IPC Series

PANEL-PC E Series
PT-E831H, PT-E831HS

User's Manual

CONTEC CO.,LTD.

Check Your Package

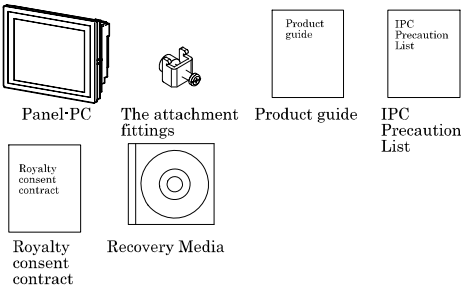
Thank you for purchasing the CONTEC product.
The product consists of the items listed below.
Check, with the following list, that your package is complete. If you discover damaged or missing items, contact your retailer.
If you use IPC-SLIB-01 (driver&utility software set), download it from the CONTEC's Web site.

Product Configuration List

	PT-E831H-AC431x	PT-E831HS-AC431x
	[Basic Type]	[Multi-Interface Type]
Name	Pcs.	
Panel-PC	1	
The attachment fittings[PT-E71MOUNT]	1 set (Conteined 8 pcs.)	
Face protective seal[PT-E82PSC]	Attached Panel-PC	
Holding battery for BIOS	Attached Panel-PC	
Product guide (this sheet)	1	
IPC Precaution List	1	
Royalty consent contract	1	
Recovery Media *1	1	

*1 Please confirm latest information on the CONTEC homepage though the user's manual is stored in Recovery Media. The installation method is described in this document as well as the UsersManual. [File storing place: \Manual]

Product Configuration Image

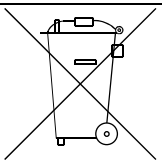


*See the Product Configuration List to check if all the components are included for the specified number of units

Copyright

About the handling of the battery and the storage battery in E U

Signatory



Note: This symbol mark is for EU countries only.
This symbol mark is according to the directive 2006/66/EC Article 20 Information for end-users and Annex II.

This symbol means that batteries and accumulators, at their end-of-life, should be disposed of separately from your household waste.

If a chemical symbol is printed beneath the symbol shown above, this chemical symbol means that the battery or accumulator contains a heavy metal at a certain concentration.

This will be indicated as follows:
Hg: mercury (0.0005%), Cd: cadmium (0.002%), Pb: lead (0.004%)

These ingredients may cause serious hazardous for human and the global environment.

Please refer to the user's manual for the annulment of detaching a detailed battery specification and the battery and the batteries.

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Table of Contents

1. Introduction

About the Product

This product is a fanless PANEL-PC for embedded use based on Intel (R) Celeron M ULV processor.

Usable worry-free in factory automation fields, PT-E is PC/AT-compatible controller for built-in use; it is compatible with Windows XP/Windows XP Embedded.

Unless otherwise specified, this manual uses the following abbreviations and generic terms to describe PT-E.

Table 1.1 Abbreviation in this Manual

Abbreviation/Generic	Abbreviation/Generic Term
OS	Operating system
HD	Hard disk
HDD	Hard disk drive
FD	Floppy disk
FDD	Floppy disk drive
LCD	Color liquid crystal display
CF card	Compact flash disk
I/F	Interface

PT-E Models

Classify PT-E831 models according to I/F loaded on the PT-E and the display features of the PT-E. Models of PT-E831 series is shown in table 1.2.

Table 1.2 PT-E Models

Resolution *	XGA (W1024 x H768 dots)
Standard I/F	PT-E831H
Special I/F	PT-E831HS

*: For the LCD resolution, there are about two dots upper and lower, right and left are masked by the protective sheet. Therefore, please set the screen size in consideration of the masked range when creating a screen.

- Standard: Ethernet, USB, RS232C, WDT, RS485/RS422
- Special I/F: SSCNET + Standard I/F

Features

Correspond to USB I/F.
Correspond to USB2.0 standard.

Resume Function
By equipping a lithium ion battery pack (option), PT-E can keep operating regardless of the occurrence of instantaneous interruption or power failure andprotect the data.

If battery voltage drop is detected or the power does not restore after power failure, PT-E will go to shutdown automatically.

When using resume function, needs to start up EPC System Monitor (refer to p.63 of Chapter 7).

CF card
Adopt CF card as a storage disk, which is possible to build a system without hard disk; it secures high reliability to the vibration and impact shock under the factory environment.

Ease of operation with touch panel
Mouse simulation realized high-resolution touch panel (resolution: 1024 x 1024) implements an excellent man-machine interface to perform operations without a mouse and a keyboard.

Dustproof, drip proof structure
Front panel of PT-E series is IP65F-equivalent for worry-free use in the environment of dust, mist, etc. User should take measures against dust and mist for the other sections of PT-E series, e.g. by putting PT-E in a self-made box.

Improved vibration resistance and shock resistance
Without structurally movable parts, PT-E series are resistant to vibration and shock, requiring no special anti-vibration measures and handling precautions.

Compact size
PT-E series' fan less structure makes PT-E get a compact size. It is easy to build PT-E in the equipment.

Supported OS

- Windows XP Professional / Windows XP Embedded

Customer Support

CONTEC provides the following support services for you to use CONTEC products more efficiently and comfortably.

Web Site

Japanese http: //www.contec.co.jp/
English http: //www.contec.com/
Chinese http: //www.contec.com.cn/

Latest product information

CONTEC provides up-to-date information on products.
CONTEC also provides product manuals and various technical documents in the PDF.

Free download

You can download updated driver software and differential files as well as sample programs available in several languages.

Note! For product information

Contact your retailer if you have any technical question about a CONTEC product or need its price, delivery time, or estimate information.

Limited One-Year Warranty

CONTEC products are warranted by CONTEC CO., LTD. to be free from defects in material and workmanship for up to one year from the date of purchase by the original purchaser.

Repair will be free of charge only when this device is returned freight prepaid with a copy of the original invoice and a Return Merchandise Authorization to the distributor or the CONTEC group office, from which it was purchased.

This warranty is not applicable for scratches or normal wear, but only for the electronic circuitry and original products. The warranty is not applicable if the device has been tampered with or damaged through abuse, mistreatment, neglect, or unreasonable use, or if the original invoice is not included, in which case repairs will be considered beyond the warranty policy.

How to Obtain Service

For replacement or repair, return the device freight prepaid, with a copy of the original invoice. Please obtain a Return Merchandise Authorization number (RMA) from the CONTEC group office where you purchased before returning any product.

* No product will be accepted by CONTEC group without the RMA number.

Liability

The obligation of the warrantor is solely to repair or replace the product. In no event will the warrantor be liable for any incidental or consequential damages due to such defect or consequences that arise from inexperienced usage, misuse, or malfunction of this device.

Safety Precautions

Understand the following definitions and precautions to use the product safely.

Safety Information

This document provides safety information using the following symbols to prevent accidents resulting in injury or death and the destruction of equipment and resources. Understand the meanings of these labels to operate the equipment safely.

⚠ 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, could result in death or serious injury.
⚠ CAUTION	CAUTION indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury or in property damage.

Caution on the PT-E Series

Handling Precautions

⚠ WARNING

- Always check that the power supply is turned off before connecting or disconnecting power cables.
- Procedures that could result in serious injury or loss of human life should never be performed from a touch panel. Use system design methods that can guard against input errors.
- Do not modify the product.
- Always turn off the power before inserting or removing circuit boards or cables.
- This product is not intended for use in aerospace, space, nuclear power, medical equipment, or other applications that require a very high level of reliability. Do not use the product in such applications.
- If using this product in applications where safety is critical such as in railways, automotive, or disaster prevention or security systems, please contact your retailer.
- Do not attempt to replace the battery as inappropriate battery replacement poses a risk of explosion.
- When disposing of a used battery, follow the disposal procedures stipulated under the relevant laws and municipal ordinances.
- Always power off the PT-E before installing or removing it to or from an enclosure.

  Not doing so can cause a failure, fire or electric shock.
- Always start wiring after powering off the PT-E.

  Not doing so can cause an electric shock or product damage.
- Earth the equipment securely. A failure to do so can cause an electric shock.
- Before starting cleaning the PT-E and/or peripheral devices, always power off the PT-E and/or peripheral devices.

  Not doing so can cause a failure or electric shock.
- Do not allow dust and foreign matter to enter the PT-E and peripheral devices.

  Doing so can cause a fire or electric shock.

- Do not allow your hands and foreign matter to enter the openings of the PT-E and peripheral devices.

  Doing so can cause injury or electric shock.
- Always start the fitting of the expansion board or memory after dismounting the PT-E from the enclosure and placing it on a level surface.

  Fitting it with the PT-E mounted on the enclosure can cause injury due to a drop.
- Do not touch the edges and projections of the electrical circuit boards and parts in the PT-E.

  Doing so can cause injury.
- Before installing the cover, always connect the internal cables securely.

  Insecure connections can cause a fire due to a short circuit.
- Always change the battery after powering off the PT-E.

  Not doing so can cause an electric shock.

⚠ CAUTION

- Do not use or store this product in a location exposed to high or low temperature that exceeds range of specification or susceptible to rapid temperature changes.
  Example: - Exposure to direct sun
  - In the vicinity of a heat source
- Do not use this product in extremely humid or dusty locations. It is extremely dangerous to use this product with its interior penetrated by water or any other fluid or conductive dust. If this product must be used in such an environment, install it on a dust-proof control panel, for example.
- Avoid using or storing this product in locations subject to shock or vibration that exceeds range of specification.
- Do not use this product in the vicinity of devices that generate strong magnetic force or noise. Such products will cause this product to malfunction.
- Do not use or store this product in the presence of chemicals.
- To clean this product, wipe it gently with a soft cloth dampened with either water or mild detergent. Do not use chemicals or a volatile solvent, such as benzene or thinner, to prevent pealing or discoloration of the paint.
- This product's case may become hot. To avoid being burned, do not touch that section while this product is in operation or immediately after turning off the power. Avoid installation in a location where people may come into contact with that section.
- CONTEC does not provide any guarantee for the integrity of data on CF.
- Always disconnect the power cable from the receptacle before mounting or removing the expansion board, or before connecting or disconnecting any connector.
- To prevent corruption of files, always shutdown the OS before turning off this product.
- CONTEC reserves the right to refuse to service a product modified by the user.
- In the event of failure or abnormality (foul smells or excessive heat generation), unplug the power cord immediately and contact your retailer.
- To connect with peripherals, use a grounded, shielded cable.
- Do not use any sharp-pointed object such as a mechanical pencil to touch the touch panel. Doing so may scratch the touch panel, resulting in malfunctions.
- Do not subject the touch panel to shock as doing so may break it.
- When the surface or frame of the touch panel has become dirty, wipe it with neutral detergent. Do not wipe the touch panel with thinner, alcohol, ammonia, or a strong chlorinated solvent.

- It is a characteristic of analog touch panels that their resistance may vary with changes to the ambient environment (temperature and humidity) and with their own aging, resulting in the deviation of the detection point. If this is the case, calibrate the touch panel again to re-set calibration data.
- LCD may have a few bright spots that are always on or a few black spots that are always off. Color irregularity may also occur depending on the viewing angle. This however is due to the structural characteristics of the LCD; therefore, it is not a product fault.
- Burn-in on TFT Display
  "Burn-in" may occur if the same display is retained for a long time. Avoid this by periodically switching the display so that the same display is not maintained for a long time.
  * Burn-In : Phenomenon characterized by a TFT display as a result of long-time display of the same screen where a shadow-like trace persists because electric charge remains in the LCD element even after the patterns are changed.
- The CF card connector doesn't support hot plug. The pulling out opening of the CF card cannot be done in the state of power supply ON. Please neither pulling out opening of CF in the state of power supply ON of this product nor come in contact with CF. This product may malfunction or cause a failure.
- Do not put the PT-E on any object. Doing so can cause a failure.
- Do not touch the conductive areas and electronic parts of the PT-E directly.

  Doing so can malfunction or fail the PT-E.
- When disconnecting the cables connected to the PT-E, do not hold and pull the cable part.

  Doing so can cause damage to the PT-E and/or cables or a malfunction due to poor cable connection.
- Do not block the air vents. Doing so can cause a fire.
- When carrying the PT-E, always do it after powering off the PT-E. Also disconnect all connection cords.

  Not doing so can cause a fire or electric shock.
- When the equipment will be left unused for an extended period of time, power off the PT-E.

  Not doing so can cause a fire due to accumulated dust.
- Before starting the fitting of the expansion board or memory, always touch any metallic area.

  Starting the work with your body charged with static electricity can damage the electronic parts.
- Component Life:
  (1) Battery---The internal calendar clock and CMOS RAM are backed by a Lithium primary battery. The backup time at a temperature of 25°C with the power disconnected is 10 years or more.
  (2) CF ---The OS-installed model uses a CF card in the OS storage area.
  Estimated failure rates: 100,000 rewrite cycles, 500,000 hours MTBF
  (3) Touch panel--- The operating lifetime of the touch panel is at least 1 million touches (as tested by mechanical touching under 300g of force at a rate of two presses per second).
  (4) LCD backlight--- Display brightness decreases over time with use.
  The operating lifetime of the backlight is 50,000 hours (the time until the brightness is lowered to 50% of the initial value at atemperature of 25°C).

2. System Reference

Specification

Table 2.1 Functional Specification ***< 1 / 2 >***

Model		PT-E831H	PT-E831HS
OS		Windows XP Embedded SP2 (recommend), Windows XP Professional	
CPU		Intel Celeron M ULV 1 GHz	
Memory		512 MB	
Resume Function (*1)		Resume function (Continue/Standby mode can be selected when power failure is detected.) [Continue mode]: System keeps operating for 10 minutes during the power failure. (Backlight becomesOFF.) [Standby mode]: System keeps the standby status for 30 minutes. (Standby status is released as powersupply restoring, and the system restarts operating immediately from the status right before power failure.)	
Battery pack (Optional)		Lithium ion battery pack EP73BAT (Not require the battery pack if not use resume function.)	
External Interface (*2)	USB (2.0)	4 ch (A type)	
	Serial Port	2 ch (D-sub9pin, male) (1 ch is compatible with RS232C) (1 ch is allowed to switch among RS232C, RS422 and RS485)	
	Ethernet (10BASE-T/100BASE-TX/ 1000BASE-T)	2 ch (*4)	
	PCI bus expansion slot	Expands PCI bus with an add-on unit.	
	CF card slot	2 slot (CF Type I, II) CF1 is finished mounting CF (1 GB, 1 partition) *5	
	SSCNET	None	1 ch (14 pin, female)
	WDT/EMG	1 ch (Watchdog Timer can be set from 0.1 sec to 25.5 sec and the signal can be output) (D-sub9 pin, female)	
	IDE Interface	1 ch (Only one device can be connected to master.)	
	External DC output	5V/2A, 12V/1A (*2)	
Reset button		Has	
Operation LED		Has	
LCD display function (*3)	LCD size (inch)	15	
	Resolution (dot)	XGA (1024 x 768)	
	brightness (cd/m2)	250	
	Life of backlight (Hr)	50,000	
	Exchanging of backlight	Exchangeable	
	Backlight ON/OFF	Backlight ON/FF can be controlled by software.	

(*1): For the model PT-E831HS, if it is using SSCNET communication, then Standby mode is unavailable.

(*2): Electrical currents that are supplied to external devices including those are connected to expansion slot, USB port and external DC output (only PT-E831HS) should be 5V/2A, 12V/1A or less.

(*3): For the LCD resolution, there are about two dots upper and lower, right and left are masked by the protective sheet. Therefore, please set the screen size in consideration of the masked range when creating a screen.

(*4): When using both 2CH Ethernets in 1000BASE-T, please use PT-E under the environment where the operating ambient temperature is "Front display section is 0°C to 40°C, other than display section is 0°C to 45°C".

(*5): The capacity of CF is a value when 1GB is calculated by 1 billion bytes. The capacity that can be recognized from OS

might be displayed fewer than an actual value.

Table 2.1 Functional Specification *< 2 / 2 >*

Model		PT-E831H	PT-E831HS
Touch Panel	Method	Resistive-film analog type	
	Resolution	1024 x 1024	
Input power supply Voltage (Terminal input)		AC100 to 240V, 50/60Hz	
Fit wire size		0.75 to 2 mm²	
Power consumption		135VA (maximum load), 90VA (no load, only PT-E main body)	
Rush current		65A or less (264VAC, maximum load)	
Cooling method		Nature cooling (no fan)	
External dimensions (mm (inch))		395(W) x 310(H) x 85(D) (15.55 x 12.20 x 3.35)	
Weight(kg)		5.9	

Table 2.2 Installation Environment Requirements

Model	PT-E831H	PT-E831HS
Operating ambient temperature	Front display section is 0 to 40 °C, other than display section is 0 to 55 °C (*1) (*2)	
Storage ambient temperature	-20 to 60 °C	
Operating/storage ambient humidity	10 to 90% RH, 60 or less wet-bulb temperature, non-condensing	
Vibration resistance, Shock resistance	Based on JIS B3502, IEC61131-2.	
Operating atmosphere	No oily smoke, no corrosive gas, no flammable gas, no so much conductive dust, no direct sunshine. (As well as storage environment)	
Altitude	2000m or less	
Over voltage category	II	
Noise resistance	2 or less	
Noise resistance	By noise simulation with noise voltage 1,500Vp-p, noise width 1us and noise frequency 25 to 60Hz.	
Protection structure	IP65f-equivalent (front section)	

(*1): Electrical currents that are supplied to external devices including those are connected to expansion slot, USB port and external DC output (only PT-E831HS) should be 5V/2A, 12V/1A or less.

(*2): When using both 2CH Ethernets in 1000BASE-T, please use PT-E under the environment where the operating ambient temperature is "Front display section is 0°C to 40°C, other than display section is 0°C to 45°C".

Display Optical Specification

Table 2.3 Display Optical Specification

Parameter	Condition			Min.	Typ.
Visual angle (vertical)	CR≧10	ϕ = 180°	Display. Monochrome	65deg	80deg
		ϕ = 0°		65deg	80deg
Visual angle (horizontal)		ϕ = +90°		65deg	80deg
		ϕ= -90°		65deg	80deg
Surface brightness (at center)	Display in white			200cd/m²	250cd/m²

* "Surface brightness" represents a numerical value per display. The expected brightness through a touch panel is about 80% lower than the above value.

$$\text{Contrast ratio (CR)} = \frac{\text{Brightness at screen center with white displayed}}{\text{Brightness at screen center with black displayed}}$$

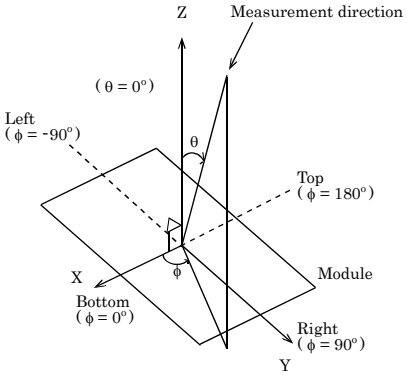


Figure 2.1 Definition of viewable range

⚠ CAUTION

The above optical specification data shows optical characteristics of the liquid crystal in the display; the data does not represent the actual view on the display or its viewing angles.

Physical Dimensions

PT-E831H / PT-E831HS

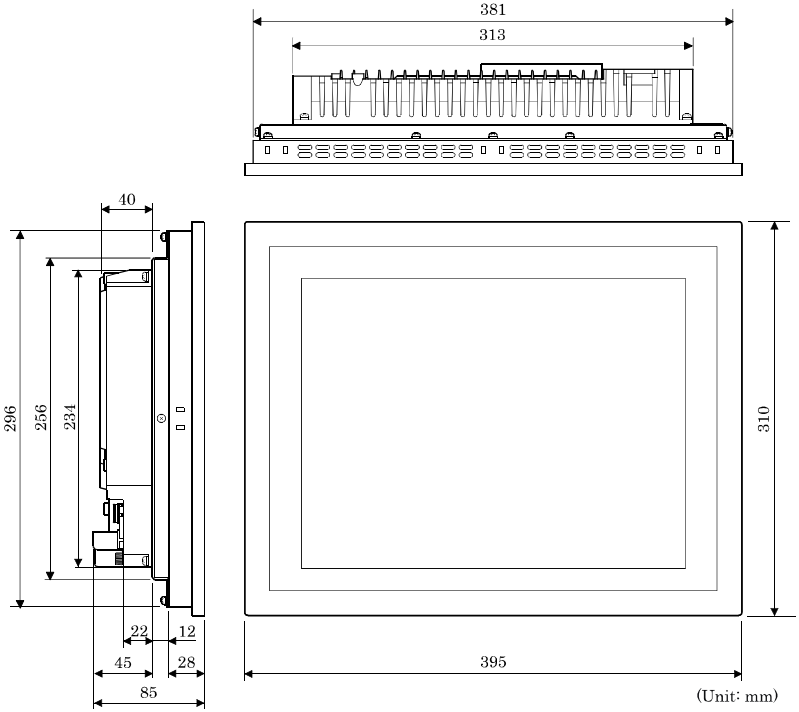


Figure 2.2 Physical Dimensions

3. Hardware Setup

Before Using the Product for the First Time

Follow the next steps to set up this product :

STEP1 By referring to the information in this chapter, install, connect and set this product.

STEP2 Connect cables.
Connect the cable of necessary external devices, such as keyboard and a display, to this product using appropriate cables.

STEP3 Turn on the power.
After verifying that you have correctly followed steps 1 and 2, turn on the power.
If you find any abnormality after turning on the power, turn it off and check to see if the setup has been performed properly.

STEP4 Set up BIOS.
By referring to Chapter 8, set up BIOS. This setup requires a keyboard and a display.

* Before using this product, be sure to execute " LOAD SETUP DEFAULTS" to initialize the BIOS settings to their default values.
(See Chapter 8, "Main Menu.")

Hardware Setup

- Before you start, be sure that the power is turned off.
- Remove only those screws that are explained. Do not move any other screw.

How to Mount

PT-E831H/PT-E831HS

(1) The following panel cutting is needed to mount PT-E. The plate thickness of the mounting panel is maximum 5.0 mm (0.20 inch). (The plate thickness of the mounting panel is minimum 1.6 mm.)

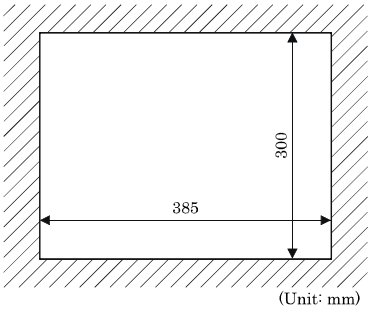


Figure 3.1 Dimensions of Panel Opening (PT-E831H / PT-E831HS)

(2) Put PT-E into the mounting hole.

