Magelis Smart 15"

User Manual

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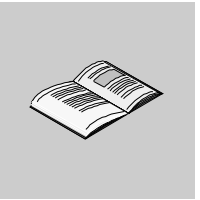

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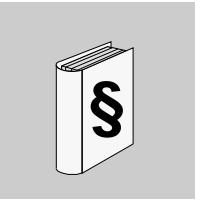
Safety Information



Important Information

NOTICE

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

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

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

⚠ DANGER

DANGER indicates 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, serious injury, or equipment damage.

⚠ CAUTION

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

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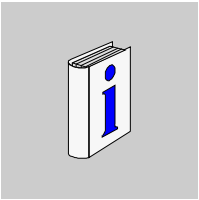
About the Book



At a Glance

Document Scope

This manual describes the configuration and usage of the Smart 15" from the Magelis industrial PC range.

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

The Magelis Smart 15’’ computer is a standalone product.

There are 2 versions of the Smart 15’’.

The product references are:

- MPC ST 52 NDJ 20T - Client edition
  - 24 Vdc
  - 15’’ XGA Touch screen
  - 600 MHz processor
  - Windows® XPe
  - Client application pre-installed
  - 1 GB Compact Flash card
- MPC ST 52 NAJ 20T - Client edition
  - 100 ... 240 Vac
  - 15’’ XGA Touch screen
  - 600 MHz processor
  - Windows® XPe
  - Client application pre-installed
  - 1 GB Compact Flash card
- MPC ST 52 NAJ 20H - Client edition
  - 100 ... 240 Vac
  - 15’’ XGA Touch screen
  - 600 MHz processor
  - Windows® XPe
  - Client application pre-installed
  - 1 GB Compact Flash card
- XBTGTW750 - Graphic Terminal
  - 24 Vdc

- 15’’ XGA Touch screen
- 600 MHz processor
- Windows® XPe with Vijeo Designer Run Time pre-installed
- 1 GB Compact Flash card

The characteristics of the Smart are detailed in chapter 3.

(See *Characteristics of the Smart 15", p. 36*).

Validity Note

General

The present documentation is intended for qualified technical personnel responsible for the implementation, operation and maintenance of the products described. It contains information necessary for the proper use of the products. However, those who wish to make a more "advanced" use of our products may find it necessary to consult our nearest distributor in order to obtain additional information.

The contents of this documentation are not contractual and in no way constitute an extension to, or restriction of, the contractual warranty clauses.

Registered Trademarks

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

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

Product Related Information

Some Smart 15" units are certified for use in Class I, Division 2 hazardous locations as defined in UL 1604. 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 15". 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.

⚠ 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 15" 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".*

Note: The Smart 15" 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 See *System Monitoring, p. 103*
- Operating system
- Installed hardware
- Installed software

User Comments

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

General Overview

I

At a Glance

Subject of this Part

This part provides an overview of the Magelis Smart 15" product.

What's in this Part?

This part contains the following chapters:

Chapter	Chapter Name	Page
1	Important Information	13
2	Physical Overview	25
3	Characteristics	35
4	Dimensions/Assembly	41

Important Information

1

Additional Safety Information

General

This chapter describes safety aspects which are specific to the operation of the Smart 15".

What's in this Chapter?

This chapter contains the following topics:

Topic	Page
Federal Communications Commission Radio Frequency Interference Statement - For U.S.A.	14
Qualified Personnel	15
Safety Information for the UK	16
Certifications and Standards	18
European (CE) Compliance	19
Hazardous Location Installations - For USA and Canada	20

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 Smart 15'' in such a manner that it does not radiate sufficient electromagnetic energy to cause interference in nearby devices.
- Install and test the Smart 15'' to ensure that the electromagnetic energy generated by nearby devices does not interfere with the Smart's operation.

⚠ WARNING

ELECTROMAGNETIC / RADIO INTERFERENCE

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

- Increase the distance between the Smart 15'' and the interfering equipment.
- Reorient the Smart 15'' and the interfering equipment.
- Reroute power and communication lines to the Smart 15'' and the interfering equipment.
- Connect the Smart 15'' and the interfering equipment to different power supplies.
- Always use shielded cables when connecting the Smart 15'' to a peripheral device or another computer.

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

Qualified Personnel

General

Only qualified personnel are authorized to implement, operate or maintain the products. The interference of non-qualified persons or failure to observe the security instructions contained in this manual, or attached to the devices, can endanger the personnel and/or do irreparable damage to the equipment. The following personnel can be designated as "qualified personnel":

- 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

UNGROUNDED 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. Incorrectly wired power cords are a major cause of fatalities.

⚠ 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

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

North America:

- Underwriters Laboratories Inc., UL 508, Industrial Control Equipment
- Underwriters Laboratories Inc., UL 1604/cUL, Electrical Equipment for Use in Class I, Division 2 Hazardous (Classified) Locations
- Canadian Standards Association, Specification C22.2, No. 142, Process 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

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, p. 39*.

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.

Hazardous Location Installations - For USA and Canada

General

Schneider Automation designed the Smart 15'' with the intention of meeting the requirements of Class I, Division 2 hazardous location applications. Division 2 locations are those locations where ignitable concentrations of flammable substances are normally confined, prevented by ventilation, or present in an adjacent Class I, Division 1 location, but where an abnormal situation might result in intermittent exposure to such ignitable concentrations.

While the Smart 15" is a non-incendiary device under UL 1604, it is not designed for, and should never be used within a Division 1 (normally hazardous) location.

All MPC ST 55 NDJ ••• and XBTGTW750 devices with appropriate labeling are suitable for use in Class I, Division 2, Groups A, B, C, and D hazardous locations or in non-hazardous locations. Before installing or using your Smart 15", confirm that the UL 1604 certification appears on the product labeling.

At the present time, all MPC ST 55 NAX ••• devices are only suitable for use in non-hazardous locations. Do not use these AC-powered devices in hazardous locations.

Note: Some Smart 15" devices are not yet rated as suitable for use in hazardous locations. Always use your product in conformance with the product labeling and this manual.

⚠ DANGER

EXPLOSION HAZARD

- Do not use your Smart 15" device in hazardous environments or locations other than Class I, Division 2, Groups A, B, C, and D.
- Always confirm that your Smart 15" device is suitable for use in hazardous locations by checking that the UL 1604 certification appears on the product labeling.
- Do not install any Schneider Electric or OEM components, equipment, or accessories unless these have also been qualified as suitable for use in Class I, Division 2, Groups A, B, C, and D locations.
- In addition, confirm that any PCI controller cards have a temperature code (T-code) of T4A, and are suitable for an ambient temperature range of +0°C to +50°C (32°F to 122°F).
- Do not attempt to install, operate, modify, maintain, service, or otherwise alter the Smart 15" except as permitted in this manual. Unpermitted actions may impair the unit's suitability for Class I, Division 2 operation.

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

⚠ DANGER

EXPLOSION HAZARD

- Always confirm the UL 1604 hazardous location rating of your device before installing or using it in a hazardous location.
- To apply or remove the supply power from a Smart 15" device installed in a Class I, Division 2 hazardous location, you must either:
  - Use a switch located outside the hazardous environment, or;
  - Use a switch certified for Class I, Division 1 operation inside the hazardous area.
- Do not connect or disconnect any cables or wires while the circuit is live unless the area is known to be free of ignitable concentrations of vapors, gases, and other flammable or combustible materials. This applies to all connections including power, ground, serial, parallel, and network connections.
- Never use unshielded / ungrounded cables in hazardous locations.
- Use only non-incendiary USB devices as described in *Control Drawing of the USB outlet on the Magelis iPC, p. 71*.
- When enclosed, keep enclosure doors and openings closed at all times to avoid the accumulation of foreign matter inside the workstation.

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

⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION OR ARC FLASH

- Remove all power from the device before removing any covers or elements of the system, and prior to installing or removing any accessories, hardware, or cables.
- Always use a properly rated voltage sensing device to confirm power is off.
- Unplug the power cable from both the Smart 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 Smart 15’’. 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.

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

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

Power Switch

⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION OR ARC FLASH

- Remove all power from the device before removing any covers or elements of the system, and prior to installing or removing any accessories, hardware, or cables.
- Always use a properly rated voltage sensing device to confirm power is off.
- Unplug the power cable from both the Smart 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 Smart 15''. 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.

The amount of input power required by systems including a Smart 15'' unit classifies a power switch as an incendiary device because the voltage and current across the make/break device are capable of creating a spark.

Hazardous location regulations require that a power switch rated for ordinary locations may be used if it is located in an area specified as non-hazardous.

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

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

Cable Connections

⚠ DANGER

EXPLOSION HAZARD

- Always confirm the UL 1604 hazardous location rating of your device before installing or using it in a hazardous location.
- To apply or remove the supply power from a Smart 15'' device installed in a Class I, Division 2 hazardous location, you must either:
  - Use a switch located outside the hazardous environment, or;
  - Use a switch certified for Class I, Division 1 operation inside the hazardous area.
- Do not connect or disconnect any cables or wires while the circuit is live unless the area is known to be free of ignitable concentrations of vapors, gases, and other flammable or combustible materials. This applies to all connections including power, ground, serial, parallel, and network connections.
- Never use unshielded / ungrounded cables in hazardous locations.
- Use only non-incendiary USB devices as described in *Control Drawing of the USB outlet on the Magelis iPC, p. 71*.
- When enclosed, keep enclosure doors and openings closed at all times to avoid the accumulation of foreign matter inside the workstation.

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

Division 2 hazardous location regulations require that all cable connections be provided with adequate strain relief and positive interlock. Use only non-incendiary USB devices as USB connections do not provide adequate strain relief to allow the use of incendiary peripherals (see *p. 71*) for further details. Never connect or disconnect a cable while power is applied at either end of the cable. All communication cables should include a chassis ground shield. This shield should include both copper braid and aluminum foil. The D-sub style connector housing should be a metal conductive type (e.g., molded zinc) and the ground shield braid should be well terminated directly to the connector housing. Do not use a shield drain wire.

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

Operation and Maintenance

The systems have been designed for compliance with relevant spark ignition tests. However, please note that the workstation front panel keypad switches and PS/2 connector are the only make/break components intended to be exercised by the operator in the course of operations in a hazardous location.

⚠ DANGER

EXPLOSION HAZARD

In addition to the other instructions in this manual, observe the following rules when installing the Smart 15" unit in a hazardous location:

- Wire the equipment in accordance with the National Electrical Code article 501.4 (B) for Class I, Division 2 hazardous locations.
- Install your Smart 15'' unit in an enclosure suitable for the specific application. NEMA Type 4 (IP 65) enclosures are recommended even when not required by regulations.

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

Physical Overview

2

At a Glance

Subject of this Chapter

This chapter provides a physical overview of the product.

What's in this Chapter?

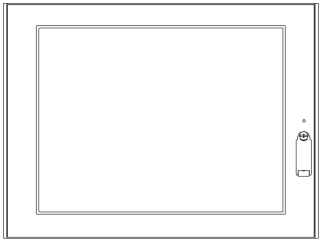
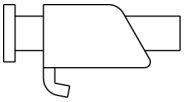
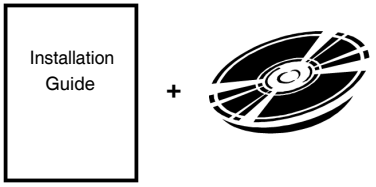
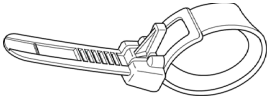
This chapter contains the following topics:

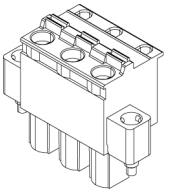
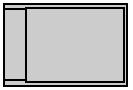
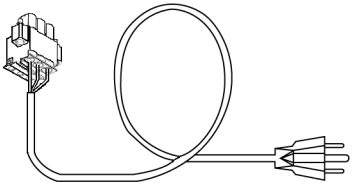
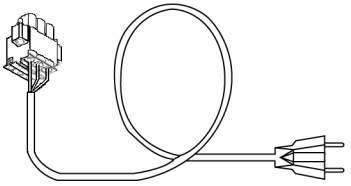
Topic	Page
Package Contents	26
Smart 15" Unit Description	28
Interface Specification	31

Package Contents

Items

The following items are included in the Magelis Smart 15’’ package. Before using the unit, please confirm that all items listed here are present.

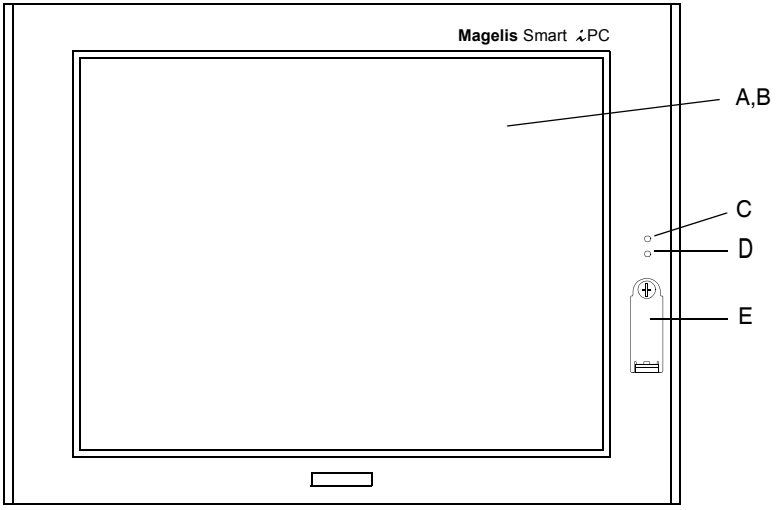
MPC ST52 ••• ••	
Installation Fasteners (8 per set)	
CD-ROM containing the software required to reinstall the Operating System, the Installation Guide and this User Manual documentation, and the MS Windows EULA.	
Installation Gasket (Installed on the main unit)	
USB Cable Clamp x 2	

DC Connector (For the Smart 15'' DC only, references MPC ST 52 NDJ 20T and XBTGTW750)	
CF Card	
AC Power Cord with Terminal Block (US plug) (For the Smart 15'' AC only, references MPC ST 52 NAJ 20•)	
AC Power Cord with Terminal Block (EU plug) (For the Smart 15'' AC only, references MPC ST 52 NAJ 20•)	

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.

