ASEM 6300P Panel PCs

Catalog Numbers 6300P-121, 6300P-150, 6300P-156, 6300P-170, 6300P-185, 6300P-190, 6300P-215, 6300P-240

Allen-Bradley
by ROCKWELL AUTOMATION

User Manual

Original Instructions

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 tobe 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.

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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.

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Chapter 4

System Settings

Chapter 5

Change Settings in BIOS Firmware

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About This Publication

This user manual provides procedures to install, operate, configure, clean, troubleshoot, and replace 6300P panel product components (PCs).

A general knowledge of automation technology is required to understand and follow the instructions in this publication.

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

Download Firmware

Download firmware, associated files (such as AOP, EDS, and DTM), 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
Addition of remote video link (RVL) publications to Additional Resources	6
Addition of RVL ports for select models as features of the panel PC	7
Addition of RVL ports within Chapter 1 - Overview, Peripheral Connections	9
Addition of Accessories section within Chapter 1 - Overview to include available RVL cables	11
Placed Panel PC LEDs and Buttons section to Chapter 7 - Troubleshooting	43

Terminology

Panel PC

Throughout this manual, the term "panel PC" is used to refer to the following 6300P panel PC catalog numbers.

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

Cat. No.		Bezel Type	Bezel Material	Touch Screen Type
6300P-	BAPS	Standard	Aluminum	Resistive
	EAPS			
	FAPS			
	AAPS	Low Profile	Aluminum	Resistive
	ACPM	Low Profile	Aluminum glass, true flat	PCAP
	ECPM			
	JXPS	Standard	Stainless steel	Resistive

Acronyms

Various acronyms are used throughout this user manual. See Table 1 to identify the full term and definition.

Table 1 - 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
HID	Human Interface Device	Hardware that enables a user to interact with a computer or mobile device

Table 1 - Acronyms (Continued)

Acronym	Full Term	Definition
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
PCAP	Projective Captive	(versus Resistive) type of touch screen
POST	Power on self test	Set of routines 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	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
6300P Panel PC Installation Instructions, publication 6300P-IN001	Provides basic installation guidelines and instructions for 6300P panel PCs.
6300 Industrial Computer and Monitor Specifications Technical Data, publication IC-TD003	Provides technical specifications about the 6300M industrial panel monitors.
6300V Remote Video Link (RVL) Receiver Installation Instructions, publication 6300V-IN004	Provides basic installation guidelines and instructions for 6300V RVL receivers.
6300V Remote Video Link (RVL) Transmitter Installation Instructions, publication 6300V-IN005	Provides basic installation guidelines and instructions for 6300V RVL transmitters.
6300V Remote Video Link (RVL) Receiver and 6300V RVL Transmitter User Manual, publication 6300V-UM001	Provides installation guidelines, instructions, and operation for 6300V RVL receivers and 6300V RVL transmitters.
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.
EtherNet/IP™ Network Devices User Manual, ENET-UM006	Describes how to configure and use EtherNet/IP™ devices to communicate on the EtherNet/IP network.
Ethernet Reference Manual, ENET-RM002	Describes basic Ethernet concepts, infrastructure components, and infrastructure features.
Industrial Automation Wiring and Grounding Guidelines, publication 1770-4.1	Provides general guidelines for installing a Rockwell Automation industrial system.
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.
Product Certifications website, rok.auto/certifications.	Provides declarations of conformity, certificates, and other certification details.
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, 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.
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.

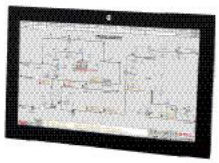
Overview

The 6300P panel PC family is available in various display sizes and resolutions. There are options of either standard or low profile bezel units.

Standard Profile Aluminum Bezel

Standard Stainless Steel Bezel

Low Profile Aluminum Bezel



Low Profile Aluminum-glass True Flat Bezel

IP65 environmental protection makes the 6300P panel PC an excellent match for wash-down applications such as food processing and life sciences. Fanless construction helps to deliver low-maintenance operation and enhance longevity.

6300P panel PCs are ideal for applications that require a high-performance Human Machine Interface (HMI). This product family integrates completely with our FactoryTalk® View SE and FactoryTalk View ME software for smooth assimilation within your facility.

Panel PC Models

Table 2 - 6300P Panel PC Features

Feature	Description
Bezel Types	Standard Profile: aluminum or stainless steel
	Low-profile: aluminum or aluminum-glass True Flat
Display Sizes	12.1, 15, 17, 18.5, 19, 21.5, or 24 inch
Environmental Rating	IP65
Fan or Fanless	Fanless design for 24V DC SELV input power
Mass Storage Types	mSATA, SSD SATA III, CFAST
Network Standards	Jumbo Frame
	Wake on LAN
Operating Systems	Microsoft Windows®
Peripheral Ports (1)	Two or four Ethernet 10/100/1000 Mbps
	USB variations: one USB 2.0 (Type A) front (2) and rear ports; up to three USB 3.0 rear (Type A) ports
	One RS-232 (DB9M) serial port
	Up to two remote video link (RVL) ports for select models (3)
DC Power	an internal power supply with a galvanically isolated DC-DC converter board for increased electrical noise immunity; a reverse polarity circuitry, overvoltage, and a 12 A soldered fuse provide input power protection.
RAM Memory	Up to 32 GB SODIMM DDR4
Resolution Types	FHD, VGA, SXGA, WXGA, or XGA
Touch Screen Types	Single touch analog resistive or multi-touch projective capacitive (PCAP)
Variations Available	Long-distance support for up to two additional displays
Video Output	One DVI-D
Additional Options	TPM, PCI expansion slots, and additional communications

(1) Peripheral ports vary depending upon the particular options selected.
(2) A USB port located on the front panel is only available on 6300P panel PCs with standard profile aluminum bezels.
(3) 6300P-....-...-Lxxx will feature 1 RVL port and 6300P-....-...-Mxxx will feature two RVL ports.

Panel PC Options

The following 24V DC 6300P panel PC models are specified in this user manual.

See the label on the side of your panel PC to identify its Catalog Number (Cat. No.). Record the Cat. No. for future reference.

Table 3 - 6300P Panel PC Models - 24V DC

Cat. No. 6300P-		Display Size	Touch Screen Type	Aspect Ratio	Resolution (W x H)	Luminance [cd/m^2]	Bezel Type
121	BAPS...	12.1 in.	Resistive	4:3	1024 x 768, XGA	600	Standard aluminum
	FAPS...						
	JXPS...			16:10	1210 x 800, WXGA	400	Stainless steel
150	BAPS...	15 in.	Resistive	4:3	1024 x 768, XGA	500	Standard aluminum
	FAPS...						
156	AAPS...	15 in.	Resistive	16:9	1920 x 1280, FHD	400	Standard aluminum
	EAPS...						
	ACPM...	15 in.	PCAP	16:9	1920 x 1280, FHD	400	Aluminum-glass True Flat
	ECPM...						
170	BAPS...	17 in.	Resistive	5:4	1280 x 1024, SXGA	350	Standard aluminum
	FAPS...						
185	AAPS...	18.5 in	Resistive	16:9	1920 x 1080, FHD	500	Standard aluminum
	EAPS...						
	ACPM...		PCAP				Aluminum-glass True Flat
	ECPM...						
190	BAPS...	19 in.	Resistive	5:4	1280 x 1024, SXGA	350	Standard aluminum
	FAPS...						
215	AAPS...	21.5 in.	Resistive	16:9:	1920 x 1080, FHD	300	Standard aluminum
	EAPS...						
	ACPM...		PCAP				Aluminum-glass True Flat
	ECPM...						
240	AAPS...	24 in.	Resistive	16:9:	1920 x 1080, FHD	300	Standard aluminum
	EAPS...						
	ACPM...		PCAP				Aluminum-glass True Flat
	ECPM...						

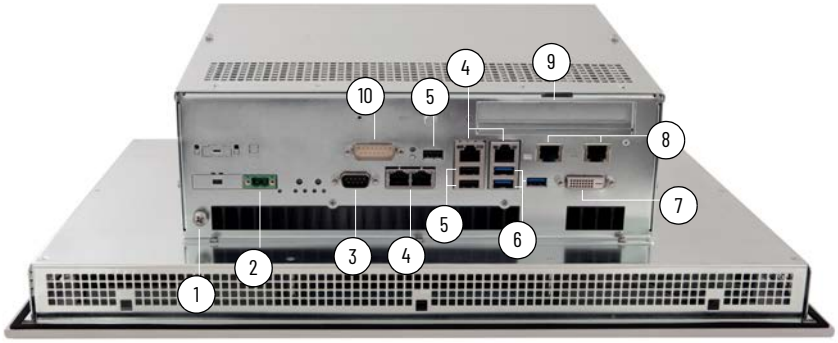
Peripheral Connections

The I/O port location and quantity vary by catalog number and can differ from the images shown in Table 4.

IMPORTANT To comply with EN-61326-1, the peripheral cables that are specified must be used. USB cables must be less than 3 m (9.84 ft) in length.

Table 4 - Peripheral Connections

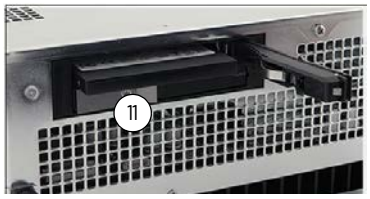
Bottom View



Note No.	Description	Cable Attribute
1	Earth ground screw	–
2	DC power connection	Unshielded
3	Serial COM port, RS-232	Shielded
4	Ethernet LAN port	
5	USB 2.0 port	

Note No.	Description	Cable Attribute
6	USB 3.0 port	Shielded
7	DVI-D port	
8	RVL port (up to 2 quantity) (1)	
9	PCI/PCIe expansion card slot	
10	COM port	

Top View



Note No.	Description
11	2.5 in. SATA III HDD or SSD drive slot

Front Bezel

Note No.	Description
12	USB 2.0 port (2)

Side View

Note No.	Description
13	CFast™ card slot

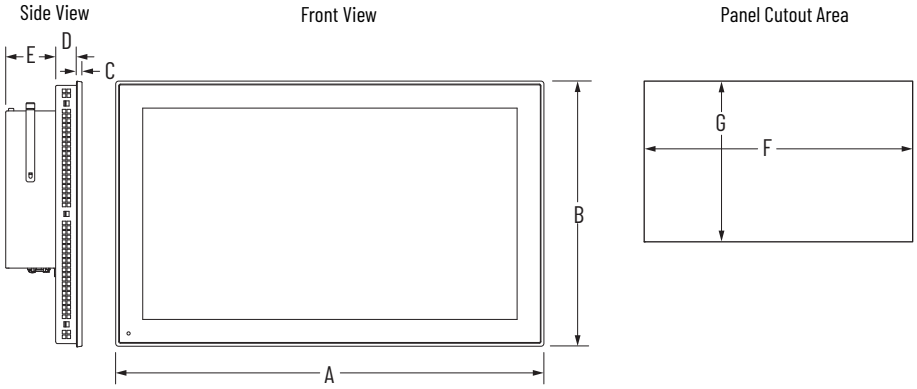
(1) Catalog Number 6300P-...-...-Lxxx has one RVL port available;
Catalog Number 6300P-...-...-Mxxx has two RVL ports available.
(2) The USB port on the front bezel is only available on 6300P panel PCs with standard profile aluminum bezels.

