

IPC Series

PANEL-PC with .NET4.2 SH-4  
20 Series

# Hardware Manual

CONTEC CO.,LTD.

# Check Your Package

Thank you for purchasing the CONTEC product.

The product consists of the items listed below.

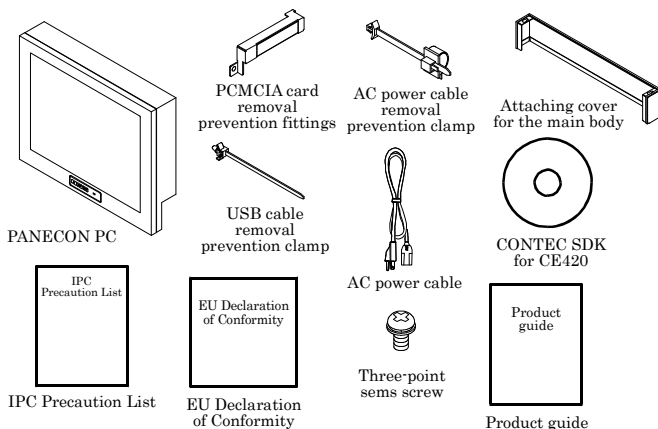
Check, with the following list, that your package is complete. If you discover damaged or missing items, contact your retailer.

## Product Configuration List

Names	Pcs.	Names	Pcs.
PANECON PC	1	Attaching cover for the main body	1
PCMCIA card removal prevention fittings	1	CONTEC SDK for CE420	1
Screws for attaching the PCMCIA card removal prevention fittings Three-point sems screw (M3 x 6)	1	EU Declaration of Conformity	1
AC power cable removal prevention clamp	1	IPC Precaution List	1
USB cable removal prevention clamp	1	Product guide	1
AC power cable	1		

(Notes) User's manual is not bundled with this product ; it must be prepared by the user.

## Product Configuration Image



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# 1 Before Using the Product

## About the Product

This product is a panel computer based on Windows CE NET 4.2, which has an excellent dustproof/drip-proof structure. It uses SH-4 with 128MB of memory as its CPU.

The touch panel has an analog resistive glass/glass-style screen with excellent durability. The frame is made of rust resistant stainless steel as well as in an IPX2-rated drip-proof structure. The front side has an IP65-rated dustproof and drip-proof structure. This product comes with various expansion interfaces such as USB, PC card, 100BASE-T and RS-232C interfaces. In addition, the product can be mounted on an LCD arm, as it complies with the VESA standard.

## Features

SH-4-type CPU with 128MB of memory and rewritable/erasable 128MB Flash ROM

This product comes with SH-4(CPU), 128MB of memory and Windows CE NET4.2 (OS). It also has a 128MB Flash ROM, which can be used as a user area and allow the user to write and erase user programs.

Whole frame in IPX2-rated drip-proof structure; front side in IP65-rated dustproof/drip-proof structure

The whole frame is IPX2-rated and waterdrop-proof. The front side is in an IP65-rated structure that protects against dust and streams of water. For the touch panel, an analog resistive glass/glass-style film with excellent durability has been adopted.

Rust-resistant stainless steel used for the cabinet

For the frame, rust-resistant stainless steel has been adopted with a protection cover that protects the interfaces against waterdrops.

Expansion interfaces such as USB and PC card for PC standard

This product has two USB ports, a PC card slot (Type II x 2, or Type III x 1), 100BASE-T x 1, RS-232C x 2, analog RGB and stereo sound functions. The main frame has small built-in speakers, which allow you to switch to external speakers. The analog RGB interface supports dual screen display. This product also comes with the drivers required for the built-in interfaces as standard equipment.

XIP-ROM module enabling high-speed startup as fast as approx. 10 seconds

As the OS image is pre-loaded in the XIP-ROM, the OS can start as fast as about 10 seconds after power-up.

Mounting structure supporting VESA 100mm standard

Mounting structure supporting the VESA 100mm standard allows you to install this product on an LCD arm.

System development support tool "CONTEC Manager" provided

This product comes with "CONTEC Manager", which helps you build a range of systems such as FTP server function, scheduling function, NTP-based automatic time adjustment function and Auto-RUN function.

## 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 the 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 Safety Precautions.




