please select)' from the Boot selection pull-down menu [A].

11. Click the 'SELECT' button [B]. Your File Explorer window appears.

12. Select the ISO file downloaded from the Rockwell Automation PCDC site in Step 1 — Download the Accessory Files on page 28.
    The ISO file name with ISO file extension appears in the Boot selection field and the ISO file name appears in the Volume label field.

13. *(Optional step)* Change the volume label in the Volume label field [C].

14. Select 'MBR' from the Partition scheme pull-down menu [D].

15. Click the ^ arrow below the Partition scheme field [E].

16. Check the box 'Use Rufus MBR with BIOS ID' [F].

17. Select 'BIOS (or UEFI-CSM)' from the 'Target system' pull-down menu [G].

18. Select 'NTFS' from the File system pull-down menu [H].

19. Click the 'START' button [I].

20. Click the 'OK' button when the warning popup window appears.

21. Monitor the boot progress in the status portion of the dialog box.

22. Click the 'CLOSE' button when the boot process is completed.

Back Up the OS Image

IMPORTANT	Before proceeding, you must complete on page 28.

To back up the OS image on your 6300B box PC:

1. Copy the BackupImage.bat file on your computer desktop to the bootable USB drive.

2. Restart your 6300B box PC.
    See Restart (preferred method) on page 25 for proper instruction.

3. During POST, press 'F10' to access the Boot menu.

4. Use the down arrow to toggle down and select the bootable USB drive that you created, then press 'Enter'.

The Microsoft Windows Protective Environment (WinPE) then boots from the USB drive.

5. Navigate to the directory where the BAT file is located.

    For example, type "D:" and press Enter if you know that the BAT file is on the D drive.

6. Type "BackupImage.bat" and press 'Enter'.

    The following batch file script appears:
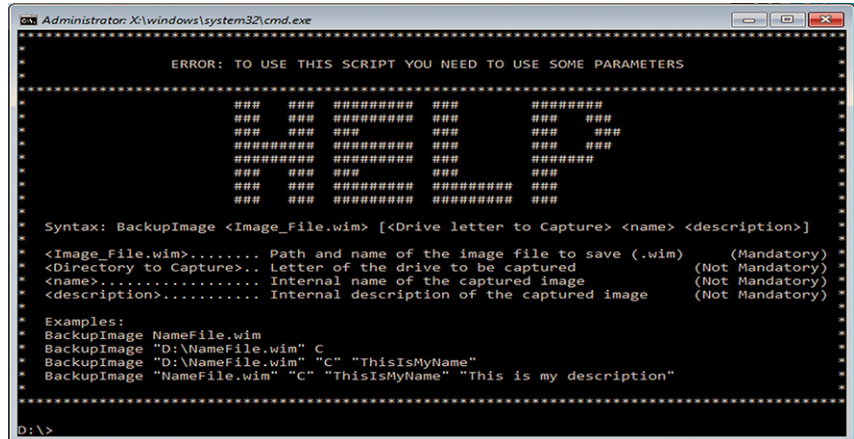
7. Once in the directory, type "BackupImage NameFile.wim", where NameFile is the name of the file that you wish to back up.

IMPORTANT	The image file name cannot have any space characters; use underscore characters instead.

8. Press 'Enter'.

    A confirmation screen appears.
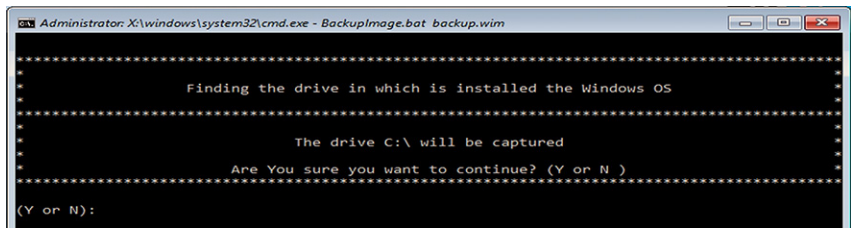
9. Type "Y" to confirm that the targeted drive is correct, then press 'Enter'.

    > The size of the image that is captured on the WIM file affects how long the back-up process takes.

    The following script appears after the back-up process is completed.
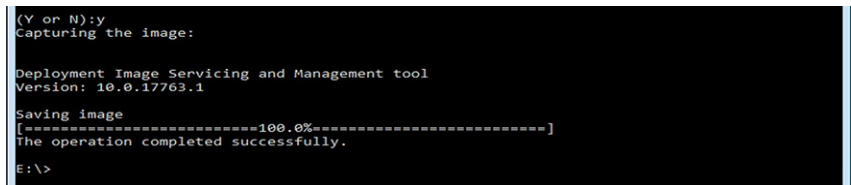
10. Perform one of the following activities:
    - type "exit", then press the 'Enter' key to restart or
    - type "wpeutil shutdown", then press 'Enter' to shut down.

    The OS image has been backed up successfully to the bootable USB drive.

Restore the OS Image

IMPORTANT	When you restore the OS image, all files on the storage drive are erased.

IMPORTANT	Before proceeding, you must complete .

To restore the OS image on your 6300B box PC:

1. Copy the WIM and BAT files on your computer desktop to the bootable USB drive.
2. Restart your 6300B box PC.
3. During POST, press the F10 key to access the Boot menu.
4. Use the down arrow to toggle down and select the bootable USB drive that you created, and then press Enter.

The Microsoft Windows Protective Environment (WinPE) then boots from the USB drive.

5. Navigate to the directory where the BAT file is located.

    For example, type "D:"and press Enter if you know that the BAT file is on the D drive.

6. Once in the directory, type "RestoreImageUEFI.bat NameFile.wim" where "NameFile" is the name of the file that you wish to restore.

IMPORTANT	The image file name cannot have any space characters; use underscore characters instead.

The screen capture below is merely an example of a possible file name illustrating correct character structure.

7. Press 'Enter'.

    A confirmation screen appears.

The device name and capacity can differ from what is shown in the example.

8. Press "Y" to confirm that the targeted drive is correct, then press 'Enter'.

    The following script appears after the restoration process is completed.

9. Perform one of the following activities:
    - Type "exit", then press 'Enter' to restart your 6300B box PC or
    - Type "wpeutil shutdown", then press 'Enter' to shut down your 6300B box PC.

    The OS image has been restored successfully to your computer storage drive.

Update the UEFI

To enhance the performance or correct an anomaly of your box PC or thin client, we may provide an updated UEFI within the Rockwell Automation® Product Compatibility and Download Center (PCDC) at rock.auto/pcdc.

IMPORTANT	To update the UEFI, you must format your USB drive to FAT32.

Step 1 — Verify FAT32 File Format of the USB Drive

Perform the following steps to verify that your USB drive is formatted as FAT32.

