Magelis Panel PC

GTW and Optimum
User Manual

09/2012

Schneider Electric

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 that is 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.

Table of Contents

Safety Information

Important Information

NOTICE

Read these instructions carefully, and look at the equipment to become familiar with the device before trying to install, operate, 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 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 an imminently hazardous situation which, if not avoided, **will result in** death or serious injury.

⚠ WARNING

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

⚠ CAUTION

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

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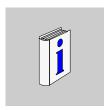
NOTICE is used to address practices not related to physical injury.

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.

About the Book

At a Glance

Document Scope

This manual describes the configuration and usage of the GTW open panel and Optimum Panel PCs, part of the range of Magelis industrial PCs, for its cataloged and configured product offers.

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

1 Cataloged product offer:

- HMI PWC7D0E•• - Panel PC 15" Optimum DC
  - 24 Vdc
  - 15" XGA Touch screen
  - 1.10 GHz Atom processor
  - 1024 MB RAM
  - 2 GB Compact Flash card
  - Windows® Embedded Standard 2009

- HMI PVC7D0E•• - Panel PC Stainless Steel 15" Optimum DC
  - 24 Vdc
  - 15" XGA Touch screen
  - 1.10 GHz Atom processor
  - 1024 MB RAM
  - 2 GB Compact Flash card
  - Windows® Embedded Standard 2009

- HMI PWC5D0E•• - Panel PC 10.4" Optimum DC
  - 24 Vdc
  - 10.4" SVGA Touch screen
  - 1.10 GHz Atom processor
  - 1024 MB RAM
  - 2 GB Compact Flash card
  - Windows® Embedded Standard 2009

- HMI GTW7354 - Open Panel 15" GTW DC
  - 24 Vdc
  - 15" XGA Touch screen
  - 1.10 GHz Atom processor
  - 1024 MB RAM
  - 2 GB Compact Flash card
  - Windows® Embedded Standard 2009

- HMI GTW73545 - Open Panel Stainless Steel 15" GTW DC
  - 24 Vdc
  - 15" XGA Touch screen
  - 1.10 GHz Atom processor
  - 1024 MB RAM
  - 2 GB Compact Flash card
  - Windows® Embedded Standard 2009

- HMI GTW5354 - Open Panel 10.4" GTW DC
  - 24 Vdc
  - 10.4" SVGA Touch screen
  - 1.10 GHz Atom processor
  - 1024 MB RAM
  - 2 GB Compact Flash card
  - Windows® Embedded Standard 2009

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), a space, followed by a serial arrangement of 9 characters (letters or numbers). Each one of the 9 characters matches with one characteristic of the cataloged Panel PC, such as storage device size, storage device type, memory size, and bundled software.

The following table is a legend that identifies the Optimum Panel PC features corresponding to each character of the part number:

Character Number	Prefix	1	2	3	4	5	6	7	8	9
Part Number Example	**HMI**	**P**	**W**	**C**	**7**	**D**	**0**	**E**	**0**	**1**
iPC Family	Panel PC	P								
iPC Type	Optimum stainless steel		V							
	Optimum		W							
Drive	Compact Flash (CF)			C						
Display	10.4" - SVGA				5					
	15" - XGA				7					

Character Number	Prefix	1	2	3	4	5	6	7	8	9
Part Number Example	HMI	P	W	C	7	D	0	E	0	1
Power Supply	DC					D				
	DC with filter for marine					F				
Expansion Slots	None						0			
Operating System	Windows® Embedded Standard 2009							E		
Bundled Software	None								0	
	Other application								•	
Hardware Iteration	Initial									1
	Second									2
	etc.									etc.

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 characters (letters or numbers). The 6 first characters are always HMI PCC. Each one of the following 14 characters matches with one characteristic of the configured Panel PC, such as storage device size, storage device type, memory size, and bundled software.

This offer has 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
Part Number Example	HMI PCC	W	1	7	0	A	D	2	3	S	0	8	H	0	0
iPC Family	Optimum stainless steel	V													
	Optimum	W													
Product Generation	First generation		1												
	Second generation		2												
	Third generation		3												
Display	10.4" - SVGA			5											
	15" - XGA			7											

Character Number	Prefix (1-6)	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Part Number Example	**HMI PCC**	**W**	**1**	**7**	**0**	**A**	**D**	**2**	**3**	**S**	**0**	**8**	**H**	**0**	**0**
Expansion Slots	0 slot				0										
CPU Type	Atom Z510					A									
Power Supply	DC						D								
	DC with filter for marine						F								
RAM (Configuration available depending on model)	1 GB							1							
	2 GB							2							
Operating System	None								0						
	Windows® Embedded Standard 2009 (32-bit, English MUI)								1						
Storage Device	None									N					
	CF 2 GB									B					
	CF 4 GB									C					
	CF 8 GB									D					
Slide-in Equipment	None										0				
Options **NOTE:** The option 8 is mandatory to run Vijeo Designer on Panel PC.	None											0			
	2nd Ethernet port (ETH2) + SRAM											8			
Software Bundle	None												N		
	Vijeo Designer RT unlimited licence												H		
Reserved	None													0	
Reserved	None														0

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

Validity Note

This documentation is valid for Magelis Panel PC.

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

Step	Action
1	Go to the Schneider Electric home page *www.schneider-electric.com*.
2	In the **Search** box type the reference of a product or the name of a product range. ● Do not include blank spaces in the model number/product range. ● To get information on a grouping similar modules, use asterisks (*).
3	If you entered a reference, go to the **Product datasheets** search results and click on the reference that interests you. If you entered the name of a product range, go to the **Product Ranges** search results and click on the product range that interests you.
4	If more than one reference appears in the **Products** search results, click on the reference that interests you.
5	Depending on the size of your screen, you maybe need to scroll down to see the data sheet.
6	To save or print a data sheet as a .pdf file, click **Download XXX product datasheet**.

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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IBM® is a registered trademark of International Business Machines Corporation.

Related Documents

Title of Documentation	Reference Number
Vijeo Designer Tutorial	35007035

You can download these technical publications and other technical information from our website at www.schneider-electric.com.

Product Related Information

Some Panel PCs are certified for use in Class I, Division 2 hazardous locations as defined in ANSI/ISA 12.12.01 or CSA C22.2 N° 213. Observe the following:

⚠⚠ **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 Panel 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 24 Vdc when operating the Panel PC.

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.[1]
- Each implementation of a Magelis Panel 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.

[1] 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.*

NOTE: The 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 *(see page 99)*
- Operating system
- Installed hardware
- Installed software

<table>
<tr><td colspan="2" align="center">⚠ WARNING</td></tr>
<tr><td>UNINTENDED EQUIPMENT OPERATION</td></tr>
<tr><td>Use only Schneider Electric software with the devices described in this manual.</td></tr>
<tr><td>Failure to follow these instructions can result in death, serious injury, or equipment damage.</td></tr>
</table>

User Comments

We welcome your comments about this document. You can reach us by e-mail at techcomm@schneider-electric.com.

General Overview

I

Subject of this Part

This part provides an overview of the Magelis Panel PC products.

What Is in This Part?

This part contains the following chapters:

Important Information

1

General

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

What Is in This Chapter?

This chapter contains the following topics:

Topic	Page
Federal Communications Commission Radio Frequency Interference Statement - For U.S.A.	18
Qualified Personnel	19
Certifications and Standards	20
European (CE) Compliance	22
Hazardous Location Installations - For USA and Canada	23

Federal Communications Commission 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, pursuant 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 Panel PC in such a manner that it does not radiate sufficient electromagnetic energy to cause interference in nearby devices.
● Install and test the Panel PC to ensure that the electromagnetic energy generated by nearby devices does not interfere with the Panel PC's operation.

⚠ **WARNING**

ELECTROMAGNETIC / INTERFERENCE

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

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

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

Qualified Personnel

General

Only qualified personnel can install, operate, and maintain the product. A qualified person is one who has skills and knowledge related to the construction, operation, and installation of electrical equipment, and has received safety training to recognize and avoid the hazards involved. Refer to the most current release of NFPA 70E®, Standard for Electrical Safety in the Workplace, for electrical safety training requirements or other applicable standards in your location. Examples of qualified personnel may include:

● at the application design level, engineering department personnel who are familiar with automation safety concepts (for example, a design engineer)
● at the equipment implementation level, personnel who are familiar with the installation, connection and commissioning of automation equipment (for example, an installation assembly or cabling engineer or a commissioning technician)
● at the operation level, personnel who are experienced in the use and control of automation and computing equipment (for example, an operator)
● for preventive or corrective maintenance, personnel trained and qualified in regulating or repairing automated and computing devices (for example, an operating technician or after-sales service technician.)

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 508 and CSA C22.2 N° 142, Industrial Control Equipment
- Underwriters Laboratories Inc., ANSI/ISA 12.12.01 and CSA C22.2 N° 213, Electrical Equipment for Use in Class I, Division 2 Hazardous (Classified) Locations
- GOST certification. Refer to product markings.
- ATEX certification by Technical Inspection Association. Refer to product markings.
- Merchant Navy rules. Products are designed to comply with Merchant Navy rules. Refer to the Schneider Electric Web site for Merchant Navy rules installation guidelines. 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

Europe: CE

- Directive 2006/95/EC (Low Voltage)
  Directive 2004/108/EC (EMC)
- Programmable Controllers: EN 61131-2 (Ed 3)
- EMI: EN55011 (Group 1, Class A), EN 61000-6-4
- EMS: EN 61000-6-2

Australia:

- Standard AS/NZS CISPR11 (C-Tick)

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 specifically identified in Environmental Characteristics *(see page 41)*.

Hazardous Substances

This product is compliant with:

- WEEE, Directive 2002/96/EC
- RoHS, Directive 2002/95/EC
- RoHS China, Standard SJ/T 11363-2006
- REACh regulation EC 1907/2006

NOTE: Documentation about sustainable development is available on Schneider Electric web site (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 *(see page 111)* 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

CE Compliance Note

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 specifically intended, and in connection with approved third-party products.

Hazardous Location Installations - For USA and Canada

General

The Panel PC has been designed with the intention of meeting the requirements of Class I, Division 2 hazardous location applications. Division 2 locations are those locations where ignitable concentrations of flammable substances are normally confined, prevented by ventilation, or present in an adjacent Class I, Division 1 location, but where an abnormal situation might result in intermittent exposure to such ignitable concentrations.

While the Panel PC is a non-incendive device under ANSI/ISA 12.12.01 and CSA C22.2 N° 213, it is not designed for, and should never be used within a Division 1 (normally hazardous) location.

This equipment is suitable for use in Class I, Division 2, Groups A, B, C, and D hazardous locations or in non-hazardous locations. Before installing or using your Panel PC, confirm that the ANSI/ISA 12.12.01 or CSA C22.2 N° 213 certification appears on the product labeling

NOTE: Some Panel PC devices are not yet rated as suitable for use in hazardous locations. Always use your product in conformance with the product labeling and this manual.