Approximate Dimensions

Table 5 shows the approximate dimensions of the various 6300P panel PC models.

Cat. No. 6300P-240ACPM is shown in Table 5 for illustrative purposes.

Table 5 - Approximate Dimensions [mm (in.)]



Cat. No. 6300P-		Display Size	Format (1)	Panel PC					Panel Cutout Area	
				A	B	C	D	E	F (1)	G (2)
121	BAPS	12.1 in.	S1	335 (13.2)	270 (10.62)	5 (0.20)	19 (0.75)	100 (3.94)	315 (12.40)	250 (9.84)
	FAPS							70 (2.76)		
	JXPS		W1	323.8 (12.75)	225.8 (8.89)	5.3 (0.21)	17.6 (0.69)	59.6 (2.35)	313 (12.3)	216 (8.50)
150	BAPS	15.0 in.	S1	390 (15.35)	315 (12.4)	6 (0.24)	19 (0.75)	100 (3.94)	370 (14.57)	295 (11.61)
	FAPS							70 (2.76)		
156	AAPS	15.6 in.	W1	395.5 (15.57)	245 (9.65)	6 (0.24)	24 (0.95)	100 (3.94)	388 (15.28)	238 (9.37)
	EAPS									
	ACPM		W2					100 (3.94)		
	ECPM							70 (2.76)		
170	BAPS	17 in.	S1	455 (17.91)	355 (14.0)	6 (0.24)	21 (0.83)	100 (3.94)	435 (17.13)	335 (13.19)
	FAPS							70 (2.76)		
185	AAPS	18.5 in.	W1	461 (18.15)	282 (11.1)	6 (0.24)	24 (0.95)	100 (3.94)	453 (17.83)	274 (10.79)
	EAPS									
	ACPM		W2	461 (18.15)	282 (11.1)	6 (0.24)	24 (0.95)	100 (3.94)		
	ECPM							70 (2.76)		
190	BAPS	19 in.	S1	490 (19.29)	388 (15.28)	6 (0.24)	23 (0.91)	100 (3.94)	470 (18.50)	368 (14.49)
	FAPS							70 (2.76)		
215	AAPS	21.5 in.	W1	528 (20.79)	319.5 (12.58)	6 (0.24)	24 (0.95)	100 (3.94)	520 (20.47)	312 (12.28)
	EAPS									
	ACPM		W2	528 (20.79)	319.5 (12.58)	6 (0.24)	24 (0.95)	100 (3.94)		
	ECPM							70 (2.76)		
240	AAPS	24 in.	W1	584 (23.00)	352 (13.86)	6 (0.24)	24 (0.95)	100 (3.94)	577 (22.71)	344 (13.54)
	EAPS									
	ACPM		W2							
	ECPM									

(1) Dimensions are +0/-1 mm (0.04 in.).

Accessories

Various accessories are available for your ASEM 6300M panel monitor. A partial list of accessories are listed in Table 6...Table 9. You can view the full list of accessories here.

Catalog Number 6300P-...-...-Lxxx and 6300P-...-...-Mxxx are long-distance models which require a RVL cable if the RVL function will be used in your application.

Table 6 - RVL Cables for Long-Distance Panel Monitors

Cat. No. 6300V-	Description		Cable Length	Min Bend Radius
15RVLFIXED	Cat 5e Shielded and Foiled with Unshielded Twisted Pairs (SF/UTP) type	for fixed laying	15 m (49.2 ft)	50.4 mm (2 in.)
20RVLFIXED			20 m (65.6 ft)	
30RVLFIXED			30 m (98.4 ft)	
40RVLFIXED			40 m (131.2 ft)	
50RVLFIXED			50 m (164 ft)	
5RVLFLEX	Cat 5e SF/UTP type	for not guided flex laying	5 m (16.4 ft)	94.5 mm (3.72 in.)
10RVLFLEX			10 m (32.8 ft)	
15RVLFLEX			15 m (49.2 ft)	
20RVLFLEX			20 m (65.6 ft)	
25RVLFLEX			25 m (82 ft)	
30RVLFLEX			30 m (98.4 ft)	
35RVLFLEX			35 m (114.8 ft)	
40RVLFLEX			40 m (131.2 ft)	
45RVLFLEX			45 m (147.6 ft)	
50RVLFLEX			50 m (164 ft)	
100RVLFIXED	Cat 6a S/FTP type	for fixed laying	100 m (328 ft)	90 mm (3.54 in.)

Table 7 - Adapters

Cat. No. 6200V-	Description
DPVGA2	DisplayPort™ to VGA active adapter
DPDVI2	DisplayPort to DVI-D active adapter
DPHDMI4K	DisplayPort to HDMI active adapter

For optimal performance, use only Allen Bradley-approved active DisplayPort adapters.

Table 8 - Other Cables

Cat. No. 6200V-	Description	Cable Length
DPCBL2M	DisplayPort to DisplayPort cable	2 m (6.5 ft)
DVICBL2M	DVI cable	2 m (6.5 ft)
USBCBL2M	USB to USB touch screen cable	2 m (6.5 ft)
5MDVIUSB	Cable kit: DVI and USB 2.0 (USB A type to USB B type)	DVI: 5 m (16.4 ft) USB 2.0: 5 m (16.4 ft)

Table 9 - RVL Components

Cat. No. 6300V-	Description
RVLDV-RX	ASEM RVL Receiver
RVLDV-TX	ASEM RVL Transmitter

Notes:

Installation

Follow these guidelines and procedures to help you plan your installation, prepare the cutout, mount, and apply power to your panel PC.

Installation Precautions

Read and follow these precautions **before** you install your panel PC.

Environment Information

ATTENTION: This installation is:
- intended for use in 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.
- 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 that are caused by conducted and radiated disturbance.
- UL Listed. However, to meet some regularity requirements, your 6300 panel PC must be mounted in an enclosure that is suitable designed for environmental conditions that can be present.

All 6300 panel PCs are shipped with a gasketed bezel to meet specified NEMA, UL Type, and IEC IP ratings only when mounted in a panel or enclosure with equivalent rating.

In addition to this publication, refer to the following:
- Industrial Automation Wiring and Grounding Guidelines, publication 1770-4.1, for more installation requirements.
- UL 50, UL 50E, CSA C22.2, No. 94.1, and CSA C22.2, No. 94.2, 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.

European Union Directive and UKCA Compliance

This equipment meets the European Union Directive and UK requirements when installed within the European Union, UK, or EEA regions and have the CE or UKCA marking.

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. This equipment is not suitable for use in locations where children are likely to be present. Some configurations cannot comply with the EN 61000-3-2 Harmonic Emissions standard as specified by the EMC Directive of the European Union. Obtain permission from the local power authority before you connect any panel PC configuration that draws more than 75 W of AC power directly from the public mains.

Installation Requirements

Follow these installation requirements to be sure that your panel PC provides excellent service and reliability.

Installation Site Requirements

To ensure your panel PC provides reliable service, your site **must**:

- Be indoors in an industrial or control room environment that uses some form of power isolation from the public, low voltage mains.
- Have sufficient power. See DC Power Supply Requirements on page 15.
- Maintain an ambient air temperature of -10…+60 °C (4…140 °F) with the relative humidity of the ambient air between 20…90% noncondensing at 0…40 °C (32…104 °F), and 20…80% noncondensing at 41…50 °C (105…122 °F). The range is 0…50 °C (32…122 °F) with the Intel® Celeron® and Intel® Core™ [a] processors.

IMPORTANT	Your panel PC is able to operate at a range of temperature extremes. However, the life span of any electronic device is shortened if you continuously operate it at its highest rated temperature, which includes the touch screen and LCD panel.

- Do **not** expose your panel PC to direct sunlight or allow the surrounding air temperature to exceed the maximum temperature of your panel PC, especially when your panel PC is mounted in an enclosure.
- **Do** provide active cooling fan (required) when using expansion cards with total power consumption between 0…20 W.

Mounting Requirements

To achieve proper installation of your panel PC, your panel cutout **must be mounted**:

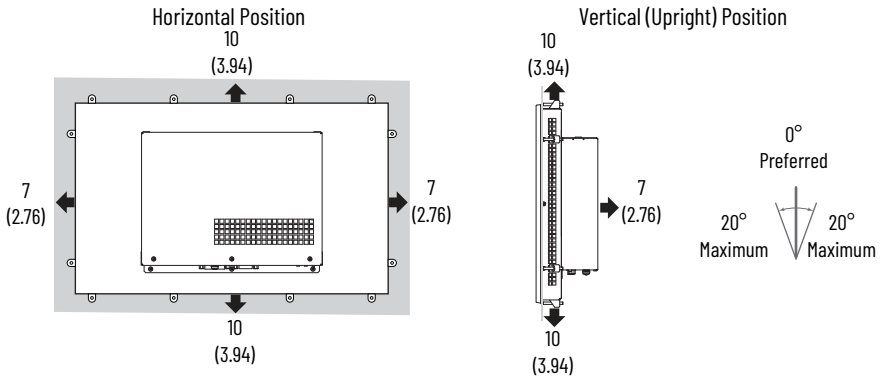
- at a suitable height for users.
- to a material with a thickness of 2…6 mm (0.08…0.24 in.).
- in the vertical (upright) position with the I/O ports facing downward.

IMPORTANT	The vertical position can be tilted up to 20° forward or backward from the upright position. However, this acceptable tilt angle range decreases the maximum operating air temperature to 45 °C (113 °F).

- to a wall thickness of 2…6 mm (0.08…0.24 in.).
- with minimum clearances at all four sides of the outer frame and the back of the chassis as specified in Figure 1.