Smart 15" Unit Description

Front View



A Display

B Touch Panel

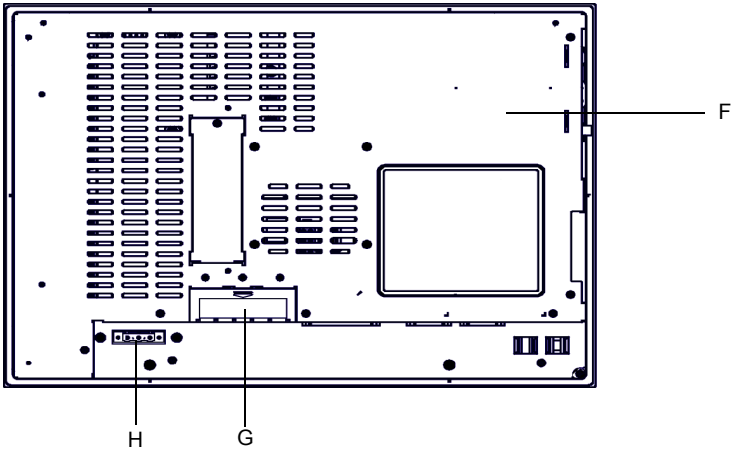
C Power LED/RAS Status Lamp
- Green Lit: Normal
- Green Blinking: System is not running (Soft OFF state (see Note below))
- Orange Lit: System Monitor Error/Touch Panel Error
- Orange/Red Blinking: Backlight Error
- Not Illuminated: Power is Off

D 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

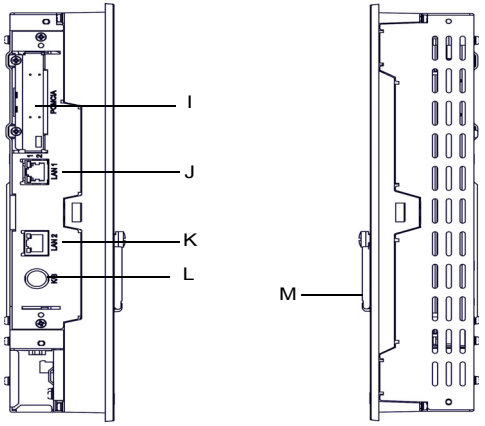


F Unit's Cover

G CF Card Interface Cover

H Power Connector

Sides View



I PCMCIA

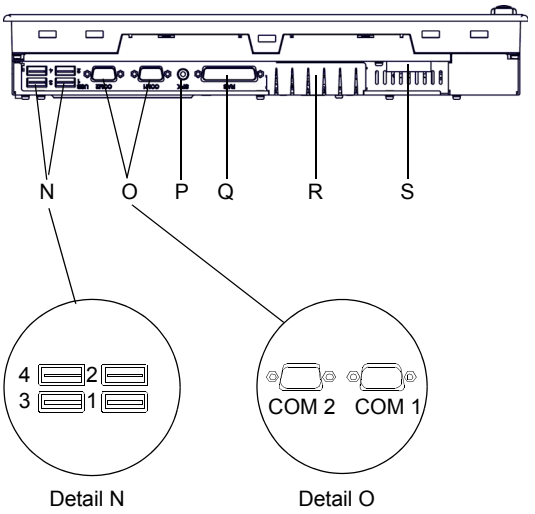
J Ethernet LAN1 10/100Base-T (RJ45)

K Ethernet LAN2 10/100/1000Base-T (RJ45)

L PS/2 (Keyboard)

M Front USB Cover

Bottom View



N USB (4 ports) (See detail N)

O COM 1 and COM 2 (See detail O)

P Speaker Out

Q RAS (25 pins)

R CF Card Interface Cover

S Power Connector

Interface Specification

Communication Connections

⚠ DANGER

EXPLOSION HAZARD

- Always confirm the UL 1604 hazardous location rating of your device before installing or using it in a hazardous location.
- To apply or remove the supply power from a Smart 15'' device installed in a Class I, Division 2 hazardous location, you must either:
  - Use a switch located outside the hazardous environment, or;
  - Use a switch certified for Class I, Division 1 operation inside the hazardous area.
- Do not connect or disconnect any cables or wires while the circuit is live unless the area is known to be free of ignitable concentrations of vapors, gases, and other flammable or combustible materials. This applies to all connections including power, ground, serial, parallel, and network connections.
- Never use unshielded / ungrounded cables in hazardous locations.
- Use only non-incendiary USB devices as described in Control Drawing of the USB (See *Control Drawing of the USB outlet on the Magelis iPC, p. 71*).
- When enclosed, keep enclosure doors and openings closed at all times to avoid the accumulation of foreign matter inside the workstation.

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

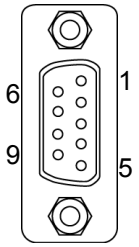
⚠ WARNING

EQUIPMENT DISCONNECTION OR UNINTENDED EQUIPMENT OPERATION

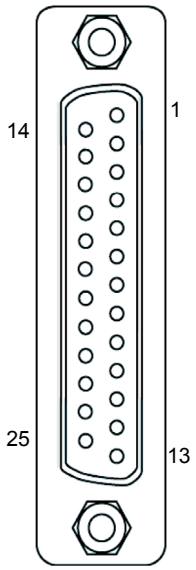
- Ensure that power, communication, and accessory connections do not place excessive stress on the ports. Consider the vibration environment when making this determination.
- Securely attach power, communication, and external accessory cables to the panel or cabinet.
- Use only commercially available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

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

Serial Interfaces **COM 1 and COM 2**: These interfaces are used to connect an RS-232C (serial) cable. A SUB-D 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 (+ 5Vdc)
	Shell	FG	–	Frame Ground (Common with SG)

RAS Interface The types of sockets for SUB-D 25 pins are listed in the table below:

Pin arrangement	Pin No.	Signal Name	Meaning
	1	GND	Ground
	2	+5Vdc	Output current: 100 mA or less (with a total of 2 pin and 15 pin) Output voltage: 5Vdc +/- 5%
	3	+12Vdc	Output current: 100 mA or less Output voltage: 12Vdc +/- 5%
	4	NC	-
	5	RST(+)	Reset in(+)
	6	DIN0(+)	Data in 0(+)
	7	DOUT2(-) UPS Shutdown(-)	Data out 2(-) (UPS Shutdown(-))
	8	DOUT2(+) UPS Shutdown(+)	Data out 2(+) (UPS Shutdown(+))
	9	DOUT0(-)	Data out 0(-)
	10	DOUT0(+)	Data out 0(+)
	11	RST(-)	Reset in(-)
	12	DIN0(-)	Data in 0(-)
	13	DIN1(+)	Data in 1(+)
	14	GND	Ground
	15	+5 Vdc	Output current: 100 mA or less (with a total of 2 pin and 15 pin) Output voltage: 5Vdc +/- 5%
	16	DIN2(+)	Data in 2(+)
	17	DIN2(-)	Data in 2(-)
	18	DIN3(+)	Data in 3(+)
	19	DOUT1(-)	Data out 1(-)
	20	DOUT1(+)	Data out 1(+)
	21	DOUT3(-)	Data out 3(-)
	22	DOUT3(+)	Data out 3(+)
	23	DIN3(-)	Data in 3(-)
	24	DIN1(-)	Data in 1(-)
	25	NC	-

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 (DIN 0, 1, 2, 3)

INPUT VOLTAGE RANGE	**12...24 Vdc**
INPUT CURRENT	Below 10 mA
INNER RESISTOR	3.6 KΩ
INSULATION VOLTAGE	Below 500 Vac
INSULATION	Photocoupler

Output (DOUT 0,1, 2, 3)

OUTPUT VOLTAGE RANGE	**24 Vdc**
OUTPUT CURRENT	Below 120 mA
INSULATION VOLTAGE	Below 500 Vac
INSULATION	Photocoupler

Characteristics

3

At a Glance

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 Smart 15"	36
Environmental Characteristics	39

Characteristics of the Smart 15"

Introduction

The characteristics of the Smart 15" are given below:

Product Characteristics

Element	Characteristics
Processor	ULV Celeron M 600 MHz, secondary memory cache 512 KB
RAM	256 MB - 1 GB RAM. See *Accessories for the Smart 15", p. 141*
Video processor	Integrated Intel 855 GME video, sharing main memory. 8/16/32 bit color resolution at 1024x768.
Ethernet TCP/IP link	LAN1: 10/100Base-T LAN2: 10/100/1000Base-T
USB ports	4 x USB 2.0 (bottom side), 1 x USB 2.0 (front face)
Keyboard	PS/2 interface (mini Din 6 pin, female)
RAS Interface	D-SUB 25 Pin x1 (male)
COM 1 and COM 2 serial ports	RS232C
Memory flash card slot	Compact Flash type
PCMCIA slot	2 ports on side (Type II)
Audio port	Speaker out (mini-jack interface)
Dimensions (WxHxD)	395 x 294 x 60 mm (15.55 x 11.57 x 2.36 in.)
Weight	6.0 kg (13.23 lb)

Note: If a USB high speed device such as a webcam or a memory key isn't recognized by the Smart, 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	16,777,216
Brightness	250 cd/m2
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 Smart 15'' DC (References MPC ST52 NDJ 20T and XBTGTW750):

Element	Characteristics
Supply voltage	24 Vdc (19.2 Vdc to 28.8 Vdc)
Consumption	90 W (max.)
Short dips	5 ms (max.)
PCI extension slot capability	Board size 240 x 106.68 mm (9.45 x 4.2 in.) ● 5 Vdc, 1.5 A ● 12 Vdc, 0.5 A ● 12 Vdc, 0.1 A ● 3.3 Vdc, 0.5 A

For the Smart 15'' AC (References MPC ST52 NAJ 20•):

Element	Characteristics
Supply voltage	100...240 Vac (Range 85 ... 265 Vac)
Consumption	150 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.) ● 5 Vdc, 1.5 A ● 12 Vdc, 0.5 A ● 12 Vdc, 0.1 A ● 3.3 Vdc, 0.5 A

Operating Systems

The products are delivered with a preinstalled operating system according to the reference ordered: Microsoft Windows® XPe.

Reference	Characteristics
MPC ST52 NDJ 20T	Smart with 15" XGA Display, Touch screen, Celeron M 600 MHz, 1 GB Compact Flash with Windows® XPe preinstalled, DC supply power. (Client Edition).
MPC ST52 NAJ 20•	Smart with 15" XGA Display, Touch screen, Celeron M 600 MHz, 1 GB Compact Flash with Windows® XPe preinstalled, AC supply power. (Client Edition).
XBTGTW750	Smart with 15" XGA Display, Touch screen, Celeron M 600 MHz, 1 GB Compact Flash with Windows® XPe and Vijeo Designer Run Time pre installed, DC supply power. (Graphical Terminal).

Environmental Characteristics

Characteristics The environmental characteristics of the Smart 15" 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 (32 ... 122 °F)	EN 61131-2, UL 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	0 ... 2000 m (0 ... 6561.5 ft)	EN 61131-2
Vibration (storage)	3.5 mm amplitude from 5 to 9 Hz, 1 g amplitude from 9 to 150 Hz	EN 61231-2
Vibration (in operation)	0.075 mm amplitude from 10 to 57.6 Hz, 1 g amplitude from 57.6 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 61231-2
Immunity to interference	High frequency interference	EN 61131, IEC 61000-4-3/6 level 3
	Electromagnetic waves	Class A/EN 55022/55011
Additional Standards	Information Technology Equipment	IEC 60950
	Information Control Equipment	UL 508, CSA 22.2, No142

Dimensions/Assembly

4

At a Glance

Subject of this Chapter

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

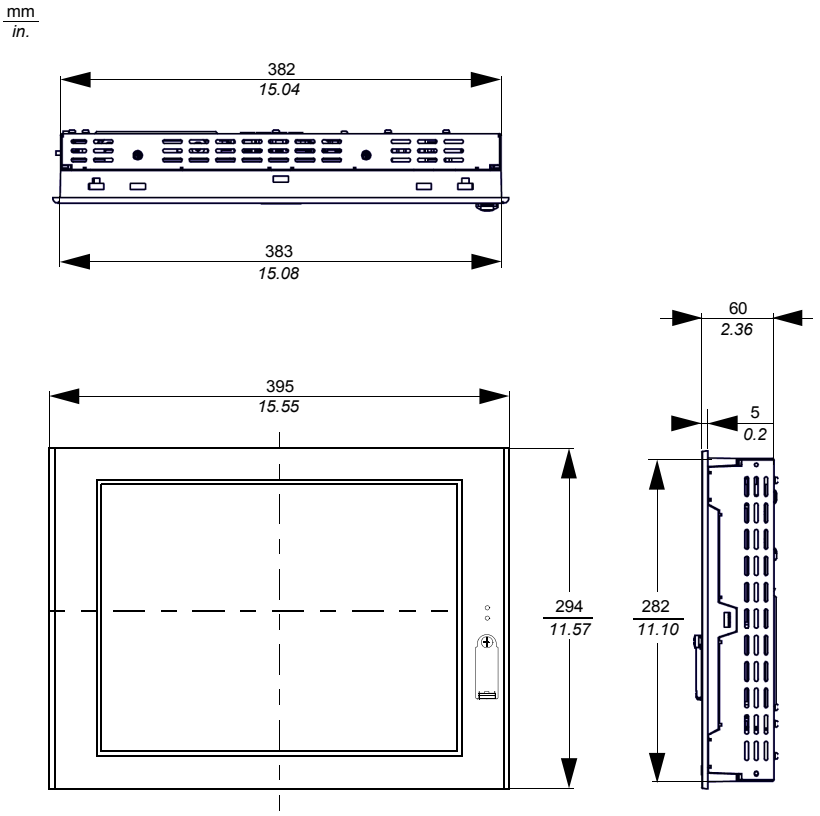
What's in this Chapter?