⚠ **DANGER**

EXPLOSION HAZARD

- Do not use your Panel PC in hazardous environments or locations other than Class I, Division 2, Groups A, B, C, and D.
- Always confirm that your Panel PC is suitable for use in hazardous locations by checking that the ANSI/ISA 12.12.01 or CSA C22.2 N° 213 certification appears on the product labeling.
- Do not install any Schneider Electric or OEM components, equipment, or accessories unless these have also been qualified as suitable for use in Class I, Division 2, Groups A, B, C, and D locations.
- In addition, confirm that any PCI controller cards have an adequate temperature code (T-code), and are suitable for a surrounding air temperature range of 0 to 50 °C (32 to 122 °F).
- Do not attempt to install, operate, modify, maintain, service, or otherwise alter the Panel PC except as permitted in this manual. Unpermitted actions may impair the unit's suitability for Class I, Division 2 operation.

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

> # ⚠ DANGER
>
> **EXPLOSION HAZARD**
>
> - Always confirm the ANSI/ISA 12.12.01 and CSA C22.2 N° 213 hazardous location rating of your device before installing or using it in a hazardous location.
> - To power on or power off a Panel PC installed in a Class I, Division 2 hazardous location, you must either:
>   - Use a switch located outside the hazardous environment, or
>   - Use a switch certified for Class I, Division 1 operation inside the hazardous area.
> - Do not connect or disconnect equipment unless power has been switched off or the area is known to be non-hazardous. This applies to all connections including power, ground, serial, parallel, and network connections.
> - Never use unshielded / ungrounded cables in hazardous locations.
> - Use only non-incentive USB configuration.
> - When enclosed, keep enclosure doors and openings closed at all times to avoid the accumulation of foreign matter inside the workstation.
>
> **Failure to follow these instructions will result in death or serious injury.**

> # ⚠ ⚠ 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 Panel 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 24 Vdc when operating the Panel PC.
>
> **Failure to follow these instructions will result in death or serious injury.**

Ensure that the product is properly rated for the location. If the intended location does not presently have a Class, Division and Group rating, then users should consult the appropriate authorities having jurisdiction in order to determine the correct rating for that hazardous location.

In accordance with Federal, State/Provincial, and Local regulations, all hazardous location installations should be inspected prior to use by the appropriate authority having jurisdiction. Only technically qualified personnel should install, service, and inspect these systems.

Power Switch

⚠ ⚠ 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 Panel 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 24 Vdc when operating the Panel PC.

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

The amount of input power required by systems with a Panel PC classifies the power switch as an incendive device because the voltage and current across the make/break component are capable of generating a spark.

If using an ordinary power switch, hazardous location regulations require the power switch be located in an area specified as non-hazardous.

However, limits in cable length between the workstation and the power switch may apply. Otherwise the switch must be compliant with Class I, Division 1 requirements (intrinsically safe). These switches are built in a manner that prevents the possibility of a spark when contact is made or broken.

Use suitable UL listed and/or CSA Certified Class I, Division 1 switches in hazardous locations. These switches are available from a wide number of sources. It is the responsibility to ensure you select a power switch that conforms to the hazardous location rating for the installation.

Cable Connections

⚠ DANGER

EXPLOSION HAZARD

- Always confirm the ANSI/ISA 12.12.01 and CSA C22.2 N° 213 hazardous location rating of your device before installing or using it in a hazardous location.
- To power on or power off a Panel PC installed in a Class I, Division 2 hazardous location, you must either:
  - Use a switch located outside the hazardous environment, or
  - Use a switch certified for Class I, Division 1 operation inside the hazardous area.
- Do not connect or disconnect equipment unless power has been switched off or the area is known to be non-hazardous. This applies to all connections including power, ground, serial, parallel, and network connections.
- Never use unshielded / ungrounded cables in hazardous locations.
- Use only non-incentive USB configuration.
- When enclosed, keep enclosure doors and openings closed at all times to avoid the accumulation of foreign matter inside the workstation.

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

Division 2 hazardous location regulations require that all cable connections be provided with adequate strain relief and positive interlock. Use only non-incendive USB devices as USB connections do not provide adequate strain relief to allow the use of Panel PC USB connections *(see page 67)*. Never connect or disconnect a cable while power is applied at either end of the cable. All communication cables should include a chassis ground shield. This shield should include both copper braid and aluminum foil. The D-sub style connector housing must be a metal conductive type (e.g., molded zinc) and the ground shield braid must be terminated directly to the connector housing. Do not use a shield drain wire.

The outer diameter of the cable must be suited to the inner diameter of the cable connector strain relief so that a reliable degree of strain relief is maintained. Always secure the D-Sub connectors to the workstation-mating connectors via the two screws located on both sides.

Operation and Maintenance

The systems have been designed for compliance with relevant spark ignition tests.

⚠ DANGER

EXPLOSION HAZARD

In addition to the other instructions in this manual, observe the following rules when installing the Panel PC in a hazardous location:

- Wire the equipment in accordance with the National Electrical Code article 501.10 (B) for Class I, Division 2 hazardous locations.
- Install the Panel PC in an enclosure suitable for the specific application. Type 4 or IP65 enclosures are recommended even when not required by regulations.

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

NOTE: Type 4 and IP65 are not part of UL certification for hazardous locations.

Physical Overview

<div style="text-align: right;">

2

</div>

Subject of this Chapter

This chapter provides a physical overview of the Panel PC.

What Is in This Chapter?

This chapter contains the following topics:

Package Contents

Items

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

HMIPWC•D0E••, HMIGTW•354.	
Installation Fasteners: ● 10 per set for 10.4" Panel PC ● 14 per set for 15" Panel PC	
Restore & Documentation DVD-ROM containing the software required to reinstall the Operating System, the MS Windows EULA, the Installation Guides and User Manuals for the HMIPWC•D0E•• and HMIGTW•354.	
Connector Cover	

DC Terminal Block	

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

Panel PC 10.4" Description

Introduction

During operation, surface temperatures of the rear metal housing may reach 70 °C (158 °F).

⚠ **WARNING**

RISK OF BURNS

Do not touch the surface of the rear metal housing during operation.

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

Front View

1 Display
2 Touch panel
3 Front USB (USB3 max. 1 A) with cover (depending on references)

NOTE: The front USB is a diagnostic interface for service and maintenance.

NOTICE

UNINTENDED EQUIPMENT OPERATION

- Do not use the front USB while the machine is in operation.
- Always keep the cover in place during normal operation.

Failure to follow these instructions can result in equipment damage.

Rear View

1 Panel PC cover
2 Mode/Node Switches
3 Battery
4 Power button
5 Reset button
6 CompactFlash slot CF1/Connection via IDE-PATA
7 SD Memory card slot
8 Status LEDs
9 Cable clamps

Bottom View

1 Supply voltage 24 Vdc
2 Ground connection
3 USB1, USB2 (max.1 A)
4 ETH1 (10/100/1000 MBit)
5 COM1
6 ETH2 (10/100/1000 MBit)

Panel PC 15" Description

Introduction

During operation, surface temperatures of the rear metal housing may reach 70 $^\circ$C (158 $^\circ$F).

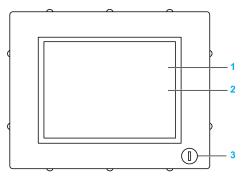## ⚠ WARNING

RISK OF BURNS

Do not touch the surface of the rear metal housing during operation.

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

Front View

1 Display
2 Touch panel
3 Front USB (USB3 max. 1 A) with cover (depending on references)

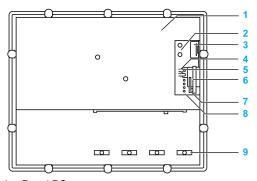**NOTE:** The front USB is a diagnostic interface for service and maintenance.

NOTICE

UNINTENDED EQUIPMENT OPERATION

- Do not use the front USB while the machine is in operation.
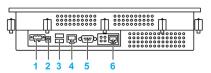- Always keep the cover in place during normal operation.

Failure to follow these instructions can result in equipment damage.

Rear View

1 Panel PC cover
2 Mode/Node Switch
3 Battery
4 Power button
5 Reset button
6 CompactFlash slot CF1/Connection via IDE-PATA
7 SD Memory card slot
8 Status LEDs
9 Cable clamps

Bottom View
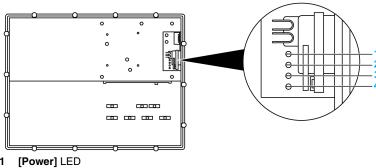
1 Supply voltage 24 Vdc
2 Ground connection
3 USB1, USB2 (max.1 A)
4 ETH1 (10/100/1000 MBit)
5 COM1
6 ETH2 (10/100/1000 MBit)

Panel PC LED Description

LED Description

The following figure shows the LEDs on the Panel PC:

1   **[Power]** LED
2   **[CF]** LED
3   Not used
4   Not used

Status LED

The following table describes the meaning of the status LEDs on the Panel PC:

LED	Color	State	Meaning
[Power]	Green	On	Supply voltage is OK.
	Green	Flashing	The device has booted, the battery status is not OK.
	Red	On	The system is in standby mode (S5: soft-off mode or S4: hibernate mode - Suspend-to-Disk).
	Red	Flashing	Not used
	Red /green	Flashing	Not used
[CF]	Yellow	On	Indicates IDE drive access (CF).

Characteristics

3

Subject of this Chapter

This chapter lists the product characteristics.

What Is in This Chapter?

This chapter contains the following topics:

Characteristics of the Panel PC

Product Characteristics

The characteristics of the Panel PC models are shown below:

Element	Characteristics	
	Optimum	**GTW Open**
Intel Chipset and Processor	US15W + AtomZ510@1.10 GHz	
Cooling Method	–	
RAM	DDR2 400 MHz - 1 GB to 2 GB max	
Graphics		
Controller	Intel® Graphics Media Accelerator 500	
Video Memory	Up to 256 MB (reserved from main memory)	
Color Depth	32 bit (maximum)	
Compact Flash	1 slot type 1 equipped according to model and Operating System ● 2 GB or 4 GB CF for models running Windows Embedded Standard 2009	
SD Card	1 slot **NOTE:** Due to the numerous SD card format and standards available in the market place, the compliancy of the SD card slot with the different card is not guaranty. For example high density SD cards are not compliant (SDHD, SDXC and so on). You must check if the format of your SD card is recognised by the slot.	
SRAM		
Battery-buffered	Yes	
Quantity	512 KB	
Reset button	Yes	
Buzzer	Yes	
Weight		
10.4" Screen Size	Approximately 4 kg (8.82 lbs)	
15" Screen Size	Approximately 5 kg (11.02 lbs)	

NOTICE
UNINTENDED EQUIPMENT OPERATION
Do not use SD cards to store the operating system and as a boot device.
Failure to follow these instructions can result in equipment damage.