Figure 1 - Panel PC Dimensions [in. (cm)]

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



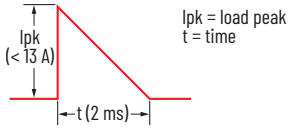
(a) The Intel Core i7 processor throttles above 45 °C (113 °F) when the CPU is heavily loaded.

DC Power Supply Requirements

Follow these requirements to select the DC power to supply your panel PC.

ATTENTION: Risk of operating system (OS) corruption. If sufficient power is not provided to your panel PC during initial power on, the OS can become corrupt.

- Your panel PC **must** be powered with a voltage of 24V DC (18...32V DC SELV input voltage range).
- The power consumption is rated at 156 W max/38 W typical for 24V DC. See Power Consumption on page 15.
- 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 impulse for your panel PC is:



Power Consumption

The following table shows the maximum power consumption in Watts of various components in the 6300P panel PCs.

WARNING: Do not exceed 120 W for the total system configuration. Power consumption greater than 120 W can overpower the external and internal power supplies that can lead to component damage, or in extreme cases, electrical fires.

Table 10 - Maximum Power Consumption in Watts (W)

Component	Description	Power (W)
Display size [in. (cm)]	12.1 (30.7)	6
	15.0 (38.1)	13
	15.6 (39.6)	24
	17.0 (43.2)	17
	18.5 (47.0)	14
	19.0 (48.3)	17
	21.5 (54.6)	22
	24.0 (61.0)	16
Motherboard and Processor	Intel Core i3-7100E	43
	Intel Core i7-7820EQ	65

Component	Description	Power (W)
SSD	mSATA2	2
	2.5 in. SATA MLC	3
Expansion slot (1)	PCI half-size or PCIe x4	6.5 (2)
USB ports (3)	2.0 Type A, each port	2.5
	3.0 Type A, each port	4.5
Memory card (1)	CFast SATA	1.3
RAM	4 GB	(3)
	8 GB	1
	16 GB	2
	32 GB	2

(1) Power consumption value applies only when the port or slot is loaded.
(2) 5 W is the maximum that the card can use.
(3) 4 GB is included in the motherboard power estimate. Higher memory is in addition to the motherboard power estimates.

Unpack the Product

IMPORTANT Before you unpack your panel PC, inspect the shipping carton for damage. If damage is visible, immediately contact the shipper and request assistance. Otherwise, continue to unpack the product.

Keep the original packing material in case your panel PC must be you must returned for repair or transported to another location.

Your panel PC ships with these items:

- Mounting clips, quantity of 16
- DC power connector assembly kit
- 6300P Panel PCs Installation Instructions, publication 6300P-IN001

Required Tools and Hardware

The following tools and hardware are required to install and connect your panel PC.

- DC power supply per DC Power Supply Requirements on page 15
- Cutout tools appropriate for mounting material
- Safety glasses
- Torque limiting screwdriver with 1.5 mm hex key bit
- Wire stripper, cutter, and crimper tool
- Small screwdriver
- Adjustable torque screwdriver with M2 and M3 flat-blade screw bits
- Various peripheral cables listed in Peripheral Connections on page 9

Install your Panel PC

Construct the Panel Cutout

WARNING: Risk of personal injury or product damage. Failure to follow these guidelines can result in personal injury or damage to the panel components. Take precautions to avoid metal fragments entering the panel components during the cutout procedure.

Follow these guidelines to create the cutout.

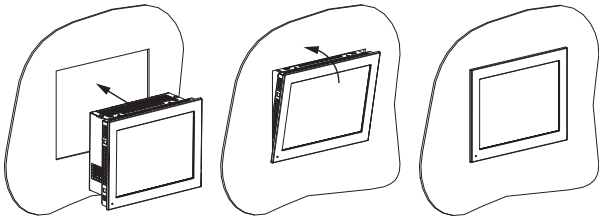
1. Remove all electrical power from the panel **before** you make the cutout.
2. Plan the panel cutout according to the information provided in Installation Site Requirements on page 14
3. Confirm that the roughness of your panel PC surface does **not** exceed 120 microns (Rz 120) to achieve a uniform gasket seal.
4. Confirm that there is adequate space behind the panel as specified in Mounting Requirements on page 14
5. Verify that the area around the panel is clear of obstructions.
6. Cut an opening for your panel PC model as specified in Figure 1 on page 14.
7. Confirm that the cutout has been prepared according to the guidelines in Installation Requirements on page 14.
8. Remove debris and metal fragments, then clean the cutout.

Mount your Panel PC

You need two people to install your panel PC; one person holds the panel PC in place while the second person installs the mounting clips.

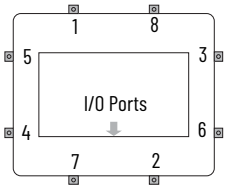
IMPORTANT Do not use sealing compounds on the gasket provided. This gasket is designed to form a compression-type seal.

9. Have one person insert and hold the panel PC in the cutout.

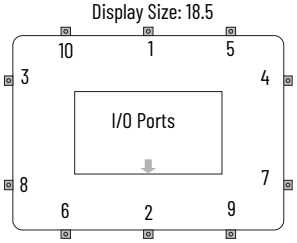


10. Have the second person place the mouthing clips into the holes on all four sides of the panel PC.
11. Use the 1.5 mm hex key to hand-tighten the mounting clips in the sequence shown.

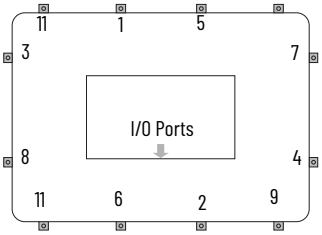
Display Size: 12.1 and 15



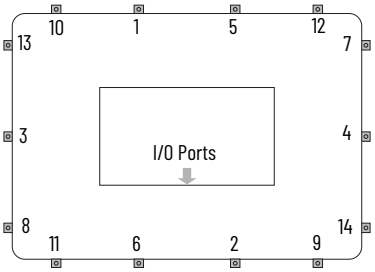
Display Size: 18.5



Display Size: 15.6 and 19

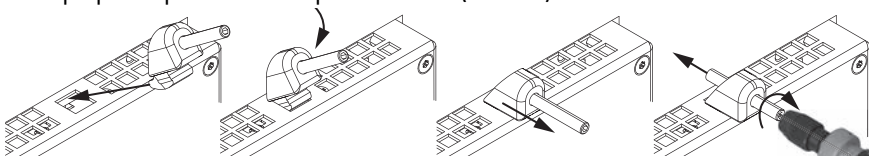


Display Size: 21.5 and 24



ATTENTION: Risk of product damage.
The mounting clips must be tightened to a torque of 0.2 N•m (1.8 lb•in). Rockwell Automation assumes no responsibility for water or chemical damage your panel PC or other equipment within the enclosure due to improper installation.

12. Using a torque-limiting screwdriver and a 1.5 mm hex key bit, tighten the mounting clips in the proper sequence to a torque of 0.2 N•m (1.8 lb•in).



13. Verify that the gasket is compressed uniformly against the panel.

Connect the Peripheral Cables

1. Connect the peripheral cables to your panel PC. See Peripheral Connections on page 9 for port locations and cable type.

IMPORTANT To comply with EN-61326-1, the peripheral cables that are specified must be used. USB cables must be less than 3 m (9.84 ft) in length.

Grounding and Bonding

Whenever two connected pieces of equipment are more than 3 m (9.84 ft) apart, it is possible their ground connections could be at a different potential level. This bonding method is recommended to overcome possible grounding problems:

- Connect the data cable shields to the Equipotential bonding rail on both sides before connecting the cable to the interfaces.

For further information, see Industrial Automation Wiring and Grounding Guidelines, publication 1770-4.1.

Install the Ground Wire

1. Turn off the main power switch or breaker.
2. Remove the supplied nut, eyelet terminal, and washers from the earth ground screw. See Peripheral Connections on page 9 for the earth ground screw location.
3. Attach an external wire to the eyelet terminal.
   a. Use a 2.5 mm^2 (14 AWG) or larger external wire to the eyelet terminal.

   IMPORTANT Use a grounding wire with an insulation color approved by your local inspection authority.

   b. Strip 5 mm (0.2 in.) from the covering at the end of the grounding wire.
   c. Insert the stripped end of the grounding wire into the open end of the eyelet terminal.
   d. Crimp the grounding wire to the eyelet terminal.
4. Install the ground wire and washers to the ground screw in sequence.

Note No.	Description	Ground Screw Assembly Sequence
1	Tooth washer	
2	Eyelet terminal	
3	Washer	
4	Lock washer	
5	Ground screw	

5. Reinstall the ground screw to your panel PC chassis.

Connect the DC Power Connector Assembly

The 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.

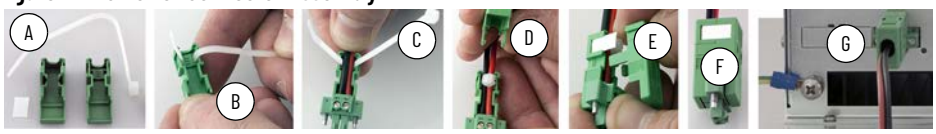
ATTENTION: When connecting power to the PC panel for the first time, the default UEFI setting automatically starts the after it is plugged into a power source.

ATTENTION: For panel PCs with a Windows® 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.
- supply your panel PC with its own disconnect. Use a UPS (uninterruptible power supply) to help protect against unexpected power failure or power surges.
- **always** shut down the Windows OS **before** disconnecting power to your panel PC to minimize performance degradation and OS failures.

SHOCK HAZARD: All DC-powered models **require** a SELV (Safety Extra Low Voltage) power supply. The power supply is internally protected against reverse polarity.

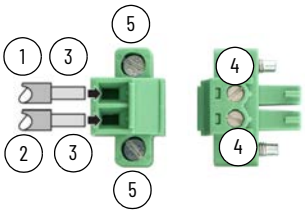
IMPORTANT To minimize ground loop currents and noise, Rockwell Automation recommends DC-powered models use only one grounded connection.

Figure 2 - DC Power Connector Assembly



IMPORTANT The DC terminal block shown in Figure 2 and Table 11 are for illustrative purposes only. Your DC terminal block can differ in size, shape, and color to what is shown.

