

# Magelis S-Panel PC

## Optimized User Manual

02-2016

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The information provided in this documentation contains general descriptions and/or technical characteristics of the performance of the products contained herein. This documentation is not intended as a substitute for and is not to be used for determining suitability or reliability of these products for specific user applications. It is the duty of any such user or integrator to perform the appropriate and complete risk analysis, evaluation and testing of the products with respect to the relevant specific application or use thereof. Neither Schneider Electric nor any of its affiliates or subsidiaries shall be responsible or liable for misuse of the information contained herein. If you have any suggestions for improvements or amendments or have found errors in this publication, please notify us.

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All pertinent state, regional, and local safety regulations must be observed when installing and using this product. For reasons of safety and to help ensure compliance with documented system data, only the manufacturer should perform repairs to components.

When devices are used for applications with technical safety requirements, the relevant instructions must be followed.

Failure to use Schneider Electric software or approved software with our hardware products may result in injury, harm, or improper operating results.

Failure to observe this information can result in injury or equipment damage.

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# Safety Information

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## Important Information

### NOTICE

Read these instructions carefully, and look at the equipment to become familiar with the device before trying to install, operate, service, or maintain it. The following special messages may appear throughout this documentation or on the equipment to warn of potential hazards or to call attention to information that clarifies or simplifies a procedure.



The addition of this symbol to a “Danger” or “Warning” safety label indicates that an electrical hazard exists which will result in personal injury if the instructions are not followed.



This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

## **DANGER**

**DANGER** indicates a hazardous situation which, if not avoided, **will result in** death or serious injury.

## **WARNING**

**WARNING** indicates a hazardous situation which, if not avoided, **could result in** death or serious injury.

## **CAUTION**

**CAUTION** indicates a hazardous situation which, if not avoided, **could result** in minor or moderate injury.

## **NOTICE**

**NOTICE** is used to address practices not related to physical injury.

---

## PLEASE NOTE

Electrical equipment should be installed, operated, serviced, and maintained only by qualified personnel. No responsibility is assumed by Schneider Electric for any consequences arising out of the use of this material.

A qualified person is one who has skills and knowledge related to the construction and operation of electrical equipment and its installation, and has received safety training to recognize and avoid the hazards involved.

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# About the Book

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## At a Glance

### Document Scope

This manual describes the configuration and usage of the S-Panel PC Optimized, part of the range of Magelis Industrial PC, for its cataloged and configured product offers.

The S-Panel PC is designed to operate in an industrial environment.

#### 1 Cataloged product offer:

- HMIPSOH552D1801 - S-Panel PC Optimized HDD W10" DC - Win 8.1
  - 24 Vdc
  - W10" WXGA LED LCD multi-touch screen
  - ATOM-E3827 processor
  - 4 GB SDRAM
  - 500 GB Hard disk drive (HDD)
  - Win 8.1 Industry (64 bit En MUI)
  - 1 mini PCIe
- HMIPSOS552D1801 - S-Panel PC Optimized SSD W10" DC - Win 8.1
  - 24 Vdc
  - W10" WXGA LED LCD multi-touch screen
  - ATOM-E3827 processor
  - 4 GB SDRAM
  - 80 GB Flash drive (SSD)
  - Win 8.1 Industry (64 bit En MUI)
  - 1 mini PCIe
- HMIPSOC552D1W01 - S-Panel PC Optimized CFast W10" DC - WES
  - 24 Vdc
  - W10" WXGA LED LCD multi-touch screen
  - ATOM-E3827 processor
  - 4 GB SDRAM
  - 16 GB CFast card
  - WES 7 Premium SP1 (64 bit En MUI)
  - 1 mini PCIe
- HMIPSO0552D1001 - S-Panel PC Optimized W10" DC - Base unit
  - 24 Vdc
  - W10" WXGA LED LCD multi-touch screen
  - ATOM-E3827 processor
  - 4 GB SDRAM
  - 1 mini PCIe

- 
- HMIPSOH752D1801 - S-Panel PC Optimized HDD W15" DC - Win 8.1
    - 24 Vdc
    - W15" WHD LED LCD multi-touch screen
    - ATOM-E3827 processor
    - 4 GB SDRAM
    - 500 GB Hard disk drive (HDD)
    - Win 8.1 Industry (64 bit En MUI)
    - 1 mini PCIe
  - HMIPSOS752D1801 - S-Panel PC Optimized SSD W15" DC - Win 8.1
    - 24 Vdc
    - W15" WHD LED LCD multi-touch screen
    - ATOM-E3827 processor
    - 4 GB SDRAM
    - 80 GB Flash drive (SSD)
    - Win 8.1 Industry (64 bit En MUI)
    - 1 mini PCIe
  - HMIPSOC752D1W01 - S-Panel PC Optimized CFAST W15" DC - WES
    - 24 Vdc
    - W15" WHD LED LCD multi-touch screen
    - ATOM-E3827 processor
    - 4 GB SDRAM
    - 16 GB CFAST card
    - WES 7 Premium SP1 (64 bit En MUI)
    - 1 mini PCIe
  - HMIPSO0752D1001 - S-Panel PC Optimized W15" DC - Base unit
    - 24 Vdc
    - W15" WHD LED LCD multi-touch screen
    - ATOM-E3827 processor
    - 4 GB SDRAM
    - 1 mini PCIe

**NOTE:** The part number for your unit may not be included in the user manual. Commercial part numbers listed in the user manual are for products available when the user manual was published. New part numbers may be added to the product range.

New and existing cataloged part numbers are always composed of a prefix (HMI) followed by a serial arrangement of 9 alphanumeric characters. Each one of the nine characters matches with one characteristic of the cataloged S-Panel PC, such as storage device size, storage device type, memory size, and bundled software.



Use the following legend to identify the features that correspond with each character of the part number:

Character number	Prefix	1	2	3	4	5	6	7	8	9	10	11	12
Part number example	HMI	P	S	O	H	7	5	2	D	1	8	0	1
Range name	S-Panel PC												
iPC family		P											
Type	Simple panel PC		S										
Version	Optimized			O									
Drive	Hard disk drive (HDD)				H								
	Flash drive (SSD)				S								
	CFast card (CF)				C								
	None				0								
Screen size	W10" WXGA					5							
	W15" WHD					7							
Screen type	Wide						5						
Screen type	Premium							2					
Power supply	DC								D				
Extension slot	One									1			
Operating system	Win 8.1 Industry (64 bit En MUI)										8		
	WES 7 Premium SP1 (64 bit En MUI)										W		
	None										0		
Bundled software	None											0	
Hardware iteration	Initial												1

## 2 Configured product offer:

In addition to the catalog offer, other configurations may be available in some countries.

These configured offers use a fixed method of identification. The configured part numbers are always composed of an arrangement of 20 alphanumeric characters. The 6 first characters are always **HMIPCC**. The remaining 14 characters match with one characteristic of the configured S-Panel PC, such as storage device size, storage device type, memory size, and bundled software.

The configured offers have similar characteristics and functionalities as the cataloged offer described in this manual.

In addition to this part number, a configuration number is printed on the product label.

The configuration number format is as follows:

Character number	Prefix (1-6)	7	8	9	10	11	12	13	14	15	16	17	18	19	20
<b>Part number example</b>	<b>HMI PCC</b>	<b>S</b>	<b>2</b>	<b>C</b>	<b>N</b>	<b>A</b>	<b>D</b>	<b>4</b>	<b>0</b>	<b>N</b>	<b>2</b>	<b>N</b>	<b>X</b>	<b>0</b>	<b>0</b>
iPC family	Simple panel PC	S													
Product generation	Second generation	2													
Display	W10" - WXGA	C													
	W15" - WHD	G													
Modular Box PC	None	N													
CPU type	ATOM-E3827 fan less	A													
Power supply	DC	D													
RAM	4 GB	4													
Operating system	None	0													
	WES 7 Premium SP1 (64 bit En MUI)	4													
	Win 7 Ultimate FES SP1 (64 bit En MUI)	6													
	Win 8.1 Industry (64 bit En MUI)	8													
Storage device	None	N													
	CFast 16 GB	A													
	CFast 16 GB with expansion adaptor	B													
	HDD 500 GB with expansion adaptor	Q													
	HDD 1 TB with expansion adaptor	R													
	SSD 80 GB with expansion adaptor	S													
	SSD 160 GB with expansion adaptor	T													
	SSD 240 GB with expansion adaptor	U													
	Expansion adaptor without storage drive	V													

Character number	Prefix (1-6)	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
Part number example	HMI PCC	S	2	C	N	A	D	4	0	N	2	N	X	0	0	
Options	None											0				
	Interface - NVRAM											1				
	Interface - 2 x RS 422/485 isolated											2				
	Interface - 4 x RS 422/485											3				
	Interface - 2 x USB 3.0											4				
	Interface - 2 x RS 232 isolated											5				
	Interface - 4 x RS 232											6				
	Interface - 16 x DI / 8 x DO											8				
	Interface - 1 x GPRS/GSM											D				
	Internal USB wireless LAN board and antennas											E				
	Interface - 2 x CANopen CanBus											G				
	Interface - 1 x PROFIBUS DP master NVRAM											J				
Second storage											N					
Software bundle											N					
											X					
Reserved														0		
Reserved																0

**NOTE:** All instructions applicable to the enclosed product and all safety precautions must be observed.

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## Validity Note

This document has been updated with the release of SoMachine V4.1.

The technical characteristics of the devices described in this document also appear online. To access this information online:

Step	Action
1	Go to the Schneider Electric home page <a href="http://www.schneider-electric.com">www.schneider-electric.com</a> .
2	In the <b>Search</b> box type the reference of a product or the name of a product range. <ul style="list-style-type: none"><li>• Do not include blank spaces in the reference or product range.</li><li>• To get information on grouping similar modules, use asterisks (*).</li></ul>
3	If you entered a reference, go to the <b>Product Datasheets</b> search results and click on the reference that interests you. If you entered the name of a product range, go to the <b>Product Ranges</b> search results and click on the product range that interests you.
4	If more than one reference appears in the <b>Products</b> search results, click on the reference that interests you.
5	Depending on the size of your screen, you may need to scroll down to see the data sheet.
6	To save or print a data sheet as a .pdf file, click <b>Download XXX product datasheet</b> .

The characteristics that are presented in this manual should be the same as those characteristics that appear online. In line with our policy of constant improvement, we may revise content over time to improve clarity and accuracy. If you see a difference between the manual and online information, use the online information as your reference.

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## Product Related Information

### DANGER

#### POTENTIAL FOR EXPLOSION IN HAZARDOUS LOCATION

Do not use this product in hazardous locations.

**Failure to follow these instructions will result in death or serious injury.**

### WARNING

#### LOSS OF CONTROL

- The designer of any control scheme must consider the potential failure modes of control paths and, for certain critical control functions, provide a means to achieve a safe state during and after a path failure. Examples of critical control functions are emergency stop and overtravel stop.
- Separate or redundant control paths must be provided for critical control functions.
- System control paths may include communication links. Consideration must be given to the implications of unanticipated transmission delays or failures of the link.<sup>(1)</sup>
- Each implementation of a Magelis Industrial PC must be individually and thoroughly tested for proper operation before being placed into service.

**Failure to follow these instructions can result in death, serious injury, or equipment damage.**

<sup>(1)</sup> For additional information, refer to *NEMA ICS 1.1 (latest edition), "Safety Guidelines for the Application, Installation, and Maintenance of Solid State Control"* and to *NEMA ICS 7.1 (latest edition), "Safety Standards for Construction and Guide for Selection, Installation and Operation of Adjustable-Speed Drive Systems"* or other applicable standards in your location.

The Display PC multi-touch has a touch screen with projected capacitive touch technology that may operate abnormally when the surface is wet.

### WARNING

#### LOSS OF CONTROL

- Do not touch the touch screen area during Operating System startup.
- Do not operate when the touch screen surface is wet.
- If the touch screen surface is wet, remove any excess water with a soft cloth before operation.

**Failure to follow these instructions can result in death, serious injury, or equipment damage.**

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**NOTE:**

- The touch control is disabled in case of abnormal touch (like water) for a few seconds to avoid accidental touch. The normal touch function will be recovered a few seconds after removing the abnormal touch condition.
- Do not touch the touch screen area during Operating System startup since "touch panel firmware" initializes automatically when Windows starts up.

**NOTE:**

The following characteristics are specific to the LCD and are considered normal behavior:

- LCD screen may show unevenness in the brightness of certain images or may appear different when seen from outside the specified viewing angle. Extended shadows, or cross-talk, may also appear on the sides of screen images.
- LCD screen pixels may contain black and white-colored spots and color display may seem to have changed over time.
- When the same image is displayed on the screen for a long period, an after-image may appear when the image is changed. If this happens, turn off the unit, wait 10 seconds, and then restart it.
- The panel brightness may decrease when used for a long time in an environment continuously filled with inert gas. To prevent deterioration of panel brightness, regularly ventilate the panel.

**NOTE:** Do not display the same image for a long time. Change the screen image periodically.

**NOTE:** The S-Panel PC is a highly configurable device and is not based on a real-time operating system. Changes to the software and settings of the following must be considered new implementations as discussed in the previous warning messages. Examples of such changes include:

- System BIOS
- System monitor
- Operating system
- Installed hardware
- Installed software

 <b>WARNING</b>
<b>UNINTENDED EQUIPMENT OPERATION</b>
Use only Schneider Electric software with the devices described in this manual.
<b>Failure to follow these instructions can result in death, serious injury, or equipment damage.</b>

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# Chapter 1

## Important Information

---

### General

This chapter describes specific aspects related to the operation of the Magelis S-Panel PC.

### What Is in This Chapter?

This chapter contains the following topics:

Topic	Page
FCC Radio Frequency Interference Statement for U.S.A.	16
Certifications and Standards	17

## FCC Radio Frequency Interference Statement for U.S.A.

### FCC Radio Interference Information

This equipment has been tested and found to comply with the federal communications commission (FCC) limits for a Class A digital device, according to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a commercial, industrial, or business environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause or be subject to interference with radio communications. To minimize the possibility of electromagnetic interference in your application, observe the following two rules:

- Install and operate the Magelis Industrial PC in such a manner that it does not radiate sufficient electromagnetic energy to cause interference in nearby devices.
- Install and test the Magelis Industrial PC to ensure that the electromagnetic energy generated by nearby devices does not interfere with the Magelis Industrial PC's operation.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this product.

### **WARNING**

#### **ELECTROMAGNETIC / INTERFERENCE**

Electromagnetic radiation may disrupt the Magelis Industrial PC's operations, leading to unintended equipment operation. If electromagnetic interference is detected:

- Increase the distance between the Magelis Industrial PC and the interfering equipment.
- Reorient the Magelis Industrial PC and the interfering equipment.
- Reroute power and communication lines to the Magelis Industrial PC and the interfering equipment.
- Connect the Magelis Industrial PC and the interfering equipment to different power supplies.
- Always use shielded cables when connecting the Magelis Industrial PC to a peripheral device or another computer.

**Failure to follow these instructions can result in death, serious injury, or equipment damage.**



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## Certifications and Standards

### Agency Certifications

Schneider Electric submitted this product for independent testing and qualification by third-party agencies. These agencies have certified this product as meeting the following standards:

- Underwriters Laboratories Inc., UL 60950 and CSA 60950 (Information Technology Equipment).
- CCC, RCM, and EAC certification. Refer to product markings.

**NOTE:** For detailed information, contact your local distributor and see the catalog and markings on the product.

### Compliance Standards

Schneider Electric tested this product for compliance with the following compulsory standards:

- United States:
  - Federal Communications Commission, FCC Part 15, Class A
- Europe: CE
  - 2006/95/EC Low Voltage Directive, based on IEC 60950 or IEC 61010-2-201
  - 2004/108/EC EMC Directive, class A, based on IEC 61006-2 and IEC 61006-4
- Australia:
  - Standard AS/NZS CISPR11

### Qualification Standards

Schneider Electric voluntarily tested this product to additional standards. The additional tests performed, and the standards under which the tests were conducted, are identified in the environmental characteristics.

### Hazardous Substances

This product is compliant with:

- WEEE, Directive 2012/19/EU
- RoHS, Directive 2011/65/EU
- RoHS China, Standard SJ/T 11363-2006
- REACH regulation EC 1907/2006

**NOTE:** Documentation about sustainable development is available on Schneider Electric website (Product Environmental Profile and End of Life Instruction, RoHS, and REACH certificates).

### End of Life (WEEE)

The product contains electronic boards. It must be disposed of in specific treatment channels. The product contains cells and/or storage batteries which must be collected and processed separately when they have run out and at the end of product life.

Refer to the section Maintenance to extract cells and batteries from the product. These batteries do not contain a weight percentage of heavy metals over the threshold notified by European Directive 2006/66/EC.

### European (CE) Compliance

The products described in this manual comply with the European Directives concerning Electromagnetic Compatibility and Low Voltage (CE marking) when used as specified in the relevant documentation, in applications for which they are intended, and in connection with approved third-party products.

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# Chapter 2

## Physical Overview

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### Subject of this Chapter

This chapter provides a physical overview of the Magelis S-Panel PC.

### What Is in This Chapter?

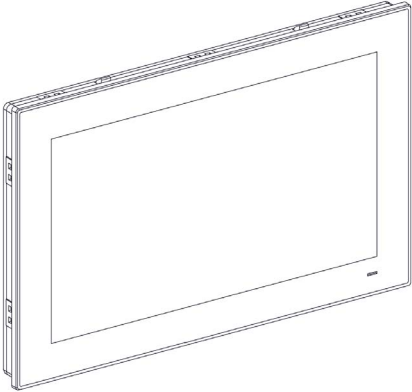
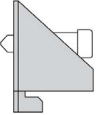
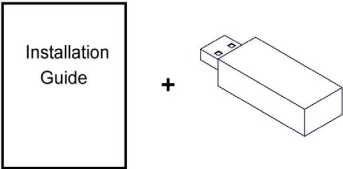
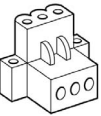
This chapter contains the following topics:

Topic	Page
Package Contents	20
Description	21

## Package Contents

### Items

The following items are included in the package of the Magelis S-Panel PC. Before using the S-Panel PC, confirm that all items listed here are present:

<p>S-Panel PC</p>	
<ul style="list-style-type: none"> <li>● 8 x installation fasteners for Display PC W10"</li> <li>● 10 x installation fasteners for Display PC W15"</li> </ul>	
<ul style="list-style-type: none"> <li>● Recovery media containing the software required to reinstall the operating system (Microsoft Windows EULA). Additional drivers are in the recovery media.</li> <li>● Chinese user manual</li> <li>● Readme file</li> <li>● Chinese RoHS flyer</li> </ul>	
<ul style="list-style-type: none"> <li>● 1 x DC terminal block: 3-pin power connector</li> <li>● 1 x wire for chassis ground</li> <li>● 1 x panel gasket</li> <li>● 1 x CFast sticker handler</li> </ul>	

The S-Panel PC has been carefully packed, with special attention to quality. However, should you find anything damaged or missing, contact your local distributor immediately.

## Description

### Introduction

During operation, the surface temperature of the heat sink may exceed 70 °C (158 °F).

#### WARNING

##### RISK OF BURNS

Do not touch the surface of the heat sink during operation.

**Failure to follow these instructions can result in death, serious injury, or equipment damage.**

The Display PC multi-touch has a touch screen with projected capacitive touch technology that may operate abnormally when the surface is wet.

#### WARNING

##### LOSS OF CONTROL

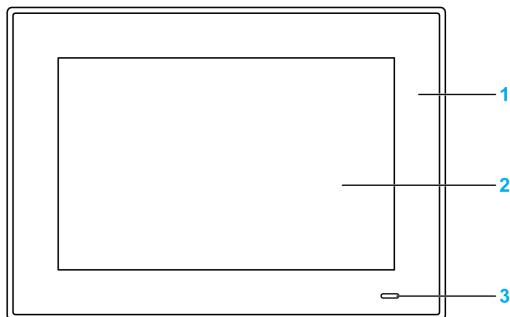
- Do not touch the touch screen area during Operating System startup.
- Do not operate when the touch screen surface is wet.
- If the touch screen surface is wet, remove any excess water with a soft cloth before operation.

**Failure to follow these instructions can result in death, serious injury, or equipment damage.**

##### NOTE:

- The touch control is disabled in case of abnormal touch (like water) for a few seconds to avoid accidental touch. The normal touch function will be recovered a few seconds after removing the abnormal touch condition.
- Do not touch the touch screen area during Operating System startup since "touch panel firmware" initializes automatically when Windows starts up.

### S-Panel PC W10" Front View

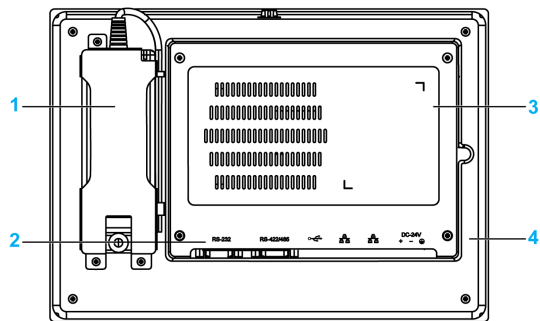


- 1 Panel
- 2 Multi-touch panel
- 3 Status indicator

The table describes the meaning of the status indicator:

Color	State	Meaning
Green	On	S-Panel PC is OK.
Orange	On	Stand by.
No light	Off	S-Panel PC is off.

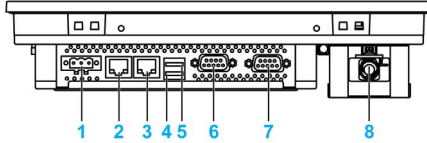
### S-Panel PC W10" Rear View



- 1 Optional AC power supply
- 2 S-Panel PC interface
- 3 Cover for access mini PCIe card and HDD/SSD drive
- 4 Panel

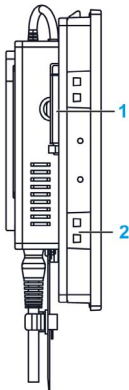
**NOTE:** The cooling method is passive heat sink.

### S-Panel PC W10" Bottom View



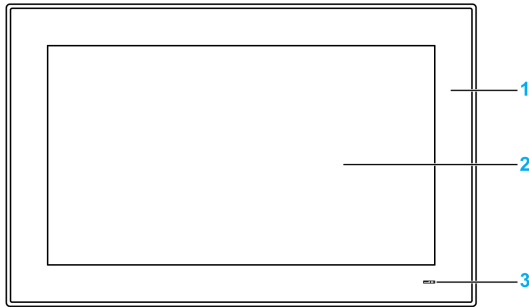
- 1 DC power connector
- 2 ETH2 (10/100/1000 Mbit/s)
- 3 ETH1 (10/100/1000 Mbit/s)
- 4 USB2 (USB 2.0)
- 5 USB1 (USB 3.0)
- 6 COM2 port RS-232/422/485
- 7 COM1 port RS-232
- 8 Optional AC power supply

### S-Panel PC W10" Side View



- 1 Access CFast memory card
- 2 Slot for the installation fasteners

### S-Panel PC W15" Front View

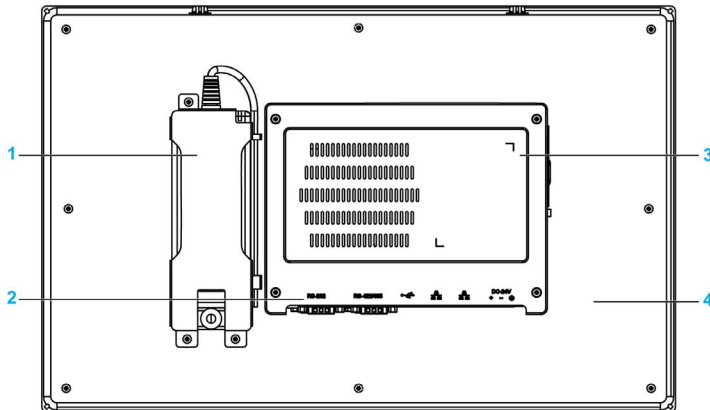


- 1 Panel
- 2 Multi-touch panel
- 3 Status indicator

The table describes the meaning of the status indicator:

Color	State	Meaning
Green	On	S-Panel PC is OK.
Orange	On	Stand by.
No light	Off	S-Panel PC is off.

### S-Panel PC W15" Rear View

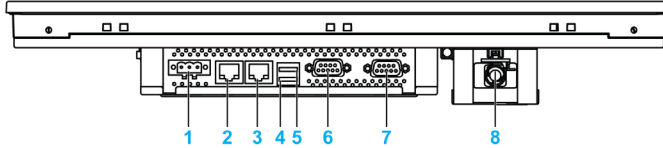


- 1 Optional AC power supply
- 2 S-Panel PC interface
- 3 Cover for access mini PCIe card and HDD/SSD drive
- 4 Panel

**NOTE:** The cooling method is passive heat sink.

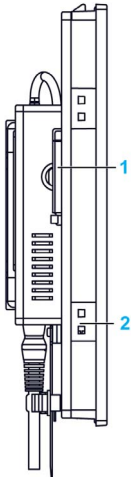


### S-Panel PC W15" Bottom View



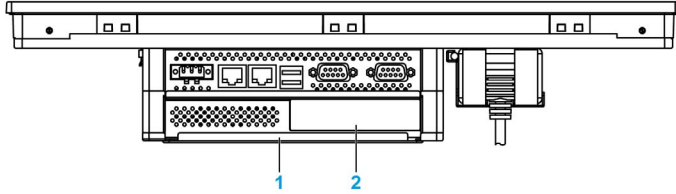
- 1 DC power connector
- 2 ETH2 (10/100/1000 Mbit/s)
- 3 ETH1 (10/100/1000 Mbit/s)
- 4 USB2 (USB 3.0)
- 5 USB1 (USB 2.0)
- 6 COM2 port RS-232/422/485
- 7 COM1 port RS-232
- 8 Optional AC power supply

### S-Panel PC W15" Side View



- 1 Access CFAST memory card
- 2 Slot for the installation fasteners

### S-Panel PC Bottom View with Extension Kit



- 1 Extension kit (HMIYPADPSOSTO1)
- 2 Optional interface

---

# Chapter 3

## Characteristics

---

### Subject of this Chapter

This chapter lists the product characteristics.

### What Is in This Chapter?

This chapter contains the following topics:

Topic	Page
Characteristics	28
Interface Characteristics	30
Environmental Characteristics	31

## Characteristics

### S-Panel PC Characteristics

The characteristics are shown below:

Element	Characteristics
Intel chipset and processor	Atom™ E3827, 1.75 GHz
Expansion slot	1 x mini PCIe
Memory	4 GB, DDR3 1600 MHz, SO-DIMM SDRAM
Storage memory	1 x CFast slot
Watch dog timer	255 level timer interval, programmable 1...255 sec/min (setting through API)
Buzzer	Yes
Cooling method	Passive heat sink
Weight	W10" Panel PC controller: Approximately 2.5 kg (5.51 lbs) W15" Panel PC controller: Approximately 3.9 kg (8.6 lbs)

### Display Characteristics

Element	10" Screen size	15" Screen size
Display type	TFT LED LCD	
Display size	10.17"	15.64"
Display resolution	WXGA 1280 x 800 pixel	HD FWXGA 1366 x 768 pixel
Brightness	300 cd/m <sup>2</sup>	
Number of colors	267,000	16.7 million
Brightness control	Step less adjustment	
View angle	Vertical >160°, horizontal >160°	Vertical >140°, horizontal >150°
Backlight life	Life span > 50,000 h at 25 °C (77 °F)	
Contrast ratio	1300:1	500:1
Touch screen light transmission	> 88 %	
Touch screen resolution	4096 x 4096 pixel	
Multi-touch	5 simultaneous touch (projected capacitive)	
Anti-scratch surface	7 H hardness	

## DC Power Supply

The following table describes the DC power supply:

Element	Characteristics
Rated voltage	24 Vdc $\pm$ 20 % (the fuse becomes an open circuit if the input level exceeds 32 Vdc)
Current consumption	W10" Panel PC controller: 1.9 A typical W15" Panel PC controller: 1.7 A typical

## Operating Systems

Each product is delivered with a preinstalled operating system according to the configuration:

Operating Systems	Part number
Win 8.1 Industry (64 bit En MUI)	HMIPSOH552D1801 HMIPSOS552D1801 HMIPSOH752D1801 HMIPSOS752D1801
WES 7 Premium SP1 (64 bit En MUI)	HMIPSOC552D1W01 HMIPSOC752D1W01

**NOTE:** All products with Windows 8 must be connected to the Internet during the first start-up for the Operating System to activate.

## Interface Characteristics

### Serial Interface

Element	Characteristics
Type	1 x RS-232/422/RS-485, (RS-485 with auto data flow control), modem-capable, not electrically isolated and 1 x RS-232 (COM1: RS-232 only)
Amount	2
Transfer rate	Maximum 115.2 kbps
Connection	D-Sub 9-pin, plug

### USB Interface

Element	Characteristics
Type	1 x USB 3.0 and 1 x USB 2.0
Amount	2
Transfer rate	Low speed (1.5 Mbit/s), full speed (12 Mbit/s), high speed (480 Mbit/s), and super speed (5 Gbit/s) USB 3.0 port only
Current load	Maximum 1 A per connection
Connection	Type A

### Ethernet Interface

Element	Characteristics
Type	RJ45
Amount	2
Speed	10/100/1000 Mbit/s
Ethernet controller	No supporting IEC 1588

**NOTE:** I/O ports (such as serial, USB, and Ethernet interfaces) on this product have internal port numbers that may differ from physical port numbers, such as "COM1", "USB1" or "ETH1", printed on the product and used for identification in this manual. Check the port numbers in your environment.

## Environmental Characteristics

### Characteristics

	<b>Value</b>
Degree of protection	IP66 front side of display
Pollution degree	For use in pollution degree 2 environment
Operating temperature	0...55 °C (32...131 °F) with SSD or CFast 0...45 °C (32...113 °F) with optional interface 0...45 °C (32...113 °F) with HDD
Storage temperature	- 20...60 °C (- 4...140 °F)
Operating altitude	2,000 m (6,560 ft) max
Vibration	5...500 Hz: 2 G <sub>rms</sub> with SSD and CFast 5...500 Hz: 1 G <sub>rms</sub> with HDD
Storage humidity	10...95 % RH at 40 °C (104 °F), no condensation





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# Chapter 4

## Dimensions / Installation

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### Subject of this Chapter

This chapter describes Magelis S-Panel PC dimensions and installation panels.