1. Connect your USB drive to your 6300B box PC or 6300T thin client.
2. Launch File Explorer.
3. Right-click on the USB drive icon.
4. Select 'Properties'.
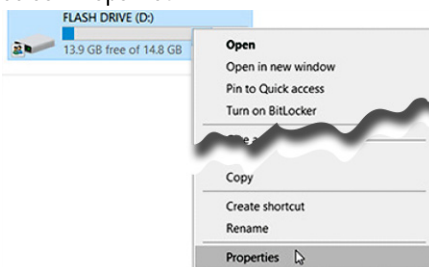
5. Verify that the file system is FAT32.
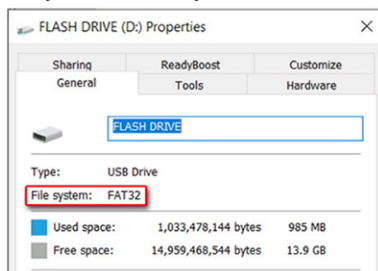
6. Click the 'Cancel' button to exit 'Properties'.
7. If the format of the USB drive:
   - is 'FAT32': proceed to Step 2 — Download the Updated UEFI on page 33.
   - is not 'FAT32': proceed to Format the USB Drive to FAT32.

Format the USB Drive to FAT32

For 6300B Box PCs with Windows OS:

1. Connect the USB drive to your 6300B box PC.
2. Launch File Explorer via the Windows Start icon.
3. Click the USB drive icon.
4. Save or move any necessary files to another storage location.

IMPORTANT	All existing files on the USB drive will be permanently erased once the USB drive is formatted as FAT32.

5. Right-click on the USB drive icon.
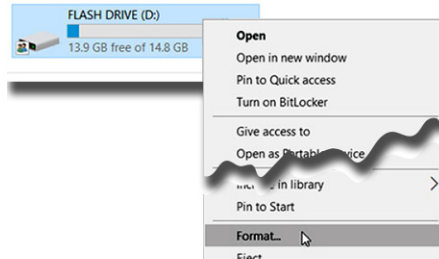
6. Select 'Format'.
7. Select 'FAT32' from the File System pull-down menu.
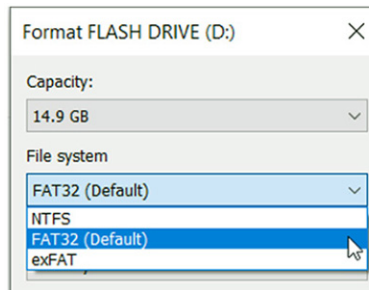
8. Click the 'Start' button to format the drive to FAT32'.
A confirmation box appears after formatting is completed.
9. Click the 'OK' button.
The USB drive file format to FAT32 is complete.

For 6300T Thin Clients:
1. Connect the USB drive to your 6300T thin client.
2. Format the USB drive to FAT32 through your installed OS.

Step 2 — Download the Updated UEFI

You must be registered with the Rockwell Automation PCDC website and accept the User Agreement before you can download files.

For 6300B which includes the wall-mount systems: Steps required are outside of the scope of this publication.

To download the updated UEFI, perform the following steps.
1. Navigate to the Rockwell Automation® Product Compatibility and Download Center (PCDC) at rock.auto/pcdc.
2. Click 'Downloads By Product" from Downloads area.
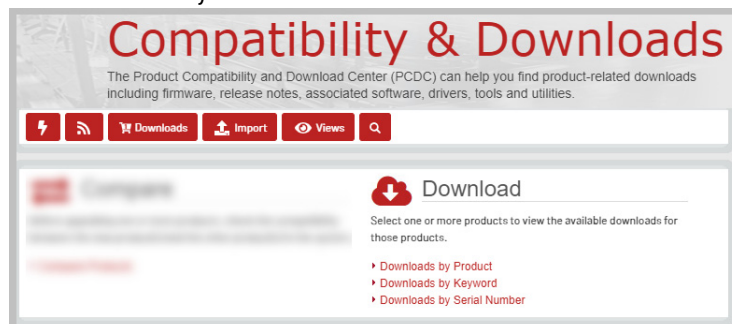
3. Type "6300B" or "6300T" in the search field.
4. Select your product number.

5. Select the downloads that pertain to the system they're trying to service based on catalog number structure.
6. Click the 'Downloads' button.
7. Click the 'Select Files' button.
8. Select the UEFI from the BIOS section of the popup window.
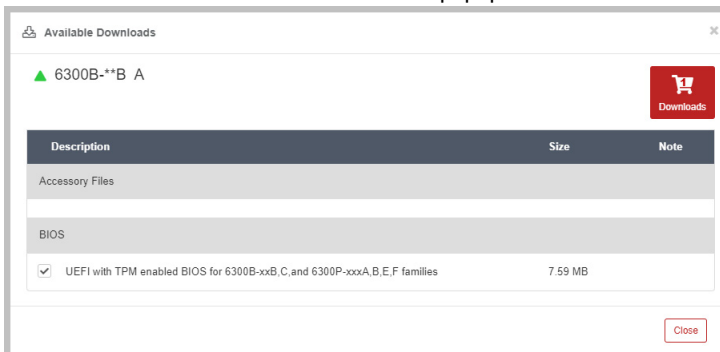
9. Click the 'Download Cart' icon.
10. Click the 'Download Now' button.
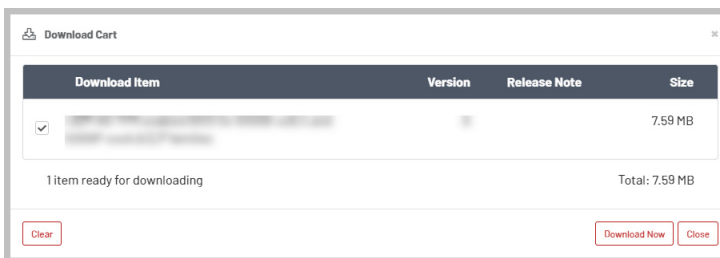
11. For 6300B-BMA and 6300T-B Only:
    Move these downloaded UEFI files to your FAT32-formatted USB drive:
    - ShellFlash64.efi
    - UEFI upgrade (.cap)

Step 3 — Update the UEFI

> ⚠️ **WARNING:** Your box PC can become inoperable if it is disconnected from the power source or restarted during this update.

> **IMPORTANT** | **Before updating the UEFI:**
> Some 6300B box PC and 6300T thin clients may or may not have TPM (Trusted Platform Module) system functionality as this is dependent on the point of sale (for example, non-TPM systems are only approved for sale in China).
> For systems with TPM enabled:
> • Proceed to flash the TPM UEFI BIOS.
> For systems with TPM disabled:
> • You may only flash the No-TPM UEFI.
> • If a TPM system flashes the No-TPM UEFI the TPM is permanently disabled.

For 6300B-BMB Box PC Only

> **IMPORTANT** | The steps below are for normal updates to the UEFI. For updates to SecureBoot/ThinManager, extra steps are necessary to update the UEFI.

1. Verify that all of the UEFI files have been downloaded to your USB drive: Shell.efi, AfuEfix64.efi, and UEFI upgrade (.bin)

2. Properly restart your 6300B box PC or 6300T thin client.
   See Restart (preferred method) on page 25.
   The POST begins.

