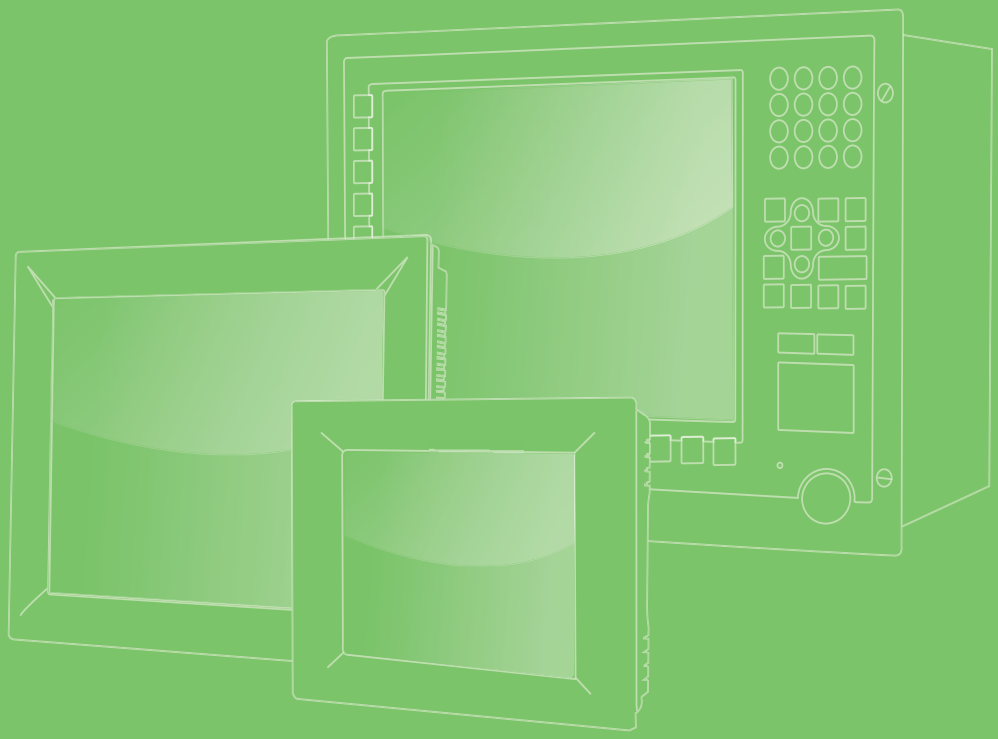

User Manual

PPC-IPS

Intelligent Power System for PCs

ADVANTECH

Enabling an Intelligent Planet

Copyright

Acknowledgements

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Product Warranty (2 years)

Advantech warrants to you, the original purchaser, that each of its products will be free from defects in materials and workmanship for two years from the date of purchase.

This warranty does not apply to any products which have been repaired or altered by persons other than repair personnel authorized by Advantech, or which have been subject to misuse, abuse, accident or improper installation. Advantech assumes no liability under the terms of this warranty as a consequence of such events.

Because of Advantech's high quality-control standards and rigorous testing, most of our customers never need to use our repair service. If an Advantech product is defective, it will be repaired or replaced at no charge during the warranty period. For out-of-warranty repairs, you will be billed according to the cost of replacement materials, service time and freight. Please consult your dealer for more details.

If you think you have a defective product, follow these steps:

1. Collect all the information about the problem encountered. (For example, CPU speed, Advantech products used, other hardware and software used, etc.) Note anything abnormal and list any onscreen messages you get when the problem occurs.
2. Call your dealer and describe the problem. Please have your manual, product, and any helpful information readily available.
3. If your product is diagnosed as defective, obtain an RMA (return merchandize authorization) number from your dealer. This allows us to process your return more quickly.
4. Carefully pack the defective product, a fully-completed Repair and Replacement Order Card and a photocopy proof of purchase date (such as your sales receipt) in a shippable container. A product returned without proof of the purchase date is not eligible for warranty service.
5. Write the RMA number visibly on the outside of the package and ship it prepaid to your dealer.

Part No. 200K0IPS10 Edition 1

Printed in China October 2015

Declaration of Conformity

CE

This product has passed the CE test for environmental specifications. Test conditions for passing included the equipment being operated within an industrial enclosure. In order to protect the product from being damaged by ESD (Electrostatic Discharge) and EMI leakage, we strongly recommend the use of CE-compliant industrial enclosure products.

FCC Class A

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 a 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 in which case the user will be required to correct the interference at his own expense.

Technical Support and Assistance

1. Visit the Advantech web site at http://support.advantech.com where you can find the latest information about the product.
2. Contact your distributor, sales representative, or Advantech's customer service center for technical support if you need additional assistance. Please have the following information ready before you call:
   - Product name and serial number
   - Description of your peripheral attachments
   - Description of your software (operating system, version, application software, etc.)
   - A complete description of the problem
   - The exact wording of any error messages

Safety Instructions

1. Read these safety instructions carefully.
2. Keep this User Manual for later reference.
3. Disconnect this equipment from any AC outlet before cleaning. Use a damp cloth. Do not use liquid or spray detergents for cleaning.
4. For plug-in equipment, the power outlet socket must be located near the equipment and must be easily accessible.
5. Keep this equipment away from humidity.
6. Put this equipment on a reliable surface during installation. Dropping it or letting it fall may cause damage.
7. The openings on the enclosure are for air convection. Protect the equipment from overheating. DO NOT COVER THE OPENINGS.
8. Make sure the voltage of the power source is correct before connecting the equipment to the power outlet.
9. Position the power cord so that people cannot step on it. Do not place anything over the power cord.
10. All cautions and warnings on the equipment should be noted.
11. If the equipment is not used for a long time, disconnect it from the power source to avoid damage by transient overvoltage.
12. Never pour any liquid into an opening. This may cause fire or electrical shock.
13. Never open the equipment. For safety reasons, the equipment should be opened only by qualified service personnel.
14. If one of the following situations arises, get the equipment checked by service personnel:
    - The power cord or plug is damaged.
    - Liquid has penetrated into the equipment.
    - The equipment has been exposed to moisture.
    - The equipment does not work well, or you cannot get it to work according to the user's manual.
    - The equipment has been dropped and damaged.
    - The equipment has obvious signs of breakage.
15. DO NOT LEAVE THIS EQUIPMENT IN AN ENVIRONMENT WHERE THE STORAGE TEMPERATURE MAY GO BELOW -20° C (-4° F) OR ABOVE 50°C (122°F). THIS COULD DAMAGE THE EQUIPMENT. THE EQUIPMENT SHOULD BE IN A CONTROLLED ENVIRONMENT.
16. CAUTION: DANGER OF EXPLOSION IF BATTERY IS INCORRECTLY REPLACED. REPLACE ONLY WITH THE SAME OR EQUIVALENT TYPE RECOMMENDED BY THE MANUFACTURER, DISCARD USED BATTERIES ACCORDING TO THE MANUFACTURER'S INSTRUCTIONS.
17. ATTENTION : DANGER D'EXPLOSION SI LA BATTERIE EST INEXACTEMENT REMPLACÉE. REMPLACEZ SEULEMENT AVEC LA MÊME CHOSE OU LE TYPE ÉQUIVALENT RECOMMANDÉ PAR LE FABRICANT, JETTENT LES BATTERIES UTILISÉES INSTRUCTIONS DE S SELON FABRICANT DES'

The sound pressure level at the operator's position according to IEC 704-1:1982 is no more than 70 dB (A).

DISCLAIMER: This set of instructions is given according to IEC 704-1. Advantech disclaims all responsibility for the accuracy of any statements contained herein.

Safety Precaution - Static Electricity

Follow these simple precautions to protect yourself from harm and the products from damage.

- To avoid electrical shock, always disconnect the power from your PC chassis before you work on it. Don't touch any components on the CPU card or other cards while the PC is on.
- Disconnect power before making any configuration changes. The sudden rush of power as you connect a jumper or install a card may damage sensitive electronic components.

Battery Information

Batteries, battery packs, and accumulators should not be disposed of as unsorted household waste. Please use the public collection system to return, recycle, or treat them in compliance with the local regulations.

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Contents

Chapter 1

General Information

This chapter gives background information on the PPC-IPS.

Sections include:

- Introduction
- Specifications
- Dimensions

1.1 Introduction

The lightweight and intelligent power management module protects Panel PCs from electrical damage and greatly reduces the risk of losing data. The IPS module serves as temporary power during a short interruption in power and allows a safe system shutdown. It can be easily installed on a DIN rail or on the back of a Panel PC.

1.2 Specifications

Input	Input Voltage	12 - 30 V_{DC}
	Input power rating	8.5-3.5 A
	Charging current	2 A
Output	Output voltage	24 V_{DC}
	Max. output current	2.5 A
Battery	Battery capacity	14.4 V_{DC}, 1950mAH
	Cycle life	300 times of charge circle (Above 60% capacity compared to the initial state)
Protections	Short-circuit protection	Yes
	Over discharging protection	IPS shuts down when 5% of battery capacity (Default)
Certification	EMC	CE, FCC, CCC, BSMI
	Safety	UL, CB, CCC, BSMI
Dimensions	151.8 x 125 x 37.2 mm (5.98" x 4.92" x 1.46")	
Environment	Operating Temperature	0~50°C (Din rail mounting)
		0-45°C (VESA mounting, secured with PPC)
	Storage Temperature	-20 ~ 50°C

This product is intended to be supplied by a Listed Power Adapter or DC power source, rated 12-30V_{DC}, 8.5-3.5A minimum and Tma 50 degrees Celsius, if need further assistance with purchasing the power source please contact Advantech for further information.