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

# 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.

## Handling Precautions

### WARNING

- Do not use this product in the presence of flammable or corrosive gases. This may lead to explosion, fire, or damage to equipment.
- In the event of smoke, or abnormal smells or sounds, immediately turn OFF the power to this device, disconnect the plug from the power outlet, and contact the manufacturer. Continued use could lead to fire or electrical shock.
- Because of the danger of electrical shock or fire, do not contact this device (Other than the front touch panel) while electrical current is present.
- Never touch this device or connectors with wet hands. This can cause electrical shock.
- Do not allow this device to come into contact with foreign substances (metal particles, flammable substances, liquids, etc.). This can cause fire or electrical shock.
- Do not place this device in an unstable location or use incomplete mountings. This may cause the device to fall.
- This device must be operated at the specified voltage. Use of any other voltage level may cause fire or electrical shock.
- This device must be properly grounded.
- Users should never disassemble or modify this device, or exchange components. This can cause fire or electrical shock. In addition, the manufacturer is unable to repair products that have been modified by the user.
- 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.



## CAUTION

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- Do not use or store the product in a location such as extremely high or low temperature, rapid temperature changes, and the place which receives a strong ultraviolet ray.  
Example: - Exposure to direct sun
  - In the vicinity of a heat source
- Do not use the product in extremely humid or dusty locations.  
It is extremely dangerous to use the product with its interior penetrated by water or any other fluid or conductive dust. If the product must be used in such an environment, install it on a dust-proof control panel, for example.
- Avoid using or storing the device in locations subject to shock or vibration.
- Do not use the product in the vicinity of devices that generate strong magnetic force or noise. Such devices will cause this device to malfunction.
- Do not use or store the product in the presence of chemicals.
- To clean the PANECON-PC, 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 peeling or discoloration of the paint.
- 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. Use a protective sheet (available as an option) if the touch panel is used where it can easily collect dust and dirt.
- The touch panel may be damaged, if adhesive tape is applied and then peeled off its surface.
- The touch panel may be damaged, if a suction cup is applied and peeled off its surface.
- Do not use a cutter or steel wool to scrape foreign matter off the touch panel. Also, do not clean the touch panel with dry waste.
- Do not clean the touch panel with the waste which has been soaked in a strong chemical or detergent (e.g. acetone, xylene, toluene, general thinner, ketone solvent, acidic/alkaline chemicals and detergents, abrasive chemicals and detergents), or it may result in a stain or malfunction.
- When cleaning the touch panel, soak soft waste in water, squeeze it firmly, and use it on the surface in a lightly rubbing motion. Do not clean the touch panel with saturated material. (It is recommended to dry it immediately after cleaning.)
- Use waste dedicated for cleaning lenses (e.g. lens cloth) to clean the touch panel in a lightly rubbing motion.
- 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.

- 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.
  - Life expectancy of components
    - (1) Battery : A lithium-ion primary battery is used to back up the internal clock/calendar and CMOS RAM. The non-energized backup time at 25°C is 10 years or more and at 60°C is 7 years or more.
    - (2) 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)
    - (3) Touch panel : The operating lifetime of the touch panel is at least 1 million touches (as tested by mechanical touching under 1N of force at a rate of five presses per second).
    - (4) Power supply : The expected battery life is 5 years in continuous operation at 40°C. However, the battery will not last as long, if used at a temperature exceeding the operating temperature limit.
    - (5) Flash memory (NFDISK) : The number of times of rewriting has restriction that is more than 1,000,000. (When the write size is 128KB or less.) Since CF-CARD is used for Flash memory (NFDISK), When use is carried out for the use that rewrites frequently, be careful of the number of times of rewriting. Moreover, when power supply OFF is done while writing it, data in flash memory (NFDISK) might be damaged.
    - \* CONTEC accepts your request for replacing each consumable in the PANECON-PC as a request for repair (at an additional cost).
  - Be sure to turn off the power before plugging or unplugging any expansion board or connector.
  - CONTEC reserves the right to refuse to service a product modified by the user.
  - In the event of an abnormal condition or malfunction, please consult your retailer.
  - Use an AC cable that is compatible with both the rated supply voltage and the receptacle.
  - To connect with peripherals, use a grounded, shielded cable.
  - This product contains a lithium battery as the primary cell and a cold cathode tube for the backlight. When disposing of the product, therefore, treat it in accordance with the disposal regulations stipulated by your local government.
  - About VCCI class A, FCC PART15 class A, and EMC instruction class A incidental articles This product acquires the above-mentioned standard, and when an external speaker is used, an enough margin might not be able to be secured. In that case, please install the ferrite core (SEIWA E04SR200935A or interchangeable goods) in the speaker connection cable. Please shut after it wraps it twice near the connector with the ferrite core opened when you install it.
-

## FCC PART 15 Class A Notice

### **NOTE**

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in commercial environment.