3. Press the F2 key to access the setup utility.

4. Toggle over to the Advanced menu.

5. Toggle down to select 'PCI-FW Configuration'.

6. Press the Enter key.

7. Toggle down to select 'Firmware Update Configuration'.
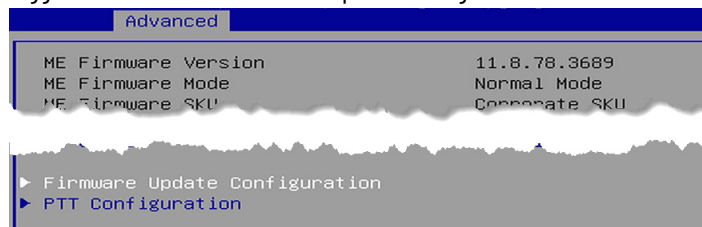
8. Press the Enter key.

9. Enable 'Me FW Image Re-Flash'.

> This option is valid after the next restart and automatically resets with the following restart.

10. Press the Enter key.

11. Select 'Yes'. then press the Enter key.

12. Press F10 to save and exit the setup utility.

    The POST begins.

13. Press F2 to enter the setup utility.

14. Toggle to the Save and Exit menu.

15. Toggle down and select 'Launch EFI Shell from filesystem device'.
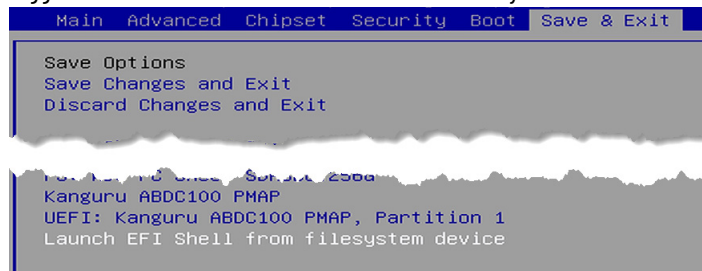
16. Press the Enter key.

    The initial UEFI shell screen appears.
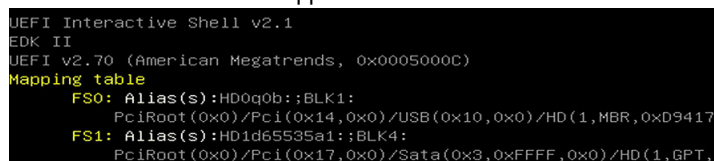
17. Type "FSx:" where "x" is the number that is shown for your mapped USB drive.

> 💡 To verify you moved to the USB drive, type 'dir' to confirm that the downloaded files are there.

18. Press the Enter key,

19. To update the UEFI, type "AfuEfix64.efi "NAME_OF_THE_BIN_FILE.bin" /x /me /p /b /n".

20. Press the Enter key then wait for the flash process to complete.

21. Press the "Ctrl+Att+Delete" keys to restart your 6300B box PC or 6300T thin client. See .

> 💡 In some instances, a restart can occur more than once before the POST begins.

The POST begins.

22. Press F2 to enter the setup utility.

23. Toggle to the Save and Exit menu.

24. Press F9 to select Optimized Defaults.
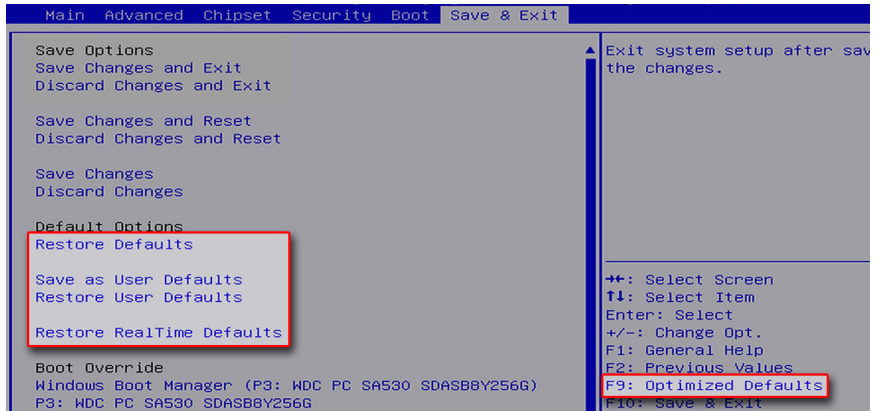
UEFI Setting	Function
Restore Defaults	Restores the default values for all setup options
Save as User Defaults	Saves the changes that are already selected as user defaults
Restore User Defaults	Restores the user defaults to all setup options
Restore RealTime Defaults	Restores the real-time default settings

25. Press the F10 key to save and exit.

The UEFI has been updated.

For All Other 6300B Box PC and 6300T Thin Clients

To update the UEFI on your 6300B box PC or 6300T thin client, perform the following steps.

1. Verify that all of the UEFI files have been downloaded to your USB drive: ShellFlash64.efi and UEFI upgrade (.cap)

2. Properly restart your 6300B box PC or 6300T thin client. See . The POST begins.

3. Press 'F10' to enter the Boot menu.

4. Select 'Internal Shell' in the Boot menu.

The internal UEFI shell appears.

5. Type "FSx"where 'x' is the number that is shown for your mapped USB drive.

6. Press the 'Enter' key.

> Use the command 'dir' to confirm that the downloaded UEFI files have moved to your USB drive.

7. Type 'ShellFlash64.efi /file [FILE NAME].cap /force'.

8. Press the 'Enter' key to flash the UEFI.
   The UEFI update procedure automatically initiates and your 6300B box PC or 6300T thin client automatically restarts.

Restore Factory Defaults Through a DIP Switch

> The setup utility is not accessible if you forget the password or if a critical step was erroneously changed. If you cannot access the setup utility, the DIP switch must be reset to the UEFI factory default.

To access and reset the DIP switch, perform the following steps.

> You will be removing and reinstalling the cover from your 6300B box PC or 6300T thin client several times in the upcoming steps.
> See Remove/Reinstall the Cover on page 49.

For 6300B-BMB Box PCs

To access and reset the DIP switch, perform the following steps.

1. Properly shut down your 6300B-BMB box PC. See Shut Down on page 26.
2. Remove the cover from your 6300B-BMB box PC.
3. Locate the DIP switch bank SW4.
4. Move switch 3 of bank SW4 to the on (factory reset) position.
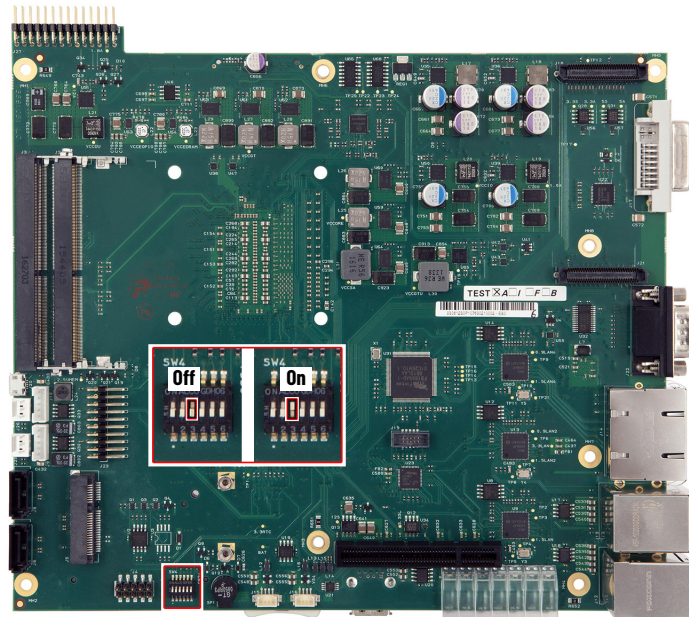
5. Reinstall the cover.
6. Manually start your 6300B-BMB box PC. See Manual Start on page 25.