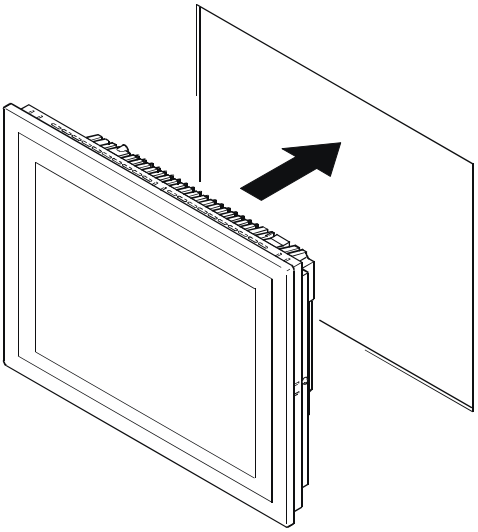


Figure 3.2 How to Mount PT-E (PT-E831H / PT-E831HS)

(3) Place the mounting fittings in the holes of PT-E, make the latches catch theholes. Mount four mount fittings on the upside and downside holes of PT-E

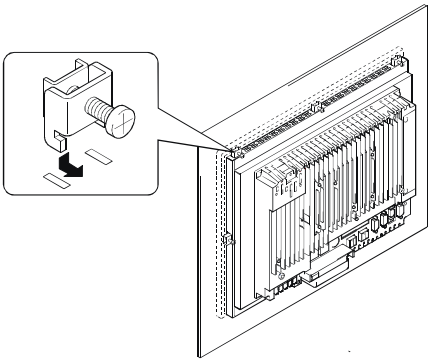


Figure 3.3 setting the mounting fittings (PT-E831H / PT-E831HS)

(4) Tighten the screws of mounting fittings to fix PT-E.
(The tightening torque range is 6.3 to 8.4 kgf·cm.)

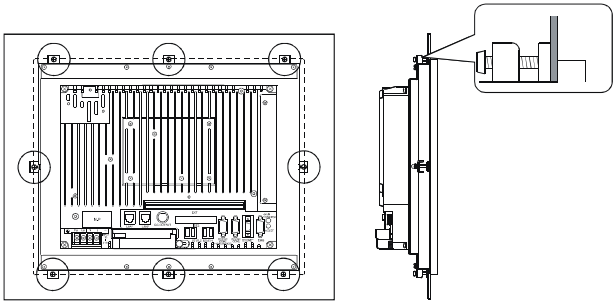


Figure 3.4 Fixing PT-E (PT-E831H / PT-E831HS)

Installation Requirements

Be sure that the ambient temperature is within the range specified in the installation environment requirement by making space between the product and device that generates heat or exhaust air.

Installed angle which is recommended 30°

Basically mount main body of PT-E in vertical direction. PT-E must be mounted with a tilt of +/- 30° or less from vertical when mounting it diagonally.

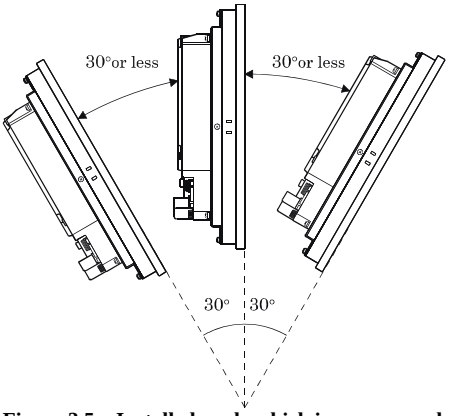
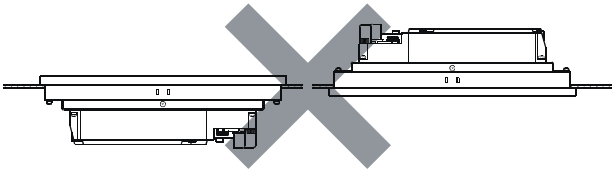


Figure 3.5 Installed angle which is recommended

⚠ CAUTION

Do not mount the main body of PT-E upward or downward.



Mounting Clearance of PT-E

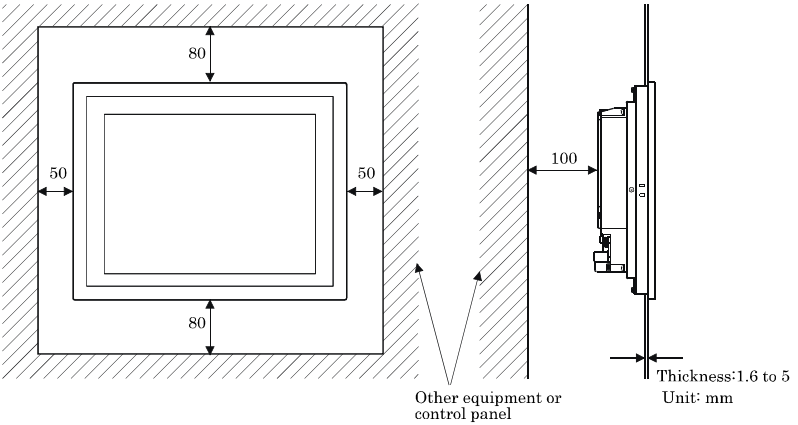


Figure 3.6 Distances between this product and its vicinity

⚠ CAUTION

Do not install this product into the fully-sealed space except the case in which the internal temperature is adjustable by equipment such as air conditioner. Troubles such as operational malfunctions could be occurred by the temperature increase caused by long-term usage.

4. Each Component Function

Parts Identification

PT-E831H/PT-E831HS

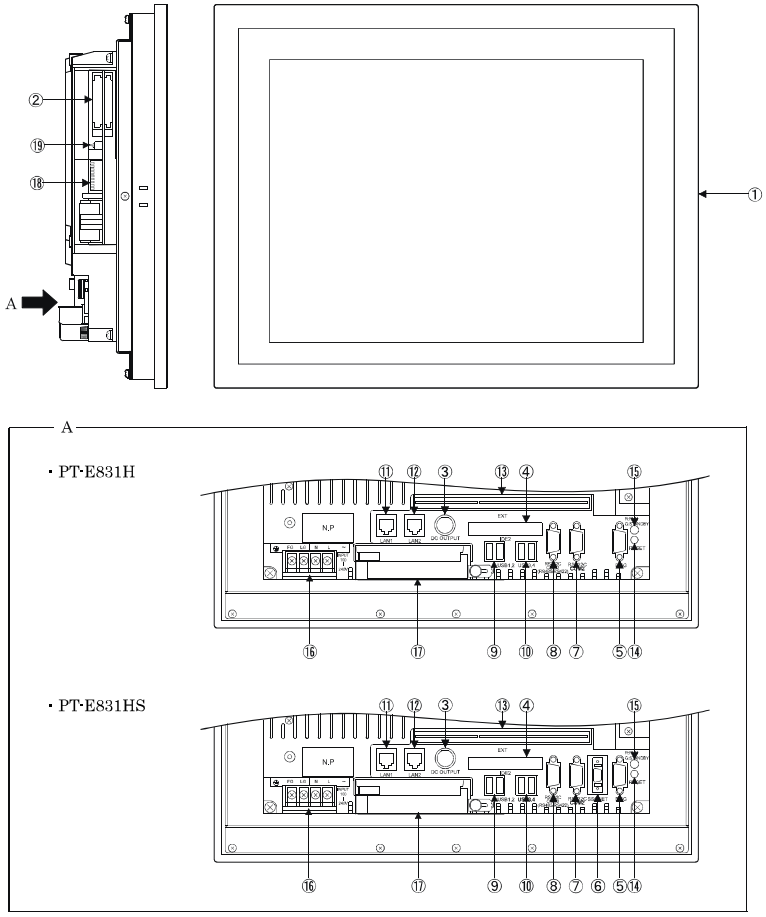


Figure 4.1 Parts Identification

Table 4.1 Parts Function

No.	Name	Description
(1)	Display	TFT color liquid crystal display with touch panel.
(2)	CF card slot (Built-in disk drive)	You can insert a CF card in the slot. (The built-in disk drive has primary master drive and primary slave drive.)
(3)	DC power supply connector	Connect an IDE power supply cable for feeding the peripheral device (CD-ROM drive, HDD etc.) that is connected with IDE.
(4)	IDE connector	Connect an IDE-compatible peripheral device (CD-ROM, HDD etc.). (It will be secondary master drive.)
(5)	WDT/EMG connector	Watchdog timer can be set from 0.1sec to 25.5sec, and the signal can be output. Moreover, an emergency stop signal can be input.
(6)	SSCNET connector (PT-E831HS only)	Connect a SSCNET-compatible device (motion controller, etc.).
(7)	RS-232C connector (COM2)	Connect a RS-232C-compatible device. (COM3 can be switched among RS232C, RS422 and RS485.)
(8)	RS-232C connector (COM3)	
(9)	USB connector 1, 2	Connect USB-compatible devices such as keyboard, mouse, printer, etc.
(10)	USB connector 3, 4	
(11)	LAN connector 1	Connect with network.
(12)	LAN connector 2	
(13)	PCI bus expansion slot	Connect an add-on unit and use PCI-bus expansion board.
(14)	Reset button	Restart PT-E.
(15)	Operation status LED	Display PT-E'S operation status. - Red blinking: During starting up, shutting down; or EPC System Monitor is not started. - Red: EPC System Monitor starting up - Green blinking: Standby.
(16)	Power supply input terminal	Connect power supply cable.
(17)	Battery pack (Optional)	Lithium ion battery pack EP73BAT. Do not need the battery pack if not use resume function.
(18)	Setting switch	Switch COM3's communication mode among RS232C, RS422 and RS485. (Switch No.1 to No.7)
(19)	ON/OFF switch	Switch power on/off. Upside: ON; downside: OFF.

System Configuration

PT-E831H/PT-E831HS

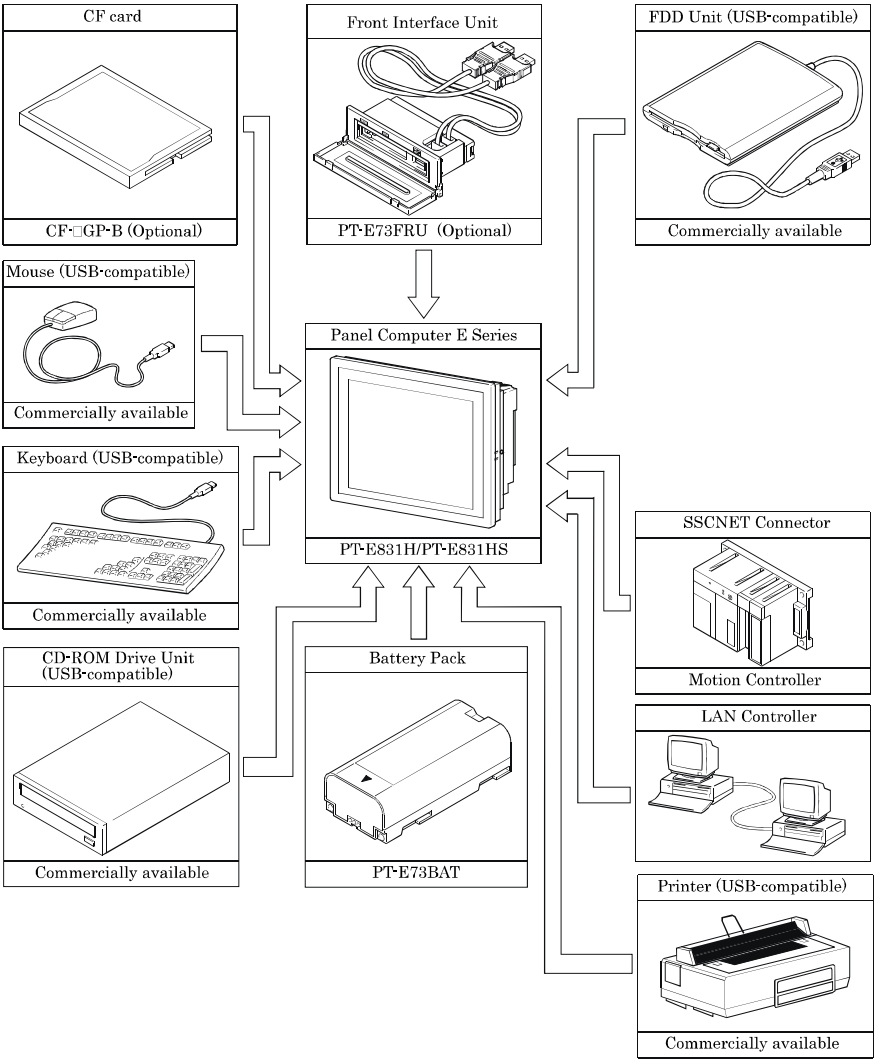


Figure 4.2 System Configuration

Component Function

Operation State LED

Operation state LEDs are loaded on PT-E.

PT-E's operation state LEDs light on/off as the operation state changing. Therefore, PT-E's operation state can be confirmed by the operation state LEDs.

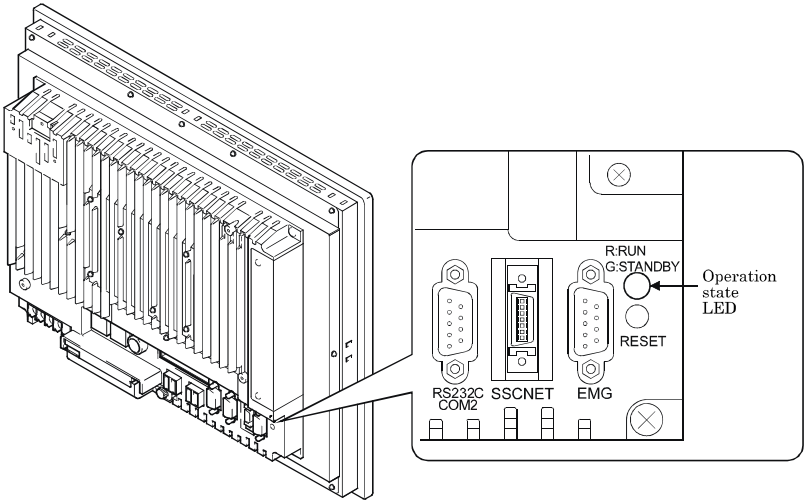


Figure 4.3 Operation State LED

Table 4.2 LED display color

Operation state of PT-E	LED display color
During starting or shutdown, or EPC System Monitor is not started, or EPC System Monitor process error occurring.	Red blinking
During EPC System Monitor running	Red lihgting
During resume function working	Green blinking

AC Power Input Connector : AC-IN

Power Supply Wiring

Secure the cable terminals with screws in the FG, N and L positions of the power supply terminals at the back of PT-E. Connect LG and FG terminals and directly earth them using an earth cable of ϕ2mm2 or more.

PT-E831H / PT-E831HS can use power supply voltage of "100VAC to 240VAC".

Do not connect PT-E with an improper power supply voltage. Doing so can cause a breakdown.

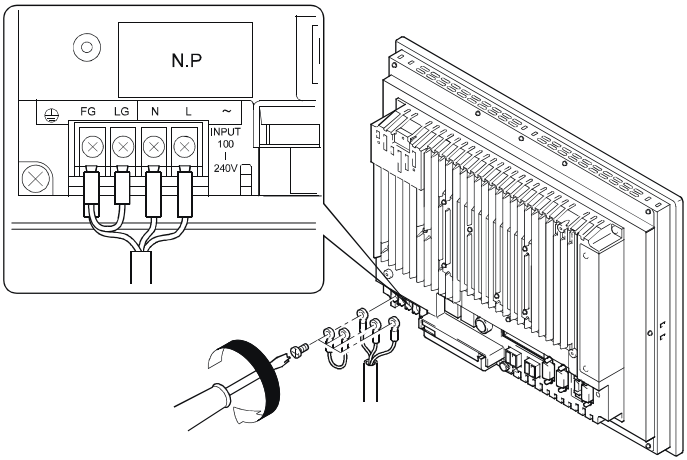


Figure 4.4 AC Power Connector

Wiring Precautions

This section gives the wiring guidelines for using PT-E.

The following are the instructions for wiring the power cable.

(1) Power supply wiring

(a) Connect a constant-voltage transformer if voltage fluctuations are outside the specified range.

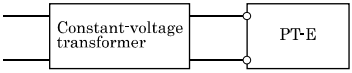


Figure 4.5 Constant-voltage transformer

(b) Across the terminals and across ground, use power supplies that generate little noise. Connect an isolating transformer if noise generated is excessive.

Figure 4.6 Isolating transformer

(c) The PT-E, I/O equipment and power equipment should be wired separately as shown below.

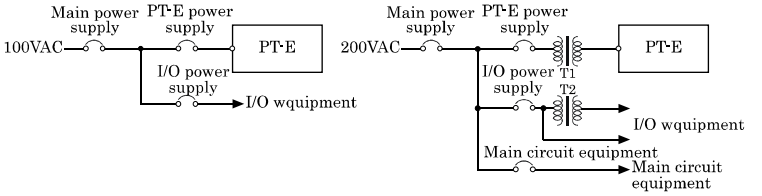


Figure 4.7 I/O equipment and Power equipment

(d) When increasing power cable length, twist cable as tightly as possible and connect it within the shortest distance.

(e) When increasing power cable length, use cable as thick (2mm2) as possible to decrease voltage drop.

⚠ CAUTION

Do not bundle or run the power cable with the main circuit (high voltage, large current) cables and I/O signal cables. Where possible, run it at least 100 mm (3.94 inches) away from them.

Normally use wire of 0.75 to 2 mm2 for power supply cable.

(f) As a measure against any potential surges due to lightening, connect a surge absorber as shown below.

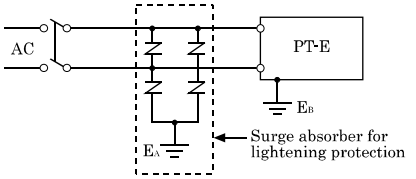


Figure 4.8 Ground lightening surge absorber

⚠ CAUTION

Ground lightening surge absorber (EA) and PT-E's power cable earth wire (EB) separately.

Select the lightening surge absorber that not exceeds the maximum permissible circuit voltage of the sure absorber at the maximum power supply voltage.

(2) Grounding

(a) Where possible, ground the PT-E independently.
The grounding work is class D grounding (grounding resistance 100Ω or less)

(b) When independent grounding is impossible, use the joint grounding method marked (2) below.

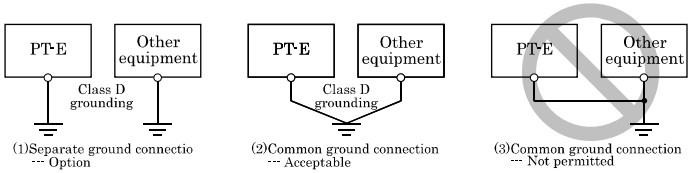


Figure 4.9 Grounding method

(c) The size of grounding wires must be 2 mm^2 or more.
Use wire in which green and yellow color is combined for grounding wire.
The grounding point should be as near as possible to PT-E to minimize grounding cable length.

⚠ CAUTION

Do class D or higher grounding work to earth PT-E. In addition, do not share the grounding with other equipment.

(3) Remark

For PT-E831 series, if use resume function, operation shifts to either mode below when power failure or voltage drop occurring.

1) [Continue mode]: Keep operating for 10 minutes.

2) [Standby mode]: Keep standby state for 30 minutes. Standby state is released when power restoring; and operation is restarted immediately from the state right before power failure.

*Require the battery pack PT-E73BAT(Optional) if use resume function.

ON/OFF Switch: POWER SW

POWER SW is provided.

CF Card Slot

The CF card (Type I, II) can be connected. The built-in disk drive has primary master drive and primary slave drive.

⚠ CAUTION

Do not use the CF card after removing it from PT-E.

Doing so might cause trouble such as corrupt the files in the CF card due to improper using method.

Mountting a CF card

(1) Remove the two screws on the back of PT-E, and remove the cover.

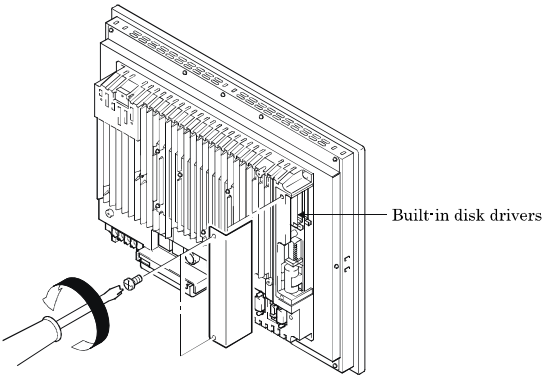


Figure 4.10 Remove the cover

(2) Confirm the up/down sides and orientation of the CF card, and insert the CF card far enough into the built-in disk drive. Up to two pieces of disks can be mounted.

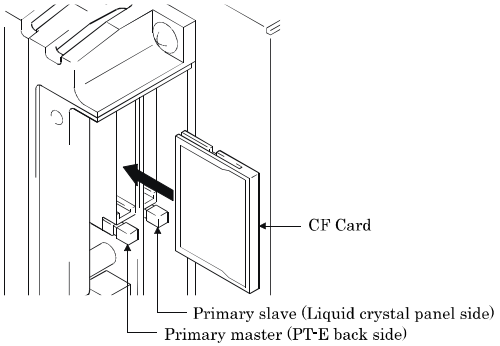


Figure 4.11 Mounting a CF card

⚠ CAUTION

The drive near the backside of PT-E is the primary master drive; the drive near the LCD panel side is the primary slave drive.

Removing a CF card

(1) Press the eject button of the drive from where the CF card will be removed. The eject button pops out.

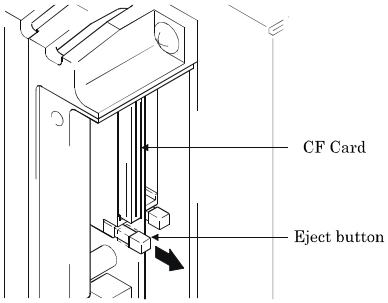


Figure 4.12 Eject button

(2) Push in the eject button. Push in the eject button and push out the CF card halfway. Pull and remove the CF card gently with your hand.

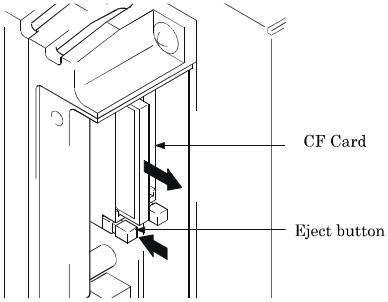


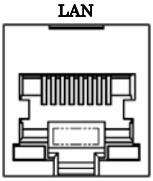
Figure 4.13 Removing a CF card

Giga bit-Ethernet : LAN 1 – 2

This product is equipped with 2 ports for giga bit.

