

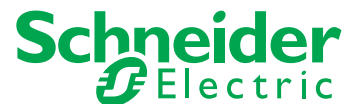
# Magelis Compact 12"

## Industrial PCs User Manual

07/2010

EIO0000000268 .01

[www.schneider-electric.com](http://www.schneider-electric.com)



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

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

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

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

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

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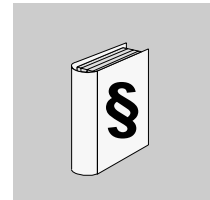
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# Safety Information



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## Important Information

### NOTICE

Read these instructions carefully, and look at the equipment to become familiar with the device before trying to install, operate, 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.



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.



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

## **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.**

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**⚠ CAUTION**

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

**CAUTION**

**CAUTION**, used without the safety alert symbol, indicates a potentially hazardous situation which, if not avoided, **can result in** equipment damage.

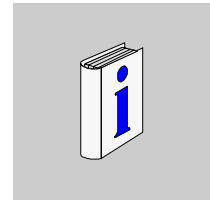
**PLEASE NOTE**

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 the installation, and has received safety training to recognize and avoid the hazards involved.

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## About the Book



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### At a Glance

#### Document Scope

This manual describes the configuration and usage of the Compact 12" from the Magelis industrial PC range.

This computer is designed to operate in an industrial environment and features the very latest technologies.

The Magelis Compact 12" computer is a standalone product.

The product references are:

- MPC KT 22 NAX 2•N
  - 100...240 Vac
  - 12" XGA Touch screen
  - 1.5 GHz processor
  - Hard Disk Drive (HDD)  $\geq$  160 GB
  - Windows® XP Pro
- MPC KT 22 MAX 2•N
  - 100 ... 240 Vac
  - 12" XGA Touch screen
  - 1.5 GHz processor
  - SSD  $\geq$  16 GB
  - Windows® XP Pro
- MPC KT 22 MAX 2•H
  - 100...240 Vac
  - 12" XGA Touch screen
  - 1.5 GHz processor
  - SSD  $\geq$  16 GB
  - Windows® XP Pro and Vijeo Designer Runtime

The characteristics of the Compact unit are detailed in chapter 3: refer to Characteristics of the Compact 12" (*see page 32*).

## Part Number Description

Your product may have a Part Number not included in the enclosed User Manual. The commercial Part Number mentioned in the User Manual are those at the introduction of the product range. New part Numbers may be added during the life cycle of the product range. The new products are similar to products described in the User Manual but with changes, such as storage device size or type, memory size or bundled application software. The differences from the initial part numbers are indicated below:

	<b>MPC</b>		<b>K</b>		<b>T</b>		<b>2</b>		<b>2</b>		<b>•</b>		<b>•</b>		<b>•</b>		<b>•</b>		<b>•</b>		<b>•</b>		<b>•</b>		<b>•</b>		<b>•</b>		
Reference	1		2		3		4		5		6		7		8		9		10		11								

Reference Number	Character Name	Possible Value
1	Part number radical	MPC <b>NOTE:</b> No change over product range
2	Product Type	K=Compact <b>NOTE:</b> No change over product range
3	Front Panel Type	T = Touch screen <b>NOTE:</b> No change over product range
4	Screen size	1 = 8.4" 2 = 12" 5 = 15" 9 = 19"
5	CPU Type	1 = Low End 2 = Mid range 5 = High End
6	Hardware option	N = none M = HDD replaced by SSD 15GB S = HDD replaced by SSD 8GB • = HDD replaced by other storage device type and or size
7	Power Supply	A = AC D = DC
8	Operating System	J = XP embed X = XP Pro • = Other operating system



Reference Number	Character Name	Possible Value
9	Hardware iteration	0 = Initial 1 = First 2 = Second etc
10	Service	0 = None
11	Bundled Software	N = None V = Vijeo Citect Run Time 500 I/O Full L = Vijeo Citect Run Time 1200 I/O Lite H = Vijeo Designer • = Other application software

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

### Validity Note

This documentation is valid for Magelis Compact 12”.

The technical characteristics of the device(s) described in this manual also appear online. To access this information online:

Step	Action
1	Go to <a href="http://www.schneider-electric.com">www.schneider-electric.com</a>
2	In the <b>Search</b> box on the home page, type a model number. Do not type any blank spaces in the model number. To get information on a grouping similar modules, you can use the characters **; do not use dots or xx's.
3	Under <b>All</b> , click <b>Products</b> → <b>Product Datasheets</b> and select the model number that interests you.
4	To save or print a data sheet as a .pdf file, click <b>Export to PDF</b> .

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

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## Related Documents

Title of Documentation	Reference Number
Installation Guide for Magelis Industrial PC and Terminals	35012221
Vijeo Designer Tutorial	35007035
NEMA ICS 1.1	–
Magelis Industrial PC and Terminals - Readme	35012220

You can download these technical publications and other technical information from our website at [www.schneider-electric.com](http://www.schneider-electric.com).

## Product Related Information

Some Smart 12" units are certified for use in Class I, Division 2 hazardous locations as defined in UL 1604, 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 Smart unit and the power supply.
- Always use a properly rated voltage sensing device to confirm power is off.
- Replace and secure all covers or elements of the system before applying power to the unit.
- Use only the specified voltage when operating the Smart 12". The AC unit is designed to use 100...240 Vac input. The DC unit is designed to use 23...25 Vdc. Always check whether your device is AC or DC powered before applying power.

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

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## 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 Smart 12" 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 their equipment governing your particular location.

**NOTE:** The Smart 12" is 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 message above. Examples of such changes include:

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

## WARNING

### UNINTENDED EQUIPMENT OPERATION

Use only Schneider Electric software with the devices described in this manual.

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

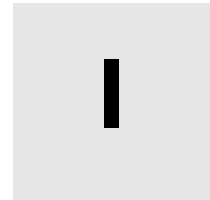
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**User Comments**

We welcome your comments about this document. You can reach us by e-mail at [techcomm@schneider-electric.com](mailto:techcomm@schneider-electric.com).

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# General Overview



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## Subject of this Part

This part provides an overview of the Magelis Compact 12" product.

## What's in this Part?

This part contains the following chapters:

Chapter	Chapter Name	Page
1	Important Information	15
2	Physical Overview	23
3	Characteristics	31
4	Dimensions/Assembly	37



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# Important Information



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## General

This chapter describes safety aspects which are specific to the operation of the Compact.

## What's in this Chapter?

This chapter contains the following topics:

Topic	Page
Federal Communications Commission Radio Frequency Interference Statement - For U.S.A.	16
Qualified Personnel	17
Safety Information for the UK	18
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## 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 residential installation. 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 Compact 12" in such a manner that it does not radiate sufficient electromagnetic energy to cause interference in nearby devices.
- Install and test the Compact 12" to determine that the electromagnetic energy generated by nearby devices does not interfere with the Compact's operation.

### **WARNING**

#### **ELECTROMAGNETIC / RADIO INTERFERENCE**

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

- Increase the distance between the Compact 12" and the interfering equipment.
- Reorient the Compact 12" and the interfering equipment.
- Reroute power and communication lines to the Compact 12" and the interfering equipment.
- Connect the Compact 12" and the interfering equipment to different power supplies.
- Always use shielded cables when connecting the Compact 12" to a peripheral device or another computer.

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



## Qualified Personnel

### General

You must only permit qualified personnel to install, operate, and maintain these products. A qualified person is one who has skills and knowledge related to the constructions and operation of this electrical equipment and the installations, 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. 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),
- as far as preventive or corrective maintenance is concerned, personnel trained and qualified in regulating or repairing automatic and computing devices (for example an operating technician, or an after-sales service technician, etc.).

## Safety Information for the UK

### Earthing and Wiring

#### **WARNING**

##### **UNGROUNDING EQUIPMENT**

- This apparatus must be earthed.
- Use a three-pin plug with a standard three-pin power point.
- Use only three-core extension cords.

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

#### **WARNING**

##### **IMPROPER WIRING**

Wire the equipment as described below:

- Green and Yellow: Earth.
- Blue: Neutral.
- Brown: Live.
- The Green and Yellow wire must be connected to the terminal in the plug marked by the letter E or by the safety earth symbols colored Green, or Green and Yellow.
- The blue wire must be connected to the terminal which is marked by the letter N or colored Black.
- The brown wire must be connected to the terminal which is marked with the letter L or colored Red.

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

**NOTE:** The fact that the equipment operates satisfactorily does not imply that the power point is earthed. If you have any doubt about the effective earthing or wiring of the power point, consult a qualified electrician.

## **WARNING**

### **INCOMPATIBLE POWER SYSTEM**

Do not connect this equipment to an isolation transformer power system:

- An isolation transformer system is a system having no reference between live parts and Earth; the exposed conductive parts of the device frame and enclosure are earthed.
- An isolation transformer system is not permitted where the computer is directly connected to public supply systems in the UK.

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

## Certifications and Standards

### Agency Certifications

The following agencies have certified this product as meeting the standards listed afterwards.

North America:

- Underwriters Laboratories Inc., UL 508/cUL, Industrial Control Equipment

### Compliance Standards

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

North America:

- Federal Communications Commission, FCC Part 15
- Underwriters Laboratories Inc., UL 60950, Information Technology Equipment

Canada:

- Canadian Standards Association, specification C22.2, No.142, Process Control Equipment

Europe: CE

- Directive 2006/95/EC (Low Voltage)
- Directive 2004/108/EC (EMC)
- Programmable Controllers: IEC/EN 61131-2
- EMI: EN55011 (Group 1, Class A) / IEC/EN 61000-3-2, IEC/EN 61000-6-4
- EMS: EN 61000-6-2
- IEC/EN 60950, Information Technology Equipment

Australia:

- C-Tick N998
- Standard AS/NZS CISPR11

### Qualification Standards

Schneider Electric voluntarily tested this product to additional standards. The additional tests performed, and the standards under which the tests were conducted, are specifically identified in Environmental Characteristics (*see page 35*).

### Hazardous Substances

This product is compliant with:

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

## **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.



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# Physical Overview

# 2

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## Subject of this Chapter

This chapter provides a physical overview of the product.

## What's in this Chapter?

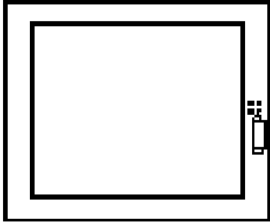
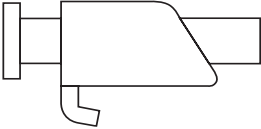
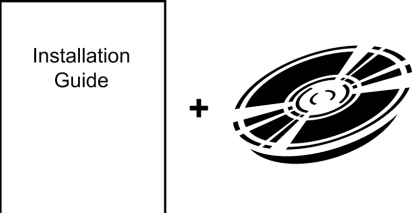

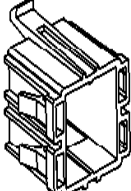
This chapter contains the following topics:

Topic	Page
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Compact Unit Description	26
Interface Specification	29

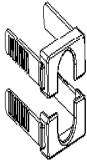
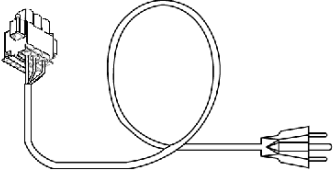
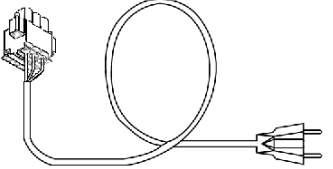
## Package Contents

### Items

The following items are included in the Magelis Compact 12" package. Before using the unit, please confirm that all items listed here are present.

Designation	Figure
MPC KT22 ●●● ●●	
Installation Fasteners (4 per set)	
CD-ROM containing the software required to reinstall the Operating System, the Installation Guide, this User Manual documentation, and the MS Windows EULA. (All product references)	
Gasket	
USB Cover x 2	

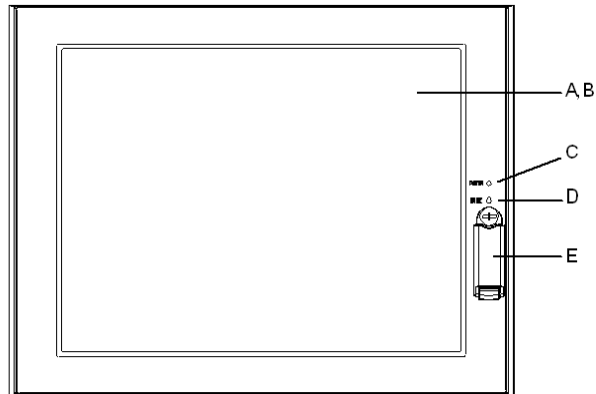


Designation	Figure
USB Holder x 4	 Two identical USB holders, one shown from a top-down perspective and one from a side perspective. Each holder has a U-shaped opening for a USB plug and a small rectangular tab on the side.
AC Power Cord with Terminal Block (US plug) (For the Compact 12" AC only, references MPC KT 22 •AX 2••)	 A line drawing of an AC power cord. On the left is a terminal block with three pins. The cord extends to the right, loops back, and ends in a standard three-prong US AC power plug.
AC Power Cord with Terminal Block (EU plug) (For the Compact 12" AC only, references MPC KT 22 •AX 2••)	 A line drawing of an AC power cord. On the left is a terminal block with three pins. The cord extends to the right, loops back, and ends in a standard two-prong EU AC power plug.

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

## Compact Unit Description

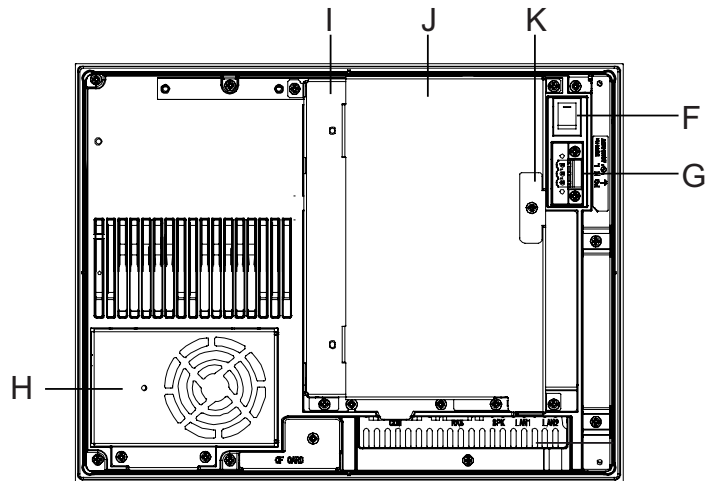
### Front View



- A** Display
- B** Touch Panel
- C** Power LED/RAS Status Lamp
  - Green Lit: Normal
  - Green Blinking: System is not running (Soft OFF state)
  - Orange Lit: System Monitor Error
  - Orange/Red Blinking: Backlight Error
  - Not Illuminated: Power is Off
- D** Hard Disk Drive (HDD)/IDE Access Lamp
  - Green Lit: Access to HDD or IDE
  - Not Illuminated: No Access to HDD or IDE
- E** Front USB Cover

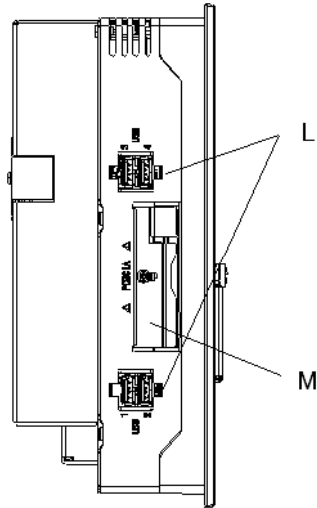
**NOTE:** Soft OFF: OS is shut down but the power line is still live. This is also called *S5 state*. One of the merits of this state is that you can also use the *Wake on LAN* feature.

## Rear View



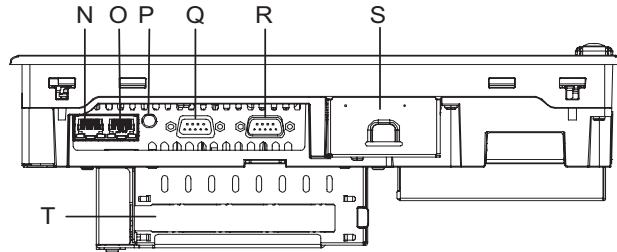
- F** Power Switch
- G** Power Supply Connector
- H** Fan Unit
- I** Expansion Board Base
- J** Expansion Board Cover
- K** Expansion Board Support

### Side View



- L USB Interface
- M PCMCIA

### Bottom View



- N Ethernet LAN2 10/100/1000Base-T (RJ45)
- O Ethernet LAN1 10/100Base-T (RJ45)
- P Speaker Output Interface
- Q RAS Interface
- R Serial Interface (COM1)
- S CF Card Cover
- T Expansion Slot

## Interface Specification

### Communication Connections

#### **⚠ WARNING**

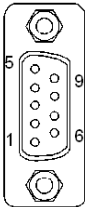
##### **EQUIPMENT DISCONNECTION OR UNINTENDED EQUIPMENT OPERATION**

- 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.**

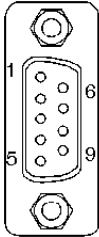
### Serial Interfaces

This interface is used to connect an RS-232C (serial) cable. A D-SUB 9 pin plug connector is used.