### What Is in This Chapter?

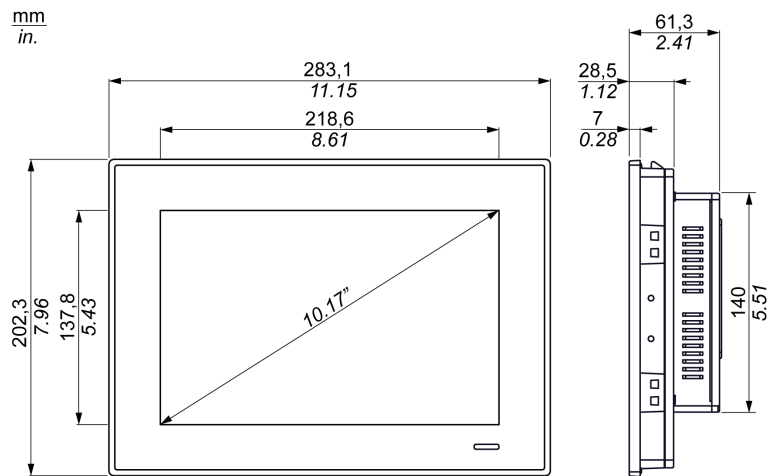
This chapter contains the following topics:

Topic	Page
Dimensions	34
Installation Requirements	38
Installation	42

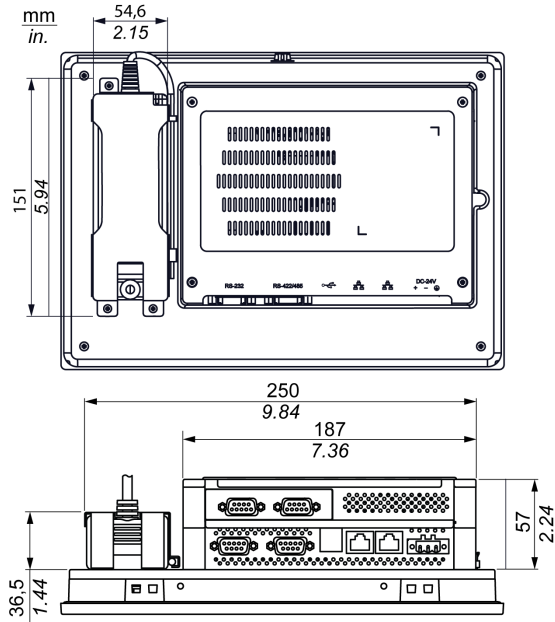
## Dimensions

### W10" Dimensions

The figure shows the dimensions without AC power supply:

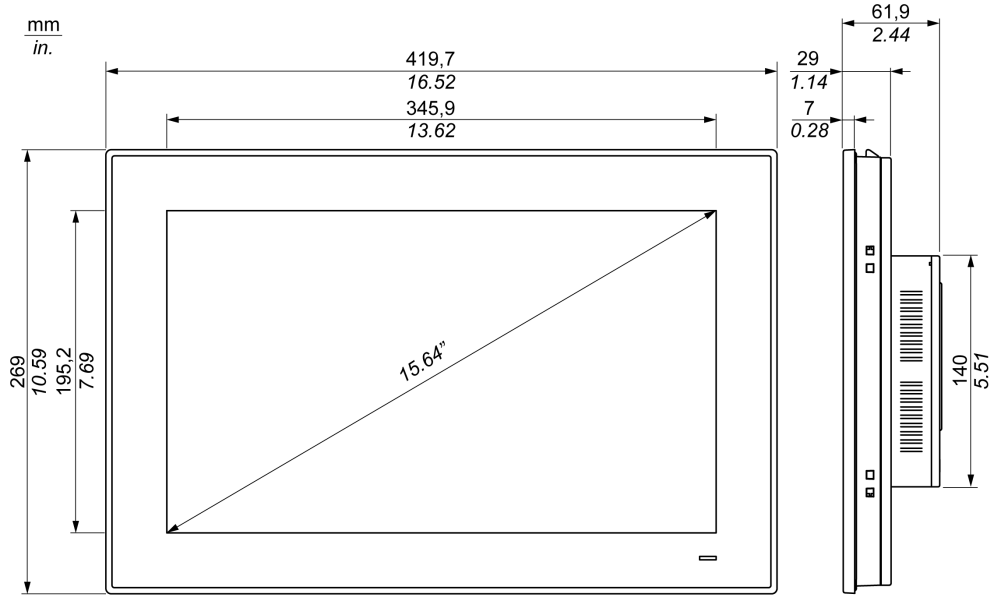


The figure shows the dimensions with the AC power supply (HMIYPSOMAC1) and the extension kit (HMIYPADPSOSTO1):

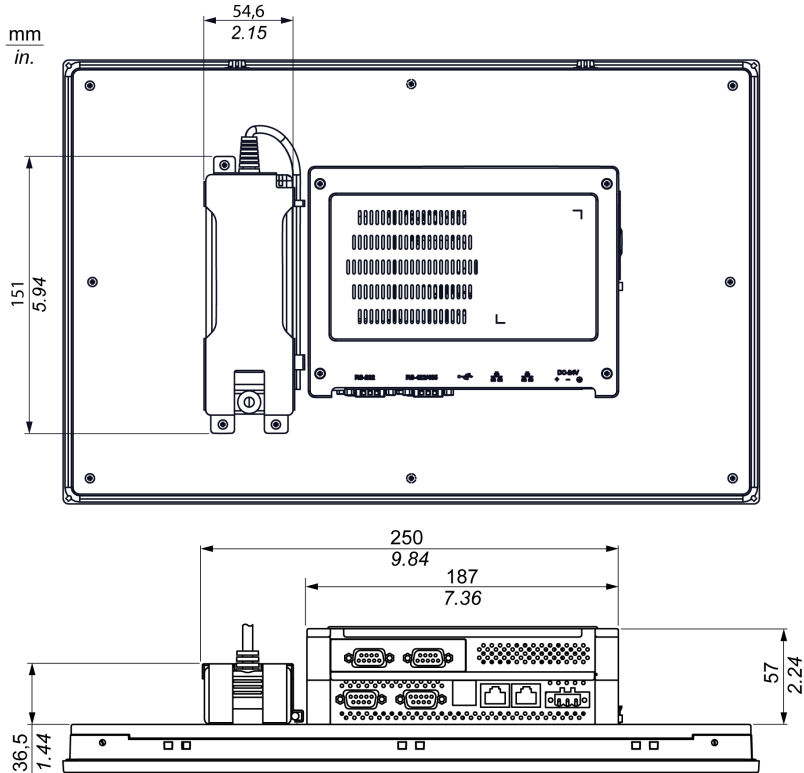


### W15" Dimensions

The figure shows the dimensions without AC power supply:



The figure shows the dimensions with the AC power supply (HMIYPSOMAC1) and the extension kit (HMIYPADPSOSTO1):



## Installation Requirements

### Important Mounting Information

Overheating of the system can cause incorrect software behavior. To prevent the system from overheating, be aware of the following:

- The environment characteristics of the system must be respected.
- The S-Panel PC is only permitted for operation in closed rooms.
- The S-Panel PC cannot be situated in direct sunlight.
- The S-Panel PC vent holes must not be covered.
- When mounting the S-Panel PC, adhere to the allowable mounting angle.

### **WARNING**

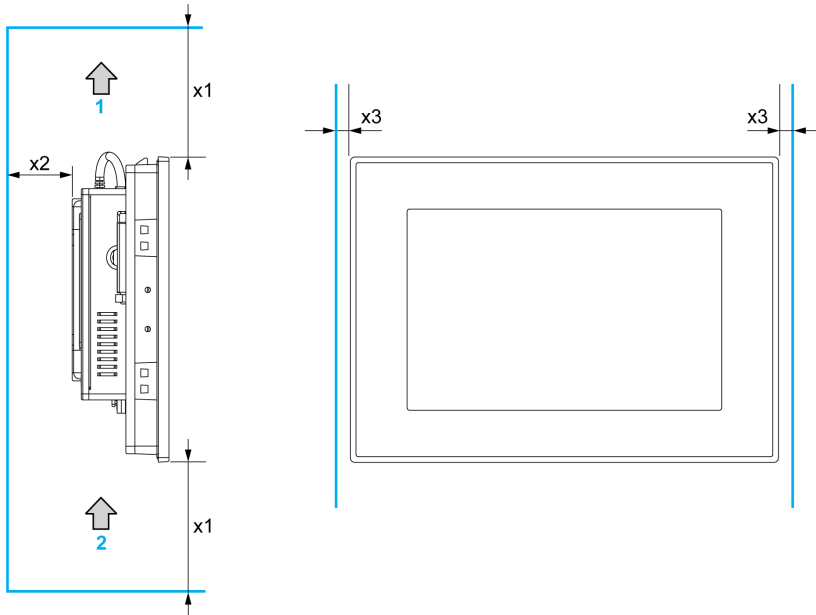
#### **UNINTENDED EQUIPMENT OPERATION**

- Do not place the Magelis Industrial PC next to other devices that might cause overheating.
- Keep the Magelis Industrial PC away from arc-generating devices such as magnetic switches and non-fused breakers.
- Avoid using the Magelis Industrial PC in environments where corrosive gases are present.
- Install the Magelis Industrial PC in a location providing a minimum clearance of 10 mm (0.39 in) or more on the left and right sides, 50 mm (1.96 in) or more on the rear side, and 100 mm (3.93 in) or more above and below the product from all adjacent structures and equipment.
- Install the Magelis Industrial PC with sufficient clearance for cable routing and cable connectors.

**Failure to follow these instructions can result in death, serious injury, or equipment damage.**

## Spacing Requirements

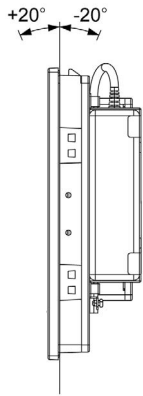
In order to provide sufficient air circulation, mount the S-Panel PC so that the spacing above, below, and on the sides of the unit is as follows:



- 1** Air out
- 2** Air in
- x1** > 100 mm (3.93 in)
- x2** > 50 mm (1.96 in)
- x3** > 10 mm (0.39 in)

### Mounting Orientation

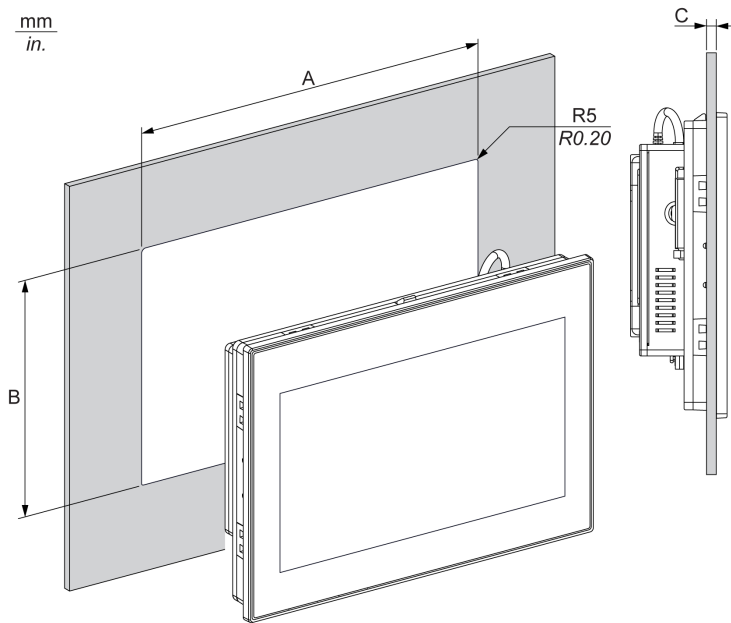
The following figure shows the allowable mounting orientation for the S-Panel PC:



### Panel Cut Dimensions

For cabinet installation, you need to cut the correct sized opening in the installation panel.

The dimensions of the opening for installing the S-Panel PC are shown below:





S-Panel PC Cut-out	A	B	C	R
W10"	274.6 ±0.7 mm (10.81 ±0.03 in)	193.8 ±0.4 mm (7.63 ±0.02 in)	2...6 mm (0.08...0.23 in)	5 mm (0.20 in)
W15"	412.4 ±0.7 mm (16.24 ±0.03 in)	261.7 ±0.4 mm (10.30 ±0.02 in)		

**NOTE:**

- Ensure that the thickness of the installation panel is from 2 to 6 mm (0.08 to 0.23 in).
- All installation panel surfaces used should be strengthened. Due consideration should be given to the weight of the S-Panel PC, especially if high levels of vibration are expected and the installation panel can move. Attach metal reinforcing strips to the inside of the panel near the panel cut-out to increase the strength of the installation panel.
- Ensure that all installation tolerances are maintained.
- The S-Panel PC is designed for use on a flat surface of a Type 4X enclosure (indoor use only).

## Installation

### Vibration and Shocks

Take extra care with respect to vibration levels when installing or moving the S-Panel PC. If you move the S-Panel PC while it is installed in a rack equipped with caster wheels, it may undergo excessive shock and vibration.

#### CAUTION

##### EXCESSIVE VIBRATION

- Plan your installation activities so that shock and vibration tolerances in the unit are not exceeded.
- Ensure that the installation panel opening and thickness are within the specified tolerances.
- Before mounting the Magelis Industrial PC into a cabinet or panel, ensure that the installation gasket is in place. The installation gasket provides additional protection from vibration.
- Tighten the installation fasteners using a torque of 0.5 Nm (4.5 lb-in).

**Failure to follow these instructions can result in injury or equipment damage.**

### Installation Gasket

The gasket is required to meet the protection ratings (IP••/NEMA 4X indoor) of the S-Panel PC. It provides additional protection from vibration.

**NOTE:** IP••/NEMA 4X indoor or Type 4 is not part of UL certification.

#### CAUTION

##### LOSS OF SEAL

- Inspect the gasket prior to installation or reinstallation, and periodically as required by your operating environment.
- Replace the complete Magelis Industrial PC if visible scratches, tears, dirt, or excessive wear are noted during inspection.
- Do not stretch the gasket unnecessarily or allow the gasket to contact the corners or edges of the frame.
- Ensure that the gasket is fully seated in the installation groove.
- Install the Magelis Industrial PC into a panel that is flat and free of scratches or dents.
- Tighten the installation fasteners using a torque of 0.5 Nm (4.5 lb-in).

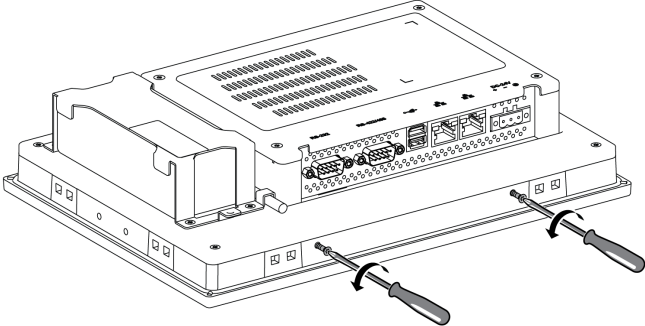
**Failure to follow these instructions can result in injury or equipment damage.**

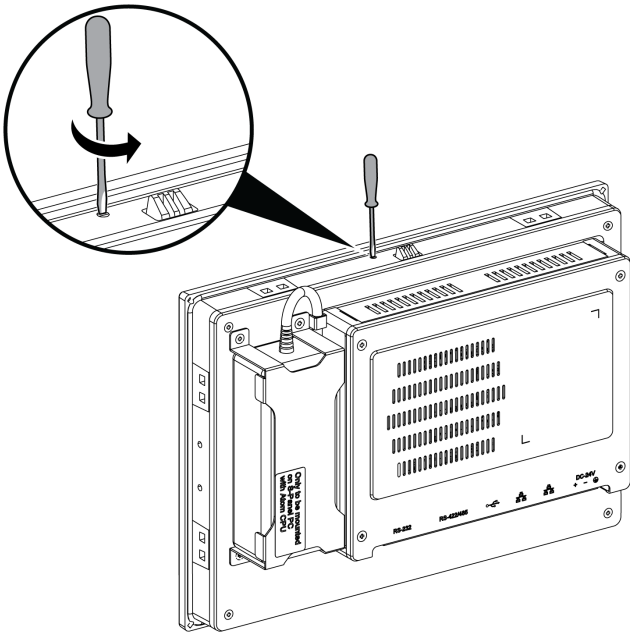
## Installation of the S-Panel PC

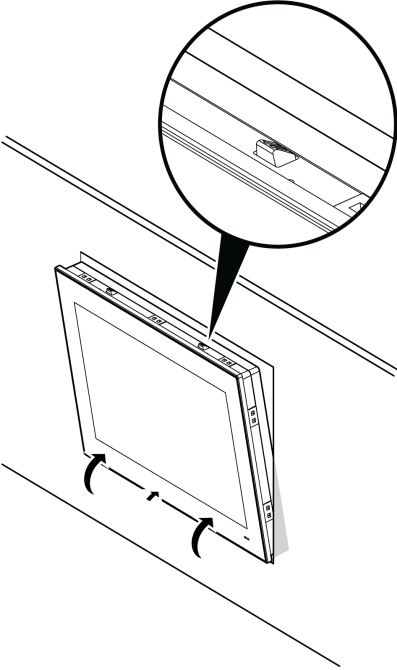
The installation gasket and the installation fasteners are required for the easy installation of the S-Panel PC. The panel mounting process of the easy installation can be completed by one person.

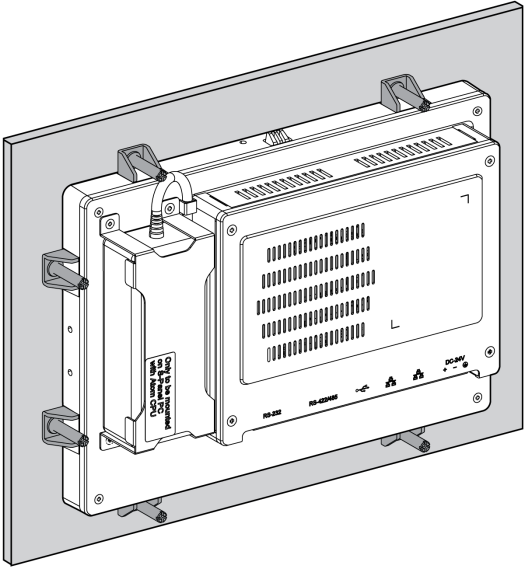
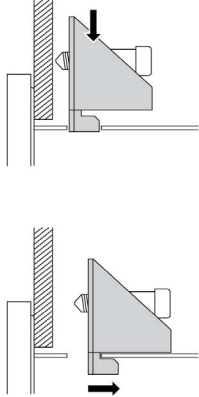
**NOTE:** For easy installation of the S-Panel PC, the suggested mounting panel thickness can be up to 2 mm (0.079 in).

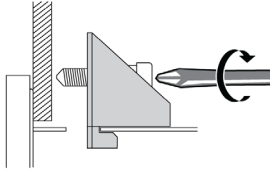
Follow these steps for the easy installation of the S-Panel PC:

Step	Action
1	<p>Check that the gasket is correctly attached to the S-Panel PC.</p> <p><b>NOTE:</b> When checking the gasket, avoid contact with the sharp edges of the S-Panel PC frame, and insert the gasket completely into its groove.</p>
2	<p>Release the 2 screws at the bottom of the S-Panel PC:</p> 

Step	Action
3	<p>Loosen the 2 cross-slotted screws from the top of the S-Panel PC to raise the snap hook:</p>  <p>Note:</p> <ul style="list-style-type: none"> <li>● 1 snap hook for the W10"</li> <li>● 2 snap hook for the W15"</li> </ul>

Step	Action
4	<p data-bbox="323 201 1240 253">Install the S-Panel PC in the panel opening and push it into the wall. The snap hook holds the S-Panel PC to the wall:</p> 

Step	Action
5	<p>Insert the installation fasteners securely into the slots at the top, bottom, left, and right side of the S-Panel PC:</p>  <p>Note:</p> <ul style="list-style-type: none"> <li>● 8 installation fasteners for the W10"</li> <li>● 10 installation fasteners for the W15"</li> </ul>
6	<p>Insert each fastener in its corresponding slot and pull the fastener back until it is flush with the rear of the fastener hole:</p> 

Step	Action
7	<p>Tighten each of the cross-slotted fastener screws, and fasten the S-Panel PC in place:</p>  <p><b>NOTE:</b> To ensure a high degree of moisture resistance, use a torque of 0.5 Nm (4.5 lb-in).</p>
8	<p>The angle of the unit is tilted no more than the amount allowed by the mounting orientation requirements.</p>

## ⚠ CAUTION

### OVERTORQUE AND LOOSE HARDWARE

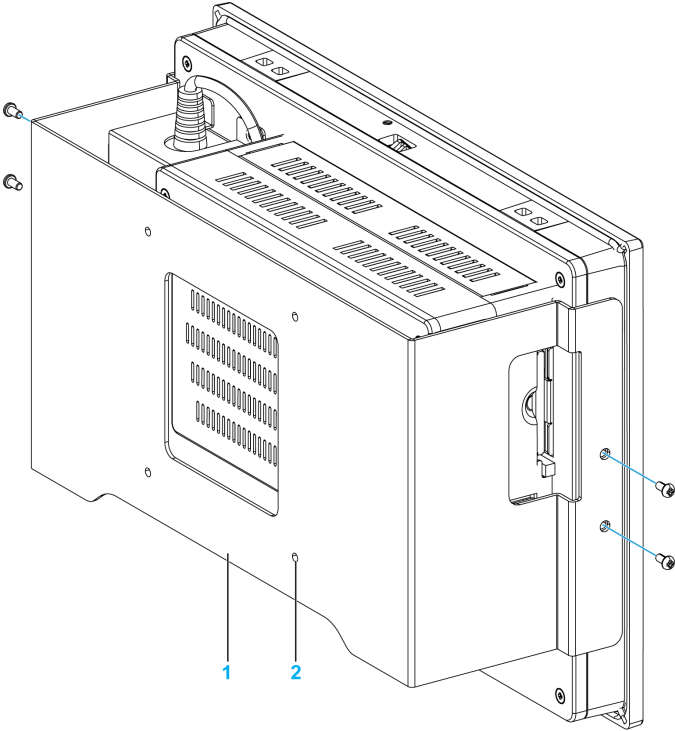
- Do not exert more than 0.5 Nm (4.5 lb-in) of torque when tightening the installation fastener, enclosure, accessory, or terminal block screws. Tightening the screws with excessive force can damage the installation fastener.
- When fastening or removing screws, ensure they do not fall inside the Magelis Industrial PC chassis.

**Failure to follow these instructions can result in injury or equipment damage.**

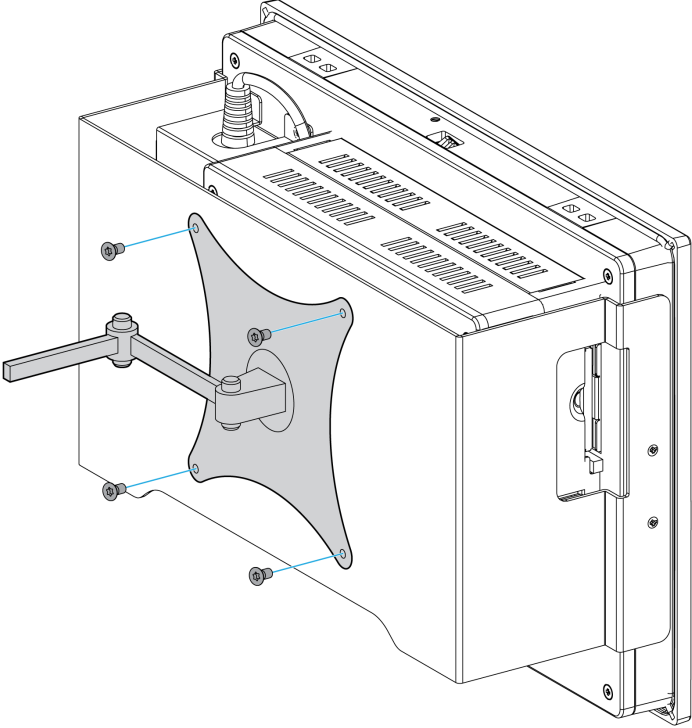
**NOTE:** The installation fasteners are required for IP\*\*/NEMA 4X indoor protection. IP\*\*/NEMA 4X indoor or Type 4 is not part of UL certification.

### Installation of the VESA Mounting Kit

Follow these steps when installing the VESA (video electronics standards association) mounting kit:

Step	Action
1	<p>Fasten the VESA mounting kit on the rear side of the S-Panel PC:</p>  <p>1 VESA plate position (size 100 x 100 mm)                  2 4 x VESA mount screws for attachment</p> <p>Note:</p> <ul style="list-style-type: none"> <li>● HMIYPVESAPSO551: VESA mounting kit for S-Panel PC W10"</li> <li>● HMIYPVESAPSO751: VESA mounting kit for S-Panel PC W15"</li> </ul>



Step	Action
2	<p data-bbox="323 204 1249 253">Use the 4 screws into the dedicated holes for installing the VESA. The angle of the unit is tilted no more than the amount allowed by the mounting orientation requirements:</p> 



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# Chapter 5

## Getting Started

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### First Power up

#### License Agreement

Limitations on your usage of the Microsoft Windows Operating System are noted in Microsoft's End User License Agreement (EULA). This EULA is included on the recovery media containing the software required to reinstall the operating system. Read this document before the first power-up.

To customize and set the system parameters during the first power-up of your S-Panel PC, refer to the Magelis S-Panel PC Installation guide.

Install and customize the Schneider Electric applications (Vijeo XD, SoMachine, OPC Factory Server).

#### Windows Embedded (WES)

The WES is a modularized version of the Windows operating system that provides increased reliability and customizations. It offers the power and familiarity of Windows in a compact, more reliable form. For more information, refer to Microsoft Windows Embedded Web page.

WES provides many tools for the customization of menus, boot screens, and dialog boxes. With WES, you can remove the Windows boot and resume animations so the screen remains black during startup. You can also remove the Windows logo from the login screen and other startup screens. Other common features of Windows include the message and dialog boxes. WES can filter these messages and keep them from appearing during run time. The developer can choose to hide any dialog box and predefine its default operation so it never displays to the user.

### EFW Manager (only on WES7)

The Magelis S-Panel PC operating system is installed on a memory card. This card is a rewritable CFast card that enables approximately 100,000 write operations.

The EFW manager (enhanced write filter manager) minimizes the number of write operations to help extend the life of the CFast card. The EFW manager loads temporary data (for example, system updates and software operations) into RAM, and does not write this information to the CFast card.

As a result, when using the EFW manager, restarting the S-Panel PC overwrites changes that the user has made to the system. The following types of changes may be overwritten if the EFW manager is active and the system is restarted:

- Newly installed applications.
- Newly installed peripherals.
- Newly created or modified user accounts.
- Network configuration changes (such as IP addresses or default gateways).
- Operating System customizations (such as desktop background).

## ***NOTICE***

### **DATA AND CONFIGURATION LOSS**

- Disable the EFW Manager before making any permanent changes to the hardware, software, or Operating System of the Magelis Industrial PC.
- Re-enable the EFW Manager after making permanent changes. This helps extend the operating life of the memory card.
- Back up all memory card data regularly to another storage media.

**Failure to follow these instructions can result in equipment damage.**

**NOTE:** Use Microsoft Embedded Lockdown Manager when using Windows Embedded 8.1 Industry 64 bits MUI.

### Enabling/Disabling the EFW Manager

You can change the status of the EFW Manager by running the `EFWManager.exe` program located in `C:\Program Files\EFWManager\`. After running this program, restart the system for the change to take effect. You need administrator privileges to enable and disable the EFW Manager.

### Right Click from Touch Screen Interface

To access the **right-click** function from the touch screen, keep touching the screen for 2 seconds and the corresponding **right-click** function is activated (for instance, displaying the shortcut menu).

## HORM

In HORM (hibernate once resume many) environment, a single hibernation file is used to restart the system repeatedly. To set a HORM environment, follow the steps below.

Make sure that EWF is disabled. You can run **OSUnLock** to disable EWF.

Enable hibernation support: From the **Control Panel**, run **Power Options** and then select **Enable Hibernation** in **Hibernation** panel.

Enable **EWF** by running **OSLock**. The system restarts.

Open the software that customers want to use right after the system resumes from hibernation.

Hibernate using the **HORM** tool. Click **Start Menu** → **All Programs** → **EWF**

The system continues to use the HORM environment unless you disable HORM. To disable **HORM**, run the **EWF** commit command (`ewfmgr c: -commit`) and then restart the system. When the system starts up, enter **F8** and select **Discard hibernation file**.

## Metro Interface with Windows Embedded 8.1 Industry

The windows **Metro** (built-in apps) is disabled by default because the UAC (user account control) notification is set to `Never notify`. For all software applications, we recommend to use the desktop version or change the software setting to start in desktop mode. Example: use **Internet Explorer** browser in desktop mode.



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# Chapter 6

## S-Panel PC Connections

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### Subject of This Chapter

This chapter describes the connection of the S-Panel PC to the main power supply. It also describes the USB ports and identifies the serial interface pin assignments.

### What Is in This Chapter?

This chapter contains the following topics:

Topic	Page
Grounding	56
Connecting the DC Power Cord	60
AC Power Supply Module Description and Installation	63
S-Panel PC Interface Connections	68

## Grounding

### Overview

The grounding resistance between the S-Panel PC ground wire and the ground must be 100  $\Omega$  or less. When using a long grounding wire, check the resistance and, if required, replace the wire with a thicker wire and place it in a duct.

The table shows the maximum length for the wires:

Wire cross-section	Maximum line length
2.5 mm <sup>2</sup> (AWG 14)	30 m (98 ft)
	60 m (196 ft) round trip



## Grounding Procedure

### **⚠ WARNING**

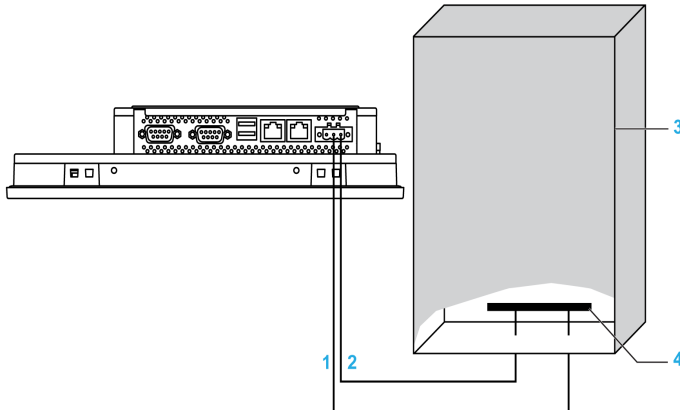
#### **UNINTENDED EQUIPMENT OPERATION**

- Use only the authorized grounding configurations shown below.
- Confirm that the grounding resistance is 100  $\Omega$  or less.
- Test the quality of your ground connection before applying power to the device. Excess noise on the ground line can disrupt operations of the Magelis Industrial PC.

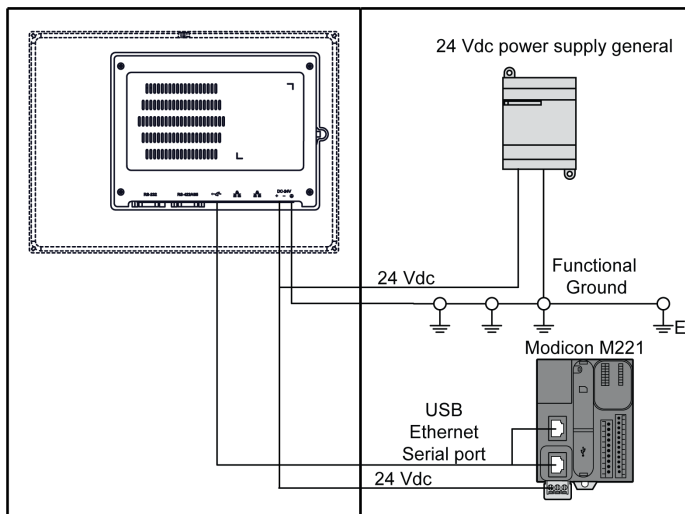
**Failure to follow these instructions can result in death, serious injury, or equipment damage.**

The S-Panel PC ground has 2 connections:

- DC Supply voltage
- Ground connection pin



- 1 Supply voltage
- 2 Ground connection pin (functional ground connection pin)
- 3 Switching cabinet
- 4 Grounding strip



**NOTE:** Use the AC power supply for connecting the S-Panel PC.

When grounding, follow this procedure:

Step	Action
1	<p>Ensure all of the following is done for the system wiring:</p> <ul style="list-style-type: none"> <li>● Connect the cabinet to ground.</li> <li>● Ensure that all cabinets are grounded together.</li> <li>● Connect the ground of the power supply to the cabinet.</li> <li>● Connect the ground pin of the S-Panel PC to the cabinet.</li> <li>● Connect the I/O to the controller if needed.</li> <li>● Connect the power supply to the S-Panel PC.</li> </ul>
2	Check that the grounding resistance is 100 Ω or less.
3	<p>When connecting the SG line to another device, ensure that the design of the system/connection does not produce a ground loop.</p> <p><b>NOTE:</b> The SG and ground connection screw are connected internally in the S-Panel PC.</p>
4	Use 2.5 mm <sup>2</sup> (AWG 14) wire to make the ground connection. Create the connection point as close to the S-Panel PC as possible and make the wire as short as possible.

## Grounding I/O Signal Lines

### DANGER

#### POTENTIAL FOR EXPLOSION IN HAZARDOUS LOCATION

Do not use this product in hazardous locations.

**Failure to follow these instructions will result in death or serious injury.**

Electromagnetic radiation may interfere with the control communications of the S-Panel PC.

### WARNING

#### UNINTENDED EQUIPMENT OPERATION

- If wiring of I/O lines near power lines or radio equipment is unavoidable, use shielded cables and ground one end of the shield to the Magelis Industrial PC ground connection screw.
- Do not wire I/O lines in proximity to power cables, radio devices, or other equipment that may cause electromagnetic interference.