- Network type : 1000BASE-T/100BASE-TX/10BASE-T
- Transmission speed * : 1000M/100M/10M bps
- Max. network path length : 100 m/segment
- Controller : Marvell 88E8053

Table 4.3 Giga bit-Ethernet Connector



Pin No.	Function	
	100BASE-TX	1000BASE-T
1	TX+	TRD+(0)
2	TX-	TRD-(0)
3	RX+	TRD+(1)
4	N.C.	TRD+(2)
5	N.C.	TRD-(2)
6	RX-	TRD-(1)
7	N.C.	TRD+(3)
8	N.C.	TRD-(3)

LED LEDs for display of network statuses

Left LED : Link LED
Green ON, Operation: Green Blinking

Right LED : Operation LED
10M: Off, 100M: Green, 1000M: Red

LAN drivers

Install the appropriate LAN driver for your OS from the CONTEC's Web site [IPC-SLIB-01].
(For information on the latest version of IPC-SLIB-01, check the CONTEC's web site.)

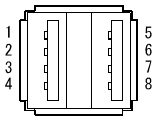
⚠ CAUTION

When using both 2 ch Ethernets in 1000 BASE -T, please use PT-E under the environment where the operating ambient temperature is "Front display section is 0°C to 40°C, other than display section is 0°C to 45°C".

USB Port: USB

This product is equipped with 4 ports for USB 2.0 interface.

Table 4.4 USB Connector



Pin No.	Function	
	USB 1, 2	USB 3, 4
1	USB1_VCC	USB3_VCC
2	USB1-	USB3-
3	USB1+	USB3+
4	USB1_GND	USB3_GND
5	USB2_VCC	USB4_VCC
6	USB2-	USB4-
7	USB2+	USB4+
8	USB2_GND	USB4_GND

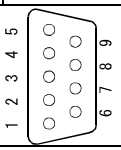
Serial Port Interface: COM2 – 3

Serial Port COM2 (RS232C)

This product has a serial port that corresponds to RS232C,

Table 4.5 Serial Port Connector (COM2)

Connector used on the product	D-sub9 pin, male



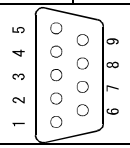
Pin No.	Function
1	DCD
2	RXD
3	TXD
4	DTR
5	GND
6	DSR
7	RTS
8	CTS
9	RI

Serial Port COM3(RS232C/RS422/RS485)

This product has a serial port that corresponds to the communication modes RS232C, RS422 and RS485

You may set communication mode of serial port COM3 by setting switches in PT-E.

Table 4.6 Serial Port Connector (COM3)

Connector used on the product	D-sub9 pin, male		
			
Pin No.	Function		
	RS-232C	RS-422	RS-485
1	DCD	TX+	DATA+
2	RXD	TX-	DATA-
3	TXD	RX+	-
4	DTR	RX-	-
5	GND	GND	GND
6	DSR	-	-
7	RTS	-	-
8	CTS	-	-
9	RI	-	-

Switching Serial Port COM3 among RS232C, RS422 and RS485

The serial port COM2 corresponds to RS232C; COM3 corresponds to the communication modes RS232C, RS422 and RS485. Using the serial communication mode setting switches (No.1 to No.7), you can set communication mode for serial port COM3. The setting method is as follows.

(1) Remove the two screws on the back of PT-E, and remove the cover.

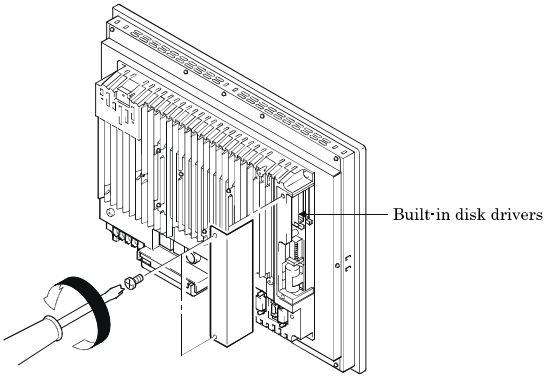


Figure 4.14 Remove the cover

(2) According to Table 4.7, set the communication mode to be used with the serial communication mode setting switches (No.1 to No.7).

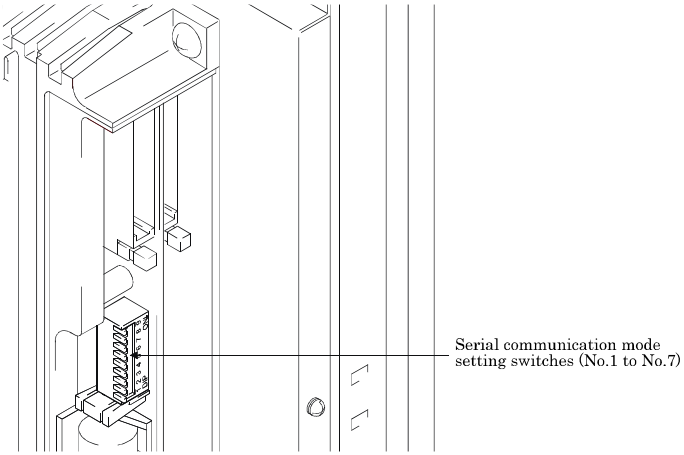


Figure 4.15 Serial communication mode setting switches

Table 4.7 Switch Setting of Communication Mode of Serial Port COM3

Communication Mode	Switch Setting	Switch No.								
		1	2	3	4	5	6	7	8	9
RS232C (Default)		OFF	OFF	OFF	ON	OFF	OFF	OFF	OFF	OFF
RS422		OFF	OFF	OFF	OFF	ON	OFF	ON	OFF	OFF
RS485 (Low baud rate)		OFF	OFF	OFF	OFF	OFF	ON	ON	OFF	OFF
RS485 (Middle baud rate)		OFF	ON	OFF	OFF	OFF	ON	ON	OFF	OFF
RS485 (High baud rate)		ON	OFF	OFF	OFF	OFF	ON	ON	OFF	OFF

⚠ CAUTION

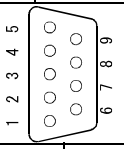
(1) Switch No.3, 8 and 9 are set by maker. They are unavailable for user. PT-E might not work normally if set them ON. Do not set them ON please.

(2) Switch setting other than the patterns in Table 4.7 may lead to communication failure. Do not set switches to pattern other than Table 4.7.

WDT/EMG Connector

This product is equipped with a Connector for WDT/EMG.Watchdog Timer can be set from 0.1sec to 25.5 sec and the signal can be output)

Table 4.8 WDT/EMG Connector

Connector used on the product	D-sub9 pin, female	
		
Pin No.	Function	Specifications
1	WDT_NO	Input: 30VDC; 2A or less
2	WDT_NC	Input: 30VDC; 2A or less
3	-	-
4	-	-
5	EMER_COM2	Ground for emergency stop input
6	WDT_COM	WDT_Common
7	-	-
8	-	-
9	EMER_COM1	24VDC input power supply for emergency stop input.

Emergency Stop Wiring Example

This section describes how to wire for Emergency stop.

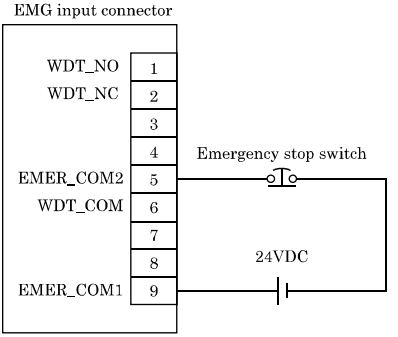


Figure 4.16 Emergency Stop Wiring Example

⚠ CAUTION

(1) Need wiring above when releasing the emergency stop for servo amplifier.
(2) When wiring for emergency stop, always connect or disconnect to EMG connector after turning off the power supplied to PT-E.

IDE Connector

This product is equipped with a Connector for external HDD unit. Use IDE connection cable and IDE power supply cable to fit the HDD unit.

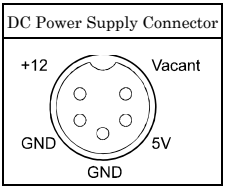
⚠ CAUTION

- Only one HDD unit can be connected to PT-E.
- For the HDD unit that is connected with IDE connection cable, set the setting pin [MASTER/SLAVE] as follows.
- IDE connector 1……. MASTER
- IDE connection cable must be 80-pin cable. HDD unit might not work normally if use 40-pin cable.

DC Power Supply Connector

This product is equipped with a Connector for IDE power supply cable (PT-71IDE-PWCBL).

Table 4.9 DC Power Supply Connector



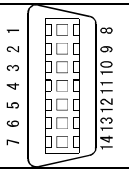
PCI Bus Expansion Slot

This product is equipped with a Slot for Connecting an add-on unit and use PCI-bus expansion board.

SSCNET Connector

PT-E831HS is equipped with 1 port for SSCNET.

Table 4.10 SSCNET Connector



Pin No.	Function
1	GND
2	RD2
3	RD1
4	EMG1
5	TD2
6	TD1
7	GND
8	GND
9	RD2L
10	RD1L
11	EMG1L
12	TD2L
13	TD1L
14	VCC

5. Startup and Termination

⚠ CAUTION

- If switch power off or execute reset operation right after writing data, always do it after exiting windows correctly. Not doing so may break the data that have been written into the CF card, sometimes it may get PT-E not to start up normally.
- Use same series' CF cards in SLAVE and MASTER sides (Any capacity is acceptable). CF card supplied by our company is recommended.
- Do not copy OS data by Explorer. Doing so may get PT-E not to start up normally.

Before Setup

When PT-E is started for the first time, Windows Setup (OS or Drivers' installation, etc.) might be necessary.

Table 5.1 Windows Setup

Boot-up Disk Drive Configuration	Whether OS is Preinstalled or Not	Windows Setup
Boot PT-Ewith a CF card that is built in PT-E.	Windows XP Embedded is already preinstalled. (Option)	Not required.
	OS is not installed.	Windows setup is required.
Boot PT-E with an external HDD.	OS is not installed.	Windows setup is required.

(1) If you ordered a CF card (option) in which Windows XP Embedded has been preinstalled, you may use PT-E without setting up Windows.

If you order a CF card in which Windows XP Embedded is not installed, you need to setup Windows.

(2) In case of using an external HDD as the boot-up disk

As Windows OS is not installed in the external HDD; you need to setup Windows when powering on PT-E for the first time.

⚠ CAUTION

- When customer installing Windows OS, note that not only OS but also PT-E dedicated drivers should be installed.
- For installing OS, commercially available CD-ROM for Windows setup and PT-E dedicated driver CD are necessary.

  The customer needs to purchase CD-ROM for Windows setup.
- Contact our agent or sales office if you need PT-E dedicated driver CD.

Write-protect

Executing write-protect can prevent from deleting the important data preserved in the CF card and overwriting them by mistake.

This section describes how to execute and release write-protect to a CF card.

⚠ CAUTION

Do not use the CF card after removing it from PT-E.
Write-protect is only available for the CF card that is installed in PT-E.

Method of Executing Write-protect

(1) Click [Start] on taskbar.
Move the cursor to [All programs (P)] → [Accessories] and click [Command Prompt].

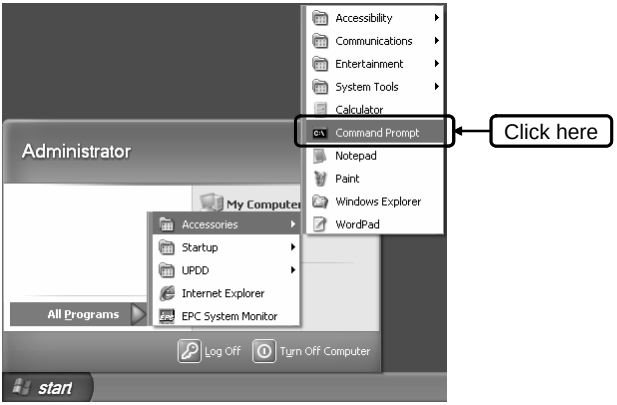


Figure 5.1 Command Prompt

(2) The command prompt is started. Input command "ewfmgr C: -enable" and then press [Enter] key.

Figure 5.2 Executing command

(3) Show as follows as soon as the processing of write-protect is completed.
Confirm that the item of "Boot Command" becomes "ENABLE".

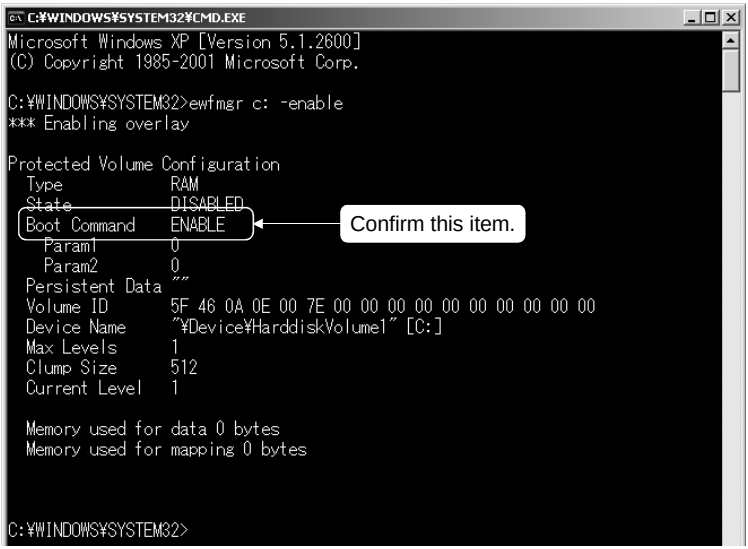


Figure 5.3 The item of Boot Command

(4) Quit command prompt and then restart PT-E.

(5) Write-protect is executed after restarting PT-E.
As for the method of confirming the state of write-protect, refer to next page.

Method of Releasing Write-protect

This section describes how to release write-protect.

(1) Click [Start] on taskbar.
Move the cursor to [All programs (P)] → [Accessories] and click [Command Prompt].

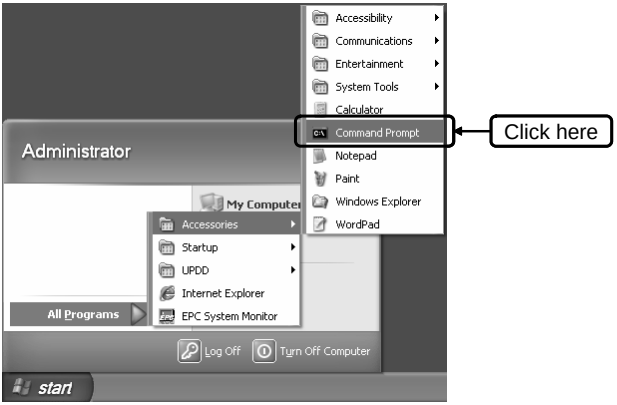


Figure 5.4 Command Prompt

(2) The command prompt is started.
Input command "ewfmgr C: -disable" and then press [Enter] key.

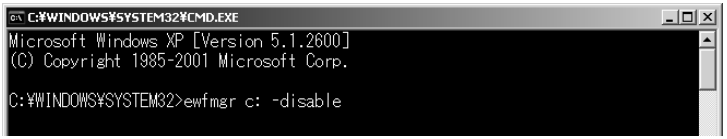


Figure 5.5 Releasing Command

(3) Show as follows as soon as the releasing of write-protect is completed.
Confirm that the item of "Boot Command" becomes "DISABLE".

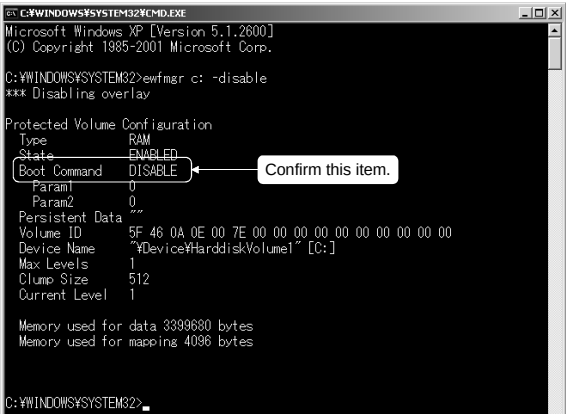


Figure 5.6 The item of Boot Command

(4) Quit command prompt and then restart PT-E.

(5) Write-protect is released after restarting PT-E.

Method of Confirming the State of Write-protect

This section describes how to confirm present state of CF card and how to confirm whether write-protect already been executed or not.

(1) Click [Start] on taskbar.
Move the cursor to [All programs (P)] → [Accessories] and click [Command Prompt].

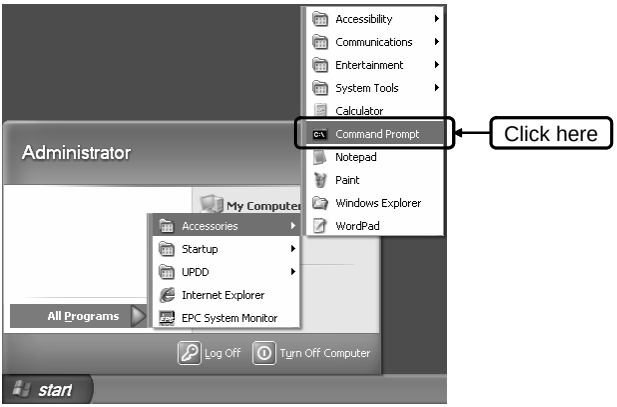


Figure 5.7 Command Prompt

(2) Command prompt is started.

Input command "ewfmgr C: ". Show as follows after pressing [Enter] key.

Confirm the item of "State".

- State DISABLED : The state that write-protect is released.
ENABLED : The state that write-protect is executed.

*: When confirming the state of the CF card, the item of "Boot Command" shows as "NO_CMD", executing/releasing write-protect cannot be switched.

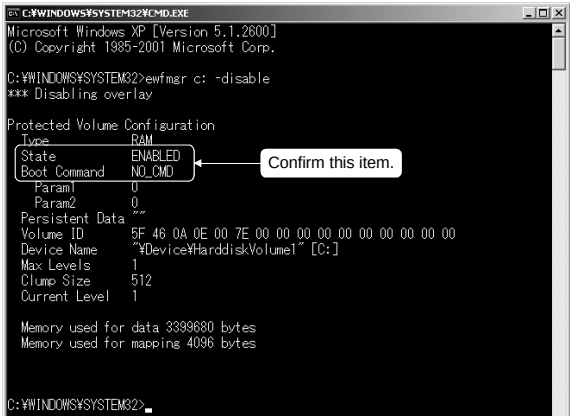


Figure 5.8 The item of State and the item of Boot Command

(3) Quit command prompt. (Not require to restart PT-E).

Power OFF

This section explains how to power off PT-E.

To switch power off, always quit Windows correctly following the next procedures and switch off the power supplied to PT-E.

1) Save data and exit all applications.
2) Choose [Turn Off Computer] from [Start] menu.

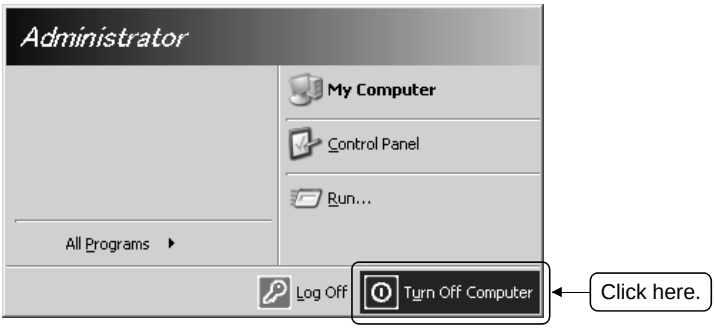


Figure 5.9 Turn Off Computer button

3) The window of [Turn off computer] is displayed.
   Choose Turn Off to switch off the power.

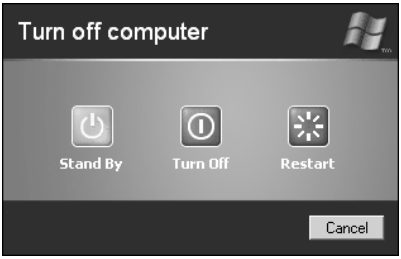


Figure 5.10 The window of Turn off computer

4) After quitting the system, switch the power supplied to PT-E main body.

Point

(1) In case of using a CF card, executing write-protect to the CF card may reduce access number of times to the CF card; and it also may reduce risk that corrupts data in the area where write-protect has been executed.

(2) In case of not using resume function, if turns on the power right after switching off, please wait more than 10 seconds before switching it on again.

(3) In case of using resume function, PT-E's operation state will be shifted to [Continue Mode] or [Standby Mode] after switching off power of PT-E. Within the setting time that has been set in EPC System Monitor, PT-E operates in either [Continue Mode] or [Standby Mode].

PT-E's operation state can be confirmed by operation state LED on the back of PT-E. (Refer to p.20)

Do not remove CF card during the operation state LED lighting on.

Doing so can lose data or damage the CF card.

(4) Do not operate the power ON/OFF switch near the CF card slot during operation state LED lighting on or blinking. Doing so can lose data or damage the CF card.

6. Setting the Touch panel Driver

PT-E is incorporated with the touch panel driver that allows you to operate it by touching screen.

Default settings are made by factory before shipment.

Use "Touch Panel Driver Property" application to make calibration settings if necessary.

Calibration Settings

Calibration settings are used to adjust the recognized position when screen is touched.

There are two kinds of methods to do calibration setting. One is a setting that doesn't use EEPROM calibration; another is a setting that uses EEPROM calibration in the calibration setting.

Calibration Settings When Not Using EEPROM Calibration

The setting that doesn't use EEPROM calibration saves the calibration data in the Windows. When using the identical start-up disk, once made the setting at the beginning, not need to do calibration setting later. However, when exchange a start-up disk and if a touch position is shifted, do calibration setting again.

(1) Click [Start] on taskbar.

Move the cursor to [All programs (P)] → [UPDD] and click [Operation Setting].

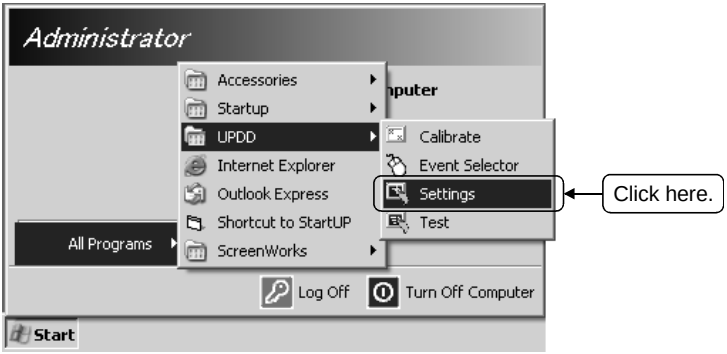


Figure 6.1 [Settings] button

(2) "Touch Panel Driver Properties" window is displayed.

Click [Calibration (N)] tab. Remove the checking of "EEPROM Calibration".

Make calibration setting according to need. (Refer to next page)

Click [Apply (A)] button when change the settings so that the changed settings are available.

After completing all settings, click [Calibration (C)] button.