Table 11 - DC Terminal Block Terminal Connection Specifications



Note No.	Description	Attribute
1	DC+ (24V DC nominal) recommended power wire size	1.5 mm^2 (16 AWG)
2	DC- (0V DC) recommended power wire size	
3	Stripped wire length	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)
5	Torque value to reinstall DC terminal block to industrial PC	0.3 N•m (0.22 ft•lb)

1. Remove the DC terminal block from your panel PC chassis.
2. Open the power connector assembly kit shipped with your panel PC (A in Figure 2).
3. Insert the cable tie through the slots of the appropriate connector half (B in Figure 2).

   IMPORTANT DC power wires **must** be of stranded copper, certified for at least 85 °C (185 °F) operation, and sized according to Table 11.

4. Strip the end of each DC power wire to the length in Table 11.
5. Insert each stripped end into the DC terminal block as shown in Table 11.
6. Tighten the screws on top of the terminal block to secure the DC power wires to the torque value in Table 11.
7. Slide the connector half with the attached tie onto the end of the DC terminal block (C in Figure 2).
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 in Figure 2).
10. Install the white label supplied with the kit (E in Figure 2).

    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 in Figure 2).

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

12. Reconnect the DC terminal block with the connector assembly to your panel PC chassis (G in Figure 2).
13. Torque the DC terminal block flange screws to the values in Figure 2.

Apply Power

1. Turn on the main power switch or breaker.
2. Connect the DC power.

   The light-emitting diode (LEDs) status indicator on the front bezel illuminates and LED status indicators on the underside of the panel PC illuminate.

ATTENTION: Risk of operating system corruption.
Do not disconnect power from the system until after the Windows Setup procedure is completed.If power is disconnected during this procedure your system image can become corrupt.

See Panel PC LEDs and Buttons on page 43 for LED status indicator definitions.

Operation

Operating Guidelines

When your panel PC is mounted in an enclosure, follow the guidelines below.

- Operator access is limited to the front of your panel PC, which includes the display and the touch screen.

IMPORTANT	Access to components behind the panel where your panel PC is installed is restricted to authorized and properly trained personnel.

- Keep the enclosure door closed during operation to minimize dust and other airborne contamination entering your panel PC. Open the door only for routine maintenance.

ATTENTION: Risk of product damage. Do **not** operate your panel PC with the covers removed. All covers are required to maintain its electromagnetic interference (EMI) shield.

- Always use the proper shut-down procedures as required by your OS, such as the Shut Down command in the Microsoft Windows® OS.
- After you shut down your panel PC, do not apply power again until shutdown is complete.

Touch Screen Precautions

WARNING: Risk of death or serious injury. Failure to follow these instructions can result in death or serious injury.

- Use of the LCD screen could result in a potentially hazardous outcome if the LCD screen darkens, is difficult to read, or the back light is not functioning properly. Do **not** use the LCD touch screen under these circumstances.
- The design of your system must consider the possibility of the LCD screen or LCD touch screen to lose functionality, which can result in the inability to use, maintain, or change control of the system.
- The touch screen **cannot** be the single point of control of critical functions and is **not** intended to replace an E-stop. Design of the system must follow all applicable code and good engineering practice. Factors to consider include:
  - the possibility of an unreadable LCD screen.
  - the possibility of an inoperable touch screen.
  - unexpected communication errors or delays.
  - operator error in the control of the system.
  - proper use of E-stops and other safety practices.
- You must provide means to achieve a safe state during anomalies and verify that the system has adequate redundancy for critical functions.

Touch Screen Calibration

Table 12 - Calibration

Touch Screen Type	Driver	Field Calibration
Analog Resistive	eGalax®	Yes
PCAP	Microsoft Windows® HID (Human Interface Device)	No

Manual Start

Follow these steps to manually start your panel PC

IMPORTANT The following steps apply when your panel PC must be started manually, and DC power has been previously connected.
See Apply Power on page 20 if power has never been connected.

1. Make sure that all necessary peripheral devices are connected to the corresponding I/O ports on your panel PC.
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. See Table 14 on page 43 for button locations.

Restart

Use either of the following methods to restart your panel PC.

- **Method 1:** From the Start menu, click or select Restart.
- **Method 2:** Press Ctrl+Alt+Delete, then click or select Restart.

During a restart, the following occurs:

- RAM is cleared.
- Power on self test (POST) starts.
- Peripheral devices are initiated.
- Microsoft Windows® OS loads.

Use the display to view the progress of the POST, initialize any peripheral devices, and the startup dialogs for any installed Windows® OS.

Reset

IMPORTANT A system reset can cause data loss and possible corruption to the OS. Before performing a system reset, try keyboard or mouse commands or if the resumed DC power does not restart the system.

Use this method when power has been interrupted temporarily, and your panel PC is unresponsive when power returns.

If methods to restart your panel PC are unsuccessful, then:

1. Press the system reset button on the front of your panel PC. See Table 14 on page 43 for the reset button location.

Shut Down

Perform one of the following methods to properly shut down your panel PC.

- **Method 1:** From the Start menu, click or select Shut Down.
- **Method 2:** Press Ctrl+Alt+Delete, then click or select Shut Down.

System Settings

A keyboard, mouse, and USB drive (16 GB minimum) are required to perform the steps in this chapter. A keyboard with numeric keypad is preferred to easily navigate within the setup utility.

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

Use the Setup Utility

About the Setup Utility

Each panel PC has a setup utility, a hardware configuration program built into the universal extensible firmware interface (UEFI). You can run the set-up utility to modify specific items from a selected menu:

Table 13 - 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 Manual Start on page 22 or Restart on page 22.

   The POST initiates.

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

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

3. Use the numeric keypad on your connected keyboard to modify the setup utility. See Table 13 to navigate to the applicable menu.

Movement	Numeric Keypad Key	Function within Current Menu
Up	8	toggle between fields in current menu
Down	2	
Page Up	9	toggle between fields
Page Down	3	
Home	7	move from top or bottom of items
End	1	
Left	4	select menus on the menu bar
Right	6	
Next lower value	- or F5 function key	select lower or higher value within a field
Next higher value	+ or F6 function key	

Back Up/Restore OS Image

Initial Steps

Before you can back up or restore the Windows® OS image, you must perform these 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 a User Agreement before you can download files.

To download the accessory files, perform the following steps.

1. Navigate to rok.auto/pcdc.
2. Click 'Download by Product' from the Download section.
3. 'Type the '6300P' within the Search field. A list of products appears.
4. Select your product.
5. Click the result within the result area, then click the Downloads button.
6. Click 'Select Downloads' under the search results. An 'Available Downloads' popup window appears.

   Use the appropriately named batch (BAT) file to Back Up the OS Image on page 26 or to Restore the OS Image on page 27
7. 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/.

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

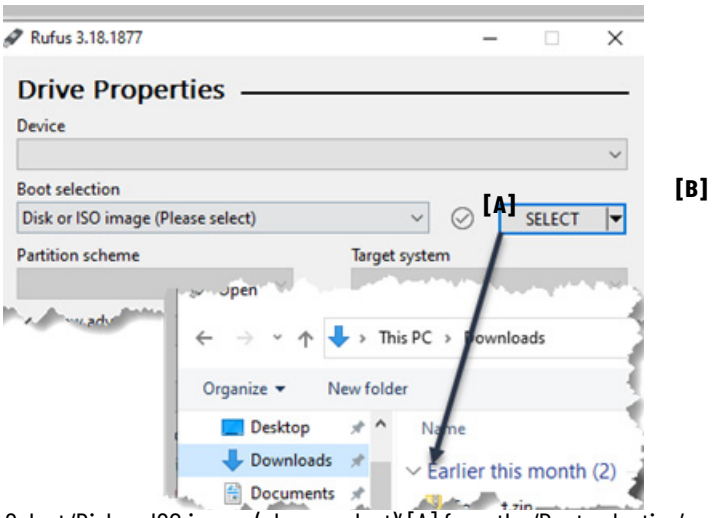
8. Install a USB drive utility of your choice to your box PC.
9. Follow the USB drive utility manufacturer's on-screen instructions for proper installation.

Step 3: Create a Bootable USB Drive

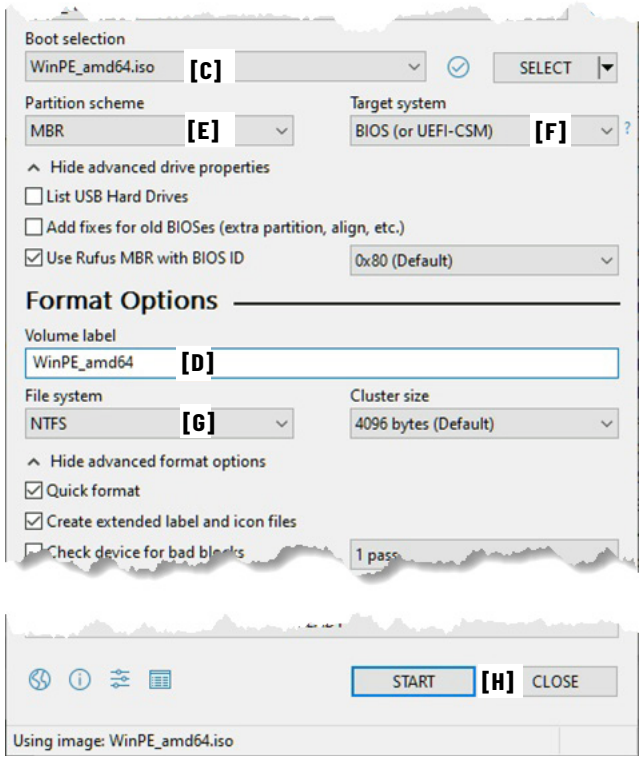
These items are required to perform the following steps:
- USB drive (16 GB minimum), and
- installation of a bootable USB utility (such as Rufus).

IMPORTANT The steps and graphics below are specific to the Rufus USB utility.

10. Connect the USB drive to your panel PC.
11. Open the bootable USB utility. The Drive Properties menu appears.



12. Select 'Disk or ISO image (please select)' [A] from the 'Boot selection' pull-down menu.
13. Click the 'SELECT' button [B]. An Open window appears displaying downloaded files.
14. Select the ISO file that you downloaded from the Rockwell Automation PCDC site. The 'Boot selection' field updates to the selected ISO file [C] and the 'Volume label' field populates to the ISO file name [D].



The 'Volume label' field (D) automatically populates with the ISO file name selected. You can rename the file if necessary.

15. Select the following from other pull-down menus:

Pull-down Menu	Selection	Graphic Notation
Partition scheme	MBR	E
Target system	BISON (or UEFI-CSM)	F
File system	MTFS	G

16. Click the Start button [H]. A popup dialogue appears to state any data on the USB drive will be erased.
17. Click the OK button within the Warning dialogue box.
18. Use the Status portion of the dialog box to monitor the boot progress.
19. Click the Close button once the boot process is complete.