1.3 Dimensions

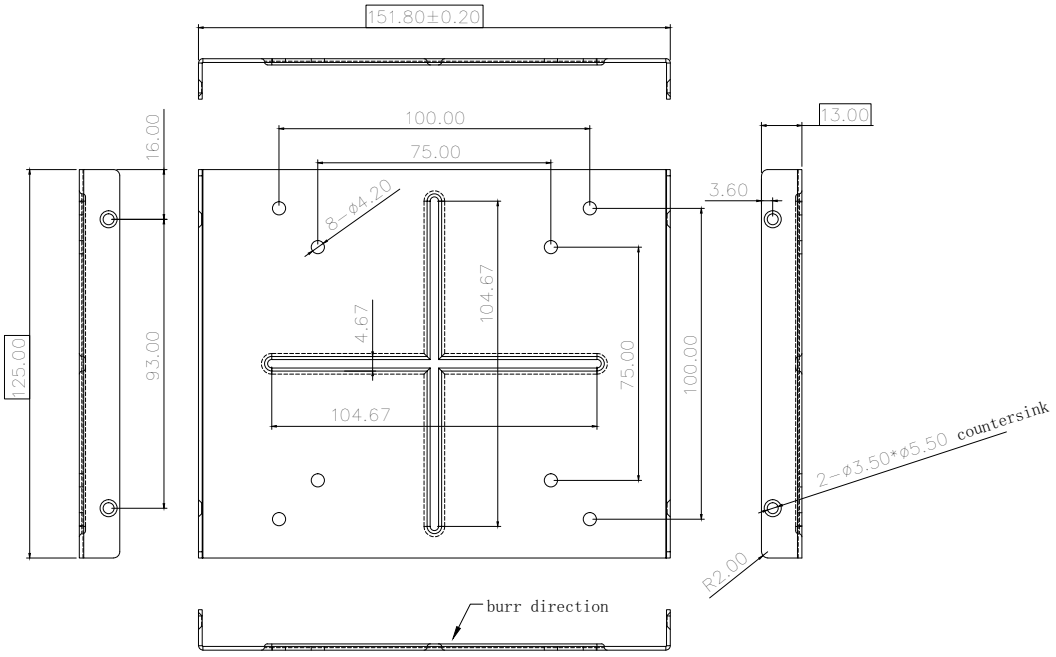


Figure 1.1 Dimensions includes baseboard

Max. depth for VESA mounting screws is M4*8 (mm)

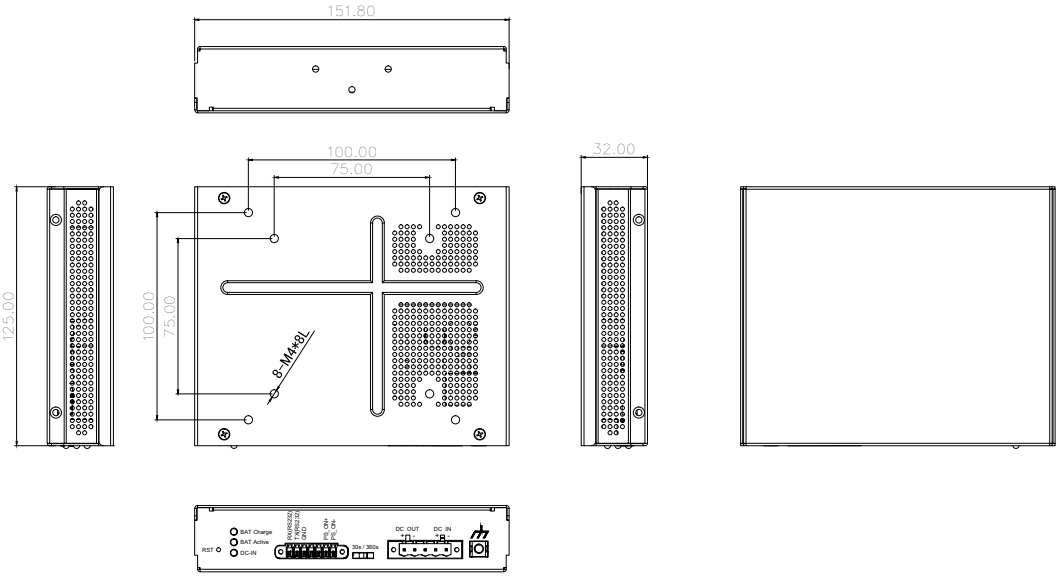


Figure 1.2 Dimensions without baseboard

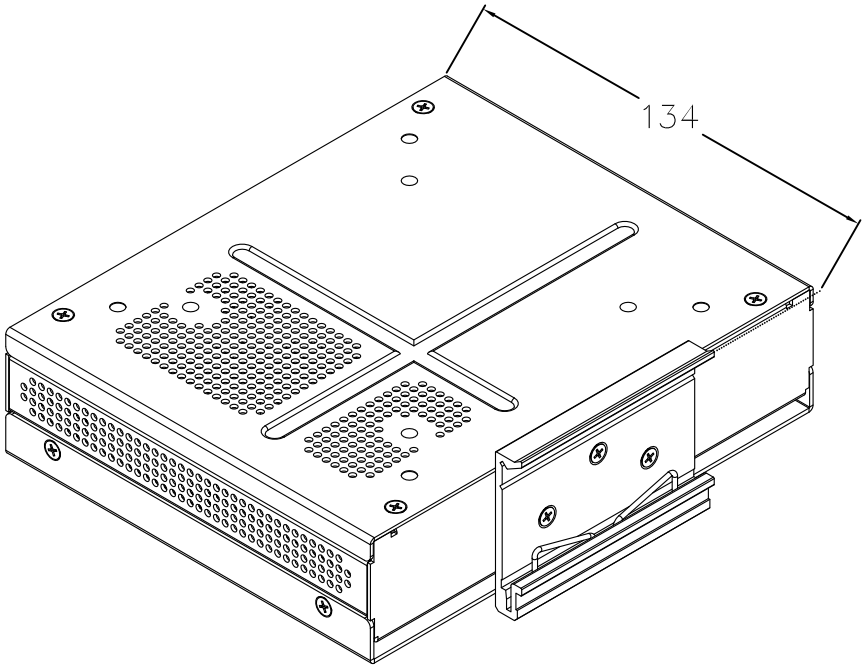


Figure 1.3 Install with din-rail bracket

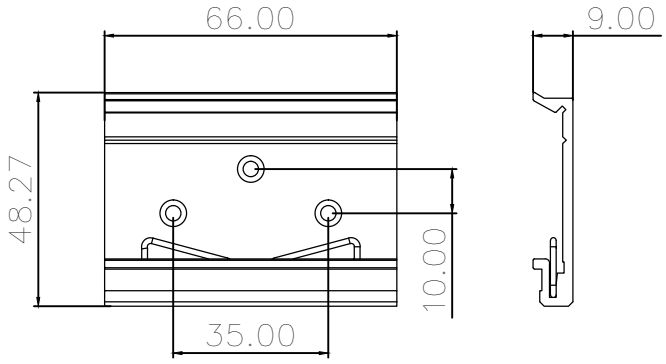


Figure 1.4 Din-rail bracket dimensions

Chapter 2

Installation Instructions

2.1 Introduction

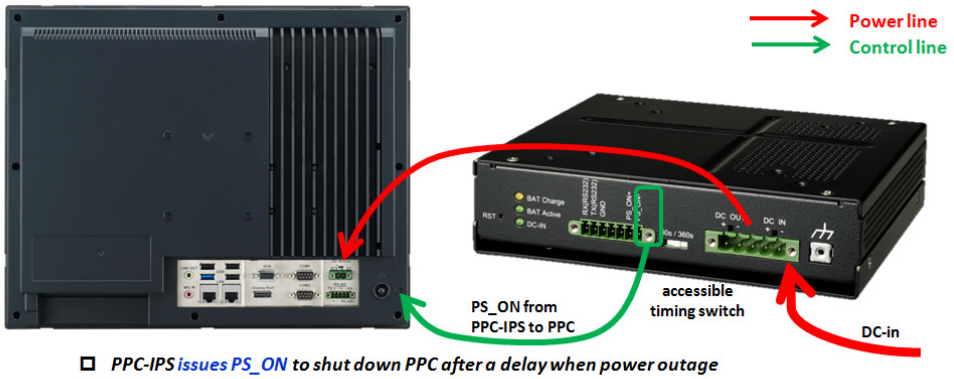
The IPS module serves as temporary power during a short interruption in power. When the power is off, the IPS delays the shut down time to allow work to be finished. Once the delay shut down time has expired the IPS sends a shutdown order to the PC.

There are two modes for setting IPS shutdown PC: PS-ON or RS232.

Refer to the figure below for a description of the connection.

Dual modes for auto shut down function (HW)

Shut down through PS_ON by Hardware Signal — *For PPC only*



- *PPC-IPS issues PS_ON to shut down PPC after a delay when power outage*
- *The delay is set by accessible switch either 30s or 360s*

Installation procedures

- *Plug PS_ON cable between PPC-IPS and PPC*
- *Set the switch on the PPC-IPS for timing*
- *Set shut down mode (S4 or S5) in the OS*

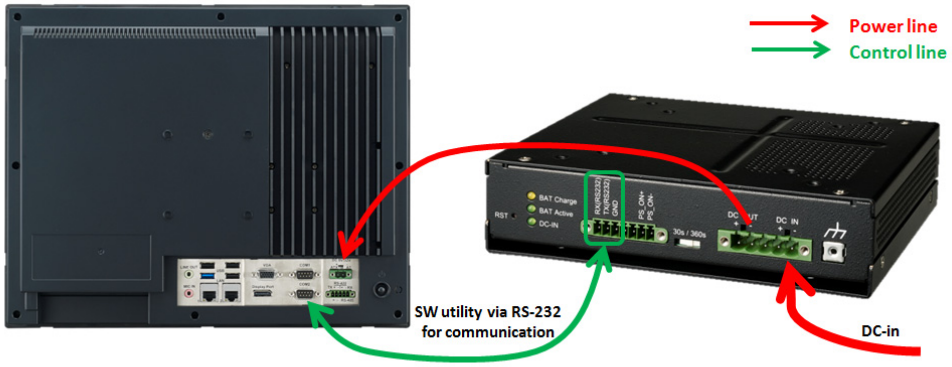
** Cables for power and control are equipped with PPC-IPS*