A warning appears (instead of POST).

The blue 'Warning!' box disappears after you click 'Ok', but the 'Warning: SW4-3 = ON' message remains until you shut down your 6300B box PC.
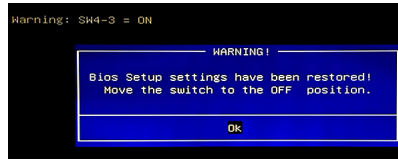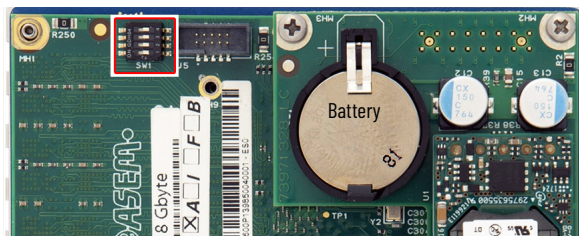

7.   Press the Enter key.

8.   Properly shut down your 6300B box PC. See Shut Down on page 26.

9.   Remove the cover from your 6300B box PC.

10. Move switch 3 of bank SW4 to the off position.

11. Reinstall the cover.

12. Manually start your 6300B box PC. See Manual Start on page 25.
     The POST initiates.

13. During the POST, press the F2 key to enter the UEFI set-up utility.

14. Toggle over to the Save and Exit menu.

15. Toggle down or press the F9 key to select 'Optimized Defaults'.
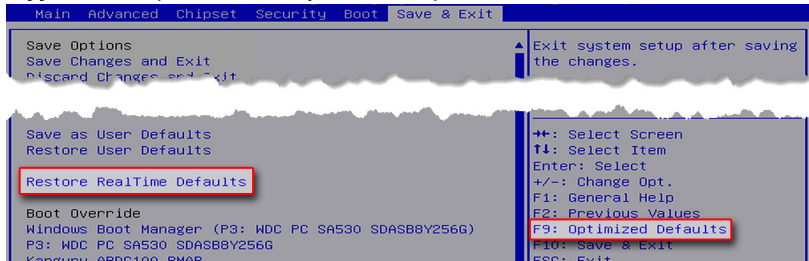
16. Press the F10 key to save and exit.

For All Other 6300B Box PCs and 6300T Thin Clients

1.   Properly shut down your 6300B box PC or 6300T thin client. See Shut Down on page 26.

2.   Remove the cover from your 6300B box PC or 6300T thin client.

3.   Locate the DIP switch bank SW1.

4.   Move switch 3 of bank SW1 to on (factory reset).
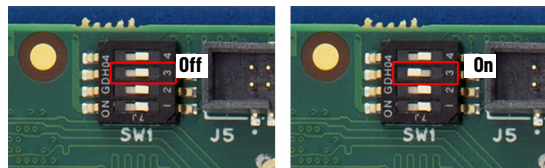
5.   Reinstall the cover.

6.   Manually start your 6300B box PC or 6300T thin client. See Manual Start on page 25.
     The POST initiates.

7.   During the POST, press the F2 key to access the UEFI set-up utility.

8. Shut down your 6300B box PC or 6300T thin client. See Shut Down on page 26.
9. Remove the cover.
10. Move switch 3 of bank SW1 to the off position.
11. Reinstall the cover.
12. Manually start your 6300B box PC or 6300T thin client. See Manual Start on page 25.
    The POST initiates.
13. During POST, press the F2 key to enter the UEFI setup utility.
14. Use the right (6) arrow to toggle over to the Save and Exit tab.

Load System Defaults

If your 6300B box PC or 6300T thin client fails to initiate or an error occurs after changes were made in the setup menus, optimized defaults must be loaded to correct the error. 'Optimized Defaults' are system default settings to optimize computer performance.

Follow these steps to load the system defaults.

1. Properly restart your 6300B box PC or 6300T thin client.
   See Restart (preferred method) on page 25.
   The POST begins.
2. During POST, press the F2 key to access the UEFI setup utility.
   The Main menu appears.
3. Toggle to 'Exit'.
4. Toggle to 'Load Optimized Defaults'.
5. Press the Enter key to select 'Load Optimized Defaults'.
6. Press the F10 key to save your changes and exit.
   The change resets the system automatically.

Notes:

Configuration of BIOS Firmware

This section provides instruction on changing your Secure Boot Default Settings in the AMI (Aptio®) or Phoenix® SecureCore™ BIOS.

An external display, keyboard, mouse, and USB drive (16 GB minimum) are required to perform the steps in this chapter.

About Secure Boot

Secure Boot is a security feature that is implemented into the universal extensible firmware interface (UEFI) basic input/output system (BIOS). This security feature verifies the integrity of the operating system (OS) and helps prevent unauthorized programs (such as boot kits) from infecting your machine mount box PC.

Secure Boot uses a public key infrastructure to make sure that your machine mount box PC boots using only software that is trusted by the manufacturer. In addition, with Secure Boot enabled, Windows® 10 requires drivers that are digitally signed by Microsoft®.

Identify the BIOS Version

The BIOS version is based on the catalog number of your 6300B box PC or 6300T thin client. See Table 8 to identify the BIOS version for your particular catalog number.

Figure 7 - BIOS Version — Screen Header
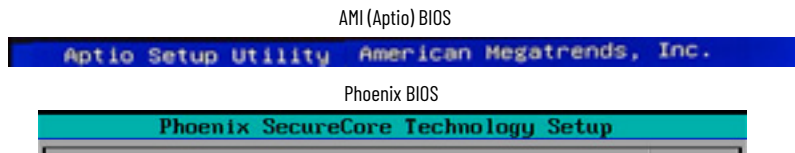
AMI (Aptio) BIOS

Phoenix BIOS

See the product label on the side of your product to locate its specific catalog number.

Table 8 - BIOS Version by Catalog Number

Description	Catalog Number		BIOS Version
Book Mount Box PC	6300B-	BMA	Phoenix
		BMB	AMI (Aptio)
		BMF	Phoenix
		BMN	
		DRA	
		DRF	
		DRN	
Thin Client	6300T-	BAB	Phoenix
		BAD	
		BBB	
		BBD	

Disable Secure Boot

| IMPORTANT	The 'Secure Boot Option' **must** be set to 'Disabled' if your machine mount box PC is:
	• running Windows Operating System (OS) 7, non-Windows OS (such as Linux, ThinManager®).
	- these are considered an untrusted source where you may receive a secure boot violation.
	• using additional hardware with boot ROM (such as graphic cards or RAID controllers).