This chapter contains the following topics:

Topic	Page
Dimensions	42
Panel Mounting	45
Preparing to Install the 15" Smart	47

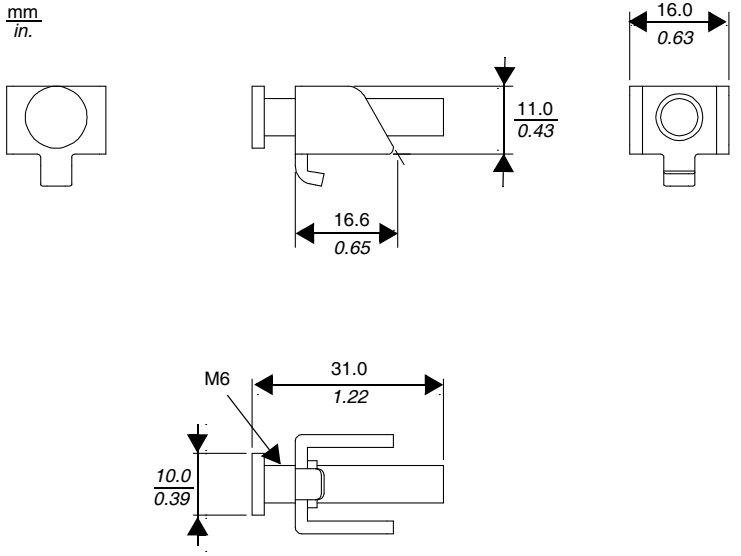
Dimensions

Dimensions of the Smart Unit

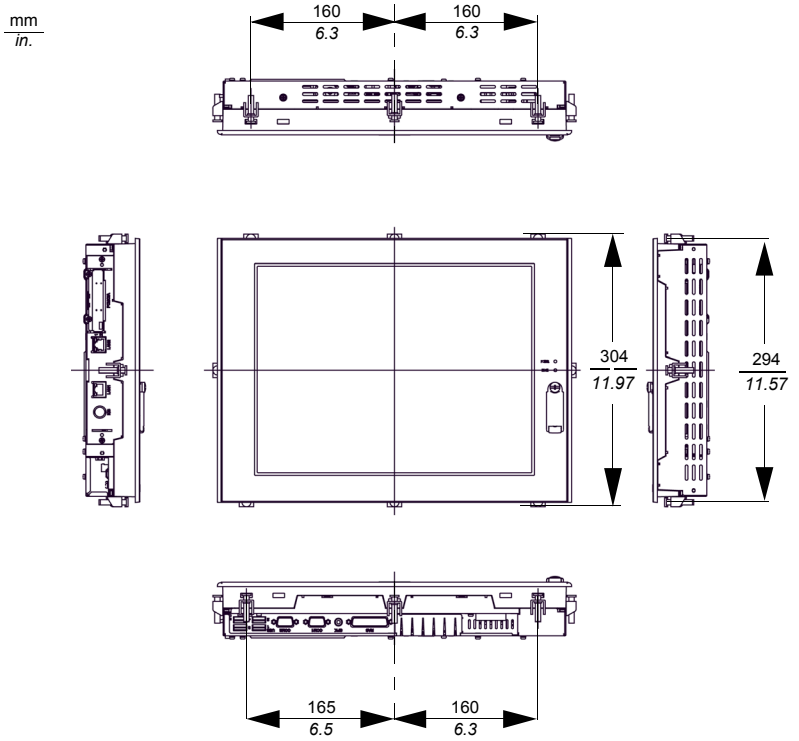


Installation-Fastener Dimensions

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



Dimensions with Installation Fasteners



Panel Mounting

Installation Location

⚠ WARNING

UNINTENDED EQUIPMENT OPERATION

Overheating can cause incorrect software behavior, up to and including Vijeo malfunctions:

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

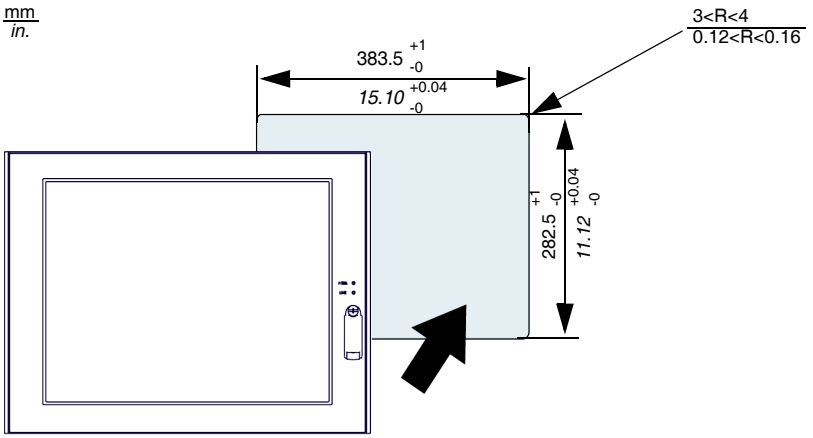
Failure to follow these instructions can result in death, serious injury, or equipment damage.

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 Smart.

Dimensions

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



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 Smart 15" is designed for use in a NEMA Type 4X or 12 enclosure.

Preparing to Install the 15" Smart

Vibration and Shocks

Extra care should be taken with respect to the specification concerning vibration levels when installing or moving the Smart. If the Smart 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 Smart 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 Smart 15" 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 Smart 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 Smart 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

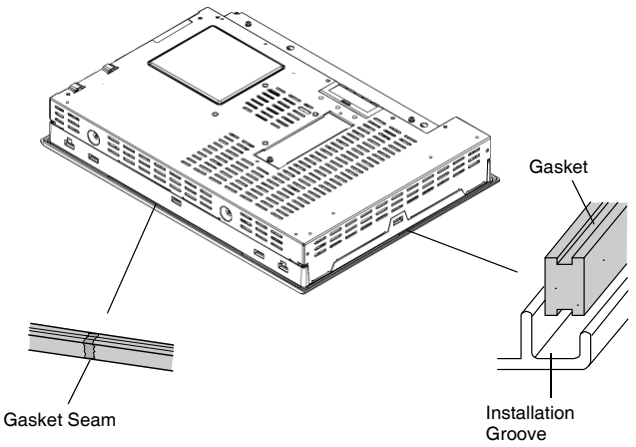
- Do not exert more than 0.6 N•m (5.3 lb-in) of torque when tightening the installation fastener, enclosure, accessory, or terminal block screws. Tightening the screws with excessive force can damage the plastic casing f the Smart15"
- When installing or removing screws, be careful that they do not fall inside the Smart 15" unit's chassis.

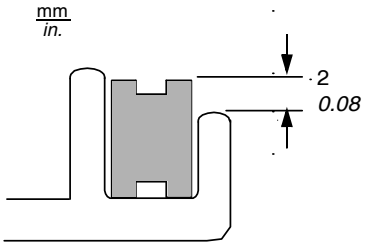
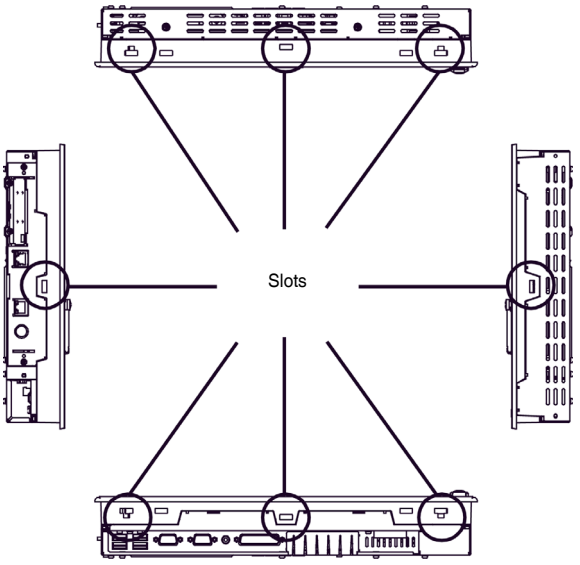
Failure to follow these instructions can result in injury or equipment damage.

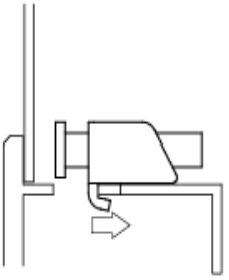
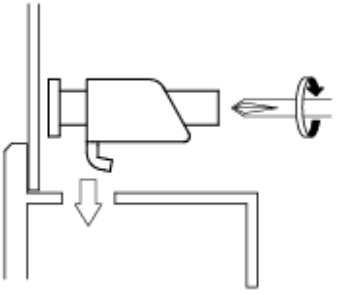
Note: The screw installation fasteners are required for NEMA4 protection.

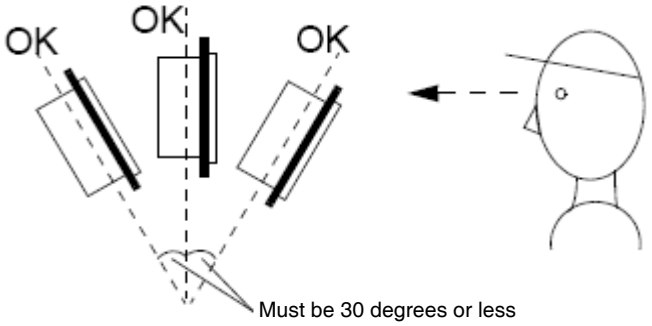
Installing the Smart Unit

Follow the steps given below when installing the Smart.

Step	Action
1	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): 

Step	Action
2	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. **Note:** When installing the Smart unit's installation gasket, avoid contact with the sharp edges of the Smart's frame, and press the gasket completely into its groove. 
3	Insert each installation fastener securely into the slot’s recess at the top and bottom of the unit: 

Step	Action
4	Attach and Secure the Rear Installation Attachments: **Note:** ● Excessive torque may damage the Smart unit. ● To ensure a high degree of moisture resistance, the torque should be 0.5 N•m (4.5 lb-in). ● Insert each of the fasteners as shown below. Be sure to pull the fasteners back until it is flush with the rear of the attachment hole.
5	Insert each of the fasteners. Pull the fastener back until it is flush with the rear of the attachment hole. Note: The corresponding installation attachments can be purchased as spare parts with the maintenance kit ref.: MPC YK 50 MNT KIT. 
6	Use a screw driver to tighten to 0.5 N•m (4.5 lb-in) each of the fastener screws and secure the Smart in place: 

Step	Action
7	Smart Viewing Angle (See *p. 37*). 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). 

Implementation

II

At a Glance

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	55
6	Main Power Connection	59
7	Configuration of the BIOS	73
8	Hardware Modifications	77

Getting Started

5

First Power-up

License Agreement

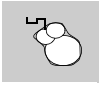
Note: Limitations on your usage of the Windows XPe Operating System are noted in Microsoft's End User License Agreement (EULA). This EULA is included on the CD-ROM. Please read this document before first power-up.

On first power-up of your MPC••, it is necessary to customize and set the parameters for your system. Refer to the Magelis Installation Guide.

Install, customize and parameterize the Schneider Electric applications (Unity pro, PL7 Junior or PL7 Pro, Vijeo Designer, Vijeo Designer Lite, OFS, MMI 17, XBTL 1000, PL7-07).

Some Useful Tools

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

Icon	Usage
	This is the virtual keyboard. Once you click on it, a graphical keyboard is displayed. It is useful when you do not want to connect, or cannot connect a keyboard to the unit.
	This is the virtual mouse button selector. It allows the user to associate the next "click" to a "right click". 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).
	These icons indicate the status of the Enhanced Write Filter (EWF) Manager. They are located in the system tray on the Windows taskbar.

EWF Manager Enhanced Write Filter

The Magelis Smart operating system, Windows® XPe, is installed on a memory cartridge. This cartridge is a rewritable "Compact Flash" card and it allows approximately 100,000 write operations before it should be replaced.

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

Therefore, if the EWF is enabled, a restart of the Smart 15" will cause any changes the user made to the system to be overwritten. The following types of modifications may be overwritten if the EWF Manager is active and the system is restarted:

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

⚠ CAUTION

DATA AND CONFIGURATION LOSS

- Disable the EWF Manager before making any permanent changes to the hardware, software, or Operating System of the Smart 15" device. Confirm that the EWF icon in the Windows system tray has a red "X".
- Re-enable the EWF Manager after making permanent changes and confirm that the EWF icon in the Windows system tray does not have a red "X". This can help extend the operating life of the CF Card.
- Back up all CF Card data regularly to another storage media.

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

Enabling/ Disabling of EWF Manager

The status of the EWF Manager may be changed by running the `ChangeEWFstate.exe` program located in the `C:\Program files\Schneider Electric\EWF` directory. After running this program, a system restart is required for the change to take effect. Administrator privileges are required to enable and disable the EWF Manager.

Main Power Connection

6

At a Glance

Subject of this Chapter

This chapter describes the connection of the Smart 15" to the main power supply.

What's in this Chapter?

This chapter contains the following topics:

Topic	Page
Grounding	60
Installing the Power Switch Cover	63
Connecting the DC Power Cord	65
Connecting the AC Power Cord	69
Control Drawing of the USB outlet on the Magelis iPC	71

Grounding

Overview

The grounding resistance between the Smart's Frame Ground (FG) and Ground must be 100 Ω or less. When using a long grounding wire, check the resistance and if required replace a thin wire with a thicker wire and place it in a duct. In addition, 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^2 (14 AWG)	30 m (98 ft.)
	60 m (196 ft.) round trip.
1.5 mm^2 (16 AWG)	20 m (65 ft.)
	40 m (131 ft.) round trip.

Precaution

⚠ WARNING

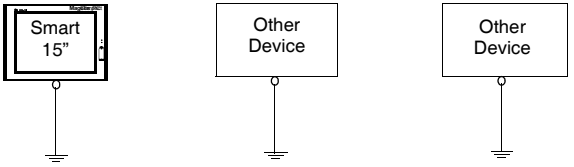
UNINTENDED EQUIPENT OPERATION

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

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

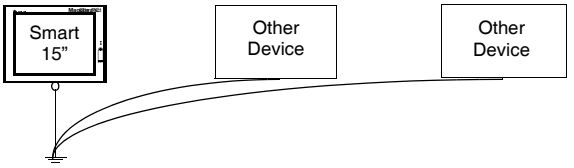
Dedicated Ground

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



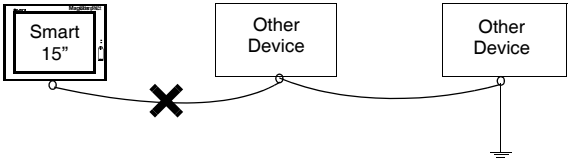
Shared Ground Allowed

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



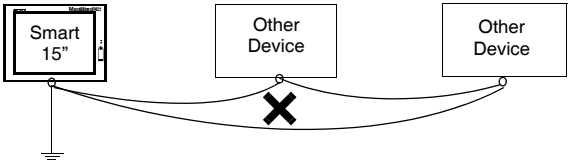
Shared Ground not Allowed

Do not connect the Smart 15’’ unit to ground through other devices using the SG terminals.



Shared Ground - Avoid Ground Loop

When connecting an external device to a Smart with the Shield Ground (SG), ensure that no ground loop is created. The Smart’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 Ω or less.
2	When connecting the SG line to another device, ensure that the design of the system/ connection does not produce a ground loop. **Note: the SG and FG terminals are connected internally in the Smart 15".**
3	Wherever possible, use 2 mm^2 (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, p. 60*. Create the connection point as close to the iCP as possible and make the wire as short as possible.

Grounding I/O Signal Lines

⚠ DANGER

EXPLOSION HAZARD

- Always confirm the UL 1604 hazardous location rating of your device before installing or using it in a hazardous location.
- To apply or remove the supply power from a Smart 15'' device installed in a Class I, Division 2 hazardous location, you must either:
  - Use a switch located outside the hazardous environment, or;
  - Use a switch certified for Class I, Division 1 operation inside the hazardous area.
- Do not connect or disconnect any cables or wires while the circuit is live unless the area is known to be free of ignitable concentrations of vapors, gases, and other flammable or combustible materials. This applies to all connections including power, ground, serial, parallel, and network connections.
- Never use unshielded / ungrounded cables in hazardous locations.
- Use only non-incendiary USB devices as described in *Control Drawing of the USB outlet on the Magelis iPC, p. 71*.
- When enclosed, keep enclosure doors and openings closed at all times to avoid the accumulation of foreign matter inside the workstation.

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

⚠ WARNING

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 Smart's Frame Ground (FG).

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

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

Installing the Power Switch Cover

Introduction

In hazardous locations, AC powered devices must be equipped with a power switch compliant with Class I, Division 2 requirements (see *p. 20*).

To make the power switching compliant with Class I, Division 1 requirements, you must:
- install a power switch cover on your Smart unit power switch
- use only a remote main power switch located outside the Smart unit location to switch power on or off.