This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference at his own expense.

### **WARNING TO USER**

Change or modifications not expressly approved the manufacturer can void the user's authority to operate this equipment.

## 2 Overview

### Specifications

Functional Specifications

**Table 2.1. Functional Specifications**

Type		IPC-PT020LS-AC-4E
LCD type	LCD type	12.1-inch TFT color LCD (800 x 600)
	Number of colors	65536
Touch panel	Resolution	4096 x 4096 (emulated in 800 x 600 mode)
	Detection method	Resistive-film analog glass/glass type
CPU	Type	SH-4, HD6417751RBP
	Internal cache	Data: 16KB, Instruction: 32KB
	Clock frequency	240MHz
Memory	Flash memory (NFDISK)	128MB
	System memory	128MB SDRAM
	OS loading Flash memory	32MB
COM port	RS-232C(2ch)	COM1 (16550, 9-pin D-SUB) COM2 (16550, 9-pin D-SUB) Baud rate : 50 - 115200bps
RTC		The real-time clock is accurate within $\pm 1$ minutes (at 25°C) per month DALLAS CO., LTD. DS12887A
LAN		10BASE-T/100 BASE-TX 1ch, NS CO., LTD. DP83816A
PC card slots		PCMCIA Type II x 2 or Type III x 1
General-purpose I/O		None
USB		2ch (USB 1.1)
Output terminals for external speakers		$\phi 3.5$ Stereo mini jack Full-scale output level 1.0Vrms (Typ.)
Built-in speaker		Rated input 0.3W Connected to analog (L) signal of stereo output
External RGB output		Analog RGB output 15-pin HD-SUB (Female) connector
DIP-SW		None
LED		None
Front function switch		Front switch input : 3 points
Front PowerLED		3-color display
Input power supply		100VAC Input range: 100V - 240VAC 50VA
Power consumption		100VAC input type: 50VA (Max.)
External dimensions (mm)		303(W) x 56.5(D) x 246(H)
Panel cut dimensions (mm)		None
Weight		About 3.6kg *1

\*1 Includes the attachments except cables.

## Installation Environment Requirements

**Table 2.2. Installation Environment Requirements**

Item		Specification
Ambient specifications		
Operating temperature		0 - 45°C *1
Storage temperature		-10 - 60°C
Operating Humidity		20 - 85%RH (No condensation)
Floating dust particles		Not to be excessive
Corrosive gases		None
Line-noise resistance	Line noise	AC line: 2kV Signal line: 1kV (EN61000-4-4 Level3, IEC1000-4-4 Level 3)
	Static electricity resistance	Contact discharge / $\pm 4$ kV (EN61000-4-2 Level 2, IEC1000-4-2 Level 2)
		Atmospheric discharge / $\pm 8$ kV (EN61000-4-2 Level 3, IEC1000-4-2 Level 3)
Vibration resistance	Anti-shaking	10 - 57Hz/semi-amplitude 0.075mm One cycle (10-150-10 Hz) of 1oct/min test at 9.8 m/s <sup>2</sup> (1G) between 57 an 150 Hz x 5 times in three (X/Y/Z) directions (40 minutes each) (JIS C0040-compliant, IEC68-2-6-compliant)
Impact resistance		Tested with 11-ms half-sine wave at 98 m/s <sup>2</sup> (10G) three times in each of three (X/Y/Z) directions (JIS C0041-compliant, IEC68-2-27-compliant)
Ground		Class D grounding (previous class 3 grounding) SG-FG/continuity
Water-proof and dust-proof		Whole frame : IPX2-compatible (in normal installation), Screen : IP65 *2

\*1 When the total supply current of the USB connector exceeds 200mA, the Operating temperature of use becomes 0-40 °C. Attaching cover for the main body.

\*2 Please obtain the Attaching cover for the main body of appending to Water-proof and dustproof.

**Table 2.3. Power Installation Environment Requirements**

Item		Specification
Power specifications		
Allowable instantaneous		17ms or less (ACIN100V, Io=100%, average value)
Voltage resistance		AC2.0kV (between input and FG) 10mA 1 minute
Isolated resister		50M $\Omega$ (500VDC)

## IP Protection Ratings

IP Protection Ratings indicate levels of protection against intrusion by solid foreign substances and water.