To disable Secure Boot in your BIOS, follow the instructions for your BIOS version identified in .

For AMI (Aptio) BIOS

See the navigation key at far right of the setup screen to properly navigate with your keyboard.

1. Restart your machine mount box PC using one of the following methods:

    a. from the Start menu, select 'Restart' **or**

    b. press Ctrl+Alt+Del on the attached keyboard and select 'Restart.'

2. Press the 'F2' key. An initial setup screen appears.

3. Navigate over to the 'Save and Exit' menu.

4. Navigate down to 'Restore Legacy Support'. A 'Restore Legacy Support' popup menu appears.
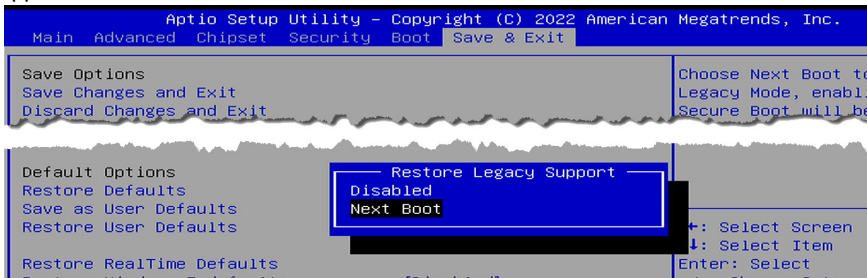
5. Select 'Next Boot'. A warning appears within the 'Restore Legacy Support' popup menu.
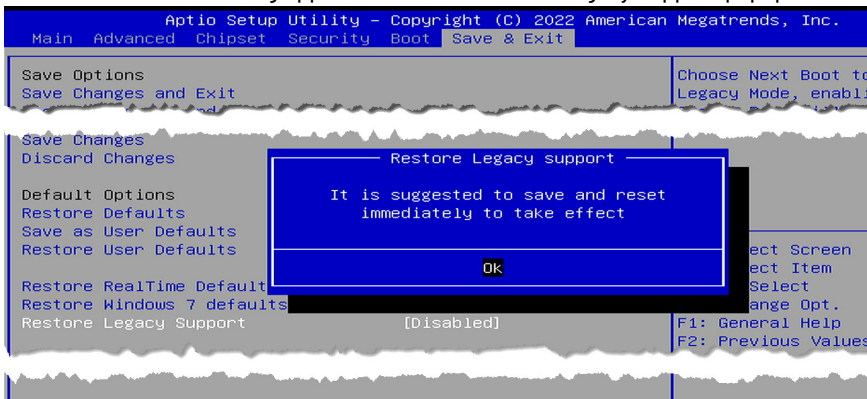
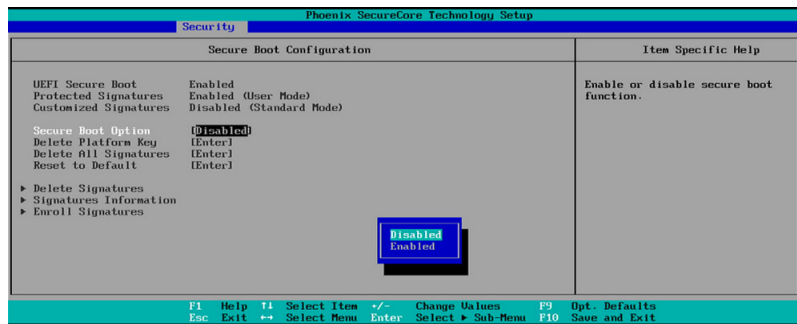6. Select 'OK', then press the 'F10' key to save and exit the BIOS.

If Windows 7 support is needed on Skylake systems, the 'Restore Windows 7 Defaults' could be used. This restore performs the following actions: (1) disables Secure Boot, (2) restores legacy support, (3) disables the trusted platform module (TPM) (which is not supported by Windows 7), and (4) sets a timer to a legacy timer that is supported by Windows 7.
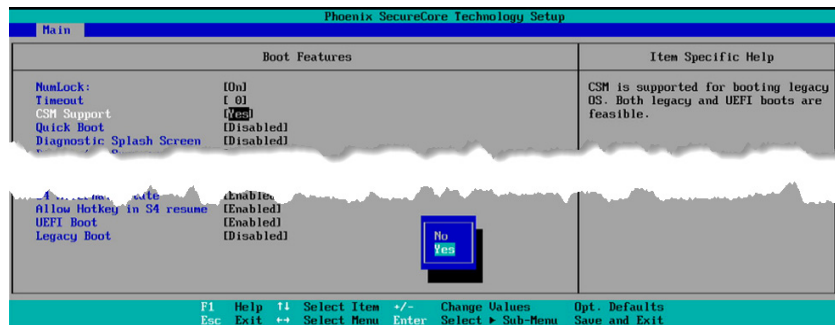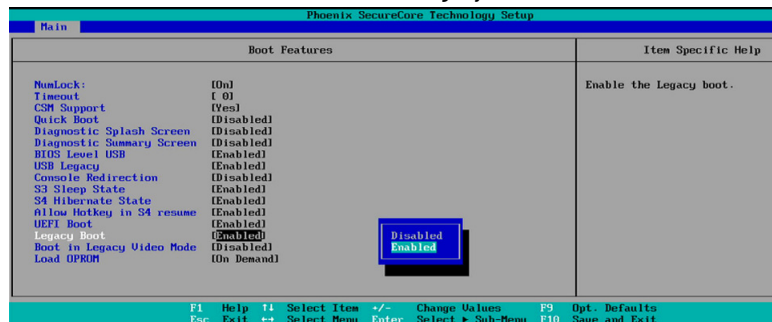
For the Phoenix BIOS

💡 See the navigation key at bottom of the setup screen to properly navigate with your keyboard.

1. Restart your machine mount box PC using one of the following methods:

   a. from the Start menu, select 'Restart' **or**

   b. press Ctrl+Alt+Delete on an attached keyboard and select 'Restart.'