Display Characteristics

Element	10.4" Screen Size	15" Screen Size
Graphics	SVGA TFT active matrix (800 x 600 pixels)	XGA TFT active matrix (1024 x 768 pixels)
Number of Colors	16 million	
Brightness	450 cd/m^2	350 cd/m^2
Brightness Control	Step less adjustment	
View Angle	Vertical 120 °, horizontal 160 ° Typ.	Vertical 100 °, horizontal 160 ° Typ.
Touch Sensitive Screen	Analog resistive film, resolution 4096 x 4096	
Backlight	LED - Life span > 50,000 h at 25 °C (77 °F)	

Power Supply

Element	Characteristics
Rated Voltage	24 Vdc ±25 %
Power Consumption	36 W (max.)
Rated Current	1875 mA (max.)
Inrush Current	Typical 3 A, max. 50 A < 300 µs

Operating Systems

The products are delivered with a preinstalled operating system according to the reference ordered:

Operating Systems	Cataloged Part Number	Configured Part Number
Windows® Embedded Standard 2009	HMIPWC•D0E•• and HMIGTW•354	HMIPCC •••••••1••••••

Panel PC Interface Characteristics

Serial Interface

Element	Characteristics
Amount	1
Type	RS-232C, modem-capable, not electrically isolated
UART	16550-compatible, 16-byte FIFO
Transfer Rate	Maximum 115 kbps
Connection	D-Sub 9-pin, male *(see page 68)*

USB Interface

Element	Characteristics
Type	USB 2.0
Amount	3 (2 bottom side and 1 front side)
Transfer Rate	Low speed (1.5 Mbit/s), full speed (12 Mbit/s), to high speed (480 Mbit/s)
Connection	Type A *(see page 67)*
Current load	Maximum 1 A per connection

Ethernet Interface

Element	Characteristics
Amount	2 x RJ45
Speed	10/100/1000 Mbit/s

Environmental Characteristics

Characteristics

The environmental characteristics of the Panel PC are as follows:

Characteristics	Value	Standards
Degree of Protection	IP65	EN/IEC 61131-2
Pollution Degree	For use in Pollution Degree 2 environment	EN/IEC 61131-2
Surrounding air temperature during operation	0...50 ° C (32...122 ° F)	EN/IEC 61131-2, UL 508
Storage temperature	−20...60 ° C (−4...140 ° F)	IEC 60068-2-2 tests Bb, IEC 60068-2-14 tests Na
Operating altitude	2000 m (6560 ft) max	EN/IEC 61131-2
Vibration		IACS E10 and EN/IEC 60068-2-6 Fc
Operation (continuous)	2...9 Hz: 1.75 mm (0.07 in.) 9...200 Hz: 0.5 g	
Operation (occasional)	2...9 Hz: 3.5 mm (0.14 in.) 9...200 Hz:1 g	
Merchant navy (continuous)	3...13.2 Hz: 1 mm (0.04 in.) 13.2...100 Hz: 0.7 g	
Shock Resistance (in operation)	15 g for a duration of 11 ms	IEC 60068-2-27 Ea test
Surrounding air humidity during operation	10...85 % RH (Wet bulb temperature: 29 ° C (84.2 ° F) max. - no condensation)	EN/IEC 60068-2-78 Cab
Storage humidity	10...85 % RH (Wet bulb temperature: 29 ° C (84.2 ° F) max. - no condensation)	EN/IEC 60068-2-30 Db
Electromagnetic Compatibility (EMC)	Immunity to High Frequency Interference	EN/IEC 61131-2, IEC 61000-4-x
	Electromagnetic Emissions Class A	EN 55022, EN 55011
NOTE: IEC 61131-2 and IP65 are not part of UL certification for hazardous locations.		

Dimensions/Assembly

4

Subject of this Chapter

This chapter describes Panel PC dimensions and installation panels.

What Is in This Chapter?

This chapter contains the following topics:

Panel PC 10.4" Dimensions

Overview

The illustration below shows the dimensions of the Panel PC 10.4":

Values
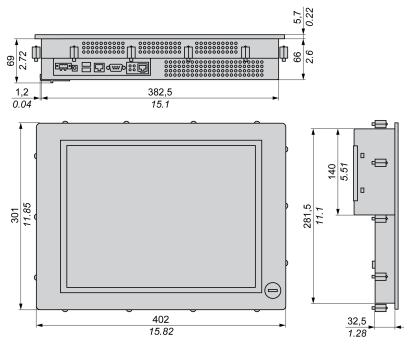
The following table shows the general tolerances for Panel PC dimensions:

Nominal Measurement	General Tolerance acc. DIN ISO 2768 Medium
up to 6 mm (up to 0.236 in.)	±0.1 mm (±0.004 in.)
6...30 mm (0.236...1.181 in.)	±0.2 mm (±0.0078 in.)
30...120 mm (1.18...4.724 in.)	±0.3 mm (±0.012 in.)
120...400 mm (4.724...15.747 in.)	±0.5 mm (±0.02 in.)
400...1000 mm (15.747...39.37 in.)	±0.8 mm (±0.031 in.)

Panel PC 15" Dimensions

Overview

The illustration below shows the dimensions of the Panel PC 15":

NOTE: No front USB for the stainless steel panels.

Values

The following table shows the general tolerances for Panel PC dimensions:

Nominal Measurement	General Tolerance acc. DIN ISO 2768 Medium
up to 6 mm (up to 0.236 in.)	±0.1 mm (±0.004 in.)
6...30 mm (0.236...1.181 in.)	±0.2 mm (±0.0078 in.)
30...120 mm (1.18...4.724 in.)	±0.3 mm (±0.012 in.)
120...400 mm (4.724...15.747 in.)	±0.5 mm (±0.02 in.)
400...1000 mm (15.747...39.37 in.)	±0.8 mm (±0.031 in.)

Installation Requirements

Important Mounting Information

Overheating can cause incorrect software behavior, therefore:
- Ensure that environmental characteristics *(see page 41)* are respected.
- The Panel PC is only permitted for operation in closed rooms.
- The Panel PC cannot be situated in direct sunlight.
- The Panel PC vent holes must not be covered.
- When mounting the Panel PC, adhere to the allowable mounting angle.
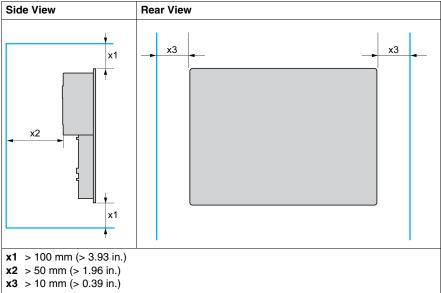
⚠ **WARNING**
UNINTENDED EQUIPMENT OPERATION   • Do not place the Panel PC next to other devices that might cause overheating.   • Keep the Panel PC away from arc-generating devices such as magnetic switches and non-fused breakers.   • Avoid using the Panel PC in environments where corrosive gases are present.   • Install the Panel 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 Panel PC with sufficient clearance to provide for cable routing and cable connectors.   **Failure to follow these instructions can result in death, serious injury, or equipment damage.**
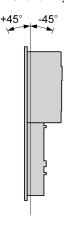
Spacing Requirements

In order to provide sufficient air circulation, mount the Panel PC so that the spacing on the top, bottom, and sides is as follows:

Side View	Rear View
x1 > 100 mm (> 3.93 in.) **x2** > 50 mm (> 1.96 in.) **x3** > 10 mm (> 0.39 in.)	

Mounting Orientation
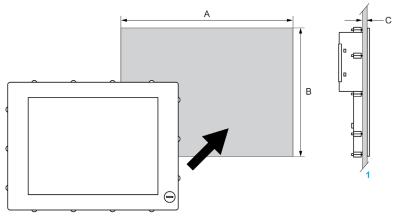
The following figure shows the allowable mounting orientation for the Panel PC:

Panel Cut Dimensions

For cabinet installation, you need to cut the correct sized opening in the installation panel. The installation gasket and installation fasteners are required when installing the Panel PC.

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

1 Installation panel

Panel PC Cut-out	A	B	C
10.4"	303 ±0.5 mm (11.85 ±0.02 in.)	243 ±0.5 mm (9.49 ±0.02 in.)	1.6...10 mm (0.06...0.39 in.)
15"	383.5 +1/0 mm (15.10 +0.04/0 in.)	282.5 +1/0 mm (11.12 +0.04/0 in.)	

NOTE:

- Ensure the thickness of the installation panel is from 1.6 to 10 mm (0.06 to 0.39 in.).
- All installation panel surfaces used should be strengthened. Due consideration should be given to the weight of the 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 all installation tolerances are maintained.
- The Panel PC is designed for use on a flat surface of a Type 4X enclosure (Indoor use only).

Panel PC Installation

Vibration and Shocks

Extra care should be taken with respect to vibration levels when installing or moving the Panel PC. If the Panel PC is moved, for example, while it is installed in a rack equipped with caster wheels, it can receive 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 Panel 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

Use of the installation gasket may help extend the operating life of your Panel PC. The gasket is required to meet the protection ratings (IP65, IP20, NEMA4) of the Panel PC and provides additional protection from vibration.

NOTE: NEMA4 or Type 4 is not part of UL certification.

Even if moisture protection is not required, install the gasket delivered with your Magelis product.

NOTE: The installation gasket is replaceable only for stainless steel Panel PC.

⚠ **CAUTION**

LOSS OF SEAL

● Inspect the gasket prior to installation or reinstallation, and periodically as required by your operating environment.
● Replace the gasket or the complete Panel 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 Panel 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.

For stainless steel Panel PC, the installation gasket is provided in the maintenance kit: reference HMIYPNKT11.
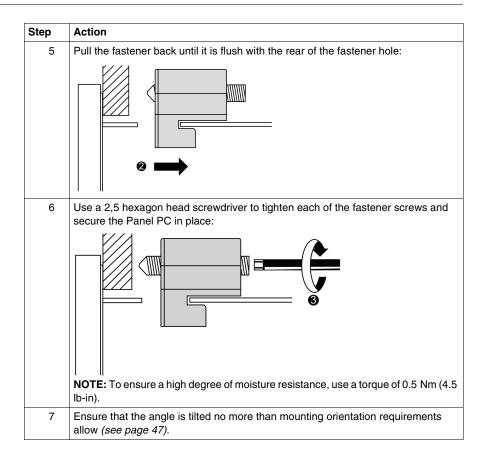
Installing the Panel PC Unit

The installation gasket and installation fasteners are required when installing the Panel PC.