Back Up the OS Image

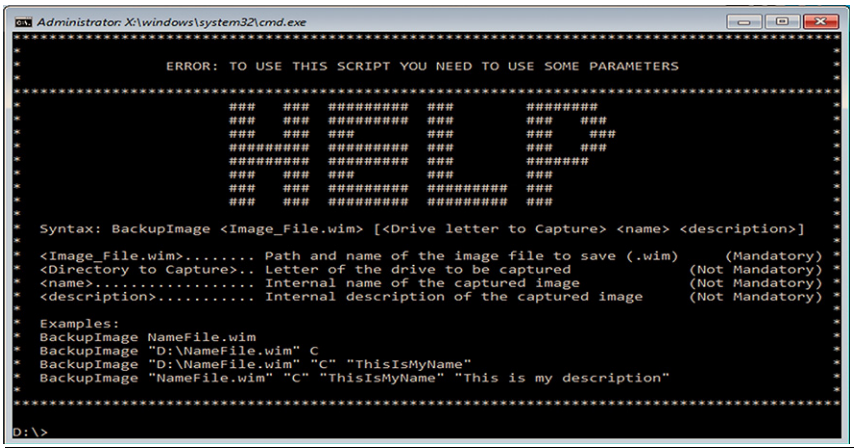
To back up the OS image, perform the following steps.

IMPORTANT Before proceeding, you must complete all actions in Initial Steps.

1. Copy the **BackupImage.bat** file on your panel PC to the bootable USB drive.
2. Restart your panel PC.
3. During the POST, press **F10** to access the Boot Menu.
4. Use the **down arrow (2)** to toggle down to the bootable USB drive you created, then press the **Enter** key.

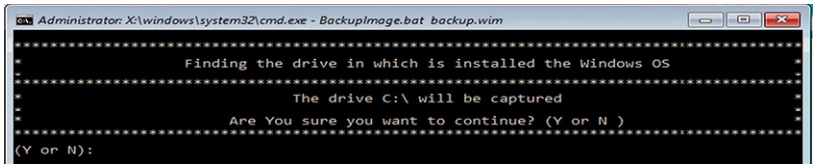
The Microsoft Windows Protective Environment (WinPE) then boots from the USB drive.

5. Navigate to the directory where the BAT file is located. For example: if you know the BAT file in on the 'D:' drive, type 'D:', then press the Enter key.
6. Type '**BackupImage.bat**', then press the **Enter** key. The following batch file script appears:

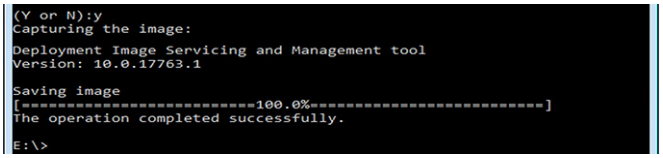


IMPORTANT The wim file name **cannot** have any space characters. Use the underscore character instead.

7. In the directory, type '**BackupImage NameFile.wim'**, where '**NameFile'** is the name of the file you want to back up.
8. Press the **Enter** key. A confirmation screen appears.



9. Confirm that the targeted drive is correct.
10. Press the **'Y'** key, then press the **Enter** key. The following script appears after the back-up process has completed.



11. Once the backup image is saved, perform one of the following actions:
    - Restart your panel PC, type **'exit'**, then press the **Enter** key **or**
    - Shut down your panel PC, type '**wpeutil shutdown'**, then press the Enter key.

Restore the OS Image

To restore the OS image on your panel PC, perform the following steps.

IMPORTANT Before you can restore the OS image, you must complete all actions in Initial Steps.

When you restore the OS image, all files on your panel PC storage drive are erased.

1. Copy the WIM and BAT files on your panel PC desktop to the bootable USB drive.
2. Restart your panel PC.
3. During the POST, press **F10** to access the Boot Menu.
4. Use the **down arrow (2)** to toggle down to the bootable USB drive you created, then press the **Enter** key.

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: if you know the BAT file in on the 'D:' drive, type 'D:', then press the Enter key. .

IMPORTANT The wim file name **cannot** have any space characters. Use the underscore character instead.

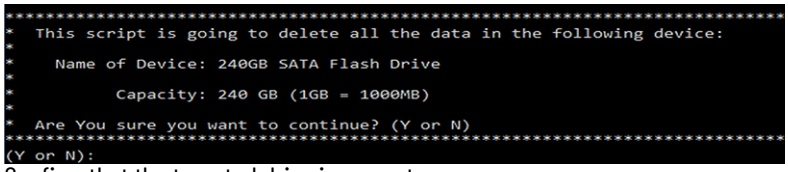
6. In the directory, type '**RestoreImageUEFI.bat NameFile.wim'** where **NameFile** is the name of the file that you wish to restore.

EXAMPLE Correct character structure example of a wim file:

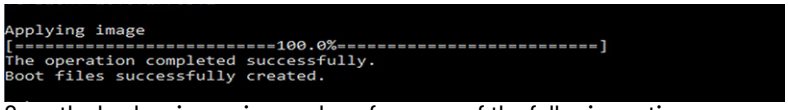
D:\RestoreImageUEFI.bat System_Image-PanelPC_6300_windows_10_2020_LTSC.wim

7. Press the **Enter** key. A confirmation screen appears.

   The device name and capacity of your panel PC can differ from what is displayed in the conformation screen.



8. Confirm that the targeted drive is correct.
9. Press the '**Y**' key, then press the **Enter** key. The following script appears after the restoration process is completed:



10. Once the backup image is saved, perform one of the following actions:
    - Restart your panel PC, type **'exit'**, then press the **Enter** key **or**
    - Shut down your panel PC, type '**wpeutil shutdown'**, then press the Enter key.

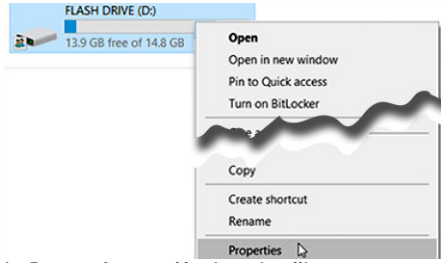
Update the UEFI

Occasionally, an UEFI update is released to enhance the performance of or to correct an anomaly of your panel PC. In such instances, a UEFI update can be downloaded from rok.auto/pcdc.

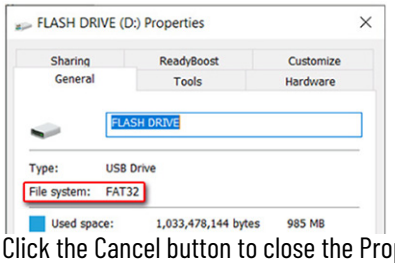
IMPORTANT The USB drive **must** be formatted as a FAT32 file system type before proceeding to later steps.

Create/Verify a FAT32-formatted USB Drive

1. Connect the USB drive to your panel PC.
2. In File Explorer, right-click on the USB drive icon then select Properties.



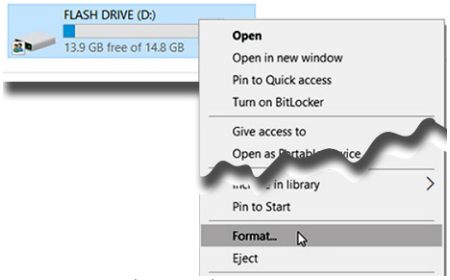
3. In Properties, verify that the file system type is FAT32.



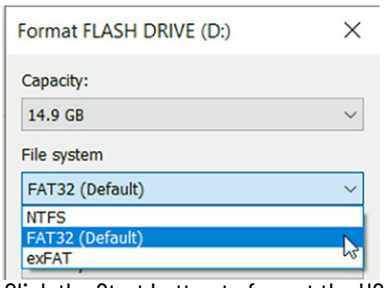
4. Click the Cancel button to close the Properties popup window.
5. If the drive is FAT32-formatted: proceed to Download the Updated UEFI Files on page 29.
   If the drive is n**ot** FAT32-formatted: proceed to step 6.

IMPORTANT If the USB drive must be FAT32-formatted, all files on the USB drive will be erased permanently. Before you proceed, transfer any required files to another location.

6. Right-click on the USB drive icon, then select **Format**.



7. Select 'FAT32(Default) from the File system pull-down menu.



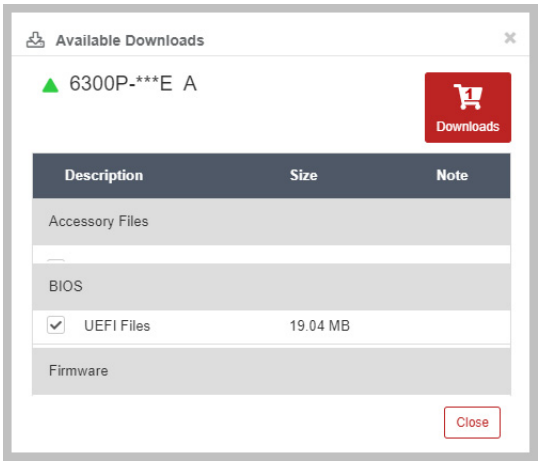
8. Click the Start button to format the USB drive to FAT32. A confirmation box appears once the format is complete.
9. Click the OK button.

Download the Updated UEFI Files

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

To download the updated UEFI, perform the following steps.

1. Access rok.auto/pcdc.
2. Click 'Download by Product' from the Download section.
3. 'Type the '6300P' within the Search field. A list of products appears.
4. Select your product.
5. Click the result within the result area, then click the Downloads button.
6. Click 'Select Downloads' under the search results. An 'Available Downloads' popup window appears.
7. Select the UEFI file within the BIOS category of the popup window, then click the Downloads button.