2. Press the 'F2' key. The 'Phoenix SecureCore Technology Setup' screen appears.

3. Navigate to the 'Security' menu.

4. Select 'Disabled' from the 'Secure Boot Configuration, Secure Boot Option'.

5. Press the 'F10' key to save and reboot your machine mount box PC.

6. Press the 'F2' key. The 'Phoenix SecureCore Technology Setup' screen appears.

7. Press the 'Enter' key to toggle to over to the Main menu.

8. Select 'Yes' for the Compatibility Support Module (CSM) from the 'Boot Features, CSM Support'.

9. Select 'Enabled' from the 'Boot Features, Legacy Boot'.

10. Press the 'F10' key to save and restart your machine mount box PC.

Enable ThinManager

💡 The minimum versions of ThinManager® software required are:
- ThinManager v11.0.0
- TermCap 9.13.1.0 or TermCap2 13.1.0
- Firmware 13.0.x

To enable ThinManager in your BIOS, follow the instructions for your BIOS version.
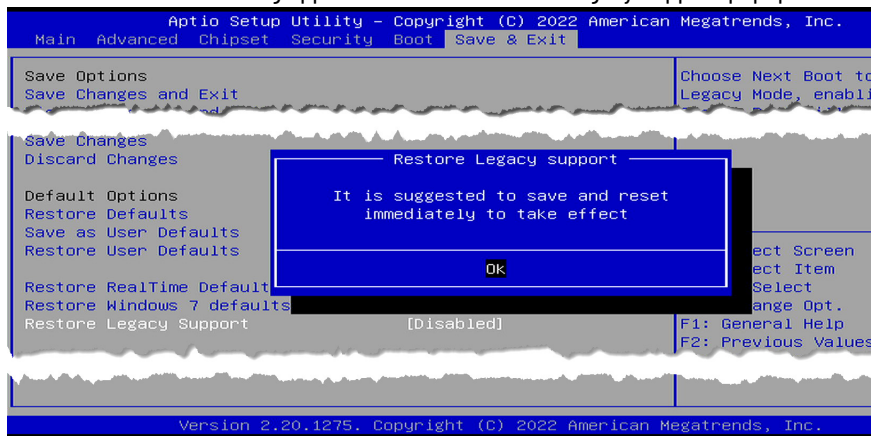
For AMI (Aptio) BIOS

See the navigation key at far right of the setup screen to properly navigate with your keyboard.

1. Restart your machine mount box PC using one of the following methods:
   a. from the Start menu, select 'Restart' **or**
   b. press Ctrl+Alt+Delete on an attached keyboard and select 'Restart.'
2. Press the 'F2' key. The initial setup screen appears.
3. Navigate over to the 'Boot' menu.
4. Select 'ThinManager' as 'Boot Option #1' for the boot option priority.
5. Navigate over to the 'Advanced' menu.
6. Navigate down to 'Network Stack Configuration'.
7. Select 'Network Stack' and set it to enable.
8. Navigate over to the 'Save and Exit' menu.
9. Navigate down to 'Restore Legacy Support'. A 'Restore Legacy Support' popup menu appears.
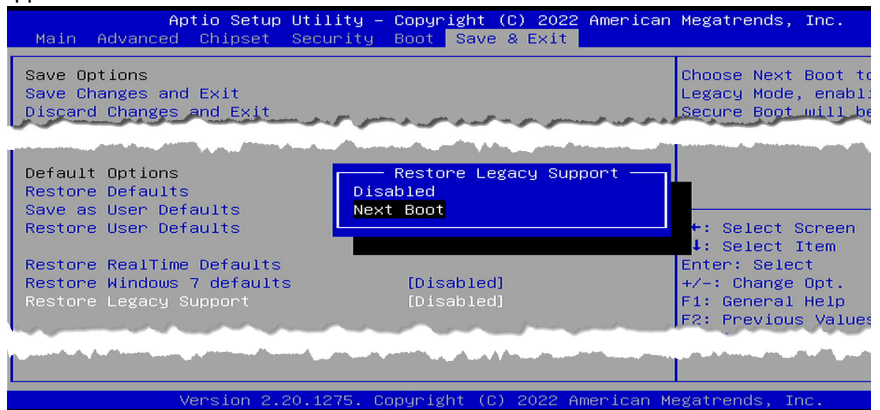
10. Select 'Next Boot'. A warning appears within the 'Restore Legacy Support' popup menu.

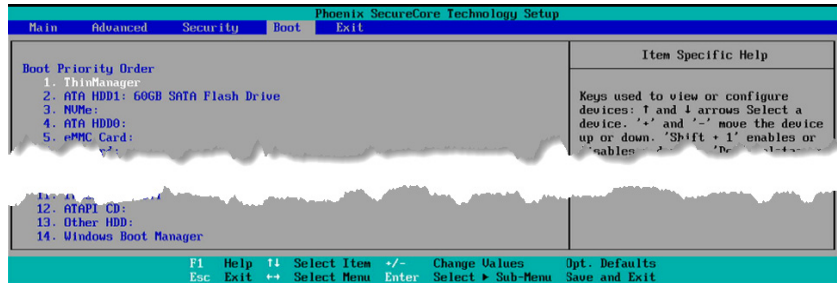11. Select 'OK', then press the 'F10' key to save and exit the BIOS

For the Phoenix BIOS

1. Restart your machine mount box PC using one of the following methods:
    a. from the Start menu, select 'Restart' **or**
    b. press Ctrl+Alt+Del on an attached keyboard and select 'Restart.'

2. Press the 'F2' key. The 'Phoenix SecureCore Technology Setup' screen appears.

   See the key at the bottom of the setup screen to properly navigate with your keyboard.

3. Press the 'Enter' key to navigate to the 'Boot' menu.
4. Select 'ThinManager' from the 'Boot Priority Order' list.
5. Press the '+' key to move the 'ThinManager' to the top of the 'Boot Priority Order' list.

6. Navigate to the 'Main' menu.
7. Select 'Network Stack' from the 'Main' menu.
8. Select 'Enabled' from 'Network Stack'.
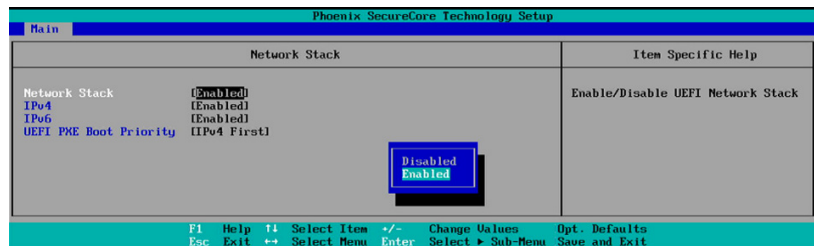
9. Navigate to the 'Security' menu.
10. Select 'Disabled' from the 'Secure Boot Option'.
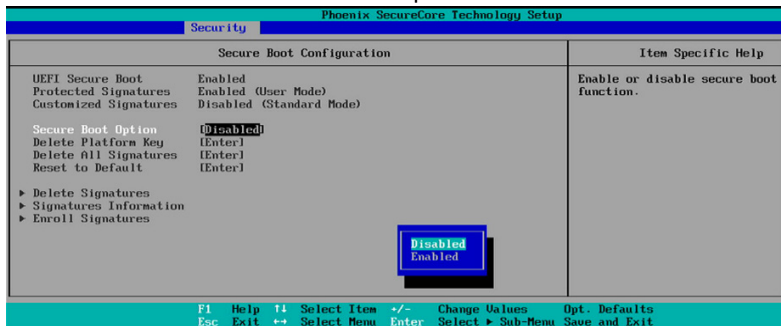
11. Press the 'F10' key to save and restart your machine mount box PC.

Notes:

Maintenance and Service

Your 6300B box PC or 6300T thin client is designed for lower maintenance cost. However, maintenance or service can occur in the following instances:

- Clean external surfaces.
- Replace the RTC battery.
- Add accessories.

> We recommend that you use only Allen-Bradley® approved replacement parts.