Follow the steps shown below when installing the Panel PC:

Step	Action
1	Check that the gasket is correctly attached to the Panel PC. **NOTE:** When checking the gasket, avoid contact with the sharp edges of the Panel PC frame, and insert it completely into its groove.
2	Install the Panel PC in the panel opening (see page 48).

Step	Action
3	Insert each installation fastener securely into the slots at the top, bottom, left and right side of the Panel PC:
	The number of slots is screen size dependent: ● 10 slots for the 10.4" Panel PC. ● 14 slots for the 15" Panel PC. **NOTE:** You can purchase the installation fasteners as spare parts with the maintenance kit: reference HMIYPNKT11. **NOTE:** When mounting a stainless steel panel using installation fasteners from maintenance kit, make sure to use appropriate stainless steel installation fasteners (identified in separate bag).
4	Insert each fastener in its corresponding slot as shown in the figure below:

Step	Action
5	Pull the fastener back until it is flush with the rear of the fastener hole: ❷ ➡
6	Use a 2,5 hexagon head screwdriver to tighten each of the fastener screws and secure the Panel PC in place: ❸ **NOTE:** To ensure a high degree of moisture resistance, use a torque of 0.5 Nm (4.5 lb-in).
7	Ensure that the angle is tilted no more than mounting orientation requirements allow *(see page 47)*.

⚠ **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 plastic installation fastener.
- When installing or removing screws, ensure that they do not fall inside the Panel PC chassis.

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

NOTE: The screw installation fasteners are required for NEMA4 protection. NEMA4 or Type 4 is not part of UL certification.

Implementation

II

Subject of this Part

This part describes setting up the product.

What Is in This Part?

This part contains the following chapters:

Getting Started

5

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 DVD-ROM. Read this document before first powering-up.

On first power-up of your HMIPWC•D0E•• or HMIGTW•354, to customize and set the parameters for your system, refer to the Magelis Installation Guide.

Install and customize the Schneider Electric applications (Vijeo Designer, Vijeo Designer Lite, OFS).

EWF Manager (Enhanced Write Filter Manager)

The Magelis Panel PC HMIPWC•D0E••, HMIGTW•354 operating system, Windows® Embedded Standard 2009, is installed on a memory card. This card is a re-writable Compact Flash card that allows approximately 100,000 write operations.

The EWF Manager (Enhanced Write Filter Manager) minimizes the number of write operations to help extend the life of the CF Card. It loads temporary data (for example, system updates and software operations) into RAM, and does not write this information to the CF Card.

As a result, when using the EWF Manager, restarting the Panel PC causes any changes the user made to the system to be overwritten. The following types of modifications may be overwritten if the EWF Manager is active and the system is restarted:

- Newly installed applications.
- Newly installed peripherals.
- Newly created or modified user accounts.
- Network configuration changes (e.g. IP address, default gateway, and so on).
- Operating System customizations (e.g.background pictures, and so on).

NOTICE

DATA AND CONFIGURATION LOSS

- Disable the EWF Manager before making any permanent changes to the hardware, software, or Operating System of the Panel PC. Confirm that the EWF icon in the Windows system tray has a red "X".
- Re-enable the EWF Manager after making permanent changes and confirm that the EWF icon in the Windows system tray does not have a red "X". This can help extend the operating life of the CF Card.
- Back up all CF Card data regularly to another storage media.

Failure to follow these instructions can result in equipment damage.

Enabling/Disabling the EWF Manager

The status of the EWF Manager may be changed by running the `ChangeEWFState.exe` program located in the `C:\Program Files\Change EWF State\` directory. After running this program, you need to restart the system for the change to take effect. You need administrator privileges to enable and disable the EWF Manager.

Right Click from Touch Screen Interface

To access **Right-click** function from the touch screen, keep touching the screen for 2 seconds and the corresponding **Right-click** function will be activated (for instance, menu will be displayed).

Panel PC Connections

6

Subject of this Chapter

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

What Is in This Chapter?

This chapter contains the following topics:

Grounding

Overview

The grounding resistance between the Panel PC ground and the ground must be 100 Ω or less. When using a long grounding wire, check the resistance and, if required, replace a thin wire with a thicker wire and place it in a duct. In addition, refer to the table below for maximum lengths of various wire thicknesses.

Ground Wire Dimensions

Wire Cross-section	Maximum Line Length
2.5 mm^2 (AWG 13)	30 m (98 ft)
	60 m (196 ft) round trip.

Precaution

⚠ **WARNING**
UNINTENDED EQUIPMENT OPERATION
● Use only the authorized grounding configurations shown below. ● Confirm that the grounding resistance is 100 Ω 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 Panel PC.
Failure to follow these instructions can result in death, serious injury, or equipment damage.
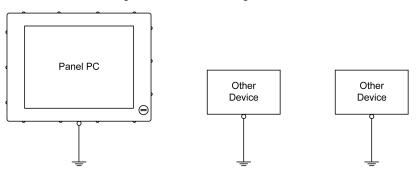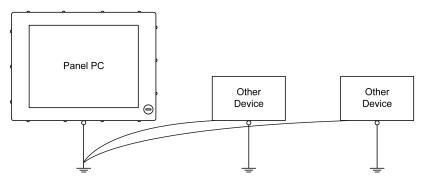
Dedicated Ground

Connect the Panel PC ground to a dedicated ground:
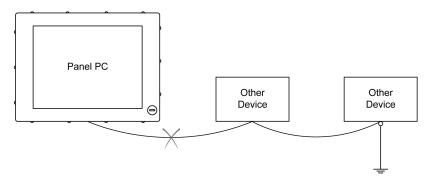
Shared Ground Allowed

If a dedicated ground is not possible, use a shared ground, as shown below:
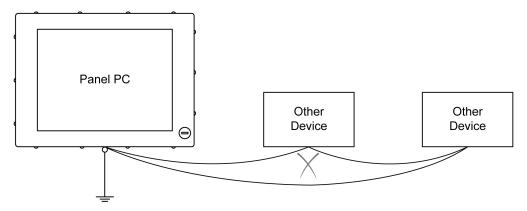
Shared Ground not Allowed

Do not connect the Panel PC to ground through other devices using shared ground terminals:

Shared Ground - Avoid Ground Loop
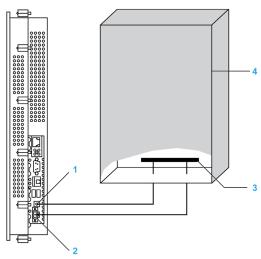
When connecting an external device to a Panel PC with the shield ground (SG), ensure that a ground loop is not created. The Panel PC's ground connection screw and SG are connected internally.

Grounding Procedure

The Panel PC ground has 2 connections:

- Supply voltage
- Ground connection screw

1 Ground connection screw
2 Supply voltage
3 Grounding strip
4 Switching cabinet

When grounding, follow the procedure below:

Step	Action
1	Check that the grounding resistance is 100 Ω or less.
2	When connecting the SG line to another device, ensure that the design of the system/connection does not produce a ground loop. **NOTE:** The SG and ground connection screw are connected internally in the Panel PC.
3	Use 2.5 mm^2 (AWG 13) wire to make the ground connection. Create the connection point as close to the Panel PC as possible and make the wire as short as possible.

Grounding I/O Signal Lines

⚠ DANGER

EXPLOSION HAZARD

- Always confirm the ANSI/ISA 12.12.01 and CSA C22.2 N° 213 hazardous location rating of your device before installing or using it in a hazardous location.
- To power on or power off a Panel PC installed in a Class I, Division 2 hazardous location, you must either:
  - Use a switch located outside the hazardous environment, or
  - Use a switch certified for Class I, Division 1 operation inside the hazardous area.
- Do not connect or disconnect equipment unless power has been switched off or the area is known to be non-hazardous. This applies to all connections including power, ground, serial, parallel, and network connections.
- Never use unshielded / ungrounded cables in hazardous locations.
- Use only non-incentive USB configuration.
- When enclosed, keep enclosure doors and openings closed at all times to avoid the accumulation of foreign matter inside the workstation.

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

Electromagnetic radiation may interfere with the control communications of the 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 Panel 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 Panel PC, first ensure that the power cord is disconnected from the DC power supply.

⚠ ⚠ 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 Panel 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 24 Vdc when operating the Panel PC.

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

⚠ WARNING

UNINTENDED EQUIPMENT OPERATION

● Ensure that power, communication, and accessory connections do not place excessive stress on the ports. Consider the vibration environment when making this determination.
● Securely attach power, communication, and external accessory cables to the panel or cabinet.
● 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 Panel PC:

Step	Action
1	Remove all power from the Panel PC and confirm that the DC power supply has been disconnected from its power source.
2	Remove the terminal block from the power connector and connect the power cord to the terminal block as shown below: 75C wire is to be used. Use wire with cross-section 0.75 to 2.5 mm^2 (AWG 18 to AWG 12).
3	Place the terminal block in the power connector and tighten the screws. **NOTE:** The recommended torque to tighten these screws is 0.5 Nm (4.5 lb-in).

Marine Certification Connection

If the product is used in an environment requiring marine certification, a power line filter must be in the power line.

The line filter must be ordered in addition to the product using the reference HMIYLFIMAR11.

Possible Connection

Connection to a Ground-Referenced DC Power System:

Q   : Main Power Contact
KM : Line contacts
1   : Residual Current Detector for detecting grounding faults

Panel PC Interface Connections

Introduction

The information below describes usage of the interface connections of the Magelis Panel PC in Class I, Division 2 Groups A, B, C, and D hazardous locations.

⚠ DANGER

EXPLOSION HAZARD

- Always confirm the ANSI/ISA 12.12.01 and CSA C22.2 N° 213 hazardous location rating of your device before installing or using it in a hazardous location.
- To power on or power off a Panel PC installed in a Class I, Division 2 hazardous location, you must either:
  - Use a switch located outside the hazardous environment, or
  - Use a switch certified for Class I, Division 1 operation inside the hazardous area.
- Do not connect or disconnect equipment unless power has been switched off or the area is known to be non-hazardous. This applies to all connections including power, ground, serial, parallel, and network connections.
- Never use unshielded / ungrounded cables in hazardous locations.
- Use only non-incentive USB configuration.
- When enclosed, keep enclosure doors and openings closed at all times to avoid the accumulation of foreign matter inside the workstation.