Advantage

- *Plug and Play*
- *No installations for SW*
- *Don't need to occupy RS-232*

Dual modes for auto shut down function (SW)

Shut down through RS-232 by Software Utility



- PPC-IPS issues a command to shut down PPC after a delay when power outage
- The delay is set by SW utility, either from 5s to 360s or "Max" according to battery capacity

Installation procedures

- *Plug RS-232 cable between PPC-IPS and PPC*
- *Install SW utility*
- *Set for timing and shut down mode (S4 or S5) by the SW utility*

** Cables for power and control are equipped with PPC-IPS*

Advantage

- *Able to set all ranges of timing*
- *Support "Max" mode **
- *Status monitoring*

Note! *Customers can choose either the model based on their installation requirements.*

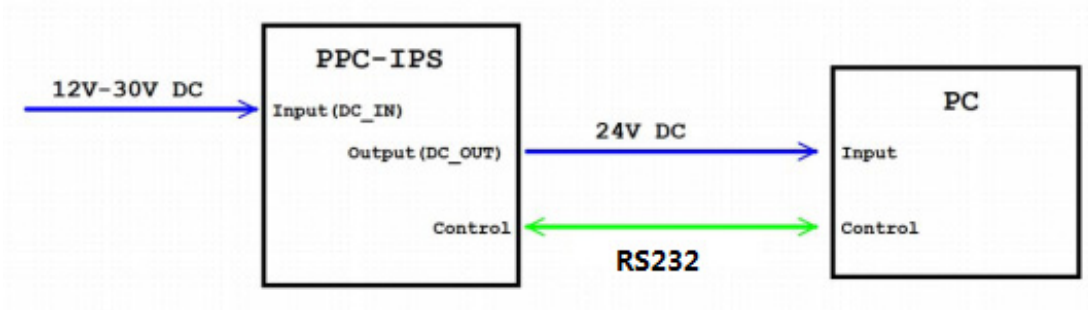
Dual modes for auto shut down function

		SW utility through RS-232	HW through PS_ON
Installation procedure		■ Plug RS-232 cable between PPC-IPS and PPC (refer to Chapter 2.3.3.2 B) ■ Install SW utility ■ Set for timing and shut down mode (S4 or S5) in the SW utility (refer to Chapter 4.2)	■ Plug PS_ON cable between PPC-IPS and PPC (refer to Chapter 2.3.3.2 A) ■ Set the switch on the PPC-IPS for timing (refer to Figure 2.2) ■ Set shut down mode (S4 or S5) in the OS (Refer to Chapter 3.2)
Setting	Time to shut down PC after power outage	5~ 360 seconds (per second)	30 seconds or 360 seconds (set by an external switch)
	Time to turn-off IPS after shut-down command	1~9 minutes (per minute)	Not supported for adjusting
OS support		Win XP, Win 7, Win 8, Win8.1	Win 7, Win 8, Win8.1, Linux
PC System support		The standard version of utility is only for PPC, but able to be customized for other PC systems	Only for PPC
Accessory		A custom RS-232 cable (equipped with PPC-IPS-AE)	A custom PS_ON cable (equipped with PPC-IPS-AE)
Advantage		■ Able to set all ranges of timing ■ Supports Max. mode * ■ Status monitoring	■ Plug and Play ■ No installations for SW ■ Doesn't need to occupy RS-232

* For Max. mode, it has the PPC-IPS-AE to supply longest power according to the system power consumption and battery capacity presently.

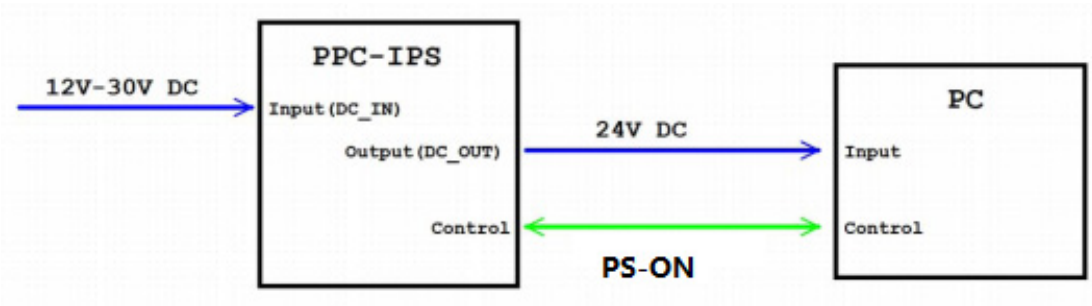
A. PS_ON Mode

Connect PS_ON wire of control cable to PPC MB's PS_ON slot.

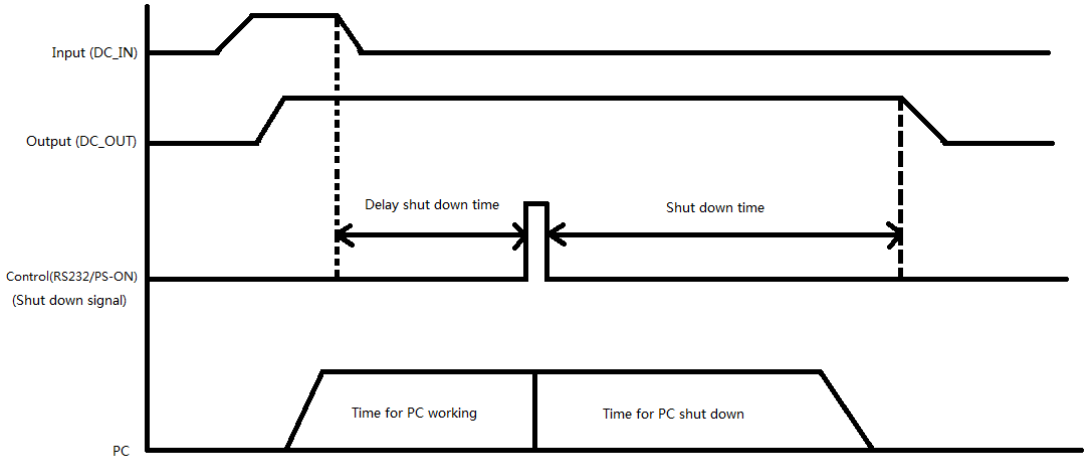


B. RS-232 Mode

Connect PPC-IPS with PC through PPC-IPS control cable.



PPC-IPS Shutdown Signal Diagram



2.2 A Quick Tour

Before setting up the PPC-IPS, take a moment to become familiar with the locations and purposes of controls, connectors and ports, illustrated in the figures below.

When placed upright on the desktop, the PPC-IPS appears as shown in Figure 2.3.

Figure 2.1 Overview

IO connectors:

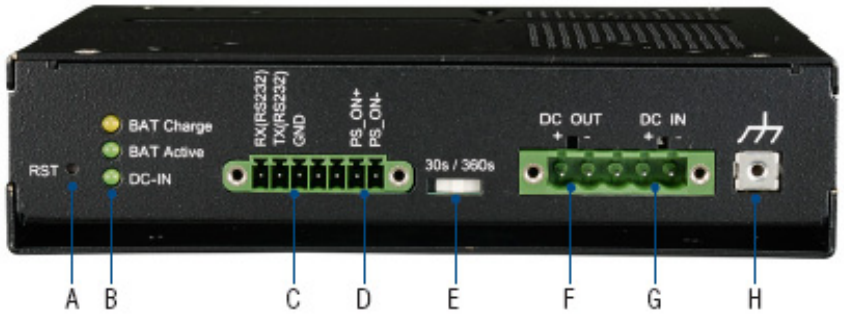


Figure 2.2 Port Labels

A. System reset
B. Status indicators
C. RS-232 (for connecting a PC)
D. PS_ON (to shut down PC)
E. Time switch (for setting auto shutdown)
F. DC out (2 pins)
G. DC input (2 pins)
H. Grounding

2.3 Installation Procedures

2.3.1 VESA Mount Installation

First assemble VESA bracket on PPC, then install PPC-IPS following figures.

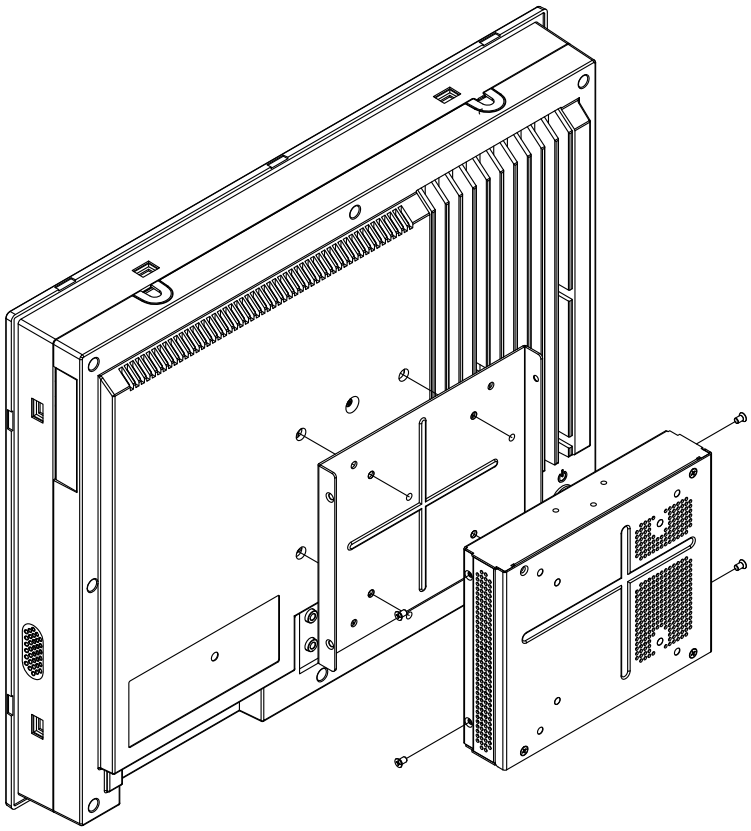


Figure 2.3 Mounting Diagram

Note! *Max. depth for VESA mounting screws is M4*8 (mm).*

2.3.2 DIN-rail Installation

The other method of installing the IPS is to install it on a DIN-rail. Take the DIN rail bracket and screws from the accessory bag, attach as below.