- IP65 ... This product does not allow entry of dust into it. It also does not allow entry of water from any direction, even when directly squirted on with a strong pressure.
- IPX2 ... The product is not badly affected by water dropped vertically from the top or within an angle of 15 degrees.

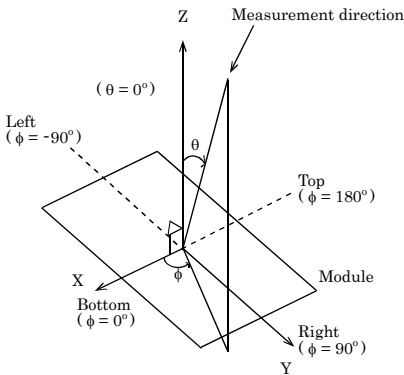
## Display Optical Specifications

**Table 2.4. IPC-PT020LS-AC-4E**

Parameter	Condition		Min.	Typ.	
View angle (Vertical)	CR $\geq$ 5	$\phi = 180^\circ$	Display. Monochrome	35deg	45deg
		$\phi = 0^\circ$		55deg	70deg
View angle (Horizontal)		$\phi = +90^\circ$		60deg	70deg
		$\phi = -90^\circ$		60deg	70deg
Contrast	Display, Monochrome		100	None	
Brightness (at center) *1	Display, White		280cd/m <sup>2</sup>	350cd/m <sup>2</sup>	

\*1 The surface brightness is a numerical value in the display unit. Brightness by which the touch panel is passed becomes the above-mentioned numerical value of about 84%.

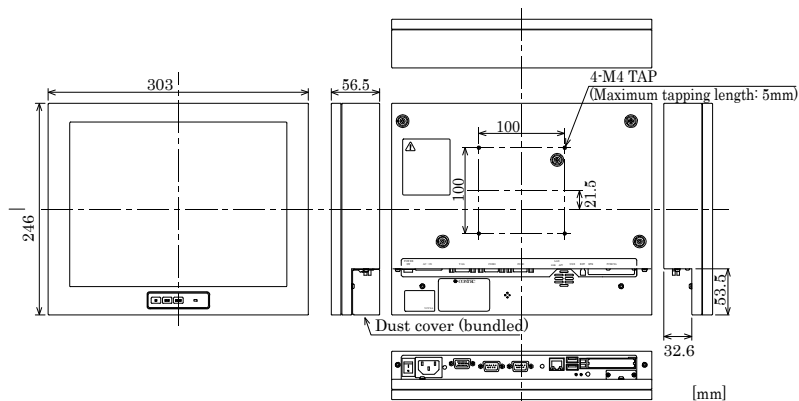
$$\text{Contrast ratio (CR)} = \frac{\text{Brightness at screen center with white displayed}}{\text{Brightness at screen center with black displayed}}$$