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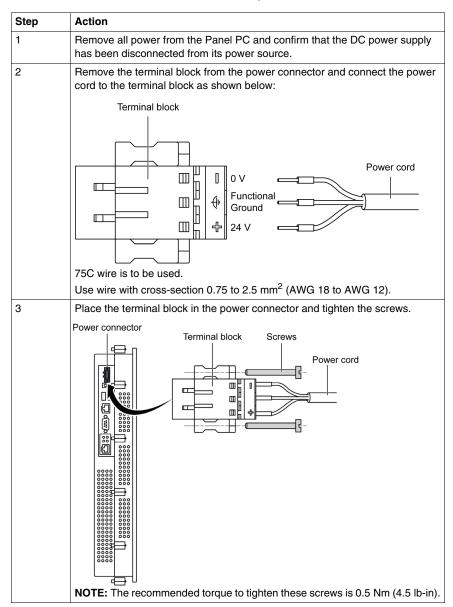

⚠ WARNING

EQUIPMENT DISCONNECTION OR UNINTENDED EQUIPMENT OPERATION

- Ensure that power, communication, and accessory connections do not place excessive stress on the ports. Consider the vibration environment when making this determination.
- Securely attach power, communication, and external accessory cables to the panel or cabinet.
- Use only commercially available USB cables.

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

USB Connections

Non-incendive equipment (keyboards, mouse) are permitted for use on the Panel PC (Associated Apparatus) USB ports 1, 2 and front USB 3. In addition to being non-incendive, any equipment connected to the USB ports 1, 2 and front USB 3 must satisfy the following criteria.

The following figure shows the USB cable wiring:

Notes:

1. The following table gives the Non-incendive Circuit Parameters:

Circuit Parameters	USB port 1	USB port 2	USB port 3 (front USB)
Open-circuit voltage = V_{oc}	5.107 V	5.119 V	5.107 V
Short-circuit current = I_{sc}	1029 mA	1029 mA	1273 mA
Associated capacitance = C_a	20 μF	20 μF	20 μF
Associated inductance = L_a	16.8 μH	16.8 μH	16.8 μH

The Entity Concept allows interconnection of non-incendive apparatus with associated apparatus – not specifically examined combinations – as a system when the approved values of V_{oc} (or U_o) and I_{sc} (or I_o) for the associated apparatus are less than or equal to Vmax (U_i) and Imax (I_i) for the non-incendive apparatus, and the approved values of C_a (C_o) and L_a (L_o) for the associated apparatus are greater than or equal to $C_i + C_{cable}$ and $L_i + L_{cable}$, respectively, for the non-incendive field wiring apparatus.

2. Associated Non-incendive Field Wiring Apparatus shall satisfy the following:

Magelis Panel PC	-	Associated Non-incendive Field Wiring Apparatus (Mouse, Keyboard)
V_{oc}	$\leq$	V_{max}
I_{sc}	$\leq$	I_{max}
C_a	$\geq$	$C_i + C_{cable}$
L_a	$\geq$	$L_i + L_{cable}$

3. If the electrical parameters of the cable are unknown, the following values may be used:

- C_{cable} = 196.85 pF/m (60 pF/ft)
- L_{cable} = 0.656 µH/m (0.20 µH/ft)

4. Wiring methods must be in accordance with the electrical code of the country in use.

The Panel PC must be installed in an enclosure. If installed in a Class I, Division 2 Location, the enclosure must be capable of accepting one or more Division 2 wiring methods.

⚠ DANGER

EXPLOSION HAZARD

- Substitution of components may impair suitability for Class I, Division 2.
- Do not energize or disconnect the device while area is known to be hazardous.
- The associated non-incendive field wiring apparatus shall not be connected in parallel unless permitted by the associated non-incendive apparatus approval.

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

The Panel PC is suitable for use in Class I, Division 2, Groups A, B, C, D and provides non-incendive field wiring to apparatus in Class I, Division 2, Groups A, B, C, D.

Serial Interface Connections

This interface is used to connect Panel PC to remote equipment, via an RS-232C cable. The connector is a D-Sub 9-pin male connector.

By using a long PLC cable to connect to the 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 Panel PC serial port is not isolated. The SG (signal ground) and the functional ground (FE) 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 following table shows the D-Sub9 pin assignments:

Pin	Assignment	
1	DCD	D-Sub9 pin male connector:
2	RXD	
3	TXD	
4	DTR	
5	GND	
6	DSR	
7	RTS	
8	CTS	
9	RI	

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 Panel 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.

EIO0000000965 09/2012

Configuration of the BIOS

7

What Is in This Chapter?

This chapter contains the following topics:

Topic	Page
BIOS Options	72
Main Menu	75
Advanced Menu - USB Configuration	76
Security Menu	80
Boot Menu	81
Exit Menu	83

BIOS Options

General Information

BIOS stands for "Basic Input Output System". It is the most basic communication between the user and the hardware. The BIOS used in the Panel PC is produced by Schneider Electric.

The BIOS Setup Utility lets you modify basic system configuration settings. These settings are stored in CMOS and in an EEPROM (as a backup).

The CMOS data is buffered by a battery (if present), and remains in the Panel PC even when the power is turned off (24 Vdc power supply is disconnected).

BIOS Setup and Boot Procedure

BIOS is immediately activated when switching on the power supply of the Panel PC or pressing the power button. The system checks if the setup data from the EEPROM is OK. If the data is OK, then it is transferred to CMOS. If the data is not OK, then the CMOS data is checked for validity. A message appears if the CMOS data contains anomalies, but you can continue the boot procedure by pressing the [F1] key. To prevent the message from appearing at each restart, open the BIOS setup by pressing the [Del] key and re-save the settings.

BIOS reads the system configuration information in CMOS RAM, checks the system, and configures it using the Power On Self Test (POST).

When these preliminaries are complete, the BIOS seeks the operating system from the data storage devices available (hard drive, floppy drive, and so on). BIOS launches the operating system and hands over to the operating system control of system operations.

To enter BIOS Setup, press the [F2] key after the USB controller has been initialized, and as soon as the following message appears on the monitor (during POST): "Press F2 go to Setup Utility".

The following figure shows an example of the the BIOS startup screen:

```
InsydeH20 version : Menlow 03.60.12.0033
BIOS Build : 25/11/2010

Processor Type : Intel(R) Atom(TM) CPU Z520 @ 1.33GHz

System Memory Speed : 533 MHz




CPUID : 106C2
Press F2 go to Setup Utility
Press F12 go to Boot Manager
```

NOTE: When you press the [F2] key during startup, the **Main** BIOS setup menu appears.

BIOS Setup Keys

The following keys are enabled during the POST:

Key	Function
F2	Enters the BIOS setup menu
F12	Displays the **Boot** menu. Lists all bootable devices that are connected to the system. Use the up cursor ↑ and down cursor ↓and then press the [Enter] key to select the boot device. **Boot Manager** Boot Option Menu IBA GE Slot 0100 v1353 BR-SSD-C004G-01-0101 SwissbitunitedCONTRAST ↑ and ↓ to change option, ENTER to select an option, ESC to exit
Pause	Pressing the [pause] key stops the POST. Press any other key to resume the POST.

NOTE: Keys input from the USB keyboard are only registered after the USB controller has been initialized.
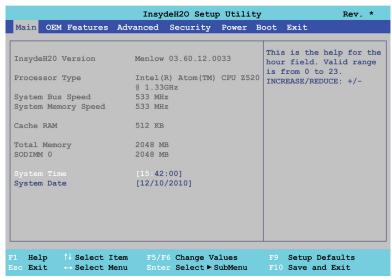
You can use the following keys after entering the BIOS setup:

Key	Function
F1	General help.
Cursor ↑	Moves to the previous item.
Cursor ↓	Goes to the next item.
Cursor ←	Moves to the previous item.
Cursor →	Goes to the next item.
F5/F6	Change BIOS settings.
Enter	Changes to the selected menu.
F9	Loads these settings for all BIOS configurations.
F10	Saves and closes BIOS setup.
Esc	Exits the submenu.

Main Menu

Main Menu

Immediately after the [F2] key is pressed during startup, the **Main** BIOS setup menu appears:

```
                        InsydeH2O Setup Utility              Rev. *
  Main  OEM Features  Advanced   Security   Power  Boot  Exit

  InsydeH2O Version          Menlow 03.60.12.0033      This is the help for the
                                                       hour field. Valid range
  Processor Type             Intel(R) Atom(TM) CPU Z520 is from 0 to 23.
                             @ 1.33GHz                 INCREASE/REDUCE: +/-
  System Bus Speed           533 MHz
  System Memory Speed        533 MHz

  Cache RAM                  512 KB

  Total Memory               2048 MB
  SODIMM 0                   2048 MB

  System Time                [15:42:00]
  System Date                [12/10/2010]



  F1  Help      ↑↓ Select Item    F5/F6 Change Values       F9  Setup Defaults
  Esc Exit      ↔ Select Menu     Enter Select ▶SubMenu      F10 Save and Exit
```

The following table shows the **Main** menu setting options:

BIOS Setting	Description	Setting Options	Effect
InsideH2O Version	Displays the BIOS InsideH2O version.	None	-
Processor Type	Displays the processor type.	None	-
System Bus Speed	Displays the System Bus Speed.	-	-
System Memory Speed	Displays the system memory size.	None	-
Cache RAM	Displays the Cache RAM in the system.	None	-
Total Memory	Displays the entire system memory size.	None	-
SODIMM 0	Displays the amount of RAM in the SODIMM 0 slot.	None	-
System Time	This is the current time setting. The time is maintained by the battery (CMOS battery) when the unit is turned off.	Change the time	Set the time using the format Hours:Minutes:Seconds (hh:mm:ss).
System Date	This is the current date setting. The time is maintained by the battery (CMOS battery) when the unit is turned off.	Change the date	Set the date using the format Month:Day:Year (mm:dd:yyyy).

Advanced Menu - USB Configuration

Advanced Menu

```
                          InsydeH2O Setup Utility              Rev. *
       Main  OEM Features  Advanced  Security  Power  Boot  Exit

                                                  Configures Boot
     ►Boot Configuration                          Settings.
     ►Peripheral Configuration
     ►IDE Configuration
     ►Video Configuration
     ►USB Configuration
     ►SDIO Configuration
     ►ACPI Table/Features Control
     ►PCI Express Root Port 1
     ►PCI Express Root Port 2




     F1   Help      ↑↓ Select Item    F5/F6 Change Values    F9   Setup Defaults
     Esc  Exit      ←→ Select Menu     Enter Select ► SubMenu  F10  Save and Exit
```

BIOS Setting	Description	Setting Options	Effect
Boot Configuration	Configures the boot settings.	Enter	Opens submenu
Peripheral Configuration	Configures the peripheral settings.	Enter	Opens submenu
IDE Configuration	Configures the IDE functions.	Enter	Opens submenu
Video Configuration	Configures the graphics settings.	Enter	Opens submenu
USB Configuration	Configures the USB settings.	Enter	Opens submenu *(see page 78)*
SDIO Configuration	Configures the SDIO settings.	Enter	Open submenu
ACPI Table/Features Control Configuration	Configures the ACPI Table/Features.	Enter	Opens submenu
PCI Express Root Port 1	Configures the PCI Express settings on Port 1.	Enter	Opens submenu
PCI Express Root Port 2	Configures the PCI Express settings on Port 2.	Enter	Opens submenu

Making settings carelessly can cause instability or unpredictable operation.