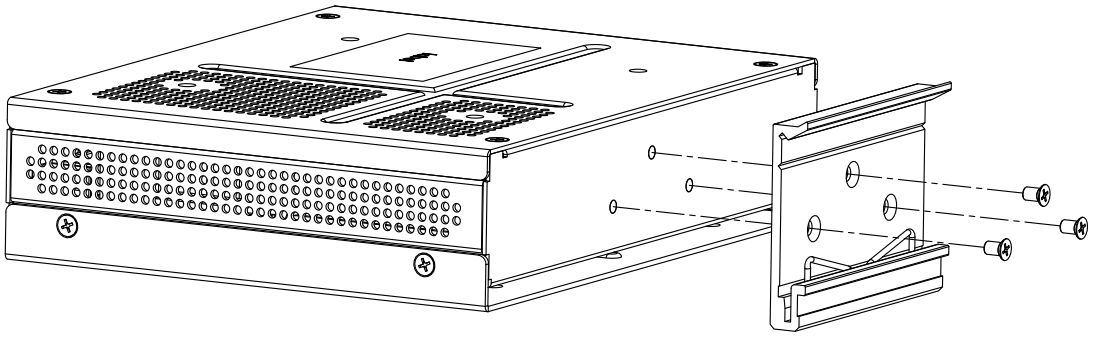


Figure 2.4 DIN Rail Mounting

After the DIN-rail bracket is secured on the IPS, connected it to the rail as shown below.

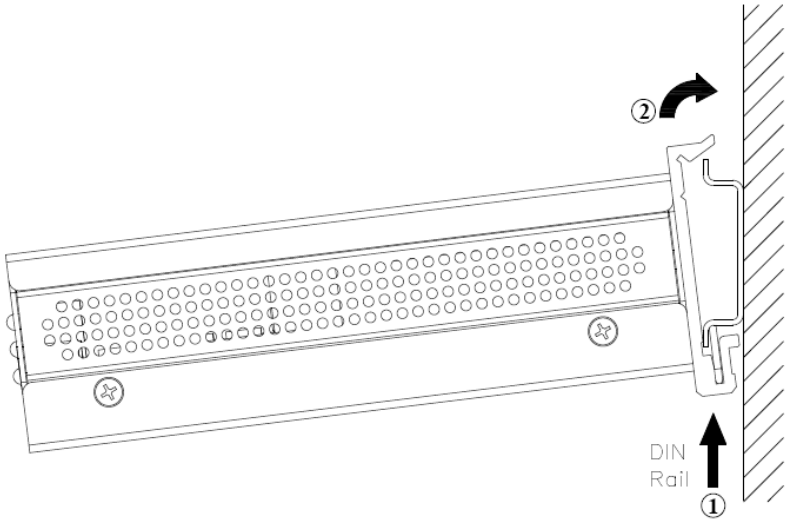


Figure 2.5 Attaching the IPS to a DIN Rail

2.3.3 POWER cable & Control Cable Installation

Connect cables after installation of the IPS. Below we use the example of an Advantech Panel PC as a loading machine. If customers use another PC as a loading machine, install the Power cable and PS_ON cable according to the other machines connector pin definitions.

2.3.3.1 Making the Power cable

1. Take the power cable from the accessory bag.

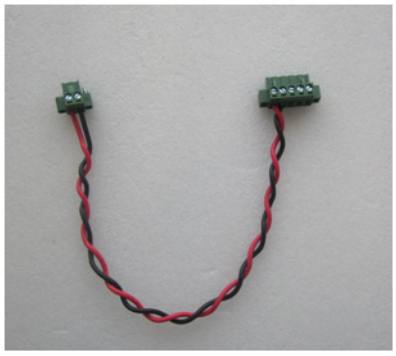


Figure 2.6 Power Cable Photo

2. Insert adapter cable pin in power cable (PIN4 connect to positive pole, PIN5 connect to negative pole).

Figure 2.7 Separated power cable and adaptor cable

3. As shown in the figure below, the white wire is the positive pole of the adapter, and the black wire is the negative pole.