**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

IPC-PT020LS-AC-4E



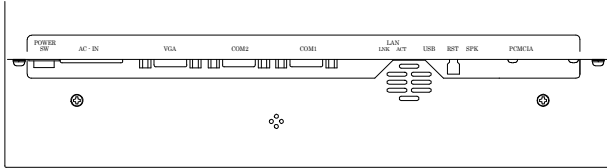
**Figure 2.2. Physical Dimensions**

## 3 Each Component Function

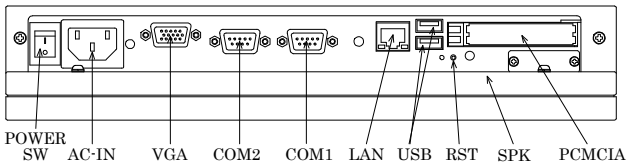
### Component Locations

#### Interface

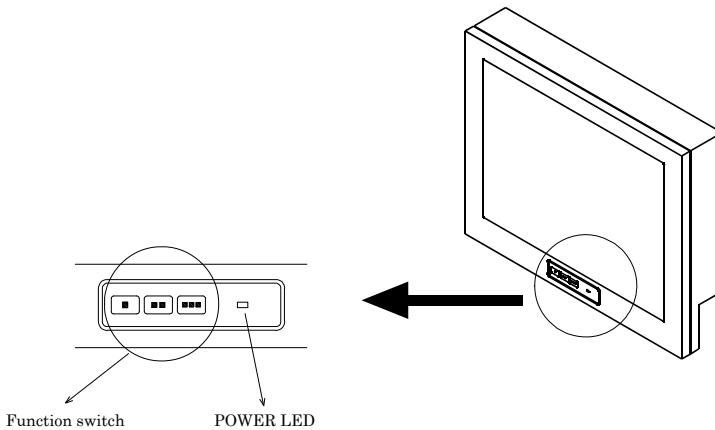
The lower side of the back



Bottom side



#### Front side



**Figure 3.1. Component Locations**



**Table 3.1. Component Identification**

Component	Function
POWER SW	Power switch
AC-IN	AC in-let cable connection
VGA	Analog RGB I/F
COM1	Serial port 1
COM2	Serial port 2
PCMCIA	PCMCIA card slot
LAN	Ethernet connector (RJ-45)
USB	USB port connector
RST	Hard reset push button
SPK	Output terminals for external speakers
PCMCIA	PCMCIA card slot
■.■.■.■.■.■	Function switch
POWER LED	Power ON display LED

# Component Identification

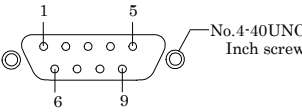
## Serial Port Interface (COM1, COM2)

The PANECON-PC is equipped with two RS-232C-compliant serial port connectors (Serial Port 1: COM1 and Serial Port : COM2). Baud rate : 50 - 115200bps

**Table 3.2. COM1/COM2 Serial Port Inter Connector**

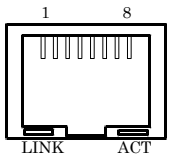
Pin No.	Signal	Function	Direction
1	CD	Carrier detection	In
2	RD	Received data	In
3	TD	Transmitted data	Out
4	DTR	Data terminal ready	Out
5	GND	Signal ground	-----
6	DSR	Data set ready	In
7	RTS	Request to send	Out
8	CTS	Clear to send	In
9	RI	Ring indicator	In

Main unit connector	D-SUB 9-pin(Male)
	

## Ethernet (LAN)

**Table 3.3. Ethernet connector (RJ-45)**

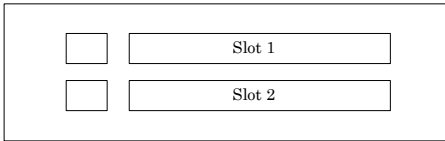
Connector type	RJ-45	
		
Pin No.	Signal name	Function
1	TX+	Transmitted data (+) output
2	TX-	Transmitted data (-) output
3	RX+	Received data (+) input
4	N.C.	Not connected
5	N.C.	Not connected
6	RX-	Received data (-) input
7	N.C.	Not connected
8	N.C.	Not connected

### LED indicator

- LINK(Green)  
Indicates the LINK status.
- ACT(Orange)  
Indicates that data is being transmitted/received when flashing.

## PCMCIA (PCMCIA)

PCMCIA compliant card slots are provided [TYPE II x 2 (TYPE III x 1) size].



**Figure 3.2. Slot Numbers and Locations**



### CAUTION

- A type III card should be inserted into slot 2.
- In case of the CompactFlash Card, please use the PCMCIA conversion adapter.

- \* This product is bundled with the PCMCIA card removal prevention fittings. For how to mount the fittings, refer to Chapter 4 “Hardware Setup”.

Power Supply to the Card

The voltage that can be used and the current capacity of each slot are as shown below:

**Table 3.4. Power Supply to the Card**

Voltage	Current capacity (Max.)
+5V	250mA/Slot
+3.3V	250mA/Slot
+12V	Not supplied.

## USB port

The PANECON-PC is equipped with USB interface 2 channels.

**Table3.5. USB connector**

Pin No.	Signal name
1	+5V
2	DATA+
3	DATA-
4	GND

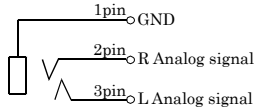
- \* This product is bundled with the USB cable removal prevention cramp. For how to mount the fittings, refer to Chapter 4 “Hardware Setup”.

## External Speaker Output Terminal

Connector type : HSJ1456-010320(HOSIDEN)

**Table 3.6. External Speaker Terminal**

Pin No.	Signal	Remarks
1	GND	---
2	Analog signal (R)	Speaker (Right)
3	Analog signal (L)	Speaker (Left)



Applicable connector: Small jack of  $\phi 3.5\text{mm}$

Full-scale output level 1.0Vrms (Typ.)