⚠ **WARNING**
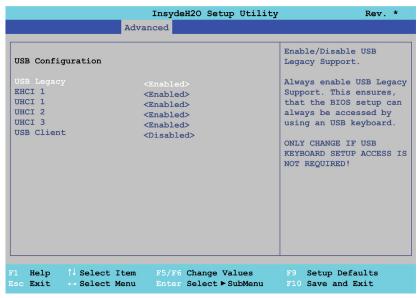
UNINTENDED EQUIPMENT OPERATION

● Do not allow unauthorized or otherwise unqualified personnel to use this feature.
● Carefully set the BIOS.
● Do not make random changes.

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

NOTE: The settings must only be performed by authorized and qualified personnel. A qualified person is one who has the skills and knowledge related to the construction and operation of machine and the process controlled by the application and its installation, and has received safety training to recognize and avoid the hazards involved. No responsibility is assumed by Schneider Electric for any consequences arising out of the use of this feature.

USB Configuration

```
                        InsydeH2O Setup Utility              Rev. *
                  Advanced

                                                    Enable/Disable USB
     USB Configuration                              Legacy Support.

     USB Legacy          <Enabled>                  Always enable USB Legacy
     EHCI 1              <Enabled>                   Support. This ensures,
     UHCI 1              <Enabled>                   that the BIOS setup can
     UHCI 2              <Enabled>                   always be accessed by
     UHCI 3              <Enabled>                   using an USB keyboard.
     USB Client          <Disabled>
                                                    ONLY CHANGE IF USB
                                                    KEYBOARD SETUP ACCESS IS
                                                    NOT REQUIRED!




     F1  Help    ↑↓ Select Item    F5/F6 Change Values    F9  Setup Defaults
     Esc Exit    ↔ Select Menu     Enter Select ▶SubMenu  F10 Save and Exit
```

The following table shows the **USB configuration** setting options:

BIOS Setting	Description	Setting Options	Effect
USB Legacy	You can enable/disable Legacy USB support here. USB ports do not function during startup. USB is supported again after the operating system has started. USB keyboard is still recognized during the POST.	Enabled	Enables this function.
		Disabled	Disables this function [1].
EHCI 1	You can set up support for the operating system without the fully automatic EHCI function.	Enabled	Enables USB support. USB 2.0 support is enabled as soon as a USB 2.0 device is connected to the interface.
		Disabled	Disables USB 2.0 support.
UHCI 1	Configuration of the USB UHCI controller 1 for USB port 2 and 3.	Enabled	Enables USB support.
		Disabled	Deactivates the USB support [2].

(1) USB Legacy Support must be left enabled or else it will no longer be possible to enter BIOS. However, if USB Legacy Support has been disabled, then you can use the Backup BIOS to once again enter BIOS.
(2) If this setting is Disabled, then the settings **UHCI 2** and **UHCI 3** will be set to disabled and all USB ports will be disabled. As a result, it will no longer be possible to enter BIOS. However, if UHCI 1 has been disabled, then you can use the Backup BIOS to once again enter BIOS.
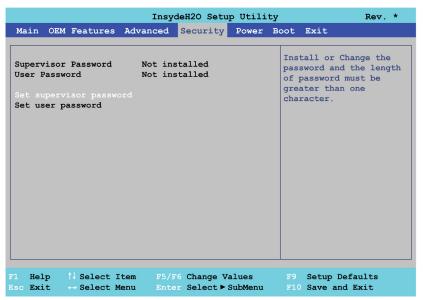
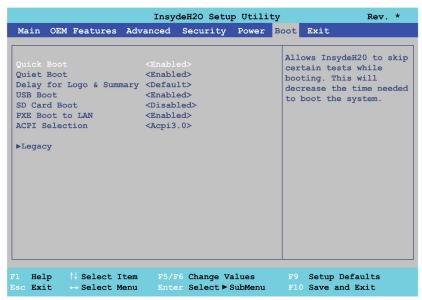| BIOS Setting	Description	Setting Options	Effect
UHCI 2	UHCI 2 is not currently in use.	Enabled	–
		Disabled	–
UHCI 3	Configuration of the USB UHCI controller 3 for USB port 3.	Enabled	Enables USB support.
		Disabled	Deactivates the USB support.
USB Client	Setting for USB Client support.	Enabled	Enables USB Client support.
		Disabled	Disables USB Client support.
(1) USB Legacy Support must be left enabled or else it will no longer be possible to enter BIOS. However, if USB Legacy Support has been disabled, then you can use the Backup BIOS to once again enter BIOS. **(2)** If this setting is Disabled, then the settings **UHCI 2** and **UHCI 3** will be set to disabled and all USB ports will be disabled. As a result, it will no longer be possible to enter BIOS. However, if UHCI 1 has been disabled, then you can use the Backup BIOS to once again enter BIOS.			

Security Menu

Security Menu

```
                        InsydeH2O Setup Utility              Rev. *
    Main  OEM Features  Advanced   Security  Power  Boot  Exit

                                                Install or Change the
    Supervisor Password      Not installed      password and the length
    User Password            Not installed      of password must be
                                                greater than one
    Set supervisor password                     character.
    Set user password




    F1  Help      ↑↓ Select Item   F5/F6 Change Values    F9  Setup Defaults
    Esc Exit      ↔  Select Menu   Enter Select ▶ SubMenu  F10 Save and Exit
```

The following table shows the **Security** menu setting options:

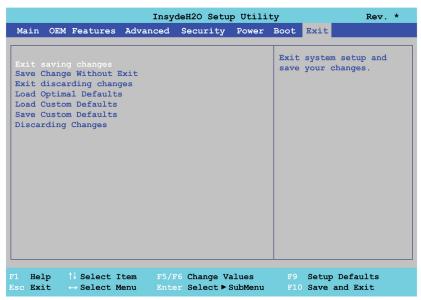| BIOS Setting	Description	Setting Options	Effect
Supervisor Password	Displays whether or not a supervisor password has been set.	None	–
User Password	Displays whether or not a user password has been set.	None	–
Set supervisor password	Enter/change a supervisor password. A supervisor password is necessary to edit all BIOS settings.	Enter	Enter password.
Set user password	Enter/change a user password. A user password allows the user to edit only certain BIOS settings.	Enter	Enter password.

Boot Menu

Boot Menu

```
                    InsydeH2O Setup Utility              Rev. *
   Main   OEM Features  Advanced   Security   Power   Boot   Exit

                                                  Allows InsydeH20 to skip
   Quick Boot             <Enabled>               certain tests while
   Quiet Boot             <Enabled>               booting. This will
   Delay for Logo & Summary <Default>             decrease the time needed
   USB Boot               <Enabled>               to boot the system.
   SD Card Boot           <Disabled>
   PXE Boot to LAN        <Enabled>
   ACPI Selection         <Acpi3.0>

   ▶Legacy




   F1   Help     ↑↓ Select Item    F5/F6 Change Values    F9   Setup Defaults
   Esc  Exit     ←→ Select Menu     Enter Select ▶ SubMenu  F10  Save and Exit
```

The following table shows the boot menu settings option:

Boot Setting	Description	Setting Options	Effect
Quick Boot	This function reduces the boot time by skipping some POST tests.	Enabled	Enables this function.
		Disabled	Disables this function.
Quiet Boot	Determines if POST message or OEM logo (default = black background) is displayed.	Enabled	OEM logo display instead of POST message.
		Disabled	POST message display.
USB Boot	Use this function to enable / disable the option of booting from USB devices.	Enabled	Enables this function.
		Disabled	Disables this function.
SD Card Boot	Use this function to enable / disable the option of booting from SD cards. **NOTE:** The SD Memory Card Slot has not yet been fully released because it is still in development. Therefore, the use of SD Memory cards for Booting is not permitted.	Enabled	Enables this function.
		Disabled	Disables this function.

Boot Setting	Description	Setting Options	Effect
PXE Boot to LAN	Use this function to enable / disable the option of booting from LAN (ETH).	Enabled	Enables this function.
		Disabled	Disables this function.
ACPI Selection	Option for setting the power option specifications to support. The ACPI functions must be supported by the drivers and operating systems in use.	Acpi 1.0B	ACPI functions in accordance with v1.0B
		Acpi 3.0	ACPI functions in accordance with v3.0
		Acpi 4.0	ACPI functions in accordance with v4.0
Legacy	Configuration and display of the Boot sequence.	Enter	Opens the submenu.

Exit Menu

Exit Menu

```
                        InsydeH2O Setup Utility              Rev. *

   Main  OEM Features  Advanced  Security  Power  Boot  Exit


                                                  Exit system setup and
      Exit saving changes                         save your changes.
      Save Change Without Exit
      Exit discarding changes
      Load Optimal Defaults
      Load Custom Defaults
      Save Custom Defaults
      Discarding Changes




   F1   Help       ↑↓ Select Item    F5/F6 Change Values    F9   Setup Defaults
   Esc  Exit       ↔  Select Menu     Enter Select ▶ SubMenu  F10  Save and Exit
```

The following table shows the **Exit** menu setting options:

BIOS Setting	Description	Setting Options	Effect
Exit saving changes	Close BIOS setup with this item. Changes made are saved in CMOS after confirmation, and the system is rebooted.	OK / Cancel	–
Save Change Without Exit	After this is confirmed, any changes that have been made will be saved to the CMOS.	OK / Cancel	–
Exit discarding changes	Use this option to close BIOS setup without saving the changes made. The system is then rebooted.	OK / Cancel	–
Load Optimal Defaults	This item loads the CMOS default values defined by the Mode / Node switch settings. These settings are loaded for all BIOS configurations.	OK / Cancel	–
Load Custom Defaults	This item loads the CMOS values defined by the Mode / Node switch settings. These settings are loaded for all BIOS configurations.	OK / Cancel	–

BIOS Setting	Description	Setting Options	Effect
Save Custom Defaults	Saves defined CMOS vales. These settings are saved for all BIOS configurations.	OK / Cancel	–
Discarding Changes	In the event that settings were made which the user can no longer remember, changes can be reset as long as they haven't been saved.	OK / Cancel	–

BIOS Default Settings

If the function **load setup defaults** is chosen in the **Main** BIOS setup menu, or if exit is selected (or [F9] is pressed) in the individual setup screens, the default BIOS settings are the optimized values that will be used.

Hardware Modifications

8

Subject of this Chapter

This chapter is about the hardware modifications for the Magelis Panel PC.

You can use optional units, Main Memory and CF cards manufactured by Schneider Electric, as well as commercial devices and boards with this product.

What Is in This Chapter?

This chapter contains the following topics:

Topic	Page
Before Modifications	86
Compact Flash (CF) Card Installation and Removal	88
USB Cable Attachment	90

Before Modifications

Overview

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 Panel 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 24 Vdc when operating the Panel PC.