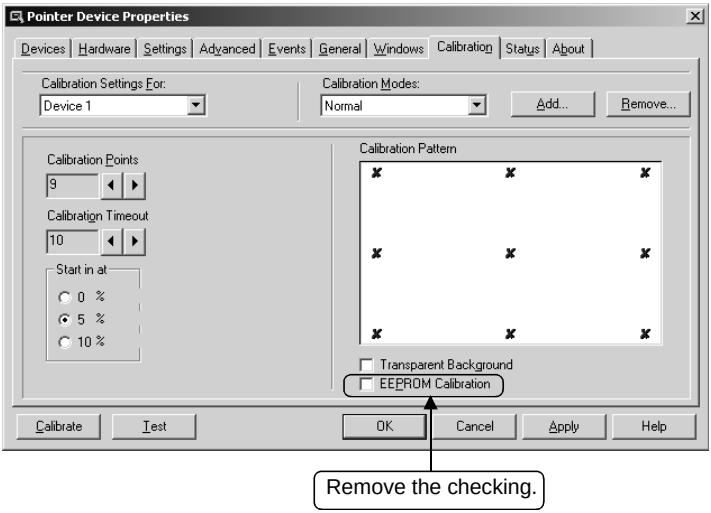


Figure 6.2 Pointer Device Properties

⚠ CAUTION

- When changed settings, always click [Apply (A)] button to make the changed settings available.
- Clicking [Apply (A)] button makes the controller initialization, which may make touch panel not react for several seconds

(3) Calibration window is displayed.

Figure 6.3 Calibration screen

Press ↖ in order and make settings.

The method of setting is as follows.

1) Press the tip of ↖ with a touch pen.

2) Lift the touch pen off screen.

3) After lifting the touch pen off the screen, a "beep" sounds and ↖ appears in the next position.

Similarly, set the position where is indicated by ↖.

Perform this operation for all numbers of points that have been set at “point number “in [Calibration Setting] window.

* If the screen is not touched for the time that has been set in the calibration settings, calibration window will be closed and calibration is aborted. Do calibration setting again.

(4) When all calibration points' settings are completed, a dialog box for calibration confirmation is displayed.

If no problem occurs on any calibration point, clicks [OK] to finish the calibration.

If make a mistake in point except the calibration points, doing nothing but waiting 10 seconds. After 10 seconds passed, the calibration data are canceled and they are not saved in the Windows.

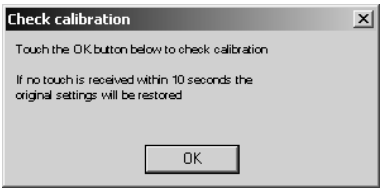


Figure 6.4 Check calibration window

Calibration Settings When Using EEPROM Calibration

Calibration setting that uses EEPROM calibration saves the calibration data in EEPROM within PT-E.

Because the calibration data are saved in EEPROM, the calibration setting condition is identical for the same PT-E. Don't need to do calibration again even though exchange start-up disk.

(1) Click [Start] on taskbar.

Move the cursor to [All Programs (P)] → [UPDD] and click [Operation Setting].

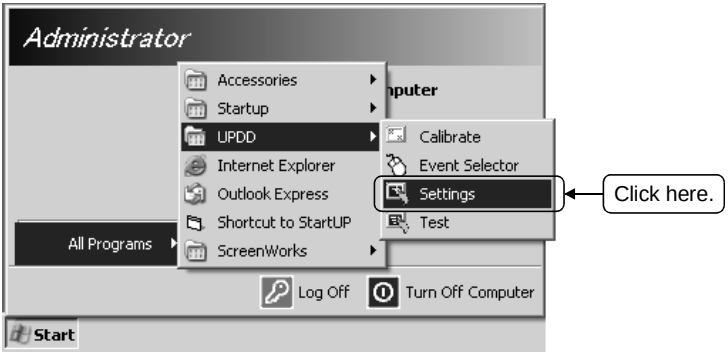


Figure 6.5 Settings button

(2) "Touch Panel Driver Properties" window is displayed.
Click [Calibration (N)] tab and check "EEPROM Calibration".
Make calibration setting according to need. (Refer to p. 52)
Click [Apply (A)] button when change the settings so that the changed settings are available.
After completing all settings, click [Calibration (C)] button.

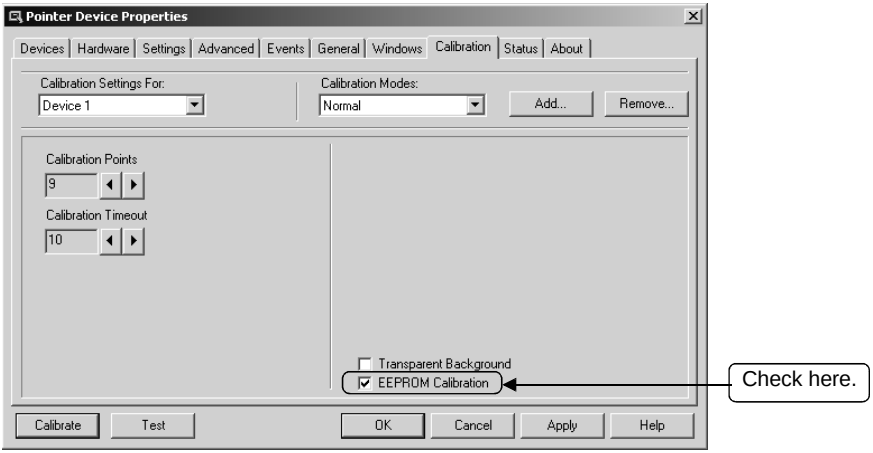


Figure 6.6 Pointer Device Properties

(3) The calibration window is displayed; make calibration following the procedures in p. 43-44.

Test

Used to check the recognition speed of system when screen is touched, including touch panel operation and calibration accuracy. This section describes how to do an operation test for touch panel.

(1) Click [Start] on taskbar.

Move the cursor to [All Programs (P)] → [UPDD] and click [Test].

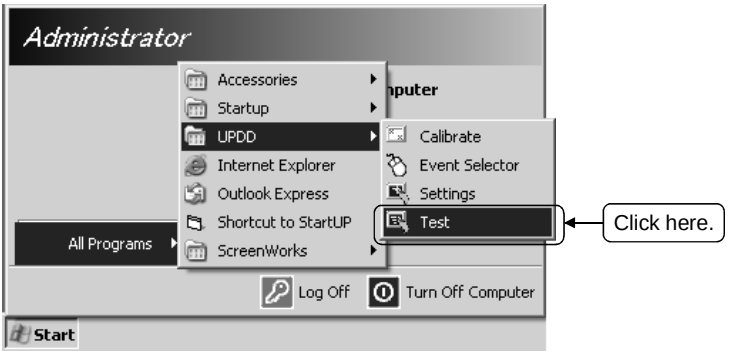


Figure 6.7 [Test]button

(2) Test window is displayed.

Touch the screen and move touch pen to draw a line or write some characters.

Figure 6.8 Test window

1) Grid

Press [Grid] button, test window is displayed with grids.

Press [Close] button to back to the test window.

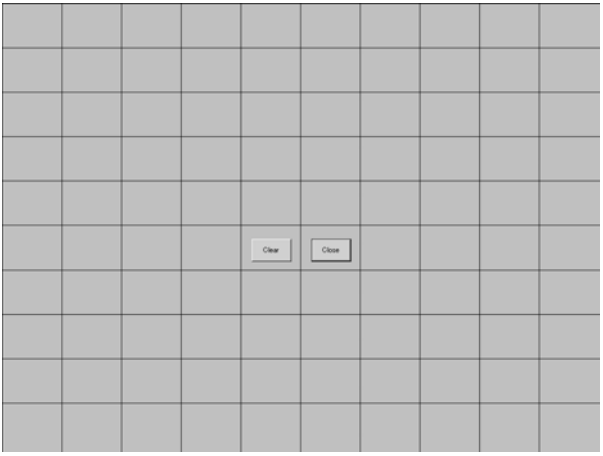


Figure 6.9 Test window (Grid view)

2) Clear

Press [Clear] button to clear the line and characters that are drawn or written when testing.

3) Close

Press [Close] button to exit test window.

Mouse Operation

(1) Click and drag operation

Touch panel does the basic operations including click mouse, double-click and drag etc. as follows:

- Click : Touch the screen and lift off
- Double-click : Touch the screen twice quickly
- Drag : Touch the title bar of Window or icon with a finger (or a touch pen) and move the finger (or the touch pen) while touching.

(2) Right-click

There is no left/right button on touch panel like a mouse, use [Event selector] enable the right-click operation by touch panel.

Do this operation as follows.

1) Click [Start] on taskbar.
Move the cursor to [All Programs (P)] → [UPDD] and click [Event selector].

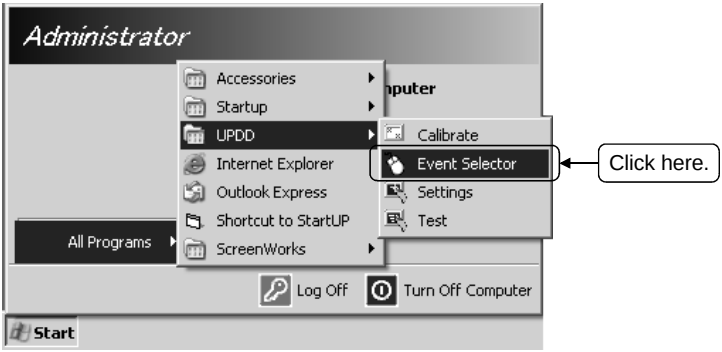


Figure 6.10 [Event Selector] button

2) Mouse window is displayed.
When touching the picture of the button in Mouse window, the button shown in dark blue is switched.
The button shown in dark blue becomes the active button.
Touch operation right after active button is switched, is the operation of mouse button.

When left button is active

When right button is active

Figure 6.11 Event Selector Window

Function of Touch Panel Driver

Make necessary settings for touch action.

This section describes how to make these settings.

(1) Click [Start] on taskbar.
Move the cursor to [All Programs (P)] and click [Operation Setting].

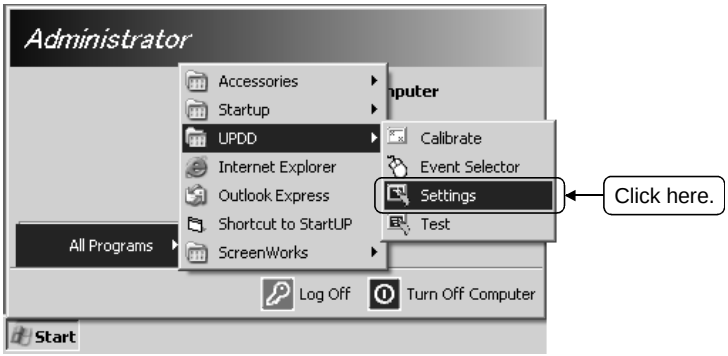


Figure 6.12 [Settings] button

(2) "Touch Panel Driver Properties" window is displayed.

Click tab of setting item to set touch panel driver.

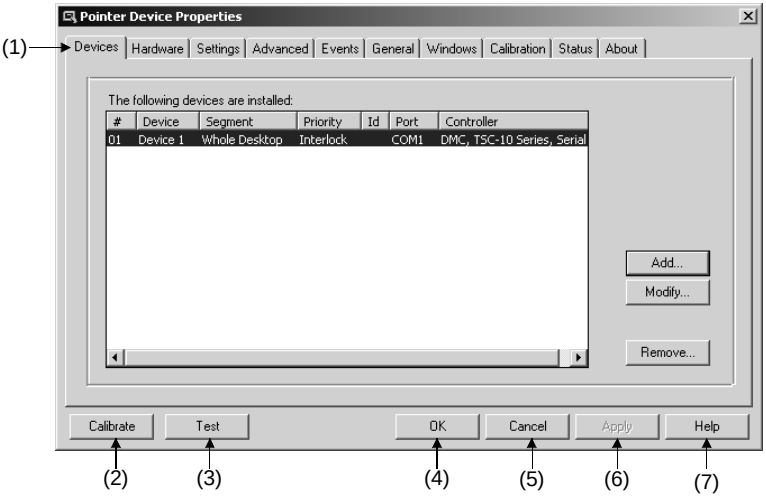


Figure 6.13 Pointer Device Properties

1) Setting tabs

Click tab to select setting item.

- General
- Calibration
- Device
- Hardware
- Action Setting
- Advanced Setting
- Event
- Double-Click
- States
- Information

2) [Calibration (C)] button

Make calibration settings.

About calibration setting, refer to p. 41.

3) [Test (T)] button

Make a touch operation testing.

About testing, refer to p. 46.

4) [OK] button

Save the setting data, and exit "Touch Panel Driver Properties" window.

5) [Cancel] button

Cancel the setting data, and exit "Touch Panel Driver Properties" window.

6) [Apply (A)] button

Make the changed settings available.

7) [Help] button

Show online help of touch panel driver.

General

Used to set basic operations for touch panel.

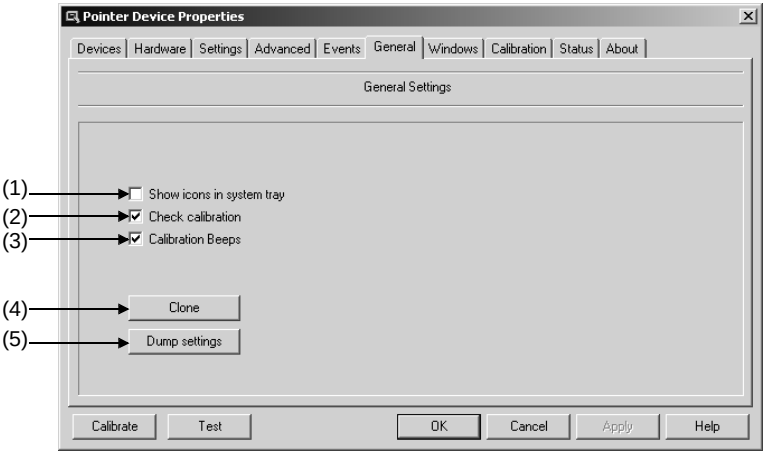


Figure 6.14 General tab

(1) Show icons in system tray

Use this setting to enable or disable register the icon on the taskbar.
If show icons in system tray, check the checkbox.

(2) Check calibration

If set it, a "Calibration confirmation" dialog box is displayed at the end of calibration.

(3) Calibration Beeps

If set it, sound is used to indicate a calibration point has been accepted.

(4) Clone

Copy the current UPDD configuration setting into file upddclon.reg, which be used for automatic setup in subsequent installation.
Click [Clone (O)] button to create the file "upddclon.reg" that is in folder
C: \Program Files\UPDD\upddclon.reg.
Double-click the file to register the setting environment.

(5) Dump settings

Use this function to dump driver and system settings to a text file UPDDset.txt. Click [Dump setting (M)] button to create a file "UPDDset.txt".
The file is in folder C: \Program Files\UPDD\UPDDset.txt.

Calibration

Used to make settings for calibration.

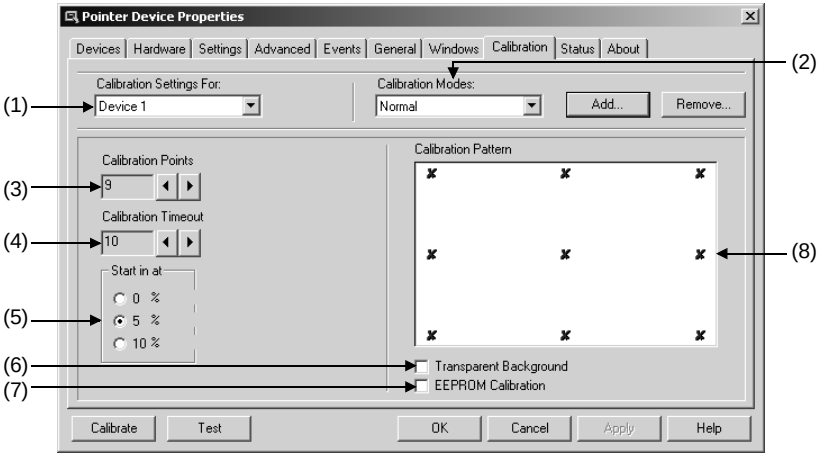


Figure 6.15 Calibration tab

(1) Calibration Settings

Specifies the device that these calibration setting apply to.
About the information of the controller you are using, can be confirmed by [Device] in p.54.

(2) Calibration Modes

Shows the calibration mode in use.

A device may have a number of different calibration modes.
Add calibration modes, the information that is set in (3) to (7) can be saved more than one time.

- Click [Add (A)] button to show the following dialog box.
  Input the name of calibration mode.
- Click [Remove (R)] button to delete the calibration mode.

Figure 6.16 Add Style dialog box

(3) Calibration points

Specify the number of calibration points to be set.
The default is "4" points. For revising a position difference correctly, increase the number of the calibration points.

- The setting range 2 to 25 points

(4) Timeout

Indicate the calibration timeout value if the calibration point is not touched within the specified period. Defined it in seconds. The default is "10" seconds.

- The setting range 10 to 60 seconds

(5) Starting

Set the position of the calibration point.
On 4 corners of the screen, it is 0%. The bigger the setting value is, the nearer the screen center position calibration point becomes.
The default is set to "5%".

(6) Transparent Background

If it is enabled, specify that the calibration points are shown on the Windows desktop without a white background.

(7) EEPROM Calibration

Set where the calibration setting data are saved.

- If enabled, save the calibration setting data in EEPROM.

- If disabled, save the calibration data in the windows.

When using EEPROM calibration, the position (position of the arrow) of the calibration point becomes a fixation.

*: About calibration setting method, refer to following.

- Save to Windows Refer to p. 41

- Save to EEPROM Refer to p. 44

(8) Calibration Pattern

Show the calibration point pattern to be set in (3) and (5).
Used to confirm the number of points and point position that have been set in (3) and (5).

Devices

Used to add, modify and delete controllers.

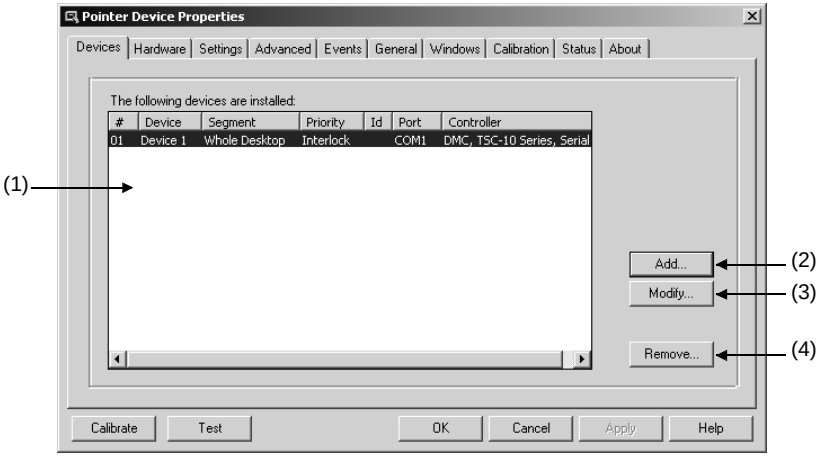


Figure 6.17 Devices tab

(1) Device list

Show the information of the controller to be used.

(2) [Add (D)] button

Add a controller.

(3) [Modify (M)] button

Change name or operation object of controller.

(4) [Remove (R)] button

Delete a controller.

Hardware

Used to set touch panel driver's communication setting.

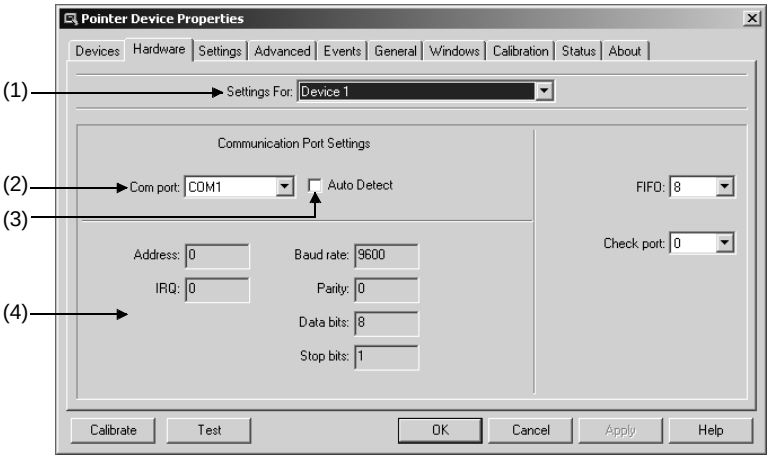


Figure 6.18 Hardware tab

(1) Settings

Shows the controller to be used.

(2) COM Port

Set serial port that is connected with controller.

(3) Auto Detect

If enabled, when windows start-up, the serial port connected the controller is detected automatically.

(4) Information of communication port

Show the information of the serial port connected with the controller.

Action Settings

Used to adjust the reaction time or the touch action when touching a touch panel.

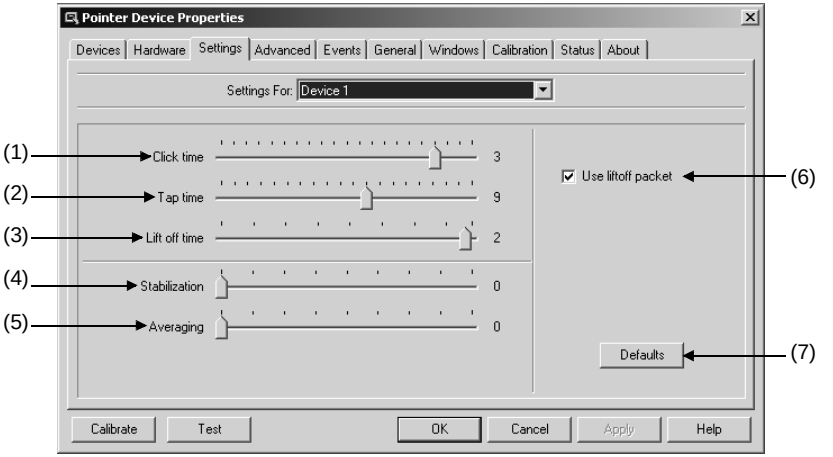


Figure 6.19 Settings tab

(1) Click time

Click time is "a short time" interval that the driver uses in the button click logic that uses time intervals between clicks.

(2) Tap time

Tap time is "a short time" interval that the driver uses in the button click logic that uses time intervals between taps.

(3) Lift off time

The Lift off Time value specifies the time interval required to register a stylus lift. Lift off time is defined in units of 20ms. This value is only used to perform a pen up if the 'Use Lift off' packet is disabled otherwise Pen ups are generated as soon as the stylus leaves the pointer device display.

(4) Stabilization

Stabilization causes small movements to be ignored.

(5) Averaging

Apply a filter to produce smoother drawing. Averaging takes the average of the last N co-ordinates. This is a very basic approach to filtering that can improve drawing and not affect drawing speed.