⚠ DANGER

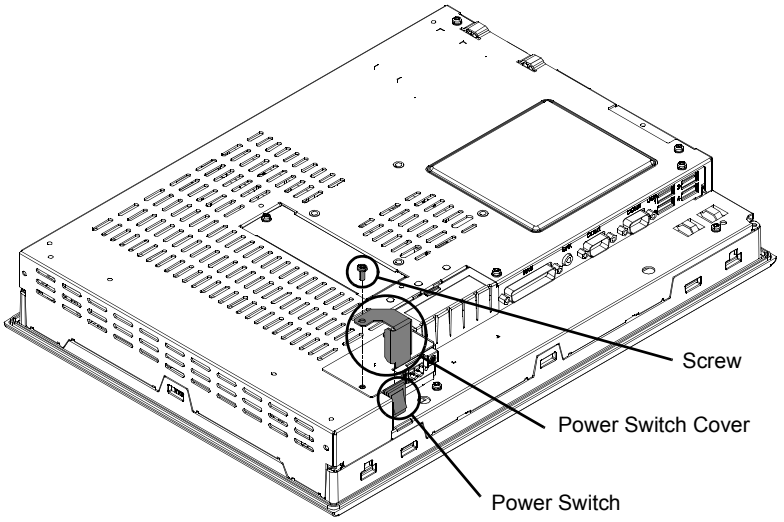
HAZARD OF ELECTRIC SHOCK, EXPLOSION OR ARC FLASH

- 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 Smart 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 Smart 15". 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.

Installing the Power Switch Cover

The procedure below describes how to install a power switch cover:

Step	Action
1	Shut down Windows® in an orderly fashion and remove all power from the device.
2	Remove the Smart unit from its mounting and place it on a clean level surface with the front panel facing downwards.
3	Switch ON the power switch.
4	Attach the power switch cover with the screw. Use a torque of 0.5 to 0.6 N•m (4.5 to 5.3 lb-in): 
5	First ensure that the power cord is disconnected from the main power supply, then connect the power cord to the Smart unit (see *p. 69*).

Remote Main Power Switch

Note: After installing the Smart unit power switch cover, this power switch should not be used anymore.
To power on or off, you must either:

- use the main power switch located outside the Smart unit location, or:
- connect or disconnect the AC power cord connector, located outside the Smart unit location, from the main power supply connector.

Connecting the DC Power Cord

Precaution

When connecting the Smart unit's power cable to the power connector on the unit, first ensure that the power cord is disconnected from the main DC power supply.

⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION OR ARC FLASH

- Remove all power from the device before removing any covers or elements of the system, and prior to installing or removing any accessories, hardware, or cables.
- Always use a properly rated voltage sensing device to confirm power is off.
- Unplug the power cable from both the Smart 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 Smart 15". 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.

⚠ WARNING

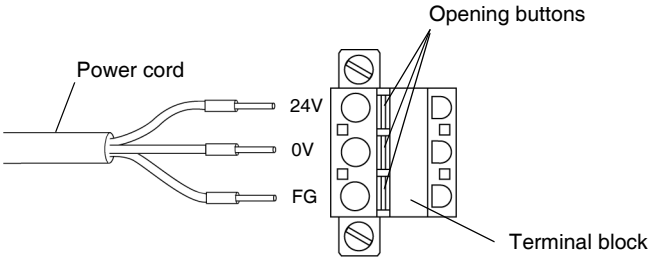
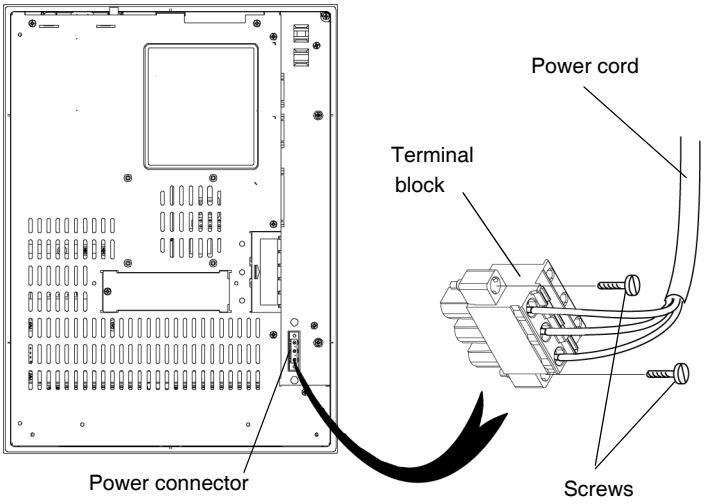
EQUIPMENT DISCONNECTION OR UNINTENDED EQUIPMENT OPERATION

- 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.

Wiring and Connecting the Terminal Block (DC Smart Version)

When wiring and connecting the Smart power cables, be sure to follow the procedures given below:

Step	Action
1	Remove all power from the Smart 15" and confirm that the DC power supply has been disconnected from its power source.
2	Connect the power cord (See *p. 26*) to the terminal block as shown below. 
3	Place the terminal block in the power connector and tighten the screws. The recommended torque to tighten these screws is 0.5 N•m (4.5 lb-in): 

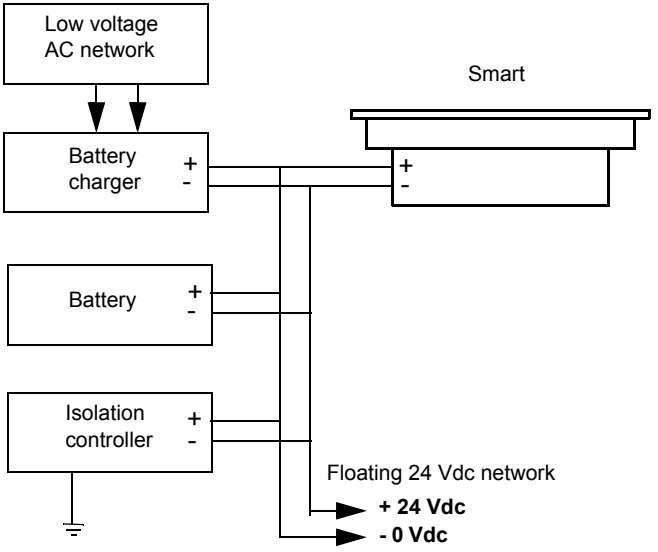
Note: The 24 Vdc power supply inside the DC-powered Smart unit is protected by an 8A fuse. This fuse is located inside the power supply and cannot be accessed or replaced by the user.

Possible Connections

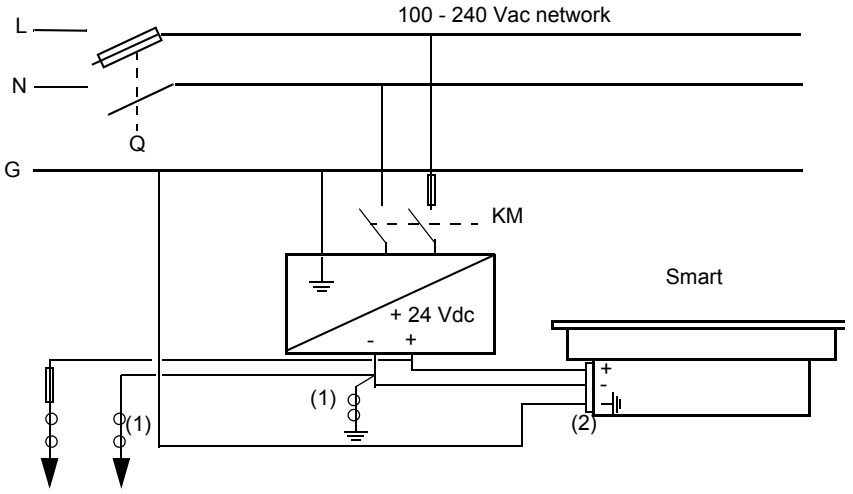
Connection to a Floating (Ungrounded) DC Power System:

Some specific applications require the use of a floating (ungrounded) power system. The characteristics of such as system, as it might apply when a DC-powered Smart 15” is installed, are as follows:

- The 0 Vdc power line and Frame Ground (FG) are connected internally.
- The 24 Vdc power line is isolated from the FG and from the outputs. The dielectric strengths for these are:
  - Primary/Secondary: 1000 Vac
  - Primary/Ground: 1000 Vac



Connection to a Ground-Referenced DC Power System:



Q : Mains Power Contactor
KM : Line contactor
(1) : Residual Current Detector for detecting grounding faults
(2) : Terminal block

Note: Schneider suggests the use of the TSX SUP 1101 DC Power Supply to provide the Smart unit's 24 Vdc power.

Connecting the AC Power Cord

Precaution

⚠ 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 Smart 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 Smart 15''. 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.

⚠ WARNING

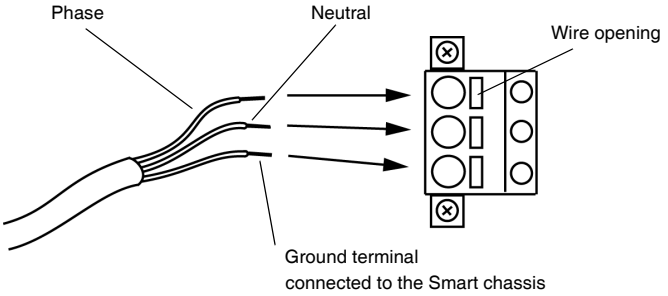
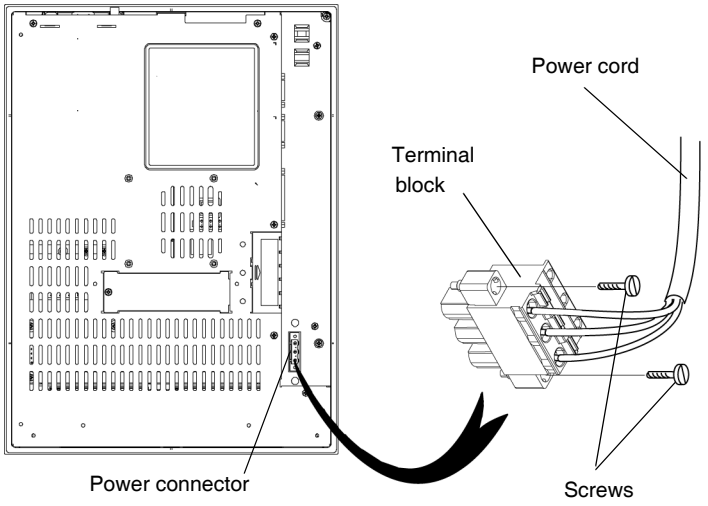
EQUIPMENT DISCONNECTION OR UNINTENDED EQUIPMENT OPERATION

- 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 Smart Version)

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

Step	Action
1	Connect the power cord to the terminal block as shown below: 
2	Place and screw the terminal block on the Smart unit's power connector. Tighten the screws using a torque of 0.5 to 0.6 N•m (4.5 to 5.3 lb-in) 

Control Drawing of the USB outlet on the Magelis iPC

Introduction

The information below concerns the use of the USB outlet located on the front panels of the Magelis iPC used in Class I, Division 2 Groups A, B, C, and D hazardous locations.

⚠ DANGER

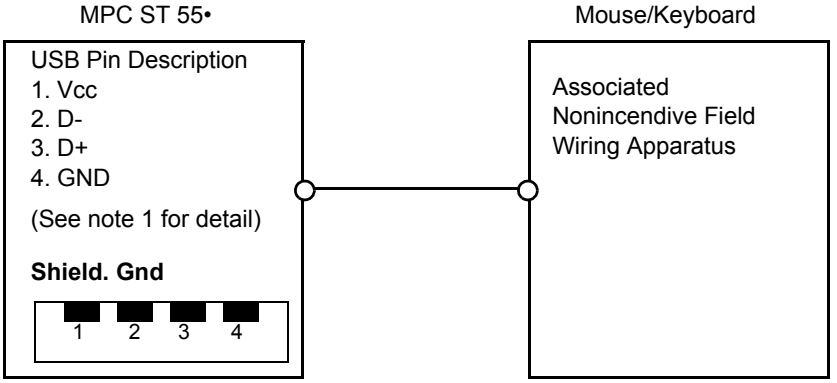
EXPLOSION HAZARD

- Always confirm the UL 1604 hazardous location rating of your device before installing or using it in a hazardous location.
- To apply or remove the supply power from a Smart 15'' device installed in a Class I, Division 2 hazardous location, you must either:
  - Use a switch located outside the hazardous environment, or;
  - Use a switch certified for Class I, Division 1 operation inside the hazardous area.
- Do not connect or disconnect any cables or wires while the circuit is live unless the area is known to be free of ignitable concentrations of vapors, gases, and other flammable or combustible materials. This applies to all connections including power, ground, serial, parallel, and network connections.
- Never use unshielded / ungrounded cables in hazardous locations.
- Use only non-incendiary USB devices.
- When enclosed, keep enclosure doors and openings closed at all times to avoid the accumulation of foreign matter inside the workstation.

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

Description

Non incendive equipment (keyboards, mouse) are permitted for use on the Smart 15'' unit's Front USB port. In addition to being non incendive, any equipment connected to the Front USB port must satisfy the following criteria (information taken from Schneider Electric document 35016429):



Notes:

1. Non incendive Circuit Parameters:

Front USB Port:	
Open-circuit voltage	Voc = 5.0 V
Short-circuit current	Isc = 1.25 A
Associated capacitance	Ca = 10 µF
Associated inductance	La = 16 µH

2. Associated Nonincendive Field Wiring Apparatus shall satisfy the following:

Associated Nonincendive Field Wiring Apparatus (Mouse, Keyboard)	**-**	**Magelis iPC**
Voc	≤	Vmax
Isc	≤	Imax
Ca	≥	Ci + C cable
La	≥	Li + L cable

3. If the electrical parameters of the cable are unknown, the following values may be used: Capacitance = 60pF/ft and Inductive = 0.20 µH/ft.

4. Nonincendive Field Wiring must be installed in accordance with article 501.4(B)(3) of the National Electrical Code ANSI/NFPA 70.

5. Associated Nonincendive Field wiring Apparatus shall not contain or be connected to another source of power.

Configuration of the BIOS

7

Accessing the BIOS

Overview

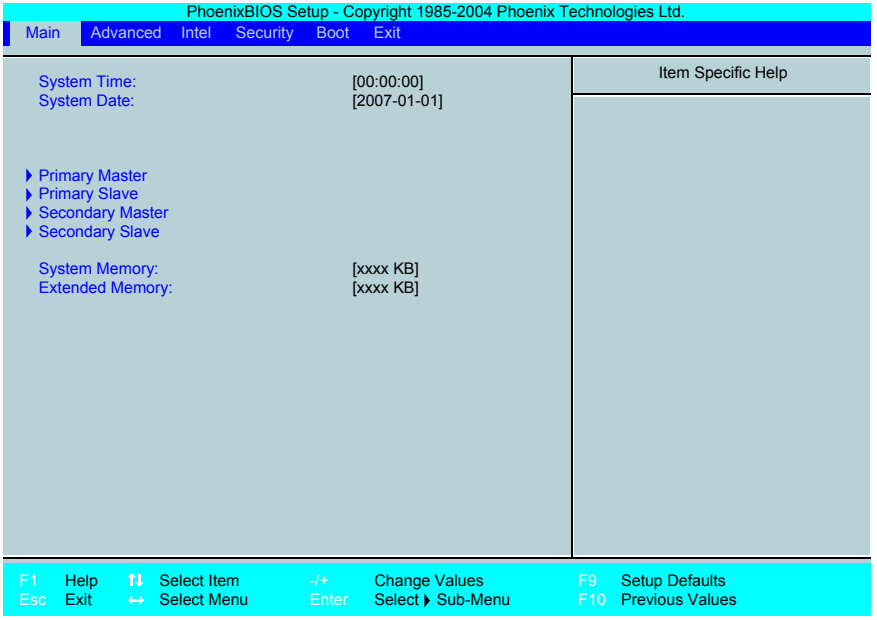
Note: Normally, factory (defaults) settings should be used.