Notes) The built-in speaker is connected to the analog signal (L). Therefore, when using the speaker, adjust the output balance between right and left by software, if necessary.

If Jack is connected with the external speaker output terminal, an internal speaker is turned off.

## Touch Panel

The PANECON-PC is equipped with an analog touch panel that enables keyboard-less, mouse-less operations.

Refer to the software manual for details on how to use the touch panel.

**Table 3.7. Touch panel specifications**

Model	This product
Detection method	Analog resistive glass / glass type
Active area	249.0 x 187.5mm
Surface treatment	No glare
Resolution	4096 x 4096 (emulated in 800 x 600)
Operating load	Min.0.2N, Max.3N (1N=0.102kgf)
Operating lifetime	1 million touches minimum (Load : 1N, 5 sec/application, Tip shape : silicon rubber, $\phi 10\text{mmR125}$ )

## Analog RGB I/F

Simultaneous dual screen display is enabled, when an analog RGB display is connected to the Analog RGB I/F of this product.

**Table 3.8. VGA connector**

Connector type		15-pin HD-SUB (Female)	
Pin No.	Signal name	Pin No.	Signal name
1	RED	9	VCC
2	GREEN	10	GND
3	BLUE	11	N.C.
4	N.C.	12	N.C.
5	GND	13	HSYNC
6	GND	14	VSYNC
7	GND	15	N.C.
8	GND		

**Table 3.9. Analog RGB specifications**

Display Dots	Dot Clock Frequency	Horizontal Frequency	Vertical Frequency	HSYNC Polarity	VSYNC Polarity
800 x 600	40.0MHz	37.9KHz	60.1Hz	Negative	Negative

Notes) The use of a liquid crystal display may cause disturbed images on the screen due to a resolution problem, depending on the display to be connected.  
The display resolution is 800 x 600(SVGA) fixation.



## 4 Hardware Setup

### Hardware Setup

- Make sure that the power is switched off before you start the operation.
- Do not remove any screws other than those explained here.
- As for the following items, be sure to setup.
  1. Attaching cover for the main body
  2. Attaching the USB cable removal prevention clamps
  3. Attaching the AC cable removal prevention clamps
  4. Attaching the PCMCIA card removal prevention fittings



## Installation Requirements

When installing this product vertically, place the interface block at the bottom. To maintain the ambient temperature within the installation environment requirement range, provide a gap of 50mm or more between the main unit and any adjacent equipment.

Also, use the product within an angle of 60 degrees, as shown in the following figure.

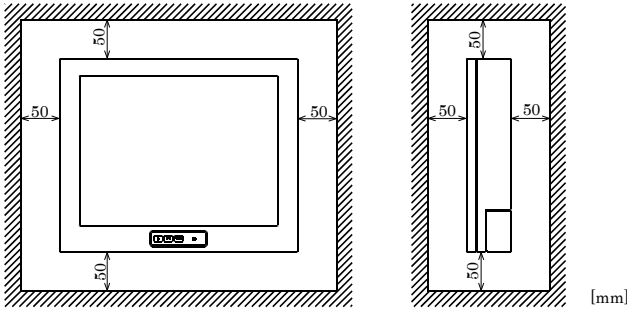


Figure 4.1. Distances between the PANECON-PC and Its Vicinity

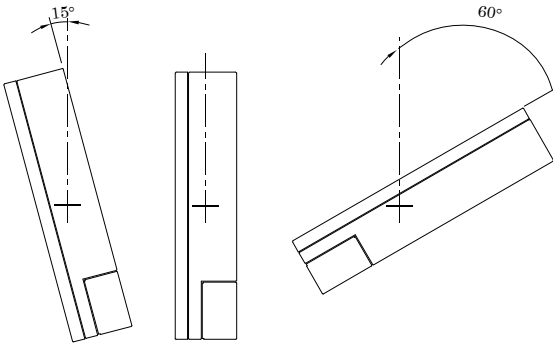


Figure 4.2. Installation permitted angle of the main body

## Attaching the cover for this product

1. Loosen the screws of the main body, as shown in the following figure.

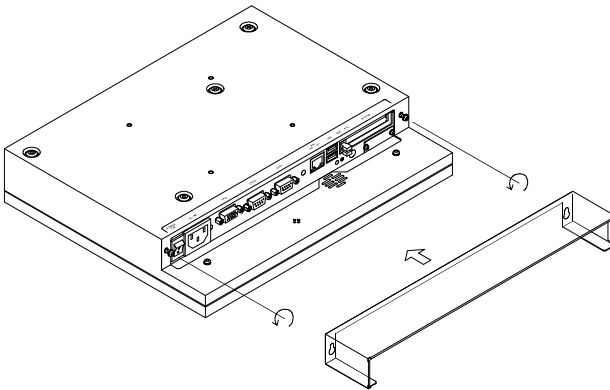


Figure 4.3. Attaching cover for the main body < 1 / 2 >

2. Mount the bundled attaching cover for the main body by tightening the screws back, ensuring that the cover contacts the body without any gap at the positions specified in the following figure.