(6) Use lift off pocket

If enabled, when click the screen, it assumes separated immediately when separating a finger. When input characters, don't check the checkbox.

(7) [Default (U)] button

Press the [Default (U)] button to return to the default setting.

Advanced

Used to do advanced settings, including touch action, beep etc.

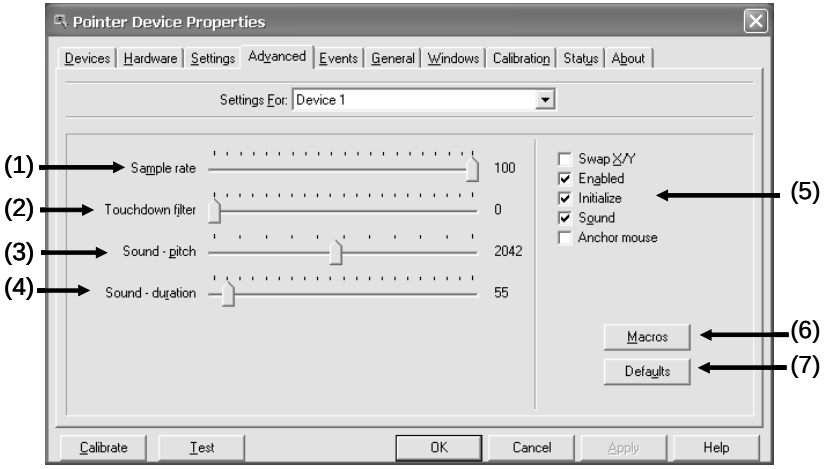


Figure 6.20 Advanced tab

(1) Sample rate

Determine the percentage of pointer device data packets that are passed on to the mouse driver. This should normally be set to 100%.

(2) Touchdown filter

Specify the initial number of touch packets before sensing a touchdown.

(3) Sound pitch

Set the frequency of the beep.
The bigger the setting value is, the higher the beep becomes.
(It becomes maximum volume near setting value 2000 from the buzzer characteristic.)

(4) Sound duration

Sets the length of the beep.
The bigger the setting value is, the longer the beep becomes.

(5) Check items

1) Swap X/Y
Normally, the cursor appears in the XY coordinate position touched on the screen. However, the cursor can be displayed in the position opposite to the XY coordinate position touched.

2) Enabled
Check the checkbox to make touch operation available. When doing the touch operation, don't remove the checking.

3) Initialize
Indicates that the device's initialization macro, if it exists, it will be executed.

4) Sound
Enables or disables the Sound option that accompanies simulated button presses.

5) Anchor mouse
If enabled, mouse cursor is fixed.

(6) [Macro (M)] button

Define the controller macros. Some controllers can accept commands to change the internal settings.

(7) [Defaults] button

Press the [Default] button to be the default setting.

Event

This screen shows the pointer device events that can be generated by the device and the Button Modes (mouse click actions) associated with the events. When an event occurs either the Primary or Secondary action will be performed depending on the Event Selector state.

To change the primary (default: the left button) or secondary (default: the right button) action, also may use mouse window, refer to section p. 48.

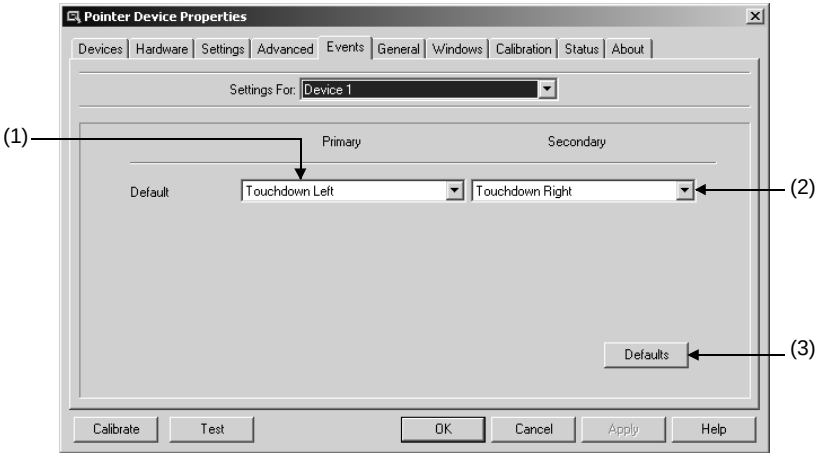


Figure 6.21 Event tab

(1) Primary

Set mouse's primary action setting.

(2) Secondary

Set mouse's secondary action setting.

(3) [Defaults] button

Press [Defaults] button to return to the default setting.

Double click

Used to make settings about double-click.

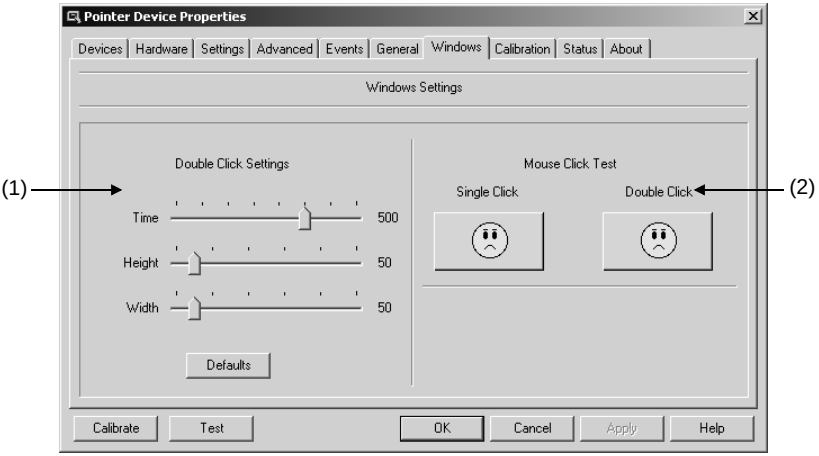


Figure 6.22 Double click tab

(1) Double Click Settings

(a) Time
Change the time period within which windows will register two clicks as a double click.

(b) Height
Specify the number of pixels, vertically, within which windows will recognize two clicks as a double click.

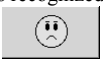
(c) Width
Specify the number of pixels, horizontally, within which windows will recognize two clicks as a double click.

(d) [Default] button
Press the [Default] button to return the default setting.

(2) Mouse Click Test

Used to test single and double click responses, which is set in section (1).

You can click  to test single or double click response.

When touching is recognized as a single or double-click, the icon changes from  to  to  .

Status

Used to show the controller status along with system resource usage and to re-initialize the controller.

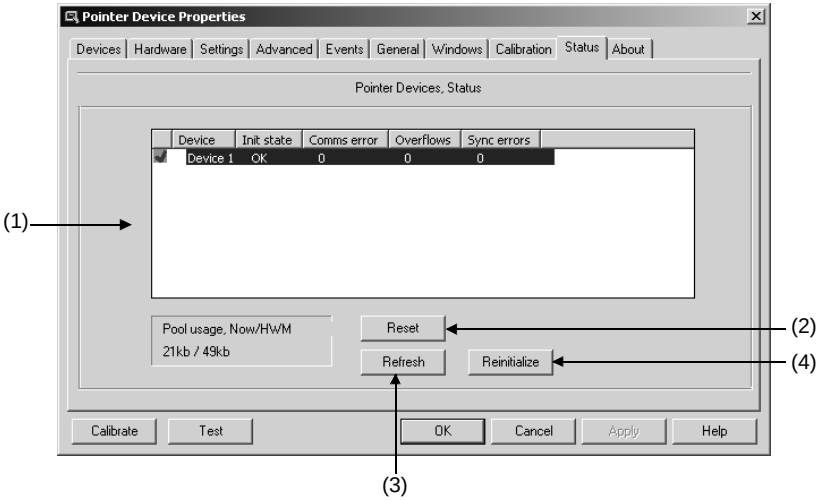


Figure 6.23 Status tab

(1) Status

Show the status information of the controller.

(2) [Reset (X)] button

Reset the default status.

(3) [Refresh (R)] button

Reset the count values shown for the "Com port error", "Overflow" and "Synchronize error".

(4) [Re-initialise (Z)] button

Re-initialise the controller.

About

Used to show version information, support information and licence agreement of touch panel driver.

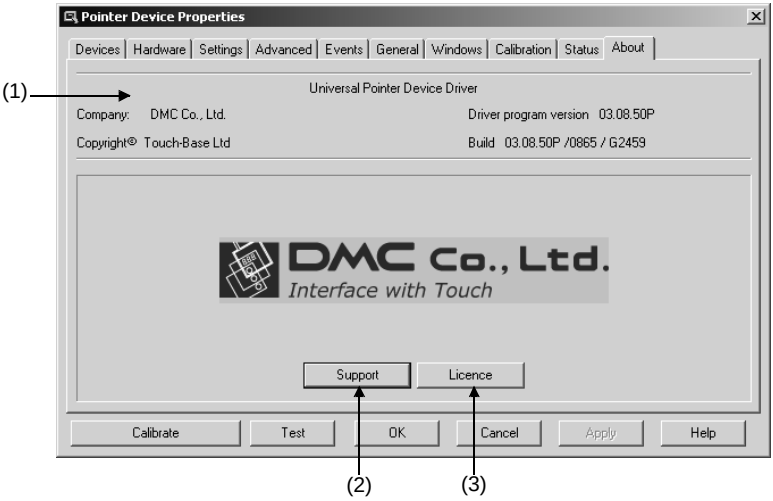


Figure 6.24 About tab

(1) Touch Panel Driver

Show the version information of the controller to be used.

(2) [Support (P)] button

Show the support information.

(3) [License (L)] button

Show Licence agreement information of touch panel driver.

7. Resume Function/ EPC System Monitor

Resume Function

Resume function can keep PT-E operating regardless of the occurrence of instantaneous interruption or power failure and protect data by equipping a lithium ion battery pack (option) on PT-E. With EPC System Monitor, it is possible to choose [Continue mode] or [Standby mode] when power failure occurring and do time setting. Moreover, when battery voltage drop is detected or power supply is not restored after power failure, PT-E will go to shutdown automatically.

(1) Continue mode

a. When power failure is detected, PT-E keeps on operating, but backlight becomes OFF. (In Continue mode, screen operation is unavailable.)

b. If power supply restores before passing the setting time (0 to 10 minutes), or power supply restores before detecting battery voltage drop, backlight will become ON, and operation goes on. If power supply does not restore, goes to shutdown (*1).

c. If battery voltage drop is detected before passing setting time, PT-E goes to shutdown (*1).

(*1): You can set whether execute shutdown process or not. (Refer to p. 73)

(2) Standby mode

a. When power failure is detected, backlight becomes OFF, PT-E goes to standby state.

b. If power supply restores before passing the setting time (0 to 30 minutes), or power supply restores before detecting battery voltage drop, standby state is released and PT-E restarts operation from the state right before power failure. If power supply does not restore, PT-E goes to shutdown.

c. If battery voltage drop is detected before passing setting time, PT-E goes to shutdown.

Point

(1) For using resume function, you must equip a lithium ion battery pack with PT-E.

(2) Before using resume function, always fully charges the lithium ion battery pack. (Continuously charge the battery pack for eight hours and confirm [Charge end] by EPC System Monitor.)

(3) For using resume function, you must start software EPC System Monitor and do necessary settings. (Refer to next page)

(4) Use EPC System Monitor to set operation time of [Continue mode] or [Standby mode]. (Refer to p. 68)

⚠ CAUTION

- In case of connecting external devices, if you are using resume function, the currents supplied to the external devices should be under DC5V/1A.
- If connects external devices that supplying current more than DC5V/1A, over current detection of lithium ion battery will work, so that Continue mode and Standby mode can not work normally. In this case recommend using an external UPS.
- If lithium ion battery is not full-charged, PT-E might go to shutdown operation even within the specified time.
- If lithium ion battery is in the state of discharge (under 6.7V), resume function will not work.

EPC System Monitor

Software EPC system monitor may watch system temperature in PT-E; it supports PT-E's power supply unit and lithium ion battery pack on preservation and maintenance.

1) Our company supplies Windows XP Embedded pre-installed CF card, in which EPC System Monitor has been installed. User needs to do necessary settings. (Refer to p. 68 and p. 73.)
2) When using commercially available Windows XP package, PT-E's specified drivers (touch panel driver, display driver and etc.) and EPC System Monitor are necessary. Call our sales offices please.

EPC System Monitor Function

EPC System Monitor has the following functions.

(1) PT-E's power supply management

Control operation when power failure occurring (refer to p.62 for Resume function) and going to shutdown.

(2) Hardware state monitor

Monitors operating time, system temperature, CPU temperature, battery state and control voltage etc.

(3) WDT (Watch Dog Timer) function

After starting EPC System Monitor, Windows application regularly executes WDT reset, if reset operation is not executed after passing the setting time, system is regarded as abnormality, and WDT error signal is output.

(4) Alarm detection

Detect alarm of system temperature, CPU temperature, battery state and control voltage (power supply voltage for internal circuit) etc.

(5) Event log

Output hardware monitor state change or occurred alarm information to a history file.

(6) State output

PT-E main body hardware's monitor state or alarm information can be used by other applications.

Monitor Screen (Start screen)

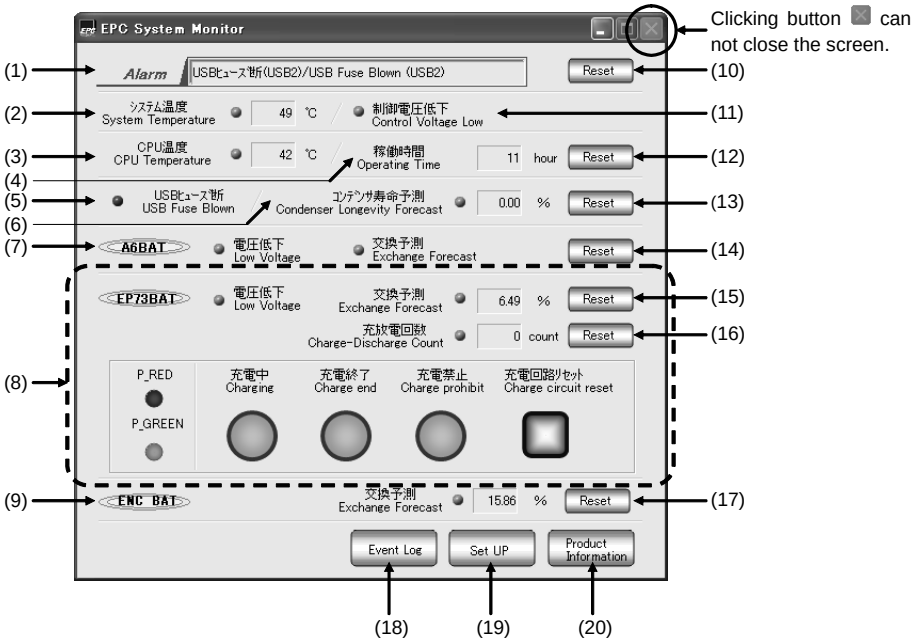


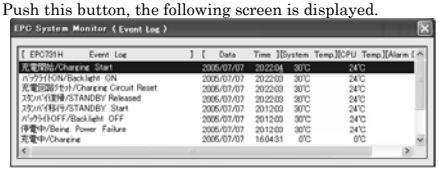
Figure 7.1 Monitor Screen (Start screen)

The following shows details about Item/button on Set UP screen.

Table 7.1 Monitor Screen Item/Button Description

No.	Item/Button	Description	Lamp Color	
			Normal	Alarm/Error
(1)	Alarm	When detecting an alarm, the corresponding alarm message is displayed. When more than one alarm occurring, messages are switch-displayed every 5 seconds. (Confirm occurring time and detected data etc. on Event LOG screen.)	None	
(2)	System Temperature	Display internal board temperature. Give an alarm when system temperature is over 100°C.	Green	Red
(3)	CPU Temperature	Display CPU internal temperature. Give an alarm when CPU temperature is over 100°C.	Green	Red
(4)	Operating Time	Display operating time (current time) from starting PT-E the first time.	None	
(5)	USB fuse blown	Detect USB (1 to 4) fuse blowout and display current state. Give an alarm when detecting USB fuse blowout.	Green	Red
(6)	Condenser Longevity Forecast	Display forecast result of condenser longevity based on Operating Time and System Temperature. Give an alarm when forecast result is over 98%.	Green	Red

No.	Item/Button		Description	Lamp Color	
				Normal	Alarm/Error
(7)	A6BAT	Low Voltage	Check low voltage signal of PT-A6BAT and display the current state.	Green	Red
		Exchange Forecast	Give an alarm when low voltage is detected.	Green	Red
(8)	EP73BAT	Low Voltage	Check low voltage signal of PT-E73BAT and display the current state. (Give an alarm if PT-E73BAT is not loaded on.)	Green	Red
		Exchange Forecast	Display forecast result of PT-E73BAT longevity. Give an alarm when forecast result is over 98%.	Green	Red
		Charge-Discharge Count	Display charge-discharge count number. Give an alarm when charge-discharge count number is over 300 times since started the first time.	Green	Red
		Charging	Light during charging normally.	Orange	Blinking
		Charge end	Light when charge is over normally.	Green	None
		Charge prohibit	Light when PT-E73BAT can not be charged due to the following causes (Lamp color at moment of lighting: Red) 1)PT-E73BAT is not loaded on. 2)Adapter is abnormal.	None	Blinking
		Charge circuit reset	Light at the moment of the following case. (Lamp color at moment of lighting: Blue) 1) PT-E (EPC System Monitor) start/restart (30 seconds later) 2) Power restore from power failure 3) Regularly (1Hr) reset in the state of Charge prohibit 4) Regularly (60 days) reset in the state of Charge end 5) Error occurred during charging (Charge prohibit lamp blinking for 10 seconds or more during charging.)	None	
(9)	ENC BAT(*4) Exchange Forecast		Display forecast result of encoder battery of servo amplifier that is connected to PT-E. Give an alarm when forecast result is over 98%. This item is available when setting “Execute” for the item in Option setting (refer to p. 73). It is masked when setting Not Execute in Option setting.	Green	Red
(10)	Alarm Reset button		Reset all alarms shown in (1). Detect new alarm after reset.	None	
(11)	Control Voltage Low		Monitor control voltage of circuit on motherboard and display the current state.	Green	Red
(12)	Operating Time Reset button		Reset operating time. Forecast result will be added up from 0Hr after reset. Do this operation when only exchanging PT-E main body (Goes on using CF card).	None	
(13)	Condenser Longevity Forecast Reset button		Reset condenser longevity forecast result and the related alarm message (longevity warning). Forecast result will be added up from 0.00% after reset. Do this operation when only exchanging PT-E main body (Goes on using CF card.)	None	

No.	Item/Button	Description	Lamp Color	
			Normal	Alarm/Error
(14)	A6BAT (*1) Exchange Forecast Reset button	Reset Exchange forecast result and the related alarm message (exchange warning, low voltage). Detect new alarm after reset. Do this operation when exchanging PT-A6BAT.	None	
(15)	EP73BAT (*2) exchange forecast reset button	Reset PT-E73BAT's exchange forecast result and the related alarm message (exchange warning, low voltage). Forecast result will be added up from 0.00% after reset. Do this operation when exchanging PT-E73BAT. This item is masked if [No use] is set in area of [Resume Function].	None	
(16)	Charge-discharge count Reset button	Reset PT-E73BAT's charge-discharge count result and the PT-E73BAT related alarm message (exchange warning). Count number will be added up from 0 after reset. (Do this operation when exchanging PT-E73BAT. This item is masked if [Not use] is set in area of [Resume Function]).	None	
(17)	ENC BAT Exchange Forecast Reset	Reset exchange forecast result of encoder battery of servo amplifier that is connected to PT-E. Detect new alarm after reset. Do this operation when exchanging encoder battery. This item is masked if [Not use] is set for this item in option setting.	None	
(18)	Event Log button	Push this button, the following screen is displayed.  Up to 500 cases, occurred event contents or occurring times are displayed. The latest event is displayed at top line.	None	
(19)	Set UP button	Display EPC System Monitor's Set UP screen. (Refer to p.68 for details.)	None	
(20)	Product Information button	Display EPC system monitor's product information and copy right information.	None	

*1: PT-A6BAT is a battery for saving PT-E's time data and BIOS information.

*2: PT-E73BAT is a lithium ion battery pack for using resume function.

*3: Dotted line region is masked if set [Not use] in the area of Resume function.

*4: ENC BAT is encoder battery of servo amplifier that is connected to PT-E.

Set UP Screen

Click button [Set UP] that is at the bottom of Start screen, EPC System Monitor's Set UP Screen is displayed.

There is [Power] setting and [Other] setting in Set UP screen.

(1) [Power] setting

Set necessary items for power management. The following shows power setting screen.

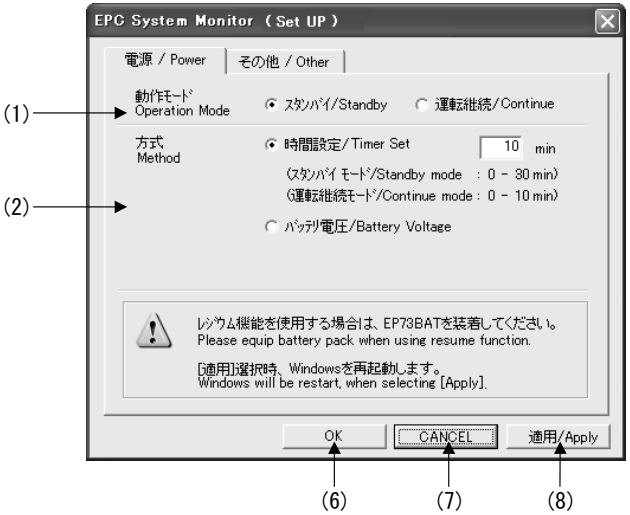


Figure 7.2 [Power] Setting screen

(2) [Other] setting

Set items other than power. The following shows other setting screen.

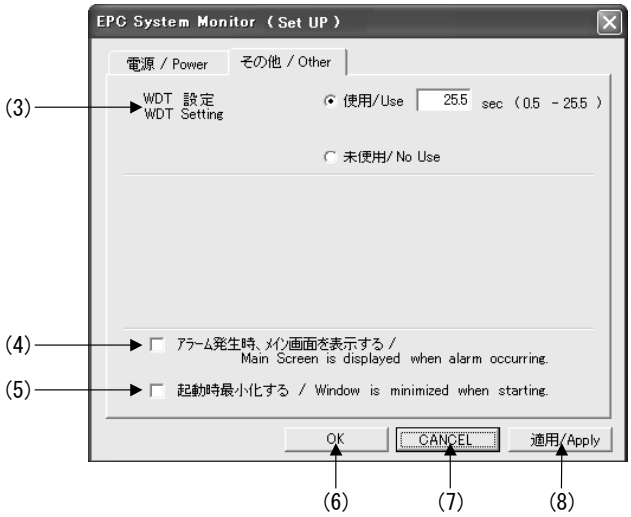


Figure 7.2 [Other]setting screen

The following shows details about Item/button on Set UP screen.