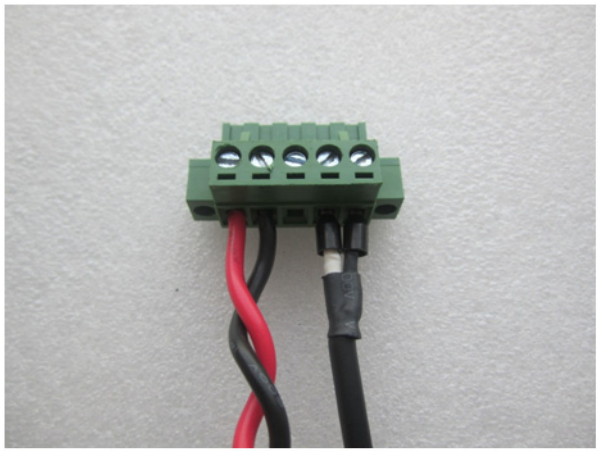


Figure 2.8 Positive and negative cables

4. Fasten power cable screw and finish making the power cable.

Figure 2.9 Power cable and adaptor finished

2.3.3.2 Making the Control cable (depends on shut down mode)

A. Shut down through PS_ON by Hardware Signal

1. The the control cable from accessory bag

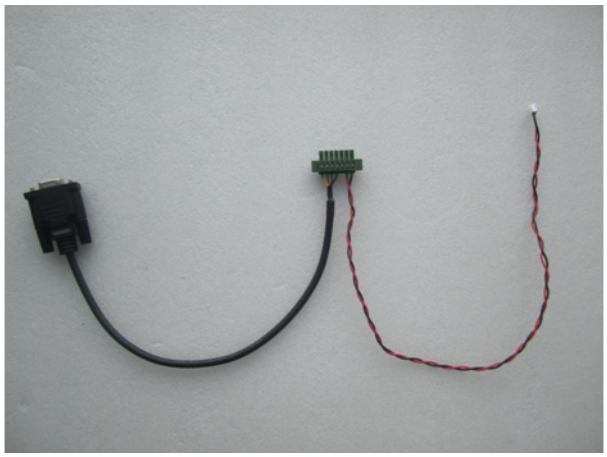


Figure 2.10 Control cable photo

2. Remove the left side COM port cable.

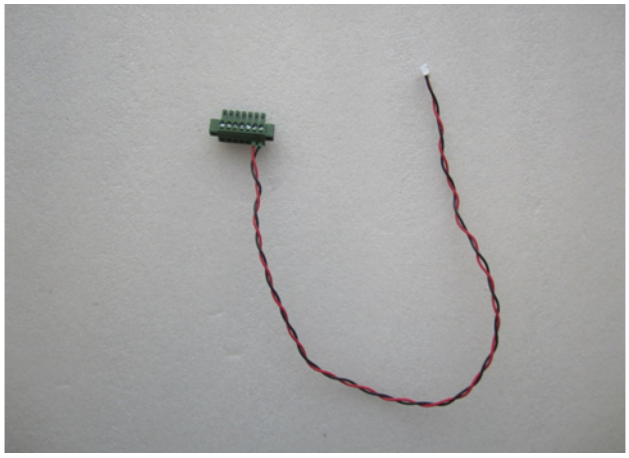


Figure 2.11 COM port cable

3. Release the screws on the rear cover and open it.

Figure 2.12 Screw positions

4. Break the punch hole on the rear cover.

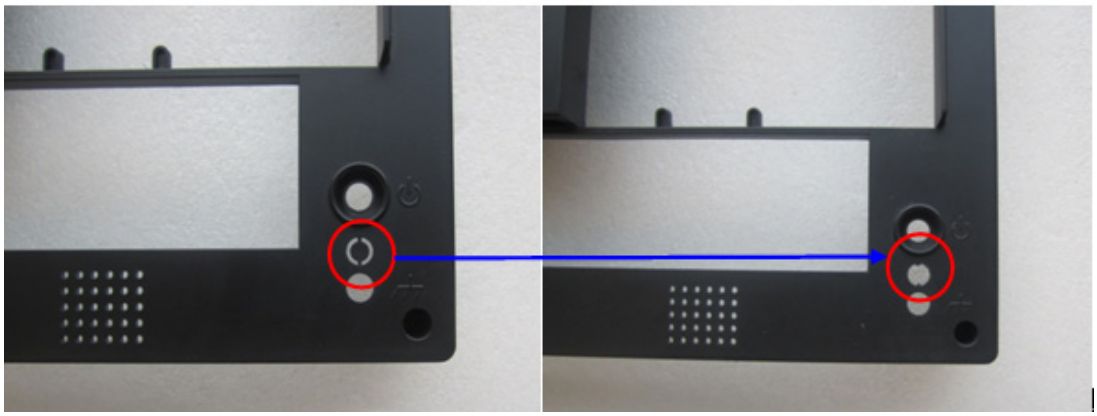


Figure 2.13 Punch hole positions

5. Through the red/black control cable from punch hole, insert pin header to PS_ON single port on M/B.

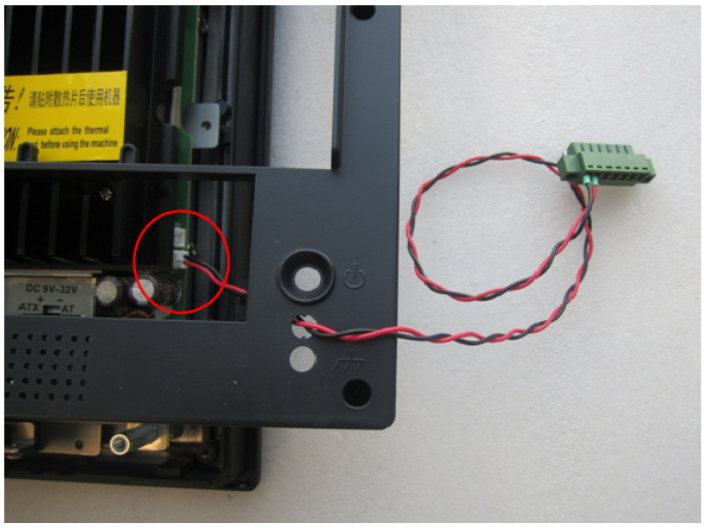


Figure 2.14 Feeding the cable through the punch hole

6. Close the rear cover and tighten the screws.

Figure 2.15 Finished power cable

7. Refer to chapters 2.4.1 or 2.4.2 to install IPS by VESA or Din-rail.

8. Connect the power cable and control cable to the PC.

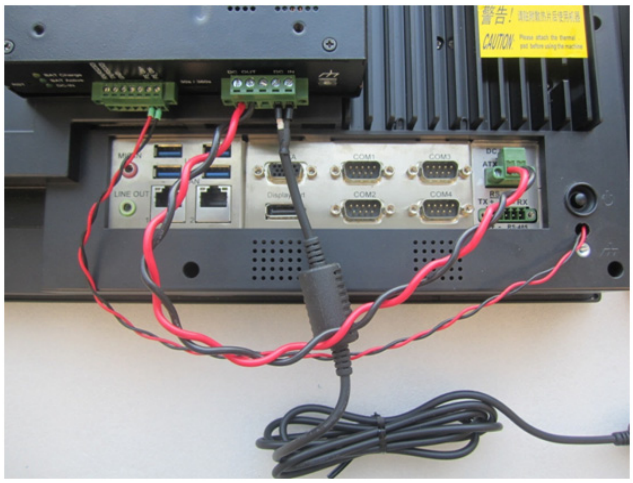


Figure 2.16 Connected cables

Note! *PS_ON shut down mode need set power button as shutdown or sleep, refer to Chapter 3 for settings.*

B. Shut down through RS-232 by Software Utility

1. Take the control cable from the accessory bag.

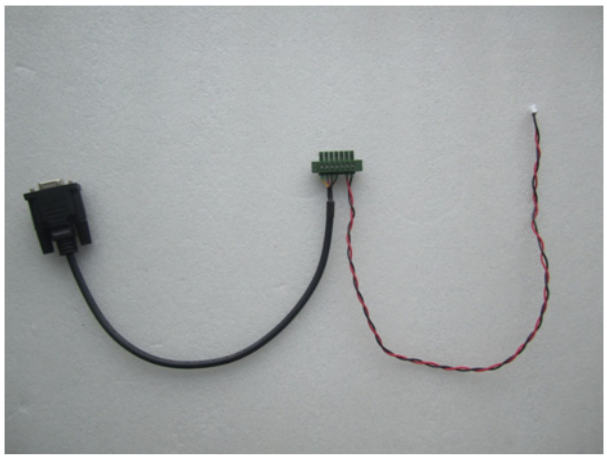


Figure 2.17 RS-232 cable

2. Remove the right side PS_ON wire.

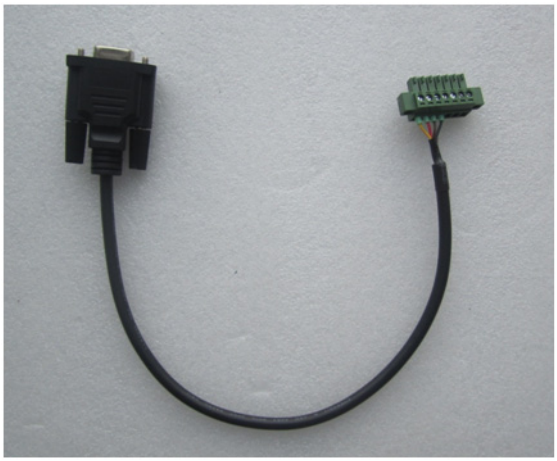


Figure 2.18 Separated cable

3. Refer to chapters 2.4.1 or 2.4.2 to install IPS by VESA or DIN-rail.
4. Connect the power cable and control cable to the PC.

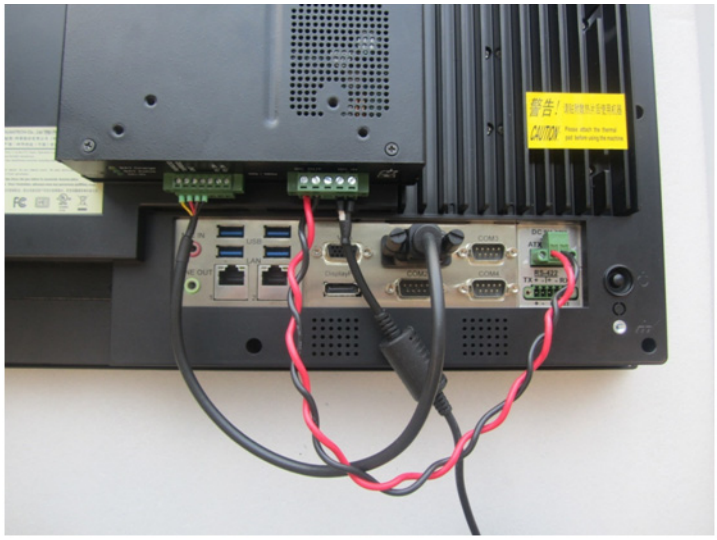


Figure 2.19 Connecting the power and control cables

Note! *This mode needs a pre-installed IPS APP, refer to Chapter 4 for APP detail setting.*

2.3.4 IPS installation (VESA mount as example)

1. Unscrew the 4 screws in red circles (2 each side).

Figure 2.20 Screw positions

2. Remove the IPS baseboard.

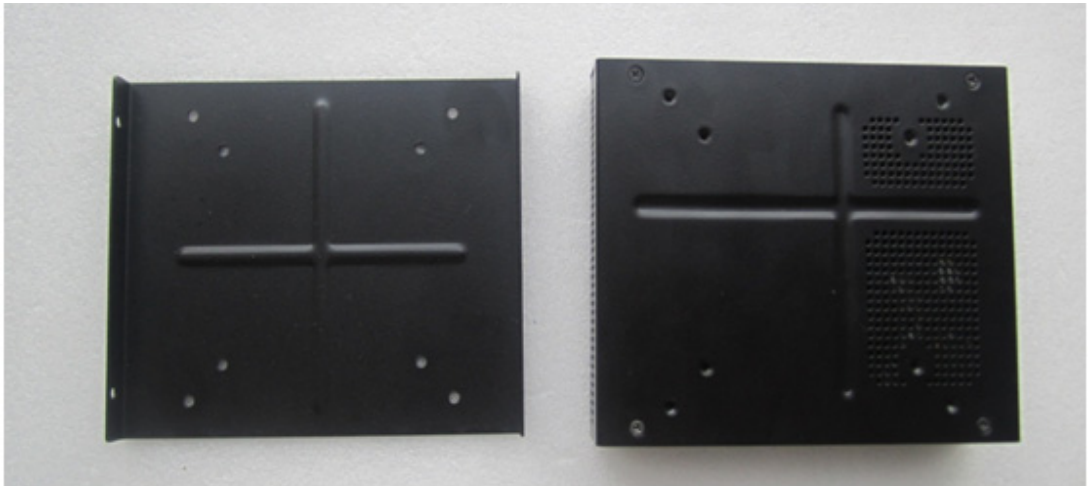


Figure 2.21 IPS baseboard

3. Take the 4 screws from the accessory bag and use them to install the baseboard on the back of the PC.

Figure 2.22 Screw position

4. Then use the 4 screws from step 1 to secure the IPS on the baseboard.

Figure 2.23 IPS on the backplate

2.3.5 Replace the IPS Battery

1. Remove the screws of IPS top cover.

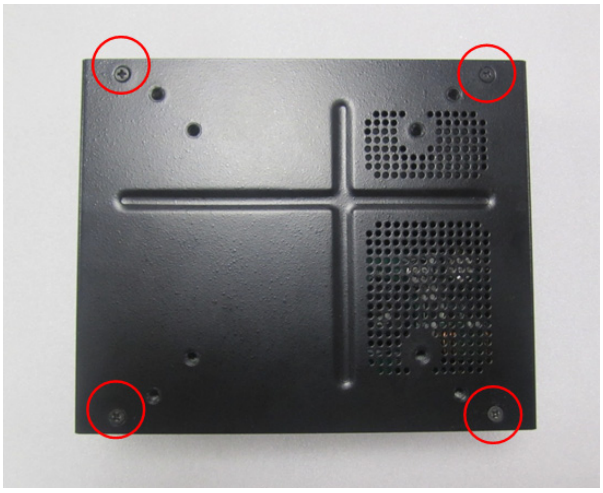


Figure 2.24 Top cover screw positions

2. Open the top cover, remove the cable connector and pick up the battery. Take a new battery replace it, then insert the battery cable connector, and secure the top cover.

Figure 2.25 Open IPS Power connector position

Chapter 3

IPS Setting Informations

3.1 Supplementary I/O Connector Instructions

The following is detailed explanation of some of the I/O connectors.

B. Status indicator

	Bright	Dark	Blinking
BAT Charge	Battery is fully charged	Battery is not charging	Battery is charging
BAT Active	Battery ready	No battery detected	Abnormal battery
DC-IN	DC_IN ready	NO DC_IN	PPC will switch off

C&D. Control interface

PIN	Name	Type	Description
1	RX(RS232)	INPUT	Connect to PC (RS-232_TX)
2	TX(RS232)	OUTPUT	Connect to PC (RS-232_RX)
3	GND(RS232)		
6	PS_ON(+)	OUTPUT	Connect to PC PS_ON, control loading machine system turn on or turn off
7	PS_ON(-)	OUTPUT	

PPC-IPS interface: phoenix connect 7P 3.5 pitch

E. Time switch (for setting uninterrupted period)

The Time switch is used to set the waiting period (30s/360s) before sending the PS_ON signal to shut down PC after AC power is off.