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

⚠ DANGER

EXPLOSION HAZARD

● Always confirm the ANSI/ISA 12.12.01 and CSA C22.2 N° 213 hazardous location rating of your device before installing or using it in a hazardous location.
● To power on or power off a Panel PC installed in a Class I, Division 2 hazardous location, you must either:
  ● Use a switch located outside the hazardous environment, or
  ● Use a switch certified for Class I, Division 1 operation inside the hazardous area.
● Do not connect or disconnect equipment unless power has been switched off or the area is known to be non-hazardous. This applies to all connections including power, ground, serial, parallel, and network connections.
● Never use unshielded / ungrounded cables in hazardous locations.
● Use only non-incentive USB configuration.
● When enclosed, keep enclosure doors and openings closed at all times to avoid the accumulation of foreign matter inside the workstation.

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

During operation, surface temperatures of the rear metal housing may reach 70 °C (158 °F).

⚠ WARNING

RISK OF BURNS

Do not touch the surface of the rear metal housing 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 plastic installation fastener.
● When installing or removing screws, ensure that they do not fall inside the Panel PC chassis.

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

⚠ CAUTION

STATIC SENSITIVE COMPONENTS

Panel 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.

Compact Flash (CF) Card Installation and Removal

Preparing to Use a CF Card

The Panel PC operating system views the CF Card as a hard disk. Proper handling and care of the CF Card helps extend the life of the Card. Familiarize yourself with the Card prior to attempting insertion or removal of the Card.

⚠ ⚠ 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 Panel 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 24 Vdc when operating the Panel PC.

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

⚠ CAUTION

COMPACT FLASH CARD DAMAGE AND DATA LOSS

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

Failure to follow these instructions can result in injury or equipment damage.
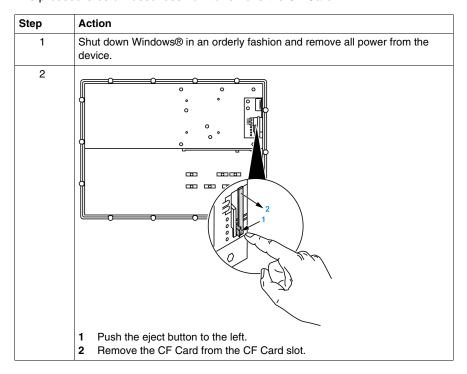
Inserting the CF Card

The procedure below describes how to insert the CF Card.

Step	Action
1	Shut down Windows in an orderly fashion and remove all power from the device.
2	Insert the CF Card firmly into the CF card slot, and check that the eject button pops out.

Removing the CF Card

The procedure below describes how to remove the CF Card.

Step	Action
1	Shut down Windows® in an orderly fashion and remove all power from the device.
2	 **1** Push the eject button to the left. **2** Remove the CF Card from the CF Card slot.

Data Writing Limitation

The CF Card is limited to approximately 100,000 write operations. Back up all CF Card data regularly to another storage media.

CF Card Data Backup

Refer to the relevant procedure in the Software Installation Guide for Magelis Industrial Panel PC and Terminals, shipped with the product.

USB Cable Attachment

Introduction

When using a USB device, attaching the USB cable with the Panel PC's cable clamp (located on the rear side) prevents the USB device from disconnecting.

⚠ ⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION OR ARC FLASH

Read and understand the safety information in Before modifications *(see page 86)* before attempting this procedure.

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 environment when making this determination.
- Securely attach power, communication, and external accessory cables to the panel or cabinet.
- Use only commercially available USB cables.

Failure to follow these instructions can result in death, serious injury, or equipment damage.
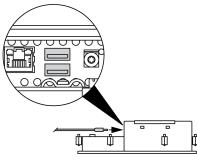
USB Cable Clamp Attachment

The table below describes how to attach the USB cable:

Step	Action
1	Shut down Windows® in an orderly fashion and remove all power from the device.
2	Place the unit on a clean, level surface with the display facing downward. Place a soft non-abrasive pad on the surface before placing the unit upon it.
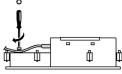
Step	Action
3	Untighten the cable clamp:
4	Connect the USB cable to the USB connector: **NOTE:** ● When using two USB ports, be sure to first connect one USB cable to the lower USB connector, and then connect the second USB cable to the upper USB connector. ● When using only one of the USB ports, be sure to use the lower USB connector. This allows you to easily attach the second USB cable in the future.
5	Pass the USB cable into the cable clamp and securely tighten the cable clamp: **NOTE:** Be sure to respect the bending requirements for your USB cable.

Installation

III

Subject of this Part

This part describes the product installation.

What Is in This Part?

This part contains the following chapters:

Connections to PLCs

9
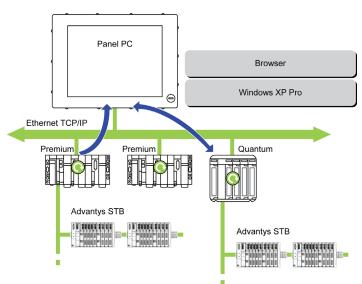
Connection to PLCs

Introduction

Two different kinds of architecture are possible when connecting the Panel PC to PLCs:
- Transparent Ready Architecture
- Traditional Architecture

Transparent Ready Architecture
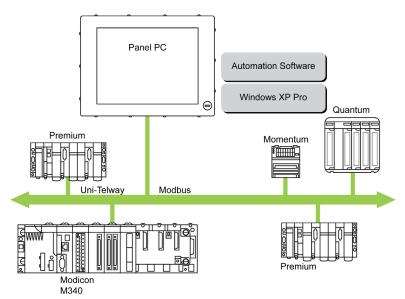
With its built-in Ethernet 10/100 Mbps ports, you can integrate the Panel PC into *full Ethernet* architectures, such as Transparent Ready. Transparent Ready devices in this type of architecture enable transparent communication over the Ethernet TCP/IP network. Communication services and Web services permit the sharing and distribution of data between levels 1, 2 and 3 of the Transparent Ready architecture.

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

- Basic servers embedded in field devices (Advantys STB/Momentum distributed I/O, ATV 71/38/58 starters, OsiSense identification systems, and so on).
- FactoryCast Web servers embedded in Modicon PLCs (TSX Micro, Premium and Quantum) or the FactoryCast gateway. The following services are available as standard (without the need for additional programming): alarm management, comprehensive view management and Web home pages created by users.
- FactoryCast HMI Web servers embedded in Modicon Premium and Quantum PLCs which also provide basic data management services, automatic e-mail sending triggered by specific process events and arithmetic and logic calculations for data preprocessing.

Traditional Architecture
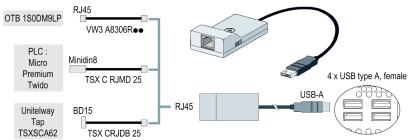
The Panel PC terminal with Vijeo Designer automation software can be used in fieldbus architectures such as Uni-Telway/Modbus or Fipway/Modbus Plus.

The Panel PC terminal can connect to Uni-Telway, Modbus, and Fipway 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 and Uni-Telway with the TSXCUSB485 converter enables the iPC to connect to remote devices using an RS-485 interface.
    The Panel PC, compatible with Modbus and Uni-Telway, requires the standard Schneider drivers provided with software such as Unity Pro, PL7-Pro or a driver on the CD called TLXCDDRV20M. An example is provided in the drawing below:

  - 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 drawing below:

(1) Requires the *X-Way drivers* CD-ROM, TLXCDDRV20M.
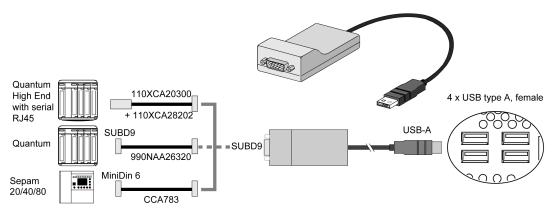
Cables and Converters

For using different types of PLCs, the following cables and converters are required:
- TSX PCX 1031 connection cable for Nano, Micro and Premium.
  This cable is supplied with Unity Pro, PL7 Pro and PL7 Junior software.
- FT20CBCL30 connection cable for the Series 7 family (including TSX 27 PLCs, and TSX/PMX 47/67/87/107 PLCs).
  This cable is supplied with the XTEL Pack software.
- TSX17ACCPC converter for TSX 17 LCs.
- TSXCUSB232 converter for connecting the iPC, via an USB port, to remote devices using an RS-232C interface.

NOTE: This device, compatible with Modbus and Uni-Telway, requires the standard Schneider drivers provided with software such as Unity Pro, PL7-Pro or a driver on the CD called TLXCDDRV20M.

An example using the TSXUSB232 converter is provided in the drawing below:

Quantum
High End
with serial
RJ45

110XCA20300

+ 110XCA28202

Quantum

SUBD9

990NAA26320

SUBD9

USB-A

4 x USB type A, female

Sepam
20/40/80

MiniDin 6

CCA783

System Monitor

10

Subject of this Chapter

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

What Is in This Chapter?

This chapter contains the following topics:

Topic	Page
System Monitor Interface	100
System Monitor Setting	105

System Monitor Interface

Overview
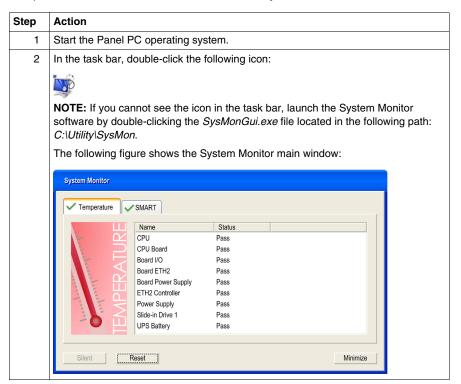
The System Monitor software enables you to monitor the following system parameters:

● **Temperature**
● **SMART**

Depending on the configuration *(see page 105)*, if thresholds are exceeded the System Monitor Software alerts via a popup message *(see page 104)*, sound, buzzer and an entry in the windows event log. You can configure *(see page 106)* a system shutdown when an alarm occurs.
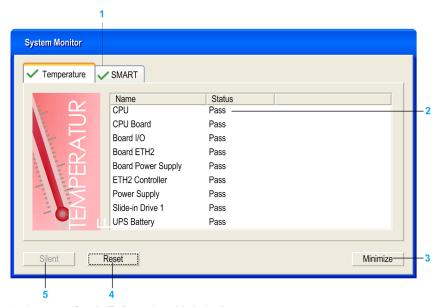
Accessing the System Monitor

The procedure below shows how to access the System Monitor interface:

Step	Action
1	Start the Panel PC operating system.
2	In the task bar, double-click the following icon: **NOTE:** If you cannot see the icon in the task bar, launch the System Monitor software by double-clicking the *SysMonGui.exe* file located in the following path: *C:\Utility\SysMon*. The following figure shows the System Monitor main window:
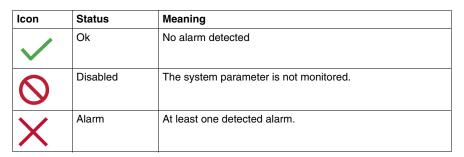
System Monitor Interface Description

The System Monitor interface shows all possible parameters and their actual status in system parameter tabs.
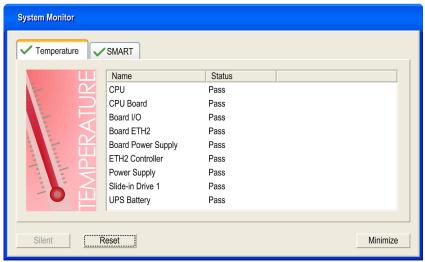

1 Icon specific tab (Refer to the table below).
2 Item name and status.
3 Minimize the System Monitor to the system tray.
4 Resets alarmed item.
5 Disable buzzer and sound. Only active when sound or buzzer is playing.