Connect a USB or PS/2 keyboard to the Smart unit.

Switch on the Smart unit power 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 key 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 Smart 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 Smart 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/Jun/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 Smart. 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 Smart. Pressing the Enter key will call up the `Parameter Settings` menu.

System Memory

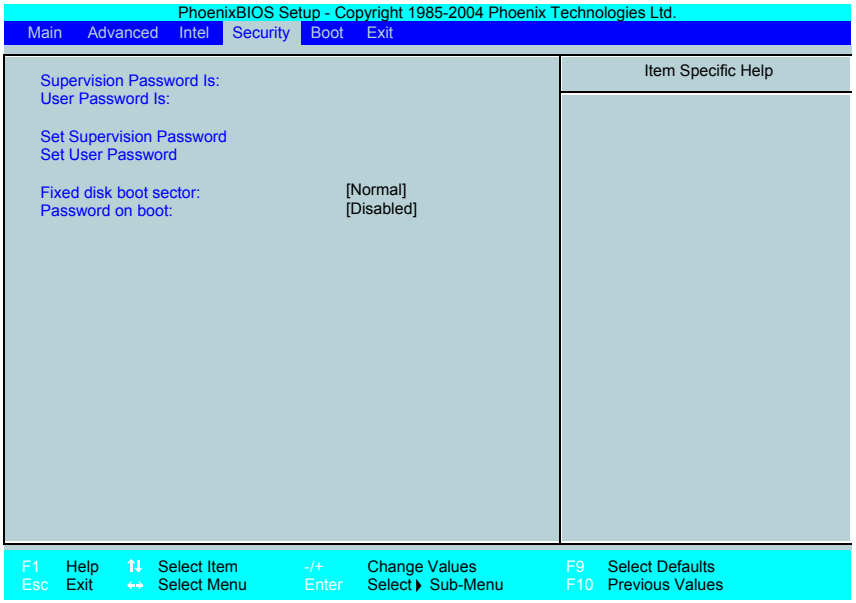
Displays the capacity of the System Memory.

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 Smart unit.

Exit BIOS Without Saving Modifications

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

Hardware Modifications

8

At a Glance

Subject of this Chapter

This chapter concerns the hardware modifications for the Magelis Smart 15".

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

What's in this Chapter?

This chapter contains the following topics:

Topic	Page
Before Modifications	78
Removing the Smart Unit’s Cover	81
Smart 15" Internal View	82
USB Front Face	83
Installing a Larger RAM Chip	86
PCMCIA Card Installation	89
Compact Flash (CF) Card Installation and Removal	92
USB Cable Clamp Attachment/Removal	96

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 Smart 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 Smart 15". 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.

⚠ 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.

⚠ DANGER

EXPLOSION HAZARD

- Always confirm the UL 1604 hazardous location rating of your device before installing or using it in a hazardous location.
- To apply or remove the supply power from a Smart 15’’ device installed in a Class I, Division 2 hazardous location, you must either:
  - Use a switch located outside the hazardous environment, or;
  - Use a switch certified for Class I, Division 1 operation inside the hazardous area.
- Do not connect or disconnect any cables or wires while the circuit is live unless the area is known to be free of ignitable concentrations of vapors, gases, and other flammable or combustible materials. This applies to all connections including power, ground, serial, parallel, and network connections.
- Never use unshielded/ungrounded cables in hazardous locations.
- Use only non-incendiary USB devices as described in Control Drawing of the USB outlet (See *p. 71*).
- When enclosed, keep enclosure doors and openings closed at all times to avoid the accumulation of foreign matter inside the workstation.

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

⚠ 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 Smart 15".
- When installing or removing screws, be careful that they do not fall inside the Smart 15" unit's chassis.

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

⚠ CAUTION

STATIC SENSITIVE COMPONENTS

Smart 15" 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.

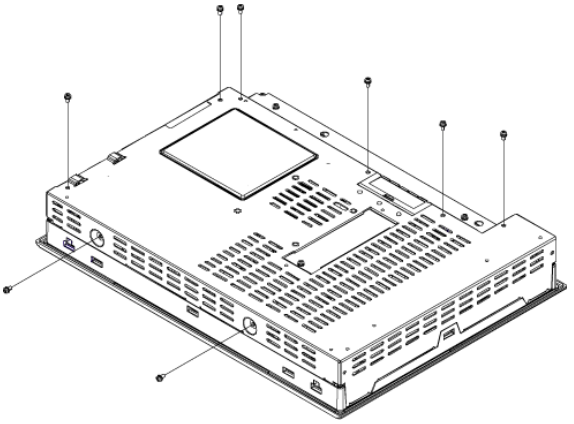
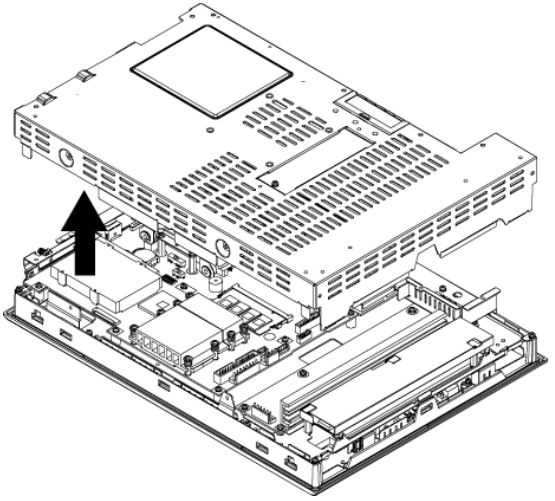
Failure to follow these instructions can result in injury or equipment damage.

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 conductive wrist strap connected to the component through a minimum of one megaohm resistance.
- Avoid touching exposed conductors and component leads with skin or clothing.

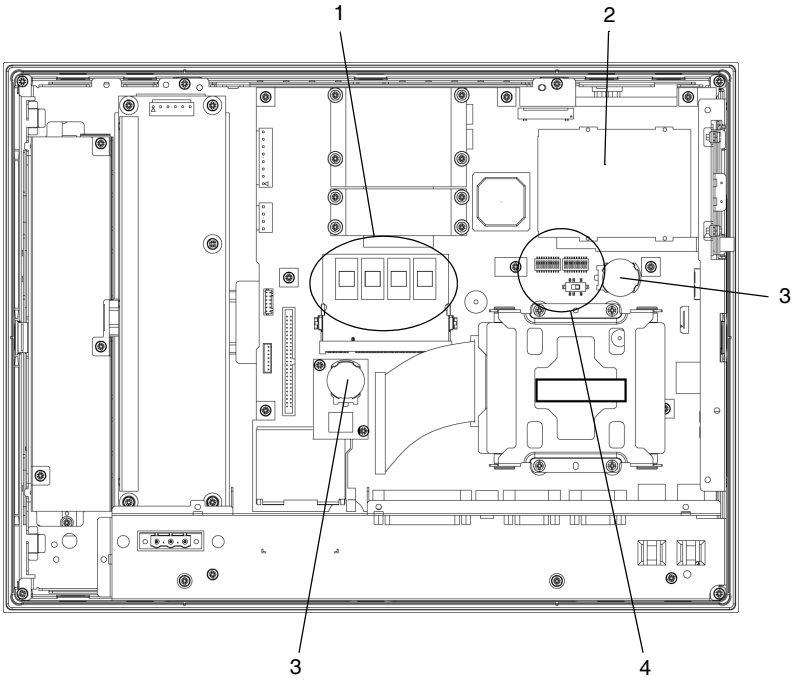
Removing the Smart Unit's Cover

How to Remove the Smart Unit's Cover

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. If necessary, place a soft, non-abrasive pad on the surface before placing the unit.
3	Loosen the screws attaching the cover as shown below: 
4	Remove the cover as shown below: 

Smart 15" Internal View

Illustration



Description

Number	Description
1	Main Memory Installation Area
2	PCMCIA Slot (2 ports)
3	Battery
4	USB Front Face Setting Location (Activation/Deactivation)

USB Front Face

Enabled/ Disabled State

⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION OR ARC FLASH

Read and understand the safety information on *Before Modifications, p. 78* and *Removing the Smart Unit's Cover, p. 81* before attempting this procedure.

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

⚠ DANGER

CHEMICAL BURNS TO EYES OR SKIN

Read and understand the safety information on *Before Modifications, p. 78* and *Removing the Smart Unit's Cover, p. 81* before attempting this procedure.

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

⚠ DANGER

EXPLOSION HAZARD

Read and understand the safety information on *Before Modifications, p. 78* and *Removing the Smart Unit's Cover, p. 81* before attempting this procedure.

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

⚠ CAUTION

OVERTORQUE AND LOOSE HARDWARE

Read and understand the safety information on *Before Modifications, p. 78* and *Removing the Smart Unit's Cover, p. 81* before attempting this procedure.

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

⚠ CAUTION

STATIC SENSITIVE COMPONENTS

Read and understand the safety information on *Before Modifications, p. 78* and *Removing the Smart Unit's Cover, p. 81* before attempting this procedure.

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

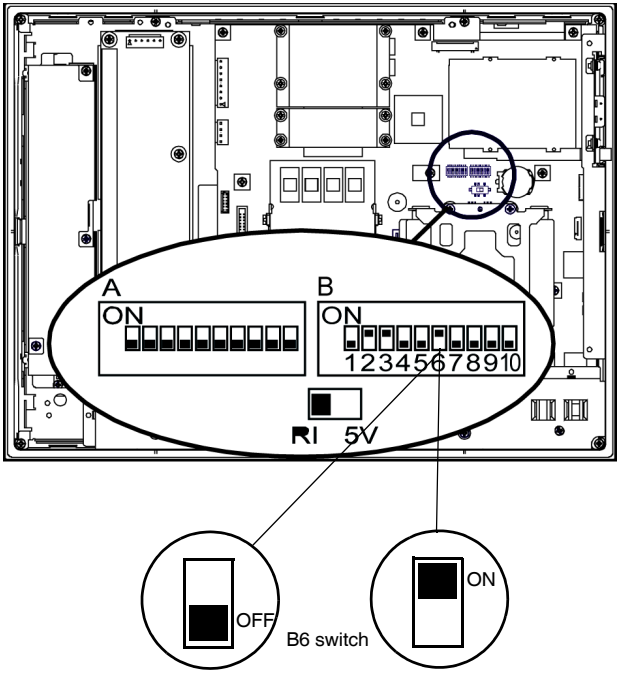
⚠ WARNING

EQUIPMENT DISCONNECTION OR UNINTENDED EQUIPMENT OPERATION

Read and understand the safety information on *Before Modifications, p. 78* and *Removing the Smart Unit's Cover, p. 81* before attempting this procedure.

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

In order to enable/disable the USB front face port, follow the procedure given 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. If necessary, place a soft, non-abrasive pad on the surface before placing the unit.
3	Remove the Smart's rear cover. See *p. 81*
4	The figure below shows the switch (B6) on the mother board which enables/disables the state of the USB front face port: 
5	When you have completed your adjustments to switch B6, confirm all switches are in their proper positions and replace the Smart unit's cover.

⚠ WARNING

UNINTENDED EQUIPMENT OPERATION

Before replacing the Smart's cover, confirm that all switches other than B6 are still in their default positions as indicated in the preceding figure.

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

Installing a Larger RAM Chip

General

⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION OR ARC FLASH

Read and understand the safety information on *Before Modifications, p. 78* and *Removing the Smart Unit's Cover, p. 81* before attempting this procedure.

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

⚠ DANGER

CHEMICAL BURNS TO EYES OR SKIN

Read and understand the safety information on *Before Modifications, p. 78* and *Removing the Smart Unit's Cover, p. 81* before attempting this procedure.

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

⚠ DANGER

EXPLOSION HAZARD

Read and understand the safety information on *Before Modifications, p. 78* and *Removing the Smart Unit's Cover, p. 81* before attempting this procedure.

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

⚠ CAUTION

OVERTORQUE AND LOOSE HARDWARE

Read and understand the safety information on *Before Modifications, p. 78* and *Removing the Smart Unit's Cover, p. 81* before attempting this procedure.

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

⚠ CAUTION

STATIC SENSITIVE COMPONENTS

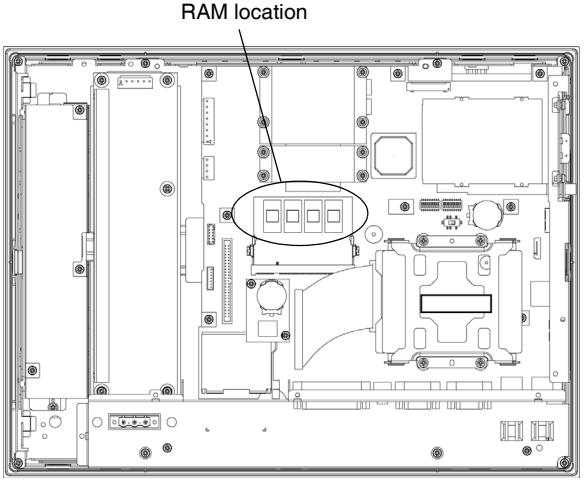
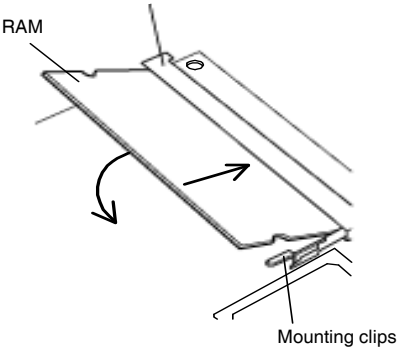
Read and understand the safety information on *Before Modifications, p. 78* and *Removing the Smart Unit's Cover, p. 81* before attempting this procedure.

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

Note: If you install a 1GB RAM chip, a blue screen will appear for about 4 minutes the first time you start the terminal. After this installation the terminal will start as usual.

Installing a RAM Chip

The table below describes how to install the Main Memory (RAM) module

Step	Action
1	Shut down Windows® in an orderly fashion and remove all power from the device. Then remove the Smart's rear cover according to the instructions in section *p. 81*.
2	Release the two (2) RAM mounting clips, carefully remove the old RAM module from the holder and store it in its anti-static bag. 
3	Position the new RAM module so that the side with the RAM chips is facing up, and the contacts are facing the connector. Insert the RAM chip at an angle to the connector, applying even pressure until the contacts mate with the connector. Press the module flat ensuring that both mounting clips lock into place. 
4	Replace the Smart unit's cover and reinstall the unit.

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.

⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION OR ARC FLASH

Read and understand the safety information in the section *Before Modifications, p. 78* before attempting this procedure.