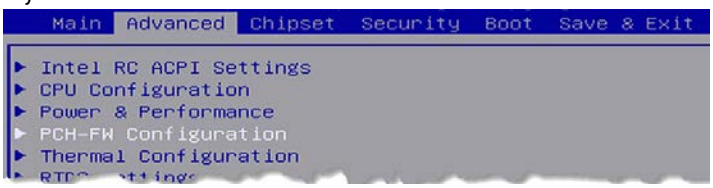


8. Download the UEFI file to the FAT32-formatted USB drive connected to your panel PC.

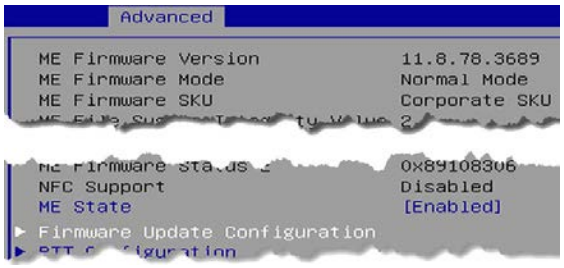
Update the UEFI

1. Verify that the following files are on your USB drive:
   - ShellFlash64.efi
   - AfuEfix64.efi
   - UEFI upgrade (bin) file

   If these files are **not** on your USB drive, complete all steps within the Download the Updated UEFI Files on page 29
2. Start or restart your panel PC.
3. During POST, press the F2 key to access the set-up utility.
4. Use the right (6) arrow to toggle over to the 'Advanced' menu.
5. Use the down (2) arrow to toggle down to 'PCH-FW Configuration', then press the Enter key.



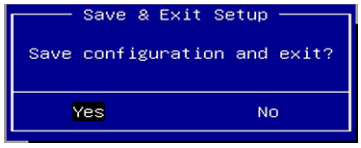
6. Use the down (2) arrow to toggle down to 'Firmware Update Configuration', then press the Enter key.



7. Enable 'Me FW Image Re-Flash', then press the Enter key.

IMPORTANT The 'Me FW Image Re-Flash' option is valid only after the next restart of your panel PC. It resets automatically with the following panel PC restart.

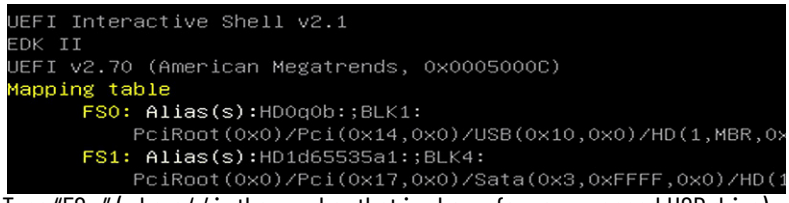
A Save and Exit Setup popup window appears.



8. Select 'Yes' then press the Enter key.
9. Restart your panel PC.
10. During POST, press F2 to enter the setup utility.
11. Use the right (6) arrow to toggle over to the 'Save and Exit' menu.
12. Use the down (2) arrow to toggle down to 'Launch EFI Shell from the filesystem device'.

13. Press the Enter key.

    The internal UEFI shell appears.



14. Type "FSx:" (where 'x' is the number that is shown for your mapped USB drive).
15. Press the Enter key.

    To verify you moved to the USB drive, use the command '**dir**' to confirm that the downloaded files are there.

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

17. Press the Enter key.

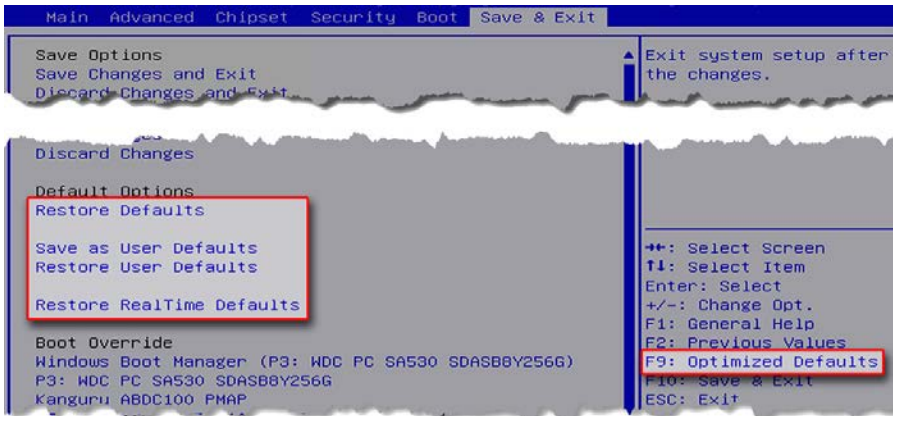
ATTENTION: Do not disconnect power from your panel PC unto after the UEFI update procedure is complete. Power loss during this procedure can cause your panel PC to be inoperable.

18. Once the UEFI update procedure is complete, restart your panel PC.
    See Restart on page 22 to properly restart your panel PC.

    In some instances, your panel PC may restart more than once before POST.

    The POST initiates.

19. During POST, press the F2 key to enter the set-up utility.
20. Use the right (6) arrow to toggle over to the 'Save & Exit' menu.
21. Use the down (2) arrow to toggle down to 'Default Options'.



The following options are available:

UEFI Setting	Function
Restore Defaults	Restores the default values for all set-up options.
Save as User Defaults	Save the changes that are already done as user defaults.
Restore User Defaults	Restores the user defaults to all set-up options.
Restore RealTime Defaults	Restores the real-time default settings.

22. Select a preferred UEFI setting.
23. (Optional) Press the F9 key to select optimized defaults.
24. Press the F10 key to save and exit the set-up utility.

Restore Factory Defaults

When a password is forgotten or a critical setup item is erroneously changed, the UEFI setup utility cannot be entered. If the UEFI setup utility cannot be entered, the DIP switch must be accessed and changed to reset to the UEFI factory-default settings.

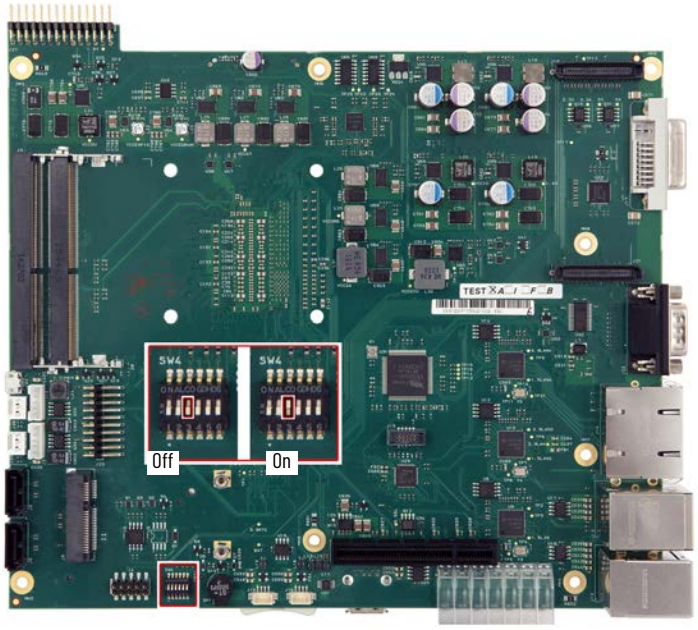
IMPORTANT Access to internal components of your panel PC is restricted to a qualified and properly trained person.

Reset the DIP Switch

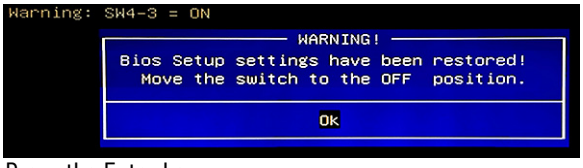
To access and reset the DIP switch, perform the following steps.

Use the toggle buttons on your numeric keypad to navigate within the set-up utility for the following steps.

1. Shut down your panel PC.
   See Shut Down on page 22.
2. Remove the cover from your panel PC.
   See Replace the RTC Battery on page 41.
3. Locate the DIP switch bank SW4.
4. Move switch 3 of bank SW4 to 'On' (factory reset).

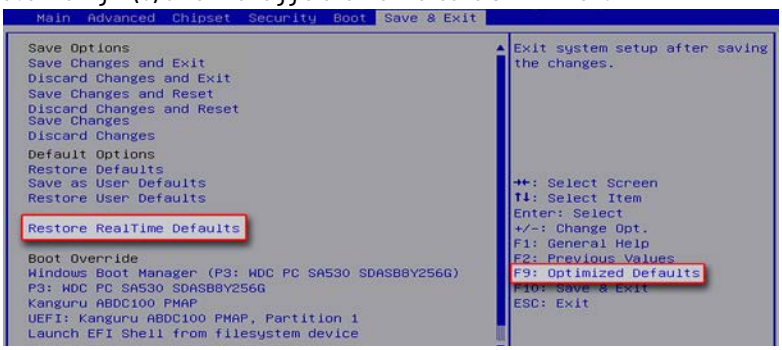


5. Reinstall the cover.
   See Install an Accessory or Replacement Part on page 42.
6. Manually start your panel PC.
   See Manual Start on page 22.
   A warning popup appears (as opposed to the POST).



7. Press the Enter key.
   The warning popup disappears after you press the Enter key, but the 'Warning: SW4-3 = ON' message remains until shut down your panel PC.
8. Manually shut down your panel PC.
   See Shut Down on page 22.

9. Remove the cover.
   See Remove the Cover on page 40.
10. Move switch 3 of bank SW4 to 'Off'.
11. Reinstall the cover.
    See Reinstall the Cover on page 42.
12. Manually start your panel PC.
    See Manual Start on page 22.
13. During POST, press the F2 key to enter the UEFI set-up utility.
14. Use the right (6) arrow to toggle over to the 'Save & Exit' menu.



15. Use the down (2) arrow to toggle down and select 'Restore RealTime Defaults'.
16. (Optional) Press F9 to select optimized defaults.
17. Press F10 to save and exit the set-up utility.

Notes:

Change Settings in BIOS Firmware

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

A keyboard, mouse, and USB drive (16 GB minimum) are required to perform the steps in this chapter. A keyboard with numeric keypad is preferred to easily navigate within the setup utility.

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® Corporation.

Disable Secure Boot

IMPORTANT The 'Secure Boot Option' **must** be set to 'Disabled' if your machine mount box PC is:

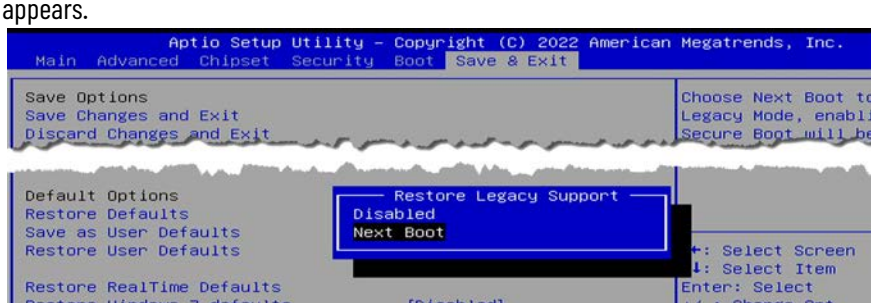
- running Windows Operating System (OS) 7, non-Windows OS (such as Linux, ThinManager®), or real-time environment (such as Codesys).
  - these are considered an untrusted source where you may receive a secure boot violation.
- using additional hardware with boot ROM (such as graphic cards or RAID controllers).