**Failure to follow these instructions can result in death, serious injury, or equipment damage.**

## Connecting the DC Power Cord

### Precaution

When connecting the power cord to the power connector on the S-Panel PC, first ensure that the power cord is disconnected from the DC power supply.

**NOTE:** The power cord can be connected to an AC power module (HMIYPSOMAC1).

### DANGER

#### HAZARD OF ELECTRIC SHOCK, EXPLOSION OR ARC FLASH

- Remove all power from the device before removing any covers or elements of the system, and prior to installing or removing any accessories, hardware, or cables.
- Unplug the power cable from both the Magelis Industrial PC and the power supply.
- Always use a properly rated voltage sensing device to confirm power is off.
- Replace and secure all covers or elements of the system before applying power to the unit.
- Use only the specified voltage when operating the Magelis Industrial PC. The DC unit is designed to use 24 Vdc input.

**Failure to follow these instructions will result in death or serious injury.**

### WARNING

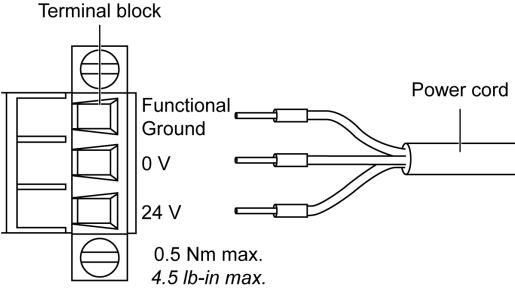
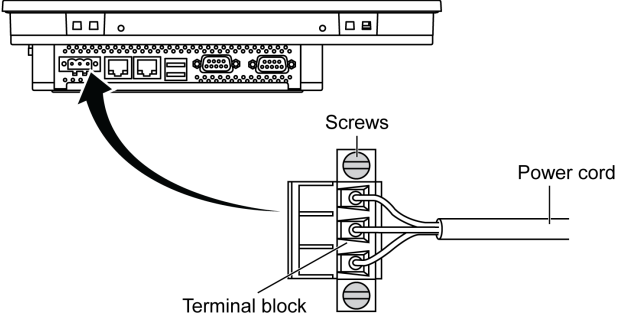
#### EQUIPMENT DISCONNECTION OR UNINTENDED EQUIPMENT OPERATION

- Ensure that power, communication, and accessory connections do not place excessive stress on the ports. Consider the vibration in the environment.
- Securely attach power, communication, and external accessory cables to the panel or cabinet.
- Use only D-Sub 9-pin connector cables with a locking system in good condition.
- Use only commercially available USB cables.

**Failure to follow these instructions can result in death, serious injury, or equipment damage.**

## Wiring and Connecting the Terminal Block

The table below describes how to connect the power cord to the DC terminal block of the S-Panel PC:

Step	Action
1	Remove all power from the S-Panel PC and confirm that the power adapter is disconnected from its power source.
2	<p>Remove the terminal block from the power connector and connect the power cord to the terminal block:</p>  <p>Use copper wire rated for 75 °C (167 °F) with a section of 0.75 to 2.5 mm<sup>2</sup> (AWG 18 to AWG 14) and use 2.5 mm<sup>2</sup> wire to make the ground connection.</p>
3	<p>Place the terminal block in the power connector and tighten the screws:</p>  <p><b>NOTE:</b> The recommended torque to tighten these screws is 0.5 Nm (4.5 lb-in).</p>

 **CAUTION**

**OVERTORQUE AND LOOSE HARDWARE**

- Do not exert more than 0.5 Nm (4.5 lb-in) of torque when tightening the installation fastener, enclosure, accessory, or terminal block screws. Tightening the screws with excessive force can damage the installation fastener.
- When fastening or removing screws, ensure they do not fall inside the Magelis Industrial PC chassis.

**Failure to follow these instructions can result in injury or equipment damage.**

## AC Power Supply Module Description and Installation

### Overview

The AC power supply module can optionally be mounted on the S-Panel PC to allow the S-Panel PC to be operated with 100...240 Vac.

### DANGER

#### HAZARD OF ELECTRIC SHOCK, EXPLOSION OR ARC FLASH

- Remove all power from the device before removing any covers or elements of the system, and prior to installing or removing any accessories, hardware, or cables.
- Unplug the power cable from both the Magelis Industrial PC and the power supply.
- Always use a properly rated voltage sensing device to confirm power is off.
- Replace and secure all covers or elements of the system before applying power to the unit.
- Use only the specified voltage when operating the Magelis Industrial PC. The AC unit is designed to use 100...240 Vac input.

**Failure to follow these instructions will result in death or serious injury.**

### WARNING

#### EQUIPMENT DISCONNECTION OR UNINTENDED EQUIPMENT OPERATION

- Ensure that power, communication, and accessory connections do not place excessive stress on the ports. Consider the vibration in the environment.
- Securely attach power, communication, and external accessory cables to the panel or cabinet.
- Use only D-Sub 9-pin connector cables with a locking system in good condition.
- Use only commercially available USB cables.

**Failure to follow these instructions can result in death, serious injury, or equipment damage.**

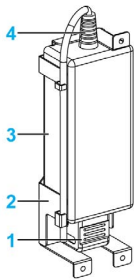
### WARNING

#### RISK OF BURNS

Do not touch the surface of the heat sink during operation.

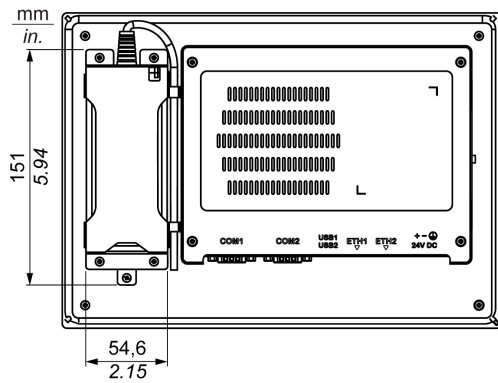
**Failure to follow these instructions can result in death, serious injury, or equipment damage.**

This figure shows the AC power supply module:



- 1 AC power cord
- 2 Support
- 3 AC power supply
- 4 DC power cord

This figure shows the dimensions of the AC power supply module:



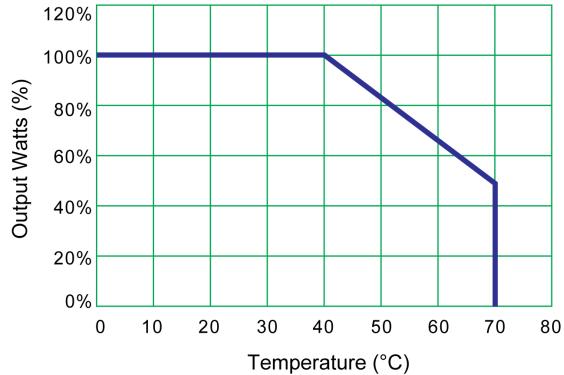


## AC Power Supply

The table provides technical data for the AC power supply module:

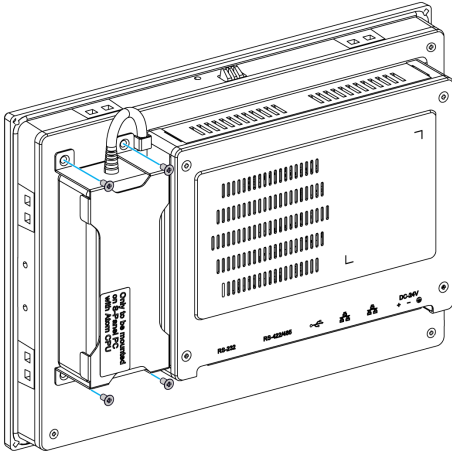
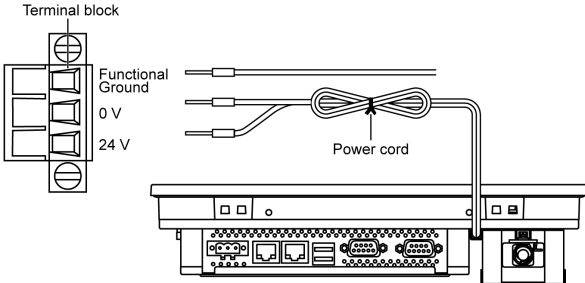
Element	Characteristics
Input	90...260 Vac / 47...63 Hz / 1.6 A at 100 Vac
Output	24 Vdc / 2.62 A maximum
Inrush current	70 A at 230 Vac
<b>Environment</b>	
Operation temperature	0...70 °C (32...158 °F), see derating curve
Storage temperature	-40...85 °C (-40...185 °F)
Relative humidity:	0...95 %, non-condensing

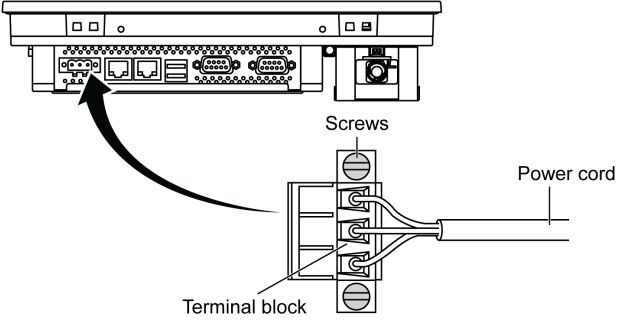
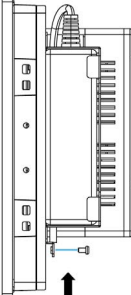
Operation temperature of the AC power supply derating curve:



### Wiring and Connecting the Terminal Block

The table provides how to connect the AC power supply module:

Step	Action
1	Remove all power from the S-Panel PC and confirm that the power adapter is disconnected from its power source.
2	<p>The AC power supply module is mounted to the S-Panel PC with 4 screws:</p>  <p><b>NOTE:</b> The recommended torque to tighten these screws is 0.5 Nm (4.5 lb-in).</p>
3	<p>Remove the terminal block from the power connector and connect the power cord to the terminal block:</p>  <p>Connect the black wire with the 0 V and the red wire with the 24 V of the terminal block. Use 2.5 mm<sup>2</sup> copper wire to make the ground connection of the terminal block.</p>

Step	Action
4	<p>Place the terminal block in the power connector and tighten the screws:</p>  <p><b>NOTE:</b> The recommended torque to tighten these screws is 0.5 Nm (4.5 lb-in).</p>
5	<p>Attach the power cord and tighten the screws:</p> 

## ⚠ CAUTION

### OVERTORQUE AND LOOSE HARDWARE

- Do not exert more than 0.5 Nm (4.5 lb-in) of torque when tightening the installation fastener, enclosure, accessory, or terminal block screws. Tightening the screws with excessive force can damage the installation fastener.
- When fastening or removing screws, ensure they do not fall inside the Magelis Industrial PC chassis.

**Failure to follow these instructions can result in injury or equipment damage.**

## S-Panel PC Interface Connections

### Introduction

#### DANGER

##### POTENTIAL FOR EXPLOSION IN HAZARDOUS LOCATION

Do not use this product in hazardous locations.

**Failure to follow these instructions will result in death or serious injury.**

#### WARNING

##### EQUIPMENT DISCONNECTION OR UNINTENDED EQUIPMENT OPERATION

- Ensure that power, communication, and accessory connections do not place excessive stress on the ports. Consider the vibration in the environment.
- Securely attach power, communication, and external accessory cables to the panel or cabinet.
- Use only D-Sub 9-pin connector cables with a locking system in good condition.
- Use only commercially available USB cables.

**Failure to follow these instructions can result in death, serious injury, or equipment damage.**

### Serial Interface Connections

This interface is used to connect S-Panel PC to remote equipment, via a serial interface cable. The connector is a D-Sub 9-pin plug connector.

By using a long PLC cable to connect to the S-Panel PC, it is possible that the cable can be at a different electrical potential than the panel, even if both are connected to ground.

The S-Panel PC serial port is not isolated. The shield ground and the functional ground terminals are connected inside the panel.

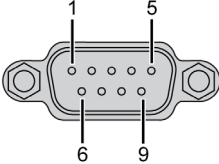
#### DANGER

##### ELECTRIC SHOCK

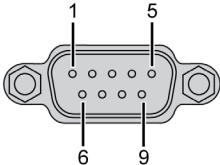
- Make a direct connection between the ground connection screw and ground.
- Do not connect other devices to ground through the ground connection screw of this device.
- Install all cables according to local codes and requirements. If local codes do not require grounding, follow a reliable guide such as the US National Electrical Code, Article 800.

**Failure to follow these instructions will result in death or serious injury.**

The table shows the D-Sub 9-pin assignments (COM1):

Pin	Assignment	
	RS-232	
1	DCD	D-Sub 9-pin plug connector: 
2	RxD	
3	TxD	
4	DTR	
5	GND	
6	DSR	
7	RTS	
8	CTS	
9	RI	

The table shows the D-Sub 9-pin assignments (COM2):

Pin	Assignment		
	RS-232	RS-422/485	
1	DCD	TxD-/Data-	D-Sub 9-pin plug connector: 
2	RxD	TxD+/Data+	
3	TxD	RxD+	
4	DTR	RxD-	
5	GND	GND/VEE	
6	DSR	N/A	
7	RTS	N/A	
8	CTS	N/A	
9	RI	N/A	

Any excessive weight or stress on communication cables may disconnect the equipment.

**NOTE:** You can select RS-232, RS-422, or RS-485 to COM2 port. The RS-485 port is designed with auto data flow control capability and automatically detects the data flow direction.

**NOTE:** To achieve Modbus through RS-485 COM port with Schneider Electric device, do not use standard Schneider Electric cable. Follow wiring diagram above to create a convenient cable depending on the remote device to connect to.



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# Chapter 7

## Configuration of the BIOS

---

### What Is in This Chapter?

This chapter contains the following topics:

Topic	Page
<b>BIOS Main Menu</b>	72
<b>Advanced Menu</b>	73
<b>Chipset Menu</b>	78
<b>Boot Menu</b>	80
<b>Security Menu</b>	81
<b>Save &amp; Exit Menu</b>	82

## BIOS Main Menu

### General Information

BIOS stands for **Basic Input Output System**.

The **BIOS Setup Utility** lets you modify basic system configuration settings.

**NOTE:** To enter BIOS setup, press **DEL** key during startup.

### Main Tab

When you press the [DEL] key during startup, the **Main** BIOS setup menu appears.

This screen, like all the BIOS screens, is divided into three frames:

- Left: This frame displays the options available on the screen.
- Upper right: This frame gives a description of the user selected option.
- Lower right: This frame displays how to move to other screens and the screen edit commands.

This table shows the **Main** menu options that can be set by the user:

BIOS setting	Description
<b>System Time</b>	This is the current time setting. The time must be entered in HH:MM:SS format. The time is maintained by the battery (CMOS battery) when the unit is turned off.
<b>System Date</b>	This is the current date setting. The date must be entered in MM/DD/YY format. The date is maintained by the battery (CMOS battery) when the unit is turned off.

**NOTE:** The grayed-out options on all BIOS screens cannot be configured. The blue options can be configured by the user.



## Advanced Menu

### Advanced BIOS Features Tab

For details about the Advanced submenus, refer to:

- ACPI Settings
- IT8768E Super I/O Configuration
- Embedded Controller Configuration
- S5 RTC Wake Settings
- Serial Port Console Redirection
- CPU Configuration
- Thermal Configuration
- IDE Configuration
- Miscellaneous Configuration
- LAN Controller
- CSM Parameters
- PCH-FW Configuration
- USB Configuration
- IMT Configuration
- COM2 Configuration
- EC Watchdog Configuration

### ACPI Settings Submenu

BIOS setting	Description
<b>Enable ACPI Auto Configuration</b>	Enables or disables BIOS ACPI auto configuration.
<b>Enable Hibernation</b>	Enables or disables hibernation. This option may be not effective with some OS.
<b>ACPI Sleep State</b>	Sets the ACPI sleep state.
<b>Lock Legacy Resources</b>	–.

### IT8768E Super IO Configuration Submenu

BIOS setting	Description
<b>Serial Port 1 Configuration</b>	<b>Serial Port:</b> Enable or disable the COM port.
<b>Serial Port 2 Configuration</b>	<b>Serial Port:</b> Enable or disable the COM port.

### Embedded Controller Configuration Submenu

BIOS setting	Description
iManager WatchDog IRQ	–
EC Watch Dog Function	–

### S5 RTC Wake Settings Submenu

BIOS setting	Description
Wake system from S5	–

### Serial Port Console Redirection Submenu

BIOS setting	Description
COM 0 Console Redirection	–
COM 1 Console Redirection	–
Legacy Console Redirection Settings	–
Console Redirection	–

### CPU Configuration Submenu

BIOS setting	Description
Execute Disable Bit	Enables or disables the no-execution page protection.
Intel Virtualization Technology	Enable or disable Intel virtualization technology. When enabled, a VMM can utilize the additional hardware capabilities provided by Vanderpool technology.

### Thermal Configuration Submenu

BIOS setting	Description
Critical Trip Point	–
Passive Trip Point	–

### IDE Configuration Submenu

BIOS setting	Description
Serial-ATA (SATA)	Enable or disable SATA devices.
SATA Test Mode	Select SATA test mode selection. (Determines how SATA controllers operate).
SATA Speed Support	Indicates the maximum speed the SATA controller can support.
SATA ODD Port	–
SATA Mode	Select SATA mode selection. (Determines how SATA controllers operate).
Serial ATA Port 0	Enable or disable serial ATA port.
Serial ATA Port 0 HotPlug	Designates this port as hot pluggable.
Serial ATA Port 1	Enable or disable serial ATA port.
Serial ATA Port 1 HotPlug	Designates this port as hot pluggable.

### Miscellaneous Configuration Submenu

BIOS setting	Description
OS Selection	–

### LAN Controller Submenu

BIOS setting	Description
LAN A Controller	–
LAN B Controller	–
Wake on LAN Enable	–

### CSM Parameters Submenu

BIOS setting	Description
CSM Support	–
GateA20 Active	–
Option ROM Messages	–
Boot option filter	–
Network	–
Storage	–
Video	–
Other PCI devices	–

### Optional PCH-FW Configuration Submenu

BIOS setting	Description
<b>MDES BIOS Status Code</b>	Enable or disable MDES BIOS status code.
<b>fTPM Device Selection</b>	Select GPDMA work-around or MSFT QFE solution.)
<b>TPM Device Selection</b>	Enable or disable TPM device selection. (PTT or dTPM. PTT-Enables PTT in SkuMgr dTPM 1.2- Disables PTT in SkuMgr informing! PTT/dTPM is disabled and all data saved on it is lost.
<b>Firmware Update Configuration</b>	<b>ME FW Image Re-Flash:</b> Enable or disable ME FW image re-Flash function.

### USB Configuration Submenu

BIOS setting	Description
<b>Legacy USB Support</b>	Enable or disable legacy USB support. Auto option disables legacy support if no USB devices are connected. Disable option keeps USB devices available only for EFI applications.
<b>XHCI Hand-off</b>	Enable or disable XHCI hand-off. This is a work around for OS without XHCI hand-off support. The XHCI ownership change should be claimed by XHCI driver.
<b>EHCI Hand-off</b>	Enable or disable EHCI hand-off. This is a workrooms for OS without EHCI hand-off support. The EHCI ownership change should be claimed by EHCI driver.
<b>USB Mass Storage Driver Support</b>	Enable or disable USB mass storage driver support.
<b>USB transfer time-out</b>	Select time-out section. The time-out value for control, bulk, and interrupt transfers.
<b>Device reset time-out</b>	Select device time-out section. USB mass storage devices start unit command time-out.
<b>Device power-up delay</b>	Select device power-up section. Maximum time the device takes before it properly reports itself to the host controller. <b>Auto</b> uses a default value: for a root port it is 100 ms, for a hub port the delay is taken from the hub descriptor.

### Optional IMT Configuration Submenu

BIOS setting	Description
<b>CPU Shutdown Temperature</b>	Select CPU shutdown temperature.
<b>IMT WatchDog IRQ</b>	Select iManager IRQ number eBrain watchdog.
<b>Backlight Enable Polarity</b>	Switch backlight enable polarity for native or invert.
<b>Hardware Monitor</b>	–

### Optional COM2 Configuration Submenu

BIOS setting	Description
COM2 UART mode setting	Select RS-232 or RS422/RS485 mode. The default setting is RS-232 mode.

### Optional EC Watchdog Configuration Submenu

BIOS setting	Description
EC Watchdog setting	Select EC watchdog setting.

## Chipset Menu

### Chipset BIOS Features Tab

For details about the **Chipset** submenus, refer to:

- North Bridge
- South Bridge

### North Bridge Menu

BIOS setting	Description
Intel IGD Configuration	—.

### South Bridge Menu

BIOS setting	Description
USB Configuration	—.
PCI Express Configuration	—.
High Precision Timer	—.
Restore AC Power Loss	—.
Global SMI Lock	—.
BIOS Read/Write Protection	—.
Mini PCIe Radio	—.

### USB Configuration Submenu

BIOS setting	Description
USB Per Port Control	—.
USB Port 0	—.
USB Port 2	—.
USB Port 3	—.

**PCI Express Configuration Submenu**

BIOS setting	Description
PCI Express Port 0	Hot Plug: Speed:
PCI Express Port 1	Hot Plug: Speed:
PCI Express Port 2	Hot Plug: Speed:
PCI Express Port 3	Hot Plug: Speed:

## Boot Menu

### Boot Settings Configuration Menu

Boot setting	Description
<b>Setup Prompt Timeout</b>	Select the number of seconds to wait for setup activation key.
<b>Bootup NumLock state</b>	Select the keyboard <b>NumLock</b> state.
<b>Quiet Boot</b>	Enables or disables <b>Quiet Boot</b> option.
<b>Fast Boot</b>	Enables or disables boot with initialization of a minimal set of devices required to launch active boot option. It has no effect for BBS boot options.

### CSM Parameters Submenu

Boot setting	Description
<b>Launch CSM</b>	Enables or disables launch CSM.
<b>Boot option filter</b>	Select boot option filter setting.
<b>Launch PXE OpROM policy</b>	Select launch PXE OpROM policy setting.
<b>Launch Storage OpROM policy</b>	Select launch storage OpROM policy setting.
<b>Launch Video OpROM policy</b>	Select launch video OpROM policy setting.
<b>Other PCI device ROM priority</b>	Select other PCI device ROM priority setting.



## Security Menu

### Security Setup

Select **Security Setup** from the main BIOS setup menu. All **Security Setup** options, such as password protection, are described in this section. To access the submenu for the following items, select the item and press **Enter**.

To change the administrator or user password, select the **Administrator / User Password** option, press **Enter** to access the submenu, and then type the password.

## Save & Exit Menu

### Menu

BIOS setting	Description
<b>Save Changes and Exit</b>	When the system configuration is complete, select this option to save changes, exiting the BIOS setup and, if necessary, reboot the computer to take into account all system configuration parameters.
<b>Discard Changes and Exit</b>	Select this option to quit setup without making any permanent changes to the system configuration.
<b>Save Changes and Reset</b>	Selecting this option displays a confirmation message box. On confirming, you save changes to the BIOS settings, save the settings to CMOS, and restart the system.
<b>Discard Changes and Reset</b>	Select this option to quit BIOS setup without making any permanent changes to the system configuration and reboot the computer.
<b>Save Changes</b>	Select this option to save the system configuration changes without exiting the BIOS setup menu.
<b>Discard Changes</b>	Select this option to discard any current changes and load previous system configuration.
<b>Restore Defaults</b>	Select this option to configure automatically all BIOS setup items to the optimal default settings. The optimal defaults are designed for maximum system performance, but may not work best for all computer applications. Do not use the optimal defaults if the user's computer is experiencing system configuration problems.
<b>Save User Defaults</b>	When the system configuration is complete, select this option to save changes as the user defaults without exit BIOS setup menu.
<b>Restore User Defaults</b>	Select this option to restore the user defaults.

---

# Chapter 8

## Hardware Modifications

---

### Subject of This Chapter

This chapter describes the hardware modifications for the Magelis S-Panel PC.

### What Is in This Chapter?

This chapter contains the following sections:

Section	Topic	Page
8.1	Before Modifications	84
8.2	Storages Modifications	86
8.3	Optional Interfaces	94

## Section 8.1

### Before Modifications

#### Before Making Modifications

##### Introduction

For detailed installation procedures for optional units, refer to the OEM (original equipment manufacturer) installation guide included with the optional unit.

### DANGER

#### HAZARD OF ELECTRIC SHOCK, EXPLOSION OR ARC FLASH

- Remove all power from the device before removing any covers or elements of the system, and prior to installing or removing any accessories, hardware, or cables.
- Unplug the power cable from both the Magelis Industrial PC and the power supply.
- Always use a properly rated voltage sensing device to confirm power is off.
- Replace and secure all covers or elements of the system before applying power to the unit.
- Use only the specified voltage when operating the Magelis Industrial PC. The AC unit is designed to use 100...240 Vac input. The DC unit is designed to use 24 Vdc input. Always check whether your device is AC or DC powered before applying power.

**Failure to follow these instructions will result in death or serious injury.**

### DANGER

#### POTENTIAL FOR EXPLOSION IN HAZARDOUS LOCATION

Do not use this product in hazardous locations.

**Failure to follow these instructions will result in death or serious injury.**

During operation, the surface temperature of the heat sink may exceed 70 °C (158 °F).

### WARNING

#### RISK OF BURNS

Do not touch the surface of the heat sink during operation.

**Failure to follow these instructions can result in death, serious injury, or equipment damage.**

 **CAUTION****OVERTORQUE AND LOOSE HARDWARE**

- Do not exert more than 0.5 Nm (4.5 lb-in) of torque when tightening the installation fastener, enclosure, accessory, or terminal block screws. Tightening the screws with excessive force can damage the installation fastener.
- When fastening or removing screws, ensure they do not fall inside the Magelis Industrial PC chassis.

**Failure to follow these instructions can result in injury or equipment damage.**

 **CAUTION****STATIC SENSITIVE COMPONENTS**

Magelis Industrial PC Internal components, including accessories such as RAM modules and expansion boards, can be damaged by static electricity.

- Keep static-producing materials (plastic, upholstery, carpeting) out of the immediate work area.
- Do not remove ESD-sensitive components from their anti-static bags until you are ready to install them.
- When handling static-sensitive components, wear a properly grounded wrist strap (or equivalent).
- Avoid unnecessary contact with exposed conductors and component leads with skin or clothing.

**Failure to follow these instructions can result in injury or equipment damage.**

# Section 8.2

## Storages Modifications

---

### Overview

This section shows the installation of the HDD/SSD drives and the CFast card.

### What Is in This Section?


This section contains the following topics:

Topic	Page
HDD/SSD Drive Description and Installation	87
CFast Card Installation	91

## HDD/SSD Drive Description and Installation

### Overview

This device does not support hot swapping. Before any hardware modification, shut down Windows in an orderly fashion and remove all power from the device.

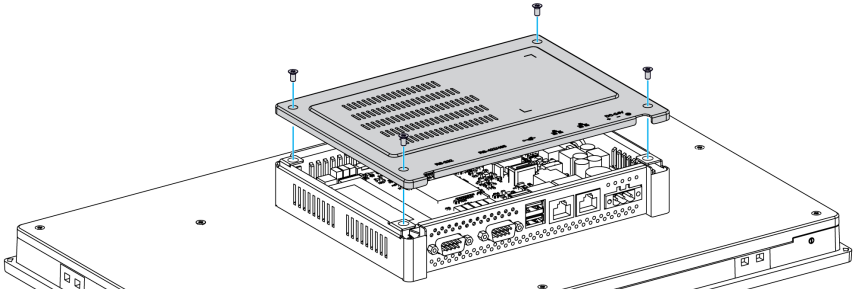
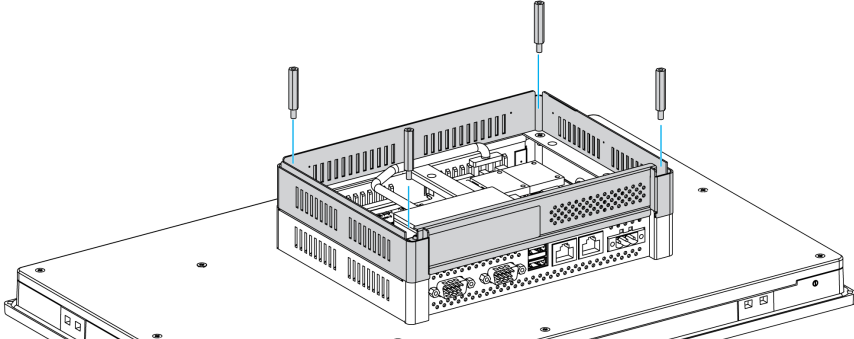
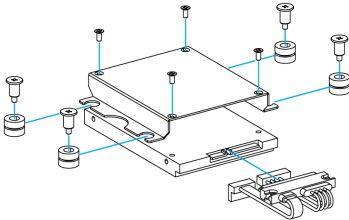
 <b>DANGER</b>
<b>HAZARD OF ELECTRIC SHOCK, EXPLOSION OR ARC FLASH</b>
<ul style="list-style-type: none"><li>● Remove all power from the device before removing any covers or elements of the system, and prior to installing or removing any accessories, hardware, or cables.</li><li>● Unplug the power cable from both the Magelis Industrial PC and the power supply.</li><li>● Always use a properly rated voltage sensing device to confirm power is off.</li><li>● Replace and secure all covers or elements of the system before applying power to the unit.</li><li>● Use only the specified voltage when operating the Magelis Industrial PC. The DC unit is designed to use 24 Vdc input.</li></ul>
<b>Failure to follow these instructions will result in death or serious injury.</b>

### HDD/SSD Drive Installation

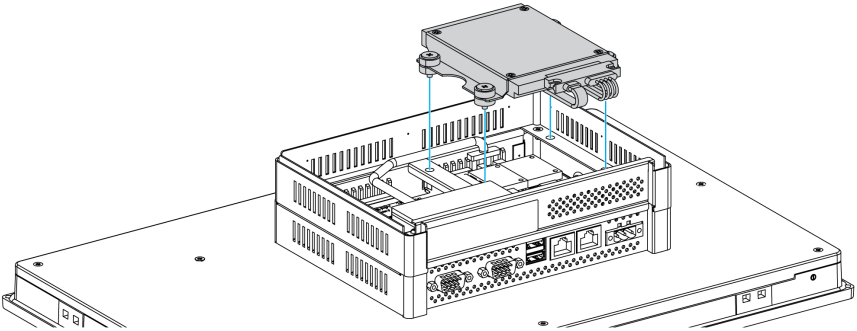
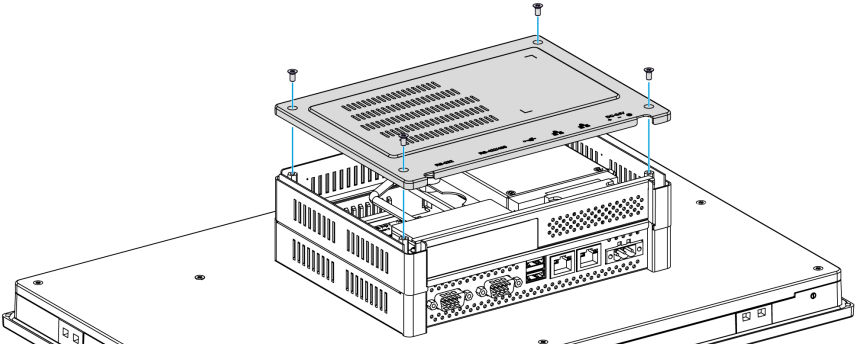
<b><i>NOTICE</i></b>
<b>ELECTROSTATIC DISCHARGE</b>
Take the necessary protective measures against electrostatic discharge before attempting to remove the Magelis Industrial PC cover.
<b>Failure to follow these instructions can result in equipment damage.</b>

**NOTE:** Be sure to remove all power before attempting this procedure.

This table describes how to install an HDD/SSD drive:

Step	Action
1	Disconnect the power cord to the S-Panel PC.
2	Touch the housing or ground connection (not the power supply) to discharge any electrostatic charge from your body.
3	Remove the 4 screws of the rear cover: 
4	Fasten the extension kit (HMIYPADPSOSTO1) to the S-Panel PC with the 4 studs: 
5	Install the 2.5" SATA HDD/SSD on the HDD/SSD bracket. Screw in the 4 screws on the side of HDD/SSD bracket: 



Step	Action
6	<p data-bbox="353 203 1241 256">Connect the HDD/SSD into the SATA connector. Install it in the S-Panel PC and fasten it with the 4 dampers and the 4 screws of HDD/SSD holder module to the extension kit:</p>  <p data-bbox="353 649 1104 673"><b>NOTE:</b> The recommended torque to tighten these screws is 0.5 Nm (4.5 lb-in).</p>
7	<p data-bbox="353 690 871 714">Replace the rear cover and fasten it with the 4 screws:</p>  <p data-bbox="353 1112 1104 1136"><b>NOTE:</b> The recommended torque to tighten these screws is 0.5 Nm (4.5 lb-in).</p>

 **CAUTION**

**OVERTORQUE AND LOOSE HARDWARE**

- Do not exert more than 0.5 Nm (4.5 lb-in) of torque when tightening the installation fastener, enclosure, accessory, or terminal block screws. Tightening the screws with excessive force can damage the installation fastener.
- When fastening or removing screws, ensure they do not fall inside the Magelis Industrial PC chassis.