Pin Arrangement	Pin No.	RS-232C		
		Signal Name	Direction	Meaning
	1	CD	Input	Carrier Detect
	2	RXD	Input	Receive Data
	3	TXD	Output	Send Data
	4	DTR	Output	Data Terminal Ready
	5	SG	–	Signal Ground
	6	DSR	Input	Data Set Ready
	7	RTS	Output	Request to Send
	8	CTS	Input	Send Possible
	9	RI	Input	Called status display/+ 5 Vdc
	Shell	FG	–	Frame Ground (Common with SG)

**RAS Interface**

The types of sockets for D-SUB 9 pins are listed in the table below:

Pin Arrangement	Pin No.	Signal Name	Meaning
	1	+ 12 Vdc	Output Current: Less than 100 mA Output voltage: 12 Vdc +/- 5 %
	2	DOUT 0 (+)	General Output 0 (+)
	3	DOUT 1 (+)	General Output 1 (+)
	4	DIN 0 (+)	General Input 0 (+)
	5	DIN 1 (+)	General Input 1 (+)
	6	GND	12 Vdc Loop GND
	7	DOUT 0 (-)	General Output 0 (-)
	8	DOUT 1 (-)	General Output 1 (-)
	9	DINCOM	DIN GND Common

Recommended connector: XM2A-0901 Manufactured by Omron Co.

Recommended cover: XM2S-0913 Manufactured by Omron Co.

Jack Screw: XM2Z-0073 Manufactured by Omron Co.

Input (DIN0, 1)

<b>INPUT VOLTAGE RANGE</b>	<b>12...24 Vdc</b>
INPUT CURRENT	Below 10 mA
INNER RESISTOR	3.6 K $\Omega$
INSULATION VOLTAGE	Below 500 Vac
INSULATION	Photocoupler

Output (DOUT 0,1)

<b>OUTPUT VOLTAGE RANGE</b>	<b>24 Vdc</b>
OUTPUT CURRENT	Below 120 mA
INSULATION VOLTAGE	Below 500 Vac
INSULATION	Photocoupler

---

# Characteristics



---

## Subject of this Chapter

This chapter lists the product characteristics.

## What's in this Chapter?

This chapter contains the following topics:

Topic	Page
Characteristics of the Compact 12"	32
Flash Disk Characteristics	34
Environmental Characteristics	35

## Characteristics of the Compact 12''

### Introduction

The characteristics of the Compact 12'' are given below:

### Product Characteristics

Element	Characteristics
Processor	Celeron® M 1.5 GHz, secondary memory cache 512 KB
RAM	512 MB - 1 GB RAM SO-DIMM DDR 200-pin (PC2700) x1 slot
Hard disk	Capacity greater or equal to 160 GB IDE 2.5''
Or Flash disk	Capacity greater or equal to 16 GB (Refer to Flash Disk Characteristics ( <i>see page 34</i> )).
Video processor	Integrated Intel® chipset video, sharing main memory.
Ethernet TCP/IP link	LAN1: 10/100Base-T LAN2: 10/100/1000Base-T
USB ports	4 x USB 2.0 (rear face), 1 x USB 1.1 (front face)
RAS Interface	General Input 2 ch (DIN1 can be used as Reset Input), General Output 2 ch (can be used as Alarm Output). Connector: D-SUB 9 Pin Plug (female)
COM 1 serial ports	RS232C
RGB port	D-SUB 15 Pin x1 (female)
Extension card slot	1 PCI 2.2 interface slot
Memory flash card slot	Compact Flash type
PCMCIA slot	1 port on side (Type II)
Audio port	Stereo speaker out (stereo mini-jack)
Dimensions (WxHxD)	313 x 239 x 103 mm (12.32 x 9.41 x 4.06 in.)
Weight	4.5 kg (9.9 lb)

**NOTE:** If a USB high speed device such as a webcam or memory key isn't recognized by the Compact, or doesn't operate as expected, plug it into USB port #2 and leave USB port #1 empty.



## Display Characteristics

Element	Characteristics
Graphics	XGA TFT active matrix (1024x768 pixels)
Number of colors	260 K colors
Brightness	245 cd/m <sup>2</sup> (typical value)
Brightness Control	4 levels of adjustment
View angle	Vertical 100°, horizontal 120° maximum
Touch sensitive screen	Analog resistive film, resolution 1024x1024
Backlight	CFL - Life span > 50,000 h at 25° C (77° F)

## Power Supply

For the Compact 12" AC (References MPC KT 22 NAX 2••):

Element	Characteristics
Supply voltage	100...240 Vac (Range 85 ... 265 Vac)
Consumption	110 VA (max.)
Short dips	10 ms (20 ms max.)
PCI extension slot capability	Board size 240 x 106.68 mm (9.45 x 4.2 in.) <ul style="list-style-type: none"> <li>● 5 Vdc, 1.5 A</li> <li>● 12 Vdc, 0.5 A</li> <li>● 12 Vdc, 0.1 A</li> <li>● 3.3 Vdc, 0.5 A</li> </ul>

## Operating Systems

The products are delivered with a pre-installed operating system according to the reference ordered.

The products have been tested with the following operating systems: all versions of Microsoft Windows® XP Pro (SP2 and above) operating system.

Reference	Characteristics
MPC KT22 NAX 2•N	Compact with 12" XGA Display, Touch screen, Pentium® M 1.5 GHz, 160 GB HDD, Windows® XP Pro (all versions, SP2 and above) pre-installed, AC supply power.
MPC KT22 MAX 2•N	Compact with 12" XGA Display, Touch screen, Pentium® M 1.5 GHz, 16 GB Flash Disk, Windows® XP Pro (all versions, SP2 and above) pre-installed, AC supply power.
MPC KT22 MAX 2•H	Compact with 12" XGA Display, Touch screen, Pentium® M 1.5 GHz, 16 GB Flash Disk, Windows® XP Pro (all versions, SP2 and above) with Vijeo Designer Runtime pre-installed, AC supply power.

## Flash Disk Characteristics

### Introduction

Two Compact 12" product references offer Flash Disk hard drives (also known as Solid-State Drives or SSDs). There is also a Flash Disk accessory available for use as a replacement or backup hard disk drive. All Flash Disk references are SATA compliant and have no moving parts.

### Characteristics

A Flash Disk (SSD) is a storage device based on semiconductors rather than rotating magnetic platters. The use of semiconductors allows a Flash Disk to perform normal storage functions while providing enhanced levels of performance and reliability. Flash Disk drives use the same industry-standard dimensions and data interfaces as conventional hard disk drives and may be used interchangeably in Compact 12" systems.

The references with Flash Disks share the same characteristics as the other Compact 12" devices except as noted in following table:

Characteristics	Values	Standards
Capacity	16 GB or higher	—
MTBF	>4,000,000 Hours at 25° C (77° F)	—
Data Reliability	< 1 Non-Recoverable Error in 10 <sup>14</sup> Bits Read	—
Endurance	> 2,000,000 write/erase cycles	—
Shock resistance (in operation)	15 g over 11 ms, 3 shocks per axis	IEC 68-2-27 Ea test EN 61131-2 compliant
Shock component value	1000 g, half-sine, 0.5 ms duration 50 g peak	MIL-STD-810F, Method 516.5, Procedure I
Vibration resistance (in operation)	3.5 mm amplitude from 10 to 57.6 Hz 1 g amplitude from 57.6 Hz to 150 Hz	EN 61131-2 compliant
Vibration component value	16.3 g RMS	MIL-STD-810F, Method 514.5, Procedure I, Category 24

**NOTE:** The shock and vibration operating limits for a Compact 12" with a Flash Disk are higher than for references with conventional hard disks. If other Flash Disk and Compact 12" operating limits differ, the more restrictive limits apply.

## Environmental Characteristics

### Characteristics

The environmental characteristics of the Compact 12” are as follows:

Characteristics	Value	Standards
Degree of Protection	IP 65/NEMA4x/12 for the front panel. IP 20 for the rest of the product.	IEC 60529, NEMA 250, EN 61131-2
Pollution Degree	For use in Pollution Degree 2 environment	–
Surrounding air temperature during operation	0 ... 50 °C (41 ... 122 °F)	EN 61131-2, UL1604 compliant
Storage temperature	– 20 ... 60 °C (– 4 ... 140 °F)	IEC 60068-2-2 tests Bb and Ab, IEC 60068-2-14 tests Na and EN 61131-2 compliant
Operating altitude	2000 m (6560 ft) max	EN 61131-2
Vibration (storage)	3.5 mm amplitude from 5 to 9 Hz, 1 g amplitude from 9 Hz to 150 Hz	EN 61131-2
Vibration (in operation)	0.075 mm amplitude from 10 to 57.6 Hz, 1 g amplitude from 57.6 Hz to 150 Hz	EN 61131-2
Shock Resistance (in operation)	15 g over 11 ms	IEC 60068-2-27 Ea test and EN 61131-2 compliant
Surrounding air humidity during operation	10 ... 85% RH (Wet bulb temperature: 29 °C (84.2 °F) max. - no condensation)	–
Storage humidity	10 ... 85% RH (Wet bulb temperature: 29 °C (84.2 °F) max. - no condensation)	EN 61131-2
Immunity to interference	High frequency interference	EN 61131-2, IEC 61000-4-3/6 level 3
	Electromagnetic waves	Class A/EN 55022/55011
Additional Standards	Information Technology Equipment	IEC 60950
	Industrial Control Equipment	UL 508 / cUL



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# Dimensions/Assembly



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## Subject of this Chapter

This chapter concerns the dimensions and the panel mounting of products.

## What's in this Chapter?

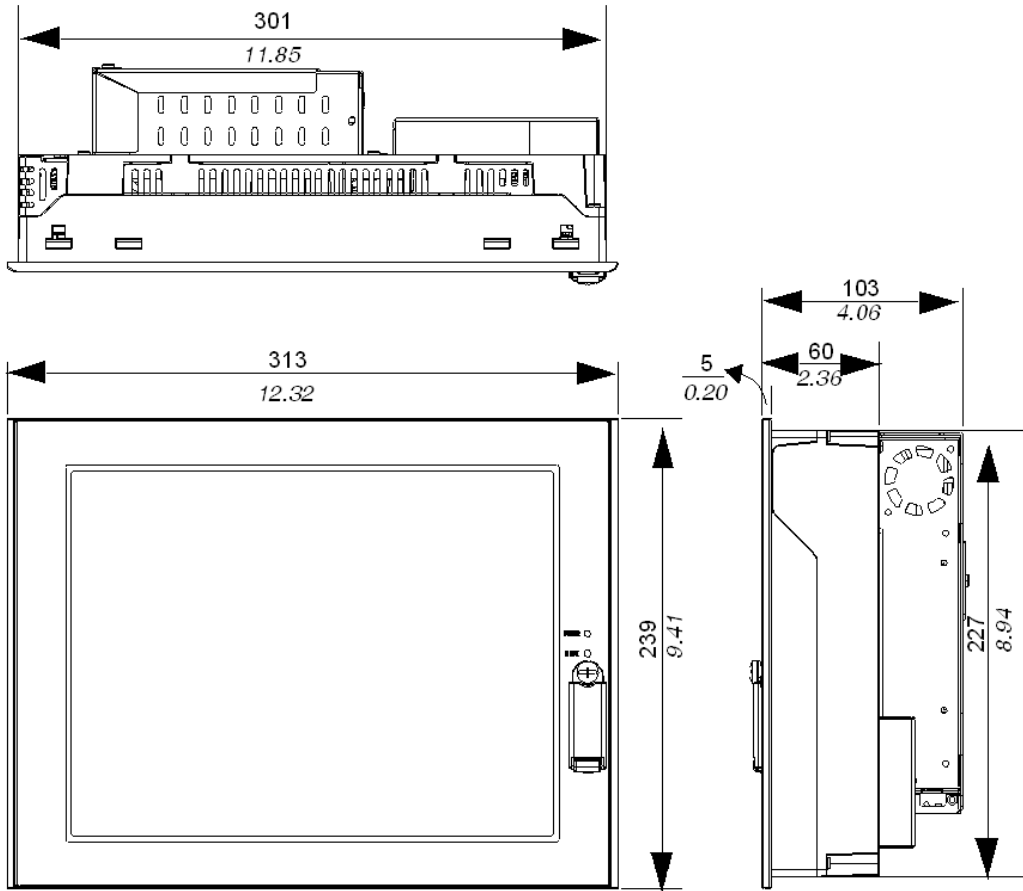
This chapter contains the following topics:

Topic	Page
Dimensions	38
Panel Mounting	41
Preparing to Install the 12" Compact	43

## Dimensions

### Dimensions of the Compact iPC Unit

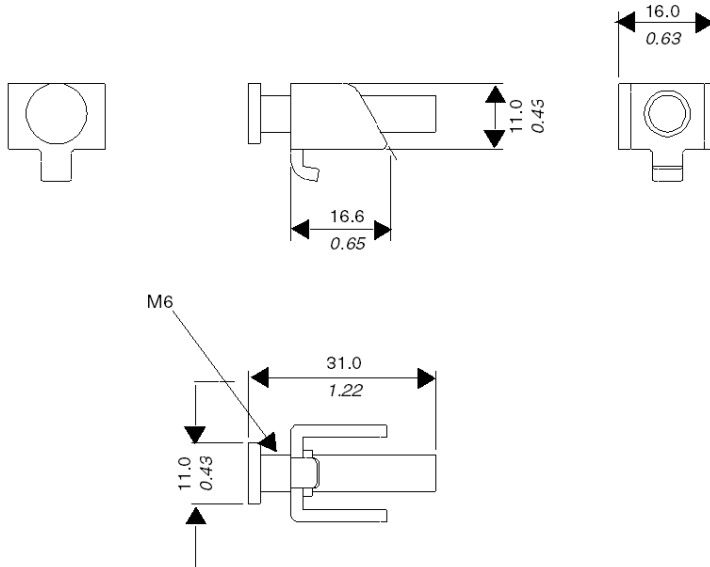
mm  
in.



### Installation Fastener Dimensions

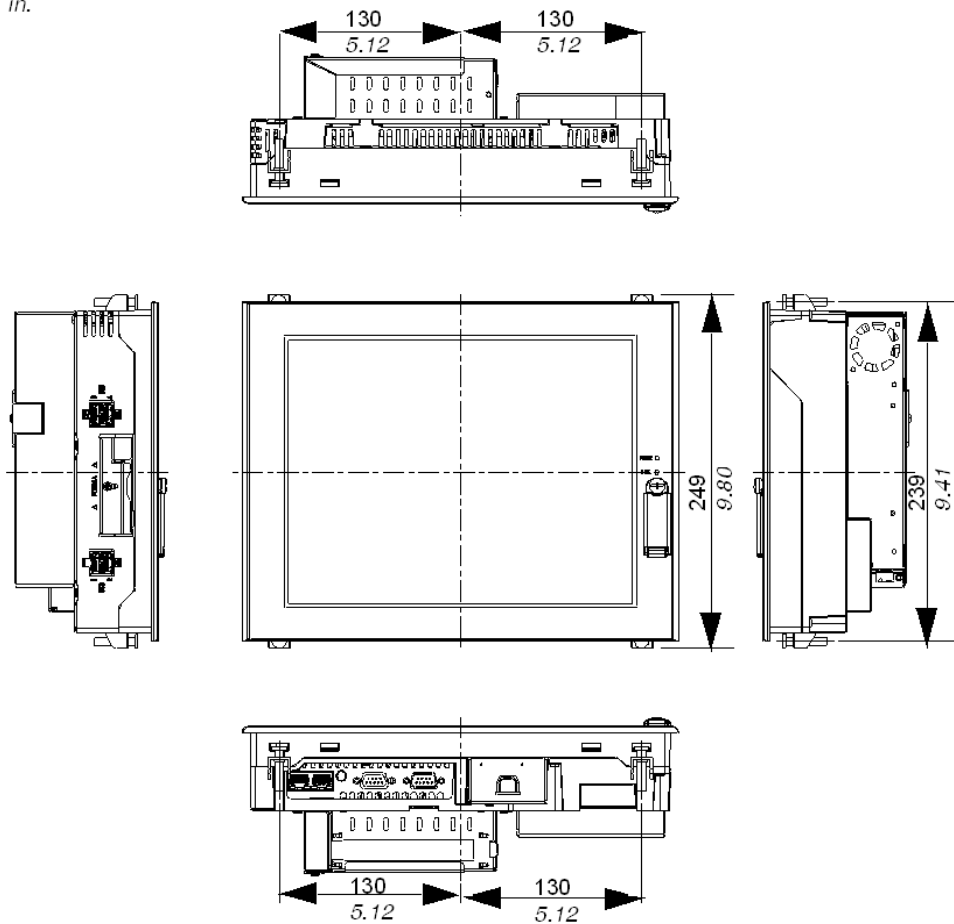
The products are designed to be mounted in a cabinet with the attachments described below:

$\frac{\text{mm}}{\text{in.}}$



**Dimensions with Installation Fasteners**

mm  
*in.*





## Panel Mounting

### Installation Location

#### **WARNING**

##### **UNINTENDED EQUIPMENT OPERATION**

Overheating can cause incorrect software behavior, therefore:

- Avoid placing the Compact unit next to other devices that might cause overheating.
- Keep the Compact unit away from arc-generating devices such as magnetic switches and non-fused breakers.
- Avoid using the Compact unit in environments where corrosive gases are present.
- Install the Compact in a location providing a minimum clearance of 50 mm (2 in.) or more from all adjacent structures and equipment.
- Install the Compact with sufficient clearance to provide for cable routing and cable connector dimensions.