Table 7.2 Set UP Screen Item/Button

No.	Item/Button	Description	Note
(1)	Operation Mode	Set operation mode (Standby or Continue) of resume function (refer to p.63 for resume function) This item is available when setting USE for Resume Function. (*1)	
(2)	Method	Set method of resume function. a. [Timer Set] or [Battery Voltage] can be chosen. b. In case of choosing [Timer Set], please do time setting. c. Even in method of [Timer Set], if low battery voltage is detected before passing the setting time, system will go to shutdown. d. This item is available when setting USE for Resume Function.	
(3)	WDT (*2) Setting	Set time to output error. If reset operation is not done after passing the setting time, WDT error signal is output.	
(4)	Main Screen is displayed when alarm occurring	If choose this item, EPC System Monitor's start screen (refer to p. 65) will be opened automatically when error occurring.	
(5)	Windows is minimized when starting	If choose this item, EPC System Monitor's start screen will be minimized and put in task bar at the moment of starting. Display the screen and operate when necessary.	If not choose this item, EPC System Monitor's monitor screen (refer to p. 65) is displayed at the moment of starting.

No.	Item/Button	Description	Note
(6)	OK button	Save the current settings. The settings will be available from next time starting. The following message is displayed if the settings have been changed.  Push OK button, Set UP screen is closed.	
(7)	CANCEL button	Cancel the setting contents and close the setting window.	
(8)	Apply button	Save the current setting and restart. The following message is displayed if the settings have been changed.  Push OK button, close Set UP screen, and restart Windows.	

*1: Using EPC System Monitor's start option set whether use resume function or not. (Refer to p. 73 for setting method.)

*2: WDT is abbreviation of Watch Dog Timer.

(3) Error Message

If there is a setting error, the corresponding error message is displayed.

Table 7.3 Error Message

No.	Check Item	Error Message
(1)	In case of selecting [Timer Set], setting time is out of range, or not set.	
(2)	In case of setting [Use] for WDT, WDT time is out of range, or not set.	

Status Output Function

Output monitor state of H/W and alarm state to user I/F (Windows shared memory or CB/CW memory). CB/CW memory is common memory area for screen design software HMI-Designer that is made by our company and other user's application. CB/CW memory can be used to transfer data and communicate. There are two kinds of memories Bit memory (CB) and Word memory (CW).

Table 7.4 Status Output Function

Output Memory		User application
Windows Shared Memory	Default	Access the shared memory with application such as VC++ etc. and display them on user screen.
CB/CW Momery	Set head number of CB/CW	a. Display by user screen that is created by HMI-Designer. b. Access CB/CW memory with application such as VC++ etc. and display them on user screen.

Output data to Windows shared memory occupies 16-byte as bit data and 8-word as word data.

Bit data are shown as below.

Table 7.5 Output Bit data

Output Memory		Output Data	
Windows shared memory	CB/CW Memory CB Head number	Item	Content
+0		Condenser Longevity alarm	0: Normal 1: Alarm
+1		PT-E73BAT Exchange alarm	
+2		PT-A6BAT Exchange alarm	
+3		Encoder battery exchange alarm	0: Fixed.
+4		Power outage	1: Power outage
+5		PT-E73BAT Charge finished	1: Charge is finished.
+6		PT-E73BAT Charging	1: Charging
+7		PT-E73BAT Charge Prohibit	1: Charge is prohibited.
+8		Epcutil.log file process error occurred (setting).	0: Normal 1: Alarm
+9		EpcutilLog.txt file process error occurred (event).	
+10		UPCUtl.inf file process error occurred (alarm).	
+11		PT-E73BAT Low Voltage	1: Alarm
+12		PT-A6BAT Low Voltage	
+13		CPU Over Temperature	
+14		System Over Temperature	
+15		Control voltage low	

Word data are shown as below.

Table 7.6 Output Word data

Output Memory		Output Data	
Windows shared memory	CB/CW Memory CW head number	Item	Content
+0		System Temperature (degree)	-128 to 127
+1		Condenser Longevity Forecast (*0.01%)	0 - 10000
+2		PT-E73BAT Exchange Forecast (*0.01%)	0 - 10000
+3		PT-A6BAT Exchange Forecast (*0.01%)	0 - 10000
+4		Encoder battery Exchange Forecast (*0.01%)	0 - 10000
+5		Operating Time (H)	0 - 65535
+6		System Information (EPC System Monitor 1Sec counter)	0 - 65535
+7		System information	None

Start/Quit of EPC System Monitor

EPC System Monitor implements power management; therefore EPC SystemMonitor's Start/Quit synchronizes with Windows OS'.

(1) Start EPC System Monitor

Make a setting to start EPC System Monitor while starting Windows. (For example, register the shortcut of executable file (Epcutil.exe) of EPC System Monitor to Startup.)

Moreover, set the following start option if necessary.
There are two kinds of setting methods, specify file save destination drive, and do setting with "/".

1) Specify file save destination drive

Table 7.7 Specify File Save Destination Drive

Option	Description	Default	Example
1st argument	[Specify file save destination drive] Specify file save destination drive for saving the following files that are output by EPC System monitor. System setting information file (epcutil.log), Alarm state file (UPCUtl.inf), event history file (EpcutilLog.txt).	C:	Epcutil.exe␣D

2) Do setting with "/"

The following shows EPC System Monitor's start option list.

Start option setting example:

Epcutil.exe␣/Dd: \EPCSys\␣/B100␣/W100

Table 7.8 EPC System Monitor's start option list.

Option	Description	Default	Example
/R	[Resume function setting] Set whether or not to use resume function. Y: Use; N: Not Use	Use	/RN
/S	[Exit setting in continue mode] Set whether or not to execute shutdown in continue mode. Y: Execute; N: Not execute	Execute	/SN
/E	[Encoder BAT exchange forecast setting] Set whether or not to execute encoder BAT exchange forecast. U: Execute; N: Not Execute	Not Execute	/EU
/B	[Operation state output memory (BIT) setting] Set operation state output memory (BIT). Not set: Windows shared memory, or Set: Set head number of shared memory (CB)) If setting number is improper, works by CB0.	Windows Shared memory	/B100 (16 points from CB100 are output.)

Option	Description	Default	Example
/W	[Operation state output memory (WORD) setting] Set operation state output memory (WORD). Not set: Windows shared memory, or Set: Set head number of shared memory (CW) If setting number is improper, works by CW0.	Windows Shared memory	/W100 (8 points from CW100 are output.)
/L	[Write event history information setting] Set timing of writing event history information. Y: Write when event occurring N : Not write (n: Write every setting time and at the time of exiting (n: 1 to 24(Unit: hour))) If setting time is improper, works based the following: Works by n=1 when n<1, works by n=24 when n>24	Write when event occurring	/LN
/D	[Specify file save folder] Specify folder by full path to save the following files that are output by EPC System Monitor. System setting information file (epcutil.log), Alarm state file (UPCUtl.inf), Event history file (EpcUtilLog.txt). Number of character: Max.240 characters(half-size character) Characters to be prohibited: \ / : ; , . * ? < > |	c: \	/Dd: \EPCSys\

*: Work based default setting if no option setting is done.

(2) Quit of EPC System Monitor

Quit of EPC System Monitor only works when quitting Windows OS (Shutdown request from Windows OS).

EPC System Monitor screen's quitting button doesn't work.

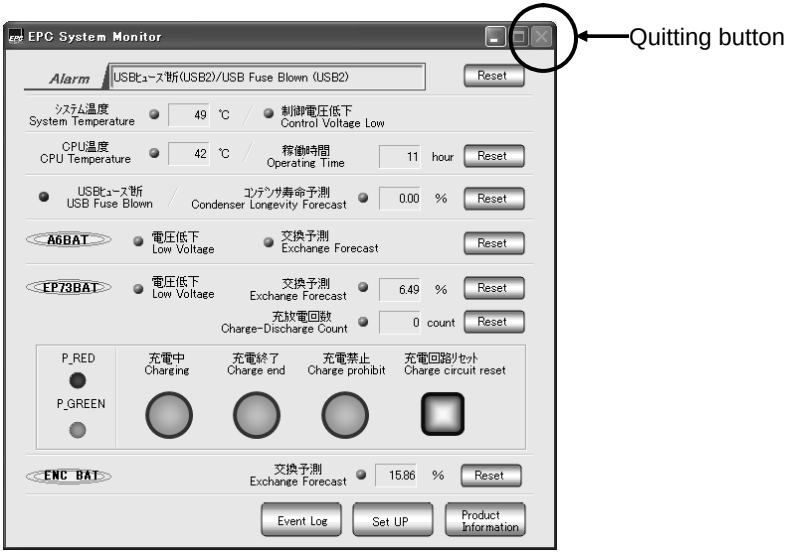


Figure 7.3 Quitting button

Point

(1) When exchanging CF card, please copy EPC System Monitor related files such as EpcUtilLog.txt and epcutil.log to the new CF card. Not doing so, the operating time will be reset.

(2) Please set optional settings in the setting range.

(3) During EPC System Monitor working, do not remove the drive where has been specified by option setting as file save folder. Doing so may cause file writing error.

8. BIOS Setup

Introduction

This chapter discusses Award's Setup program built into the FLASH ROM BIOS. The Setup program allows users to modify the basic system configuration. This special information is then stored in battery-backed RAM so that it retains the Setup information when the power is turned off.

The rest of this chapter is intended to guide you through the process of configuring your system using Setup.

Starting Setup

The Award BIOS is immediately activated when you first power on the computer. The BIOS reads the system information contained in the CMOS and begins the process of checking out the system and configuring it. When it finishes, the BIOS will seek an operating system on one of the disks and then launch and turn control over to the operating system.

While the BIOS is in control, the Setup program can be activated in one of two ways:

1 By pressing <Del> immediately after switching the system on, or

2 By pressing the <Del> key when the following message appears briefly at the bottom of the screen during the POST (Power On Self-Test).

Press DEL to enter SETUP.

If the message disappears before you respond and you still wish to enter Setup, restart the system to try again by turning it OFF then ON. If USB Keyboard Support is set to "Enabled", restart can be initiated by pressing the <Ctrl>, <Alt>, and <Delete> keys simultaneously. If you do not press the keys at the correct time and the system does not boot, an error message will be displayed and you will again be asked to.

Press F1 to continue, DEL to enter SETUP

Using Setup

In general, you use the arrow keys to highlight items, press <Enter> to select, use the PageUp and PageDown keys to change entries, press <F1> for help and press <Esc> to quit. The following table provides more detail about how to navigate in the Setup program using the keyboard.

Table 8.1 Using Setup

Key	Function
Up Arrow	Move to the previous item
Down Arrow	Move to the next item
Left Arrow	Move to the item on the left (menu bar)
Right Arrow	Move to the item on the right (menu bar)
Esc	Main Menu: Quit without saving changes Submenus: Exit Current page to the next higher level menu
Move Enter	Move to the item you desired
PgUp key	Increase the numeric value or make changes
PgDn key	Decrease the numeric value or make changes
+ key	Increase the numeric value or make changes
- key	Decrease the numeric value or make changes
Esc key	Main Menu -- Quit and not save changes into CMOS Status Page Setup Menu and Option Page Setup Menu -- Exit current page and return to Main Menu
F1 key	General help on Setup navigation keys
F5 key	Load previous values from CMOS
F6 key	Load the fail-safe defaults from BIOS default table
F7 key	Load the optimized defaults
F10 key	Save all the CMOS changes and exit

Getting Help

Press F1 to pop up a small help window that describes the appropriate keys to use and the possible selections for the highlighted item. To exit the Help Window press <Esc> or the F1 key again.

In Case of Problems

If, after making and saving system changes with Setup, you discover that your computer no longer is able to boot, the AwardBIOS™ supports an override to the CMOS settings which resets your system to its defaults.

The best advice is to only alter settings which you thoroughly understand. To this end, we strongly recommend that you avoid making any changes to the chipset defaults. These defaults have been carefully chosen by both Award and your systems manufacturer to provide the absolute maximum performance and reliability. Even a seemingly small change to the chipset setup has the potential for causing you to use the override.

A Final Note About Setup

The information in this chapter is subject to change without notice.

Main Menu

Once you enter the Award BIOS CMOS Setup Utility, the Main Menu will appear on the screen. The Main Menu allows you to select from several setup functions and two exit choices. Use the arrow keys to select among the items and press <Enter> to accept and enter the sub-menu.

Note that a brief description of each highlighted selection appears at the bottom of the screen.

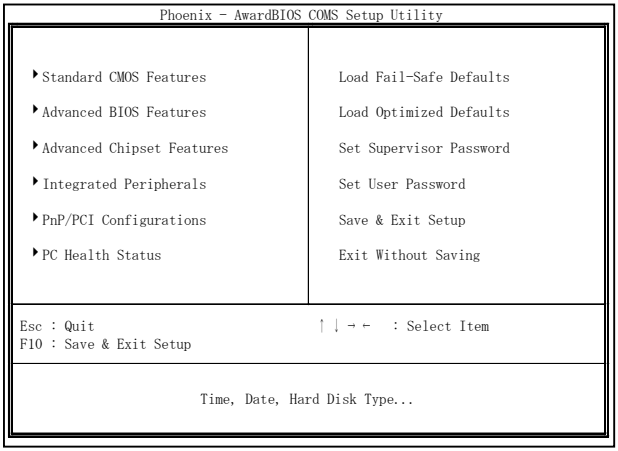


Figure 8.1 Main Manu

Setup Items

The main menu includes the following main setup categories. Recall that some systems may not include all entries.

Standard CMOS Features
Use this menu for basic system configuration.

Advanced BIOS Features
Use this menu to set the Advanced Features available on your system.

Advanced Chipset Features
Use this menu to change the values in the chipset registers and optimize your system's performance.

Integrated Peripherals
Use this menu to specify your settings for integrated peripherals.

PnP / PCI Configuration
This entry appears if your system supports PnP / PCI.

Load Fail-Safe Defaults
Use this menu to load the BIOS default values for the minimal/stable performance for your system to operate.

Load Optimized Defaults
Use this menu to load the BIOS default values that are factory settings for optimal performance system operations. While Award has designed the custom BIOS to maximize performance, the factory has the right to change these defaults to meet their needs.

Supervisor / User Password
Use this menu to set User and Supervisor Passwords.

Save & Exit Setup
Save CMOS value changes to CMOS and exit setup.

Exit Without Save
Abandon all CMOS value changes and exit setup.

Standard CMOS Setup

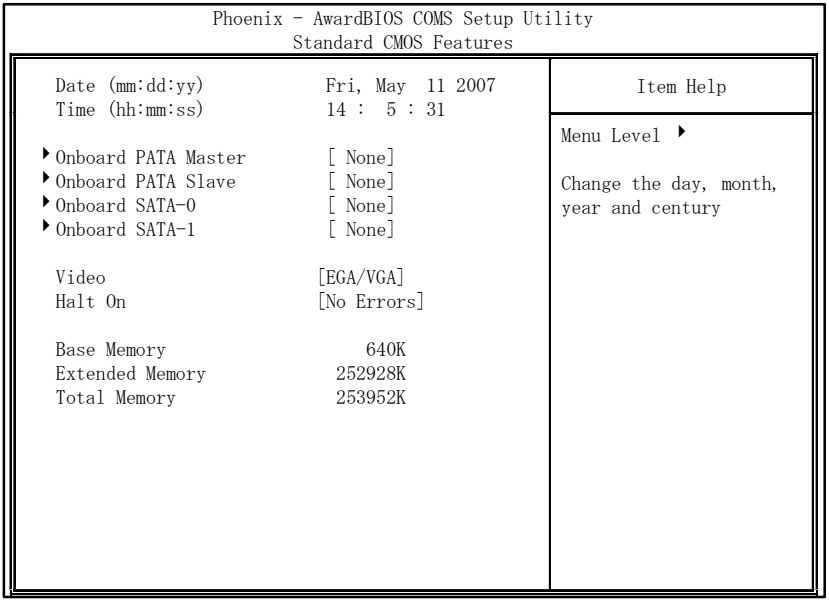


Figure 8.2 Standard CMOS Setup

The items in Standard CMOS Setup Menu are divided into 11 categories. Each category includes no, one or more than one setup items. Use the arrow keys to highlight the item and then use the <PgUp> or <PgDn> keys to select the value you want in each item.

Main Menu Selections

This table shows the selections that you can make on the Main Menu.

Table 8.2 Main Menu Selections

Item	Option	Description
Date	Month DD YYYY	Set the system date. Note that the 'Day' automatically changes when you set the date
Time	HH : MM : SS	Set the system time
Onboard PATA Master	Options are in its sub menu	Press <Enter> to enter the sub menu of detailed options
Onboard PATA Slave	Options are in its sub menu	Press <Enter> to enter the sub menu of detailed options
Onboard SATA-0	Options are in its sub menu	Press <Enter> to enter the sub menu of detailed options
Onboard SATA-0	Options are in its sub menu	Press <Enter> to enter the sub menu of detailed options
Video	EGA/VGA CGA 40 CGA 80 MONO	Select the default video device
Halt On	All Errors No Errors All, but Keyboard	Select the situation in which you want the BIOS to stop the POST process and notify you
Base Memory	N/A	Displays the amount of conventional memory detected during boot up
Extended Memory	N/A	Displays the amount of extended memory detected during boot up
Total Memory	N/A	Displays the total memory available in the system

Onboard PATA Master/Onboard PATA Slave

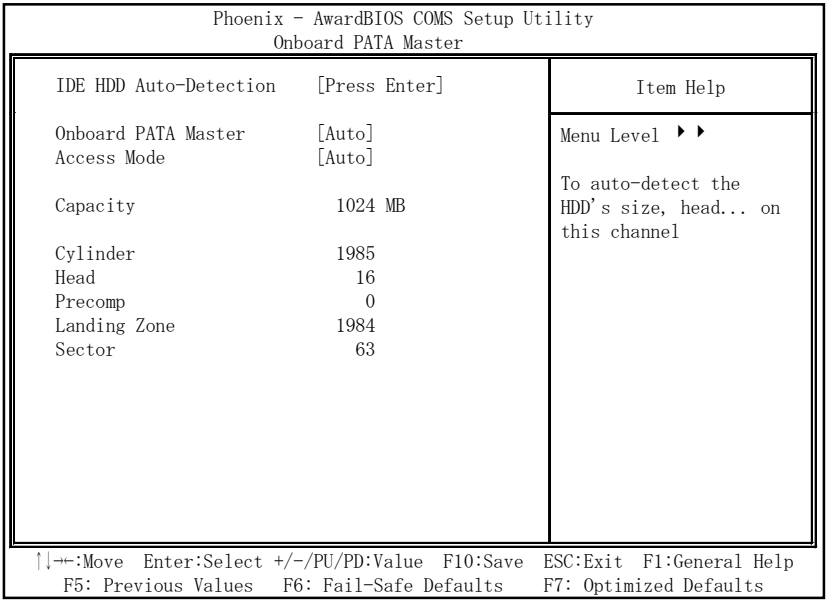


Figure 8.3 Onboard PATA Master/Onboard PATA Slave Setup

The IDE adapters control the CF card. Use a separate sub menu to configure each CF card.

Use the legend keys to navigate through this menu and exit to the main menu. Use Table 8.3 to configure the hard disk.

Table 8.3 IDE adapters

Item	Option	Description
IDE HDD Auto-detection	Press Enter	Press Enter to auto-detect the CF card on this channel. If detection is successful, it fills the remaining fields on this menu.
Onboard PATA Master/ Onboard PATA Slave	None Auto Manual	Set the CF Card specifications. Normally specify [Auto]. When using an old CF Card that is not recognized by [Auto] setting,
Access Mode	CHS LBA Large Auto	Choose the access mode for this CF Card.
Capacity	Auto Display your CF card size	Disk drive capacity (Approximated). Note that this size is usually slightly greater than the size of a formatted disk given by a disk checking program.
The following options are selectable only if the 'IDE Channel 0/2 Master/Slave' item is set to 'Manual' and 'CHS' item is set to 'Manual'		
Cylinder	Min = 0 Max = 65535	Set the number of cylinders for this CF card.
Head	Min = 0 Max = 255	Set the number of heads for this CF card.
Precomp	Min = 0 Max = 65535	**** Warning: Setting a value of 65535 means no CF card

Item	Option	Description
Landing zone	Min = 0 Max = 65535	****
Sector	Min = 0 Max = 255	Number of sectors per track

Onboard SATA-0/Onboard SATA-1

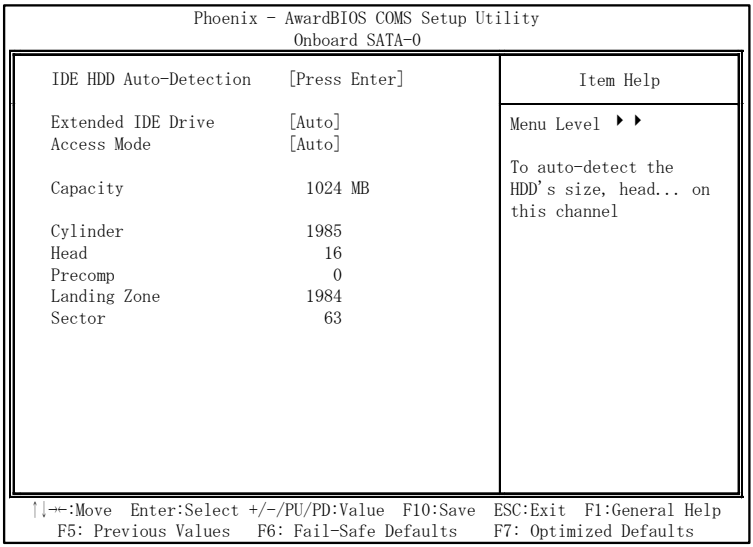


Figure 8.4 Onboard SATA-0/Onboard SATA-1

The IDE adapters control the external HDD. Use a separate sub menu to configure each HDD.

Use the legend keys to navigate through this menu and exit to the main menu. Use Table 8.4 to configure the hard disk.

Table 8.4 IDE Adapters

Item	Option	Description
IDE HDD Auto-detection	Press Enter	Press Enter to auto-detect the HDD on this channel. If detection is successful, it fills the remaining fields on this menu.
Extended IDE Drive	None Auto	Set the HDD specifications. Normally specify [Auto]. When using an old HDD that is not recognized by [Auto] setting,
Access Mode	Large Auto	Choose the access mode for this HDD.
Capacity	Auto Display your HDD card size	Disk drive capacity (Approximated). Note that this size is usually slightly greater than the size of a formatted disk given by a disk checking program.
The following options are selectable only if the 'IDE Channel 0/2 Master/Slave' item is set to 'Manual' and 'CHS' item is set to 'Manual'		
Cylinder	Min = 0 Max = 65535	Set the number of cylinders for this HDD.
Head	Min = 0 Max = 255	Set the number of heads for this HDD.
Precomp	Min = 0 Max = 65535	**** Warning: Setting a value of 65535 means no HDD
Landing zone	Min = 0 Max = 65535	****
Sector	Min = 0 Max = 255	Number of sectors per track

Advanced BIOS Features Setup

This section allows you to configure your system for basic operation. You have the opportunity to select the system's default speed, boot-up sequence, keyboard operation, shadowing and security.