**Failure to follow these instructions can result in injury or equipment damage.**

## CFast Card Installation

### Introduction

The S-Panel PC operating system views the CFast card as a hard disk. Proper handling and care of the CFast card helps extend the life of the card. Familiarize yourself with the card before attempting insertion or removal of the card.

Before installing or removing a card, shut down Windows in an orderly fashion and remove all power from the device.

### DANGER

#### HAZARD OF ELECTRIC SHOCK, EXPLOSION OR ARC FLASH

- Remove all power from the device before removing any covers or elements of the system, and prior to installing or removing any accessories, hardware, or cables.
- Unplug the power cable from both the Magelis Industrial PC and the power supply.
- Always use a properly rated voltage sensing device to confirm power is off.
- Replace and secure all covers or elements of the system before applying power to the unit.
- Use only the specified voltage when operating the Magelis Industrial PC. The DC unit is designed to use 24 Vdc input.

**Failure to follow these instructions will result in death or serious injury.**

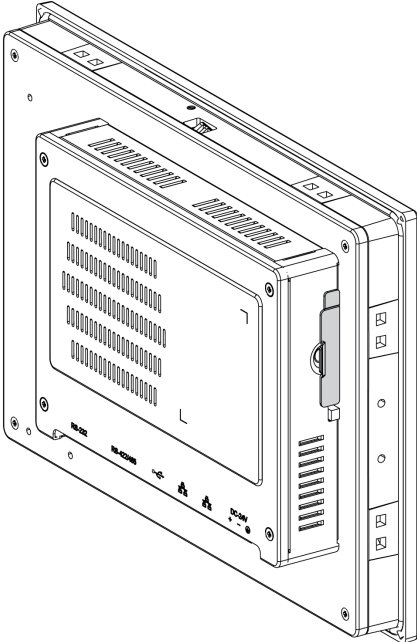
### CAUTION

#### MEMORY CARD DAMAGE AND DATA LOSS

- Remove all power before making any contact with an installed memory card.
- Use only memory cards sold by Schneider Electric as accessory for this product. The performance of the Magelis Industrial PC has not been tested using memory cards from other manufacturers.
- Confirm that the memory card is correctly oriented before insertion.
- Do not bend, drop, or strike the memory card.
- Do not touch the memory card connectors.
- Do not disassemble or modify the memory card.
- Keep the memory card dry.

**Failure to follow these instructions can result in injury or equipment damage.**



Step	Action
2	<p data-bbox="353 203 783 228">Press the CFast card firmly into the card slot:</p>  <p data-bbox="353 930 1222 956"><b>NOTE:</b> You can attach Mylar from the accessory box to the CFast card for easy extraction.</p>

### CFast Card Installation

Refer to the relevant procedure in the software installation guide for S-Panel PC and terminals. The installation guide is shipped with the product.

## Section 8.3

### Optional Interfaces

---

#### Overview

This section describes the optional interfaces and their installation.

#### What Is in This Section?


This section contains the following topics:

Topic	Page
Optional Interface Installation	95
16DI/8DO Interface Module Description	100
RS-232/422/485 Interface Module Description	105
CANopen Interface Module Description	112
Profibus DP Interface Module Description	115
Wireless LAN Interface Card Description	118
USB Interface Module Description	120
NVRAM Card Description	121
GPRS Module	122

## Optional Interface Installation

### Introduction

Before installing or removing an interface module, shut down Windows in an orderly fashion and remove all power from the device.


DANGER

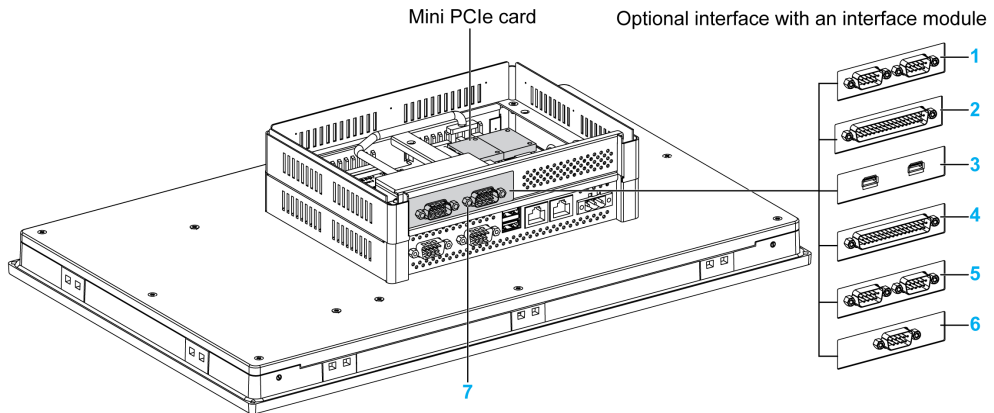
HAZARD OF ELECTRIC SHOCK, EXPLOSION OR ARC FLASH

- Remove all power from the device before removing any covers or elements of the system, and prior to installing or removing any accessories, hardware, or cables.
- Unplug the power cable from both the Magelis Industrial PC and the power supply.
- Always use a properly rated voltage sensing device to confirm power is off.
- Replace and secure all covers or elements of the system before applying power to the unit.
- Use only the specified voltage when operating the Magelis Industrial PC. The DC unit is designed to use 24 Vdc input.

Failure to follow these instructions will result in death or serious injury.

### Optional Interface Module

The figure shows the optional interface parts:



- 1 2 x RS-232/422/485 interface module
- 2 4 x RS-232/422/485 interface module
- 3 USB interface module
- 4 DIO interface module
- 5 CANopen interface module
- 6 Profibus DP interface module
- 7 Extension kit (HMIYPADPSOSTO1)

The table shows the type and the interface module part numbers:

Designation	Part number	Interface	PCIe card	Pin header	Interface plate
NVRAM card <i>(see page 121)</i>	HMIYMINNVRAM1	Card NVRAM	1	–	–
RS-232/422/485 interface module <i>(see page 105)</i>	HMIYMINSL24851	2 x RS-422/485 isolated	1	–	1
	HMIYMINSL44851	4 x RS-422/485			
	HMIYMINSL22321	2 x RS-232 isolated			
	HMIYMINSL42321	4 x RS-232			
DIO interface module <i>(see page 100)</i>	HMIYMINIO1	16 x DI / 8 x DO	1	–	1
Wireless LAN interface module <i>(see page 118)</i>	HMIYMINWIF1	1 x Wireless LAN and 2 x antennas	1	–	1
GPRS interface <i>(see page 122)</i>	HMIYMINGPRS1	1 x GPRS (general packet radio service)	1	–	1
CANopen interface module <i>(see page 112)</i>	HMIYMINCAN1	2 x CanOpen/CanBus	1	–	1
Profibus DP interface module <i>(see page 115)</i>	HMIYMINPRO1	1 x Profibus DP master NVRAM	1	–	1
USB interface module <i>(see page 120)</i>	HMIYMINUSB1	2 x USB 3.0	1	1	1



## Interface Module Installation

Before installing or removing a mini PCIe card, shut down Windows in an orderly fashion and remove all power from the device.

### **⚠ DANGER**

#### **POTENTIAL FOR EXPLOSION IN HAZARDOUS LOCATION**

Do not use this product in hazardous locations.

**Failure to follow these instructions will result in death or serious injury.**

### ***NOTICE***

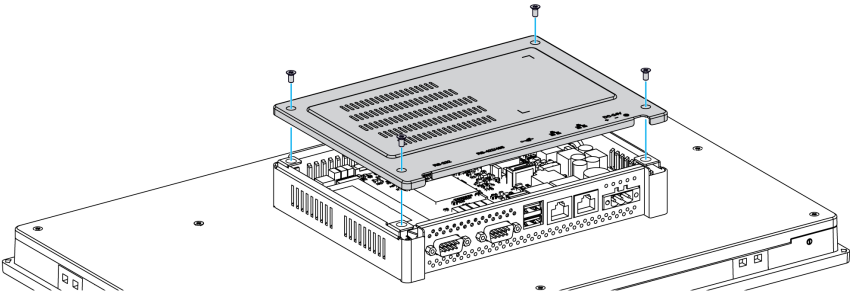
#### **ELECTROSTATIC DISCHARGE**

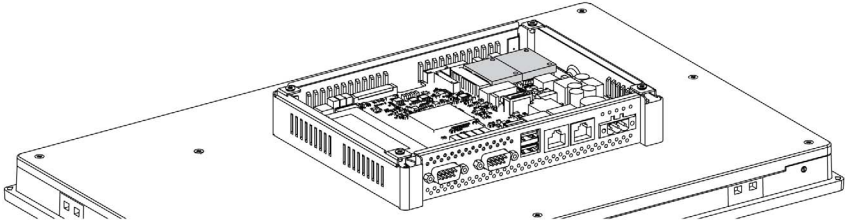
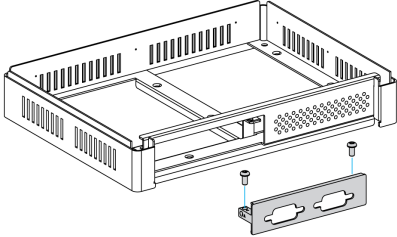
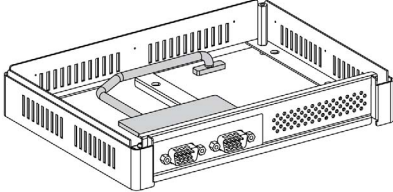
Take the necessary protective measures against electrostatic discharge before attempting to remove the Magelis Industrial PC cover.

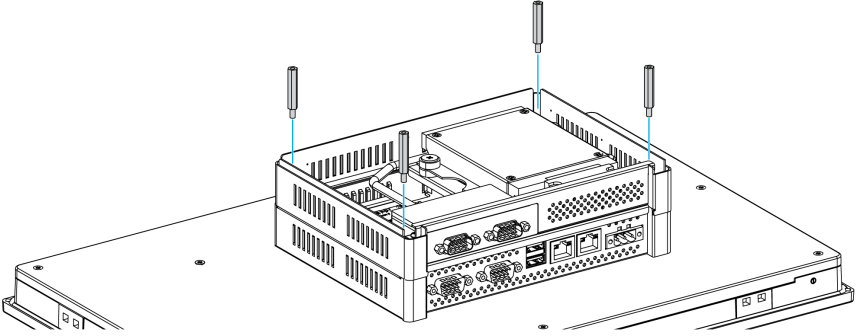
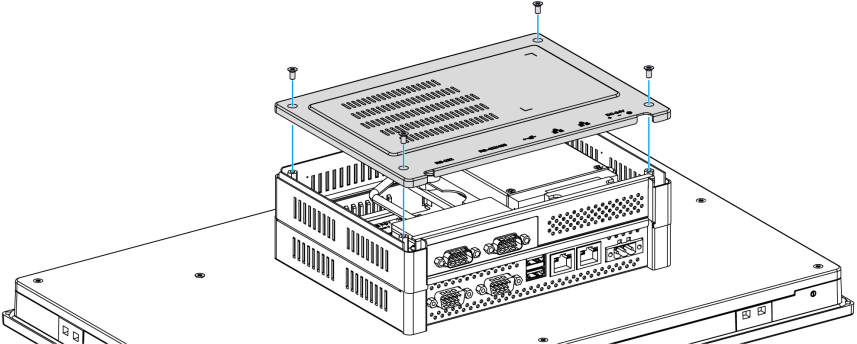
**Failure to follow these instructions can result in equipment damage.**

**NOTE:** Be sure to remove all power before attempting this procedure.

The table describes how to install an interface module:

Step	Action
1	Disconnect the power cord to the S-Panel PC.
2	Touch the housing or ground connection (not the power supply) to discharge any electrostatic charge from your body.
3	Remove the four screws of the rear cover: <div style="text-align: center;">  </div>

Step	Action
4	<p>Install the mini PCIe card onto the board:</p>  <p><b>NOTE:</b> The recommended torque to tighten these screws is 0.5 Nm (4.5 lb-in).</p>
5	<p>Take out the extension kit (HMIYPADPSOSTO1), and remove the optional interface cover bracket. Install the interface module onto the kit, using fasten screws on both sides of the module:</p> 
6	<p>Connect the cable to the mini PCIe card that is on the motherboard:</p>  <p><b>NOTE:</b> When using a mini PCIe card with an external cable attached, use a clamp or a similar device to secure the cable.</p>

Step	Action
7	<p data-bbox="353 203 943 227">Fasten the extension kit to the S-Panel PC with the four studs:</p>  <p>The diagram shows a perspective view of the S-Panel PC chassis with an extension kit attached. Four vertical studs are shown protruding from the top of the extension kit, with blue arrows pointing to them from the text above. The extension kit is a rectangular frame that fits over the top of the chassis.</p>
8	<p data-bbox="353 621 857 646">Replace the rear cover and fasten it with four screws:</p>  <p>The diagram shows the same S-Panel PC chassis with the extension kit. A rear cover, which is a flat rectangular plate with a grid pattern, is being placed over the top of the extension kit. Four screws are shown being inserted into the cover, with blue arrows pointing to them from the text above. The screws are positioned at the corners of the cover.</p> <p data-bbox="353 1047 1104 1071"><b>NOTE:</b> The recommended torque to tighten these screws is 0.5 Nm (4.5 lb-in).</p>

## CAUTION

### OVERTORQUE AND LOOSE HARDWARE

- Do not exert more than 0.5 Nm (4.5 lb-in) of torque when tightening the installation fastener, enclosure, accessory, or terminal block screws. Tightening the screws with excessive force can damage the installation fastener.
- When fastening or removing screws, ensure they do not fall inside the Magelis Industrial PC chassis.

**Failure to follow these instructions can result in injury or equipment damage.**

## 16DI/8DO Interface Module Description

### Introduction

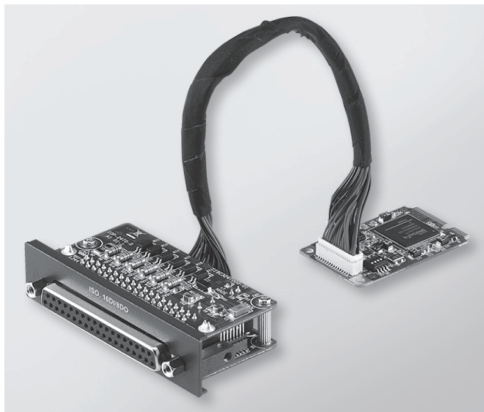
The HMIYMINIO1 is categorized as a digital input/output module. It can be associated with a DIN rail terminal card, and is compatible with the mini PCIe card.

During card installation, there is no need to set jumpers or DIP switches. Instead, all bus-related configurations such as base I/O address and interrupt are automatically done by the Plug-and-Play function.

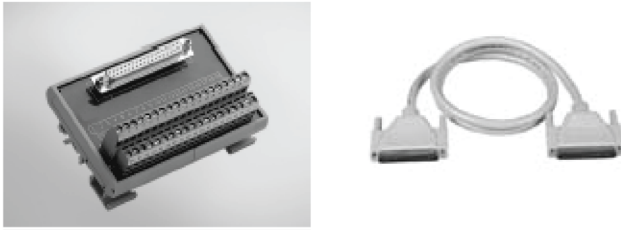
The HMIYMINIO1 has a built-in DIP switch that helps define each ID of the card when multiple 16DI/8DO interface module has been installed.

The HMIYMINIO1 offers two counter inputs which can perform event counting, frequency measurement and pulse width measurement. The counters on the interface module have a counter value match interrupt function. When this interrupt function is enabled, an interrupt signal is generated if the counter value reaches a pre-set counter match value. The counter continues to count until an overflow occurs; then it goes back to its reset value zero and continue the counting process. You can set each individual counter channel to count either falling edge (high-to-low) or rising edge (low-to-high) signals.

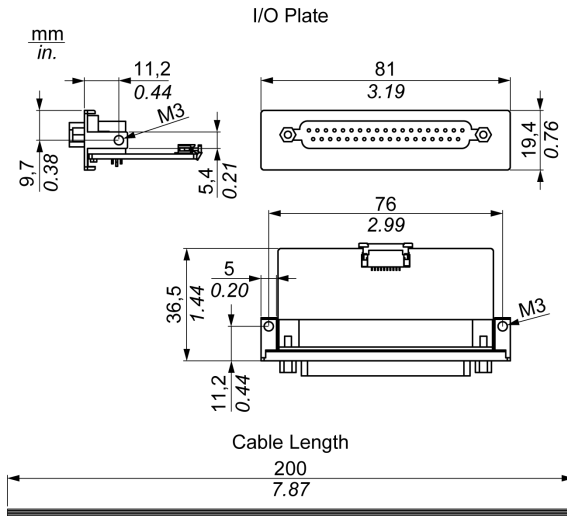
The figure shows the 16DI/8DO interface module:



The figure shows the 16DI/16DO DIN rail terminal card and cable:



The figure shows the dimensions of the 16DI/8DO interface module:



## 16DI/8DO Interface Module

The table shows technical data for the 16DI/8DO interface module:

Element	Characteristics
General	
Bus type	mini PCIe card revision 1.2
Connectors	1 x socket D-Sub 37-pin
Power consumption	Typical: 400 mA at 3.3 Vdc, maximum: 520 mA at 3.3 Vdc
Isolated digital input	
Input channels	16
Input voltage (wet contact)	Logic 0: 0...3 Vdc, logic 1: 10...30 Vdc
Input voltage (dry contact)	Logic 0: open, logic 1: shorted to GND
Input current	10 Vdc at 2.97 mA, 20 Vdc at 6.35 mA, 30 Vdc at 9.73 mA
Input resistance	5 K $\Omega$
Interrupt capable channels	2, IDI0 and IDI8
Isolation protection	2,500 Vdc
Over voltage protection	70 Vdc
ESD protection	4 kV (contact) 8 kV (air)
Opto-isolator response	50 $\mu$ s
Isolated digital output	
Output channels	8
Output type	MOSFET
Output voltage	5...30 Vdc
Sink current	Maximum 100 mA/channel
Isolation protection	2,500 Vdc
Opto-isolator response	50 $\mu$ s
Counter	
Channels	2
Resolution	32 bit
Maximum input frequency	1 kHz



### Switch and Jumper Settings

The jumper JP1 on the position 0 (default), load default while reset (default). The jumper JP1 on the position 1 (enabled), keeps the last status after reset.

The table shows the switch SW1 to set the ID of the 16DI/8DO interface modules:

ID3	ID2	ID1	ID0	ID	Switch SW1
1	1	1	1	0	
1	1	1	0	1	
1	1	0	1	2	
1	1	0	0	3	
1	0	1	1	4	
1	0	1	0	5	
1	0	0	1	6	
1	0	0	0	7	
0	1	1	1	8	
0	1	1	0	9	
0	1	0	1	10	
0	1	0	0	11	
0	0	1	1	12	
0	0	1	0	13	
0	0	0	1	14	
0	0	0	0	15	

### Device Manager and Hardware Installation

Install the driver before you install the interface module into the S-Panel PC. The driver installation media for the 16DI/8DO interface module is included with the package. After the interface module is installed, you can verify whether it is properly installed on your system through the **Device Manager**

**NOTE:** If you see your device name listed on it but marked with an exclamation sign !, it means that your interface module has not been correctly installed. In this case, remove the device from the **Device Manager** by selecting its device name and press the **Remove** button. Then go through the driver installation process again.

After the 16DI/8DO interface module is properly installed into the S-Panel PC, you can now configure your device using the navigator.

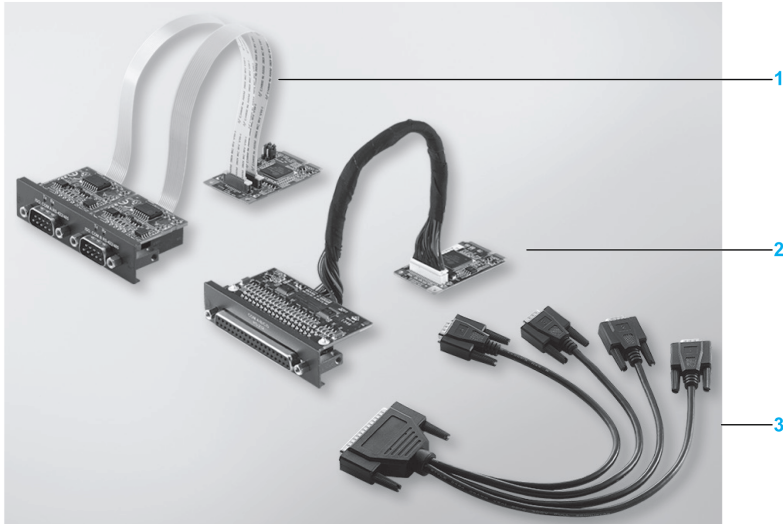


## RS-232/422/485 Interface Module Description

### Introduction

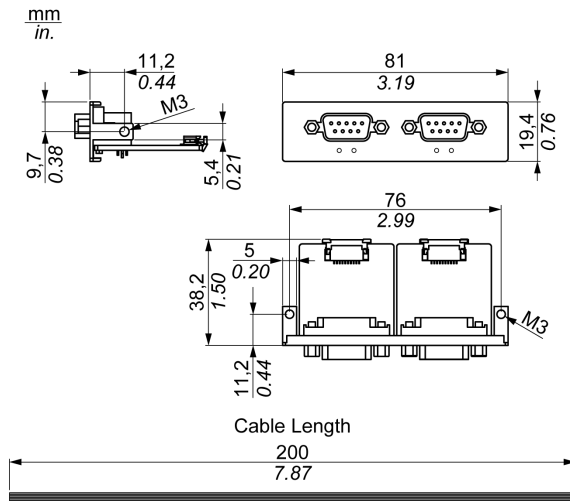
The HMIYMINSL series are categorized as communication modules. They are all compatible with the mini PCIe card including isolated / non-isolated RS-232/422/485 communication cards for automation control.

The figure shows the RS-232/422/485 interface modules:

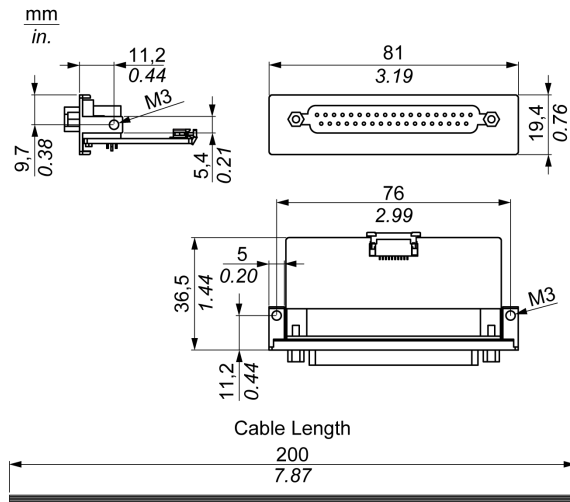


- 1 2 x RS-232/422/485 interface module
- 2 4 x RS-232/422/485 interface module
- 3 1 x interface cables

The following figure shows the dimensions of the 2 x RS-232/422/485 interface module:



The following figure shows the dimensions of the 4 x RS-232/422/485 interface module:



## Serial Interface

The table shows technical data for the serial interfaces:

Element	Characteristics			
Part number	HMIYMINSL24851	HMIYMINSL22321	HMIYMINSL44851	HMIYMINSL42321
General				
Bus type	Mini PCIe card revision 1.2			
Type	2 x RS-422/485, electrically isolated	2 x RS-232, electrically isolated	4 x RS-422/485, electrically non- isolated	4 x RS-232, electrically non- isolated
Connectors	2 x D-Sub 9-pin, plug		1 x D-Sub 37-pin, socket	
Power consumption	3.3 Vdc at 400 mA		3.3 Vdc at 500 mA	
Communication				
Data bits	5, 6, 7, 8			
FIFO	128 bytes			
Flow control	RTS/CTS Xon/Xoff		RTS/CTS (not supported) Xon/Xoff	RTS/CTS Xon/Xoff
Parity	None, odd, even, Mark and space			
Speed	50 bps...921.6 kbps	50 bps...230.4 kbps	50 bps...921.6 kbps	50 bps...230.4 kbps
Stop bits	1, 1.5, 2			
Transfer rate				
Transfer rate RS-232	Maximum 115 kbps with cable length $\leq$ 10 m Maximum 64 kbps with cable length $\leq$ 15 m			
Transfer rate RS-422/485	Maximum 115 kbps with cable length $\leq$ 1200 m			

## Cable Serial Interface

The table shows the technical data of the cable serial interface:

Element	Characteristics	
Signal lines	Cable cross section RS-232 Cable cross section RS-422 Cable cross section RS-485 Wire insulation Conductor resistance Stranding Shield	4 x 0.16 mm <sup>2</sup> (26 AWG), tinned Cu. wire 4 x 0.25 mm <sup>2</sup> (24 AWG), tinned Cu. wire 4 x 0.25 mm <sup>2</sup> (24 AWG), tinned Cu. wire Protective earth ground ≤ 82 Ω/km Wires stranded in pairs Paired shield with aluminum foil
Grounding line	Cable cross section Wire insulation Conductor resistance	1 x 0.34 mm <sup>2</sup> (22 AWG/19), tinned Cu. wire Protective earth ground ≤ 59 Ω/km
Outer sheathing	Material Features Cable shielding	PUR mixture Halogen free From tinned Cu. wires

## Serial Interface Connections

This interface is used to connect the S-Panel PC to remote equipment, via a cable. The connector is a D-Sub 9-pin plug connector.

By using a long PLC cable to connect to the S-Panel PC, it is possible that the cable can be at an electrical potential that is different from the electrical potential of the panel, even if both are connected to ground.

The serial port that is not isolated has the signal ground (SG) and the functional ground terminals connected inside the panel.

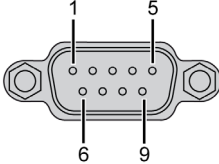
### DANGER

#### ELECTRIC SHOCK

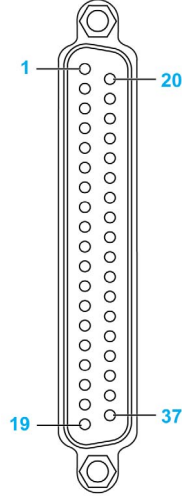
- Make a direct connection between the ground connection screw and ground.
- Do not connect other devices to ground through the ground connection screw of this device.
- Install all cables according to local codes and requirements. If local codes do not require grounding, follow a reliable guide such as the US National Electrical Code, Article 800.

**Failure to follow these instructions will result in death or serious injury.**

The table shows the D-Sub 9-pin assignments:

Pin	Assignment		D-Sub 9-pin plug connector:
	RS-232	RS-422/485	
1	DCD	TxD-/Data-	
2	RxD	TxD+/Data+	
3	TxD	RxD+	
4	DTR	RxD-	
5	GND	GND/VEE	
6	DSR	RTS-	
7	RTS	RTS+	
8	CTS	CTS+	
9	RI	CTS-	

The table shows the D-Sub 37-pin assignments:

Pin	Assignment		D-Sub 37-pin socket connector:
	RS-232	RS-422/485	
1	N.C.	N.C.	
2	DCD3	TxD3-/Data3-	
3	GND	GND/VEE3	
4	CTS3	N.C.	
5	RxD3	TxD3/Data3	
6	RI4	N.C.	
7	DTR4	RxD4-	
8	DSR4	N.C.	
9	RTS4	N.C.	
10	TxD4	RxD4	
11	DCD2	TxD2-/Data2-	
12	GND	GND	
13	CTS2	N.C.	
14	RxD2	TxD2/Data2	
15	RI1	N.C.	
16	DTR1	RxD1-	
17	DSR1	N.C.	
18	RTS1	N.C.	
19	TxD1	RxD1	

Pin	Assignment	
	RS-232	RS-422/485
20	RI3	N.C.
21	DTR3	RxD3-
22	DSR3	N.C.
23	RTS3	N.C.
24	TxD3	RXD3
25	DCD4	TxD4-/Data4-
26	GND	GND/VEE4
27	CTS4	N.C.
28	RxD4	TxD4/Data4+
29	RI2	N.C.
30	DTR2	RxD2-
31	DSR2	N.C.
32	RTS2	N.C.
33	TxD2	RxD2
34	DCD1	TxD1-/Data1-
35	GND	GND/VEE1
36	CTS1	N.C.
37	RxD1	TxD1/Data1+

Any excessive weight or stress on communication cables may disconnect the equipment.

## CAUTION

### LOSS OF POWER

- Ensure that communication connections do not place excessive stress on the communication ports of the Magelis Industrial PC.
- Securely attach communication cables to the panel or cabinet.
- Use only D-Sub 9-pin cables with a locking system in good condition.

**Failure to follow these instructions can result in injury or equipment damage.**

### RS-485 Interface Specificity

**NOTE:** All the pins of the RS-422 default interface should be used for operation.

The RTS line must be switched each time the driver is sent and received. There is no automatic switch back. This cannot be configured in Windows.

The voltage drop caused by long line lengths can lead to greater potential differences between bus stations, which can hinder communication. You can improve the communication by running a ground wire with the other wires.

**NOTE:** When using RS-422/485 communication with PLCs, you may need to reduce the transmission speed and increase the TX Wait time.

### Device Manager and Hardware Installation

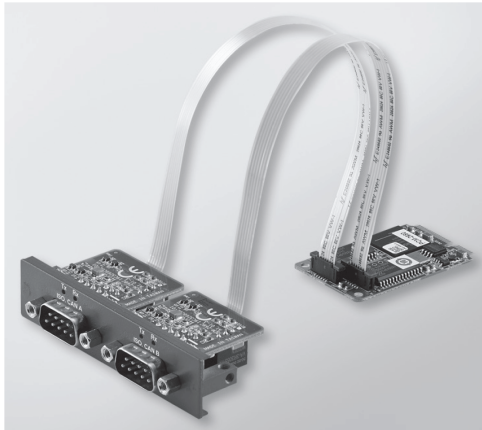
Install the driver before you install the interface module into the S-Panel PC. The driver installation media is included with the package. After the interface module is installed, you can verify whether it is properly installed on your system through the **Device Manager**.

## CANopen Interface Module Description

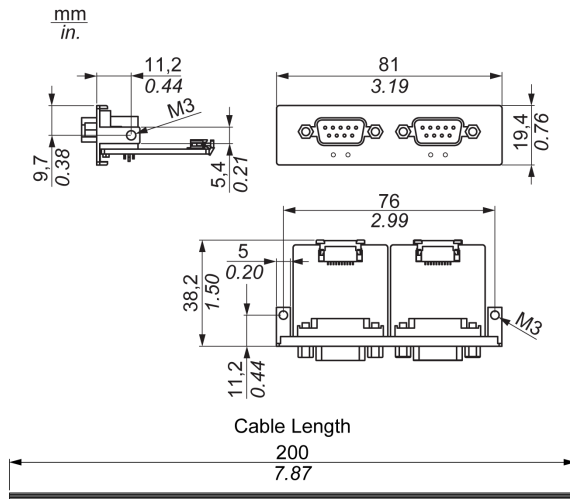
### Introduction

The HMIYMINCAN1 is categorized as industrial communication with fieldbus protocol modules. It is compatible with the mini PCIe card.