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

⚠ DANGER

CHEMICAL BURNS TO EYES OR SKIN

Read and understand the safety information in the section *Before Modifications, p. 78* before attempting this procedure.

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

⚠ DANGER

EXPLOSION HAZARD

Read and understand the safety information on *Before Modifications, p. 78* and *Removing the Smart Unit's Cover, p. 81* before attempting this procedure.

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

⚠ CAUTION

OVERTORQUE AND LOOSE HARDWARE

Read and understand the safety information in the section *Before Modifications, p. 78* before attempting this procedure.

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

⚠ CAUTION

STATIC SENSITIVE COMPONENTS

Read and understand the safety information in the section *Before Modifications, p. 78* before attempting this procedure.

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

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.

⚠ WARNING

EQUIPMENT DISCONNECTION OR UNINTENDED EQUIPMENT OPERATION

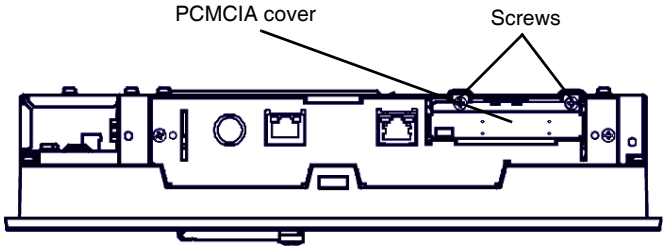
- Ensure that power, communication, and accessory connections do not place excessive stress on the ports. Consider the vibration environment when making this determination.
- Securely attach power, communication, and external accessory cables to the panel or cabinet.
- Use only commercially available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

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

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)

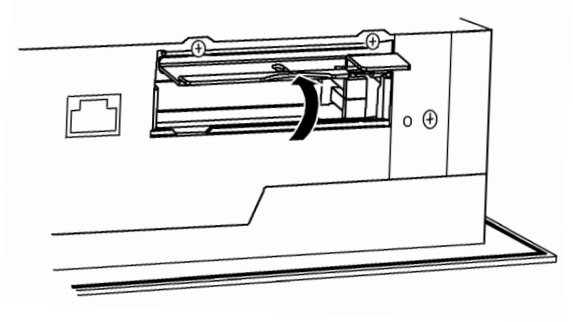
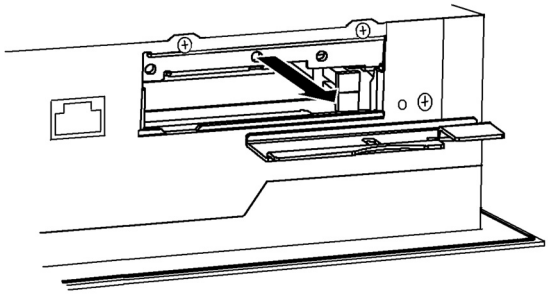
Installing a Type I or Type II PCMCIA Card

The table below describes how to install a Type I or Type II PCMCIA Card:

Step	Action
1	To install a Type I or Type II PCMCIA card, loosen the screws on the side of the PCMCIA slot and move the cover to one side. 
2	Press the eject button twice. Insert the PCMCIA card into the lower slot and push it in until the PCMCIA pins mate with the slot connector pins.

Installing a Type III PCMCIA Card

The table below describes how to install a Type III PCMCIA Card:

Step	Action
1	To install a Type III PC card, unscrew the PCMCIA slot cover and remove the cover as shown below: 
2	
3	Press both eject buttons twice. Insert the PCMCIA card into the slots and push it in until the PCMCIA pins mate with the slots connector pins.

Removing a PCMCIA Card

The table below describes how to remove a PCMCIA Card:

Step	Action
1	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.
2	Reposition the PCMCIA slot cover and tighten the screw.

Compact Flash (CF) Card Installation and Removal

Preparing to use a CF Card

The Smart'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 CARD DAMAGE AND DATA LOSS

- Remove all power before doing anything with the CF card.
- Use only CF cards manufactured by Schneider Electric. The performance of the Smart 15" 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.

⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION OR ARC FLASH

Read and understand the safety information in the section *Before Modifications, p. 78* before attempting this procedure.

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

⚠ DANGER

CHEMICAL BURNS TO EYES OR SKIN

Read and understand the safety information in the section *Before Modifications, p. 78* before attempting this procedure.

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

⚠ DANGER

EXPLOSION HAZARD

Read and understand the safety information on *Before Modifications, p. 78* and *Removing the Smart Unit's Cover, p. 81* before attempting this procedure.

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

⚠ CAUTION

OVERTORQUE AND LOOSE HARDWARE

Read and understand the safety information in the section *Before Modifications, p. 78* before attempting this procedure.

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

⚠ CAUTION

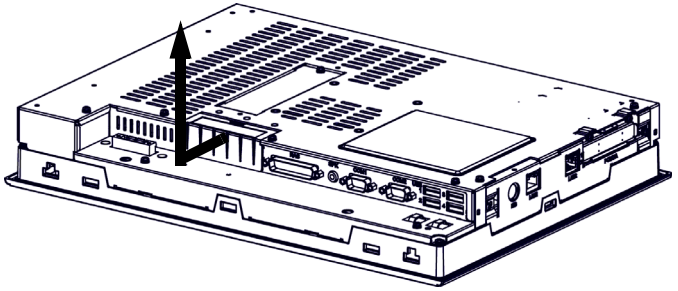
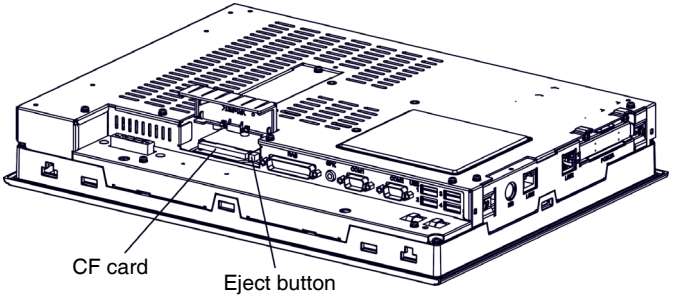
STATIC SENSITIVE COMPONENTS

Read and understand the safety information in the section *Before Modifications, p. 78* before attempting this procedure.

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

Inserting the CF Card

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	Unscrew the CF Card cover's attachment screw, and remove the CF Card cover. 
3	Insert the CF Card firmly into the CF card slot, and check that the eject button pops out. 
4	Replace the CF Card cover and fix it in place with the screw. **Note:** The necessary torque is 0.5 to 0.6 N•m (4.5 to 5.3 lb-in).

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, then remove the CF card cover as described above.
2	Press the eject button in fully to remove the CF Card from the CF Card slot.
3	After inserting/removing the CF card, be sure to replace the CF Card cover and secure it in place using the attachment screw. **Note:** 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. Back up all CF Card data regularly to another storage media.

Backup of the CF Card Data

Refer to the relevant procedure in the Installation Guide.

USB Cable Clamp Attachment/Removal

Introduction

When using a USB device, attaching the USB cable with a clamp to the Smart unit's bridge (located on the side of the USB ports) prevents the USB device from becoming disconnected.

⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION OR ARC FLASH

Read and understand the safety information on *Before Modifications, p. 78* and *Removing the Smart Unit's Cover, p. 81* before attempting this procedure.

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

⚠ DANGER

CHEMICAL BURNS TO EYES OR SKIN

Read and understand the safety information on *Before Modifications, p. 78* and *Removing the Smart Unit's Cover, p. 81* before attempting this procedure.

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

⚠ WARNING

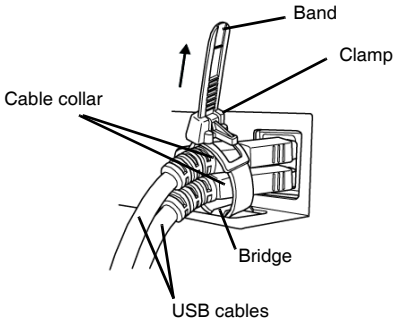
EQUIPMENT DISCONNECTION OR UNINTENDED EQUIPMENT OPERATION

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

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

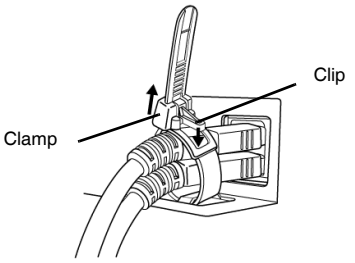
USB Cable Clamp Attachment

The table below describes how to attach the USB 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. If necessary, place a soft, non-abrasive pad on the surface before placing the unit.
3	Insert the USB cable clamp's band through the bridge. Pass the USB cables through the cable clamp's band and securely tighten the clamp band around the cables. Notes: ● When using two or more USB ports, be sure to first connect one USB cable to the lower USB connector, and then connect the second USB cable to the upper USB connector. ● When using only one of the USB ports, be sure to use the lower USB connector. This allows you to securely clamp the USB cable in the cable clamp. ● Be sure the clamp is securely holding the USB cable's plug and collar. ● Be sure the clamp is positioned pointing upwards - not to the side. This is to keep the clamp from interfering with nearby connectors and their cables. 

USB Cable Clamp Removal

The table below describes how to remove the USB cable clamp.

Step	Action
1	To remove the clamp from the USB cables, push down on the clamp strap's clip to release it while pulling up on the clamp. 
2	Remove the USB cables.
3	Remove the clamp's band from the bridge.

Installation

III

At a Glance

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	101
10	System Monitoring	103
11	Maintenance	121
12	Troubleshooting	133

Connections to PLCs

9

Connection to PLCs

Introduction

Different connection cables are required depending on the type of PLC being used. These cables are specified below:

Nano, Micro, Premium

The Nano, Micro, and Premium PLCs require the use of the TSX PCX 1031 connection cable. This cable is supplied with Unity Pro, PL7 Pro and PL7 Junior software.

This 2 m (6.6 ft) cable is equipped with the following:

- A 9 pin SUB-D type female connector for connection to the 15" Smart.
- A 5 pin microDin type male connector for connection to the PLC.

Series 7

The Series 7 family includes the TSX 27 PLCs, and the TSX/PMX 47/67/87/107 PLCs.

Series 7 PLCs use an FT20CBCL30 connection cable supplied with the XTEL Pack software.

This 2.5 m (8.2 ft) cable is equipped with the following:

- A 9 pin SUB-D type female connector for connection to the Smart.
- A 9 pin SUB-D type male connector for connection to the PLC.

TSX 17

TSX 17 PLCs are connected via an accessory for converting the Smart's COM1 link (RS 232C) into an RS 485 link (to be ordered separately).

Accessory reference number: TSX 17 ACC PC

APRIL 2000/3000

These PLCs require the use of connection cable TSX PKIT 2040 (to be ordered separately).

This 2 m (6.6 ft) cable is equipped with the following:

- A 9 pin SUB-D type female connector for connection to the Smart.
- A 9 pin SUB-D type male connector for connection to the PLC.

System Monitoring

10

At a Glance

Subject of this Chapter

This chapter describes the system monitoring and the RAS (reliability, availability and serciceability) features of the Smart.

What's in this Chapter?

This chapter contains the following topics:

Topic	Page
System Monitor Overview	104
System Monitor Property	111
System Monitor Interface	115

System Monitor Overview

Presentation

The System Monitor software enables you to monitor several system parameters (CPU temperature, 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.

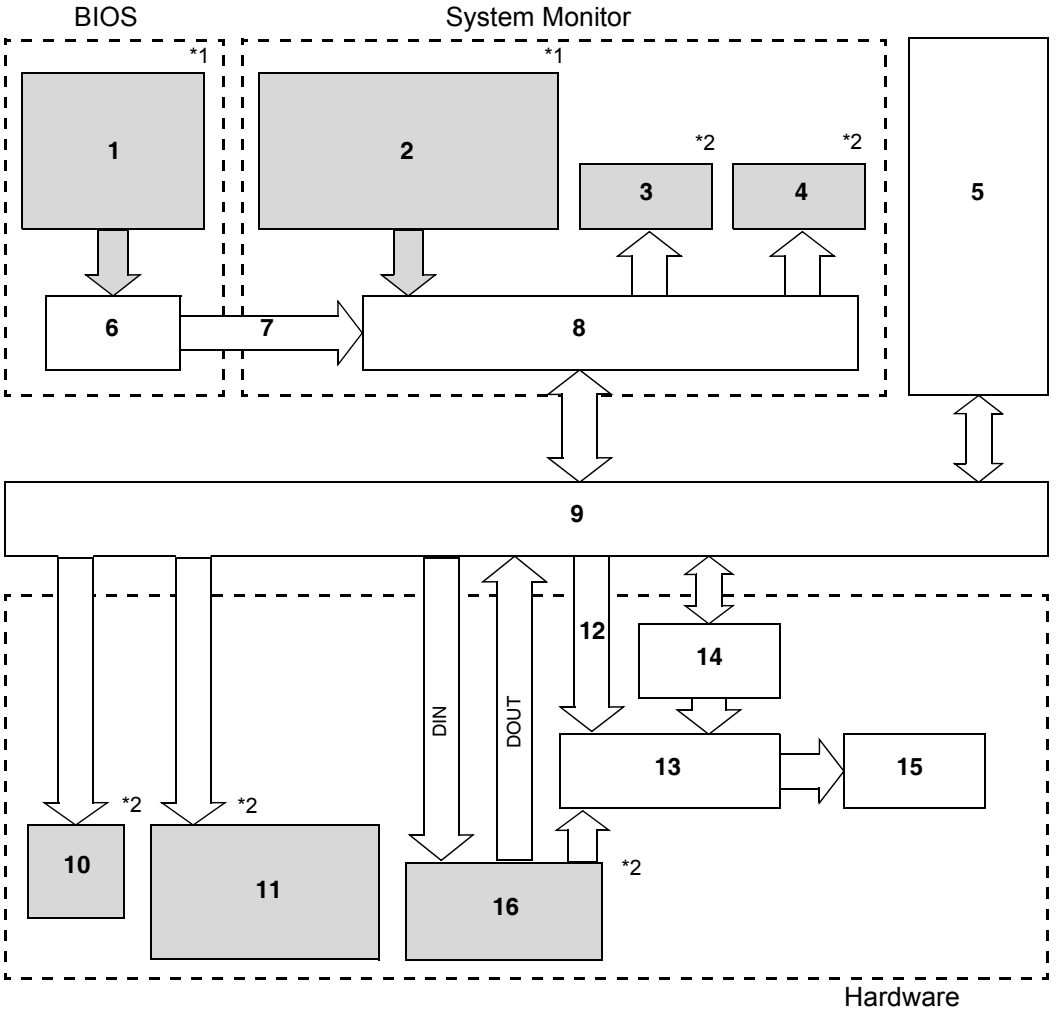
The RAS I/O port is an interface that enables you to direct a remote reset of the Smart, operate a buzzer or perform other actions as noted in the section.

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: shutdown the Smart, restart the Smart, I/O activation...).

The software enables both system configuration (See *System Monitor Property, p. 111*) and system operation (See *System Monitor Interface, p. 115*).