Warning! *During this time the PPC-IPS will supply the PC with its battery to ensure the loading PC works properly.*

If the AC power resumes during this uninterrupted period (within 30s/ 360s), the process for sending the PS_ON signal will be interrupted.

If the battery capacity is down to 15%, the PPC-IPS will immediately send the PS_ON signal to turn off the loading PC. For this reason, please ensure the battery has enough power.

The PPC-IPS has a software utility to adjust this period setting, and the maximum uninterrupted period is strongly related with the loading PC power consumption.

F&G. DC in/out

PIN	Name	Type	Description
1	DC-OUT(+)	OUTPUT	24V+/-10% Provide to PC
2	DC-OUT(-)	OUTPUT	
3	NA		
4	DC-IN(+)	INPUT	12V-30V DC Provide to IPS
5	DC-IN(-)	INPUT	

PPC-IPS interface: phoenix connected 5P 5.08 pitch

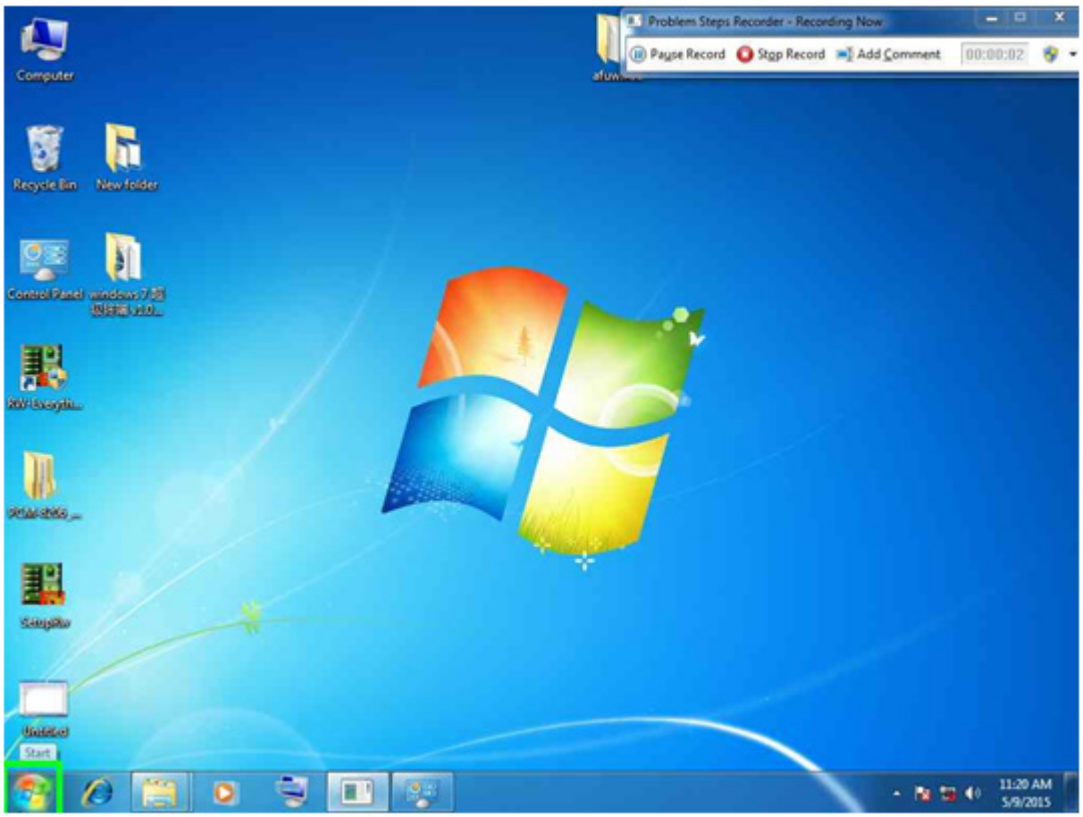
Note!

1. *The RS-232 is used to control IPS by AP. If the user does not use AP to control IPS, the RS-232 should be left unconnected.*
2. *Need to set PC PS_ON as shut down mode, and must ensure there's no other program to interrupt when PS_ON single send out.*
3. *DC-IN power wattage need 20 W lager than DC-OUT wattage, that can ensure battery charging at normal status. So we strongly suggest power supply wattage need above 90W.*

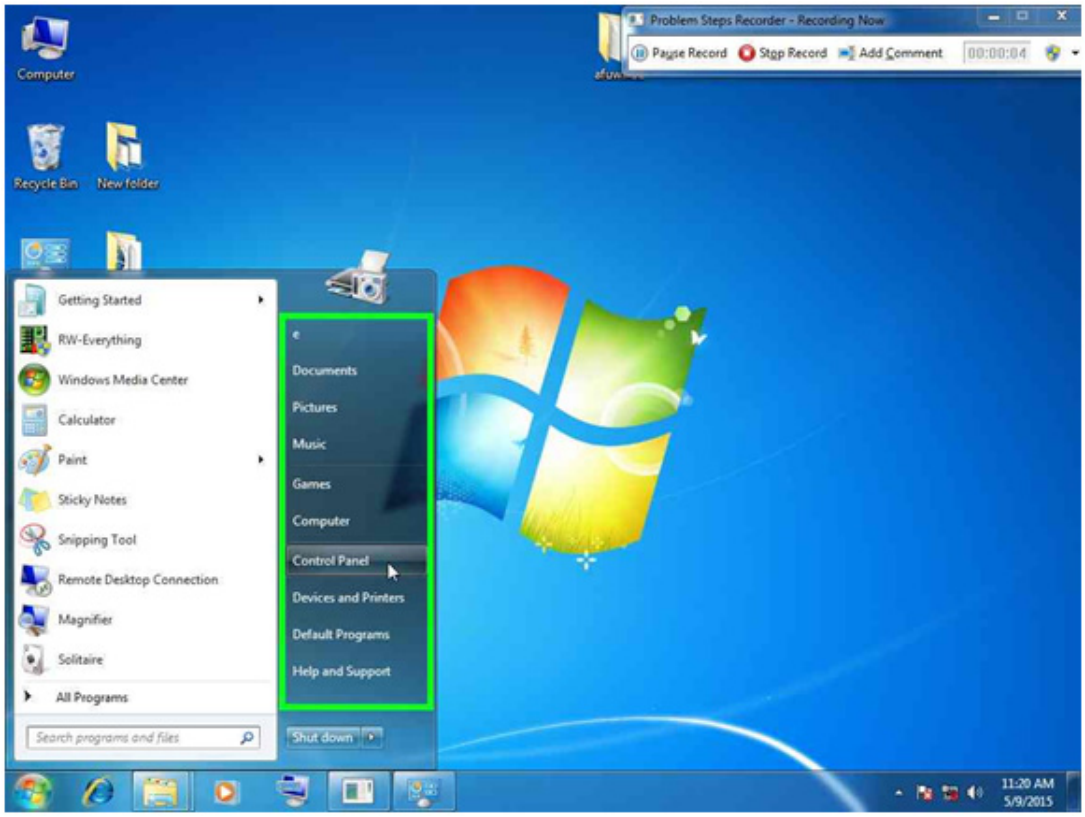
3.2 PS_ON shut down mode setting

Users must set PS_ON as PC system shut down function, make sure there's no other software to shut down system after PS_ON start. The following steps detail how to set PS_ON as the shut down function.

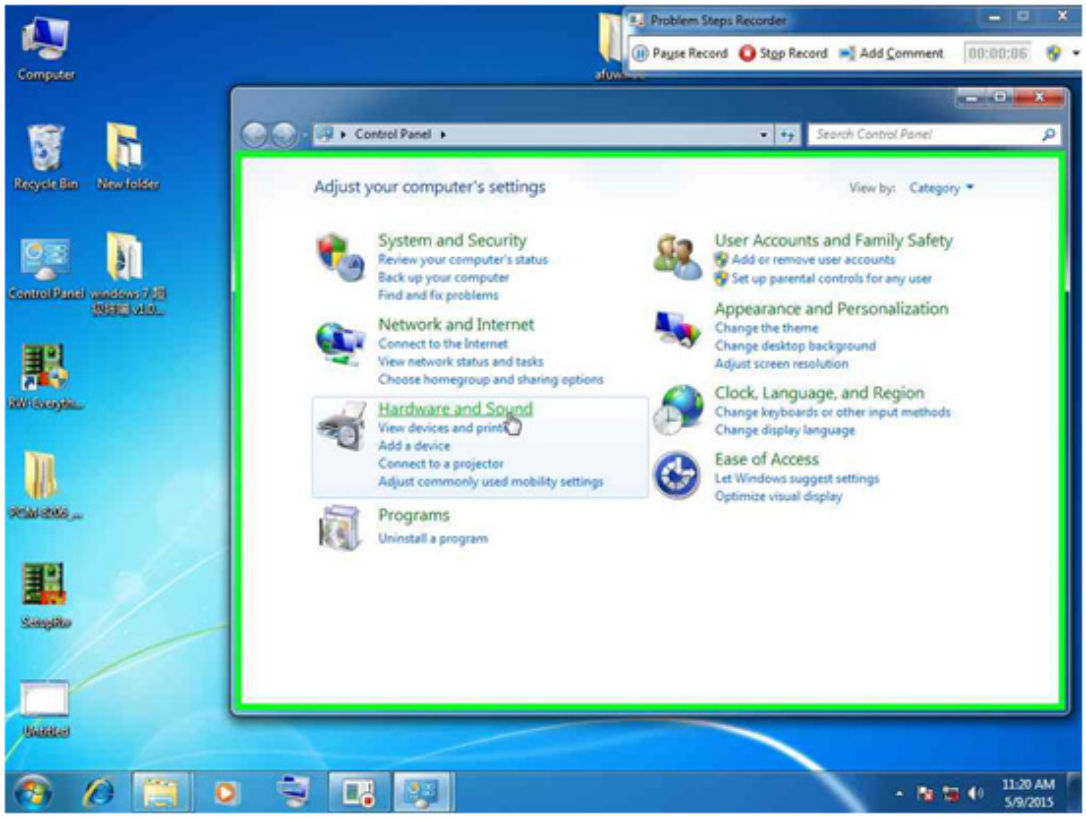
1. Left click on "Start (push button)" in "Start"