The figure shows the CANopen interface module:



The figure shows the dimensions of the CANopen interface module:





## CANopen Interface Module Description

The table shows technical data for the CANopen interface module:

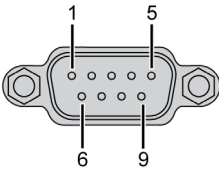
Features	Values
General	
Bus type	Mini PCIe card revision 1.2
Connector	2 x plug D-Sub 9-pin
Power consumption	400 mA at 5 Vdc
Communication	
Protocol	CAN 2.0 A/B
Signal support	CAN_H, CAN_L
Speed	1 Mbit/s
CAN frequency	16 MHz
Termination resistor	120 $\Omega$ (selected by jumper)

## Connections

This interface is used to connect the S-Panel PC to remote equipment, via a cable. The connector is a D-Sub 9-pin plug connector.

By using a long PLC cable to connect to the S-Panel PC, it is possible that the cable can be at an electrical potential that is different from the electrical potential of the panel, even if both are connected to ground.

The table shows the D-Sub 9-pin assignments:

Pin	Assignment	D-Sub 9-pin plug male connector
1	–	
2	CAN_L	
3	GND	
4	–	
5	–	
6	–	
7	CAN_H	
8	–	
9	–	

**NOTE:** You can set the terminator resistor by jumper setting. The position (pin 1-2) is for the value of the terminator resistor of 120 ohm. The position (pin 2-3) is for without terminator resistor.

Any excessive weight or stress on communication cables may disconnect the equipment.

## CAUTION

### LOSS OF POWER

- Ensure that communication connections do not place excessive stress on the communication ports of the Magelis Industrial PC.
- Securely attach communication cables to the panel or cabinet.
- Use only D-Sub 9-pin cables with a locking system in good condition.

**Failure to follow these instructions can result in injury or equipment damage.**

### Device Manager and Hardware Installation

Install the driver before you install the interface module into the S-Panel PC. The driver installation media for the CANopen interface module is included with the package. After the interface module is installed, you can verify whether it is properly installed on your system through the **Device Manager**

**NOTE:** If you see your device name listed on it but marked with an exclamation sign !, it means that your interface module has not been correctly installed. In this case, remove the device from the **Device Manager** by selecting its device name and press the **Remove** button. Then go through the driver installation process again.

After the CANopen interface module is properly installed into the S-Panel PC, you can now configure your device using the navigator.

The CANopen Protocol Library provides a C application programming interface (API) for accessing the CANopen network protocol stack of nodes. It is easy to use, configure, start, and monitor the CANopen devices careless CAN bus, developer focused on CANopen application functionality:

- Read and write object dictionary (local or by SDO)
- Control or monitor the node NMT state (NMT master)
- PDO transmission mode: on request, by SYNC, time driven, event driven
- Support 512 TPDOs and 512 RPDOs
- SYNC producer and consumer
- Heartbeat producer and consumer
- Emergency objects

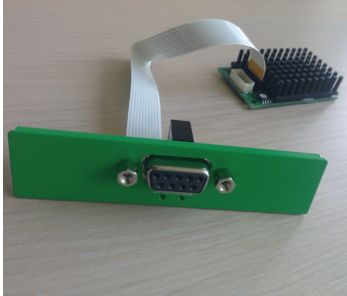
## Profibus DP Interface Module Description

### Introduction

The HMIYMINPRO1 is categorized as industrial communication with fieldbus protocol modules (Profibus DP master or slave). It is compatible with the mini PCIe card.

**NOTE:** Download the firmware and configuration. Use the corresponding master or slave DTM in the configuration software SYCON.net (HILSCHER CIFX 90E-DP\ET\F\MR\ADVA/+ML).

The figure shows the Profibus DP interface module:



### Profibus DP Interface Module Description

The table shows technical data for the Profibus DP interface module:

Features	Values
General	
Bus type	mini PCIe card revision 1.2
Connector	1 x socket D-Sub 9-pin
Memory	8 Mb SDRAM / 4 Mb serial flash EPROM
Size of the dual-port memory	64 Kbyte
Power consumption	600 mA at 3.3 Vdc
Communication	
Protocol	Profibus DP V1
Signal support	RxD/TxD-P, RxD/TxD-N
Transmission rate	33 MHz
Dimensions	60 x 45 x 9.5 mm

## Profibus DP Specification

The table shows the Profibus DP specification:

Features	Profibus DP slave	Profibus DP master
Slave max.	–	125
Cyclic data max.	244 bytes	244 bytes/slave
Acyclic read/write	6,240 bytes	
Maximum number of modules	24	–
Configuration data	244 bytes	244 bytes/slave
Parameter data	237 bytes	

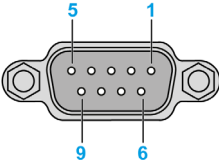
**NOTE:** To configure the master, a GSD file (device description file) is required. The settings in the used master must comply with the settings in the slave to establish communication. The main parameters are: Station address, ID number, baudrate, and config data (the configuration data for the output and input length).

## Connections

This interface is used to connect S-Panel PC to remote equipment, via a cable. The connector is a D-Sub 9-pin plug connector.

If you use a long PLC cable to connect to the S-Panel PC, the cable can be at an electrical potential that is different from the electrical potential of the panel, even if both are connected to ground.

The table shows the D-Sub 9-pin assignments:

Pin	Assignment	Description	D-Sub 9-pin plug female connector
1	–	–	
2	–	–	
3	RxD/TxD-P	Receive/Send Data-P connection B plug	
4	–	–	
5	GND	Reference potential	
6	VP	Positive supply voltage	
7	–	–	
8	RxD/TxD-N	Receive/Send Data-N connection A plug	
9	–	–	

Any excessive weight or stress on communication cables may disconnect the equipment.

## CAUTION

### LOSS OF POWER

- Ensure that communication connections do not place excessive stress on the communication ports of the Magelis Industrial PC.
- Securely attach communication cables to the panel or cabinet.
- Use only D-Sub 9-pin cables with a locking system in good condition.

**Failure to follow these instructions can result in injury or equipment damage.**

### Device Manager and Hardware Installation

Install the driver before you install the interface module into the S-Panel PC. The driver installation media is included with the package. After the interface module is installed, you can verify whether it is properly installed on your system through the **Device Manager**.

## Wireless LAN Interface Card Description

### Introduction

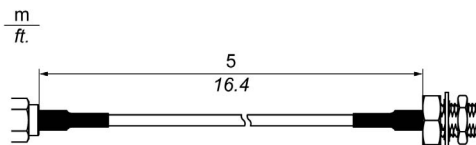
The HMIYMINWIFI1 is categorized as a local area wireless for USB-equipped wireless embedded systems. It does not use the mini PCIe slot (Intel dual band wireless-AC 3160). Wireless LAN direct support to connect wireless LAN devices to each other with no need for a wireless access point.

The figure shows the wireless LAN interface card:



**NOTE:** The antennas are mounted directly on the product to the specific location. They can also be mounted remotely using intermediate cables.

The figure shows the dimensions of the remote wireless LAN antenna cable (HMIYCABWIFIAN51):



## Wireless LAN Interface Card Description

The table shows technical data for the wireless LAN interface card:

Element	Characteristics
General	
IEEE WLAN standard	IEEE 802.11abgn, 802.11ac, 802.11d, 802.11e, 802.11i, 802.11 h, 802.11w
Antenna connector	2 x U.FL connectors
LED output	On/off
Communication	
Roaming	Supports seamless roaming between respective access points 802.11b, 802.11 g, 802.11a/b/g, 802.11a/b/g/n, and 802.11ac)
Blue tooth	Dual-mode Blue tooth 2.1, 2.1+EDR, 3.0, 3.0+HS, 4.0 (BLE)
Authentication	WPA and WPA2, 802.1X (EAP-TLS, TTLS, PEAP, LEAP, EAP-FAST), EAP-SIM, EAP-AKA
Authentication protocols	PAP, CHAP, TLS, GTC, MS-CHAP, MS-CHAPv2
Encryption	64-bit and 128-bit WEP, AES-CCMP, TKIP
Wireless LAN direct encryption and authentication	WPA2, AES-CCMP
Management frame protection	802.11w (WFA- protected management frames)

## Wireless LAN Interface Cable Description

The table shows technical data for the wireless LAN interface cable and antenna:

Part number	Characteristics
HMIYCABWIFIAN51	Remote wireless LAN antenna cable 5 m (16.4 ft)

## Device Manager and Hardware Installation

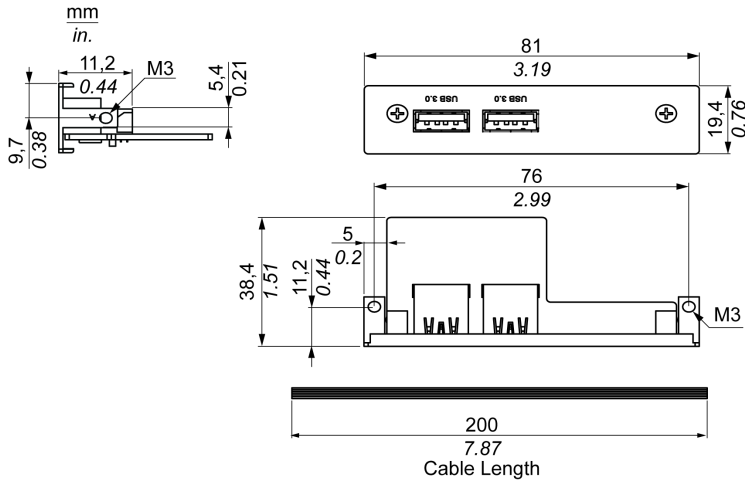
Install the driver before you install the interface module into the S-Panel PC. The driver installation media is included with the package. After the interface module is installed, you can verify whether it is properly installed on your system through the **Device Manager**.

## USB Interface Module Description

### Introduction

The HMIYMINUSB1 are categorized as communication modules. It is all compatible with the mini PCIe card. The USB interface module supports hot-swapping function.

The figure shows the dimensions of the USB interface module:



### USB Interface Module

The table shows technical data for the USB interface module:

Element	Characteristics
General	
Bus type	Mini PCIe card revision 1.2
Connector	2 x ports USB 3.0
Power consumption	+5 Vdc / 900 mA power output to USB device (typical: 3.3 Vdc)
Communication	
Protocol	Universal serial Bus 3.0 specification Rev. 1.0
Speed	Low speed: 1.5 Mbit/s, full speed: 12 Mbit/s, high speed: 480 Mbit/s, super speed: 5 Gbit/s

### Device Manager and Hardware Installation

Install the driver before you install the interface module into the S-Panel PC. The driver installation media is included with the package. After the interface module is installed, you can verify whether it is properly installed on your system through the **Device Manager**.

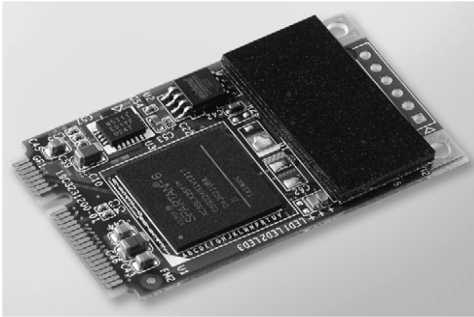


## NVRAM Card Description

### Introduction

The HMIYMINNVRAM1 is categorized as industrial storage or a memory card for the mini PCIe slot.

The figure shows the NVRAM card:



### NVRAM Card Description

The table shows the technical data of the NVRAM card:

Features	Values
General	
Bus type	mini PCIe card revision 1.2
Power consumption	3.3 Vdc at 150 mA
Memory	
Size	2 MB
Read/write speed	6 Mb/s
Maximum magnetic field immunity during writing	8000 A/m
Maximum magnetic field immunity during read or standby	8000 A/m

### Device Manager and Hardware Installation

Install the driver before you install the interface module into the S-Panel PC. The driver installation media is included with the package. After the interface module is installed, you can verify whether it is properly installed on your system through the **Device Manager**.

## GPRS Module

### Introduction

The HMIYMINGPRS1 is categorized as a GPRS (general packet radio service). It provides a cost effective solution for wireless remote connection to distributed installations over the Internet. It is compatible with the mini PCIe card with SIM card holder.

GPRS is a packet-oriented data service based on GSM (global system for mobile). It offers the advantages to pay only for the total volume of data exchanged (in MB per month) regardless of the connection time while data communication via traditional circuit switching (PSTN/GSM) is charged per minute of connection time.

GSM connections are used for on-demand services such as sending SMS alarms or basic remote services such as diagnostics.

GPRS is more suitable for permanent access to remote installations providing:

- Easy remote programming.
- Continuous remote monitoring and control.
- Transparent routing capabilities from the Internet to LAN networks or serial network devices connected to the S-Panel PC gateway.

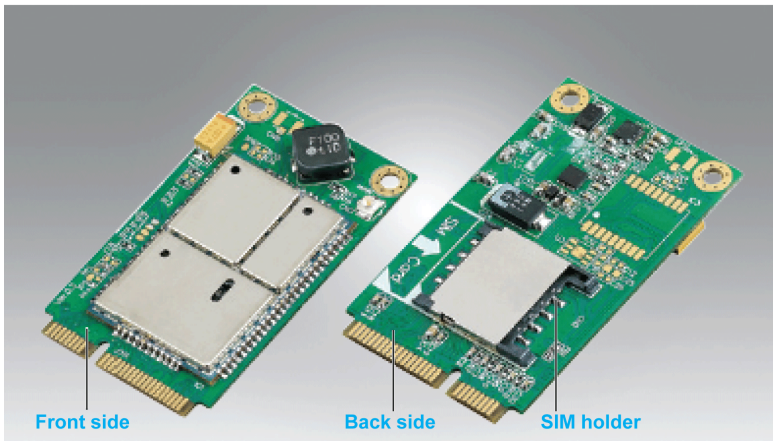
In addition, GPRS provides higher data exchange rates than GSM:

	Upload	Download
Theoretical	24 kbps	48 kbps
Typical	16 kbps	20 kbps

**NOTE:** These values depend on your service provider, the distance between your GPRS module and the base station, and the current traffic.

**NOTE:** If too many browsers are being used on a modem connection (GPRS, PSTN), performance may decrease and lead to difficulties with page refreshing.

The figure shows the GPRS module:



### GPRS Module Description

The table shows technical data for the GPRS module:

Features	Values
General	
Bus type	mini PCIe card revision 1.2
Connector	1 x RF antenna coaxial connectors
Power consumption	3.3...3.6 Vdc < 700 mA (HSPA connected mode)
Peak current	1.5 A
Communication	
Protocol	UMTS/HSPA network: 800/850/900/1700/1900/2100 MHz EDGE/ GPRS/ GSM network: 850/ 900/ 1800/ 1900 MHz
Speed	Downlink: 7.2 Mbit/s (HSDPA) / uplink: 5.76 Mbit/s (HSUPA)
Dimensions (l x w x h)	50.85 x 29.9 x 6.2 mm (2.0 x 1.17 x 0.24 in)

Any excessive weight or stress on communication cables may disconnect the equipment.

## ⚠ CAUTION

### LOSS OF POWER

- Ensure that communication connections do not place excessive stress on the communication ports of the Magelis Industrial PC.
- Securely attach communication cables to the panel or cabinet.
- Use only D-Sub 9-pin cables with a locking system in good condition.

**Failure to follow these instructions can result in injury or equipment damage.**

### GPRS Remote Access

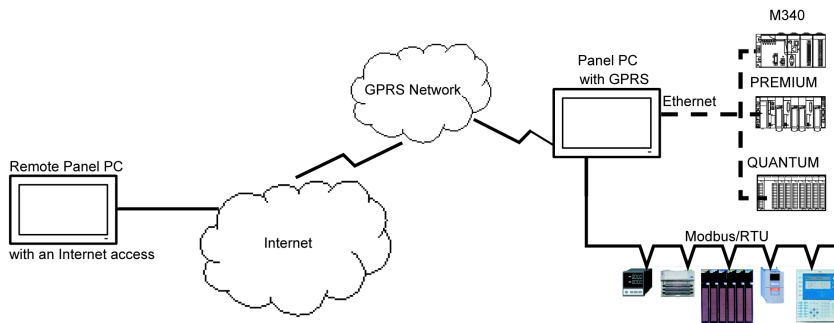
GPRS communication implies:

- The GPRS module is connected to the Internet via the GPRS network.
- The remote PC or network is also connected to the Internet.

GPRS topologies can support:

- NAT (network address translation) routing tables for transparent routing to Ethernet devices
- security services such as IP address control or VPN tunnels for secured data exchange over the Internet

The following figure shows remote access to the network of the GPRS module:



## Connection Principles

GPRS communication requires a SIM card and a specific GPRS contract with a service provider.

The GPRS connection is always initiated from the module to the GPRS network.

It is not possible for a client application to open a connection by directly dialing the GPRS module. Nevertheless, the GPRS module provides various solutions to connect to the GPRS network:

### Permanent mode:

- Automatic connection at startup, restart or after connection loss.

### On-demand mode:

- Callback function: opens the connection upon receiving an incoming GSM or PSTN call.
- Autonomously on a process or application condition.

The GPRS module connects the APN (*access point name*) of the service provider and receives an IP address back that can be static or dynamic.

The GPRS module supports both static and dynamic IP addresses. If the address is dynamic, it is necessary to inform the remote application of the new IP address.

### NOTE:

- GPRS uses the DNS server of the service provider; it replaces the DNS server configured in the S-Panel PC.
- The default gateway set in the Ethernet configuration of the S-Panel PC is not used with a GPRS connection. The default route of the GPRS connection is used instead. Thus, it is not possible to route through Ethernet when the module is connected to the GPRS network.

## GPRS Contracts

GPRS service providers offer dedicated services adapted to industrial applications, also called M2M (*machine to machine*).

Service providers offer GPRS contracts with different options. The main options are:

- Public or private IP address: Choose a contract that gives you a public IP address to be accessible directly from the Internet.
- Static or dynamic IP address.
- Incoming TCP ports blocked or not: Some providers offer only subscriptions with TCP ports blocked for security reasons. For example, some provider block ports that are lower than 1024.

### NOTE:

- For ease of use and configuration, you should choose a contract that does not block TCP ports and provides a static IP address.
- If your service provider blocks the public ports (< 1024), you must use a VPN and choose a contract that authorizes VPN traffic.

## Device Manager and Hardware Installation

Install the driver before you install the interface module into the S-Panel PC. The driver installation media is included with the package. After the interface module is installed, you can verify whether it is properly installed on your system through the **Device Manager**.



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# Chapter 9

## Connections to PLCs

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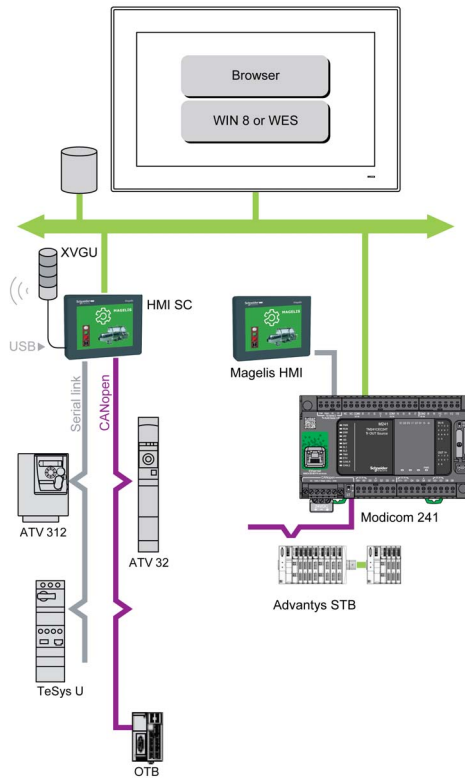
### Connection to PLCs

#### Introduction

Two different kinds of architecture are possible when connecting the S-Panel PC to PLCs (programmable logic controller):

- **Transparent Ready** Ethernet architecture
- Traditional fieldbus architecture

#### Transparent Ready Ethernet Architecture

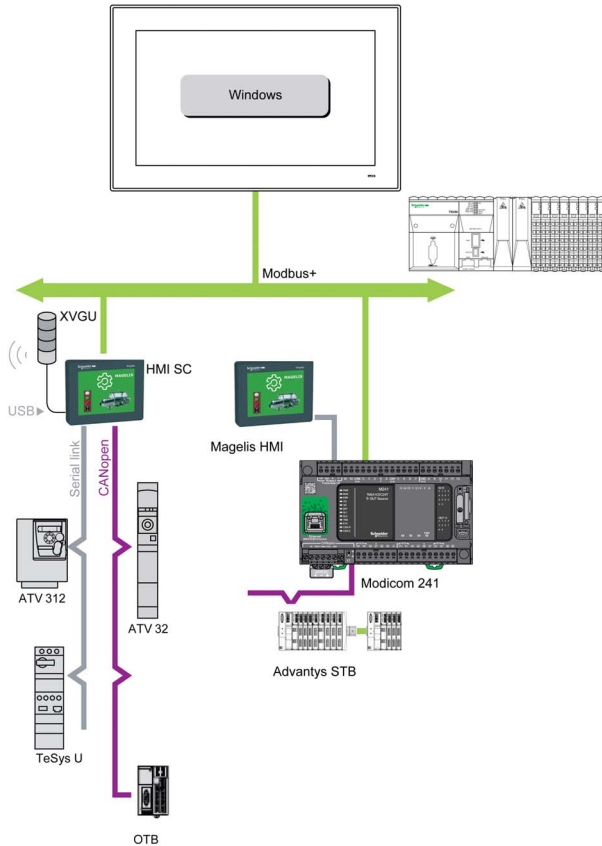


With its built-in Ethernet ports, you can integrate the S-Panel PC into *full Ethernet* architectures, such as **Transparent Ready**. **Transparent Ready** devices in this type of architecture enable transparent communication over the Ethernet TCP/IP network. Communication services and Web services permit the sharing and distribution of data between levels 1, 2 and 3 of the **Transparent Ready** architecture.

Used as a client station, the S-Panel PC makes it easier to implement Web client solutions for:

- Basic servers embedded in field devices (**Advantys STB/Momentum/Modicon**, distributed I/O, ATV starters, **OsiSense** identification systems, and so on).

### Traditional Fieldbus Architecture



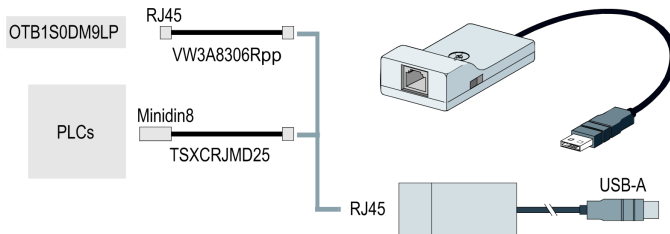


The S-Panel PC terminal with **Vijeo XD** automation software can be used in fieldbus architectures such as **Modbus Plus**.

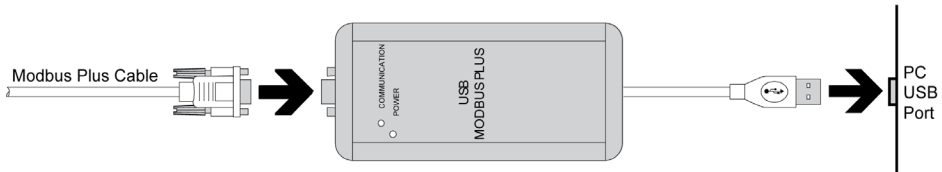
The S-Panel PC terminal can connect to **Modbus** networks, but different connection devices are required depending on the network and on the communication port used. These devices are specified below:

- For USB slot:
  - **Modbus Plus** with the TSXCUSB485 converter enables the S-Panel PC to connect to remote devices using an RS-485 interface.

The S-Panel PC, compatible with **Modbus**, requires the standard Schneider Electric drivers provided with software such as **Unity Pro**, **PL7-Pro**, or a driver on the CD called **TLXCDDRV20M**. An example is provided in the figure:



- **Modbus Plus** network with the TSXCUSBMBP converter. This converter is compatible with PCs equipped with **CONCEPT**, **ProWORX**, or **Unity Pro**. An example is provided in the figure:



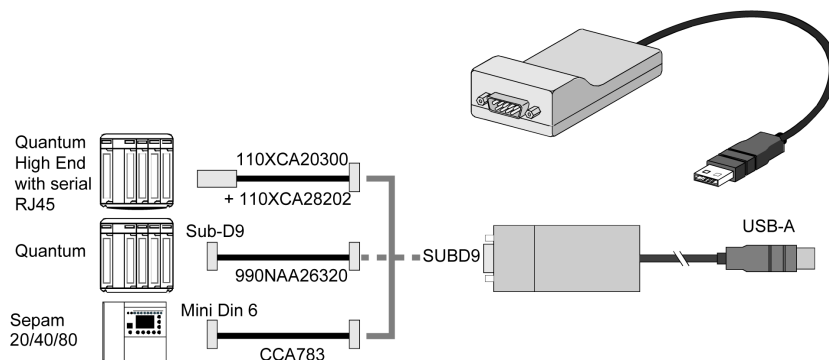
## Cables and Converters

For different types of PLCs, the following cables and converters are required:

- TSXCUSB232 converter for connecting the S-Panel PC, via an USB port, to remote devices using a RS-232C interface.

**NOTE:** This device, compatible with **Modbus Plus**, requires the standard Schneider Electric drivers provided with software such as **Unity Pro** or a driver on the CD called TLXCDDR20M.

An example using the TSXCUSB232 converter is provided in the figure:



- TSXPCX1031 connection cable for **Premium**. This cable is supplied with **Unity Pro** software.

**NOTE:** To achieve **Modbus** through RS-485 COM port with Schneider Electric device, do not use standard Schneider Electric cable. Follow wiring diagram ([see page 68](#)) to create a convenient cable depending on the remote device to connect to.

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# Chapter 10

## System Monitor

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### Subject of this Chapter

This chapter describes the system monitor features of the Panel PC controller.

### What Is in This Chapter?

This chapter contains the following topics:

Topic	Page
System Monitor Interface	132
Device Management - Monitoring Rules	139
Account Setting - System Setting	163

## System Monitor Interface

### Overview

The **System Monitor** 3.0 interface provides remote monitoring, a feature that helps you access multiple clients through a single console for remote device management. The **System Monitor** immediately recognizes equipment and provides real-time equipment maintenance, which improves system stability and reliability.

**Remote Monitoring** monitors system status of remote devices. The monitored items include hard disk temperature, hard drive health, network connection, CPU temperature, system voltages, system fan status and UPS status.

**Remote Monitoring** also provides support for function logs so that managers can regularly check the status of their remote devices.

The **System Monitor** sends notification and makes an entry in the event log.

**NOTE:** When configuring the **System Monitor**, it is not possible to create a group/device as the virtual keyboard is not accessible from configuration. The work around consists of plugging in a physical keyboard.

### System Monitor Requirements

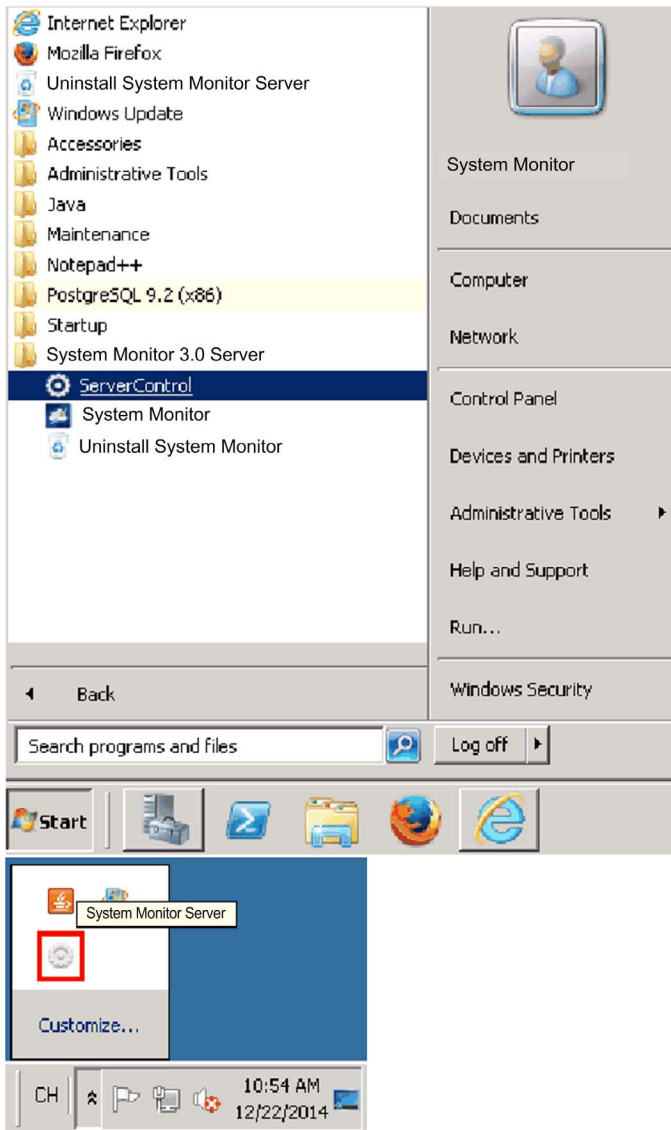
The table describes the software requirements:

Description	Software
Framework	Microsoft.NET Framework version 2.0 or higher
Driver	Software 4.0 API

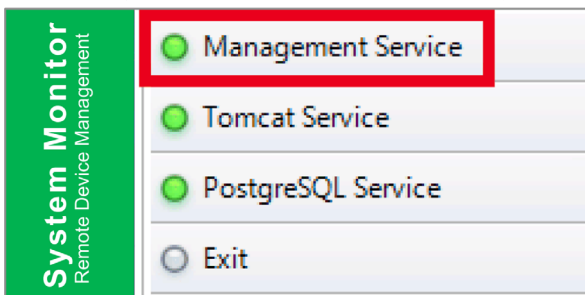
### System Monitor Console

The **System Monitor** console acts as a server for the clients. Devices that run on the **System Monitor** console display the health and status information from the **System Monitor** clients. The console has to be made available by the clients over a network.

Launch the system tray of **ServerControl** from Windows **Start** → **Programs** and right-click to launch **ServerControl** menu from tray icon:



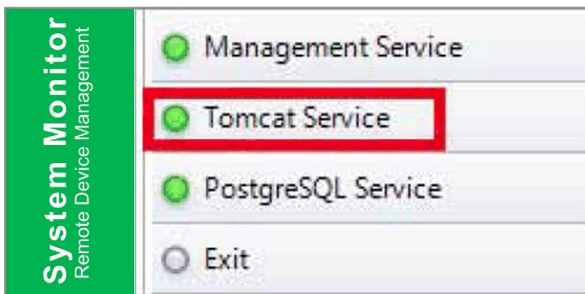
Click **Management Service** to start/stop main **System Monitor** management service:



### Tomcat Service

Tomcat is an open-source Web server and servlet container. Tomcat implements several Java EE specifications including Java servlet, JavaServer pages (JSP), Java EL, and WebSocket, and provides a Java HTTP Web server environment for Java code to run in.

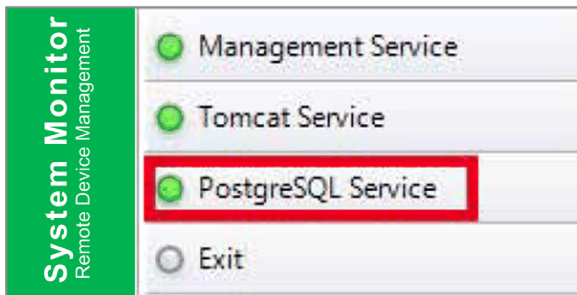
Click **Tomcat Service** to start/stop **System Monitor** Web service:



## PostgreSQL Service

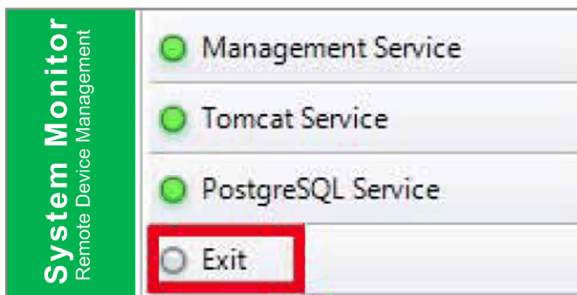
PostgreSQL is an object-relational database management system (ORDBMS). As a database server, its function is to store data and retrieve it later, as requested by other software applications running on another computer across a network and the Internet. It can handle workloads ranging large internet-facing applications with many concurrent users. PostgreSQL provides replication of the database itself for availability and scalability.