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

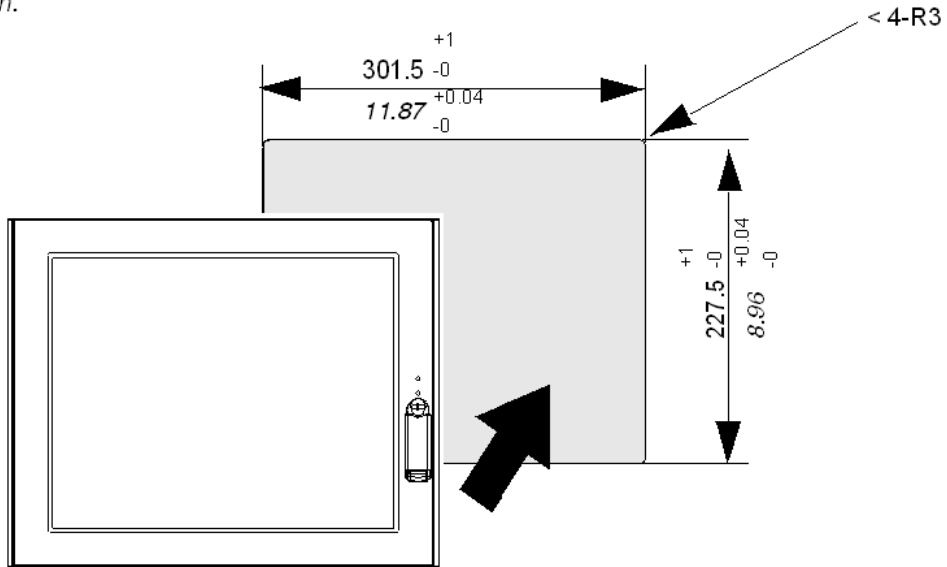
### Creating a Panel Cut-out for Cabinet Installation

For cabinet installation, it is necessary for the correct sized opening to be cut in the installation panel. The installation gasket and installation fasteners are required when installing the Compact.

**Dimensions**

The dimensions of the opening required to install the Compact are shown below:

mm  
in.

**NOTE:**

- Ensure the thickness of the installation panel is from 1.6 to 10 mm (0.06 to 0.39 in.)
- All panel surfaces used should be strengthened. Due consideration should be given to the product's weight, especially if high levels of vibration are expected and the product's installation surface can move. Metal reinforcing strips can be attached to the inside of the panel near the panel cut-out, to increase the strength of the panel.
- Ensure all installation tolerances are maintained.
- The Compact 12" is designed for use in a NEMA Type 4X or 12 enclosure.

## Preparing to Install the 12” Compact

### Vibration and Shocks

Extra care should be taken with respect to the specification concerning vibration levels (Refer to Environmental Characteristics - Vibration (*see page 35*)) when installing or moving the Compact unit. If the Compact unit is moved, for example, while it is installed in a rack equipped with caster wheels, the unit can receive excessive shock and vibration.

### CAUTION

#### EXCESSIVE VIBRATION

- Plan your installation activities so that device shock and vibration tolerances are not exceeded.
- Ensure that the panel opening and thickness are within the specified tolerances.
- Before mounting the Compact unit into a cabinet or panel, ensure that the installation gasket is attached to the unit. The installation gasket provides additional protection from vibration.
- The recommended torque for mounting the Compact 12” device is 0.5 N•m (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 Compact. The gasket is required to meet the protection ratings (IP65, IP20) of the unit and provides additional protection from vibration. Even if moisture protection is not required, install the gasket delivered with your Magelis product.

### CAUTION

#### LOSS OF SEAL

- Inspect the installation gasket prior to installation or reinstallation, and periodically as required by your operating environment.
- Replace the gasket 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 Compact into a panel that is flat and free of scratches or dents.
- Tighten the installation fasteners using a torque of 0.5 N•m (4.5 lb-in).

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

The corresponding gasket is provided in the maintenance kit ref: MPC YK 20 MNT KIT.

## Installation Fasteners

### CAUTION

#### OVERTORQUE AND LOOSE HARDWARE

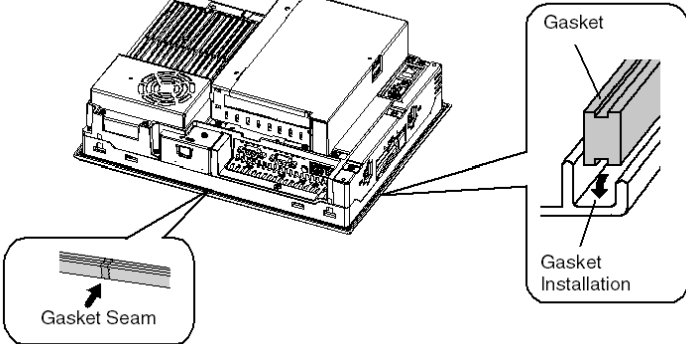
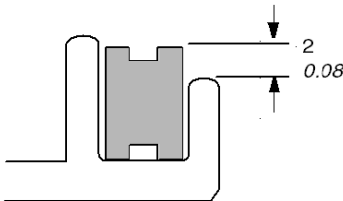
- Do not exert more than 0.6 N•m (5.3 lb-in) of torque when tightening the installation fastener, enclosure, accessory, or terminal block screws. Tightening the screws with excessive force can damage the plastic casing of the Compact 12”.
- When installing or removing screws, ensure that they do not fall inside the Compact 12” unit's chassis.

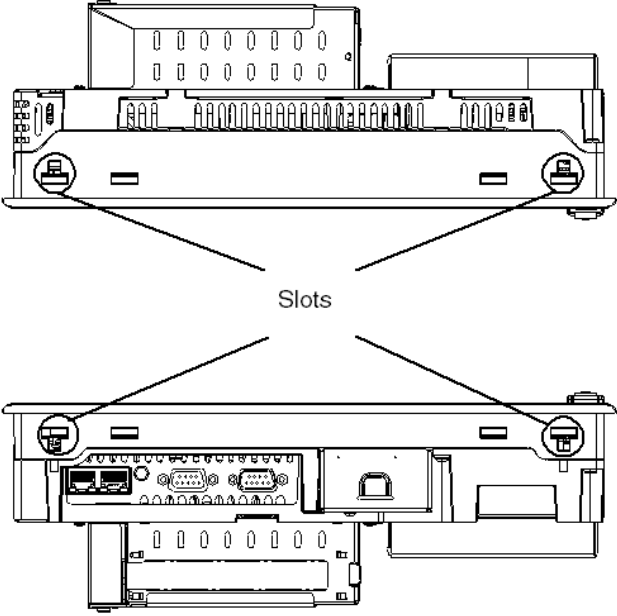

**Failure to follow these instructions can result in injury or equipment damage.**

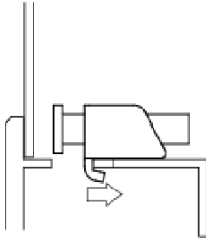
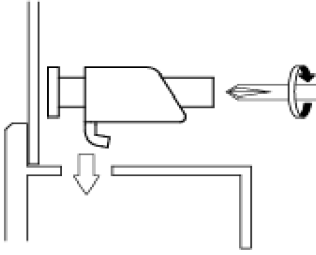
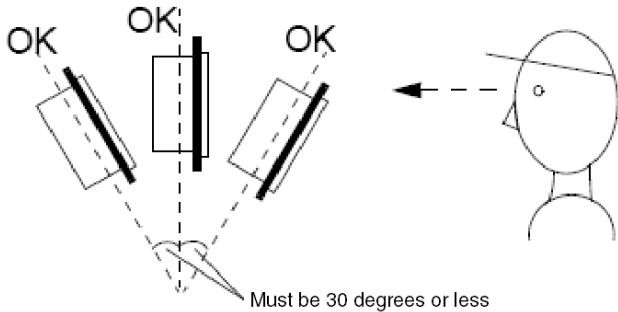
**NOTE:** The screw installation fasteners are required for NEMA4 protection.

## Installing the Compact Unit

Follow the steps given below when installing the Compact unit.

Step	Action
1	<p>Place the unit face down on a dry, soft surface and attach the gasket to the rear side in the installation groove (see picture below).</p> 
2	<p>Check that the gasket is correctly attached to the unit. The upper surface of the gasket should protrude evenly approximately 2 mm (0.08 in.) out of the groove.</p> <p><math>\frac{\text{mm}}{\text{in.}}</math></p> 

Step	Action
<p>3</p>	<p><b>Installation Fasteners</b>                      Insert each installation fastener securely into the slot's recess at the top and bottom of the unit.</p>  <p style="text-align: center;">Slots</p>
<p>4</p>	<p><b>Attaching and Securing the Rear Installation Attachments</b></p>  <p><b>NOTE:</b></p> <ul style="list-style-type: none"> <li>● To permit a high degree of moisture resistance, the torque should be 0.5 N•m (4.5 lb-in).</li> <li>● The corresponding installation attachments can be purchased as spare parts with the maintenance kit ref: MPC YK 20 MNT KIT.</li> </ul>

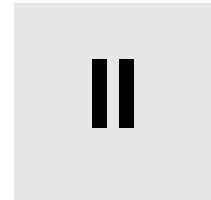
Step	Action
5	<p>Insert each of the fasteners. Pull the fastener back until it is flush with the rear of the attachment hole.</p> <p><b>NOTE:</b> The corresponding installation attachments can be purchased as spare parts with the maintenance kit ref.: MPC YK 20 MNT KIT.</p> 
6	<p>Use a screw driver to tighten each fastener screw to 0.5 N•m (4.5 lb-in).</p> 
7	<p><b>Compact unit Viewing Angle</b> Ensure that the panel's viewing angle is tilted no more than 30 degrees from parallel to the operator (i.e. operator is directly in front).</p>  <p>Must be 30 degrees or less</p>





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# Implementation



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## Subject of this Part

This part describes the implementation of the product.

## What's in this Part?

This part contains the following chapters:

Chapter	Chapter Name	Page
5	Getting Started	51
6	Main Power Connection	53
7	Configuration of the BIOS	59
8	Hardware Modifications	63



---

## Getting Started



# 5

---

### First Power-up

**NOTE:** Limitations on your usage of the Windows® XP Pro Operating System (all versions, SP2 and above) are noted in Microsoft's End User License Agreement (EULA). This EULA is included on the CD-ROM. Please read this document before first power-up.




### Preparation

On the first power-up of your MPC••, it is necessary to customize and set the parameters for your system. Refer to the Magelis Installation Guide for assistance in installing, customizing and parameterizing your Schneider Electric applications (Unity Pro, PL7 Junior or PL7 Pro, Vijeo Designer, Vijeo Designer Lite, OFS, MMI 17, XBT-L1000, PL7-07).

## Some Useful Tools

A selection of program icons are displayed on the launch bar which can be used to launch some useful programs.



Icon	Usage
	This is the virtual keyboard. Click on it, and a graphical keyboard is displayed. It is useful when you do not want to connect, or can not connect a keyboard to the unit.
	This is the virtual mouse button selector. It allows the user to associate the next <i>click</i> to a <i>right click</i> . For instance, this tool permits the use of context sensitive menus.
	Configuration Panel / Brightness: This link allows the user to change the brightness of the screen (useful for dark areas).

---

# Main Power Connection



---

## Subject of this Chapter

This chapter describes the connection of the Compact 12" to the mains power supply.

## What's in this Chapter?

This chapter contains the following topics:

Topic	Page
Grounding	54
Connecting the AC Power Cord	57

## Grounding

### Overview

The grounding resistance between the Compact's Frame Ground (FG) and Ground must be  $100\ \Omega$  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, please refer to the table below for maximum line lengths for the thickness of wire.

### Ground Wire Dimensions

Wire Thickness	Maximum Line Length
2 mm <sup>2</sup> (14 AWG)	30 m (98 ft.)
	60 m (196 ft.) round trip.
1.5 mm <sup>2</sup> (16 AWG)	20 m (65 ft.)
	40 m (131 ft.) round trip.

### Precaution

**⚠ WARNING**

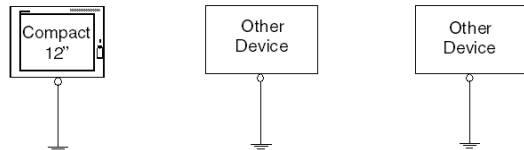
**UNINTENDED EQUIPMENT OPERATION**

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

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

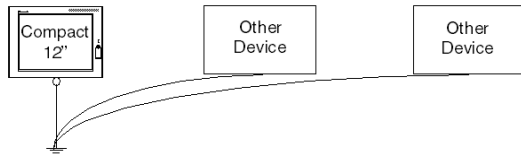
### Dedicated Ground

Connect the Frame Ground (FG) to a dedicated ground.



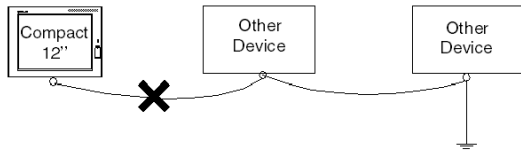
### Shared Ground Allowed

If a dedicated ground is not possible, use a shared ground, as shown below.



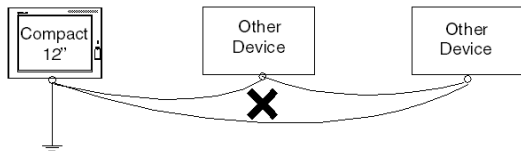
### Shared Ground not Allowed

Do not connect the Compact 12'' unit to ground through other devices using the SG terminal.



### Shared Ground - Avoid Ground Loop

When connecting an external device to a Compact with the Shield Ground (SG), ensure that no ground loop is created. The Compact's FG and SG are connected internally.



## Grounding Procedure

When grounding, follow the procedures given below:

Step	Action
1	Check that the grounding resistance is 100 $\Omega$ 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. <b>Note: The SG and FG terminals are connected internally in the unit.</b>
3	Wherever possible, use 2 mm <sup>2</sup> (14 AWG) wire to make the ground connection. If this isn't possible, ensure that the grounding wire gauge and length conform to the table in Ground Wire Dimensions ( <i>see page 54</i> ). Create the connection point as close to the unit as possible and make the wire as short as possible.

## Grounding I/O Signal Lines

### WARNING

#### UNINTENDED EQUIPMENT OPERATION

- Do not wire I/O lines in proximity to power cables, radio devices, or other equipment that may cause electromagnetic interference.
- 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 Compact's Frame Ground (FG).

Electromagnetic radiation may interfere with the Compact's control communications.

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



## Connecting the AC Power Cord

### Precaution

When connecting the Compact unit's power cord to the power connector on the unit, first ensure that the power cord is disconnected from the main 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.
- Always use a properly rated voltage sensing device to confirm power is off.
- Unplug the power cable from both the Compact unit and the power supply.
- Replace and secure all covers or elements of the system before applying power to the unit.
- Use only the specified voltage when operating the Compact 12". The AC unit is designed to use 100...240 Vac input.

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

### **WARNING**

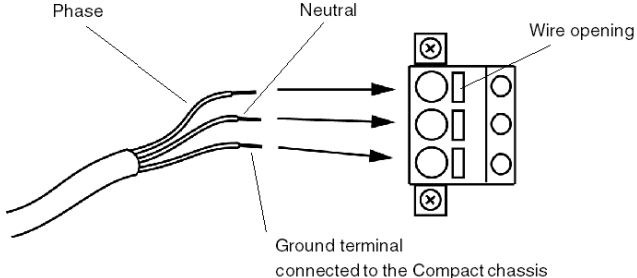
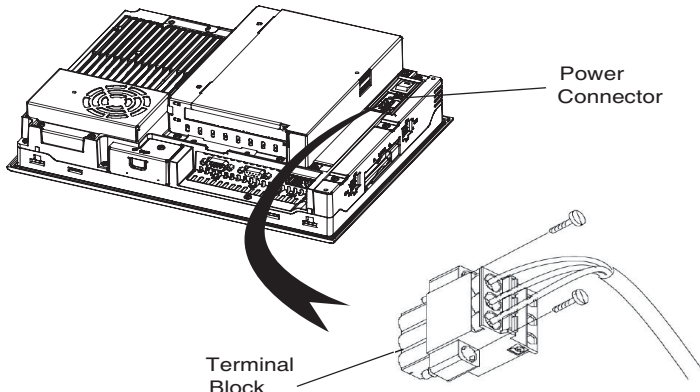
#### **EQUIPMENT DISCONNECTION OR UNINTENDED EQUIPMENT OPERATION**

- Ensure that power, communication, and accessory connections do not place excessive stress on the ports. Consider the vibration 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.**

**Power Cord Connection (AC Compact Version)**

The table below describes how to connect the power cord to the Compact unit:

Step	Action
1	<p>Connect the power cord (refer to Package Contents (see page 24)) to the terminal block as shown below:</p>  <p>Phase</p> <p>Neutral</p> <p>Wire opening</p> <p>Ground terminal connected to the Compact chassis</p>
2	<p>Place and screw the terminal block to 0.5 to 0.6 N•m (4.5 to 5.3 lb-in), (refer to Package Contents (see page 24)) on the Compact unit's power connector.</p>  <p>Power Connector</p> <p>Terminal Block</p>

---

# Configuration of the BIOS

# 7

---

## Accessing the BIOS

### Overview

**NOTE:** Normally, factory (defaults) settings should be used.

Connect a USB keyboard to the Compact unit.