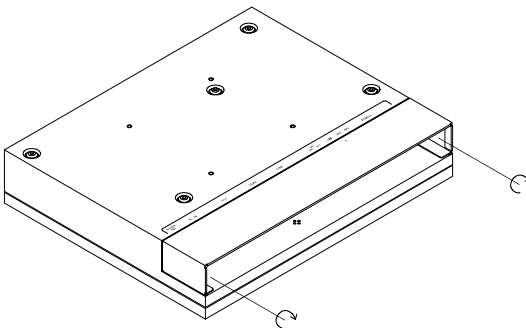
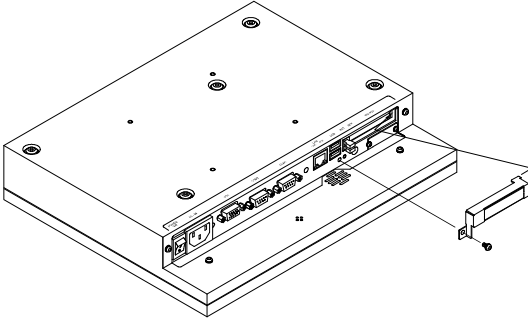


Figure 4.3. Attaching cover for the main body < 2 / 2 >

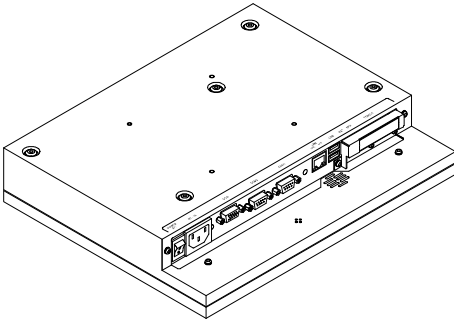
## Attaching the PCMCIA card removal prevention fittings

1. Insert the PCMCIA card.
2. Hook the right catch of the fittings on the narrow square hole of the main body, as shown in the following figure, and push it in so that the PCMCIA card is covered.



**Figure 4.4. Attaching the PCMCIA card removal prevention fittings** < 1 / 2 >

3. Secure the fittings at the upper end with the provided screw.



**Figure 4.4. Attaching the PCMCIA card removal prevention fittings** < 2 / 2 >

## Back light exchange

The backlight used in the LCD module has a limited life. When it expires and requires replacement, contact your retailer.

## Attaching the USB cable removal prevention clamps

1. Connect the USB cable.

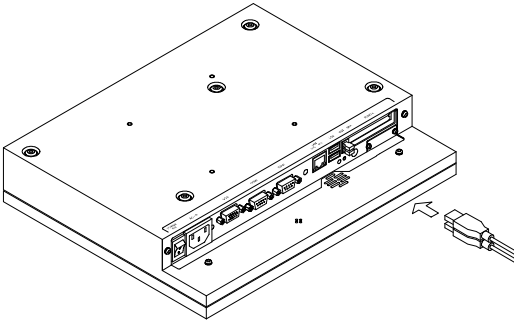


Figure 4.5. Attaching the USB cable removal prevention clamps < 1 / 3 >

2. Tie the USB cables together using the provided clamp for preventing USB cables from being disconnected.

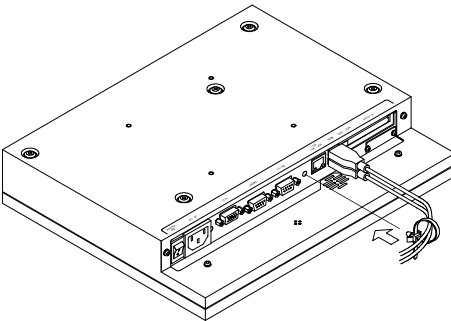
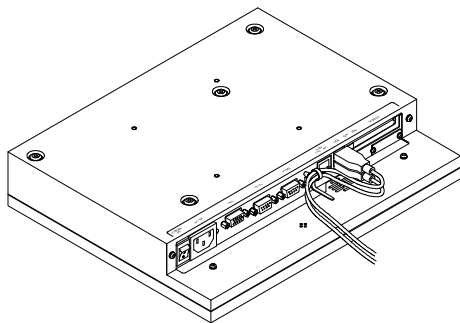