System Monitor Architecture

The following figure shows the architecture of System Monitor:



1 Bios Setup: Voltage, Temperature alarm, Detection Level Setting, Enable/Disable Settings
2 System Properties: Power alarm, 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: DIN (4 Ports), DOUT (4 Ports), RESET IN.

*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 Smart 15" 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
	Internal Temperature Alarm
	Watchdog Timer (System uptime)
	Touch Panel Alarm
	Backlight Alarm
External Input Signal	General Purpose Signal Input *1 (DIN (4 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 Smart'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 (4 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 Smart unit accepts the following input signals:

Feature	Functions Supervised
General Purpose Signal Input (DIN (4 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 "ON" state of the DIN circuit is detected. The "OFF" state cannot be monitored).
Remote Reset Input	This is the reset signal sent from an external device to the Smart 15". When this signal is enabled, a forced reset of the Smart 15" is performed. ● Input Voltage: 12...24 Vdc ● Input Current: 7 mA ● Operating ON Voltage: 9 Vdc (min.) ● Operating OFF Voltage: 3 Vdc (max.) ● Isolation Method: Via Photocoupler

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

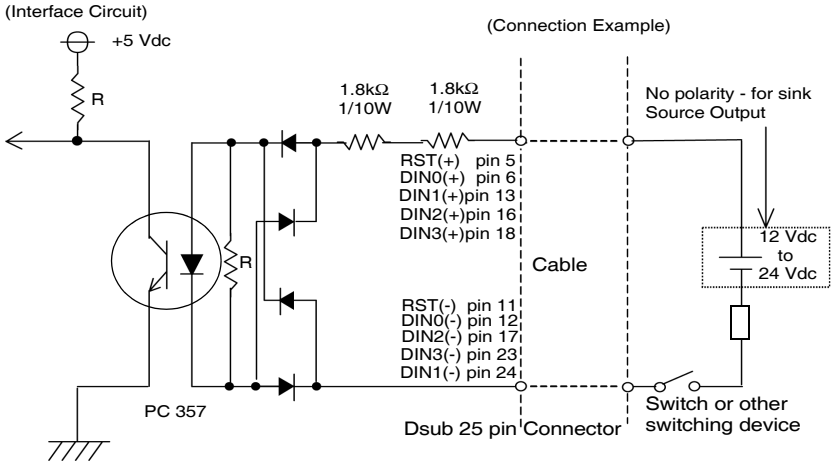
⚠ CAUTION

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:



See *Interface Specification, p. 31* for details about cabling.

External Output Signals

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

Feature	Functions Supervised
General Purpose Signal Output (DOUT (4 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)	• Rated Load Voltage: 24 Vdc 100 mA (max) • Maximum Load Current: 100 mA/point • Maximum Voltage Drop between Terminals: 1.5Vdc (at 100 mA load current) • Isolation Method: Via Photocoupler

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

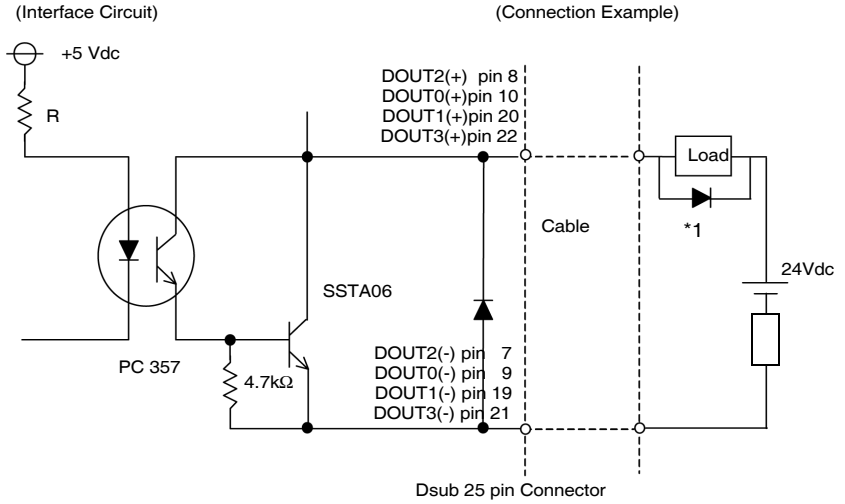
⚠ CAUTION

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.

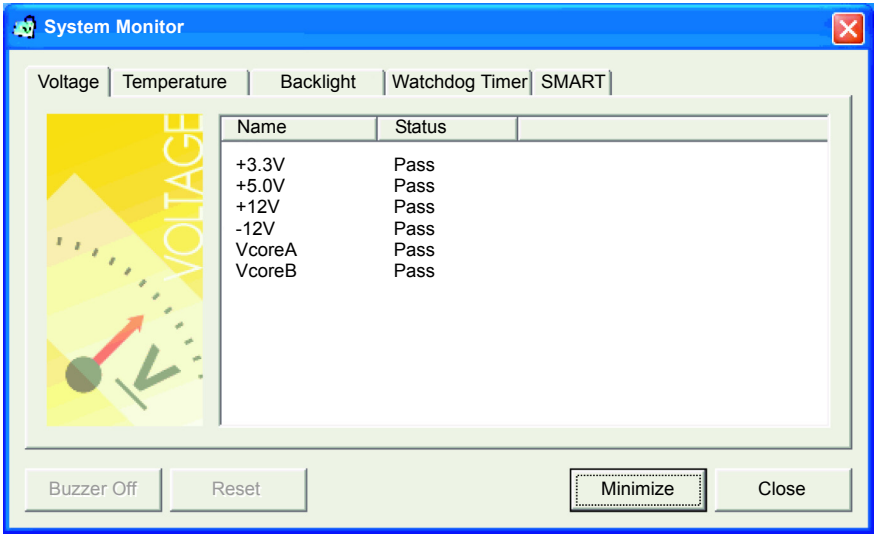
See *Interface Specification, p. 31* for details about cabling.

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 Smart 15" operating system
2	In the task bar, double-click the icon. **Result**: The System Monitor GUI screen appears. 

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*.

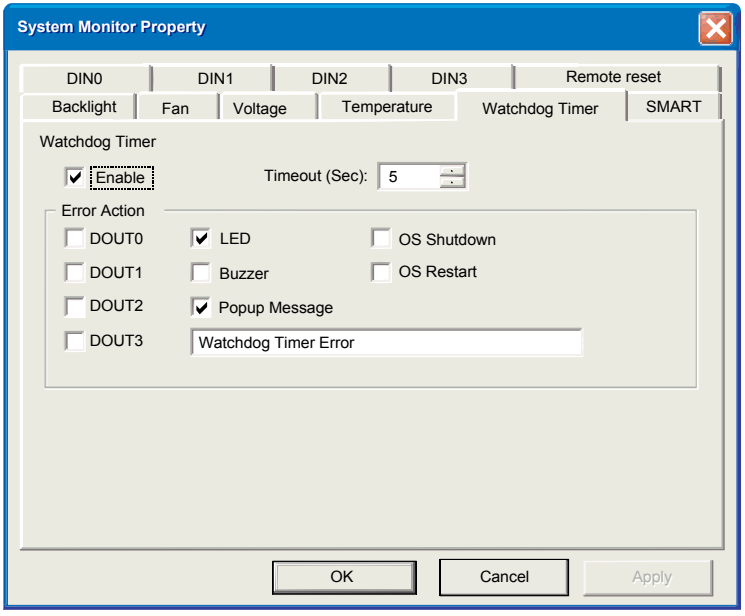
System Monitor Property

Presentation

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

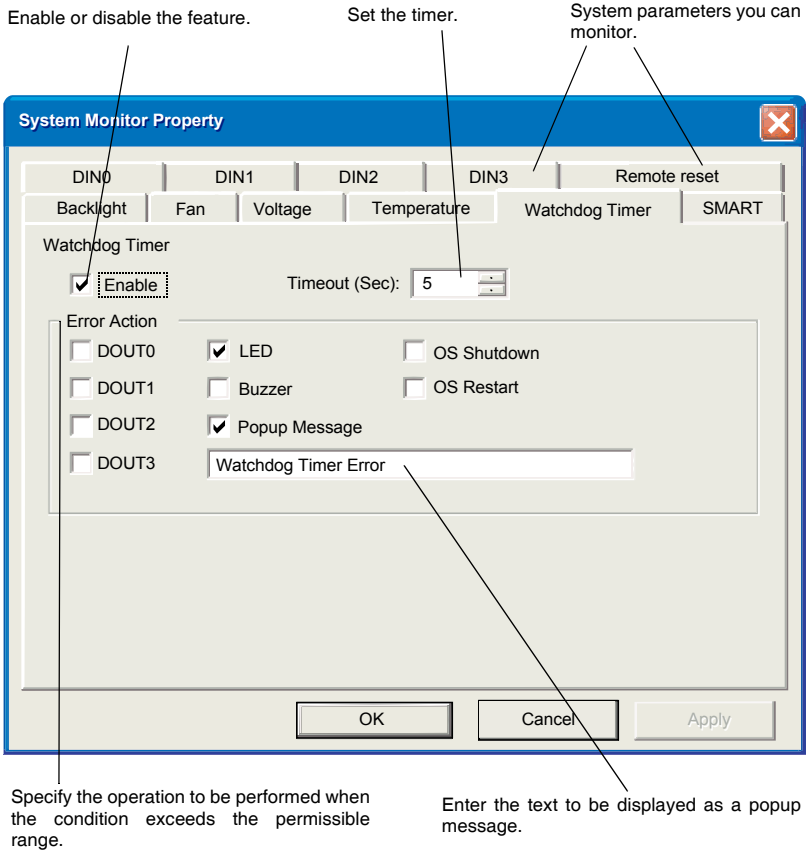
Accessing the System Monitor Property

The System Monitor Property screen enables you to configure the Smart 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 Smart 15" operating system
2	Click **Start** → **Control Panel**. **Result**: The Control Panel window appears.
3	Double-click **System Monitor Property**. **Result**: 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.

Note: Since the Smart 15" has no HDD, the SMART monitoring function is not available, and nothing is functional in the SMART tab.

The table below describes the system parameters available for monitoring:

Feature	Functions Supervised
Voltage	Monitors the status of the Smart's built-in power supply and internal CPU power supply.
Temperature	Provides an alert when a dysfunction of the System, or the CPU, could appear (due to high temperature).
Backlight	Detects backlight alarms. When the backlight burns out, the power LED will flash orange/red (See *Smart 15" Unit Description, p. 28*).
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.

Note: SMART monitoring:
A CF card does not support SMART and therefore the status of the CF card cannot be monitored.

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 monitoring feature.
Buzzer	Sound an electronic beep ("This option is automatically disabled" when a checkmark is placed in the "OS shutdown" checkbox).
Popup Message	Display error messages as popup messages. (The monitoring 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.
DOUT 0 to 3	Output from the RAS port.

Power LED Indicator

The three colors Power LED (See *Smart 15" Unit Description, p. 28*) indicates the Smart system conditions. It is also a power ON/OFF indicator. The Power LED is located on the front face of the unit.

The Smart 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). See *Smart 15" Unit Description, p. 28*.	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 Smart 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
Temperature	O	O	O	X	O	O
Backlight	O	O	X	X	O	O
DIN0 to 3	O	O	O	X	O	O

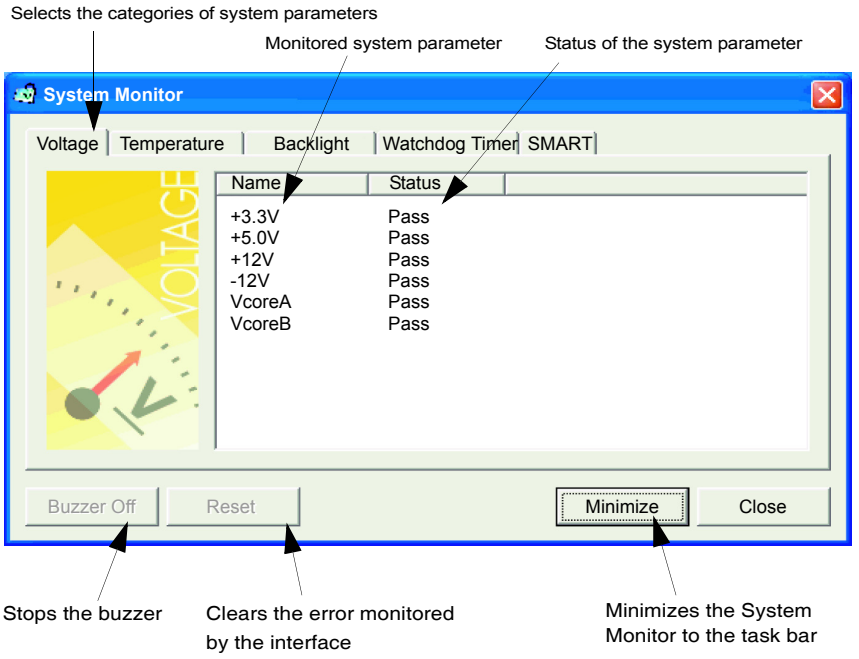
System Monitor Interface

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: Since the Smart 15" unit has no HDD, nothing is displayed in the SMART tabs.

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

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.

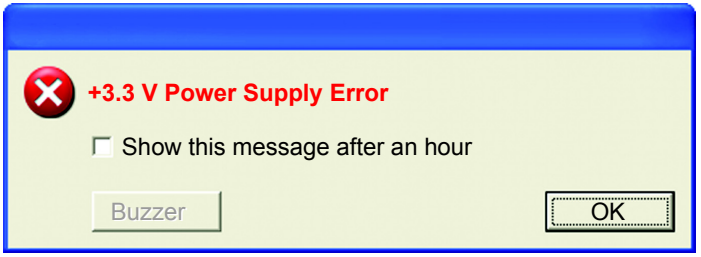
System Monitor GUI icon when no event occurs

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 Smart'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 Smart 15", perform the actions necessary to remove the cause of the error and power up the Smart 15" once more.

System Monitor Error Messages

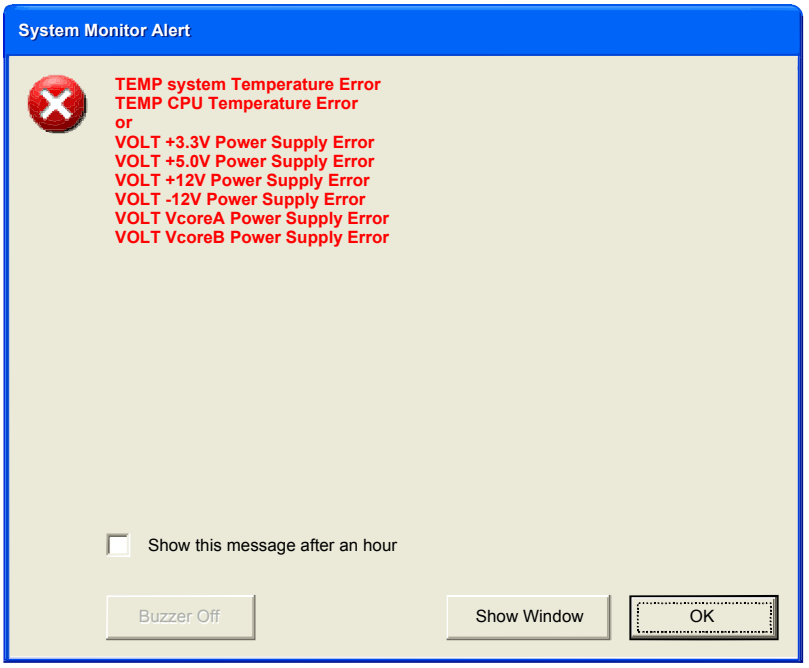
This section describes the error messages and closing messages displayed on the System Monitor and System Monitor Property screens.