IMPORTANT	Review the specifications of a new component before you install it to verify that it is compatible with the computer. Record the model, serial number, and any other pertinent information of new components for future reference.

Use the procedures in this chapter to help you maintain and service your 6300B box PC or 6300T thin client.

IMPORTANT	Before performing any maintenance or service, you must follow the Maintenance Precautions and complete the Prepare for Maintenance and Service instructions.

Maintenance Precautions

Voltage Precautions

⚡	**SHOCK HAZARD:** Disconnect all power to your 6300B box PC or 6300T thin client before you install or remove components. Failure to disconnect power can result in damage to the your 6300 panel PC or 6300T thin client.

Electrostatic Discharge Precautions

⚠	**ATTENTION:** Electrostatic discharge (ESD) can damage static-sensitive devices or microcircuitry. Be sure to: Disconnect all power before you maintain your 6300B box PC or 6300T thin client as detailed in Voltage Precautions. Observe proper packaging and grounding techniques to help prevent damage.

Follow these ESD precautions:

- Transport your 6300B box PC or 6300T thin client and replacement parts in static-safe containers, such as conductive tubes, bags, or boxes.
- Keep electrostatic-sensitive parts in their containers until they arrive at the designated static-free work area.
- Cover the designated work area with approved static-dissipating material:
  - Use an anti-static wriststrap that is connected to the work surface.
  - Use properly grounded tools and equipment.

- Keep the designated work area free of nonconductive materials, such as ordinary plastic assembly aids and foam packing.
- Avoid contact with pins, leads, or circuitry.
- Always hold components with a printed circuit board (PCB) by its edges and place it with the assembly side down.

Prepare for Maintenance and Service

To avoid loss of data: Before you install hardware or perform maintenance procedures that require access to internal components, we recommend that you back up all data.

IMPORTANT	Read and understand all installation and removal procedures before you configure the computer hardware.

1. Properly shut down your 6300B box PC or 6300T thin client. See <u>Shut Down on page 26</u> for instruction.
2. Disconnect all peripheral cables, including the power supply. This avoids exposure to high energy levels.

   Label each cable to expedite reassembly.

3. Loosen the four M4x20 stainless steel mounting screws within the keyholes of the book mount bracket from the mounting surface.
4. Lift your 6300B box PC or 6300T thin client off of the four M4x20 stainless steel mounting screws.
5. Use a screwdriver to remove the book mount bracket from your 6300B box PC or 6300T thin client.
6. Place your 6300B box PC or 6300T thin client on its side as shown. Be sure that the surface is clean and static-free.

6300B-BMA and 6300T-BA
Side View

6300B-BMB
Side View

Clean Exterior Surfaces

IMPORTANT	Do not use detergents or solvents that could damage or scratch the external surfaces.

1. Spray a basic cleaning solution onto a damp cleaning cloth.
2. Gently wipe all exterior surfaces, vents, heatsink, and disconnected peripheral cords with a damp cleaning cloth.
3. Complete all steps within <u>Post-configuration on page 51</u>.

Remove/Reinstall the Cover

Figure 8 - Cover Screw Locations

6300B-BMA and 6300T-BA

Cover Screws

Cover Screws

6300B-BMB

Cover Screws
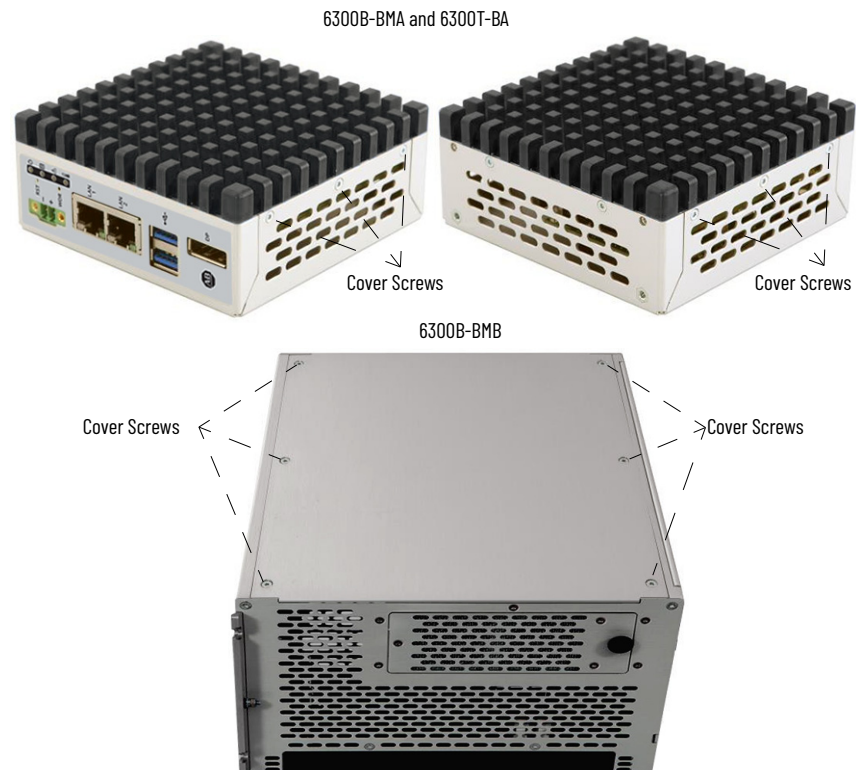
Cover Screws

Remove the Cover

1. Use a TORX T6 screwdriver to remove the six screws from the cover. See Figure 8 for cover screw locations.
2. Set the six screws aside.
3. Lift the cover off the chassis of your 6300B box PC or 6300T thin client.
4. Set the chassis aside onto a clean, static-free surface.
5. Perform the maintenance step, such as replacing the battery (see Replace the Battery or adding/removing peripheral hardware (see installation instructions packed with your peripheral hardware).

Reinstall the Cover

1. Place and properly seat the cover onto the chassis.
2. Use a Torx T6 screwdriver to reinstall and tighten the six screws. See Figure 8 for cover screw locations.

Replace the Battery

All 6300B box PCs and 6300T thin clients use nonvolatile memory that requires a real-time clock (RTC) lithium battery to retain system information when power is removed. This RTC battery must be replaced during the life of the computer.

The RTC battery life depends on the amount of time the computer is powered on, known as on-time. The thermal light-emitting diode (LED) on the front of all 6300B box PCs and 6300T thin clients flashes red when the RTC battery is lower than 2.5V.

Follow these steps to replace the RTC battery.

⚠ **WARNING:** A Lithium CR2032 3V RTC battery must be used.
If the incorrect RTC battery is used, there is a risk of explosion.

> **IMPORTANT**   Once the RTC battery is replaced, all unified extensible firmware interface (UEFI) settings return to their default values. If UEFI settings were set to a value other than the default, the UEFI must be reconfigured.