To disable Secure Boot in your BIOS, follow these instructions.

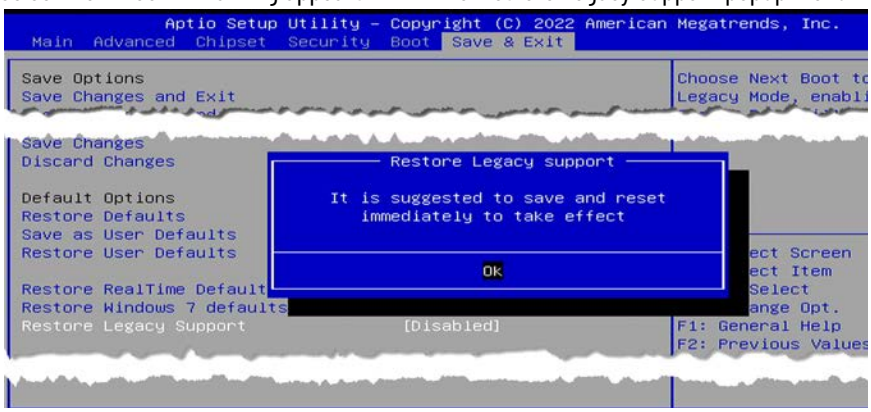
See the navigation key at far right of the setup screen to properly navigate with your keyboard.

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. 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.

Enable ThinManager

The minimum versions of ThinManager© software required are:

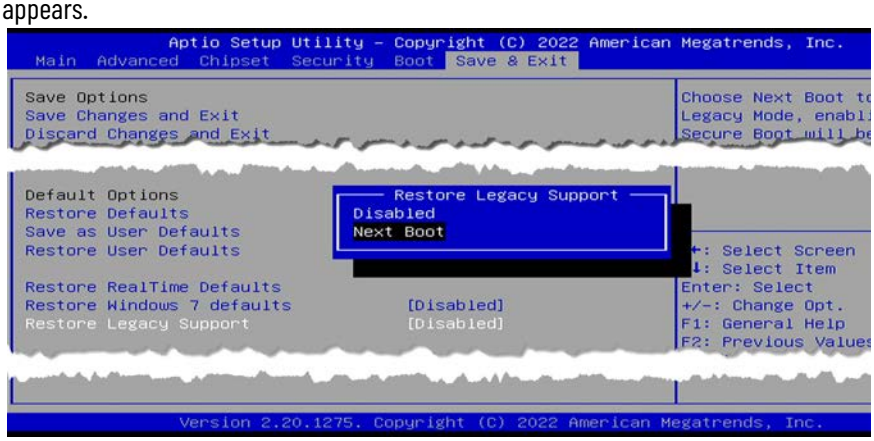
- ThinManager v11.0.0
- TermCap 9.13.1.0 or TermCap2 13.1.0
- Firmware 13.0.x

To enable ThinManager in your BIOS, follow these instructions.

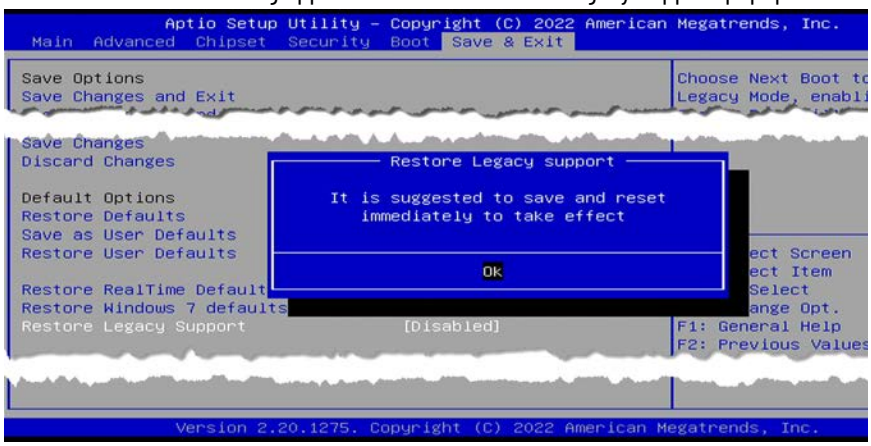
See the navigation key at far right of the setup screen to properly navigate with your keyboard.

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'.
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

Notes:

Maintenance

Your panel PC is designed for lower maintenance cost. However, maintenance can occur when its external surfaces need to be cleaned, the real time clock (RTC) battery needs to be replaced, or accessories and replacement parts need to be installed.

Record the model number, serial number, and any other pertinent information of your new components for future reference.

IMPORTANT Before performing any maintenance or service to your panel PC, you must follow the Maintenance Precautions and complete the Clean Exterior Surfaces instructions.

IMPORTANT Access to internal components of your panel PC is restricted to qualified and properly trained personnel.
Review the specifications of a new component before you install it to verify that it is compatible with your panel PC.

Maintenance Precautions

Voltage Precautions

SHOCK HAZARD: This panel PC contains line voltages. Disconnect all power to your panel PC before you install or remove components. Failure to disconnect power can result in damage to your panel PC.

Electrostatic Discharge Precautions

ATTENTION: Electrostatic discharge (ESD) can damage static-sensitive devices or micro-circuitry. Be sure to:
Disconnect all power before you work on your panel PC as detailed in Voltage Precautions.
Observe proper packaging and grounding techniques to help prevent damage.

Follow these ESD precautions:

- Transport your panel PC 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 wrist strap that is connected to the work surface.
  - Use properly grounded tools and equipment.
- Keep the designated work area free of non-conductive 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.

Clean Exterior Surfaces

For optimal performance, it is important to periodically clean the exterior surfaces of your panel PC. Perform the following steps to clean the integrated touch screen display.

IMPORTANT To be sure that the screen objects on the touch screen do not activate while cleaning the exterior surfaces, properly shut down your panel PC, then disconnect the power at the power source.

1. Perform all steps in Clean Exterior Surfaces on page 40.

   ATTENTION: Do not use abrasive cleaners, solvents, brushes, or high-pressure washes as this can cause damage to the touch screen.

2. Use a clean sponge or a soft cloth dampened with water to wipe the surfaces of your panel PC.
3. Dry the display with a chamois or moist, cellulose sponge to avoid water spots.

Prepare for Maintenance

Remove from Cutout

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 panel PC.

   See Shut Down on page 22 for instruction.
2. Disconnect all peripheral cables, including the power supply. This avoids exposure to high energy levels.

   Label each cable to expedite reconnection.
3. Loosen the mounting screws within the keyholes of the bracket from the mounting surface.
4. Lift your panel PC off of the mounting screws.
5. Use a screwdriver to remove the bracket from your panel PC.
6. Place your panel PC face down on a clean, static-free surface.

Remove the Cover

1. Use a #2 Phillips screwdriver to remove the three screws from the back cover of your panel PC.

2. Set the screws aside
3. Remove the cover from the chassis.
4. Set the cover aside.

Replace the RTC Battery

All 6300P panel PCs 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 your panel PC.

The RTC battery life depends on the amount of time your panel PC is powered on, known as on-time. The thermal light-emitting diode (LED) status indicator located on the back of your 6300P panel PC (see LED and Button Descriptions on page 43) flashes red when the RTC battery is lower than 2.5V.

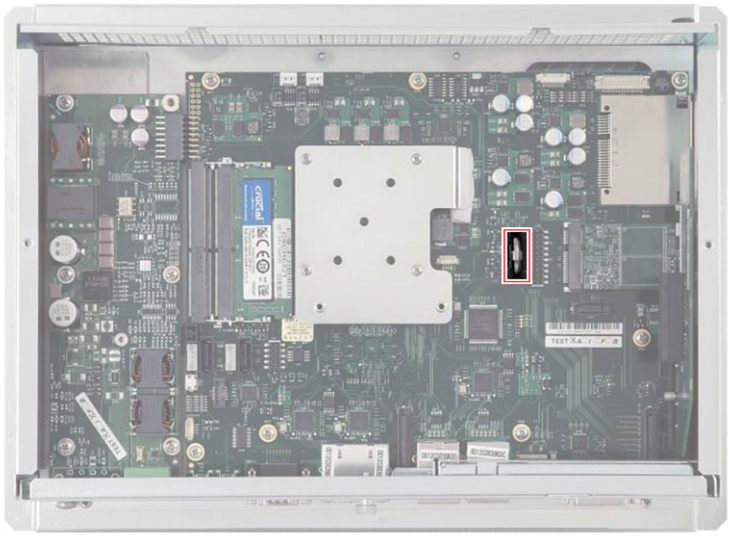
Follow these steps to replace the RTC battery.

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

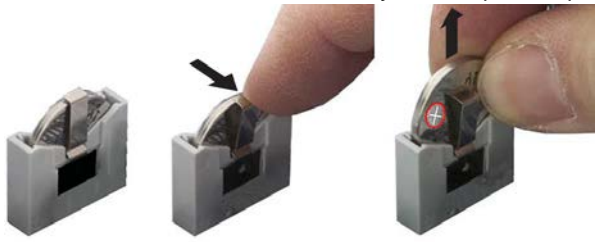
IMPORTANT Battery replacement requires work near static-sensitive equipment. Therefore, only service personnel must replace the battery.

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.

1. Perform all steps in Clean Exterior Surfaces on page 40.
2. Remove the cover from your panel PC. See Remove the Cover on page 40.
3. Locate the battery on the motherboard.



4. Remove the retired battery.
5. Install a new Lithium CR2032 3V battery with the positive polarity facing the locking tab.



The UEFI resets to default values.

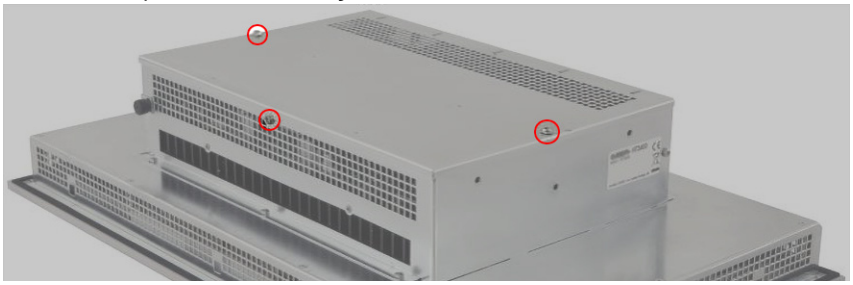
Install an Accessory or Replacement Part

For a complete list of available accessories, see , publication 6300-PC004.