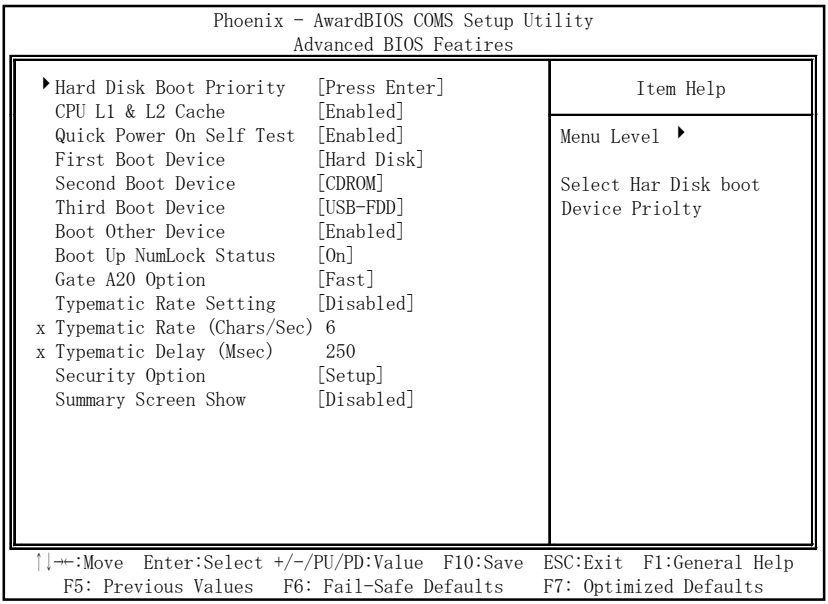


Figure 8.5 Advanced BIOS Features Setup

Hard Disk Boot Priority

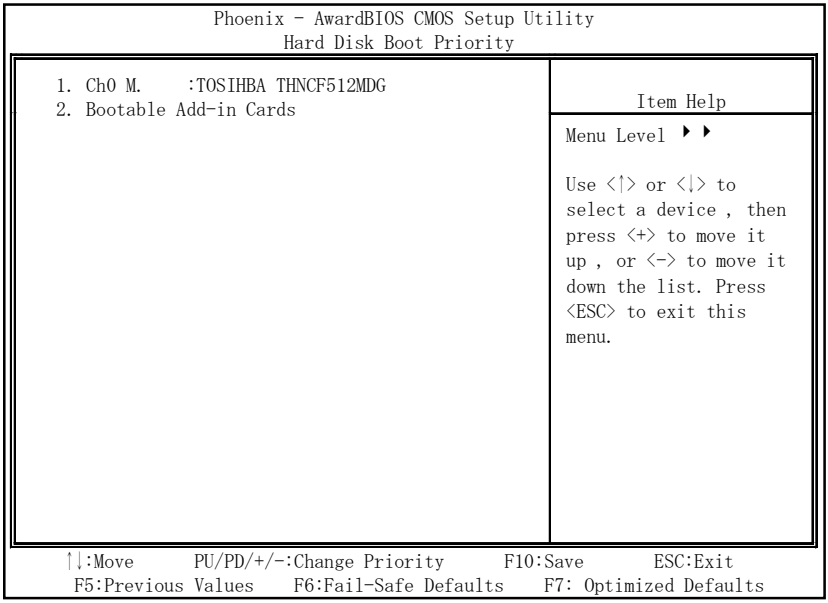


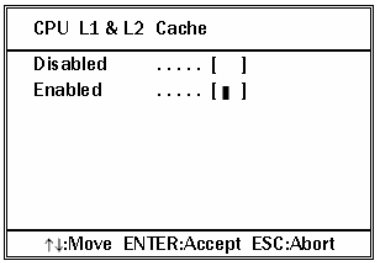
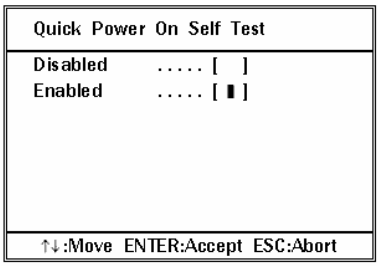
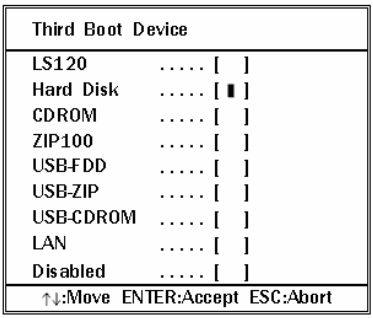
Figure 8.6 Hard Disk Boot Priority

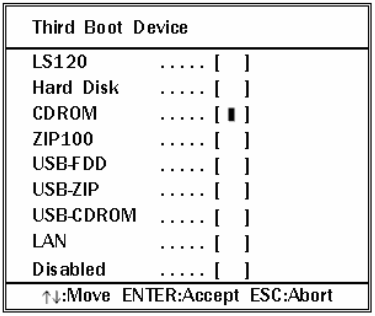
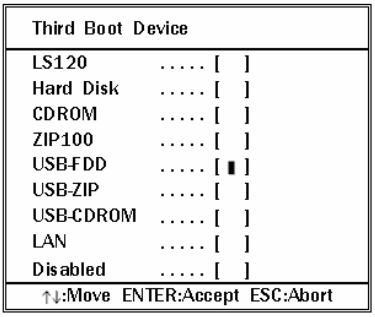
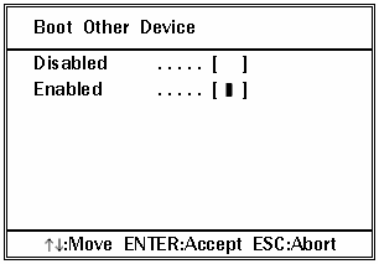
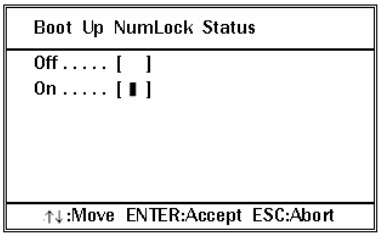
Details screen is displayed when selecting the item of [Hard Disk Boot Priority] on the screen of [Advanced BIOS Features]

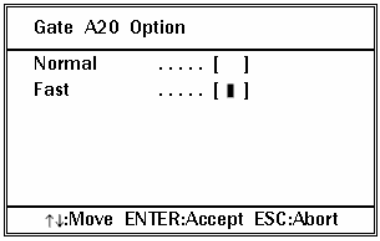
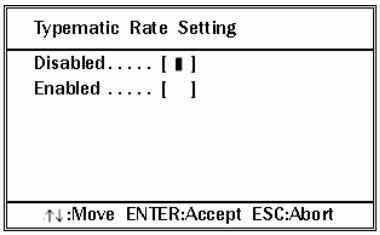
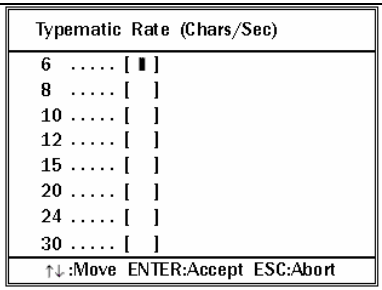
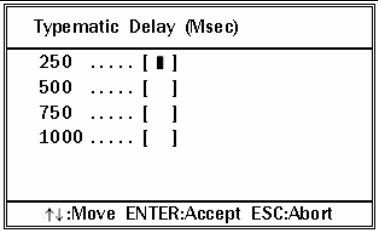
Table 8.5 Hard Disk Boot Priority

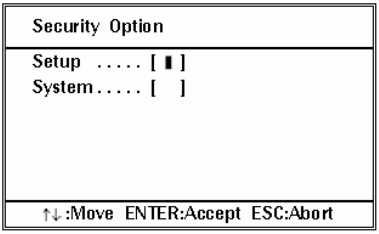
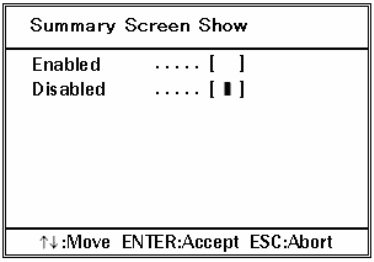
Item	Option
CHO.M	Set the connected HD.
Bootable Add-in Cards	Set start priority order of connecting HD.

Table 8.6 Advance BIOS Feature Selections

Description	Choices
CPU L1 & L2 Cache These allow you to enable (speed up memory access) or disable the cache function.	
Quick Power On Self Test Select Enabled to reduce the amount of time required to run the power-on self-test (POST). A quick POST skips certain steps. We recommend that you normally disable quick POST. Better to find a problem during POST than lose data during your work.	
First Boot Device The BIOS attempts to load the operating system from the devices in the sequence selected in these items.	

Description	Choices
Second Boot Device The BIOS attempts to load the operating system from the devices in the sequence selected in these items.	
Third Boot Device The BIOS attempts to load the operating system from the devices in the sequence selected in these items.	
Boot Other Device The BIOS attempts to load the operating system from the devices in the sequence selected in these items.	
Boot Up NumLock Status Toggle between On or Off to control the state of the NumLock key when the system boots. When toggled On, the numeric keypad generates numbers instead of controlling cursor operations.	

Description	Choices
Gate A20 option Gate A20 refers to the way the system addresses memory above 1 MB (extended memory). When set to Fast, the system chipset controls Gate A20. When set to Normal, a pin in the keyboard controller controls Gate A20. Setting Gate A20 to Fast improves system speed, particularly with OS/2 and Windows.	
Typematic Rate Setting When Disabled, the following two items (Typematic Rate and Typematic Delay) are irrelevant. Keystrokes repeat at a rate determined by the keyboard controller in your system. When Enabled, you can select a typematic rate and typematic delay.	
Typematic Rate (Chars/Sec) When the typematic rate setting is enabled, you can select a typematic rate (the rate at which character repeats when you hold down a key) of 6, 8, 10, 12, 15, 20, 24 or 30 characters per second.	
Typematic Delay (Msec) When the speed setting for the key input is enabled, you can specify the interval of waiting time for the continuous key input.	

Description	Choices
Security Option Select whether the password is required every time the system boots or only when you enter setup. If you have set a password, select whether the password is required every time the System boots, or only when you enter Setup. System: The system will not boot and access to Setup will be denied if the correct password is not entered at the prompt. Setup: The system will boot, but access to Setup will be denied if the correct password is not entered at the prompt.	
Note: To disable security, select PASSWORD SETTING at Main Menu and then you will be asked to enter password. Do not type anything and just press <Enter>, it will disable security. Once the security is disabled, the system will boot and you can enter Setup freely.	
Summary Screen Show Set whether or not to display configuration screen after BIOS starting.	

Advanced Chipset Features Setup

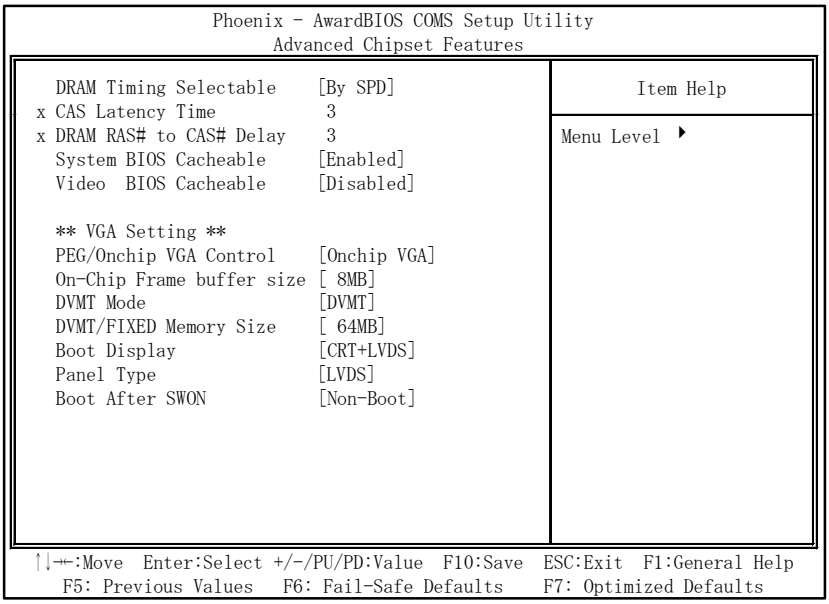
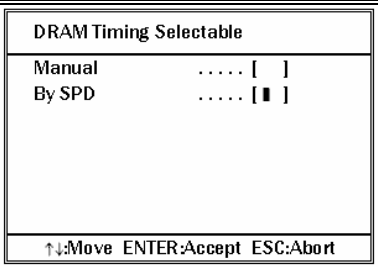
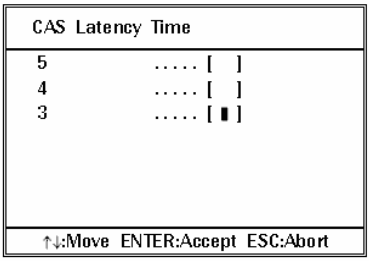
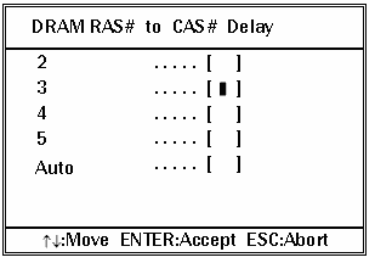
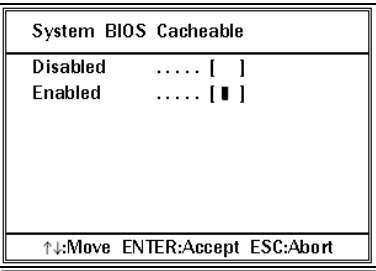
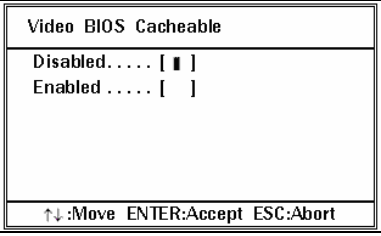


Figure 8.7 Advanced Chipset Features Setup

This section allows you to configure the system based on the specific features of the installed chipset. This chipset manages bus speeds and access to system memory resources, such as DRAM and the external cache. It must be stated that these items should never need to be altered. The default settings have been chosen because they provide the best operating conditions for your system. The only time you might consider making any changes would be if you discovered that data was being lost while using your system.

Table 8.7 Advance Chipset Feature Selections

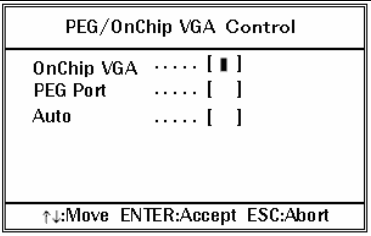
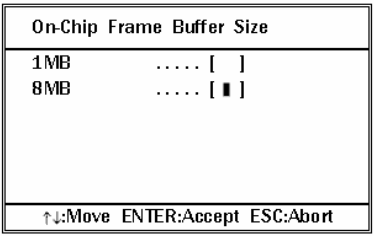
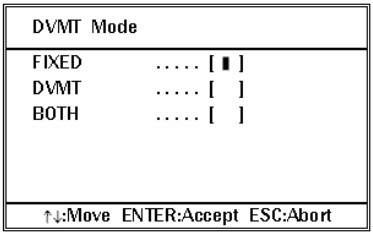
Description	Choices
DRAM Timing Selectable The value in this field depends on performance parameters of the installed memory chips (DRAM). Do not change the value from the factory setting unlees you install new memory that has a different performance rating than the original DRAMs.	

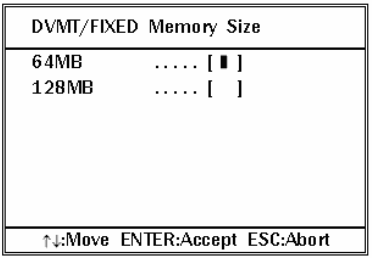
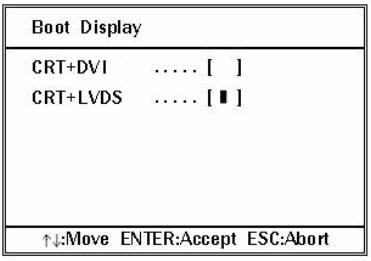
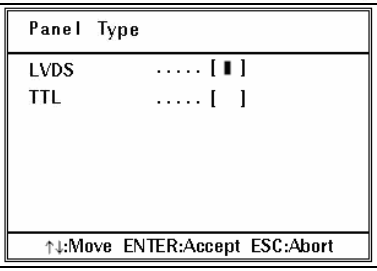
Description	Choices
CAS Latency Time When synchronous DRAM is installed, the number of clock cycles of CAS latency depends on the DRAM timing. Do not reset this field from the default value specified by the system designer.	
DRAM RAS# to CAS# delay This field lets you insert a timing delay between the CAS and RAS strobe signals, used when DRAM is written to, read from, or refreshed. Fast gives faster performance; and Slow gives more stable performance. This field applies only when synchronous DRAM is installed in the system.	
System BIOS Cacheable Selecting Enabled allows caching of the system BIOS ROM at F0000h-FFFFFh, resulting in better system performance. However, if any program writes to this memory area, a system error may result.	
Video BIOS Cacheable Selecting Enabled allows caching of the video BIOS ROM at C0000h - C7FFFh, resulting in better video performance. However, if any program writes to this memory area, a system error may result.	

VGA Setting

The field under the On-Chip VGA Setting and their defaults settings are:

Table 8.8 VGA setting Selections

Description	Choices
PEG/Onchip VGA Control Onchip VGA: Enable Onchip VGA. PEG Port: Enable PCI Express Graphic. Auto: Enable graphic controller automatically	
On-Chip Frame Buffer Size When Enabled, a fixed VGA frame buffer from A000h to BFFFh and a CPU-to-PCI write buffer are implemented.	
DVMT Mode Allows you to set the Dynamic Video Memory Technology (DVMT) mode.	

Description	Choices
DVMT/FIXED Memory Size Allows you to set the Dynamic Video Memory Technology (DVMT) memory size.	
Boot Display Choose an active display at the time of starting..	
Panel Type Set panel type that the system supports. Do not change the setting.	
Boot After SWON Set whether or not to do system start setting. Do not change the setting.	

Integrated Peripherals

This section sets configurations for your hard disk and other integrated peripherals. The first screen shows three main items for user to select. Once an item selected, a submenu appears. Details follow.

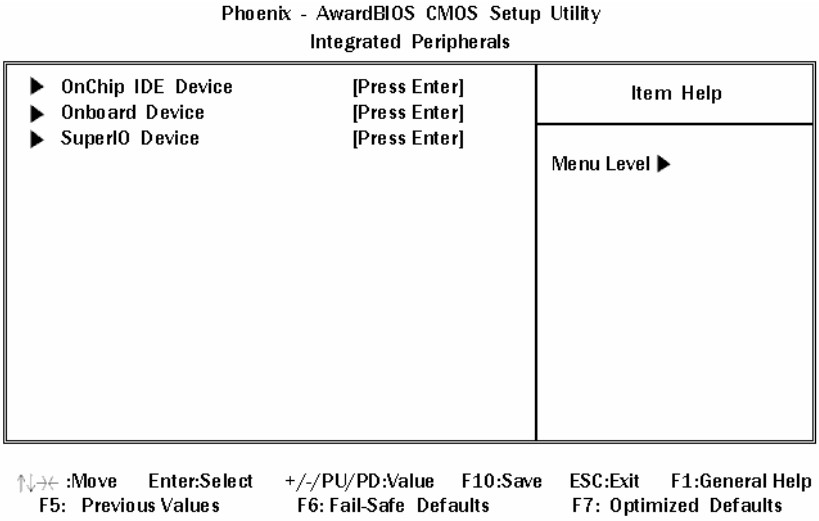


Figure 8.8 Integrated Peripherals

OnChip IDE Device

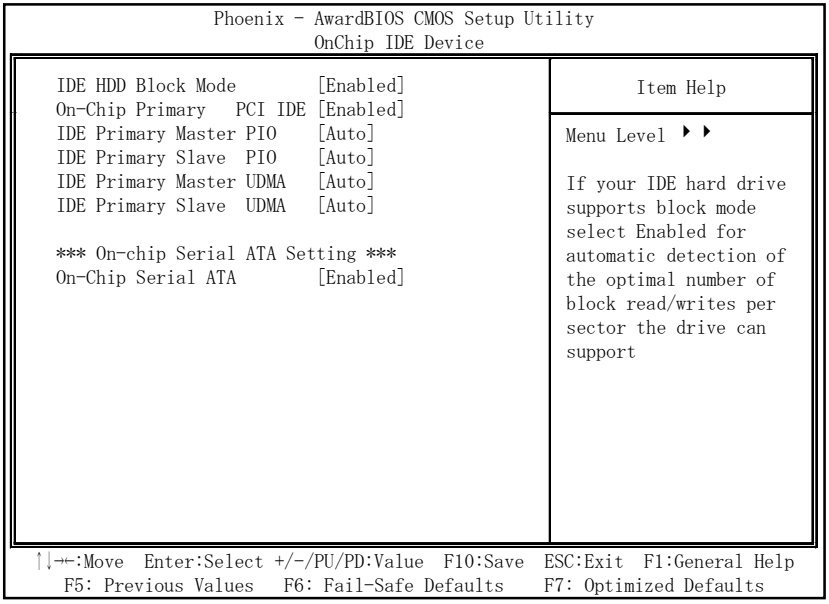
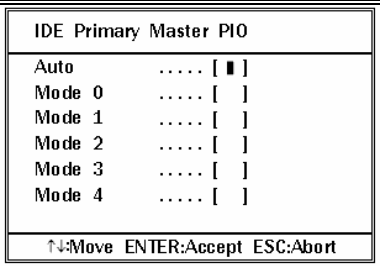
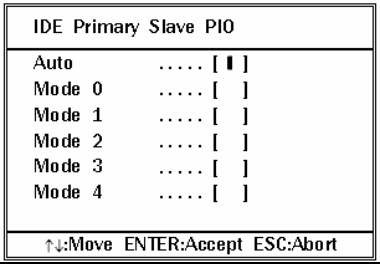
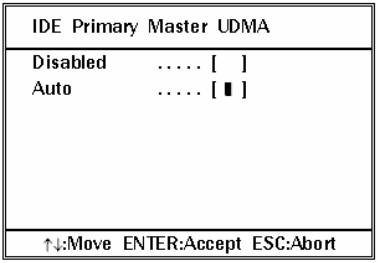
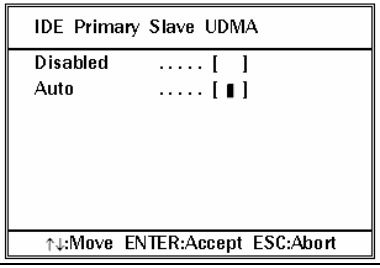


Figure 8.9 On Chip IDE Device

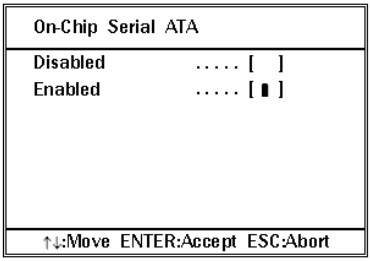
Table 8.9 On Chip IDE Device Selections

Description	Choices
IDE HDD Block mode Block mode is also called block transfer, multiple commands, or multiple sectors read/write. If your IDE hard drive supports block mode (most new drives do), select Enabled for automatic detection of the optimal number of block read/writes per sector the drive can support.	IDE HDD Block Mode Disabled ..... [ ] Enabled ..... [▮] ↑↓:Move ENTER:Accept ESC:Abort
On-Chip Primary PCI IDE The integrated peripheral controller contains an IDE interface with support for 2 IDE channels. Select Enabled to activate each channel separately.	On-Chip Primary PCI IDE Disabled..... [ ] Enabled ..... [▮] ↑↓:Move ENTER:Accept ESC:Abort

Description	Choices
IDE Primary Master / Slave PIO The two IDE PIO (Programmed Input/Output) fields let you set a PIO mode (0-4) for the one IDE device that the onboard IDE interface supports. In Auto mode, the system automatically determines the best mode for the device.	 
IDE Primary Master/Slave UDMA UDMA (Ultra DMA) is a DMA data transfer protocol that utilizes ATA commands and the ATA bus to allow DMA commands to transfer data at a maximum burst rate of 33 MB/s. When you select Auto in the two IDE UDMA fields, the system automatically determines the optimal data transfer rate for each IDE device.	 