6300B-BMB Box PC

1. Open the right front panel door and locate the battery slot.
2. Use the metal extractor (provided), latch onto the back (open) side of the battery slot holding the RTC battery in place..
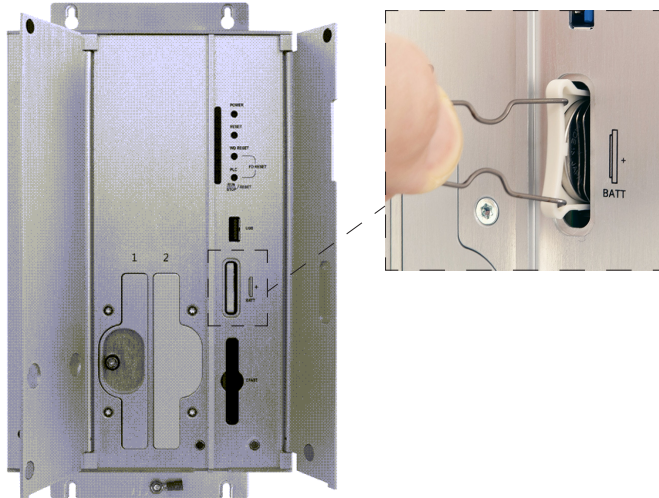
3. Pull the metal extractor from the box PC.

4. Properly dispose of the RTC battery.
   See Waste Electrical and Electronic Equipment (WEEE).
5. Place the new Lithium CR2032 3V RTC battery into the metal extractor with the positive polarity facing upward.

6. Insert the metal extractor into the battery slot.

   The UEFI resets to default values.
7. Perform the steps in Post-configuration on page 51.

For All Other Box PCs and 6300T Thin Clients

1. Locate the RTC battery on the upper tier of the motherboard.

RTC Battery

2. Using a plastic tool (not provided), remove the RTC battery.

3. Properly dispose of the RTC battery.
   See <u>Waste Electrical and Electronic Equipment (WEEE)</u>.

4. Install a new Lithium CR2032 3V RTC battery with the positive polarity facing upward.

   The UEFI resets to default values.

5. Perform the steps in <u>Post-configuration on page 51</u>.

Post-configuration

Follow these instructions after maintenance is complete.

6. If removed, reinstall the cover. See <u>Reinstall the Cover on page 49</u>.

7. Reattach the book mount bracket.

8. Place the keyholes of the book mount bracket onto the four M4x20 mounting screws.

9. Tighten the four M4x20 stainless steel mounting screws.

10. Reconnect the peripheral cables and power cord.

11. Power on your 6300B box PC or 6300T thin client. See <u>Manual Start on page 25</u>.

12. If necessary, reconfigure the UEFI settings if the default values are not suitable for your application. See <u>View and Modify Settings on page 27</u> to reconfigure the UEFI.

Notes:

Troubleshooting

> 💡 An external display, keyboard, and mouse must be connected to your box PC to perform the steps in this chapter. See Peripheral Connections on page 14 for I/O port locations.

Thermal Alarms

Your 6300B box PC or 6300T thin client features a light-emitting diode (LED) status indicator on the front panel. This LED status indicator flashes red when the operating temperature limit of 85 °C (185 °F) is reached.

Front Panel

Thermal Alarm
LED Status Indicator
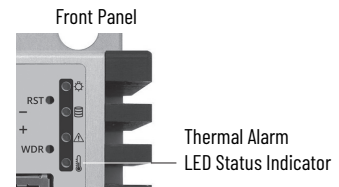
Follow these steps to determine where the operating temperature threshold has been reached.

1. Properly shut down your 6300B box PC or 6300T thin client. See Shut Down on page 26.
2. Manually start your 6300B box PC or 6300T thin client. See Manual Start on page 25.

   The POST initiates.
3. During POST, press the 'F2' key to access the UEFI set-up utility.
4. From the Main menu, toggle to the 'Advanced' menu.
5. From the Advanced menu, toggle to 'Thermal'.
6. Use the information in 'Thermal' to determine if there is an issue with internal voltages or component temperatures.

Isolate Issue

Follow these steps to identify and isolate an issue.

1. Properly shut down your 6300B box PC or 6300T thin client. See Shut Down on page 26.
2. Disconnect the DC power supply.
3. Disconnect all peripheral devices.
4. Connect the external display, keyboard, and mouse.
5. Reconnect the DC power supply.
6. Manually start your 6300B box PC or 6300T thin client. See Manual Start on page 25.

   The POST initiates.
7. Monitor the outcome of the POST. One of three events will occur:
   - the startup process is completed **or**
   - a nonfatal error occurs and the related error message is displayed **or**
   - a fatal error occurs and the startup process terminates.
8. Perform one of the following activities depending upon the outcome of the POST:

If	Then
the startup processes are completed:	Reconnect all peripheral devices one at a time until the issue occurs.
there is an issue with specific software or a specific driver:	Reinstall the software or driver.
the issue cannot be identified or a fatal error occurs:	Contact Rockwell Automation Support.

Reset to System Defaults

If changes were made within the setup menus of your UEFI that resulted in an error, you can revert to the default settings. These default settings were chosen to optimize performance.

Follow these steps to reset the UEFI to its default settings.

1. Restart your 6300B box PC or 6300T thin client.
   See for instructions.

   The POST initiates.
2. During POST, press the 'F2' key to access the UEFI setup utility.
3. From the Main menu, toggle down to 'Load Optimized Defaults'.
4. Press the 'Enter' key to select the system default, 'Load Optimized Defaults'.
5. Press the 'F10' key to save your changes and exit.

Ship/Transport

> ⚠️ **ATTENTION:** To avoid physical damage to your 6300B box PC or 6300T thin client, do not ship or transport it until it is removed from the machine, panel, or rack.
> Before shipping or transporting your 6300B box PC or 6300T thin client to another location, you must (1) perform the proper shut down procedure, (2) remove any peripheral cables, (3) remove it from the installation site, then (4) place it in its original packing material.
> Rockwell Automation is not responsible for damage when it is shipped or transported while installed in a machine, panel, or rack and if it is not placed in its original packing material.

Disposal

> 🗑️ At the end of its life, collect the computer separately from any unsorted municipal waste.

You cannot dispose of computer equipment like other waste material. Most computers and monitors contain heavy metals that can contaminate the earth. Therefore, check with local health and sanitation agencies for ways to dispose monitor equipment safely.

When a storage drive is part of what you plan to dispose, then erase any data on it permanently or destroy the drive before it is disposed.

Notes:

Rockwell Automation Support

Use these resources to access support information.

Technical Support Center	Find help with how-to videos, FAQs, chat, user forums, Knowledgebase, and product notification updates.	rok.auto/support
Local Technical Support Phone Numbers	Locate the telephone number for your country.	rok.auto/phonesupport
Technical Documentation Center	Quickly access and download technical specifications, installation instructions, and user manuals.	rok.auto/techdocs
Literature Library	Find installation instructions, manuals, brochures, and technical data publications.	rok.auto/literature
Product Compatibility and Download Center (PCDC)	Download firmware, associated files (such as AOP, EDS, and DTM), and access product release notes.	rok.auto/pcdc

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Waste Electrical and Electronic Equipment (WEEE)

At the end of life, this equipment should be collected separately from any unsorted municipal waste.

Rockwell Automation maintains current product environmental compliance information on its website at rok.auto/pec.

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