Turn the power on to the Compact unit and when prompted to do so, press the F2 key to enter the BIOS.

### Main Menu

Selecting the `Main` menu item displays the following screen:



**NOTE:** When you have finished entering the parameters, press the Esc to reach the `Exit` menu. Here you will be prompted either to exit saving the changes, or to exit without saving the changes as described below.

## System Time

### Time (hh:mm:ss)

This field shows the present Compact unit time from the internal clock. The hh/mm/ss (00:00:00) format is factory set prior to shipping.

Hours: 00 to 23

Minutes: 00 to 59

Seconds: 00 to 59

The correct time can be set by using the [+] and [-] keys.

## System Date

### Date (yy:mm:dd)

This field shows the Compact unit's internal calendar. The correct date can be set by using the [+] and [-] keys.

Year: 1999 to 2099

Month: Jan/Feb/Mar/Apr/May/June/Jul/Aug/Sep/Oct/Nov/Dec

Day: 1 to 31

## Primary Master

Displays the name of the devices connected to the primary bus of the Compact unit. Pressing the Enter key will call up the `Parameter Settings` menu.

## Primary Slave

Displays the name of the devices connected to the secondary bus of the Compact unit. Pressing the Enter key will call up the `Parameter Settings` menu.

## System Memory

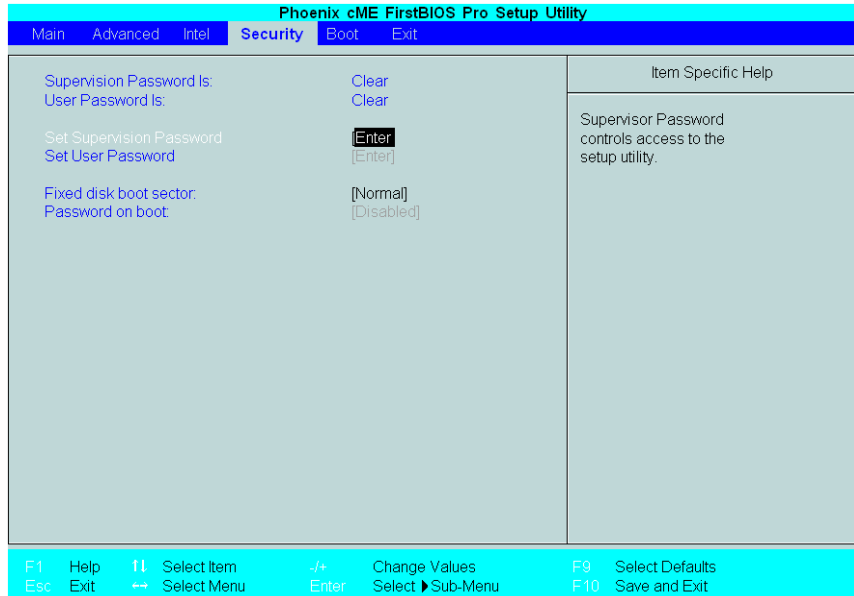
Displays the capacity of the System Memory.

## Extended Memory

Displays the capacity of the Extended Memory.

## Password Security

From the Main menu use the Tab key to reach the Security menu. This menu is used for setting Supervisor and User Passwords.



## Supervisor Password

This password is used to change system information settings. It is designed to prevent unapproved users from changing these settings. Entering up to 8 characters here will overwrite the current password.

When you wish to have no password, click on the Enter key. Next, the words *PASSWORD DISABLE* will be displayed, providing confirmation that the Password is no longer set.

## User Password

This password is used to view system information settings. It is designed to prevent unapproved users from viewing the system information settings. Entering up to 8 characters here will overwrite the current password.

When you wish to have no password, click on the Enter key. Next, the words *PASSWORD DISABLE* will be displayed, providing confirmation that the Password is no longer set.

### NOTE:

- Without having defined a Supervisor Password, it is not possible to define a User Password.
- When using `Set Supervisor Password`, you can easily view and change the system settings.
- When using only `Set User Password`, you will be allowed to view the system data only, not change it.

## Exit BIOS saving the Modifications

This feature saves the settings entered in the `Setup Utility` and restarts the Compact unit.

## Exit BIOS Without Saving Modifications

This feature quits the `Setup Utility` program without saving any settings entered.

---

# Hardware Modifications



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## Subject of this Chapter

This chapter concerns the hardware modifications for the Magelis Compact 12”.

A wide variety of optional units, Main Memory and CF cards manufactured by Schneider Electric, and commercial expansion boards (PCI bus compatible board) or PCMCIA (PC Cards) can be used with this product.

## What's in this Chapter?

This chapter contains the following topics:

Topic	Page
Before Modifications	64
Installing a Larger RAM Chip	66
Expansion Board (PCI) Installation	68
PCMCIA Card Installation	70
Compact Flash (CF) Card Installation and Removal	73
USB Holder Attachment/Removal	76
Hard Disk Drive (HDD) Unit Installation	79

## Before Modifications

### Overview

For the detailed installation procedures for the 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.
- Always use a properly rated voltage sensing device to confirm power is off.
- Unplug the power cable from both the Compact unit and the power supply.
- Replace and secure all covers or elements of the system before applying power to the unit.
- Use only the specified voltage when operating the Compact 12". The AC unit is designed to use 100...240 Vac input.

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

### **DANGER**

#### **CHEMICAL BURNS TO EYES OR SKIN**

- Do not use tools to operate the touch panel or in the vicinity of the display.
- When placing the display face-down, select a clean, level, non-abrasive surface. If necessary, place a soft, non-abrasive pad on the surface before lowering the unit.
- If a leak in the LCD panel is discovered and you come in contact with the liquid crystal material, follow these procedures:
  - In the case of contact with eyes or mouth, flush with running water for 15 minutes minimum.
  - In the case of contact with skin or clothing, wipe off the liquid crystal material and wash with soap and running water for 15 minutes.
  - If liquid crystal is ingested, induce vomiting, rinse mouth, and then drink a large quantity of water.
  - Follow any other hazardous substances safety procedures required by your facility.

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



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

- Do not exert more than 0.6 N•m (5.3 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 casing of the Compact 12”.
- When installing or removing screws, ensure that they do not fall inside the Compact 12” unit’s chassis.

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

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

Compact 12” internal components, including accessories such as RAM modules and expansion boards, can be damaged by static electricity. Observe the electrostatic precautions below when handling such components.

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

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.

## Installing a Larger RAM Chip

### General

 **DANGER**

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

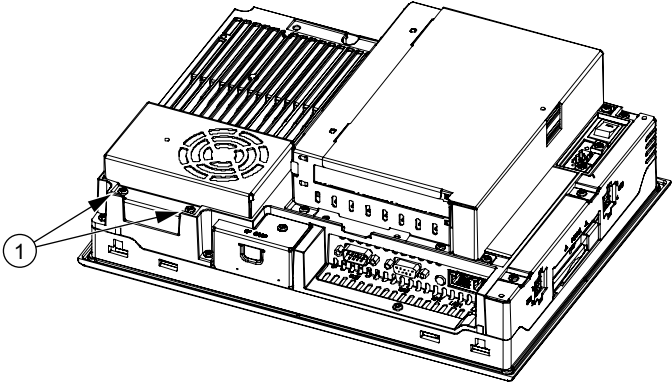
Read and understand the safety information on Before Modifications (see page 64) before attempting this procedure.

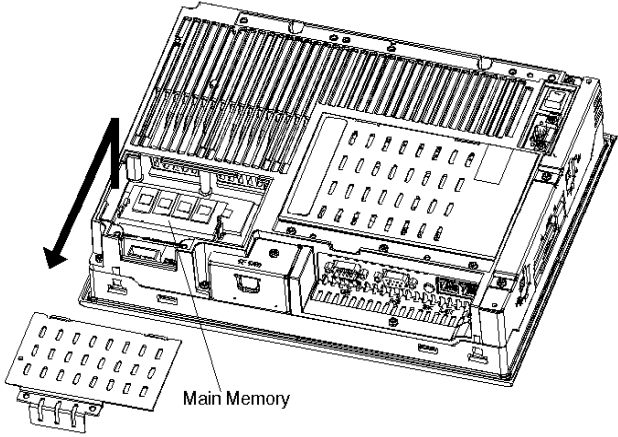
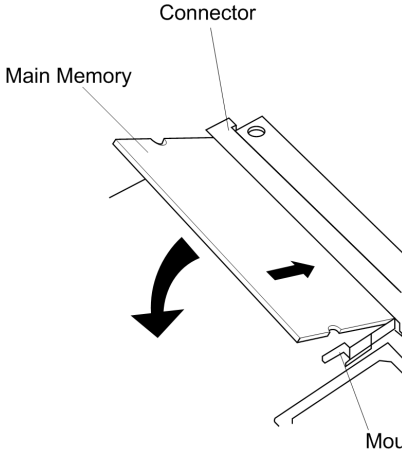
**Failure to follow these instructions will result in death or serious injury.**

**NOTE:** If you install a 1 GB RAM chip, a blue screen will appear for about 4 minutes after you start the terminal. After the installation, the terminal will start as usual.

### Installing the RAM Chip

When installing the Main Memory (RAM) module, follow the procedures listed below:

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 downwards. Place a soft, non-abrasive pad on the surface before placing the unit upon it.
3	<p>Unscrew the two screws on the memory slot.</p>  <p>1 Screw</p>

Step	Action
4	<p>Remove the main memory slot cover as shown in the diagram below:</p> 
5	<p>Lift the stopper on the connector such that the old RAM module is accessible.</p>
6	<p>Carefully remove the old RAM module from the holder and store it in its anti-static bag.</p>
7	<p>Angle the new memory module down slightly, and push it into the connector until the connector pins mate with the module's pins.</p>
8	<p>Insert the new memory module completely into the connector and press it down until it is locked into the mounting clips. Ensure all contacts engage at the same time.</p> 
9	<p>Replace the memory slot cover and screw it into place.</p>

## Expansion Board (PCI) Installation

### ⚠ DANGER

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

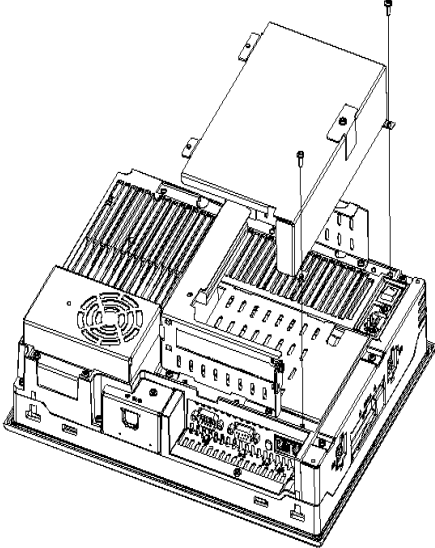
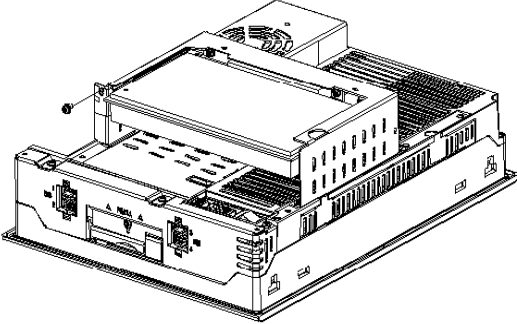
Read and understand the safety information on Before Modifications (see page 64) before attempting this procedure.

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

### Installing the Expansion Board

The table below describes how to install a commercial PCI board.


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 downwards. Place a soft, non-abrasive pad on the surface before placing the unit upon it.
3	Remove the expansion board support screw and remove the expansion board cover.

Step	Action
4	<p data-bbox="444 201 1181 250">Unscrew the expansion board cover screws and remove the expansion board cover</p> 
5	<p data-bbox="444 850 1212 927">Unscrew the screw from an empty panel and remove the blank panel. Insert the PCI board into the expansion board connector, and secure it in place using the filler panel's screw. The necessary torque is 0.5 to 0.6 N•m (4.5 to 5.3 lb-in).</p> 
6	<p data-bbox="444 1321 1212 1421">Replace the expansion board cover and expansion board support and secure them in place using the screws. The maximum size allowed for an expansion board is 174.68 x 106.68 mm (6.88 x 4.2 in). When using an expansion board of this size, be sure to secure it in place using the expansion board support cover.</p>

## PCMCIA Card Installation


### Overview

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

<b> DANGER</b>
<b>HAZARD OF ELECTRIC SHOCK, EXPLOSION OR ARC FLASH</b>
Read and understand the safety information on Before Modifications (see page 64) before attempting this procedure.
<b>Failure to follow these instructions will result in death or serious injury.</b>

### PCMCIA Cards with Cables

When using a PCMCIA card with an external cable attached, install a clamp or other type of device to secure the cable.

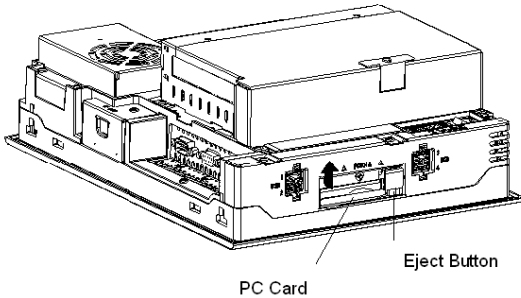
<b> WARNING</b>
<b>EQUIPMENT DISCONNECTION OR UNINTENDED EQUIPMENT OPERATION</b>
<ul style="list-style-type: none"><li>• Ensure that power, communication, and accessory connections do not place excessive stress on the ports. Consider the vibration environment when making this determination.</li><li>• Securely attach power, communication, and external accessory cables to the panel or cabinet.</li><li>• Use only commercially available USB cables.</li></ul>
<b>Failure to follow these instructions can result in death, serious injury, or equipment damage.</b>

**NOTE:** PCMCIA types are differentiated by their thickness:

- Type I: 3.3 mm (0.13 in)
- Type II: 5 mm (0.20 in)
- Type III: 10.5 mm (0.41 in)

## Installing the PCMCIA Card

The table below describes how to install the PCMCIA Card:

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 downwards. Place a soft, non-abrasive pad on the surface before placing the unit upon it.
3	<p>Before installing or removing a PCMCIA card, ensure that the power supply to unit has been switched OFF.</p> <p><b>NOTE:</b> Only the lower slot of the PCMCIA is available for use with PC cards. The top slot does not support a PC card. When using a PC card with a cable attached, Schneider recommends using a clamp or other type of device to minimize the likelihood that vibration will dislodge the cable. Be sure to stop the PC card's driver prior to removing the PC card. If you do not stop the driver before removing the PC Card, the card may become inoperable or the Windows operating system may stop responding.</p>
4	To install a Type I or Type II PCMCIA card, loosen the screw on the side of the PCMCIA slot on the Compact iPC and move the cover to one side.
5	<p>Check the orientation of the PCMCIA card, and then insert it fully into the slot.</p> 
6	Reposition the PCMCIA slot cover and tighten the screw.

## Removing a PCMCIA Card

The table below describes how to remove a PCMCIA Card:

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 downwards. Place a soft, non-abrasive pad on the surface before placing the unit upon it.
3	To remove the PCMCIA card: Press both eject buttons twice (Pressing the eject buttons once causes the tip of the card to be exposed. Pressing the eject buttons a second time ejects the PCMCIA card from the slot). Withdraw the PCMCIA card.
4	Reposition the PCMCIA slot cover and tighten the screw.



## Compact Flash (CF) Card Installation and Removal

### Preparing to Use a CF Card

The Compact's 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.

### CAUTION

#### COMPACT FLASH (CF) CARD DAMAGE AND DATA LOSS

- Remove all power before making any physical contact with an installed CF card.
- Use only CF cards manufactured by Schneider Electric. The performance of the Compact 12" 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.**

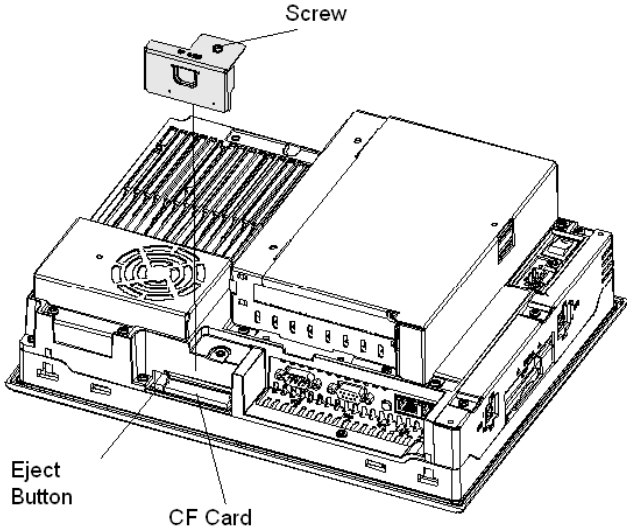
## Inserting the CF Card

**⚠ DANGER****HAZARD OF ELECTRIC SHOCK, EXPLOSION OR ARC FLASH**

Read and understand the safety information on Before Modifications (see page 64) before attempting this procedure.