Figure 4.5. Attaching the USB cable removal prevention clamps < 2 / 3 >

3. Fix the USB cable removal prevention clamps to the main body as the following diagrams.



**Figure 4.5. Attaching the USB cable removal prevention clamps < 3 / 3 >**

## Attaching the AC cable removal prevention clamps

1. Fix the AC cable removal prevention clamps.

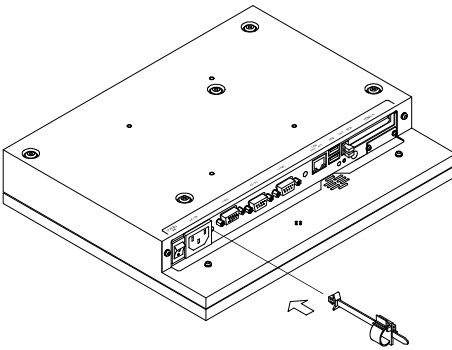


Figure 4.6. Attaching the AC cable removal prevention clamps < 1 / 4 >

2. Connect the AC cable.

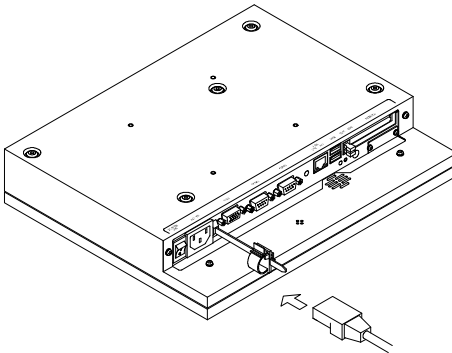
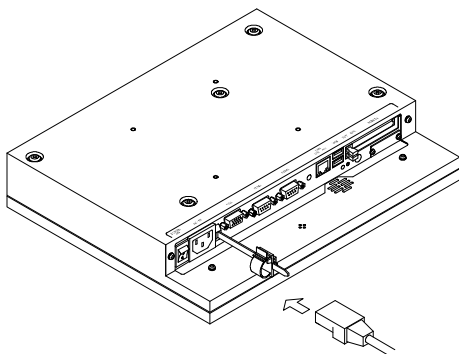


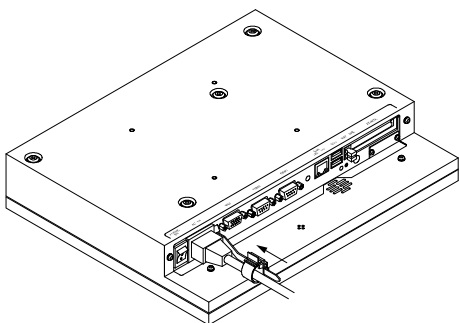
Figure 4.6. Attaching the AC cable removal prevention clamps < 2 / 4 >

3. Tie the AC cables together using the AC cable removal prevention clamps from being disconnected. Then, push in the clamp and secure it firmly, as shown with the arrow in the following figure, so that the clamp does not move.



**Figure 4.6. Attaching the AC cable removal prevention clamps** < 3 / 4 >

4. Be sure that the AC cable is fixed.



**Figure 4.6. Attaching the AC cable removal prevention clamps** < 4 / 4 >

## Attaching to the VESA Arm

This product can be attached to the VESA-standard 100mm arm.

When attaching the VESA arm, note the following item.

- Load : Select the VESA arm of an enough load to the weight of this product.
- Installation angle : set it up to install the inclination of the back and forth on installation requirements.
- For more details on the attaching method, refer to the VESA arm's manual.





## 5 List of Options

### Manual

- IPC-PT020LS-HMJ : Hardware manual for IPC-PT020LS-AC series  
(Japanese)
- IPC-SH4CE4-SMJ : Software manual (Japanese)
- IPC-SH4CE4-SME : Software manual (English)

### Other

- IPC-SND-03 : Desk stand

Notes) As the desk stand (IPC-SND-03) is not made of stainless steel, care must be taken for its use environment.

# IPC-PT020LS-AC-4E

## Hardware Manual

IPC-PT020LS-HME

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