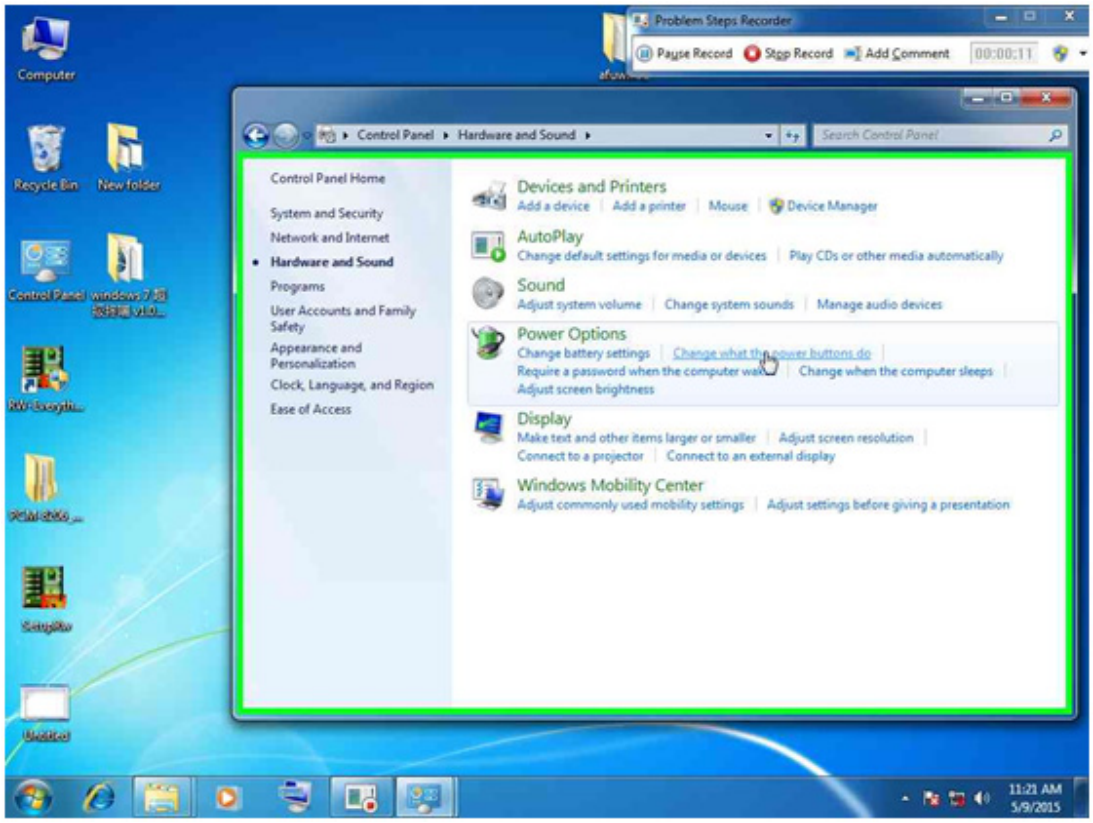
2. Left click on “**Control Panel**” in “**Start menu**”



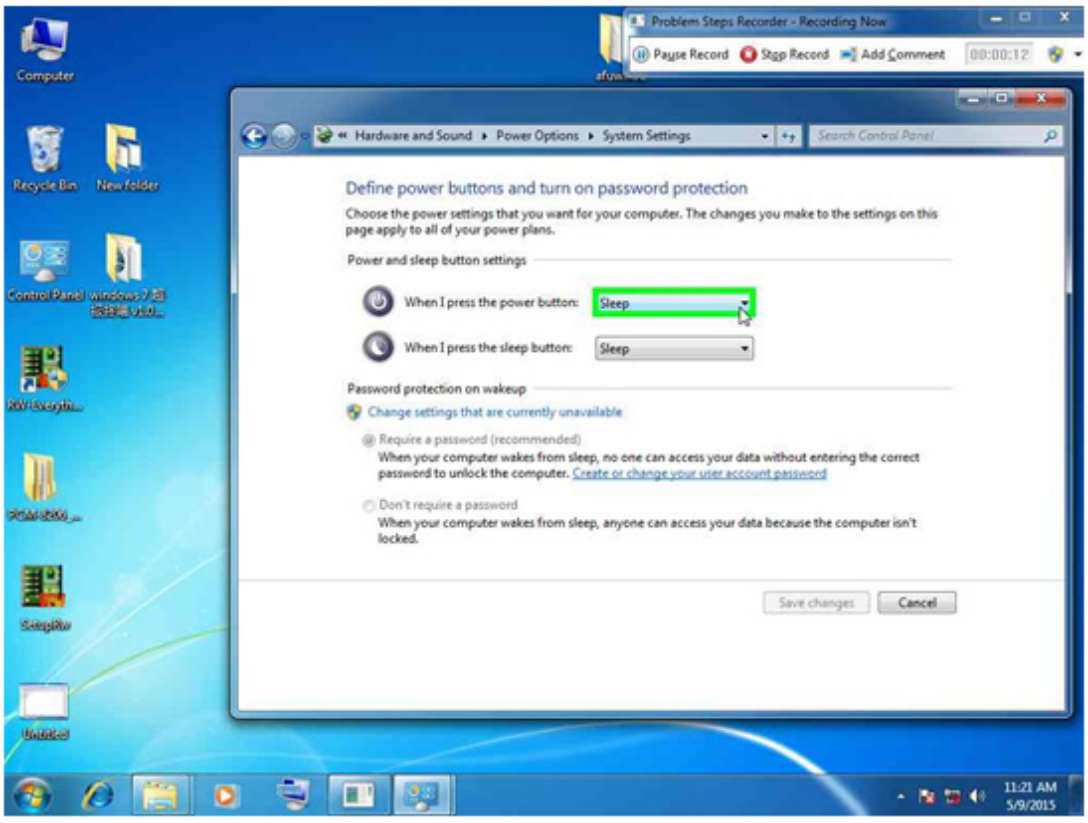
3. Left click on “**Hardware and Sound** ” in “**Control Panel**”



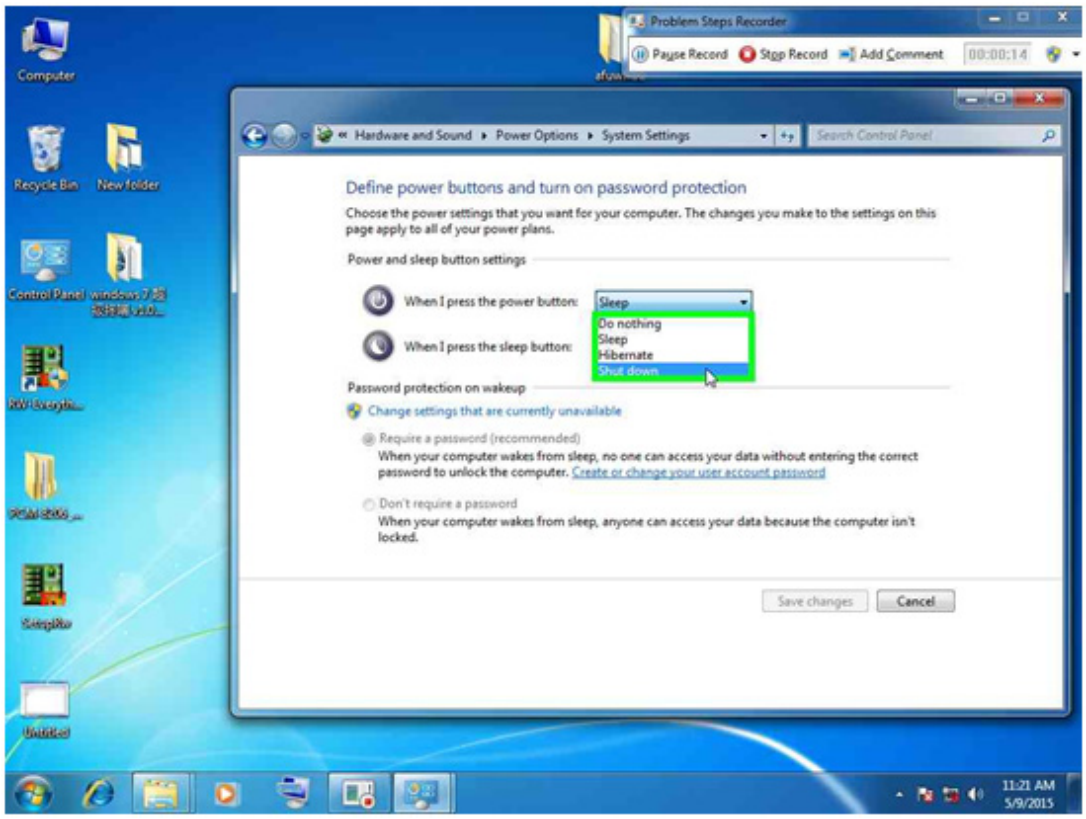
4. Left click on “**Change what the power buttons do**“ in “**Hardware and Sound**”.