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

The table 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	Place the unit on a clean, level surface with the display facing downwards. Place a soft, non-abrasive pad on the surface before placing the unit upon it.
3	Unscrew the CF Card cover's attachment screw, and remove the CF Card cover.
4	Insert the CF Card firmly into the CF card slot, and check that the eject button pops out: 
5	Replace the CF Card cover and fix it in place with the screw.

## Removing the CF Card

The table 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	Place the unit on a clean, level surface with the display facing downwards. Place a soft, non-abrasive pad on the surface before placing the unit upon it. Then, remove the CF card cover as described above.
3	Press the eject button in fully to remove the CF Card from the CF Card slot.
4	After inserting/removing the CF card, be sure to replace the CF Card cover and secure it in place using the attachment screw. <b>Note:</b> The necessary torque is 0.5 to 0.6 N•m (4.5 to 5.3 lb-in).

## Data Writing Limitation

The CF card is limited to approximately 100,000 write operations. Therefore, be sure to back up all CF Card data regularly to another storage media.

## USB Holder Attachment/Removal

### Introduction

When using a USB device, attaching the USB holder to the USB interface located on the side of the Compact iPC minimizes the likelihood that the USB cable interface will become disconnected.

### **DANGER**

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

Read and understand the safety information on Before Modifications (*see page 64*) before attempting this procedure.

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

### **WARNING**

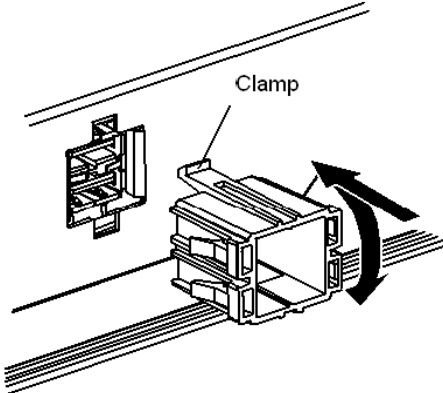
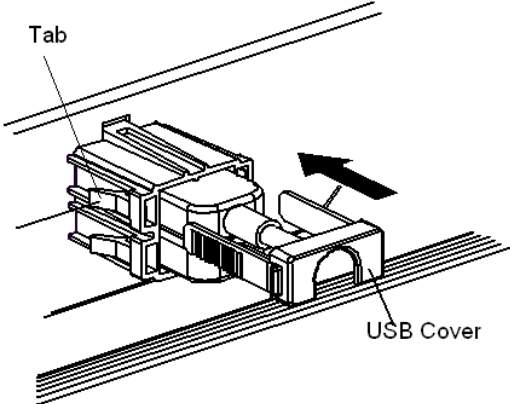
#### **EQUIPMENT DISCONNECTION OR UNINTENDED EQUIPMENT OPERATION**

- 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 commercial available USB cables.

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

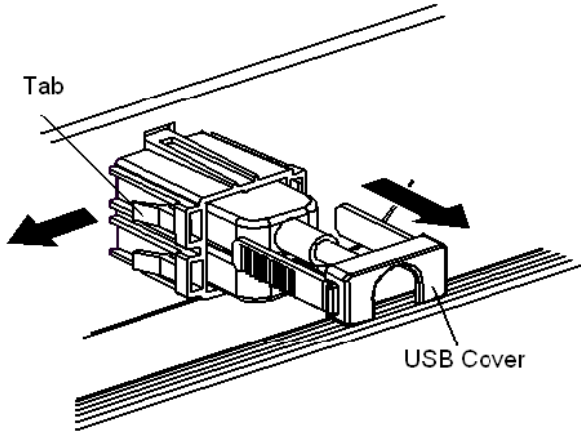
## USB Holder Attachment

The table below describes how to attach the USB holder.

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 downwards. Place a soft, non-abrasive pad on the surface before placing the unit upon it.
3	<p>Attach the USB holder to the USB interface on the side of the unit. Hook the upper tab of the USB holder to the attachment hole of the iPC and then insert the lower tab as shown below, to fix the USB holder.</p> 
4	<p>Insert the USB cover into the tab of the USB holder to fix the USB Cable.</p> 

**USB Holder Removal**

The table below describes how to remove the USB holder.

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 downwards. Place a soft, non-abrasive pad on the surface before placing the unit upon it.
3	Remove the USB holder by reversing the previous steps. Lift the tab of the USB holder and then remove the USB cover. 
4	Remove the USB holder by pressing on the tabs from both the top and bottom and then remove the USB holder from the unit.

## Hard Disk Drive (HDD) Unit Installation

### General

The HDD and circuit board are susceptible to shock, vibration, and electrostatic discharge. This is especially true during installation and removal of the HDD from the Compact 12" device. Observe the following messages when handling, installing, and removing the HDD:

### DANGER

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

Read and understand the safety information on Before Modifications (*see page 64*) before attempting this procedure.

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

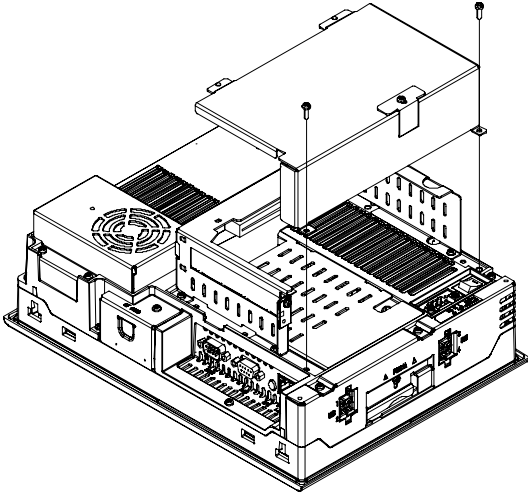
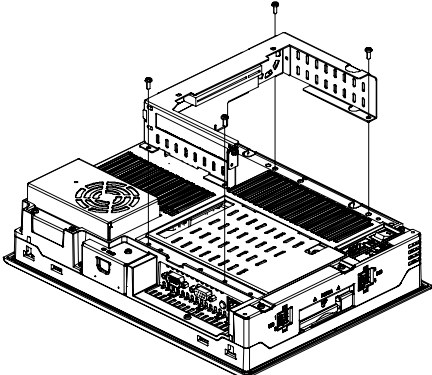
### CAUTION

#### EXCESSIVE VIBRATION

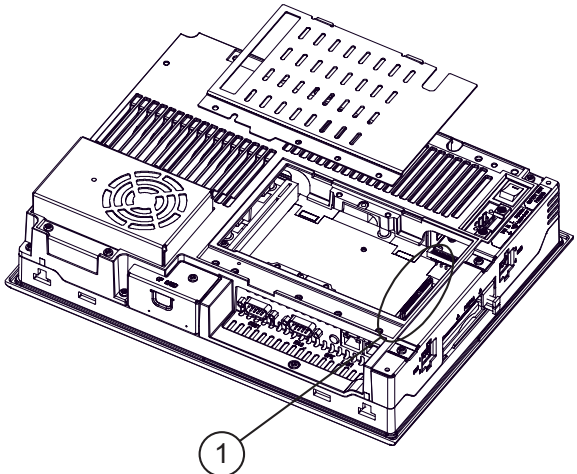
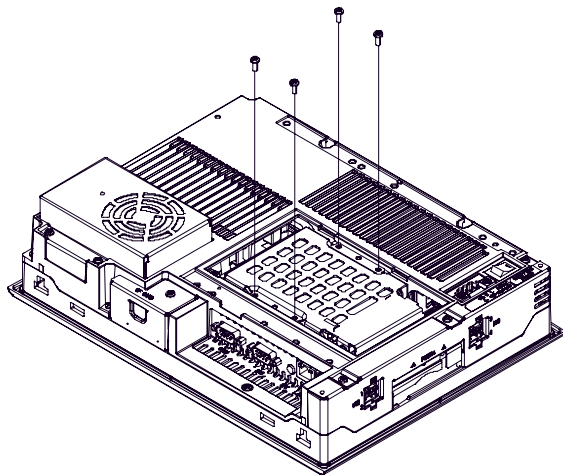
- Plan your installation activities so that device shock and vibration tolerances are not exceeded.
- Ensure that the panel opening and thickness are within the specified tolerances.
- Before mounting the Compact unit into a cabinet or panel, ensure that the installation gasket is attached to the unit. The installation gasket provides additional protection from vibration.
- The recommended torque for mounting the Compact 12" device is 0.5 N•m (4.5 lb-in).

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

The table below describes how to install the HDD unit.

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 downwards. Place a soft, non-abrasive pad on the surface before placing the unit upon it .
3	<p data-bbox="463 350 1238 399">Unscrew the expansion board cover's screws (2) and remove the expansion board cover.</p> 
4	<p data-bbox="463 914 1238 963">Unscrew the expansion board base's screws (4) and remove the expansion board base.</p> 

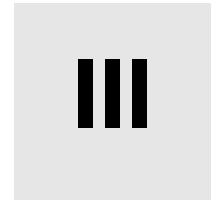


Step	Action
5	<p>Remove the HDD cover.</p>  <p>1 Serial ATA Interface</p>
6	<p>Orient the HDD properly before inserting it into the drive compartment. Also, before connecting the HDD cable, check the orientation of the connector.</p> <p><b>NOTE:</b> Do not insert the HDD or HDD cable at an angle.</p>
7	<p>Fix the HDD unit with the screws (4) which are contained in your package. The torque required to tighten these screws is 0.5 to 0.6 N•m.</p> 
8	<p>Reverse the preceding steps to replace the HDD cover, expansion board support, and expansion board cover. The torque required to tighten these screws is 0.5 to 0.6 N•m (4.5 to 5.3 lb-in).</p>



---

# Installation



---

## Subject of this Part

This part describes the product installation.

## What's in this Part?

This part contains the following chapters:

Chapter	Chapter Name	Page
9	Connections to PLCs	85
10	System Monitoring	89
11	Maintenance	109
12	Troubleshooting	119



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# Connections to PLCs

# 9

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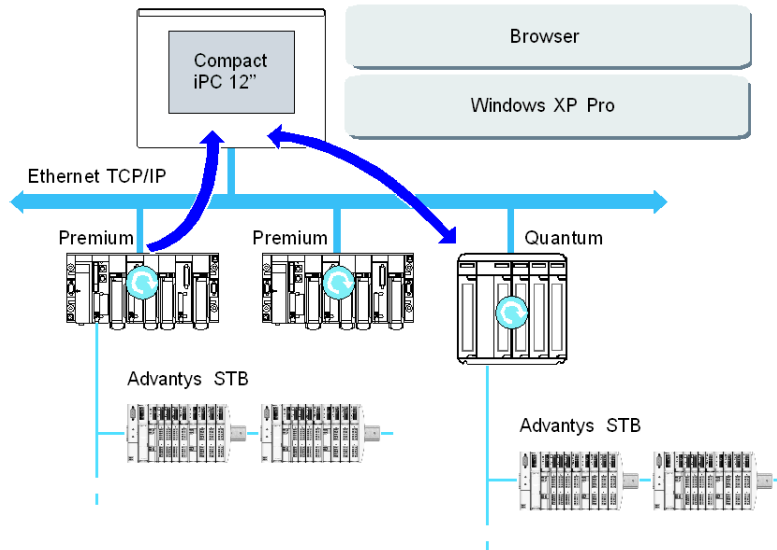
## Connection to PLCs

### Introduction

Two different kinds of architectures are possible:

- Transparent Ready Architecture
- Traditional Architecture

### Connections to Transparent Ready Architectures

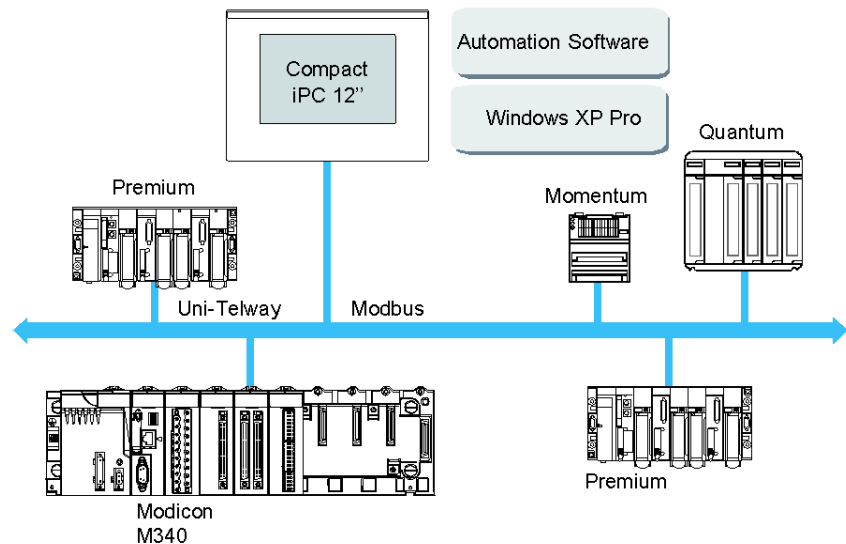


With its built-in Ethernet 10/100 Mbps ports, the Compact iPC can be integrated into *full Ethernet* architectures, such as Transparent Ready. Transparent Ready devices with this type of architecture enable transparent communication on the Ethernet TCP/IP network. Communication services and Web services permit the sharing and distribution of data between levels 1, 2 and 3 of the Transparent Ready architecture.

Used as a Client station, the Compact iPC 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, Ositrack identification systems, etc.).
- 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 also provide basic data management services, automatic e-mail sending triggered by specific process events and arithmetic and logic calculations for data preprocessing.

### HMI Applications in Traditional Architectures

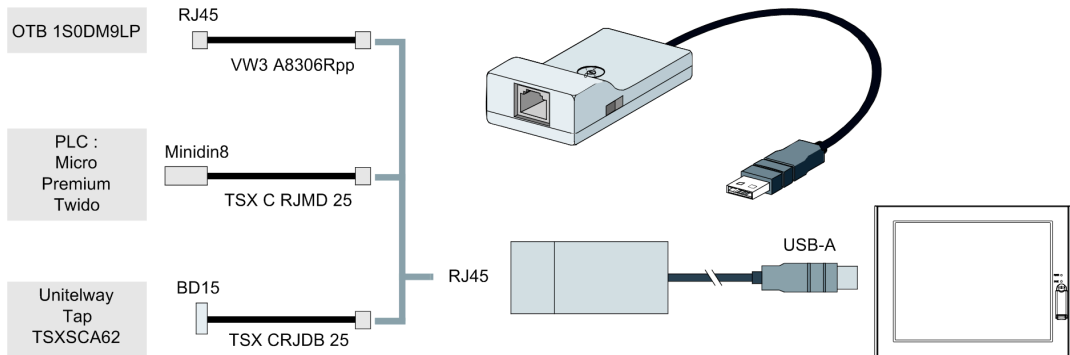


The Compact iPC 12'' with Vijeo Designer control or automation software can be used in fieldbus architectures such as Uni-Telway/Modbus or Fipway/Modbus Plus.

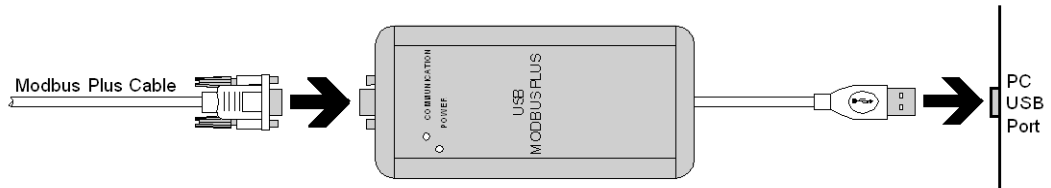
The Compact iPC 12'' can connect to Uni-Telway, Modbus, and Fipway networks, but different connection devices are required depending on the network and on the communication port used. These devices are specified below:

- For PCMCIA slot:
  - Fipway network with the PCMCIA card TSX FPP 20 (1).
  - Modbus Plus network with the PCMCIA card TSX MBP 100 or the PCI bus card 416 NHM 300 30.
  - Uni-Telway, with an RS 485 TSX SCP 114 card (1).
  - For a Modbus link, one of the built-in RS 232C COM ports is used.

- For USB slot:
  - Modbus and Uni-Telway with the TSXCUSB485 converter. It allows an iPC to be connected to remote devices using an RS 485 interface. This device, compatible with Modbus and Uni-Telway, requires the standard Schneider drivers provided with software such as UNITY, PL7-Pro or part of the CD driver TLXCDDR20M. 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. An example is provided in the drawing below:



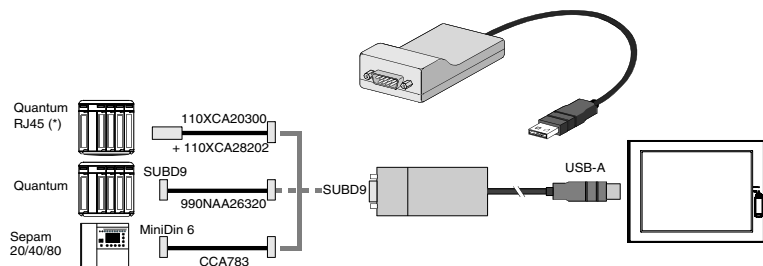
(1) Requires the *X-Way drivers* CD-ROM, TLX CD DRV20M.

## Cables and Converters

For using the 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 (included 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 an iPC, via an USB port, to remote devices using an RS 232 interface.