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
VcoreB	VOLT VcoreB 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
System Temperature	TEMP System Temperature Error
CPU Temperature	TEMP CPU Temperature Error
DIN0	DIN0
DIN1	DIN1
DIN2	DIN2
DIN3	DIN3
Watchdog Timer	Watchdog Timer Error
Backlight	Backlight 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 Smart terminal
2	Click **Start** → **Control Panel** → **Administrative Tools** → **Event Viewer**

Note: This feature is supported by Windows® XPe.

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
VcoreB	VOLT VcoreB 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
System Temperature	TEMP System Error has occurred
CPU Temperature	TEMP CPU Error has occurred
DIN0	DIN0 Error has occurred
DIN1	DIN1 Error has occurred
DIN2	DIN2 Error has occurred
DIN3	DIN3 Error has occurred
Watchdog Timer	Watchdog Timer Error has occurred
Backlight	Backlight Error has occurred

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 "xx" error.
Popup Message	Popup message has been shown because of an "xx" error.
OS Shutdown	Windows® has been shutdown due to an "xx" error.
DOUT0	DOUT0 has output because of "xx" error.
DOUT1	DOUT1 has output because of "xx" error.
DOUT2	DOUT2 has output because of "xx" error.
DOUT3	DOUT3 has output because of "xx" 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**.

Maintenance

11

At a Glance

Subject of this Chapter

This chapter covers maintenance of the Smart 15".

What's in this Chapter?

This chapter contains the following topics:

Topic	Page
Reinstallation Procedure	122
Regular Cleaning and Maintenance	125

Reinstallation Procedure

Introduction

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 Smart 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 Smart 15". 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.

⚠ 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 procedure:
  - 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 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.

⚠ DANGER

EXPLOSION HAZARD

- Always confirm the UL 1604 hazardous location rating of your device before installing or using it in a hazardous location.
- To apply or remove the supply power from a Smart 15’’ device installed in a Class I, Division 2 hazardous location, you must either:
  - Use a switch located outside the hazardous environment, or;
  - Use a switch certified for Class I, Division 1 operation inside the hazardous area.
- Do not connect or disconnect any cables or wires while the circuit is live unless the area is known to be free of ignitable concentrations of vapors, gases, and other flammable or combustible materials. This applies to all connections including power, ground, serial, parallel, and network connections.
- Never use unshielded/ungrounded cables in hazardous locations.
- Use only non-incendiary USB devices as described in *Control Drawing of the USB outlet on the Magelis iPC, p. 71*.
- When enclosed, keep enclosure doors and openings closed at all times to avoid the accumulation of foreign matter inside the workstation.

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

⚠ 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 Smart 15".
- When installing or removing screws, be careful that they do not fall inside the Smart 15" unit's chassis.

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

⚠ CAUTION

STATIC SENSITIVE COMPONENTS

Smart 15" 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 injury or 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 conductive wrist strap connected to the component through a minimum of one megaohm resistance.
- Avoid touching exposed conductors and component leads with skin or clothing.

Before Reinstallation

Hardware required:

- Reinstallation CD-ROM
- A computer running Windows 2000/XP able to read "Compact Flash Memory" and having a CD-ROM drive.
  Optimal configuration: Standard computer with PCMCIA slot (Notebook for example) and "Compact Flash" to PCMCIA adaptor.
  Possible configuration: Computer and "Compact Flash reader" on USB port.

Setting up the hardware:

- Shut down Windows® in an orderly fashion and remove all power from the device. Then, follow the applicable instructions in *Removing the Smart Unit's Cover, p. 81*.
- Remove all PCI or PCMCIA extension boards.
- Disconnect all external peripherals.

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

Refer to the relevant procedure in the Installation Guide.

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.

Installing a Replacement Gasket

Installation Gasket

Use of the installation gasket may help extend the operating life of your Smart. 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 Smart 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 Smart 15".
- When installing or removing screws, be careful that they do not fall inside the Smart 15" unit's chassis.

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

⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION OR ARC FLASH

Read and understand the safety information on previous pages (See *Reinstallation Procedure, p. 122*) before attempting this procedure.

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

⚠ DANGER

CHEMICAL BURNS TO EYES OR SKIN

Read and understand the safety information on previous pages (See *Reinstallation Procedure, p. 122*) before attempting this procedure.

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

⚠ DANGER

EXPLOSION HAZARD

Read and understand the safety information on previous pages (See *Reinstallation Procedure, p. 122*) before attempting this procedure.

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

⚠ CAUTION

OVERTORQUE AND LOOSE HARDWARE

Read and understand the safety information on previous pages (See *Reinstallation Procedure, p. 122*) before attempting this procedure.

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

⚠ CAUTION

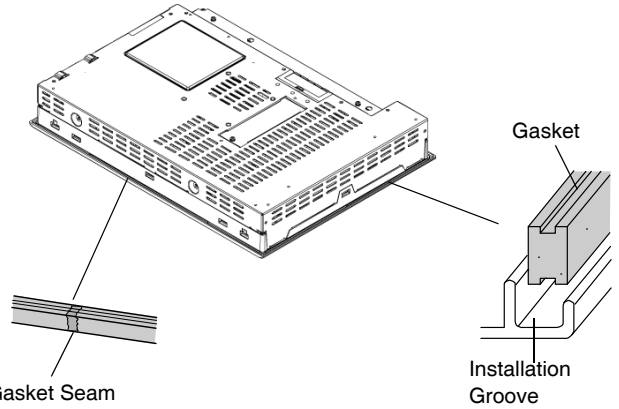
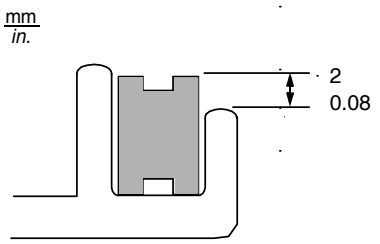
STATIC SENSITIVE COMPONENTS

Read and understand the safety information on previous pages (See *Reinstallation Procedure, p. 122*) before attempting this procedure.

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

Note: The screw installation fasteners are required for NEMA4 protection.

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. If necessary, place a soft, non-abrasive pad on the surface before placing the unit.
3	Remove the gasket from the unit.
4	Attach the new gasket ensuring that the gasket's grooved sides are vertical. Be careful 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. 
5	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. 
6	Replace the Smart unit on its mounting and reconnect the power.

Lithium Battery

⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

Read and understand the safety information on previous pages (See *Reinstallation Procedure, p. 122*) before attempting this procedure.

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

⚠ DANGER

CHEMICAL BURNS TO EYES OR SKIN

Read and understand the safety information on previous pages (See *Reinstallation Procedure, p. 122*) before attempting this procedure.

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

⚠ DANGER

EXPLOSION HAZARD

Read and understand the safety information on previous pages (See *Reinstallation Procedure, p. 122*) before attempting this procedure.

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

⚠ CAUTION

OVERTORQUE AND LOOSE HARDWARE

Read and understand the safety information on previous pages (See *Reinstallation Procedure, p. 122*) before attempting this procedure.

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

⚠ CAUTION

STATIC SENSITIVE COMPONENTS

Read and understand the safety information on previous pages (See *Reinstallation Procedure, p. 122*) before attempting this procedure.

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

⚠ DANGER

EXPLOSION, FIRE, OR CHEMICAL HAZARD

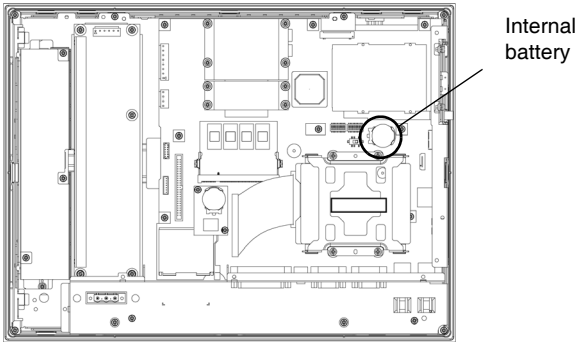
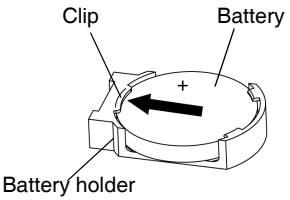
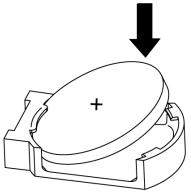
Follow these instructions for the Lithium batteries:

- Do not recharge, disassemble, heat above 100 °C (212 °F), or incinerate.
- Recycle or properly dispose of used batteries.
- Replace with identical type.
- Follow all battery manufacturer's instructions

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

The terminal contains one battery, which is used to save certain system data such as the date and time.

The following tables gives the Battery replacement procedure:

Step	Action
1	Shut down Windows in an orderly fashion, remove all power from the device.
2	Remove the Smart unit from its mounting, place it on a flat level surface with the display facing downwards, and follow the procedure to remove the Smart's unit cover (See *p. 81*).
3	Remove the battery which is in the location shown below: 
4	Push the clip of the battery holder and the battery is pushed up and removed. 
5	Insert the battery in the side of the clip of the battery holder first with the plus (+) pole facing upward.  Push the battery from above until you hear the click to fit it in the battery holder.
6	Replace the Smart's unit cover.
7	Replace the Smart unit on its mounting and reconnect the power.

Periodic Inspection

Be sure to inspect the Smart 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?

Troubleshooting

12

Troubleshooting

Troubleshooting Checklist

This section explains how to find and resolve problems with the Smart unit.

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

The main problems that can occur during usage of the Smart are:

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

When a problem 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 Smart distributor.

When a hardware or software problem cannot be solved, please contact the distributor where you purchased the Smart unit.

No Display

Step	Check Item or Operation	Check Result	Action Required
1	Switch OFF the Smart 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 *Characteristics of the Smart 15", p. 36*
4	Switch ON the power supply.		
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 Smart 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 Smart was purchased.
–	Was the problem solved by the above?		If not, please contact the distributor where the Smart was purchased.

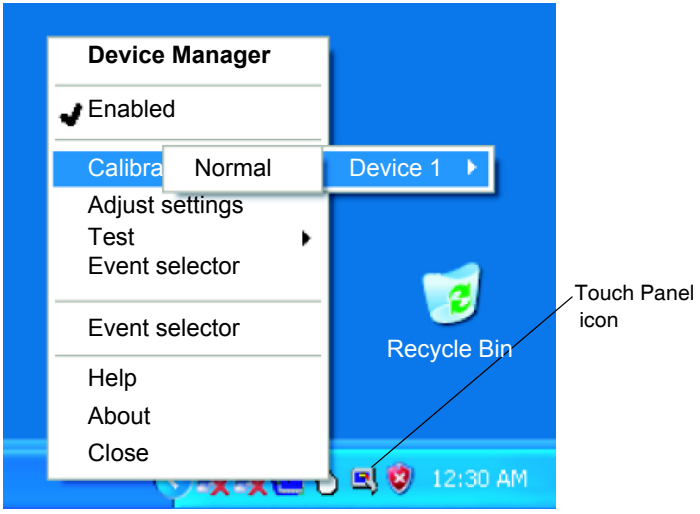
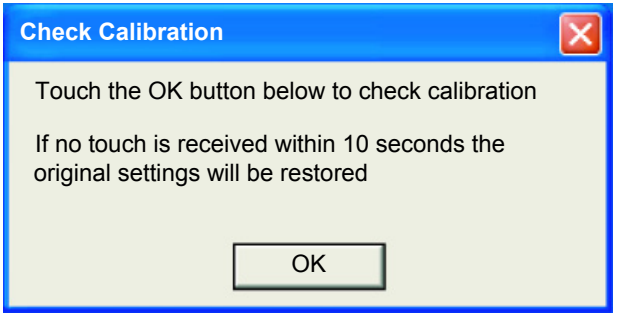
Touch Panel does not Respond

Step	Check Item or Operation	Check Result	Action Required
1	Has the Touch Panel been calibrated?		Calibrate the Touch Panel (See the procedure "Touch Panel Calibration" given below). If the Touch Panel cannot be calibrated, please contact the distributor where the Smart was purchased.
–	Was the problem solved by the above?		If not, please contact the distributor where the Smart was purchased.

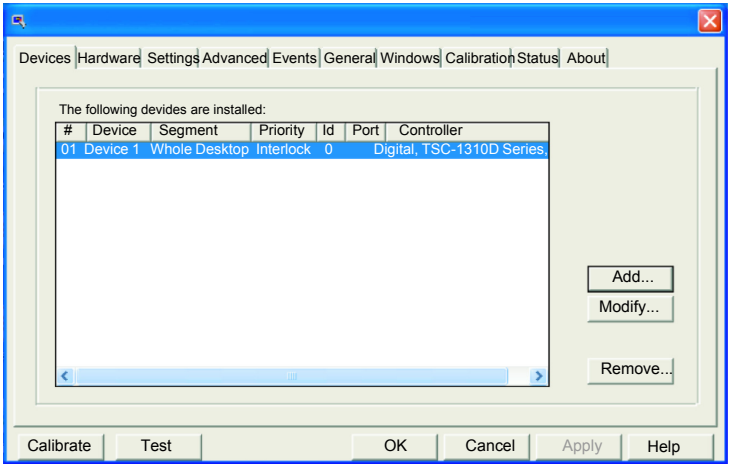
Touch Panel Calibration

You have two possible procedures to calibrate the Touch Panel.

First procedure:

Step	Actions for procedure 1
1	Click on the Touch Panel icon. Select ‘Calibration’, then ‘Device 1’. 
2	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.
3	In order to valid the calibration, click on OK in the following window: 

Second procedure:

Step	Actions 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 Smart 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.
4	Switch ON the Smart power supply.		
5	Does this device require driver setup?		Refer to the device's manual and setup the driver.
–	Was the problem solved by the above?		If not, please contact the distributor where the Smart was purchased.

Recovery

Please refer to the reinstallation procedure *p. 122*

IV

Appendices

At a Glance

Subject of this Part

This part contains the appendices relating to the product.

What's in this Part?

This part contains the following chapters:

Chapter	Chapter Name	Page
13	Accessories	141

Accessories

13

Accessories for the Smart 15"

List

Accessories are available as options. The list of accessories available for the Smart 15" is shown below:

Description	Reference
RAM 1 GB	MPC YK22 RA 1024
Compact Flash 1GB - Client edition - Windows® XP Embedded	MPC YN52 CF120T
Compact Flash 1GB - HMI edition - Windows® XP Embedded - Vijeo Designer Run Time	MPC YN52 CF120H
Maintenance Kit including installation fasteners, installation screws and gasket	MPC YK50 MNT KIT

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