Click **PostgreSQL Service** to start/stop **System Monitor** database service:



## Exit

Click **Exit** to terminate server management console from tray icon and all **System Monitor** services that are still running in the background. You can restart console from Windows/Programs menu:



## Remote Manage Devices Any Time, Any Where

**System Monitor** is a **Console-Server-Agent** web-based structure for cloud management. Agent here refers to S-Panel PC devices, and server refers to the server directly in contact with the agent. The server can be a physical entity located in a central control room, or a virtual host set up in a cloud. Console refers to a web-based interface that connects to the server and communicates with the agent through the server. Administrators can perform equipment status and maintenance checks on **System Monitor** console through an Internet browser at any time, from anywhere, using any connected device. The server-agent connection fit the MQTT communication protocol. This improves connection security and stability, and also decreases development time for **System Monitor** integration. The console-server-agent web-based structure not only lowers the difficulty of setting up **System Monitor** network environments when provisioning, but also provides a distributed connectivity structure that solves the challenges encountered with large-scale or multi-site device management. **System Monitor** is a real-time management platform that breaks geographical limitations. Administrators can manage all of their devices by simply using their PCs, smartphones, and tablets.

**NOTE:** MQTT (formerly message queue telemetry transport) is a publish-subscribe based messaging protocol for use on top of the TCP/IP protocol.

## Seamless HW/SW Monitoring for Complete Protection

In order to ensure device stability, **System Monitor** actively monitors device temperatures, voltages, and the states of hard disks and other hardware. In addition to hardware monitoring functions, **System Monitor** has a software monitoring function to oversee program status. Active alerts are sent out if any abnormalities are observed, and **System Monitor** can execute related actions according to user settings, like stopping or restarting processes, which further ensure normal device operation. **System Monitor** provides a comprehensive, seamless, device monitor and control system that includes both hardware and software.

## KVM Feature

The **System Monitor** features a remote KVM (keyboard, video, and mouse) and allow remote diagnosis and recovery in any situation. The time saving on trouble shooting with real-time remote monitoring and proactive alarm notifications ensure continued system health.

## User-Friendly Map-View Interface

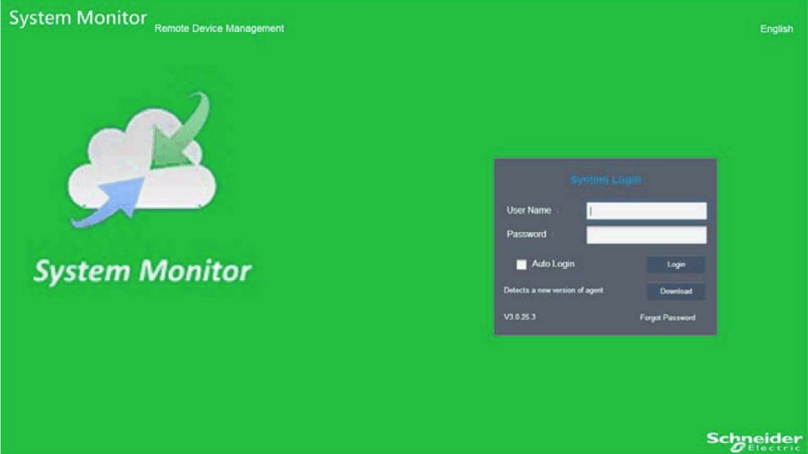
Taking advantage of web-based features, **System Monitor** provides map-view interface and leverages Google and Baidu maps to help administrators locate and manage their devices more easily. In addition to the maps, **System Monitor** also provides for building diagrams to help pinpoint device locations in offices, factories, or wherever. **System Monitor** provides a user-friendly interface in an overall easy-to-use environment.

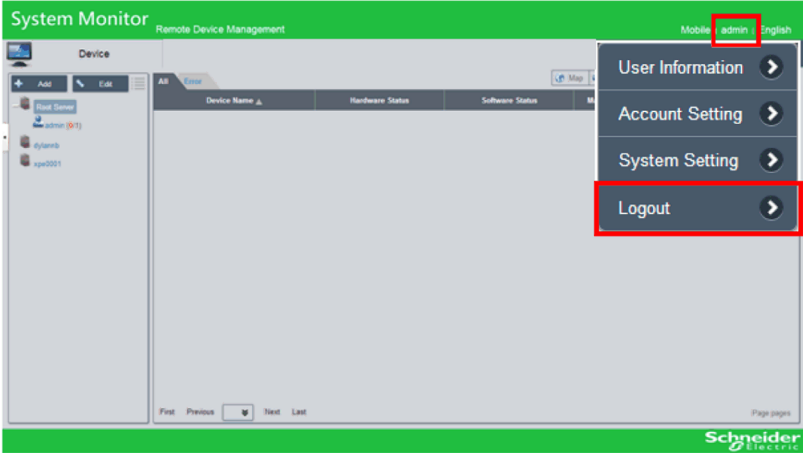
**NOTE:** Baidu maps or Beidu maps is a Chinese online mapping service.



## System Monitor Client (Desktop)

This procedure describes the User Login/Logout interface:

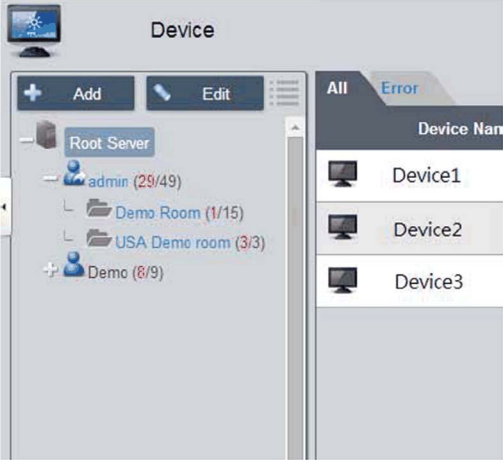
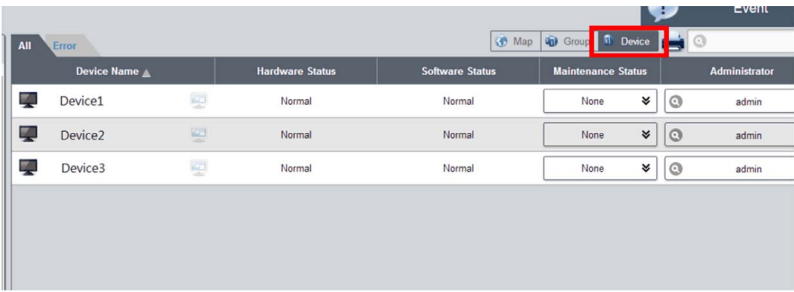
Step	Description
1	<p>The <b>System Monitor</b> supports mainstream browsers like Chrome, Firefox, Internet Explorer, and Safari. The portal page supports multi-language and auto-detects the language currently used by browsers for default displaying. You can select the language from the menu at top-right corner to change manually:</p>  <p><b>User Log In</b></p> <ul style="list-style-type: none"> <li>• You can input valid user name, password, and click <b>Login</b> to verify and enter main management page (by default the user is <code>admin</code> and password <code>admin</code>).</li> <li>• Check <b>Auto Login</b> to allow users to cache login information and auto login each time.</li> </ul> <p><b>NOTE:</b> For security concerns, do not check this option if you are using a public PC.</p> <p>If you forget your password, click <b>Forgot Password</b>. Put the registered user email in the prompt dialog after it has auto resent the password to your email.</p>

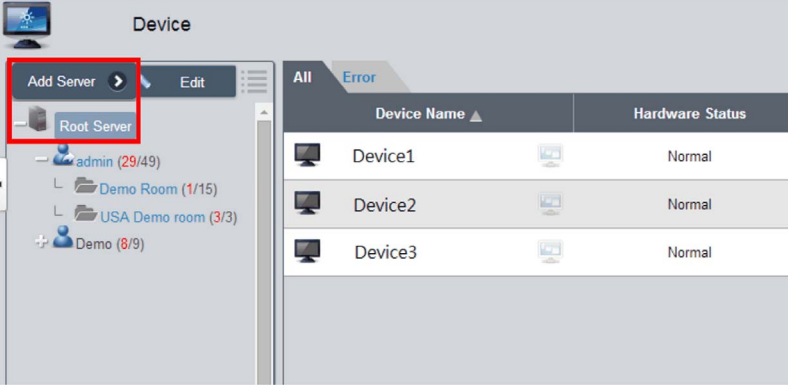
Step	Description
2	<p>Changing Password for First log in: For the first successful login, new user can change their password or bypass it:</p> <div data-bbox="299 261 1094 570" style="border: 1px solid black; padding: 10px;"> <p style="text-align: center;"><b>Reset Password</b></p> <p>User Name: <input type="text" value="aaaa"/></p> <p>Password: <input type="password"/></p> <p>New Password: <input type="password"/></p> <p>Confirm Password: <input type="password"/></p> <p style="text-align: right;"> <input type="button" value="OK"/> <input type="button" value="Cancel"/> </p> </div>
3	<p><b>User Log Out</b> Click <b>User Log Out</b> from the right corner menu to exit the system:</p>  <p>The screenshot shows the 'System Monitor' interface with a green header. In the top right corner, there is a user menu with options: 'Mobile', 'admin', and 'English'. Below this, a dropdown menu is open, listing 'User Information', 'Account Setting', 'System Setting', and 'Logout'. The 'Logout' option is highlighted with a red box.</p>

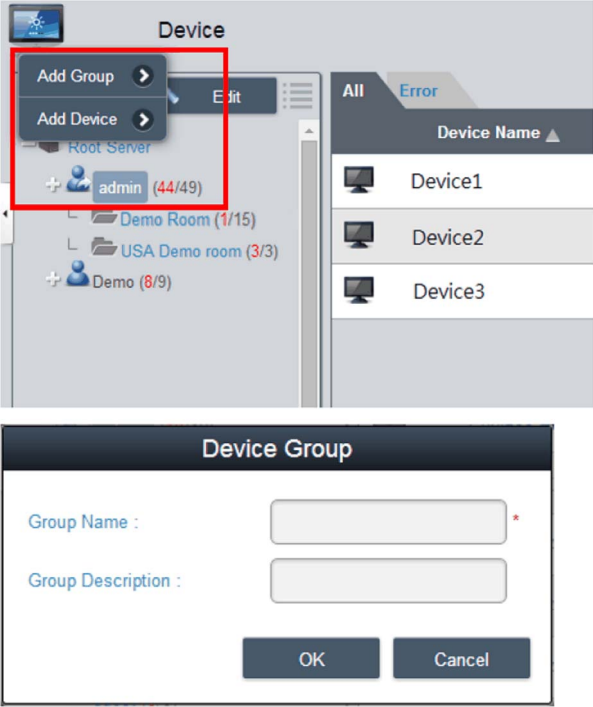
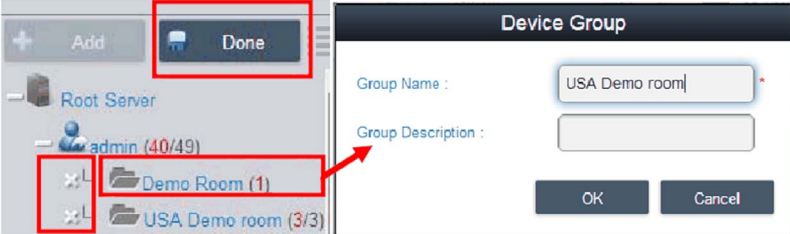
## Device Management - Monitoring Rules

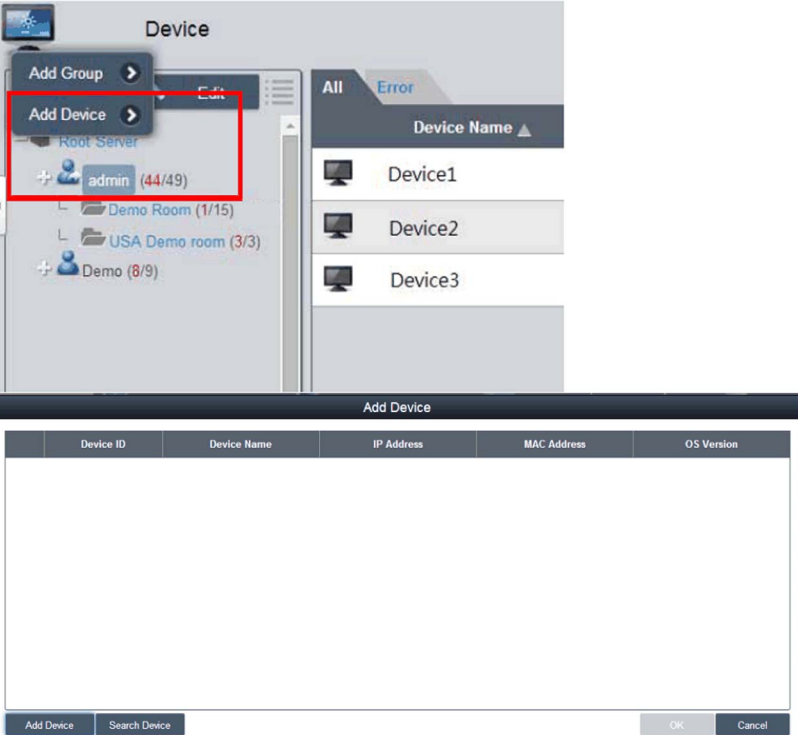
### Device Management

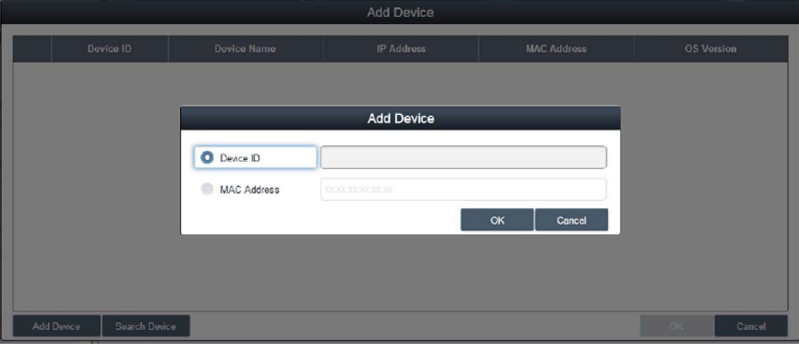

This procedure describes how to use the **Device Management** user interface:

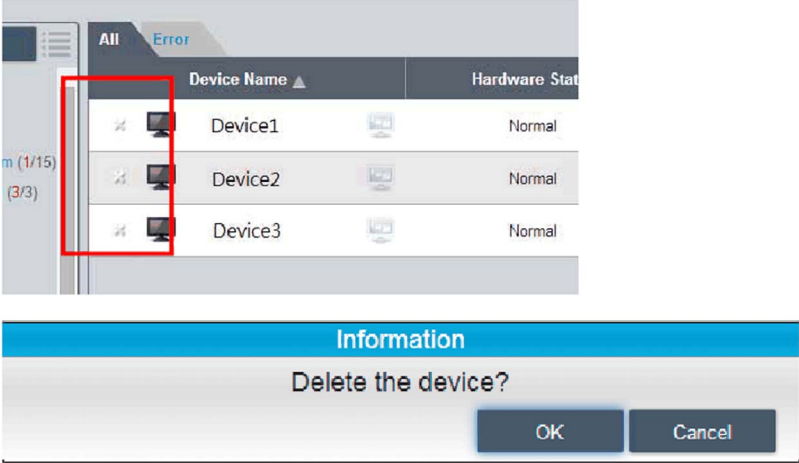
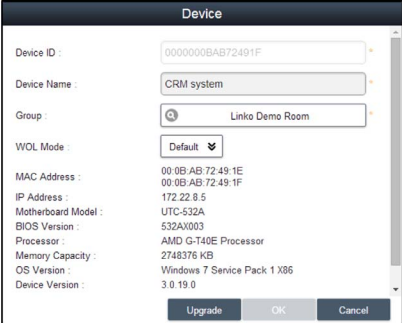
Step	Description																				
1	<p><b>Device management</b></p> <ul style="list-style-type: none"> <li>• After user login, <b>Device</b> is the default page.</li> <li>• <b>Device</b> management page is composed of a system hierarchy tree (left-side) and device list (right-side).</li> <li>• <b>Device</b> management provides three levels of management view: <b>Device List</b>, <b>Group List</b>, and <b>Map View</b>.</li> <li>• System hierarchy tree includes server, account, and group node for device/group list mode as well as location, layout, and device node for map view mode. Each node supports corresponding operations (add/delete/edit) according to node attributes.</li> </ul>  <p>The screenshot shows the 'Device' management page. On the left, there is a system hierarchy tree with nodes: 'Root Server', 'admin (29/49)', 'Demo Room (1/15)', 'USA Demo room (3/3)', and 'Demo (8/9)'. On the right, there is a list of devices: 'Device1', 'Device2', and 'Device3'. The interface includes 'Add' and 'Edit' buttons at the top left.</p>																				
2	<p><b>View mode – Device status list:</b></p>  <p>The screenshot shows the 'Device' status list view. The 'Device' tab is selected in the top navigation bar. The table below displays the following data:</p> <table border="1"> <thead> <tr> <th>Device Name</th> <th>Hardware Status</th> <th>Software Status</th> <th>Maintenance Status</th> <th>Administrator</th> </tr> </thead> <tbody> <tr> <td>Device1</td> <td>Normal</td> <td>Normal</td> <td>None</td> <td>admin</td> </tr> <tr> <td>Device2</td> <td>Normal</td> <td>Normal</td> <td>None</td> <td>admin</td> </tr> <tr> <td>Device3</td> <td>Normal</td> <td>Normal</td> <td>None</td> <td>admin</td> </tr> </tbody> </table>	Device Name	Hardware Status	Software Status	Maintenance Status	Administrator	Device1	Normal	Normal	None	admin	Device2	Normal	Normal	None	admin	Device3	Normal	Normal	None	admin
Device Name	Hardware Status	Software Status	Maintenance Status	Administrator																	
Device1	Normal	Normal	None	admin																	
Device2	Normal	Normal	None	admin																	
Device3	Normal	Normal	None	admin																	

Step	Description
3	<p data-bbox="296 204 1160 253"><b>Add/Delete/Edit device server</b> Add device server: Select on one of server nodes and click <b>Add</b> to the pop up menu option:</p>  <p data-bbox="334 652 1116 678">Click <b>Add Server</b> to pop up the <b>Device Server</b> dialog for new subserver registering.</p> <p data-bbox="296 701 499 724"><b>Delete device server:</b></p> <p data-bbox="296 727 1039 750">Click <b>Edit</b> to switch to edit mode and click the icon <b>X</b> to delete this server node.</p> <p data-bbox="296 753 474 776"><b>Edit device server:</b></p> <p data-bbox="296 779 1204 828">Click <b>Edit</b> to switch to edit mode and select one of the server nodes. You can remove and edit this server node.</p>

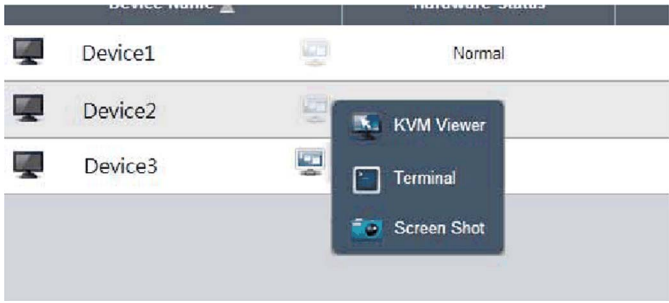

Step	Description
4	<p><b>Add/Delete/Edit device group</b>            Add device group: Select one user account and click <b>Add</b> to the pop up menu option. Click <b>Add Group</b> to pop up <b>Device Group</b> dialog for new group addition:</p> 
5	<p><b>Delete /Edit device group</b>            Delete /Edit device group: Click <b>Edit</b> to switch to edit mode and select one of the group nodes. You can remove and edit this group node:</p> 

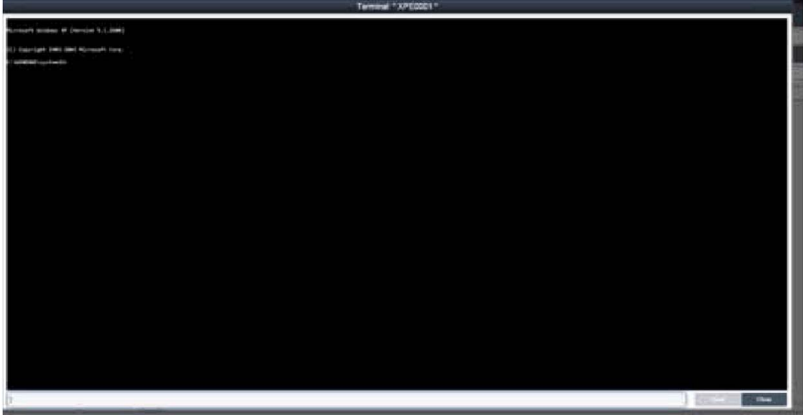
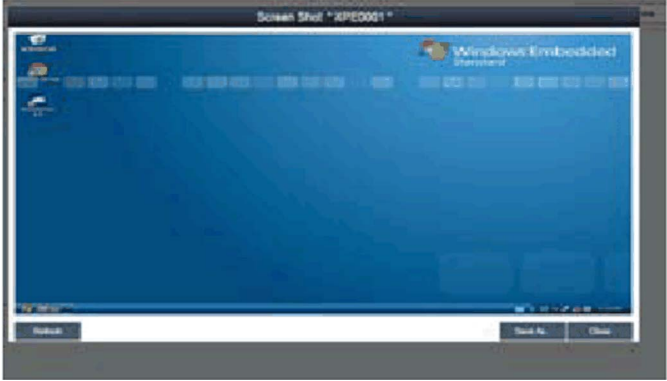
Step	Description										
6	<p><b>Add/Delete/Edit device</b></p> <p>Add device: Select one of the user accounts or groups and click <b>Add</b> to the pop up menu option. Click <b>Add Device</b> to the pop up dialog for new device addition:</p>  <p>The screenshot shows the 'Device' management interface. On the left, there is a tree view with nodes: 'Root Server', 'admin (44/49)', 'Demo Room (1/15)', 'USA Demo room (3/3)', and 'Demo (8/9)'. A context menu is open over the 'admin' node, with 'Add Device' highlighted by a red box. On the right, there is a list of devices: 'Device1', 'Device2', and 'Device3'. Below the main interface is a 'Add Device' dialog box with a table for device information.</p> <table border="1" data-bbox="308 678 1108 1019"> <thead> <tr> <th>Device ID</th> <th>Device Name</th> <th>IP Address</th> <th>MAC Address</th> <th>OS Version</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	Device ID	Device Name	IP Address	MAC Address	OS Version					
Device ID	Device Name	IP Address	MAC Address	OS Version							

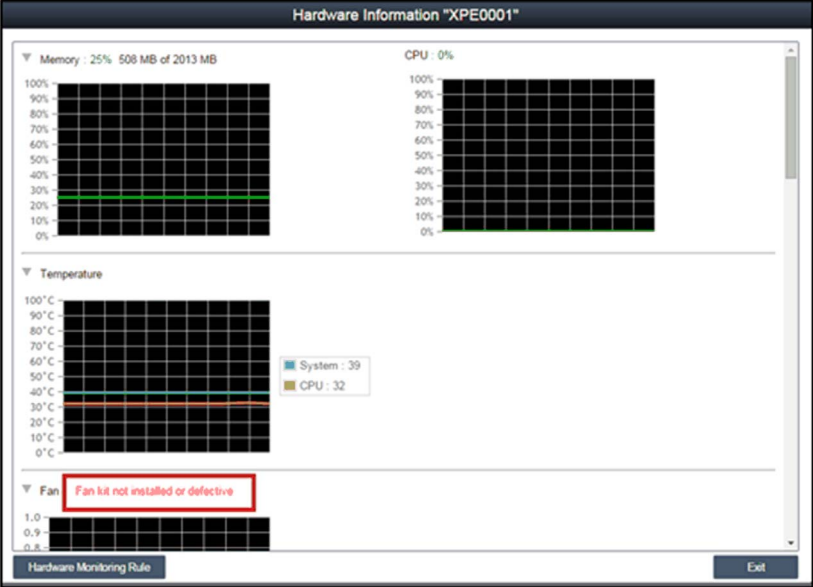
Step	Description
7	<p><b>Manual add</b></p> <p>Click <b>Add Device</b> to pop up the <b>Add Device</b> dialog to add a device manually. You can input known device ID or MAC addresses that have already registered to the server and assign a current account or group. If the device does not exist, you can also add a device directly:</p> 
8	<p><b>Search device</b></p> <p>Click <b>Search Device</b> to pop up the <b>Device</b> dialog for advanced device smart search. The system auto-discovers both connected and unassigned devices located at the same local area network as the client user:</p> 

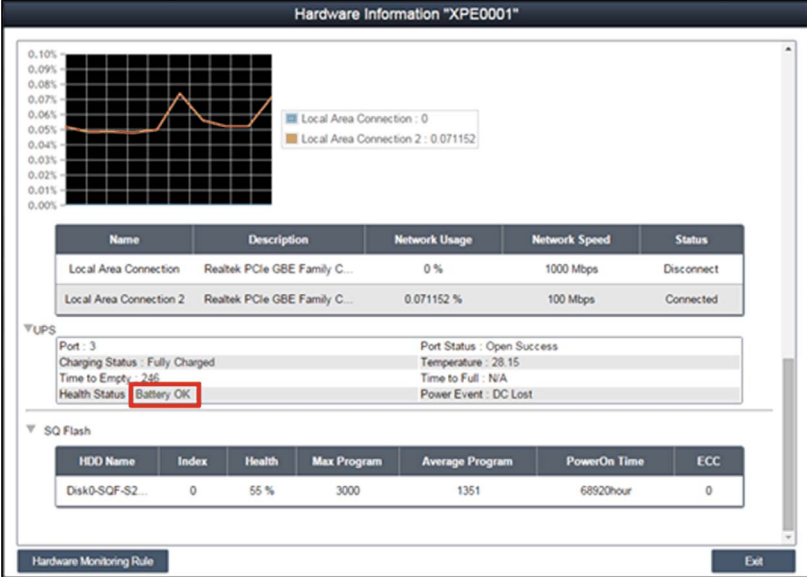
Step	Description
<p>9</p>	<p><b>Delete device</b>                      Click <b>Edit</b> to switch to edit mode. You can remove and edit devices on the device list in this mode. Click the <b>X</b> icon for the selected device row and confirm the device warning removal:</p> 
<p>10</p>	<p><b>Edit device</b>                      Click <b>Edit</b> to switch to edit mode. You can remove and edit devices of the device list in this mode. Click selected device name to pop up the <b>Device</b> dialog for editing:</p> 

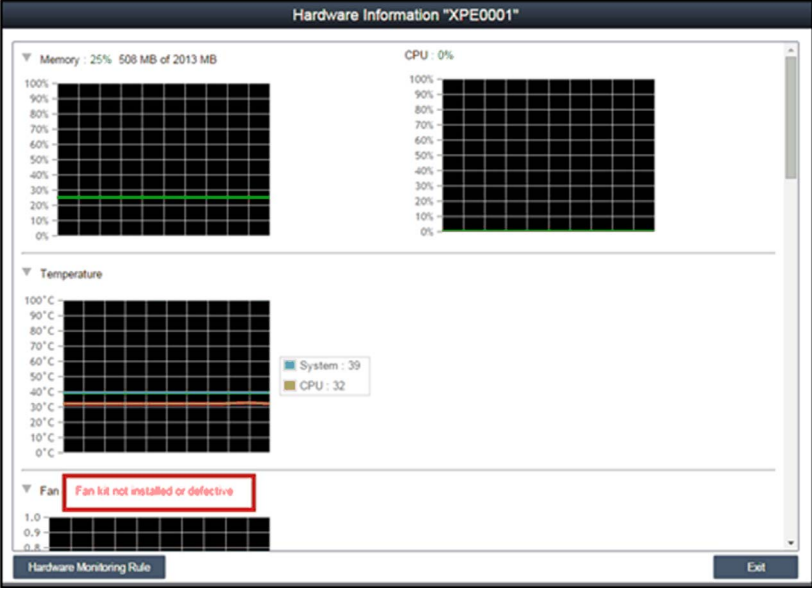
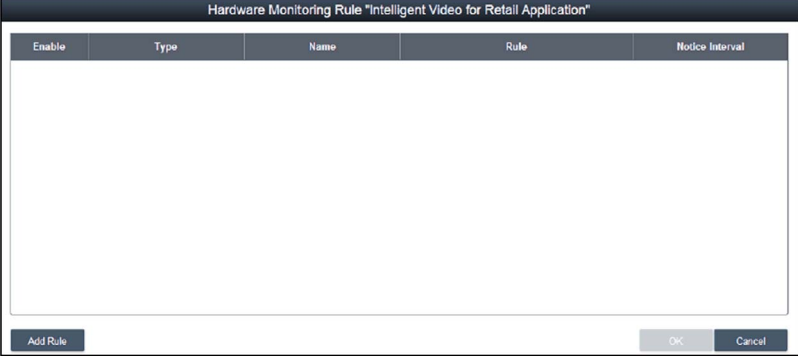


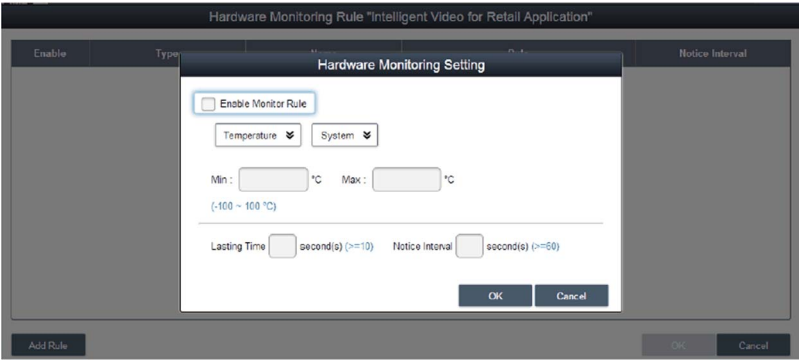
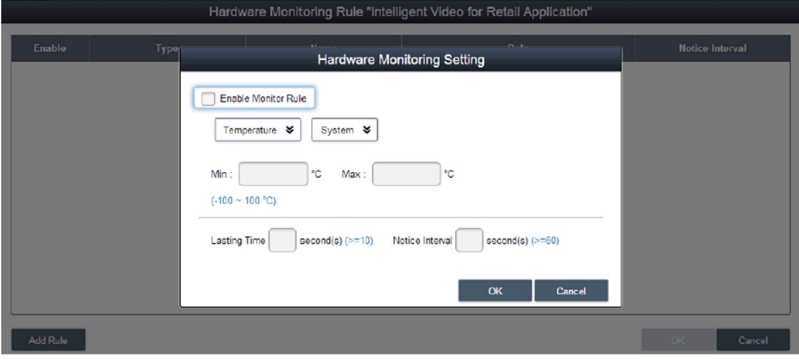
Step	Description
11	<p><b>Remote control – KVM viewer</b></p> <p>When a device has been connected, the remote control icon shows on the right side of the device name. Click the icon for advanced controls including KVM (Keyboard Video Mouse) viewer, terminal, and screen shot:</p> 
12	<p><b>KVM viewer</b></p> <p>Click the icon from the remote control menu to connect to the device for KVM control:</p>  <p><b>NOTE:</b> you can select KVM connection method on the device agent side. System default is System Monitoring KVM (Ultra VNC), you can select other already-installed VNC, or disable this function for security concerns.</p>