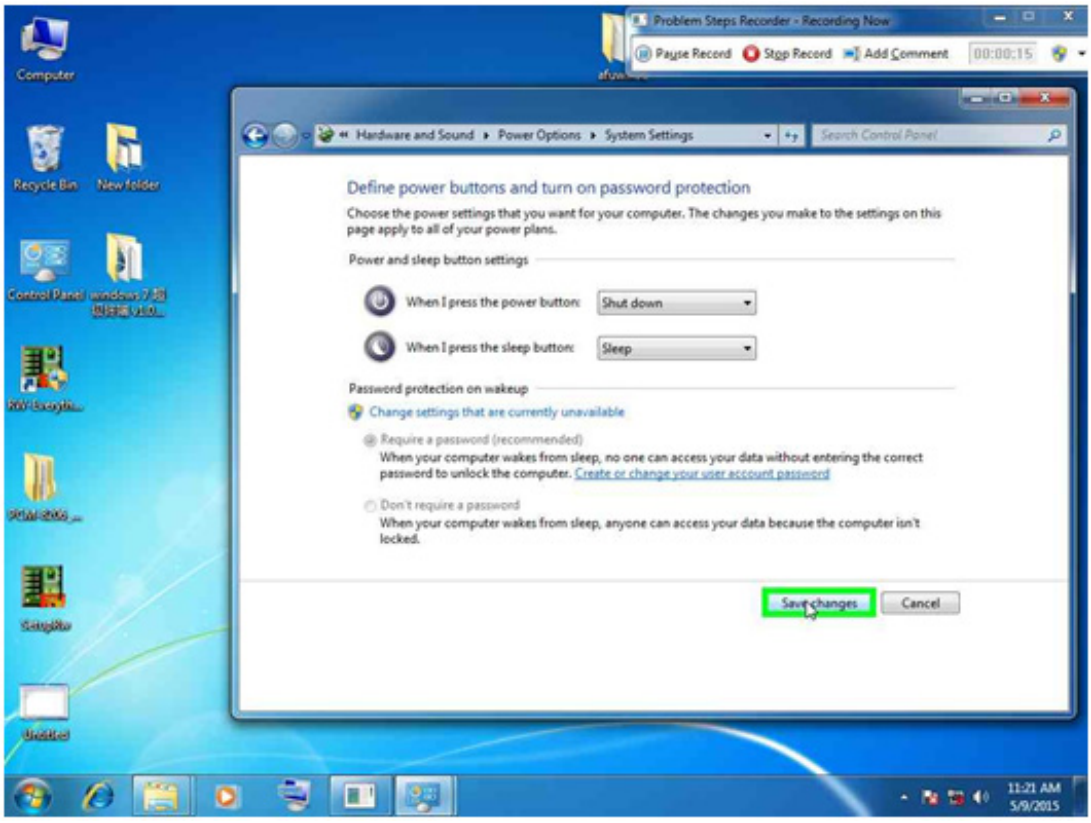
5. Left click on “**Open**” in “**System Settings**”



6. Left click on “**Shut down**”



7. Left click on “**Save changes**” in “System **Settings**”



8. Complete above steps, finish the setting.

Chapter 4

PPC-IPS-AE Adjustment Tool

4.1 Notice of Use

4.1.1 PC support

The PPC-IPS-AE adjustment tool only currently supports the PPC-3000 series.

Note! *Please note this utility will check the PC system ID first.*

If the connected PC isn't in the supported list, this utility will close automatically.

Note! *If your PC is not a PPC-3000 series, contact Advantech for operating with other PC systems.*

4.1.2 Operating System Setting Environment

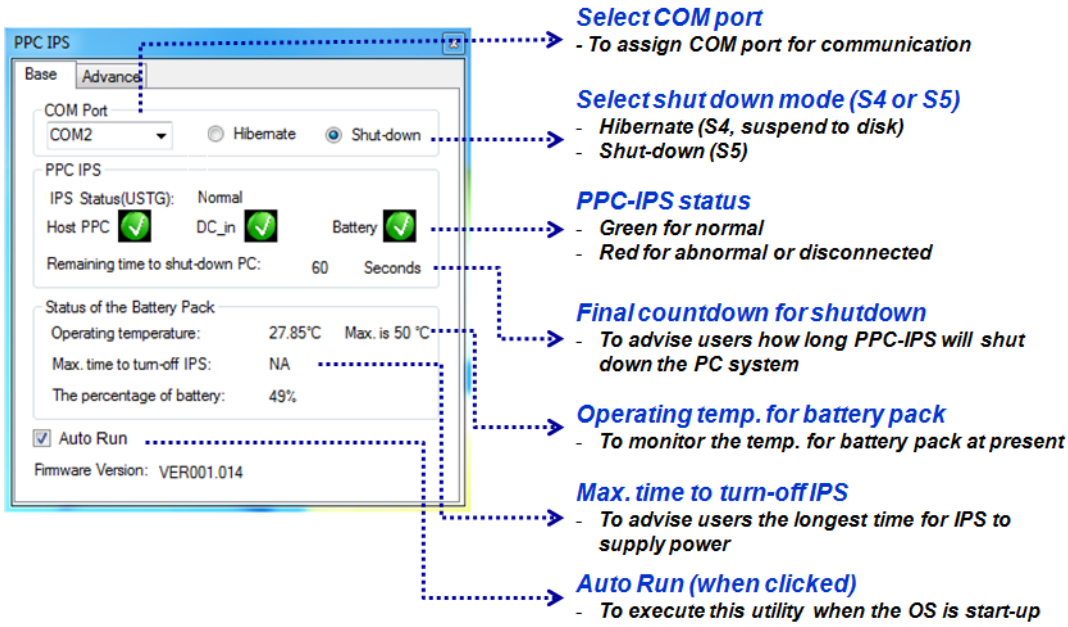
PPC-IPS-AE Adjustment Tool supports **Windows XP/7/8/8.1**. For each operating system, a required **.Net Framework** installation will be necessary. Please refer to the following table for installation.

.Net Framework requirement list:

Operating System	Required SW:	Version
Windows XP	Net framework 2.0	2.0.50727.42
Windows 7	N/A	N/A
Windows 8	Net framework 3.5	3.5.30729.6387
Windows 8.1	Net framework 3.5	3.5.30729.6387

Note! *You can download the required .Net Framework from Advantech Support Website of PPC-IPS.*

4.2 UI Introduction - Base



4.2.1 Select COM Port

Select the COM port that connected with IPS.

4.2.2 Power State Selection (S4 or S5)

This option allows you to select the power status of your PC between hibernation* (S4) or Shutdown* (S5) when IPS activate.

Note!

Hibernation (S4): All data/programs status will be save in storage, and you can resume you previous working state after awakens from S4.

Shut down (S5): A shutdown process can be paused due to the unfinished program execution or unsaved data.

4.2.3 PPC-IPS Status

A brief IPS working status: green means normal and red means abnormal.

Host PPC: indicate if AP connects with PPC correctly or not.

DC-in: represent the DC power source for IPS is normal or not.

Battery: represent the battery of IPS is working normally or not.

4.2.4 Final Countdown for Shutdown

The PPC-IPS-AE will shutdown / hibernate your PC after this time counts down to zero.

Note! *This time can be adjusted between 5 to 360 seconds or maximum battery supply time. Please refer to 4.3.1 and 4.3.2 for further settings.*

Note! *If one provides stable DC power to PPC-IPS-AE before this time counts to zero, this value will automatically be reset and stop counting.*

4.2.5 Operating Temp. for Battery Pack

This section represents you the current battery pack temperature.

Note! *The maximum operating temperature is 50°C.*

4.2.6 Max. Time to Turn Off IPS

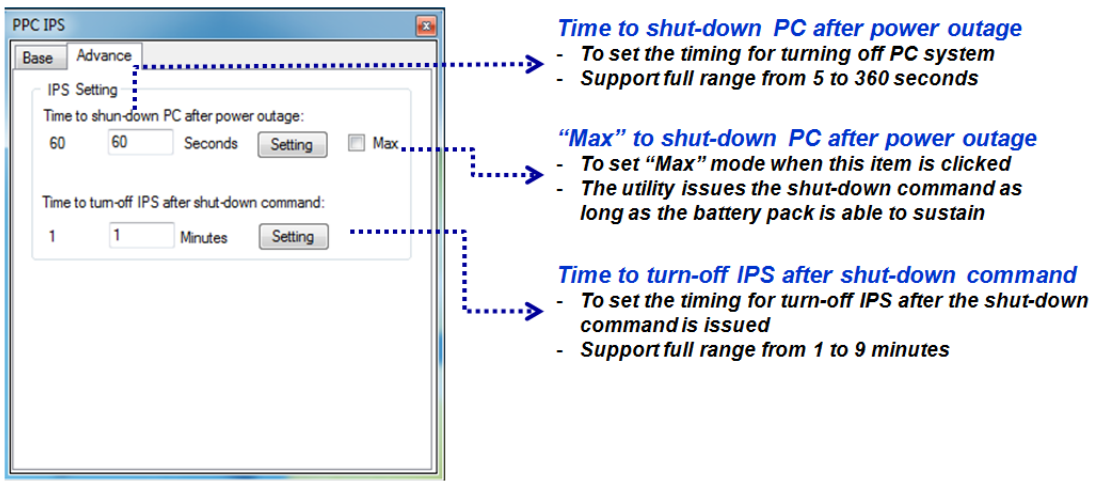
If power shortage happens, this section will display the dynamic estimation time of power supplying from PPC-IPS-AE (battery).

Note! *This time will be adjust based on current power usage of your PC.*

4.2.7 Auto Run

If you check on this option, PPC-IPS-AE Adjustment Tool will automatically run every time you turn on your PC.

4.3 UI Introduction - Advanced



4.3.1 Time to Shut-down PC after Power outage

This advanced setting allows customer to adjust the Final Countdown Time for Shut-down between (4.2.4) 5 to 360 seconds.

4.3.2 "Max" time to Shut-down PC after Power Outage

If users check on this option, the Final Countdown Time for Shutdown will be dynamic with the battery discharge state. PPC-IPS-AE will turn off your PC as soon as the battery reaches 15% or less of power capacity.

4.3.3 Time to Turn-Off IPS after Shut-down command

This parameter can set the time to shut down IPS after sending shut down/hibernate signal to PC for protecting battery life. You can set between 1 to 9 minutes.

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Please verify specifications before quoting. This guide is intended for reference purposes only.

All product specifications are subject to change without notice.