On Chip Serial ATA setting

Table 8.10 On Chip Serial ATA setting Selection

Description	Choices
On-Chip Serial ATA Disabled: Not use serial ATA. Enabled: Use serial ATA. External IDE Device is recognized as SATA1.	

Onboard Device

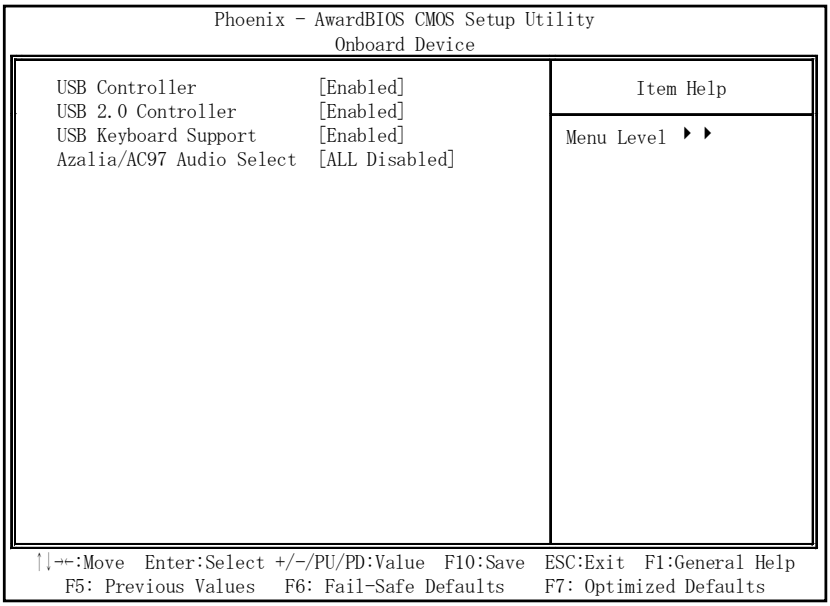
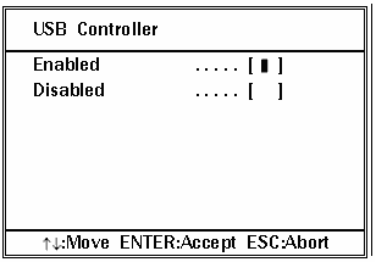
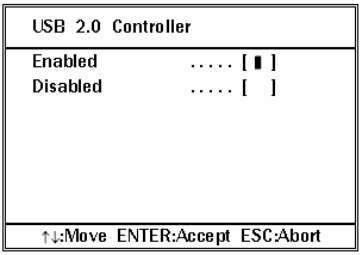
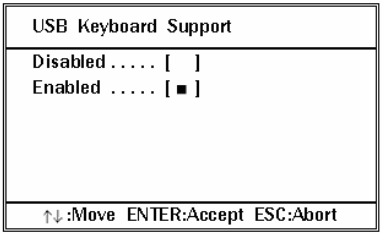
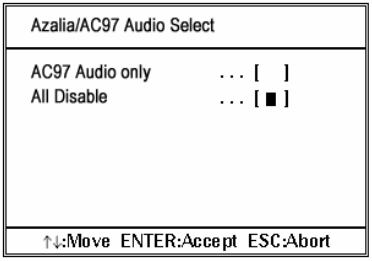


Figure 8.10 Onboard Device

Table 8.11 On board device Selections

Description	Choices
USB Controller Enable or disable the USB Over Current. In normal cases, set it as “Enabled”.	
USB 2.0 Controller Enable or disable the Onboard USB 2.0 function. In normal cases, use it while “Enable”.	

Description	Choices
USB Keyboard Support Select "Enabled" when a USB keyboard has to be used on the OS that does not support USB. Select "Disabled" for the OS that supports USB such as Windows XP.	
Azalia/AC97 Audio Select Set audio function.	

Super IO Device

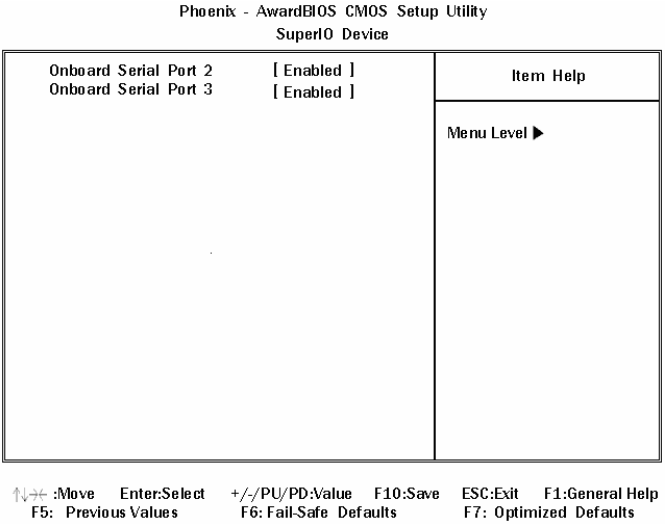
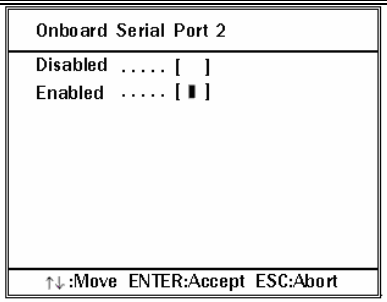
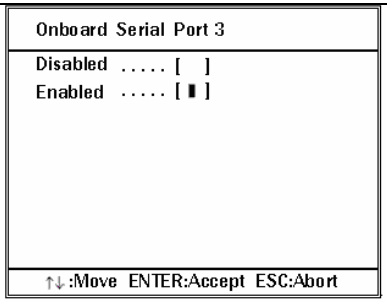


Figure 8.11 SuperIO Device

Table 8.12 Super I/O device Selections

Description	Choices
Onboard Serial Port 2 Set whether or not to use Serial Port 2.	
Onboard Serial Port 3 Set whether or not to use Serial Port 3.	

PnP/PCI Configuration Setup

This section describes configuring the PCI bus system. PCI, or Personal Computer Interconnect, is a system which allows I/O devices to operate at speeds nearing the speed the CPU itself uses when communicating with its own special components. This section covers some very technical items and it is strongly recommended that only experienced users should make any changes to the default settings.

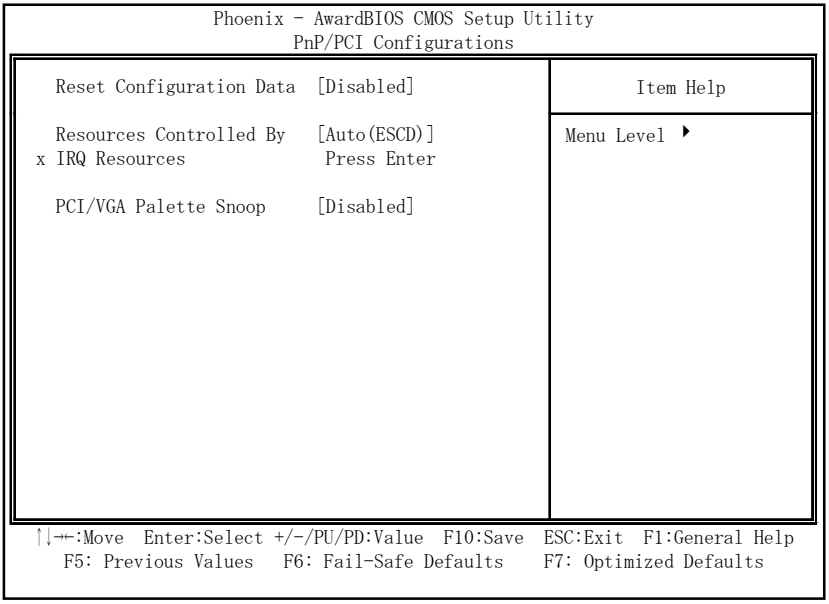
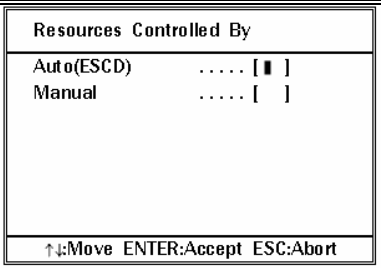


Figure 8.12 PnP/PCI Configuration Setup

Table 8.13 PCI PnP/PCI Configuration Setup Selections

Description	Choices
Reset Configuration Data Normally, you leave this field Disabled. Select Enabled to reset Extended System Configuration Data (ESCD) when you exit Setup if you have installed a new add-on and the system reconfiguration has caused such a serious conflict that the operating system can not boot.	Reset Configuration Data Disabled ..... [ ] Enabled ..... [ ] ↑↓:Move ENTER:Accept ESC:Abort

Description	Choices
Resource Controlled by The Award Plug and Play BIOS can automatically configure all the boot and Plug and Play – compatible devices. If you select Auto, all the interrupt request (IRQ) and DMA assignment fields disappear, as the BIOS automatically assigns them.	

IRQ Resources

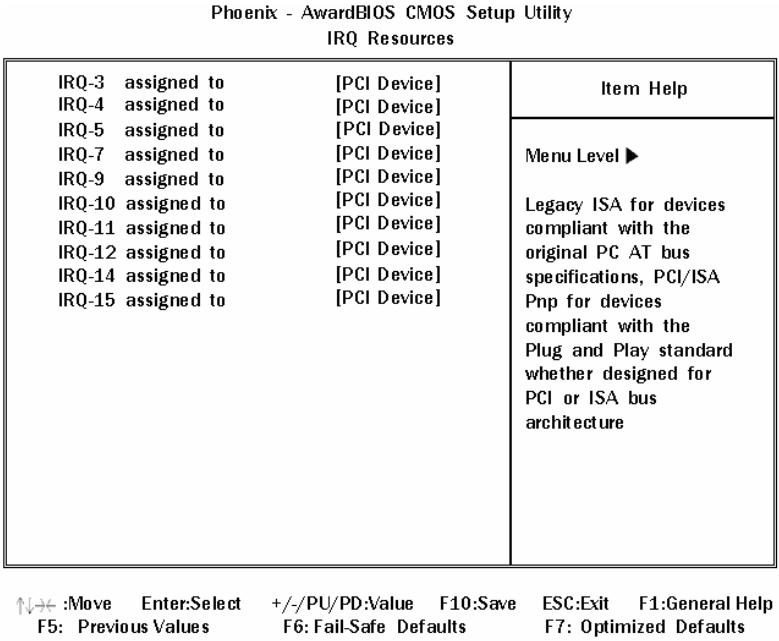


Figure 8.13 IRQ n Resources

When resources are controlled manually, assign each system interrupt as on of the following type, depending on the type of device using the interrupt.

Legacy ISA Devices compliant with the original PC AT bus specification, requiring a specific interrupt (Such as IRQ4 for serial port 1)

PCI/ISA PnP Devices compliant with the Plug and Play standard, whether designed for PCI or ISA bus architecture.

The Choice: Legacy ISA and PCI/ISA PnP

Table 8.14 IRQ n Resources Selections

Description	Choices
PCI/VGA Palette Snoop This item is designed to overcome some problems that can be caused by some non-standard VGA cards. This product includes a built-in VGA system that does not require palette snooping so you must leave this item disabled. Leave this field at Disabled.	PCI/VGA Palette Snoop Disabled . . . . . [▮] Enabled . . . . . [ ] ↑↓:Move ENTER:Accept ESC:Abort

PC Health Status

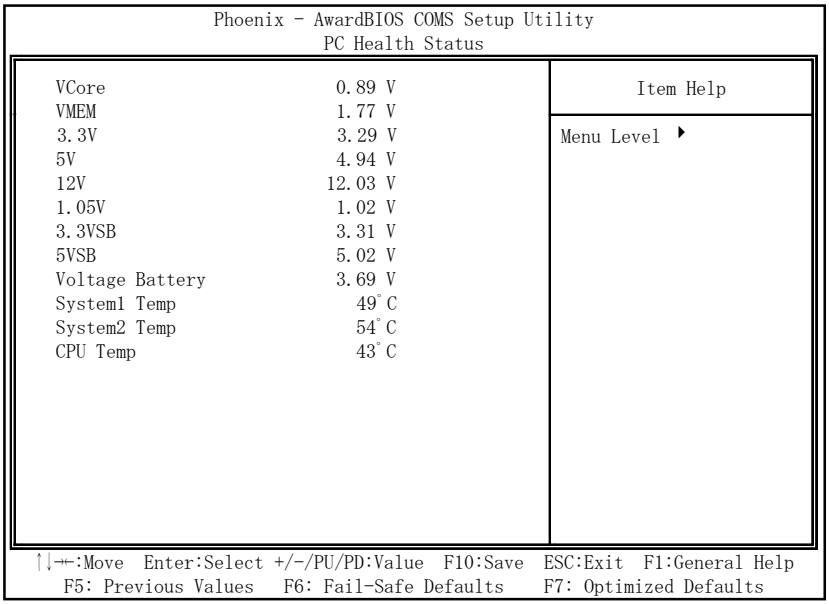


Figure 8.14 PC Health Status

PC Health Status displays PT-E's operation status.

Table 8.15 PC Health Status

Description	Choices
Vcore / VMEM / +3.3V / 5V / 12V / 1.05V / 3.3VSB / 5VSB / Voltage Battery	Display current voltage values.
System1 Temp	System1 Temp Display current system1 temperature.
System2 Temp	System1 Temp Display current system1 temperature.
CPU Temp	CPU Temp Display current CPU temperature

Defaults Menu

Selecting “Defaults” from the main menu shows you two options which are described below

Load Fail-Safe Defaults

When you press <Enter> on this item you get a confirmation dialog box with a message similar to:

Load Fail-Safe Defaults (Y/N) ? N

Pressing ‘Y’ loads the BIOS default values for the most stable, minimal-performance system operations.

Load Optimized Defaults

When you press <Enter> on this item you get a confirmation dialog box with a message similar to:

Load setup Defaults (Y/N) ? N

Pressing ‘Y’ loads the default values that are factory settings for optimal performance system operations.

Supervisor/User Password Setting

You can set either supervisor or user password, or both of then. The differences between are:

SUPERVISOR PASSWORD: can enter and change the options of the setup menus.

USER PASSWORD: just can only enter but do not have the right to change the options of the setup menus. When you select this unction, the following message will appear at the center of the screen to assist you in creating a password.

ENTER PASSWORD

Type the password, up to eight characters in length, and press <Enter>. The password typed now will clear any previously entered password from CMOS memory. You will be asked to confirm the password. Type the password again and press <Enter>. You may also press <Esc> to abort the selection and not enter a password.

To disable a password, just press <Enter> when you are prompted to enter the password. A message will confirm the password will be disabled. Once the password is disabled, the system will boot and you can enter Setup freely.

PASSWORD DISABLED

When a password has been enabled, you will be prompted to enter it every time you try to enter Setup. This prevents an unauthorized person from changing any part of your system configuration.

Additionally, when a password is enabled, you can also require the BIOS to request a password every time your system is rebooted. This would prevent unauthorized use of your computer.

You determine when the password is required within the BIOS Features Setup Menu and its Security option. If the Security option is set to “System”, the password will be required both at boot and at entry to Setup. If set to “Setup”, prompting only occurs when trying to enter Setup.

Exit Selecting

Save & Exit Setup

Pressing <Enter> on this item asks for confirmation:

Save to CMOS and EXIT (Y/N)? Y

Pressing “Y” stores the selections made in the menus in CMOS – a special section of memory that stays on after you turn your system off. The next time you boot your computer, the BIOS configures your system according to the Setup selections stored in CMOS. After saving the values the system is restarted again.

Exit Without Saving

Pressing <Enter> on this item asks for confirmation:

Quit without saving (Y/N)? Y

This allows you to exit Setup without storing in CMOS any change. The previous selections remain in effect. This exits the Setup utility and restarts your computer.

9. Appendix

Battery Specification

This product uses the following battery.

- Name : PT-A6BAT
- Type : Lithium primary battery
- Model : ER-17/33
- Maker : Maxell
- Nominal voltage : 3.6V
- Nominal capacity : 1600mAh
- Lithium content : 0.5g

Battery (PT-A6BAT) exchange method

(1) Switch off the power supplied to PT-E. In case of using a resume battery, remove it.

(2) Remove two screws on the back of PT-E, and then remove the cover.

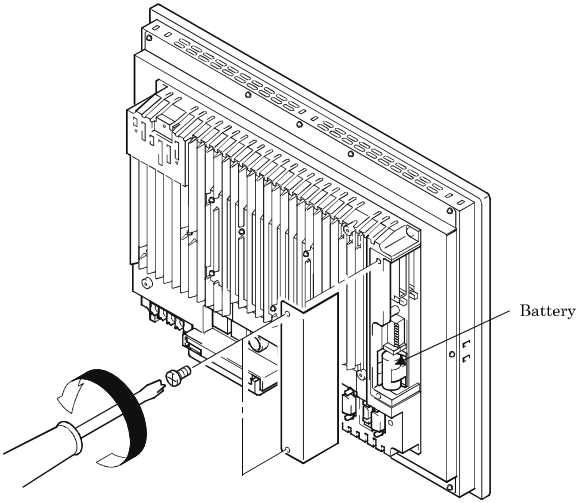


Figure 9.1 Exchange the battery 1

(3) Draw the battery out of the holder and unplug the connector.

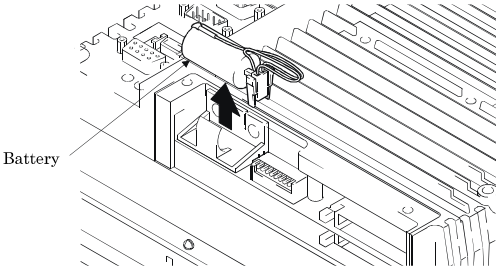


Figure 9.2 Exchange the battery 2

(4) Plug the connector of new battery and fit the battery into the holder.

(5) Clamp the cable.

(6) Mount the cover. The tightening torque range is 5 to 6 kgf·cm.

Point

If the expansion board loaded in the add-on unit is not recognized in the operation, check the mounting state again.

⚠ WARNING

- Do not attempt to replace the battery as inappropriate battery replacement poses a risk of explosion.
- For battery replacement, contact your retailer as it must be performed as a process of repair.

⚠ CAUTION

- Do not remove PT-A6BAT during turning on. Doing so may lead EPC System Monitor not be able todetect low voltage depending on the situation of the electric charge which is stored up on thecondenser that is connected with PT-A6BAT in parallel.

10. List of Options

Battery
- PT-A6BAT : Lithium battery for RTC/BIOS

Lithium ion battery
- PT-E73BAT : Lithium ion battery pack for resume function

Screen protective sheets
- PT-E82PSC : 15inch screen protective sheet

CF Card
- CF-1GB-B : 1GB CompactFlash for Fix Disk
- CF-2GB-B : 2GB CompactFlash for Fix Disk
- CF-4GB-B : 4GB CompactFlash for Fix Disk
- CF-8GB-B : 8GB CompactFlash for Fix Disk

Front interface unit
- PT-E73FRU : CF card slot x1 / USBx1 (Use 2 USB ports on PT-E)
- PT-E73FRUS : USBx1 (Use 1 USB port on PT-E)

IDE Power Supply Cable
- PT-E71IDE-PWCBL : PT-E can supply 5V/12V DC power.The usable currents are 5V/2A, 12V/1A

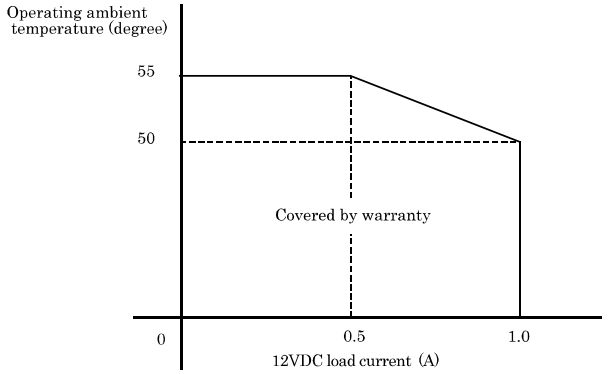
⚠ CAUTION

(1) When connecting external devices (expansion slot, USB port or external DC output) to PT-E, operating ambient temperature changes depending on the currents supplied to the external devices. Follow the limitations shown in the Figure below.

(2) If currents supplied to external devices are DC5V/2A and DC12V/1A, please use PT-E under the operating ambient temperature 50 degrees.

(3) If use PT-E in the environment of operating ambient temperature 55 degrees, currents supplied to the external devices should be under DC5V/2A and DC12V/0.5A

DC12V load current limitation at the moment of using DC5V/2A



* Check the CONTEC's Web site for the latest information on these options.

Revision History

Date	Details os Revision

PT-E Series

User's Manual

PT-E831H-AC431x

PT-E831HS-AC431x

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Chinese http: //www.contec.com.cn/

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