This device, compatible with Modbus and Uni-Telway, requires the standard Schneider drivers provided with software such as UNITY, PL7-Pro or part of the CD driver TLXCDDRV20M. An example is provided in the drawing below:



\*: Quantum High End with serial RJ45.

This device can be used as a PCMCIA port.



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# System Monitoring

# 10

---

## Subject of this Chapter

This chapter describes the system monitoring and the RAS (Reliability, Availability, Serviceability) features of the Compact 12”.

## What's in this Chapter?

This chapter contains the following topics:

Topic	Page
System Monitor Overview	90
System Monitor Property	97
System Monitor Interface	102

## System Monitor Overview

### Presentation

The System Monitor software enables you to monitor several system parameters (CPU temperature, fans speed, normal operation of the miscellaneous voltages, normal operation of the backlight, normal operation of the hard disk...) as well as controlling the RAS I/O port.

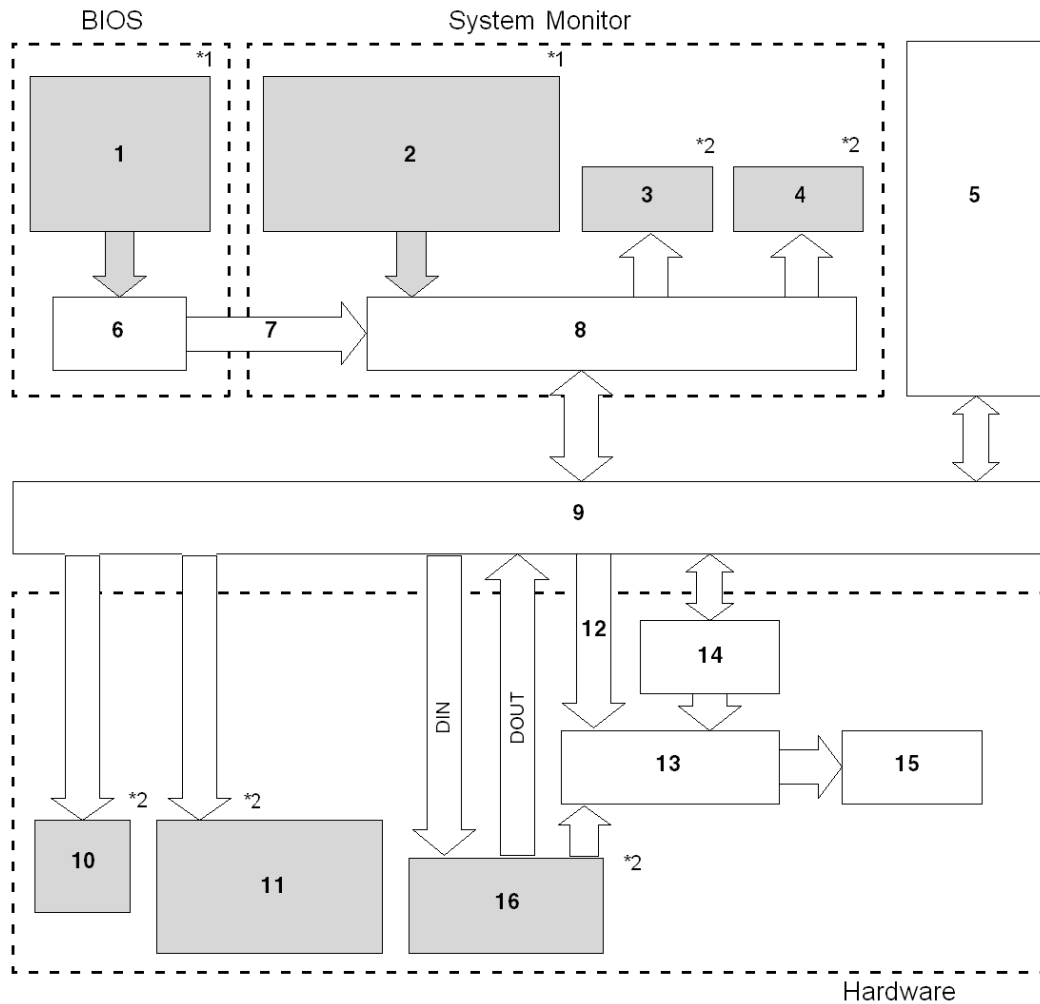
The RAS I/O port is an interface that enables you to direct a remote reset of the Compact unit, operate a buzzer, or perform other actions as noted in this section.

The System Monitor software alerts you if thresholds are exceeded via a popup message or a Windows® alarm (in the Event Viewer). You can also configure actions to be undertaken if an alarm occurs: shutdown the Compact unit, restart the Compact unit, I/O activation...).

The software enables both system configuration (Refer to System Monitor Property (*see page 97*)), and system operation (Refer to System Monitor Interface (*see page 102*)).

## System Monitor Architecture

The following figure shows the architecture of System Monitor:



- 1 Bios Setup: Voltage, Fan RPM3, Temperature alarm, Detection Level Setting, Enable/Disable Setting
- 2 System Properties: Power alarm, Fan Alarm3, Touch Panel Alarm, Output Settings, Watchdog Timer Value Settings, Watchdog Reset, Enable/Disable Settings
- 3 Popup Message
- 4 OS Shutdown
- 5 User Application
- 6 Bios

- 7 System Alarm Data
- 8 System Monitor Application
- 9 Driver or API-DLL
- 10 Buzzer
- 11 LED Green: Power On, LED Orange: RAS Error/Touch Panel Self Test Error,  
LED Orange/Red blinking: Backlight Error, LED Green Blinking: Soft OFF Status.
- 12 Watchdog Timer Reset, Mask settings
- 13 Reset Control
- 14 Watchdog Timer
- 15 Hardware Reset
- 16 RAS Connector:

\*1 Be sure to adjust these settings according to your system's specification.

\*2 The RAS Software may be configured to provide these output alarms/signals.

## RAS Features

RAS stands for Reliability, Availability and Serviceability. It is a device-level monitoring function that provides a variety of features to improve the reliability of the Compact system.

Although the standard set of RAS features will vary depending on the devices used, the following features provide alarm monitoring and external input signal support.

Feature	Functions Supervised
Alarm Monitoring	Power Voltage Alarm
	Cooling Fan RPM Alarm
	Internal Temperature Alarm
	Watchdog Timer (system uptime)
	Touch Panel Alarm
	Backlight Alarm
	SMART Alarm
External Input Signal	General Purpose Signal Input *1 (DIN 2 ports) Remote Reset Input *2 (1 lamp)

\*1: An error message or other signal received on DIN1 (that is, a change of state on this input from 0 to 1 or 1 to 0) is stored in memory, and cannot be cleared by clicking on the Alarm dialog box generated by the System Monitor. The System Monitor software periodically checks the state of DIN1, and will display the Alarm dialog until the actual state of the DIN1 input reverts to the normal state. The other input alarms may be cleared by clicking on the Alarm dialog box.

\*2: If the Remote Reset Input is disabled, DOUT cannot be configured to force a system reset.

The Compact's RAS software may be programmed to provide the following outputs when one of the alarms mentioned above occurs, or when an external input signal is received:

Feature	Functions Supervised
External Output Signal	General Purpose Signal Output (DOUT 2 ports)
Various Processing Functions	LED Indicator (3 colors, 1 lamp)
	Popup Message Output
	Buzzer Output
	System Shutdown
	System Reset

### External Input Signals

The RAS interface connector of the Compact unit accepts the following input signals:

Feature	Functions Supervised
General Purpose Signal Input (DIN (2 ports))	This standard digital input is used for alarm detection in external devices. The input signal uses four bits. The System Monitor Property of the control panel or an API-DLL can be used to enable or disable this feature, as well as to designate what type of processing is to be performed once a signal is received. (Only the <i>ON</i> state of the DIN circuit is detected. The <i>OFF</i> state cannot be monitored).

The RAS input circuits must be powered by an external DC power supply.

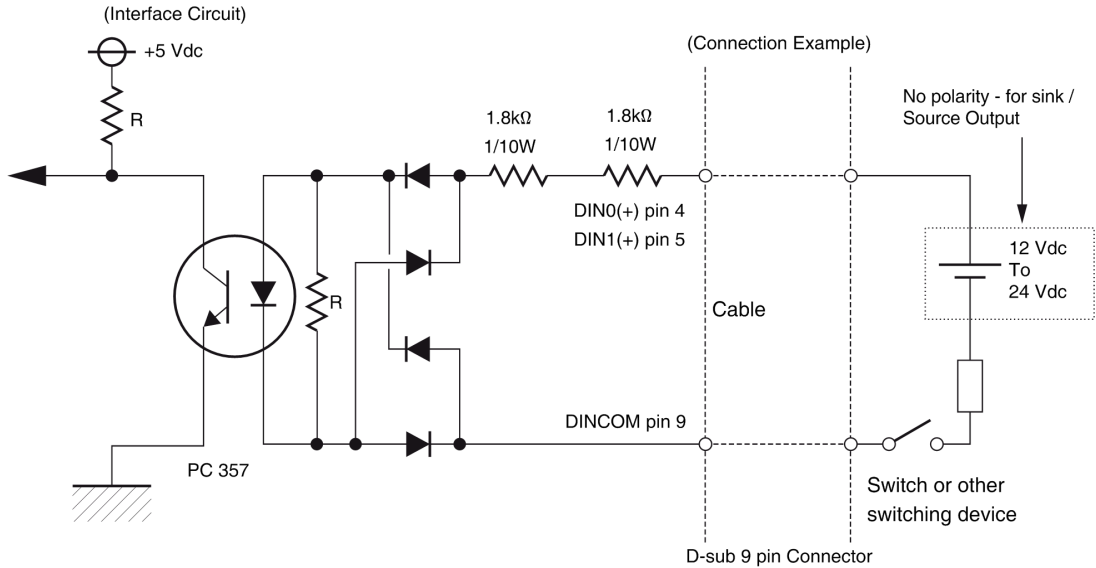
## CAUTION

### OVERCURRENT DAMAGE TO INPUTS

Use a protective impedance or other reasonable measures to limit the current to each input to 10 mA or less.

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

The **Interface Circuit** Diagram is shown below:



Refer to RAS interface (see page 30) for details about cabling.

### External Output Signals

The RAS interface connector on the Compact unit is prepared for the following output signals:

Feature	Functions Supervised
General Purpose Signal Output (DOUT 2 ports)	This general purpose digital output signal provides system condition information to external devices. The System Monitor Property of the control panel or the API-DLL is used by applications to control this signal. The system Monitor Property can be used to enable or disable any of these output signals.
External Output Signal (DOUT, common use with Alarm Output)	<ul style="list-style-type: none"> <li>● Rated Load Voltage: 24 Vdc 100 mA (max)</li> <li>● Maximum Load Current: 100 mA/point</li> <li>● Maximum Voltage Drop between Terminals: 1.5 Vdc (at 100 mA load current)</li> <li>● Isolation Method: Via Photocoupler</li> </ul>

The RAS output circuits must be powered by an external DC power supply.

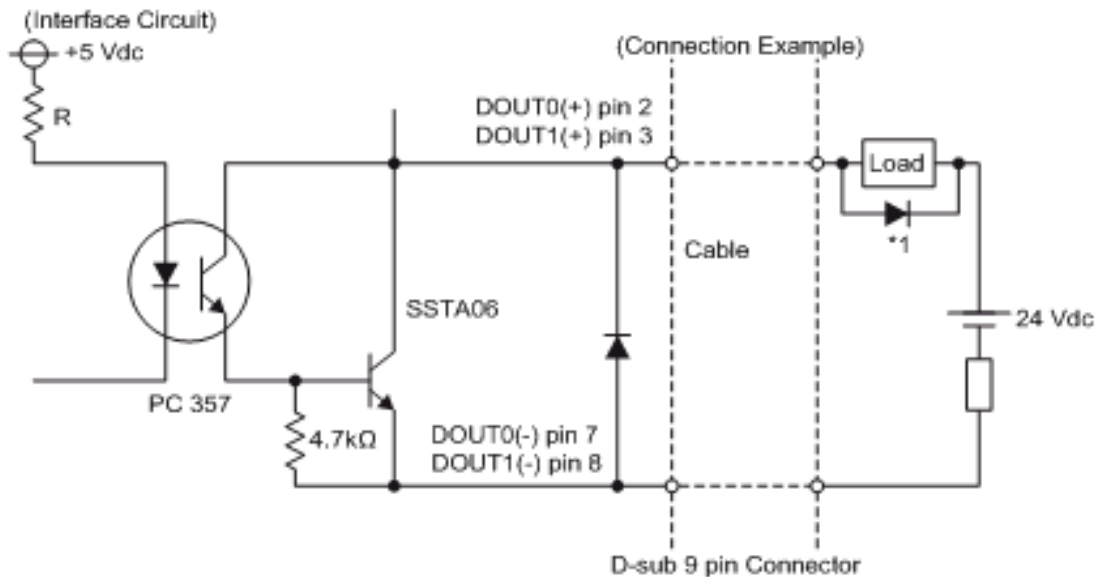
## ⚠ CAUTION

### OVERCURRENT DAMAGE TO OUTPUTS

Use a protective impedance or other reasonable measures to limit the current to each output to 120 mA or less.

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

The **Interface Circuit** Diagram is shown below:



\*1 When connecting an inductive load, be sure to use a flyback diode.


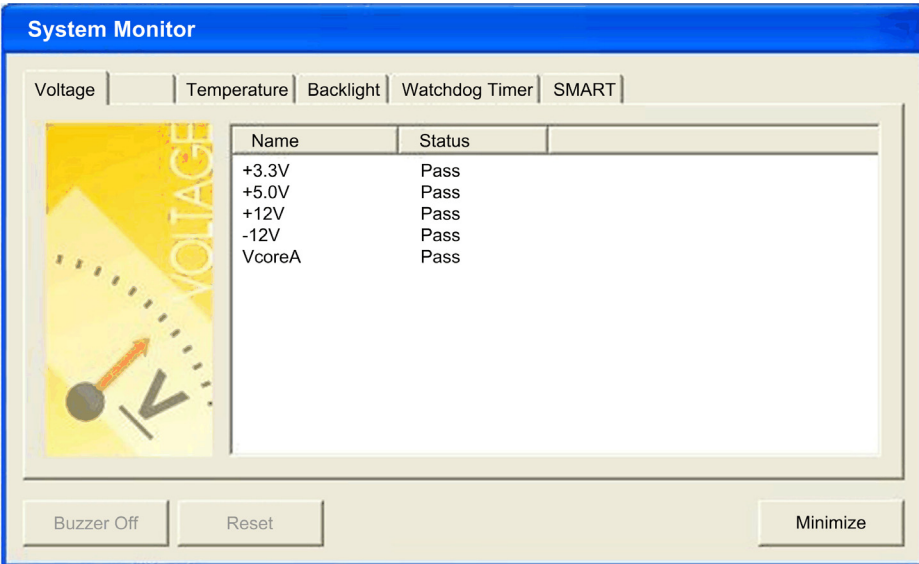
Refer to RAS interface (see page 30) for details about cabling.


### DLL Feature of System Monitor

System Monitor also includes a dynamic link library (API-DLL) feature that gives other applications access to the RAS features.

## Accessing the System Monitor

You can monitor the system status at any time using the System Monitor interface. The procedure below shows how to access the System Monitor interface screen:

Step	Action												
1	Start the Compact operating system												
2	<p>In the task bar, double-click the  icon.</p> <p><b>Result:</b> The System Monitor GUI screen appears.</p>  <table border="1" data-bbox="491 565 1140 914"> <thead> <tr> <th>Name</th> <th>Status</th> </tr> </thead> <tbody> <tr> <td>+3.3V</td> <td>Pass</td> </tr> <tr> <td>+5.0V</td> <td>Pass</td> </tr> <tr> <td>+12V</td> <td>Pass</td> </tr> <tr> <td>-12V</td> <td>Pass</td> </tr> <tr> <td>VcoreA</td> <td>Pass</td> </tr> </tbody> </table> <p>At the bottom of the window are buttons for 'Buzzer Off', 'Reset', and 'Minimize'.</p>	Name	Status	+3.3V	Pass	+5.0V	Pass	+12V	Pass	-12V	Pass	VcoreA	Pass
Name	Status												
+3.3V	Pass												
+5.0V	Pass												
+12V	Pass												
-12V	Pass												
VcoreA	Pass												

**NOTE:** If you cannot see the  icon in the task bar, launch the System Monitor software by double-clicking the **systemmonitor.exe** file located in the following path: *C:\schneider\sysmon\gui*.



## System Monitor Property

### Presentation

The System Monitor Property screen enables you to specify which system parameters you want to monitor and how you want to be alerted.

**NOTE:** In this chapter, we discuss a feature of the system-monitoring software called the *SMART Alarm*. This is not to be confused with the Magelis Smart terminal itself. SMART, an acronym for *Self-Monitoring Analysis and Reporting Technology* is a hardware-based function that acts as an early detection system for pending hard disk drive problems. The system monitoring software included with your Magelis product can read and report the information generated by the hard drive's SMART technology.