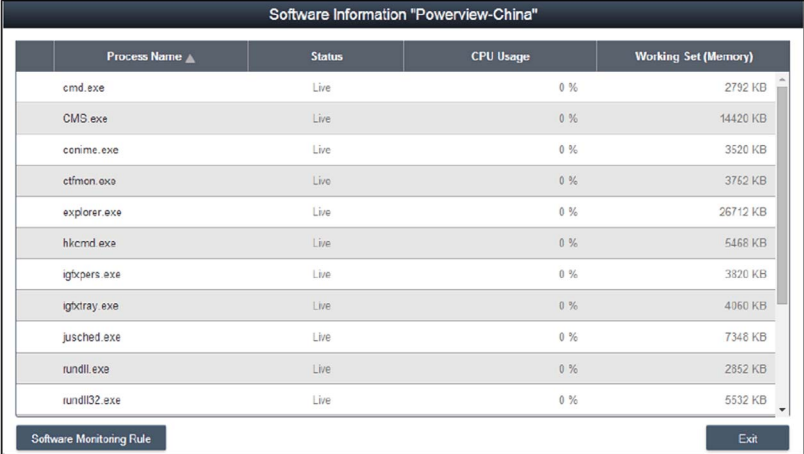
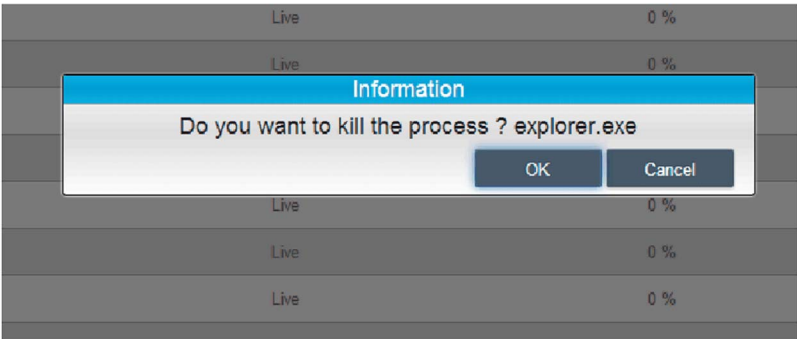
Step	Description
13	<p><b>Remote control – Terminal</b>                      Click the icon from the remote control menu to connect to the device for terminal command-line control:</p> 
14	<p><b>Remote control – Screen shot</b>                      Click the icon from the remote control menu to snapshot the desktop screen of the remote device and save it on the local client side:</p> 

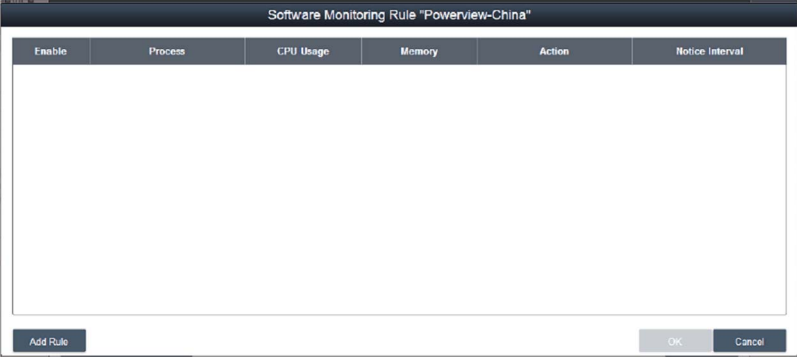
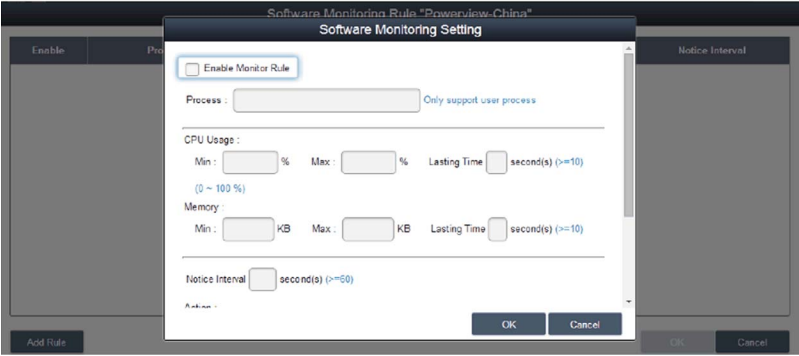
Step	Description
15	<p data-bbox="326 203 589 227"><b>Hardware monitoring status</b></p> <p data-bbox="326 230 1211 305">Real-time monitoring chart: Click the field <b>Hardware Status</b> of the device list item to display graphically hardware real-time parameters (memory, CPU usage, temperature and HD health status). Click the parameter name to disable/enable displaying of the parameter curve:</p>  <p>The screenshot displays the 'Hardware Information "XPE0001"' window. It contains four monitoring charts:</p> <ul style="list-style-type: none"><li><b>Memory:</b> Shows 25% usage (508 MB of 2013 MB) with a green line graph.</li><li><b>CPU:</b> Shows 0% usage with an empty black line graph.</li><li><b>Temperature:</b> Shows System at 39°C and CPU at 32°C with a line graph.</li><li><b>Fan:</b> Shows a red error message: "Fan kit not installed or defective".</li></ul> <p>Buttons at the bottom include "Hardware Monitoring Rule" and "Exit".</p>

Step	Description																													
16	<p><b>Hardware monitoring fan status</b></p> <p>If the fan kit is not installed or the fan rpm is 0 a message will notify: fan kit not installed or defective. To get notification about status of the system fan you need to set the appropriate rules, see step Hardware monitoring rules:</p>  <p>The screenshot shows the 'Hardware Information "XPE0001"' window. It contains a line graph of network usage for 'Local Area Connection : 0' and 'Local Area Connection 2 : 0.071152'. Below the graph is a table of network connections:</p> <table border="1"> <thead> <tr> <th>Name</th> <th>Description</th> <th>Network Usage</th> <th>Network Speed</th> <th>Status</th> </tr> </thead> <tbody> <tr> <td>Local Area Connection</td> <td>Realtek PCIe GBE Family C...</td> <td>0 %</td> <td>1000 Mbps</td> <td>Disconnect</td> </tr> <tr> <td>Local Area Connection 2</td> <td>Realtek PCIe GBE Family C...</td> <td>0.071152 %</td> <td>100 Mbps</td> <td>Connected</td> </tr> </tbody> </table> <p>Below the network table is the 'UPS' section with the following details:</p> <ul style="list-style-type: none"> <li>Port : 3</li> <li>Charging Status : Fully Charged</li> <li>Time to Empty : 236</li> <li>Health Status : <b>Battery OK</b></li> <li>Port Status : Open Success</li> <li>Temperature : 28.15</li> <li>Time to Full : N/A</li> <li>Power Event : DC Lost</li> </ul> <p>Below the UPS section is the 'SQ Flash' section with the following table:</p> <table border="1"> <thead> <tr> <th>HDD Name</th> <th>Index</th> <th>Health</th> <th>Max Program</th> <th>Average Program</th> <th>PowerOn Time</th> <th>ECC</th> </tr> </thead> <tbody> <tr> <td>Disk0-SQF-S2...</td> <td>0</td> <td>55 %</td> <td>3000</td> <td>1351</td> <td>68920hour</td> <td>0</td> </tr> </tbody> </table> <p>At the bottom of the window are buttons for 'Hardware Monitoring Rule' and 'Exit'.</p>	Name	Description	Network Usage	Network Speed	Status	Local Area Connection	Realtek PCIe GBE Family C...	0 %	1000 Mbps	Disconnect	Local Area Connection 2	Realtek PCIe GBE Family C...	0.071152 %	100 Mbps	Connected	HDD Name	Index	Health	Max Program	Average Program	PowerOn Time	ECC	Disk0-SQF-S2...	0	55 %	3000	1351	68920hour	0
Name	Description	Network Usage	Network Speed	Status																										
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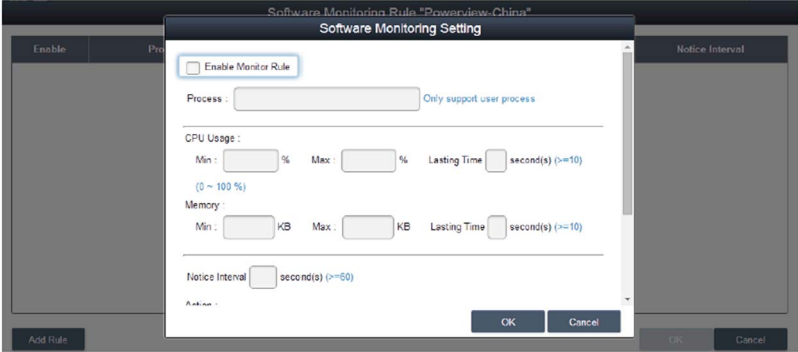
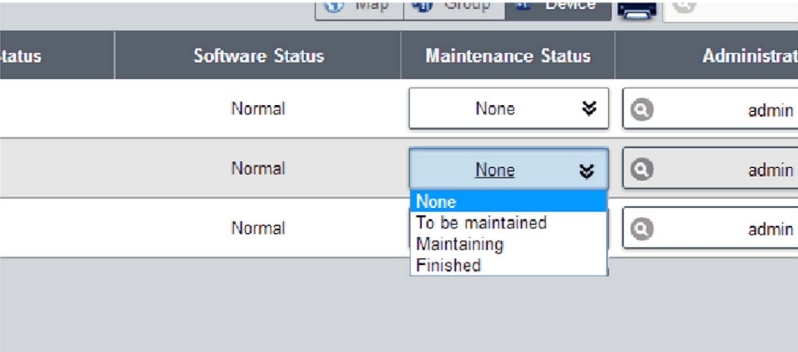
Step	Description
17	<p><b>Hardware monitoring UPS health status</b></p> <p>If the UPS kit is not installed a message will notify the health status of the battery: fHealth status of the battery : Battery OK : Green color. To get notification about status of the system fan you need to set the appropriate rules, see next step:</p>  <p>The screenshot shows a window titled "Hardware Information 'XPE0001'". It contains four sections: <ul style="list-style-type: none"> <li><b>Memory:</b> 25% 508 MB of 2013 MB. A bar chart shows usage at approximately 25%.</li> <li><b>CPU:</b> 0%. A bar chart shows usage at 0%.</li> <li><b>Temperature:</b> A chart shows System temperature at 39°C and CPU temperature at 32°C.</li> <li><b>Fan:</b> A status message "Fan kit not installed or defective" is displayed in a red box.</li> </ul> Buttons for "Hardware Monitoring Rule" and "Exit" are visible at the bottom.</p>
18	<p><b>Hardware monitoring rules</b></p> <p>Click the button <b>Hardware Monitoring Rule</b> to pop up the hardware monitoring dialog. The dialog lists current monitoring rules for hardware parameters includes CPU, voltage, HDD, and so on:</p>  <p>The screenshot shows a dialog box titled "Hardware Monitoring Rule 'Intelligent Video for Retail Application'". It features a table with the following columns: Enable, Type, Name, Rule, and Notice Interval. The table is currently empty. Buttons for "Add Rule", "OK", and "Cancel" are located at the bottom.</p>

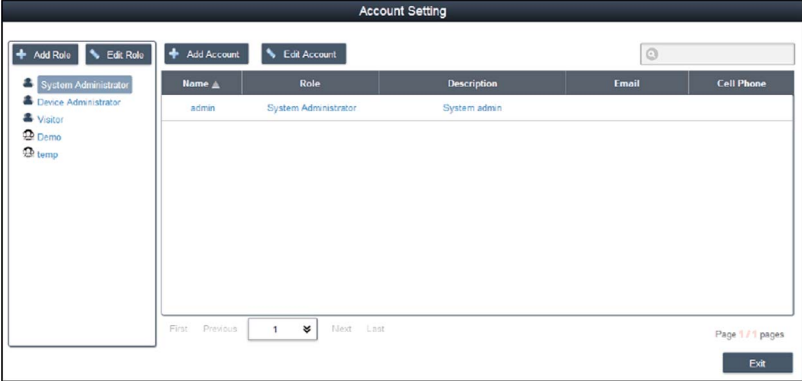
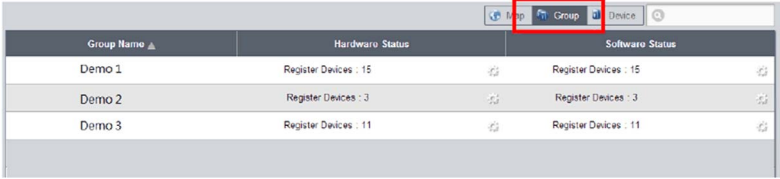
Step	Description
<p>19</p>	<p><b>Add rules</b>            Click the button <b>Add Rules</b> button to add a new rule for hardware monitoring. You can select the type of monitoring hardware from the menu, input threshold values for the corresponding parameter, the last time in seconds for reaching that threshold and a notice interval for 2 contiguous events. Before clicking <b>OK</b>, You can check the option <b>Enable Monitor Rule</b> to enable/disable this new rule:</p> 
<p>20</p>	<p><b>Edit rules</b>            Click a row in the <b>Hardware Monitoring Rule</b> box to pop up the <b>Hardware Monitoring Setting</b> dialog box:</p>  <p><b>Delete rules:</b>            Click the <b>X</b> icon on the left side of the schedule item to delete the schedule.</p> <p><b>Enable/Disable schedule:</b>            Check the enable check box in the schedule row to enable/disable the schedule.</p>

Step	Description																																																
21	<p><b>Software monitoring status</b></p> <p>Real-time process list: Click the <b>Software Status</b> field in the device list to display the status list for active real-time software (name, status, CPU usage, and memory):</p>  <p>The screenshot shows a window titled "Software Information 'Powerview-China'". It contains a table with the following data:</p> <table border="1"> <thead> <tr> <th>Process Name</th> <th>Status</th> <th>CPU Usage</th> <th>Working Set (Memory)</th> </tr> </thead> <tbody> <tr><td>cmd.exe</td><td>Live</td><td>0 %</td><td>2792 KB</td></tr> <tr><td>CMS.exe</td><td>Live</td><td>0 %</td><td>14420 KB</td></tr> <tr><td>conime.exe</td><td>Live</td><td>0 %</td><td>3520 KB</td></tr> <tr><td>ctfmon.exe</td><td>Live</td><td>0 %</td><td>3762 KB</td></tr> <tr><td>explorer.exe</td><td>Live</td><td>0 %</td><td>26712 KB</td></tr> <tr><td>hkcmd.exe</td><td>Live</td><td>0 %</td><td>5468 KB</td></tr> <tr><td>igmpers.exe</td><td>Live</td><td>0 %</td><td>3820 KB</td></tr> <tr><td>igxtray.exe</td><td>Live</td><td>0 %</td><td>4060 KB</td></tr> <tr><td>jusched.exe</td><td>Live</td><td>0 %</td><td>7348 KB</td></tr> <tr><td>rundll.exe</td><td>Live</td><td>0 %</td><td>2852 KB</td></tr> <tr><td>rundll32.exe</td><td>Live</td><td>0 %</td><td>5532 KB</td></tr> </tbody> </table> <p>Buttons at the bottom: "Software Monitoring Rule" and "Exit".</p> <p>Click the process name to pop up the confirm dialog for killing a specified process, after confirming, you can kill and force the process to terminate:</p>  <p>The screenshot shows a portion of the process list with a dialog box overlaid. The dialog box is titled "Information" and contains the text: "Do you want to kill the process ? explorer.exe". It has two buttons: "OK" and "Cancel".</p>	Process Name	Status	CPU Usage	Working Set (Memory)	cmd.exe	Live	0 %	2792 KB	CMS.exe	Live	0 %	14420 KB	conime.exe	Live	0 %	3520 KB	ctfmon.exe	Live	0 %	3762 KB	explorer.exe	Live	0 %	26712 KB	hkcmd.exe	Live	0 %	5468 KB	igmpers.exe	Live	0 %	3820 KB	igxtray.exe	Live	0 %	4060 KB	jusched.exe	Live	0 %	7348 KB	rundll.exe	Live	0 %	2852 KB	rundll32.exe	Live	0 %	5532 KB
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rundll32.exe	Live	0 %	5532 KB																																														

Step	Description
22	<p><b>Software monitoring rules</b>                      Click the button <b>Software Monitoring Rules</b> to pop up the dialog for set software monitoring rule. The dialog lists current monitoring rules for software processes:</p> 
23	<p><b>Add rules</b>                      Click the button <b>Add Rules</b> to add a new rule for software monitoring. You can input the process name that they want to monitor, the threshold values of the CPU and memory, the last time in seconds for reaching the threshold, and the notice interval for 2 contiguous events and corresponding action. Before clicking the <b>OK</b> button to add the rule, you can check the option <b>Enable Monitor Rule</b> to enable/disable this new added rule:</p>  <p><b>NOTE:</b> Currently, software monitoring can only monitor and execute actions for the user process.</p>



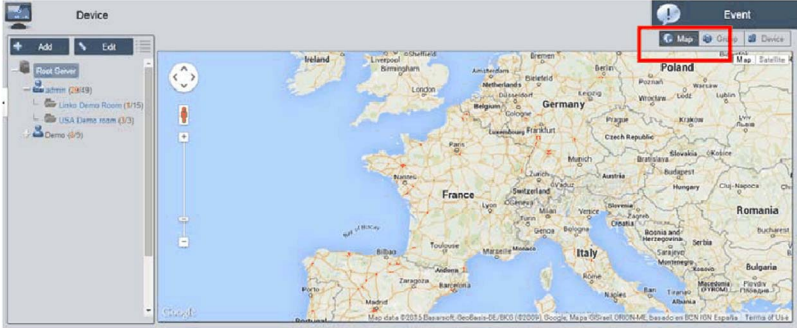
Step	Description																
24	<p><b>Edit rules</b> Click one of the fields to pop up the <b>Software Monitoring Setting</b> dialog for editing:</p>  <p><b>Delete rules:</b> Click the icon <b>X</b> on the left side of the schedule item to delete the schedule.</p> <p><b>Enable/Disable schedule:</b> Check the enable check box in the schedule row to enable/disable the schedule.</p>																
25	<p><b>Maintenance status</b> You can change the maintenance status (none / to be maintained / maintaining / finished) from the menu for each device:</p>  <table border="1" data-bbox="330 854 1130 1203"> <thead> <tr> <th>Status</th> <th>Software Status</th> <th>Maintenance Status</th> <th>Administrat</th> </tr> </thead> <tbody> <tr> <td></td> <td>Normal</td> <td>None</td> <td>admin</td> </tr> <tr> <td></td> <td>Normal</td> <td>None</td> <td>admin</td> </tr> <tr> <td></td> <td>Normal</td> <td>None</td> <td>admin</td> </tr> </tbody> </table>	Status	Software Status	Maintenance Status	Administrat		Normal	None	admin		Normal	None	admin		Normal	None	admin
Status	Software Status	Maintenance Status	Administrat														
	Normal	None	admin														
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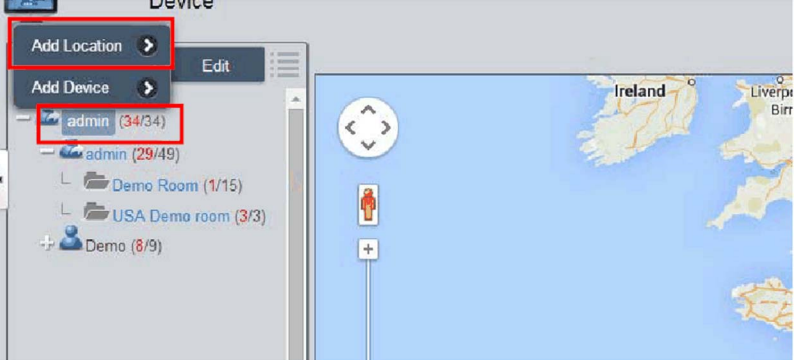
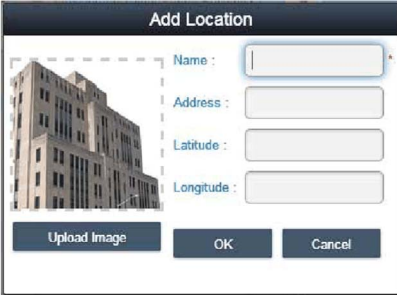
Step	Description												
<p>26</p>	<p><b>Devices administrator</b>                      Users with device management permissions can click the <b>Admin</b> field to pop up the selection dialog for administrator to reassign device administrator status to another account:</p>  <p>The screenshot shows the 'Account Setting' window. On the left, there is a sidebar with roles: System Administrator, Device Administrator, Visitor, Demo, and temp. The 'Device Administrator' role is selected. The main area contains a table with columns: Name, Role, Description, Email, and Cell Phone. One row is visible with Name 'admin', Role 'System Administrator', and Description 'System admin'. At the bottom, there are pagination controls (First, Previous, 1, Next, Last) and an 'Exit' button.</p>												
<p>27</p>	<p><b>View mode - Group status list</b>                      Click the <b>Group</b> tab to list groups under the selected account or group node. The group list shows all group names, group hardware status, and group software status:</p>  <p>The screenshot shows the 'Group' tab selected in the top navigation bar. The table below has columns: Group Name, Hardware Status, and Software Status. The data is as follows:</p> <table border="1" data-bbox="299 829 1081 979"> <thead> <tr> <th>Group Name</th> <th>Hardware Status</th> <th>Software Status</th> </tr> </thead> <tbody> <tr> <td>Demo 1</td> <td>Register Devices : 15</td> <td>Register Devices : 15</td> </tr> <tr> <td>Demo 2</td> <td>Register Devices : 3</td> <td>Register Devices : 3</td> </tr> <tr> <td>Demo 3</td> <td>Register Devices : 11</td> <td>Register Devices : 11</td> </tr> </tbody> </table> <p>Group hardware status:                      This field shows the number of all registered devices and abnormal hardware devices under this group.</p> <p>Group software status:                      This field shows the number of all registered devices and abnormal software devices under this group.</p>	Group Name	Hardware Status	Software Status	Demo 1	Register Devices : 15	Register Devices : 15	Demo 2	Register Devices : 3	Register Devices : 3	Demo 3	Register Devices : 11	Register Devices : 11
Group Name	Hardware Status	Software Status											
Demo 1	Register Devices : 15	Register Devices : 15											
Demo 2	Register Devices : 3	Register Devices : 3											
Demo 3	Register Devices : 11	Register Devices : 11											

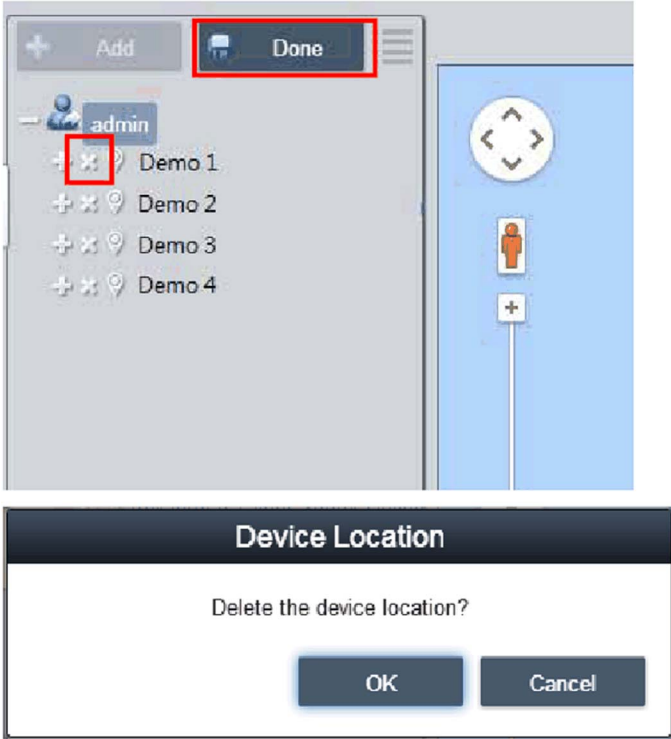
## Group Hardware and Software Monitoring Rules

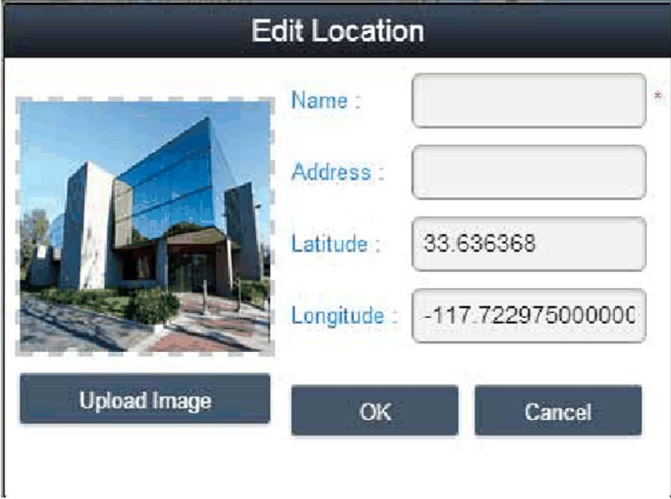
This procedure describes how to use the **Group Hardware and Software Monitoring Rules** user interface:


Step	Description
1	<p>Group hardware monitoring rules</p> <p>Click the icon on the right to pop up the dialog <b>Set Hardware Monitoring Rule</b>. The dialog lists current monitoring rules and parameters of each group's devices including CPU, voltage, HDD, and so on.</p> <p><b>Add group rules:</b></p> <p>Click the <b>Add Rule</b> button to add a new rule for hardware monitoring. You can select the type of monitoring hardware from the menu, input threshold values of corresponding parameter, last time in seconds of reaching the threshold, and notice interval for 2 contiguous events. Before clicking <b>OK</b> to add the rule, you can check the option <b>Enable Monitor Rule</b> to enable/disable this new rule.</p> <p><b>Edit group rules:</b></p> <p>Click the rule field to pop up the <b>Hardware Monitoring Setting</b> dialog for editing.</p> <p><b>Delete rules:</b></p> <p>Click the <b>X</b> icon on the left side of the scheduled item row to delete the schedule. Enable/Disable schedule.</p> <p>Click the enable check box in the row item to enable/disable the schedule.</p>
2	<p>Group software monitoring rules</p> <p>Click the icon in the field of group hardware status to pop up the <b>Set Software Monitoring Rule</b> dialog box. The dialog lists current monitoring rules for software processes of group devices.</p> <p><b>Add group rules:</b></p> <p>Click the button <b>Add Rule</b> to add a new rule for software monitoring. You can input the process name that wants to monitor, the threshold values of CPU and memory, the last time of reaching threshold, notice interval of 2 contiguous events and corresponding action when the monitoring rule is applied. Before clicking the button <b>OK</b> to add rule, you can check the option <b>Enable Monitor Rule</b> to enable/disable this new added rule.</p> <p><b>Edit group rules:</b></p> <p>Click the rule field to pop up the <b>Software Monitoring Setting</b> dialog for editing.</p> <p><b>Delete rules:</b></p> <p>Click the <b>X</b> icon on the left side of the scheduled item row to delete the schedule.</p> <p><b>Enable/Disable schedule:</b></p> <p>Click the enable check box in the row item to enable/disable the schedule</p>

Step	Description
3	<p><b>View mode - Device map view</b></p> <p><b>Device Map View</b> visualizes each physical device's location, separate user interface as left-side map hierarchy tree includes account, location, layout, and device node and right-side geography view includes online map and static image map. Different tree node support corresponding add, delete, and edit operations and intuitive drag device nodes as well:</p> 


Step	Description
4	<p data-bbox="326 203 605 228"><b>Add/Delete/Edit map location</b></p> <p data-bbox="326 230 1171 256"><b>Add location:</b> Select on one of account nodes and click <b>Add</b> button to add a new location:</p>  <p data-bbox="326 662 1232 716">Input location name, address, or coordination (latitude and longitude), upload image for location displaying and click <b>OK</b> to add the new location:</p>  <p data-bbox="326 1057 1236 1164"><b>NOTE:</b> Map view supports both Google and Baidu online map. These two maps adopt different coordination-system, you must input correct coordination according to online map selection (you can configure in the system settings). If you do not specify either address field or coordination, system will auto location this new added location at the center of current map view.</p>

Step	Description
5	<p><b>Delete location</b>                      Click <b>Edit</b> button to switch to edit mode, click <b>X</b> icon ahead of selected location node to delete this location:</p>  <p><b>NOTE:</b> If there are layouts or devices under selected location node, you must remove these nodes first before removing location node.</p>

Step	Description
6	<p data-bbox="326 203 1236 277"><b>Edit location</b> Click <b>Edit</b> button to switch to edit mode, click the location node/name to pop up the dialog of <b>Edit Location</b> to edit the content:</p> <div data-bbox="330 289 1002 784"></div> <p data-bbox="326 829 1229 849"><b>NOTE:</b> Under this mode, drag the location icon on the right-side map view to relocate location.</p>

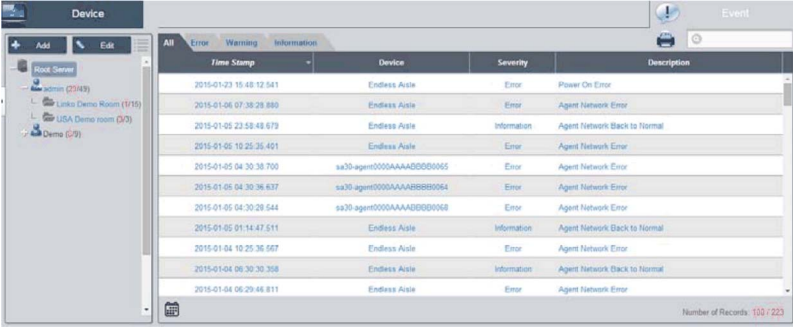
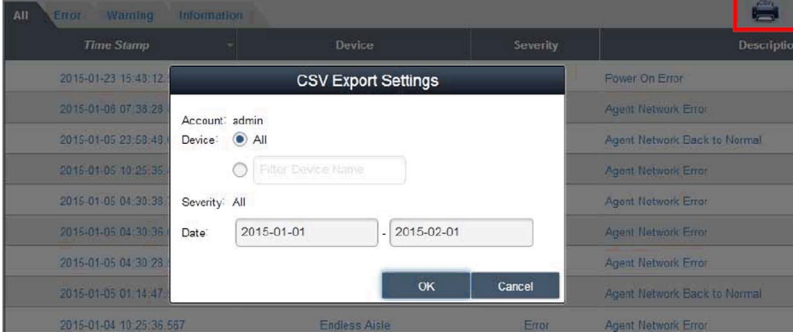
Step	Description
7	<p data-bbox="294 203 1201 277"><b>Add layout</b> Select on one of location nodes and click <b>Add</b> button to add a new layout. Input layout name and description, upload image for location displaying and click <b>OK</b> to add the new layout:</p> <div data-bbox="299 289 967 719"></div> <p data-bbox="294 764 1201 839"><b>Delete layout:</b> Click <b>Edit</b> button to switch to edit mode, click <b>X</b> icon ahead of selected layout node to delete this layout.</p> <p data-bbox="294 857 1201 907"><b>NOTE:</b> If there are devices under selected layout node, you must remove these nodes first before removing layout node.</p> <p data-bbox="294 925 1201 997"><b>Edit layout:</b> Click <b>Edit</b> button to switch to edit mode, click the location node/name to pop up the dialog of <b>Edit Location</b> to edit the content.</p>



Step	Description
8	<p><b>Add/Delete/Edit map device</b></p> <p>Add device: Select on one of accounts, location, or layout node and click <b>Add</b> button to add a new device. Newly added devices are by default located at the center of online or static image map:</p>  <p><b>Delete device:</b> Click <b>Edit</b> to switch to edit mode and click <b>X</b> icon ahead of selected layout node to delete this device.</p> <p><b>Edit device:</b> Click <b>Edit</b> button to switch to edit mode, drag the device icon on the right-side map view to relocate device. Under this mode, you can drag the device icon from the right-side map view to left-side account or location or layout node to change pop up its belonged level.</p>