The following table describes the icons of the system parameter tab:

Icon	Status	Meaning
	Ok	No alarm detected
	Disabled	The system parameter is not monitored.
	Alarm	At least one detected alarm.

Temperature Status

The following figure shows the **Temperature** tab:
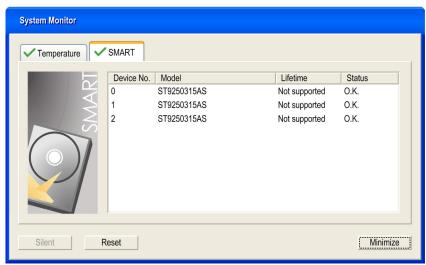
The following table describes the status messages of temperature parameters:

Status	Meaning
Pass	No alarm detected
Error	Alarm (limit exceeded)
Disabled	No alarm monitoring
***	Service is not running

SMART Status

The **SMART** status monitors the hard disk.
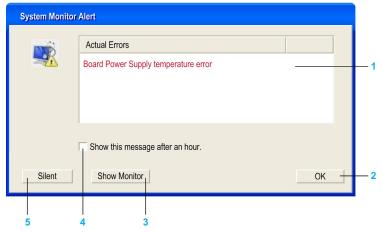
The following figure shows the **SMART** tab:

NOTE: In addition to the **Status** column, the **SMART** tab shows a column for the device lifetime. If the device has lifetime support, a **Lifetime** value in percent with a bar graph is displayed, otherwise "**Not supported**" is shown.

The following table describes the status message of the Panel PC drives:

Status	Meaning
O.K.	No alarm detected
Alert	Failure reported by SMART or disk life-time reached
Disabled	No alarm monitoring
***	Service is not running

Popup Window Description

When an alarm is detected the following popup window is displayed:

1. Shows the alarm or item that can be reset.
2. Closes the System Monitor Alert window.
3. Shows the main window.
4. If the check box is selected, closes the window for one hour even though the alarm is active. (A new alarm shows the window again).
5. Disable buzzer and sound. Only active when sound or buzzer is playing.
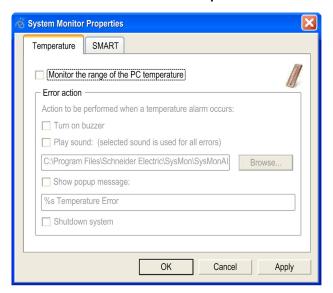
System Monitor Setting

Overview

You can set the System Monitor parameters and specify the type of alarm in the System Monitor applet in the Windows Control Panel.

Each system parameter has its own tab.

Use the following dialog box tabs to display the monitoring parameters and set up the various elements to monitor.

Temperature - System Monitor Properties

The screenshot below shows the **Temperature** tab:

Field	Description
Monitor the range of the PC temperature	Select this check box to enable and begin monitoring the PC temperature. When enabled *(see page 106)*, set the **Error action**.

SMART - System Monitor Properties

The screenshot below shows the **SMART** tab:

Field	Description
Monitor the function of the built-in hard disks	Select this check box to enable and begin monitoring the built-in hard disks. When enabled *(see page 106)*, set the **Error action**.

Error Action Configuration

Field	Description
Turn on buzzer	Select this check box to enable the buzzer.
Play sound	Select this check box to enable the sound that is used for all detected errors. Specify the sound file path (**Browse...** button).
Show popup message	When this check box is selected, status messages are diplayed in the form of a popup.
Shutdown system	If you want the system to stop when an error is detected, select this check box. Not available in **SMART** tab.

Maintenance

11

Subject of this Chapter

This chapter covers maintenance of the Panel PC.

What Is in This Chapter?

This chapter contains the following topics:

Topic	Page
Reinstallation Procedure	108
Regular Cleaning and Maintenance	109

Reinstallation Procedure

Introduction

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

Precautions to be taken:

- 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.

Before Reinstallation

Hardware required:
- Reinstallation DVD-ROM
- External DVD drive, compatible with DVD+R DL format, and with USB connection to the Panel PC.

Setting up the hardware:
- Shut down Windows® in an orderly fashion and remove all power from the device.
- Disconnect all external peripherals.

NOTE: Save all important data on the hard drive or Compact Flash card (the reinstallation process will erase all data). The reinstallation process will return the computer to its factory settings.

Reinstallation

Refer to the relevant procedure in the Restore & Documentation DVD-ROM.

Regular Cleaning and Maintenance

Introduction

Inspect the 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?

The following describes service/maintenance work 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 Panel 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 24 Vdc when operating the Panel PC.
Failure to follow these instructions will result in death or serious injury.

⚠ DANGER

EXPLOSION HAZARD

- Always confirm the ANSI/ISA 12.12.01 and CSA C22.2 N° 213 hazardous location rating of your device before installing or using it in a hazardous location.
- To power on or power off a Panel PC installed in a Class I, Division 2 hazardous location, you must either:
  - Use a switch located outside the hazardous environment, or
  - Use a switch certified for Class I, Division 1 operation inside the hazardous area.
- Do not connect or disconnect equipment unless power has been switched off or the area is known to be non-hazardous. This applies to all connections including power, ground, serial, parallel, and network connections.
- Never use unshielded / ungrounded cables in hazardous locations.
- Use only non-incentive USB configuration.
- When enclosed, keep enclosure doors and openings closed at all times to avoid the accumulation of foreign matter inside the workstation.

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

During operation, surface temperatures of the rear metal housing may reach 70 °C (158 °F).

⚠ WARNING

RISK OF BURNS

Do not touch the surface of the rear metal housing 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 Panel PC contains one battery, which is needed for backing up:
- the real-time clock (RTC),
- and the SRAM data.

NOTE: The following characteristics, features and limits only apply to this accessory and can deviate from those specified for the entire device. For the device where this accessory is installed, refer to the data provided specifically for the device.

Features	Values
Capacity	950 mAh
Voltage	3 V
Self Discharge at 23 °C (73.4 °F)	< 1% per year
Storage Time	Maximum 3 years at 30 °C (86 °F)
Environmental Characteristics	
Storage Temperature	−20...60 °C (−4...140 °F)
Relative Humidity	0 to 95% non-condensing

Replacing the Battery

⚠⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

Read and understand the safety information in the Regular Cleaning and Maintenance section *(see page 109)* before attempting this procedure.

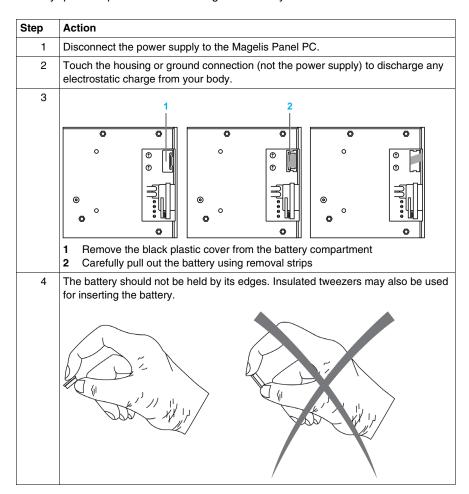**Failure to follow these instructions will result in death or serious injury.**

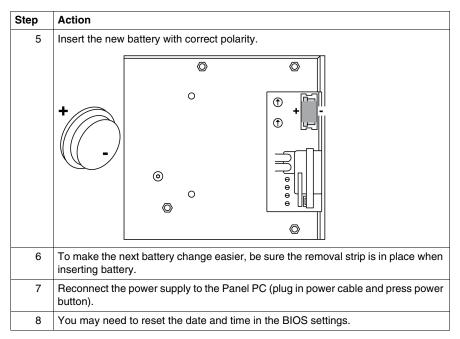## ⚠ DANGER

EXPLOSION, FIRE, OR CHEMICAL HAZARD

- Replace battery with identical type.
- Follow all battery manufacturer's instructions.
- Do not recharge, disassemble, heat above 100 °C (212 °F), or incinerate.
- Use your hands or insulated tools to remove or replace the battery.
- Maintain proper polarity when inserting and connecting a new battery.
- Remove all replaceable batteries before discarding the Panel PC.
- Recycle or properly dispose of used batteries.

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

NOTE:

- The product design allows you to change the battery with the Panel PC either on or off. In some countries, safety regulations do not allow you to change batteries while the unit is on.
- Saved settings will be restored when changing the battery with the power turned off (as the settings are stored in non-volatile EEPROM). However, the date and time must be reset because this data is lost when changing the battery.
- Only qualified personnel can change the battery.

Step	Action
1	Disconnect the power supply to the Magelis Panel PC.
2	Touch the housing or ground connection (not the power supply) to discharge any electrostatic charge from your body.
3	 **1** Remove the black plastic cover from the battery compartment **2** Carefully pull out the battery using removal strips
4	The battery should not be held by its edges. Insulated tweezers may also be used for inserting the battery.

Step	Action
5	Insert the new battery with correct polarity.
6	To make the next battery change easier, be sure the removal strip is in place when inserting battery.
7	Reconnect the power supply to the Panel PC (plug in power cable and press power button).
8	You may need to reset the date and time in the BIOS settings.

NOTE: Replacement of the battery in the Panel PC other than with the type specified in this documentation may present a risk of fire or explosion.

⚠ WARNING

IMPROPER BATTERY CAN PROVOKE FIRE OR EXPLOSION

Replace battery only with identical type: Type CR2477N.

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

Appendices

Accessories

A

Accessories for the Panel PC

Available Accessories

Accessories are available as options. The list of accessories available for the Panel PC is shown below:

Description	Reference
Maintenance Kit including installation fasteners, installation screws	HMIYPNKT11
Compact Flash 2 GB	HMIYCFS0211
Compact Flash 4 GB	HMIYCFS0411
Compact Flash 8 GB	HMIYCFS0811
Power line filter for marine certification	HMIYLFIMAR11

Index