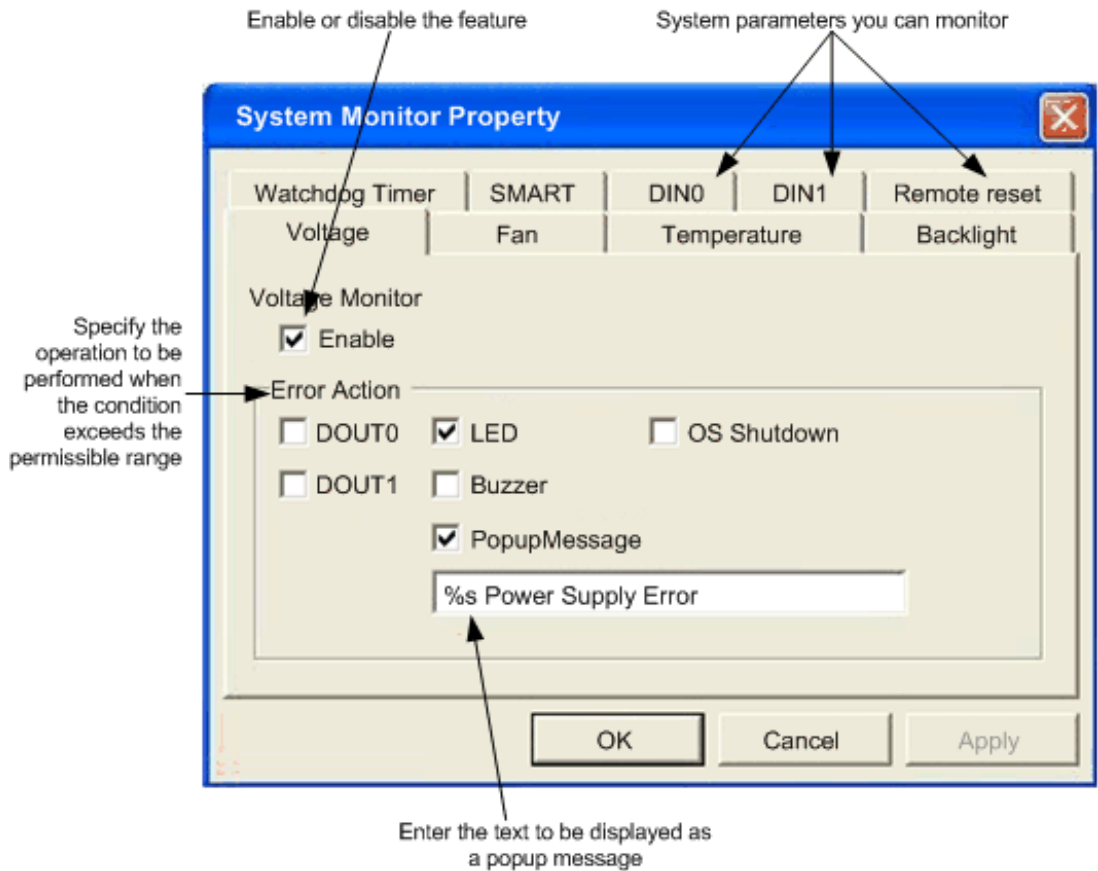
### Accessing the System Monitor Property

The System Monitor Property screen enables you to configure the Compact system parameters you want to monitor and select how you want to be alerted. The procedure below shows how to access the System Monitor Property screen:

Step	Action
1	Start your Compact operating system
2	Click <b>Start</b> → <b>Control Panel</b> . <b>Result:</b> The Control Panel window appears.
3	Double-click <b>System Monitor Property</b> . <b>Result:</b> The System Monitor Property window appears.

### Setting up the System Monitor Properties

The following figure gives an overview of the System Monitor Property setting screen.



Click the tabs on the top of the screen to access the configuration page of each system parameter.

The table below describes the system parameters available for monitoring:

Feature	Functions Supervised
Voltage	Monitors the status of the Compact's built-in power supply and internal CPU power supply.
Fan	Monitors the CPU cooling fan RPM speeds
Temperature	Provides an alert when the temperature of the CPU or the overall system exceeds the defined limit.

Feature	Functions Supervised
Backlight	Detects backlight alarms. When the backlight becomes inoperative, the power LED will flash orange/red (Refer to Compact Unit Description ( <i>see page 26</i> )).
Watchdog Timer	This feature monitors the performance of the CPU by writing the uptime count value for the CPU to the built-in programmable timer of the RAS and by periodically clearing the count value from the CPU. Errors are detected when the clearing of the count values from the CPU stops. This causes a timer overflow.
SMART	Monitors the status of the hard drive. Detects degradation in hard disk performance and hard disk errors that may result in data loss or operating system corruption.

## CAUTION

### HARD DISK DAMAGE

A Self-Monitoring Analysis and Reporting Technology (SMART) Alarm indicates the potential for hard disk damage and data loss. If a SMART Alarm is received:

- Remove the Compact device from service and back up all data on the hard drive
- Depending on the error, reinstall the operating system or replace the hard disk drive

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

**NOTE:** An administrator authentication is required to view or configure SMART monitoring.

- A CF card does not support SMART and therefore the status of the CF card cannot be monitored.
- If a hard drive is to be upgraded or requires replacement, only use a hard drive provided by Schneider Electric. The Compact 12" device has not been tested with third-party hard drives.

Once you know the system parameters you want to monitor, you can specify actions that will be undertaken when an event (timeout, value out of range...) occurs. Set the action to be performed when a System Monitor/RAS event occurs by selecting the relevant check box.

The following table gives a description of the operations that can be performed:

Item	Action
Enable	Select or deselect this option to enable/disable each monitoring feature.
Buzzer	Sound an electronic beep (this option is automatically disabled when a checkmark is placed in the <i>OS shutdown</i> checkbox).
Popup Message	Display error messages as popup messages. (The monitored item and description of the error are displayed).
Operating System Shutdown	Shutdown the operating system. (The shutdown confirmation message is not displayed).
Operating System Restart	Resets the hardware.
Power LED	The Power LED lights orange for an RAS alarm.
DOU0 to 1	Output from the RAS port.

### Power LED Indicator

The three colors Power LED (Refer to Compact Unit Description - Front View (*see page 26*)) indicates the Compact system conditions. It is also a power ON/OFF indicator. The Power LED is located on the front face of the unit.

The Compact unit can send the following system status information to an external device:

Power LED Color	System Status	Output Condition
Green (Lit)	Normal operation (Power is ON)	None
Green (Blinking)	System is NOT running (Soft OFF). Refer to Compact Unit Description - Front View ( <i>see page 26</i> ).	None
Orange (Lit)	An RAS alarm has occurred	Power LED is enabled via System Monitor Property
	Touch Panel Self-Test Error	None
Orange/Red (Blinking)	Backlight is not functioning	None
Not Lit	Power is OFF	–

**NOTE:** If the orange Power LED of the Compact is illuminated immediately after the power is turned ON, a Touch Panel Self-test Error may have occurred.

## Features Availability

The following table lists the operating settings available for each feature:

O: Setting available - X: Setting not available

Feature	Operation					
	Buzzer	Popup Message	OS Shutdown	Reset	LED	DOUT0 to 3
Watchdog Timer	O	O	O	O	O	O
Voltage	O	O	O	X	O	O
Fan	O	O	O	X	O	O
Temperature	O	O	O	X	O	O
Backlight	O	O	X	X	O	O
SMART	O	O	X	X	O	O
DIN0 to 1	O	O	O	X	O	O

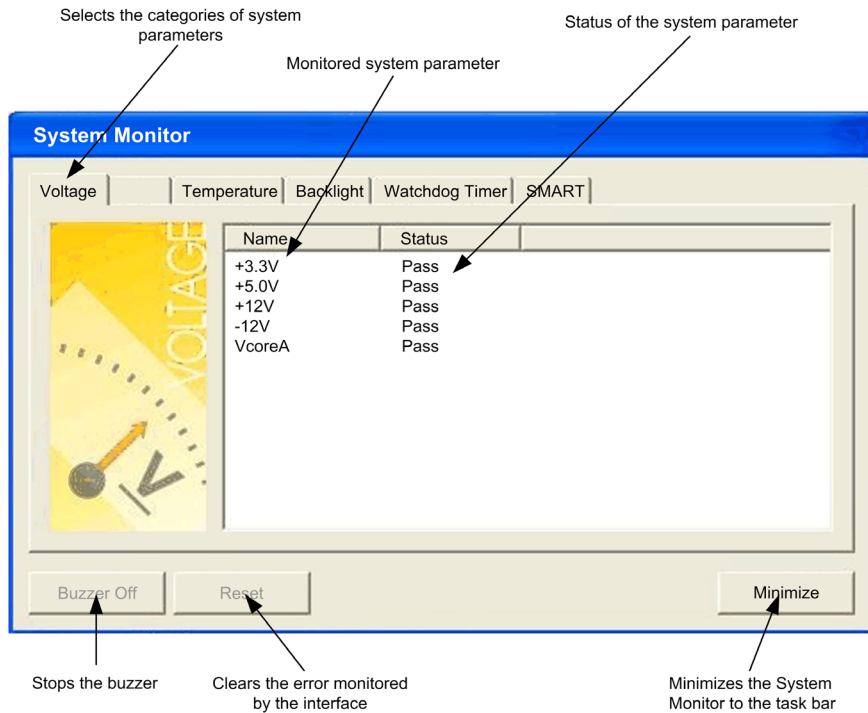
## System Monitor Interface

### Presentation

You can monitor the system status at any time using the System Monitor interface.

### Description of the Interface

The following screen gives an overview of the System Monitor interface. Selecting each of the tabs displays the status of each item. When an error occurs, the color of the tab changes.



**NOTE:** Administrator rights are required to view and execute SMART monitoring. If someone logs on without administrator rights, nothing is displayed in the SMART item.

**NOTE:** On the SMART tab, monitored hard disk drives are designated by a device number of 0 or 1. The device number 0 indicates the master (primary) HDD while the number 1 indicates the slave drive.

The System Monitor interface displays the status of the system parameters. The following table describes the messages provided by the System Monitor interface:

Display	Meaning
Pass	Normal
Fail	Abnormal (exceeds programmed limits)
Disabled	Monitoring disabled
Not Supported	Not supported

**NOTE:** *Not Supported* is displayed when a device such as a Compact Flash card, which does not support SMART, is detected.

### System Monitoring Operation

When an error is detected, the operations specified in the System Monitor Properties settings are performed (buzzer, popup message etc.) and an X is displayed on the icon in the system tray indicating an error status.

When the icon in the system tray changes as shown below, double-clicking the icon gives an explanation of the error condition.

System Monitor GUI icon when no event occurs



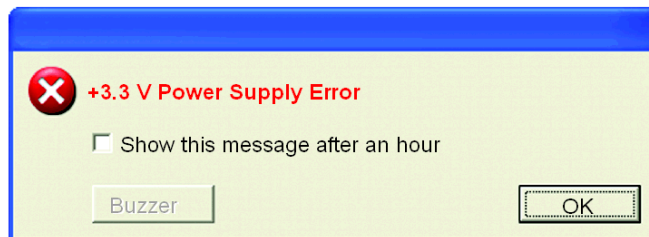
System Monitor GUI icon when a specified event occurs



The system performs the Error Action set in the System Monitor Properties when an error condition is detected with each monitoring item. The Error Action is performed only once when an error is detected for any of the items being monitored.

For example, look at the **+3.3 V** and **+5.0 V** options in the Voltage field. When the popup message feature for monitoring the voltage status is enabled, the popup message **+3.3 V Power Supply Error** is shown on the screen if a +3.3 V power supply error occurs. Press the **OK** button on the dialog box to hide the message.

Example of +3.3 V Power Supply error:



If a +5.0 V power supply error occurs, the popup message **+5.0 V Power Supply Error** is shown on the screen. The popup message displays the monitored item and an error description. When the buzzer feature is enabled, press the **Buzzer Off** button on the popup message to stop the buzzer sound. Press the **OK** button to close the popup message.

When OS Shutdown is enabled, the system automatically enters the shutdown operation without prompting the user for confirmation. To display the System Monitor screen for reviewing the present condition and the Compact's system date and time, double click on the icon in the System Tray.

When the buzzer sounds as an error action, the System Monitor screen displays the **Buzzer Off** button that is hidden during normal operation. When a popup message window is displayed, the **Buzzer Off** button is displayed in the window.

**NOTE:** Once an error is detected, the System monitor stores the error status (displays the icon indicating an error status). To resolve the error, press the **Reset** button on the System Monitor screen or switch off the Compact unit, perform the actions necessary to remove the cause of the error and power up the Compact unit once more.

## System Monitor Error Messages

This section describes the error messages and closing messages displayed on the System Monitor and System Monitor Property screens.

When an error occurs while the popup message option is enabled for Error Action, the following messages appear on the popup message output screen under the factory settings.

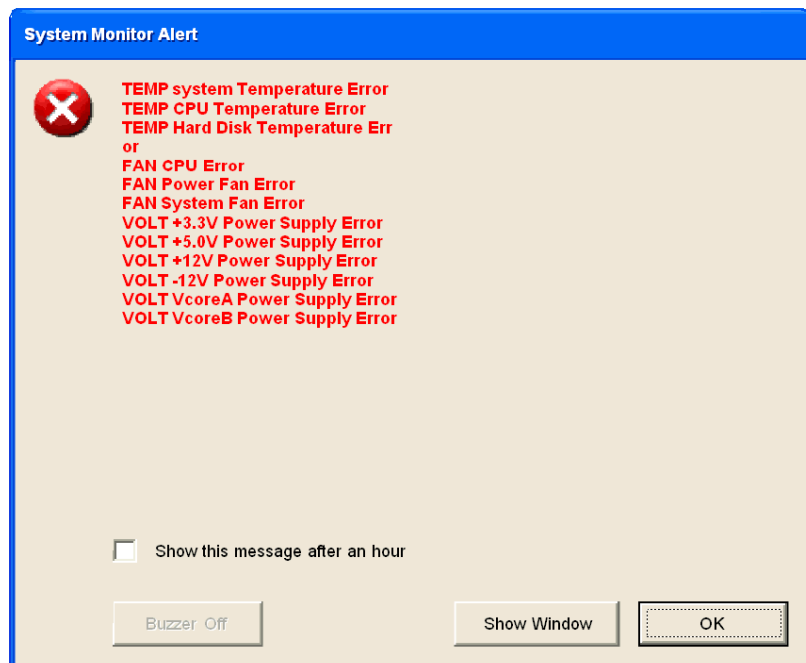
List of the error messages:

Error Generating Item	Message
VcoreA	VOLT VcoreA Power Supply Error
Voltage +3.3 V	VOLT +3.3 V Power Supply Error
Voltage +5.0 V	VOLT +5.0 V Power Supply Error
Voltage +12 V	VOLT +12 V Power Supply Error



Error Generating Item	Message
Voltage -12 V	VOLT -12 V Power Supply Error
CPU FAN	FAN CPU Fan Error
Power FAN	FAN Power Fan Error
System FAN	FAN System Fan Error
System Temperature	TEMP System Temperature Error
CPU Temperature	TEMP CPU Temperature Error
Hard Disk Temperature	TEMP Hard Disk Temperature Error
DIN0	DIN0
DIN1	DIN1
Watchdog Timer	Watchdog Timer Error
Backlight	Backlight Error
SMART	SMART Error

Example of displayed screen:



**NOTE:** You can modify the messages displayed on the popup message from the System Monitor Property screen.

## Error Displays when Using the Event Viewer

The System Log records error type/location and error actions as error events. You can check the error event information using the Event Viewer.

Step	Action
1	Start your Compact terminal
2	Click <b>Start</b> → <b>Control Panel</b> → <b>Administrative Tools</b> → <b>Event Viewer</b>

**NOTE:** This feature is supported by all versions of Windows® XP Pro, SP2 and above.

## Error Type/Location and Error Action

The error type/locations shown by the Event Viewer are shown in the table below:

Error type/Location	Error Message Description
VcoreA	VOLT VcoreA Error has occurred
Voltage +3.3 V	VOLT +3.3 V Error has occurred
Voltage +5.0 V	VOLT +5.0 V Error has occurred
Voltage +12 V	VOLT +12 V Error has occurred
Voltage -12 V	VOLT -12 V Error has occurred
CPU FAN	FAN CPU Error has occurred
Power FAN	FAN Power Error has occurred
System FAN	FAN System Fan Error
System Temperature	TEMP System Error has occurred
CPU Temperature	TEMP CPU Error has occurred
Hard Disk Temperature	TEMP Hard Disk Temperature Error
DIN0	DIN0 Error has occurred
DIN1	DIN1 Error has occurred
Watchdog Timer	Watchdog Timer Error has occurred
Backlight	Backlight Error has occurred
SMART	SMART Error has occurred. Attribute (No.) (Attribute Name) Device (No.) (HD Model). The descriptions in parentheses vary depending on which error has occurred and which device it has occurred on. (0:Master, 1:Slave)

The actions taken when an error occurs and which are shown by the Event Viewer, are shown in the table below.

Type of Alert	Error Message
Buzzer	Buzzer has sounded because of an <i>xx</i> error.
Popup Message	Popup message has been shown because of an <i>xx</i> error.
OS Shutdown	Windows® has been shutdown due to an <i>xx</i> error.
DOUT0	DOUT0 has output because of <i>xx</i> error.
DOUT1	DOUT1 has output because of <i>xx</i> error.

**NOTE:**

- The data shown in the table uses *xx* to indicate the error type/location.
- The actions taken by the system after an error occurs are set via the System Monitor Property screen.
- When a +3.3 V error occurs and the buzzer sounds, two errors will be displayed by the Event Viewer: **+3.3 V Error has occurred** and **Buzzer has sounded because of a +3.3 V error**.