1. For mounting clip replacement: Follow the steps within Mount your Panel PC on page 17.
2. For DC power connector replacement: Follow the steps within Connect the DC Power Connector Assembly on page 18
3. Proceed to Reinstall the Cover on page 42.

Reinstall the Cover

1. Properly seat the cover on the chassis of your panel PC.
2. Use a #2 Phillips screwdriver to tighten the three screws to secure the cover.



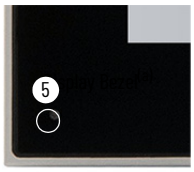
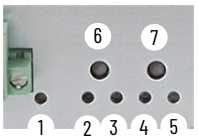
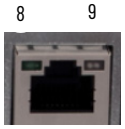
3. Reinstall the bracket and remount your panel PC.
4. Reconnect the peripheral cables and power cord.
5. Turn on the main power switch or breaker.
6. Manually start your panel PC. See Manual Start on page 22.
7. If necessary, reconfigure the UEFI settings if the default values are not suitable for your application. See Update the UEFI on page 30.

Troubleshooting

Panel PC LEDs and Buttons

Once your panel PC is powered on, various light-emitting diodes (LEDs) will illuminate or update to indicate its current state. Take notice of the LED status indicators to assist with troubleshooting your panel PC.

Table 14 - LED and Button Descriptions

LED Location	Note No.	LED or Button Name	LED Color	Lit State Indicates
 Bottom View 	1	Power Supply LED	Green	Power is drawing from the input power supply.
			Yellow	UPS unit is not properly connected. ACTION: Check the UPS connection.
			Flashing Yellow	Power is drawing from the UPS unit. ACTION: Restore power to the input power supply.
	2	Over Temperature/ Battery Fault LED	Red	Panel PC has exceeded its operating temperature. ACTION: See Panel PC LEDs and Buttons on page 43.
			Flashing Red	Real-time clock (RTC) battery is lower than 2.5V. ACTION: Replace before the RIT battery gets lower and risks loss of date and time.
	3	Watchdog LED	Green	Watchdog is working properly.
			Red	Watchdog timer has expired.
	4	Mass Storage LED	Yellow	Access to a mass storage device (SSD or CFast) is happening through a SATA channel.
	5	On/Off/ Standby/UPS LED	No Color	Your panel PC is powered off or the CPU is not starting.
			Green	• Your panel PC is powered on. • The system is in a low-power state, and current session information is being stored in the RAM.
			Flashing Green	Panel PC is being powered by the UPS unit while the main power is missing.
			Yellow	Panel PC is safe to power off; the OS has been shut down successfully.
	6	System Reset Button	—	When pressed, forces an internal reset, as if power was lost temporarily and then returned. **IMPORTANT:** A system reset can cause data loss and possible corruption to the OS. Before pressing this button, try keyboard and mouse commands or if the resumed DC power does not restart your panel PC.
	7	Watchdog Reset Button	—	Turns off the watchdog LED (item 3).
	8	Datalink LED	No Color	No Datalink is present.
			Green	Datalink is established.
			Flashing Green	Datalink is established and there is data transfer.
	9	Data Speed LED	No Color	10 Mbps
			Green	100 Mbps
			Flashing Green	1000 Mbps (1 Gbps)

Thermal Alarm

Your 6300P panel PC has a dedicated light-emitting diode (LED) status indicator that illuminates when your panel PC reaches its operating temperature. See Table 14 on page 43 for the LED locations and their functions.

The internal temperature is measured near the CPU. The over-temperature LED illuminates when a thermal limit of 85 °C (185 °F) is reached. Follow these steps to determine where an operating threshold has been reached.

Use the toggle buttons on your numeric keypad to navigate within the set-up utility for the following steps.

1. Properly shut down your panel PC as stated in Shut Down on page 22.
2. Apply power to your panel PC.
3. During POST, press F2 to access the UEFI set-up utility:
4. In the Main menu, use the right (6) arrow to toggle over to the Advanced menu.
5. In the Advanced menu, use the down (2) arrow to toggle down to select 'Hardware Monitor', then press the Enter key.
6. Use the information provided in the 'Hardware Monitor" menu to determine if there is an issue with internal voltages or component temperatures.

Isolate Issue

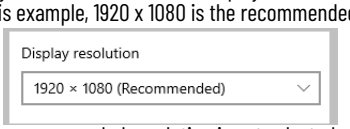
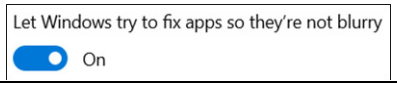
Follow these steps to identify and isolate an issue with your panel PC operation.

1. Properly shut down your panel PC as stated in Shut Down on page 22.
2. Disconnect power and all peripheral devices from your panel PC.
3. Verify the following are properly connected (if present):
   - keyboard
   - mouse
4. Reconnect power to your panel PC. The POST initiates and one of three events occurs:
   - the startup process completes,
   - a non-fatal error occurs and the related error message is displayed, or
   - a fatal error occurs and the startup process ends.
     - IF your panel PC powers on THEN reconnect all peripheral devices one at a time until the issue occurs.
     - IF the issue is with a specific software or driver THEN reinstall the software or driver.
5. If an issue cannot be identified by these steps or a fatal error occurs, see Rockwell Automation Support for technical support.

Integrated Display

The following table lists typical problems that are possible with the integrated display. It contains symptoms and possible actions to correct a problem.

Table 15 - Troubleshoot the Integrated Display

Symptom	Action
Blank screen	The video mode could be out of range. Change to the recommended resolution; see Picture is not clear action.
	Disable the screen saver on your panel PC.
	Verify that the power cord is connected.
	Test the outlet by plugging in a properly functioning device.
	Replace the suspected faulty cable or power cord.
	Have the monitor serviced.
Out of Range	Check the maximum resolution and the frequency on the video port of your panel PC.
Picture is scrambled	The video mode could be out of range. Change to the recommended resolution; see Picture is not clear action.
	Check the maximum resolution and the frequency of the video (DVI-D) port of your panel PC.
Picture is not clear	1. Verify the recommended display resolution and screen refresh frequency rate are selected. 2. On the Windows® desktop, right-click and select 'Display Settings'. 3. Scroll down to 'Scale and Layout'. 4. Verify that the recommended display resolution is selected from the pull-down menu. In this example, 1920 x 1080 is the recommended resolution.  5. If the recommended resolution is not selected, select the '(Recommended)' value from the pull-down menu. 6. Select 'Keep' from the popup menu.
	Minimize unnecessary accessories such as video extension cables.
Applications appear blurry	1. On the Windows® desktop, right-click and select Display Settings. 2. Scroll down to 'Scale and Layout'. 3. Select 'Advanced Scaling' Settings. 4. Verify 'Fix Scaling for Apps' is set to 'On'. 
Image is not stable	The video mode could be out of range. Change to the recommended resolution; see Picture is not clear symptom.
	Check for proper video cable installation. Replace the suspected faulty cable.
Screen jitter or noisy video	The video mode could be out of range. Change to the recommended resolution; see Picture is not clear symptom.
	Check for proper video cable installation. Replace the suspected faulty cable.
	Reroute the cables or replace suspected faulty cables.

System Default Options

If your panel PC displays an error after you have made changes in the set-up menu, you must load the system default settings. The system default settings have been selected to optimize your panel PC performance.

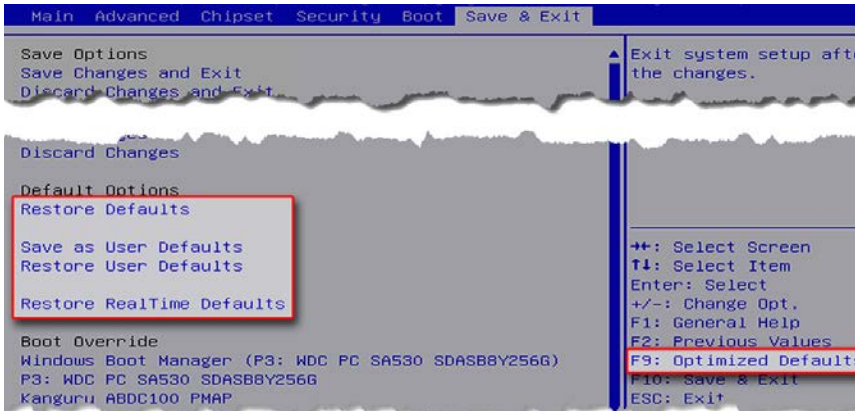
To load the system defaults, perform the following steps.

A keyboard and mouse must be connected to perform the following steps.

Use the toggle buttons on your numeric keypad to navigate within the set-up utility for the following steps.

1. Restart your panel PC using the appropriate method for the installed operating system. For more information, see Restart on page 22.
2. During POST, press F2 to access the UEFI set-up utility.
3. Use the right (6) arrow on your numeric keypad to toggle over to the 'Save and Exit' tab.

4. Use the down (2) arrow on your numeric keypad to toggle down and select a default option.



UEFI Setting	Function
Restore Defaults	Restores the default values for all set-up options.
Save as User Defaults	Save the changes that are already done as user defaults.
Restore User Defaults	Restores the user defaults to all set-up options.
Restore RealTime Defaults	Restores the real-time default settings.

5. Select a preferred UEFI setting.
6. (Optional) Press F9 to select optimized defaults.
7. Press F10 to save and exit the set-up utility.

Ship/Transport

ATTENTION: To avoid physical damage to your panel PC, do not ship or transport your panel PC until it is removed from the machine, panel, or rack. 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.

Before shipping or transporting your panel PC to another location:

1. Perform the proper shut down procedure.
2. Remove any peripheral cables.
3. Remove it from the installation site.
4. Place it in its original packing material.

Disposal

At the end of its life, collect your panel PC separately from any unsorted municipal waste.

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

When a storage drive is part of your disposal, permanently erase any data on it or destroy the drive before disposing of it.

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

Documentation Feedback

Your comments help us serve your documentation needs better. If you have any suggestions on how to improve our content, complete the form at rok.auto/docfeedback.

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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