Event Log

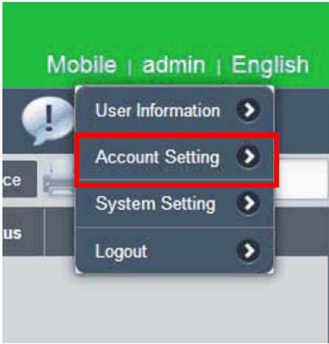
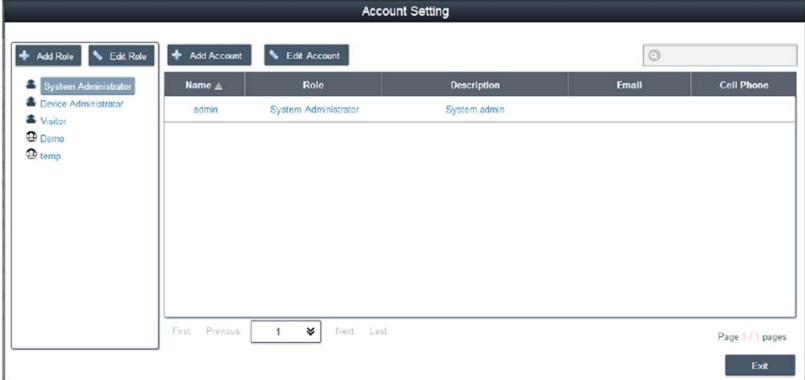
This procedure describes how to use the **Event Log** user interface:

Step	Description
<p>1</p>	<p><b>Device event list</b>                      Select user account or group to decide event range and select event log type (All/Error/Warning/Information) to browse related device events:</p> 
<p>2</p>	<p><b>Export CSV</b>                      Select device and data/time range to export event log as CSV format to local side:</p> 

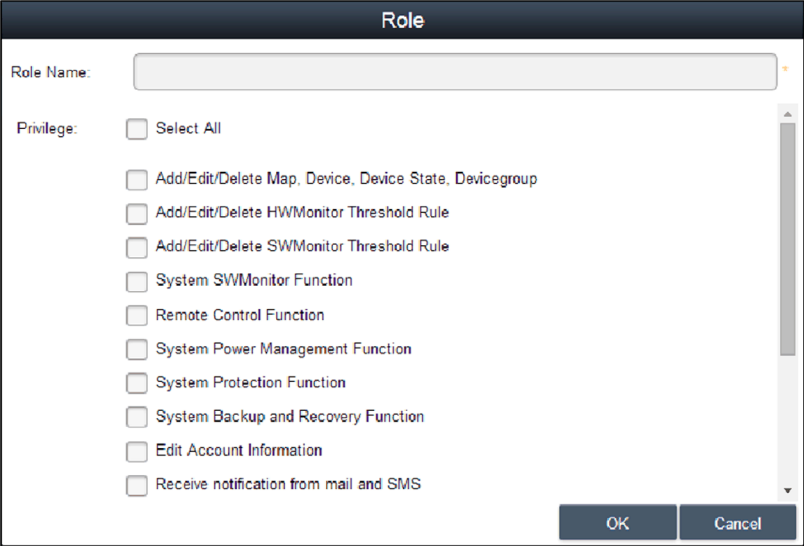
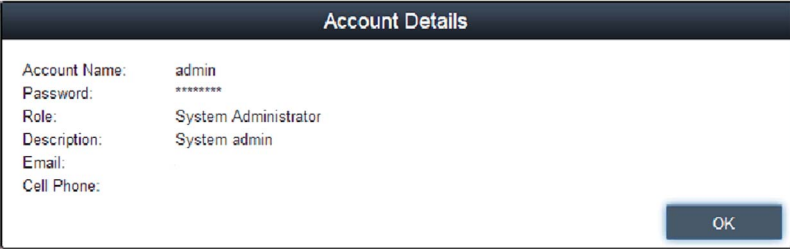
## Account Setting - System Setting

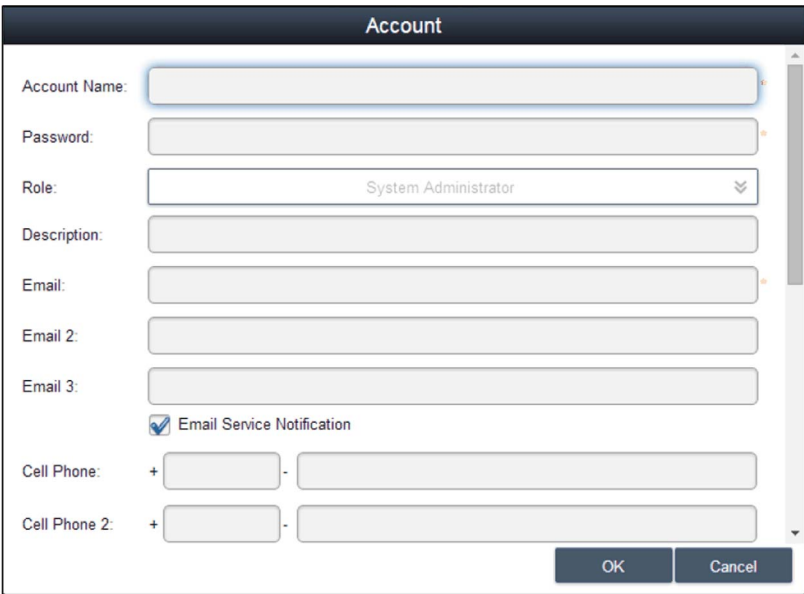
### Account Setting

This procedure describes how to use the **Account Setting** user interface:

Step	Description
1	<p>Click <b>Account Setting</b> from menu of upper-right corner to pop up the dialog of account setting for configuring:</p>  

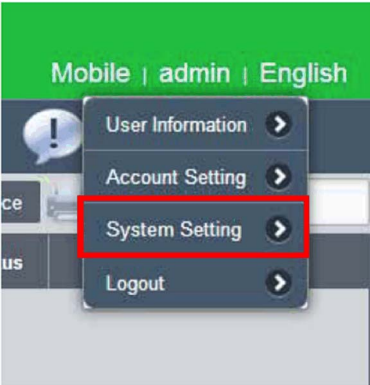
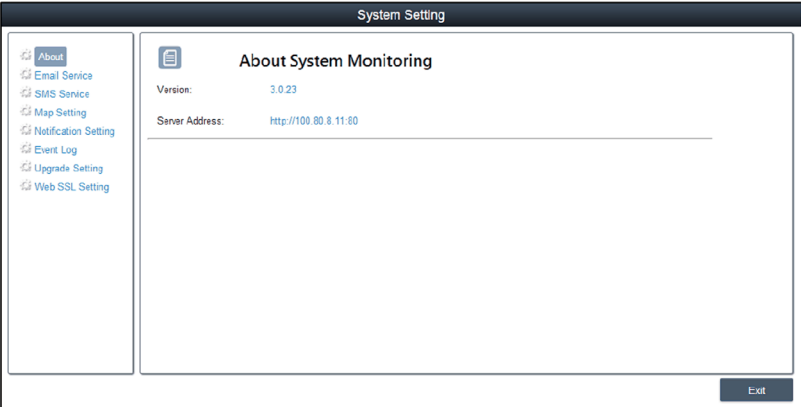
Step	Description
2	<p data-bbox="296 199 1201 277"><b>Default role</b> System provides three default roles with pre-defined access rights: <b>System Administrator, Device Administrator, and Visitors</b>:</p> <div data-bbox="299 285 673 634" style="border: 1px solid #ccc; padding: 10px;"><div data-bbox="319 302 653 350" style="display: flex; justify-content: space-between;"><span data-bbox="319 302 481 350">+ Add Role</span><span data-bbox="495 302 653 350">✎ Edit Role</span></div><ul data-bbox="340 375 605 537" style="list-style-type: none"><li data-bbox="340 375 605 415">System Administrator</li><li data-bbox="340 415 605 456">Device Administrator</li><li data-bbox="340 456 605 496">Visitors</li><li data-bbox="340 496 605 537">Demo</li></ul></div> <p data-bbox="296 675 1201 708"><b>NOTE:</b> The user rights of pre-defined role cannot be edited or deleted but only can be browsed.</p>

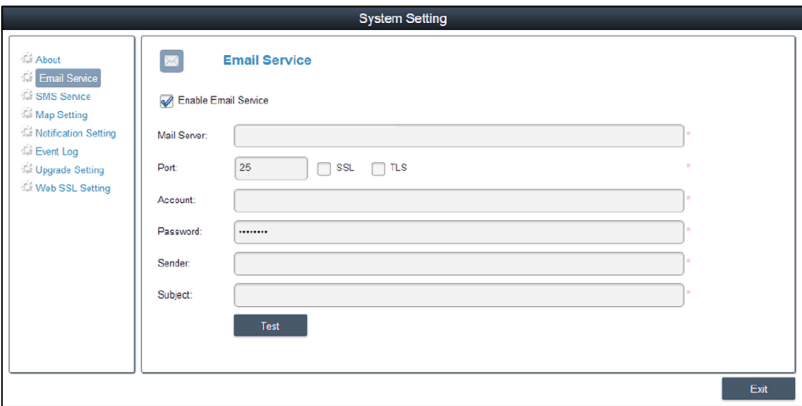
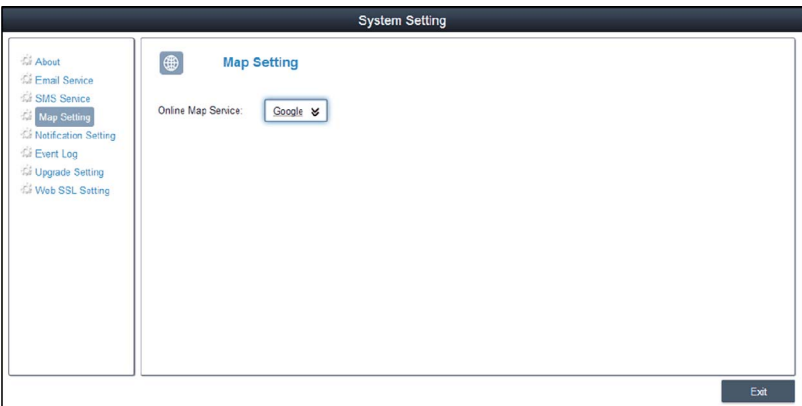
Step	Description
3	<p><b>View/Add/Delete/Edit custom role</b>            In addition to default role, you can add role with user-defined user rights.  <b>Add Role:</b> Click <b>Add Role</b> to pop up the dialog of <b>Role</b>. Input role name and corresponding user rights to create a new role:</p>  <p><b>View/Edit custom role:</b>            Click <b>Edit</b> to switch to role edit mode. Click the icon to edit or view role user rights.            Click the icon to delete custom role.</p>
4	<p><b>View/Add/Delete/Edit account</b>  <b>View account:</b> Select one of defaults or custom role and click arbitrary field in the account list to view the details of account:</p> 

Step	Description
5	<p data-bbox="294 203 1203 251"><b>Add account:</b> Select one of defaults or custom role and click <b>Add</b> button to pop up the dialog for creating a new account:</p> <div data-bbox="299 256 1105 846"></div> <p data-bbox="294 889 1203 966"><b>Edit account:</b> Click <b>Edit</b> button to switch to edit mode. Click arbitrary field in the account list to pop up the dialog for account editing.</p> <p data-bbox="294 971 1203 1019"><b>Delete account:</b> Click <b>Edit</b> button to switch to edit mode. Click in the account list to delete account.</p> <p data-bbox="294 1031 1203 1062"><b>NOTE:</b> <b>admin</b> is a super system administrator that cannot be deleted.</p>

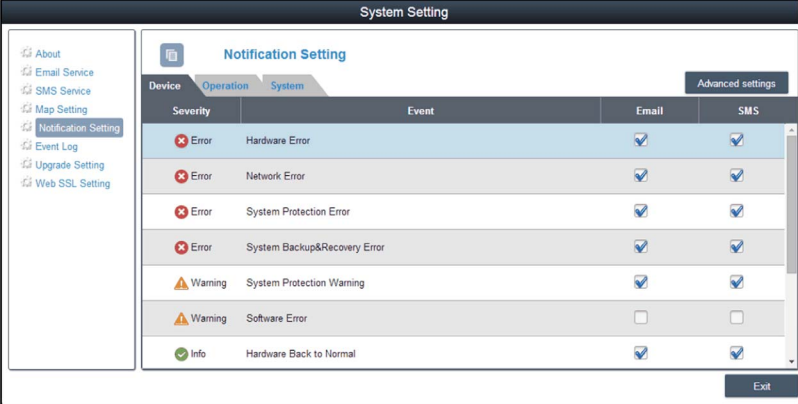

## System Setting

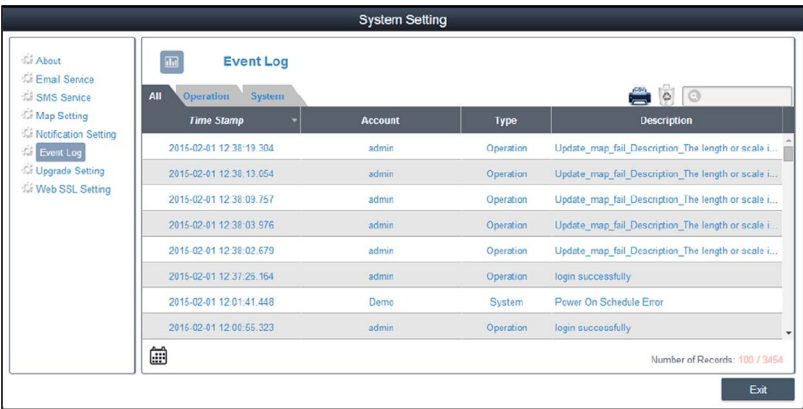
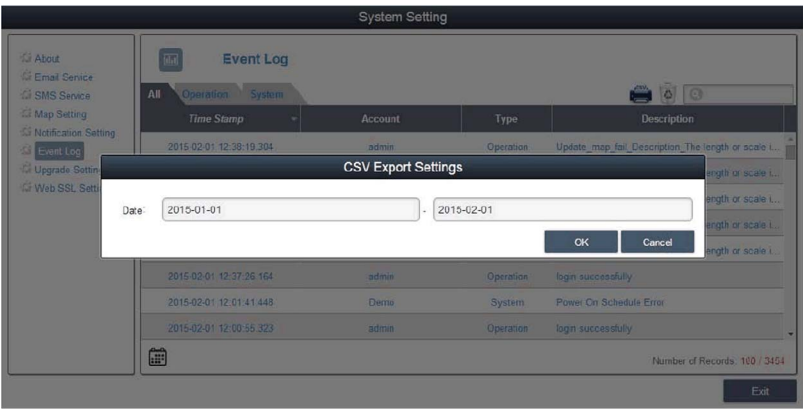
This procedure describes how to use the **System Setting** user interface:

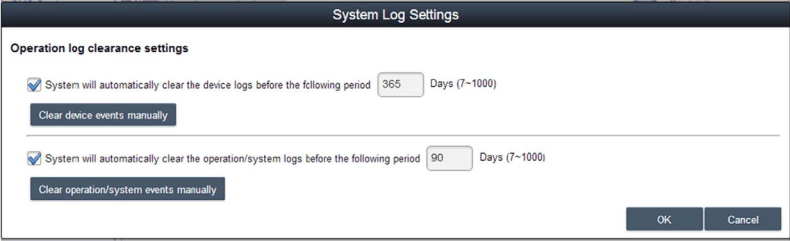
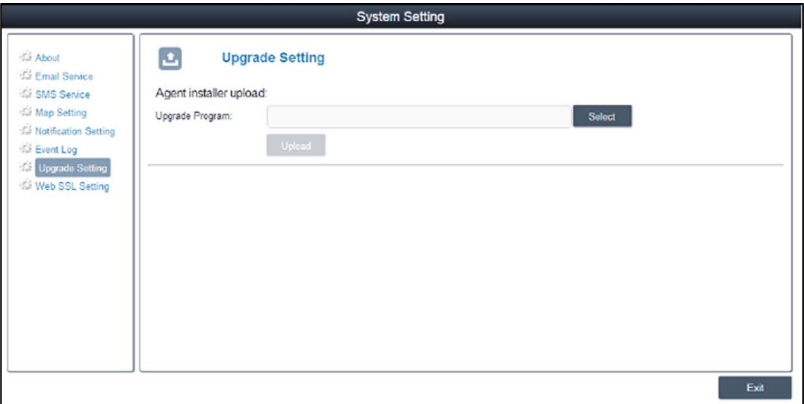
Step	Description
1	<p>Click <b>System Setting</b> from menu of upper-right corner to pop up the dialog of system setting for configuring:</p> 
2	<p><b>About:</b> Display server version and local address/port for Web portal:</p> 


Step	Description
3	<p><b>Email service:</b> Use SMTP protocol to send notifications via <b>Email Service</b>. Before applying setting, click button to send a mail to check validity of settings:</p>  <p><b>NOTE:</b> You must enable this email service and check corresponding event notification setting and set up correct email address of device administrator to receive device email notifications while events occur.</p>
4	<p><b>Map setting</b> On-line map supports Google, Baidu. Select map for client default map display:</p> 



Step	Description
5	<p><b>Notification setting</b> Click tab <b>Device/Operation/System</b> to catalog related notification setting. Set event notify by Email on each item to enable receiving:</p> 
6	<p><b>Advanced settings</b> Click <b>Advanced Settings</b> for message language of email and SMS, cycle days of system automatically sends inspection report, system warning of low hard disk space and external SYSLOG event server setting:</p> 

Step	Description
7	<p><b>Event log</b> Select event log type (all / operation / system) to browse related events:</p> 
8	<p><b>Export CSV</b> Select data/time range to export event log as CSV format to local side:</p> 

Step	Description
9	<p><b>Clearance</b> Manually or set up automatic period to clean event log:</p> 
10	<p><b>Upgrade setting</b> Use <b>ValidationCode_Generator.exe</b> tool to generate MD5 check code of uploading agent upgrade package. Input <b>Check Code</b> and select <b>Upgrade Program</b> to upload agent upgrade package to server. After uploading, system will auto check all connected agent devices and give hint tag of upgrading on corresponding device list when the user client logs in:</p> 

Step	Description
11	<p><b>Web SSL setting</b> User can switch SSL (Secure Sockets Layer) setting and select the port to open or close SSL:</p> 

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# Chapter 11

## Software API

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### Intelligent Management for Embedded Platform

#### Description

This **Software API** (Application Programming Interfaces) is a micro controller that provides embedded features for system integrators. Embedded features have been moved from the OS/BIOS level to the board level to increase reliability and to simplify integration. **Software API** runs whether the operating system is running or not; it can count the boot times and running hours of the device, monitor device health, and provide an advanced watchdog to handle errors found as they happen. **Software API** also comes with a secure and encrypted EEPROM for storing main security keys or other customer defined information. All the embedded functions are configured through an **API** (application programming interface) or by a **DEMO** tool. Schneider Electric provides this suite of **Software API** and the underlying drivers required. Also a set of user-friendly, intelligent, and integrated interfaces speed development, enhance security, and offer add-on value for Schneider Electric platforms.



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# Chapter 12

## Maintenance

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### Subject of this Chapter

This chapter covers maintenance of the Panel PC controller.

### What Is in This Chapter?

This chapter contains the following topics:

Topic	Page
Reinstallation Procedure	176
Regular Cleaning and Maintenance	177

## Reinstallation Procedure

### Introduction

In certain cases, it may be necessary to reinstall the operating system.

Precautions to take:

- Keep static-producing materials (plastic, upholstery, carpeting) out of the immediate workspace.
- Do not remove ESD-sensitive components from their anti-static bags until you are ready to install them.
- When handling static-sensitive components, wear a properly grounded wrist strap (or equivalent).
- Avoid contact with exposed conductors and component leads.

### Before Reinstallation

Hardware required:

- Recover media, refer to the leaflet of the recover media.

Setting up the hardware:

- Shut down Windows operating system in an orderly fashion and remove all power from the device.
- Disconnect all external peripherals.

**NOTE:** Save all main data onto a hard drive or a memory card. The reinstallation process returns the computer to its factory settings and erases all data.

### Reinstallation

Refer to the procedure in the leaflet provided with the recovery media.



## Regular Cleaning and Maintenance

### Introduction

Inspect the S-Panel PC periodically to determine its general condition. For example:

- Are all power cords and cables connected properly? Have any become loose?
- Are all installation fasteners holding the unit securely?
- Is the ambient temperature within the specified range?
- Are there any scratches or traces of dirt on the installation gasket?

**NOTE:** HDD health must be regularly checked with system monitor according to the usage. HDD is rotative media requiring to be changed regularly according to usage. Data on HDD must be saved regularly.

The following sections describe maintenance procedures for the S-Panel PC, which can be carried out by a trained, qualified user.

### DANGER

#### HAZARD OF ELECTRIC SHOCK, EXPLOSION OR ARC FLASH

- Remove all power from the device before removing any covers or elements of the system, and prior to installing or removing any accessories, hardware, or cables.
- Unplug the power cable from both the Magelis Industrial PC and the power supply.
- Always use a properly rated voltage sensing device to confirm power is off.
- Replace and secure all covers or elements of the system before applying power to the unit.
- Use only the specified voltage when operating the Magelis Industrial PC. The AC unit is designed to use 100...240 Vac input. The DC unit is designed to use 24 Vdc input. Always check whether your device is AC or DC powered before applying power.

**Failure to follow these instructions will result in death or serious injury.**

During operation, the surface temperature of the heat sink may exceed 70 °C (158 °F).

### WARNING

#### RISK OF BURNS

Do not touch the surface of the heat sink during operation.

**Failure to follow these instructions can result in death, serious injury, or equipment damage.**

## Cleaning Solutions

### CAUTION

#### HARMFUL CLEANING SOLUTIONS

- Do not clean the unit or any component of the unit with paint thinner, organic solvents, or strong acids.
- Use only a mild soap or detergent that will not harm the poly carbonate material of the screen.

**Failure to follow these instructions can result in injury or equipment damage.**

## Lithium Battery

The Magelis Industrial PC contains one battery, for backing up the real-time clock (RTC).

### DANGER

#### EXPLOSION, FIRE, OR CHEMICAL HAZARD

- The battery must always be replaced with identical type.
- For battery replacement, contact the field services department.
- Do not recharge, disassemble, heat above 100 °C (212 °F), or incinerate.
- Recycle or properly dispose of used batteries.

**Failure to follow these instructions will result in death or serious injury.**

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# Appendices

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# Appendix A

## Accessories and Setting

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### Subject of this Chapter

This chapter concerns the accessories relating to the products and the setting.

### What Is in This Chapter?

This chapter contains the following topics:

Topic	Page
Accessories for the S-Panel PC	182
Connectors and Setting	184

## Accessories for the S-Panel PC

### Available Accessories

Accessories are available as options. The table shows the list of accessories available for the S-Panel PC:

Reference	Description
Interfaces	
HMIYMINNVRAM1 <sup>(1)</sup>	Interface NVRAM
HMIYMINSL24851 <sup>(1)</sup>	Interface 2 x RS-422/485 isolated
HMIYMINSL44851 <sup>(1)</sup>	Interface 4 x RS-422/485
HMIYMINSL22321 <sup>(1)</sup>	Interface 2 x RS-232 isolated
HMIYMINSL42321 <sup>(1)</sup>	Interface 4 x RS-232
HMIYMINIO1 <sup>(1)</sup>	Interface 16 x DI / 8 x DO
HMIYMINCAN1 <sup>(1)</sup>	Interface 2 x CANopen/CanBus
HMIYMINPRO1 <sup>(1)</sup>	Interface 1 x Profibus DP master NVRAM
HMIYMINUSB1 <sup>(1)</sup>	Interface 2 x USB 3.0
HMIYMINGPRS1 <sup>(1)</sup>	Interface 1 x GPRS module
HMIYMINWIFI1 <sup>(1)</sup>	Interface wireless LAN and 2 x antennas
HMIYCABWIFIAN51	Remote wireless LAN antenna cable 5 m
Drives	
HMIYHDD50021 <sup>(1)</sup>	Hard disk drive 500 GB blank
HMIYHDD01T21 <sup>(1)</sup>	Hard disk drive 1 TB blank
HMIYSSDS080S1 <sup>(1)</sup>	SSD 80 GB MLC
HMIYSSDS160S1 <sup>(1)</sup>	SSD 160 GB MLC
HMIYSSDS240S1 <sup>(1)</sup>	SSD 240 GB MLC
HMIYCFA16S	CFast 16 GB
Accessories	
HMIYP552PS11	Removable protective sheet for W10"
HMIYP752PS11	Removable protective sheet for W15"
HMIYUSBBK111	USB memory key blanc for PC recovery
HMIYPSOMAC1	AC power supply module
HMIYPADPSOSTO1	Expansion kit drive mini PCIe
(1) require expansion kit (HMIYPADPSOSTO1)	

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Reference	Description
HMIYPVESAPSO551	VESA mounting kit for W10"
HMIYPVESAPSO751	VESA mounting kit for W15"
HMIYPMKTPSO1	Maintenance kit
(1) require expansion kit (HMIYPADPSOSTO1)	

## Connectors and Setting

### Main Board Setting

Before to access the main board, shut down Windows in an orderly fashion and remove all power from the device.

## ⚠ DANGER

### POTENTIAL FOR EXPLOSION IN HAZARDOUS LOCATION

Do not use this product in hazardous locations.

**Failure to follow these instructions will result in death or serious injury.**

## *NOTICE*

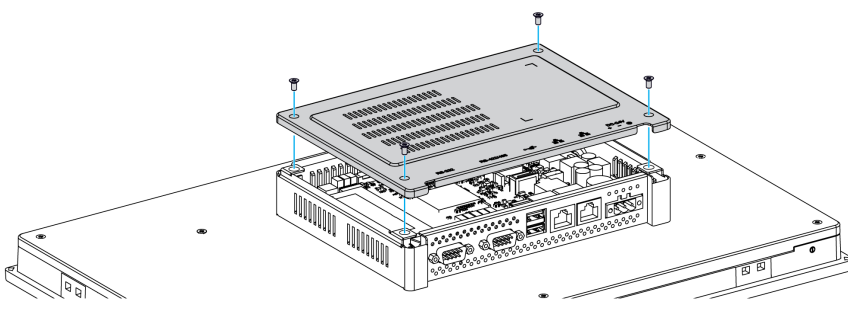
### ELECTROSTATIC DISCHARGE

Take the necessary protective measures against electrostatic discharge before attempting to remove the Magelis Industrial PC cover.

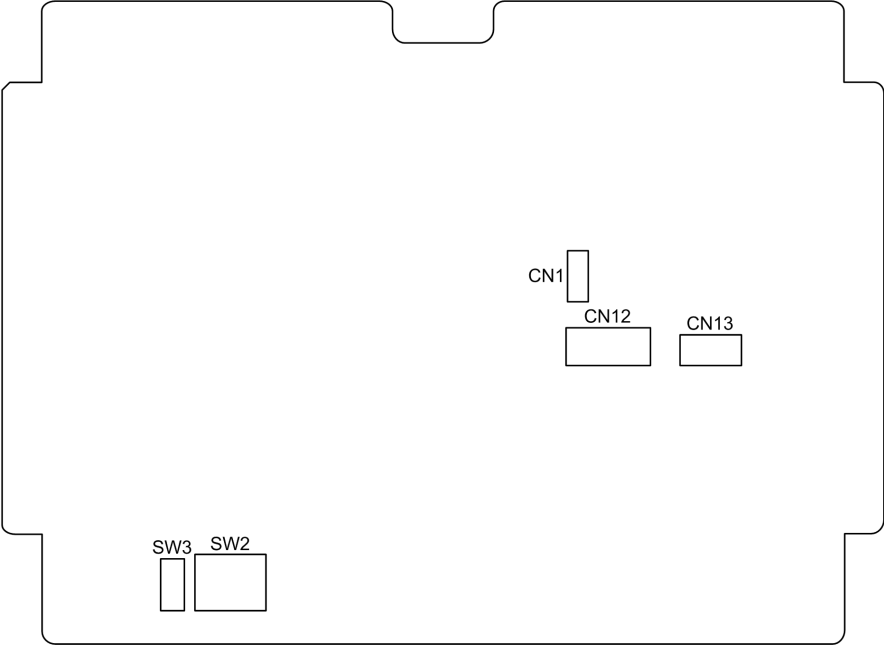
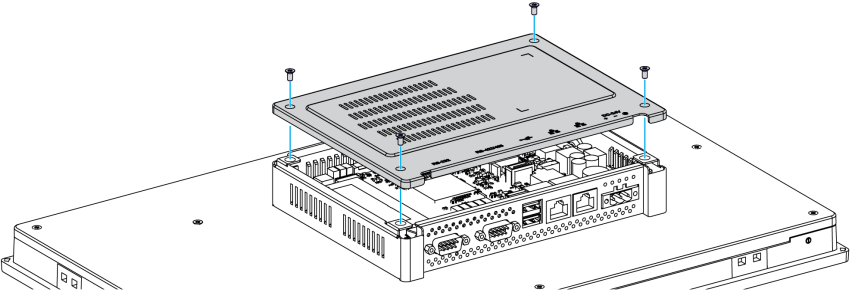
**Failure to follow these instructions can result in equipment damage.**

**NOTE:** Be sure to remove all power before attempting this procedure.

The table describes how to access the main board:

Step	Action
1	Disconnect the power cord to the S-Panel PC.
2	Touch the housing or ground connection (not the power supply) to discharge any electrostatic charge from your body.
3	Remove the four screws of the rear cover: <div style="text-align: center;">  </div>



Step	Action
4	<p>You can access connectors and setting of the main board. The figure shows the main board of the S-Panel PC:</p>  <p>The diagram shows a simplified outline of the main board. On the right side, there are three connectors labeled CN1, CN12, and CN13. On the bottom left side, there are two switches labeled SW2 and SW3.</p> <p><b>CN1</b> Clear CMOS  <b>CN12</b> SATA signal connector  <b>CN13</b> SATA power connector  <b>SW2</b> COM2 RS-232/422/485 mode setting  <b>SW3</b> Termination resistors select</p>
5	<p>Replace the rear cover and fasten it with four screws:</p>  <p>The diagram shows a perspective view of the main board with a rear cover being placed on top. Four screws are shown being inserted into the board to secure the cover. The rear panel of the board has various ports and connectors.</p> <p><b>NOTE:</b> The recommended torque to tighten these screws is 0.5 Nm (4.5 lb-in).</p>

## ⚠ CAUTION

### OVERTORQUE AND LOOSE HARDWARE

- Do not exert more than 0.5 Nm (4.5 lb-in) of torque when tightening the installation fastener, enclosure, accessory, or terminal block screws. Tightening the screws with excessive force can damage the installation fastener.
- When fastening or removing screws, ensure they do not fall inside the Magelis Industrial PC chassis.

**Failure to follow these instructions can result in injury or equipment damage.**

### Clear CMOS Setting

The table describes the setting for the clear CMOS:

Position	Description	CN1
1-2	Disable	
2-3	Enable	

The default setting is disabled.

## RS-232/422/485 Mode Setting

The table describes the RS-232/422/485 mode settings for the COM2:

Mode	SW2
RS-232 mode	
RS-422 master mode	
RS-422 slave mode	

Mode	SW2
RS-485 mode	

The default setting is RS-232.

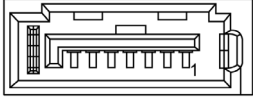
The table describes the setting for the termination resistor for COM2:

Position	Signal	SW3
Pin 1	DATA+ (default)	
Pin 2	RX- (default)	
Pin 3	R_RX+	
Pin 4	R_DATA-	

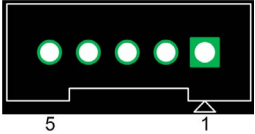
**NOTE:** This switch is used to select termination resistor (120 ohm) for long-distance transmission or device matching. The default setting is bit 1 off and bit 2 off (DATA+ and RX-).

## SATA Connectors

The table describes the SATA signal connector:

Pin	Signal	Description	CN12
1	GND	GND	
2	A+	Signal pair A: TX+/- (transmit)	
3	A-		
4	GND	GND	
5	B-	Signal pair B: RX+/- (receive)	
6	B+		
7	GND	GND	

The table describes the SATA power connector:

Pin	Signal	Description	CN13
1	+V3.3 SATA	SATA power output 3.3 V/1 A	
2	+V5 SATA	SATA power output 5 V/1 A	
3	+V12 SATA	SATA power output 12 V/0.5 A	
4	GND	GND	
5	GND	GND	





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