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# Maintenance

# 11

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## Subject of this Chapter

This chapter covers maintenance of the Compact 12”.

## What's in this Chapter?

This chapter contains the following topics:

Topic	Page
Reinstallation Procedure	110
Regular Cleaning and Maintenance	113

## Reinstallation Procedure

### At a Glance

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

### **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.
- Always use a properly rated voltage sensing device to confirm power is off.
- Unplug the power cable from both the Compact unit and the AC power supply.
- Replace and secure all covers or elements of the system before applying power to the unit.
- Use only the specified voltage when operating the Compact 12". This AC unit is designed to use 100...240 Vac input.

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

### **DANGER**

#### **CHEMICAL BURNS TO EYES OR SKIN**

- Do not use tools in the vicinity of the display or to operate the touch panel.
- When placing the display face-down, select a clean, level, non-abrasive surface. If necessary, place a soft, non-abrasive pad on the surface before lowering the unit.
- If a leak in the LCD panel is discovered and you come in contact with the liquid crystal material, follow these procedures:
  - In the case of contact with eyes or mouth, flush with running water for 15 minutes minimum.
  - In the case of contact with skin or clothing, wipe off the liquid crystal material and wash with soap and running water for 15 minutes.
  - If liquid crystal is ingested, induce vomiting, rinse mouth, and then drink a large quantity of water.
  - Follow any other hazardous substances safety procedures required by your facility.

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

## CAUTION

### **OVERTORQUE AND LOOSE HARDWARE**

- Do not exert more than 0.6 N•m (5.3 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 casing of the Compact 12”.
- When installing or removing screws, ensure that they do not fall inside the Compact 12” unit’s chassis.

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

## CAUTION

### **STATIC SENSITIVE COMPONENTS**

Compact 12” internal components, including accessories such as RAM modules and expansion boards, can be damaged by static electricity. Observe the electrostatic precautions below when handling such components.

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

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**

Before reinstalling the operating system, make sure that the following equipment is at hand:

- The restore CD-ROMs that were provided with the product
- An external CD-ROM drive
- A USB keyboard.

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

## Reinstallation

Proceed as follows:

Step	Action
1	Connect the external CD-ROM drive to the Compact iPC.
2	Insert the restore CD-ROM in the CD-ROM drive.
3	Follow the on screen instructions and when prompted to do so, insert the second CD.
4	Once installation is complete, remove the CD-ROM from the drive and restart the Compact iPC.



## Regular Cleaning and Maintenance

### 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 polycarbonate material of the screen.

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

### Removing and Cleaning the Fan Filter

Since excessive dirt and dust in the filter of the Compact's electric fan can potentially affect the performance of the unit, regular inspection and cleaning of the filter is strongly recommended.

### Cleaning the Fan Filter

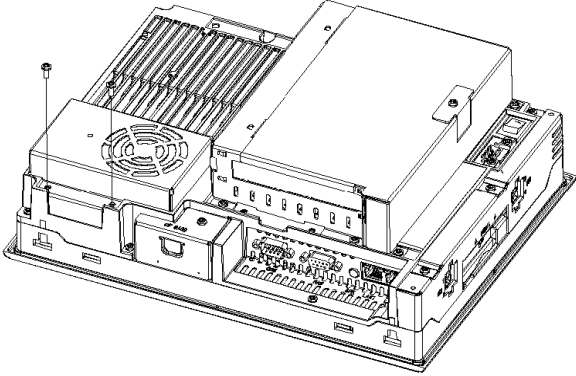
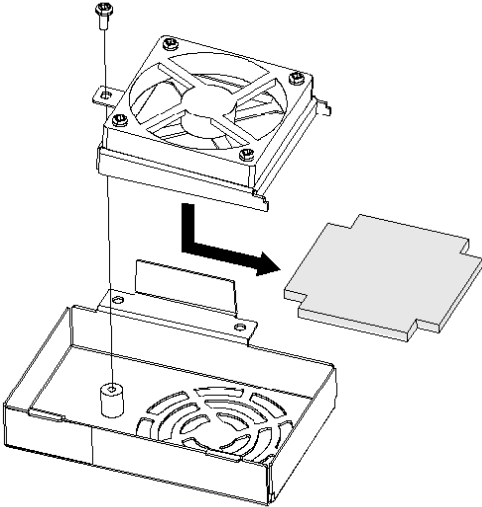
#### DANGER

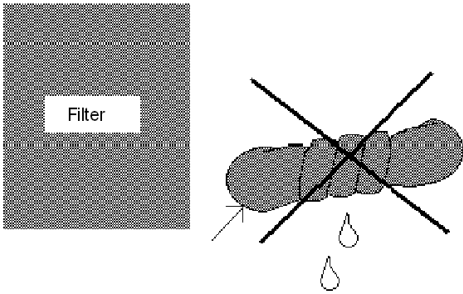
##### HAZARD OF ELECTRIC SHOCK, EXPLOSION OR ARC FLASH

Read and understand the safety information on previous pages (Refer to Reinstallation procedure (*see page 110*)) before attempting this procedure.

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

**Cleaning the Fan Filter**

Step	Action
1	Shut down Windows® in an orderly fashion, then remove all power from the device.
2	Remove the iPC from its mounting and place it on a flat level surface with the display facing downwards.
3	Unscrew the two screws from the fan cover and remove the fan unit. 
4	Turn the fan unit upside down. Unscrew the screw and lift the fan clear. Remove the filter from between the fan cover and the fan. Remove Filter 

Step	Action
5	<p>Clean the filter completely. If stubborn dirt or stains are present, wash the filter with a neutral detergent.</p> <p><b>NOTE:</b></p> <ul style="list-style-type: none"><li>● Do not wring the filter to dry it.</li><li>● When drying the filter, dry it without exposing it to direct sunlight.</li><li>● Allow it to air dry completely before reattaching to the Compact iPC.</li><li>● After replacing the filter to the filter cover, reattach the fan cover .</li></ul> <p>Filter Drying</p> 
6	Install the filter, replace the fan and tighten the screw on the fan cover.
7	Install the fan cover unit and tighten with the two screws. Ensure that the fan cover is securely attached to the Compact iPC unit.

## Installing a Replacement Gasket

### Installation Gasket

Use of the installation gasket may help extend the operating life of your Compact. The gasket is required to meet the protection ratings (IP65, IP20) of the unit and provides additional protection from vibration. Even if moisture protection is not required, install the gasket delivered with your Magelis product.

### CAUTION

#### LOSS OF SEAL

- Inspect the installation gasket prior to installation or reinstallation, and periodically as required by your operating environment.
- Replace the gasket 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 Compact into a panel that is flat and free of scratches or dents.
- Tighten the installation fasteners using a torque of 0.5 N•m (4.5 lb-in).

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

The corresponding gasket is provided in the maintenance kit ref: MPC YK 50 MNT KIT.

### Installation Fasteners

### CAUTION

#### OVERTORQUE AND LOOSE HARDWARE

- Do not exert more than 0.6 N•m (5.3 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 casing of the Compact 12".
- When installing or removing screws, ensure that they do not fall inside the Compact 12" unit's chassis.

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

**NOTE:** The screw installation fasteners are required for NEMA4 protection.

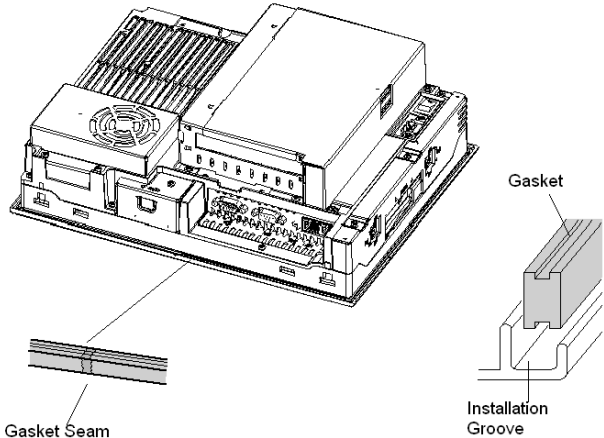
## ⚠ DANGER

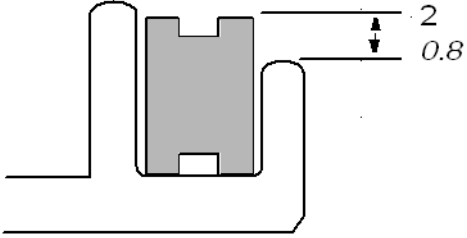
### HAZARD OF ELECTRIC SHOCK, EXPLOSION OR ARC FLASH

Read and understand the safety information on previous pages (Refer to Reinstallation procedure (*see page 110*) and Regular Cleaning and Maintenance (*see page 113*)) before attempting this procedure.

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

The table below describes how to replace the installation gasket.

Step	Action
1	Shut down Windows® in an orderly fashion, remove all power from the device.
2	Place the unit on a clean, level surface with the display facing downwards. Place a soft, non-abrasive pad on the surface before placing the unit upon it.
3	Remove the gasket from the unit.
4	<p>Attach the new gasket ensuring that the gasket's grooved sides are vertical. Ensure that the gasket's seam is not inserted into any of the corners of the unit as this may lead to tearing of the gasket.</p> <p>Gasket Installation</p> 

Step	Action
5	<p data-bbox="467 201 1218 277">Check that the gasket is correctly attached to the unit. The upper surface of the gasket should evenly protrude approximately 2 mm (0.08 in) out of the groove. Gasket Protrusion</p> <p data-bbox="491 321 536 370"><u>mm</u> <i>in.</i></p>  <p>The diagram shows a cross-section of a gasket (shaded gray) seated in a groove. The top surface of the gasket is shown protruding above the top edge of the groove. A vertical double-headed arrow on the right side of the diagram indicates the height of this protrusion, with the value '2' above it and '0.8' below it, representing 2 mm and 0.08 inches respectively.</p>
6	Replace the Compact unit on its mounting and reconnect the power.

### Periodic Inspection

Be sure to inspect the Compact unit periodically to determine its general condition. For example:

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

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# Troubleshooting

# 12

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## Troubleshooting

### Troubleshooting Checklist

This section explains how to find and resolve troubleshooting items with the Compact unit.

The Compact can be connected to a wide range of devices, including a host (PLC), however, this manual will not discuss every possible device or condition. For problems not directly related to the Compact unit, refer to that device's manual.

The most likely items for troubleshooting that can occur during usage of the Compact are:

- The Touch Panel display is blank
- The Touch Panel does not respond
- Connected devices cannot be used.

When one occurs, be sure to first read each checklist item and follow the instructions given. If this does not solve the problem, please contact your local Compact distributor.

When a hardware or software issue occurs that you cannot resolve, please contact the distributor where you purchased the Compact unit.

### No Display

Step	Check Item or Operation	Check Result	Action Required
1	Switch OFF the Compact power supply.		
2	Is the power cord connected correctly?		Connect the power cord correctly.
3	Is the power supply voltage within specification?		Please refer to Power Supply (see page 33).
4	Switch ON the power supply.		

Step	Check Item or Operation	Check Result	Action Required
5	Does the ON LED illuminate in green?		Power indicator does not light up or is orange/red blinking and you have no screen operation, contact the distributor where the Compact was purchased.
6	Does the Windows® operating system work normally?		If a white screen is displayed and Windows® does not work at all, please contact the distributor where the Compact was purchased.
–	Has the issue been resolved?		If not, please contact the distributor where the Compact was purchased.

### Touch Panel does not Respond

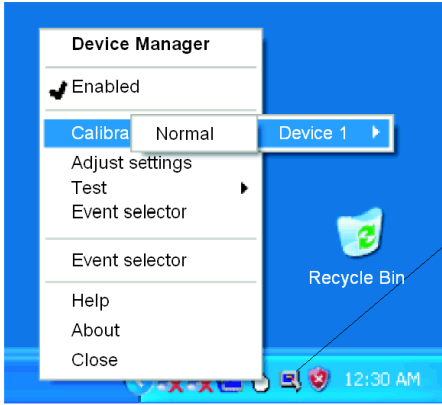

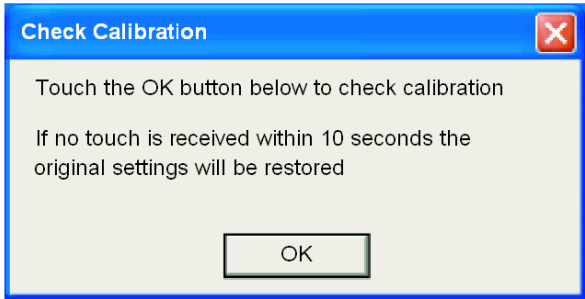
Step	Check Item or Operation	Check Result	Action Required
1	Has the Touch Panel been calibrated?		Calibrate the Touch Panel (See the procedure <i>Touch Panel Calibration</i> given below). If the Touch Panel cannot be calibrated, please contact the distributor where the Compact was purchased.
–	Has the issue been resolved?		If not, please contact the distributor where the Compact was purchased.




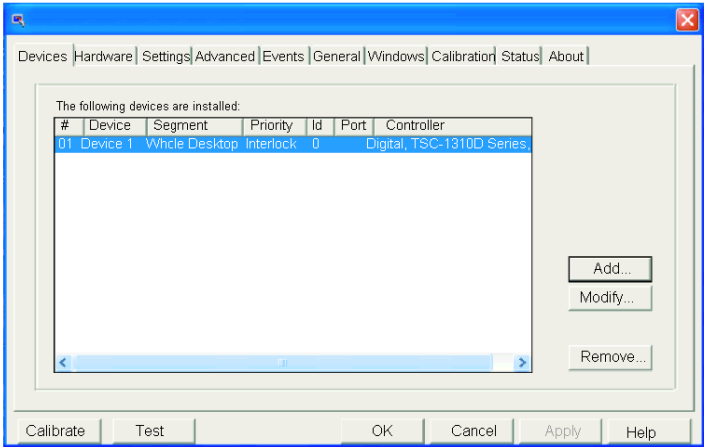
## Touch Panel Calibration

You have two possible procedures to calibrate the Touch Panel.

First procedure:

Step	Actions for procedure 1
1	<p>Click on the Touch Panel icon. Select 'Calibration', then 'Device 1':</p>  <p>The screenshot shows a 'Device Manager' window with a list of options. 'Calibration' is highlighted in blue, and a sub-menu is open showing 'Normal' and 'Device 1' (also highlighted in blue). Other options include 'Adjust settings', 'Test', 'Event selector', 'Event selector', 'Help', 'About', and 'Close'. A 'Recycle Bin' icon is visible on the desktop background. A label 'Touch Panel icon' with an arrow points to the 'Device 1' option in the sub-menu.</p>
2	<p>An arrow appears in the upper left corner of the Touch Panel: touch the red point with your finger. Do the same for the four corners:</p>  <p>The image shows a blue arrow pointing towards a small red dot located in the upper left corner of the touch panel area.</p>
3	<p>In order to validate the calibration, click on OK in the following window:</p>  <p>The screenshot shows a dialog box titled 'Check Calibration' with a close button (X) in the top right corner. The text inside reads: 'Touch the OK button below to check calibration' and 'If no touch is received within 10 seconds the original settings will be restored'. An 'OK' button is centered at the bottom of the dialog.</p>

Second procedure:

Step	Action for procedure 2
1	Open the 'Control panel' window.
2	Click on the 'Pointer Devices' icon:  
3	In the following window, click on 'Calibrate' (bottom left):  
4	Then follow steps 2 and 3 of the previous table.

### Connected Devices cannot be Used

Step	Check Item or Operation	Check Result	Action Required
1	Switch OFF the Compact power supply.		
2	Is the power cord connected correctly?		Connect the power cord correctly.
3	Are the peripheral devices connected correctly?		Follow the instructions described in the respective manual.

Step	Check Item or Operation	Check Result	Action Required
4	Switch ON the Compact power supply.		
5	Does this device require driver setup?		Refer to the device's manual and setup the driver.
–	Has the issue been resolved?		If not, please contact the distributor where the Compact was purchased.

## Recovery

Please refer to the reinstallation procedure. Refer to Reinstallation Procedure (*see page 110*).



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## Appendices



# IV

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## Accessories

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### Accessories for the Compact 12"

#### List

Accessories are available as options. The list of accessories available for the Compact 12" is shown below:

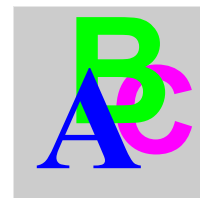
Description	Reference
RAM 1 GB	MPC YK22 RA 1024
Compact Flash 1 GB - Blank	MPC YN00 CF1 00N
Compact Flash 2 GB - Blank	MPC YN00 CF2 00N
Compact Flash 4 GB - Blank	MPC YN00 CF4 00N
Maintenance Kit including installation fasteners, installation screws and gasket	MPC YK20 MNT KIT
Protection sheet	MPC YK20 SPS KIT
Removable hard disk $\geq$ 80 GB for Compact 12" level 2. To be used with restore tool delivered with every compact 12" level 2.	MPC YNK2 SHD 20N
Removable solid state disk $\geq$ 16 GB for Compact level 2. To be used with restore tool delivered with every compact level 2.	MPC YNK2 MSD 20N
Removable STD hard disk for compact	MPC YNK2 SHD 20N
Removable medium SSD for compact	MPC YNK2 MSD 20N





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