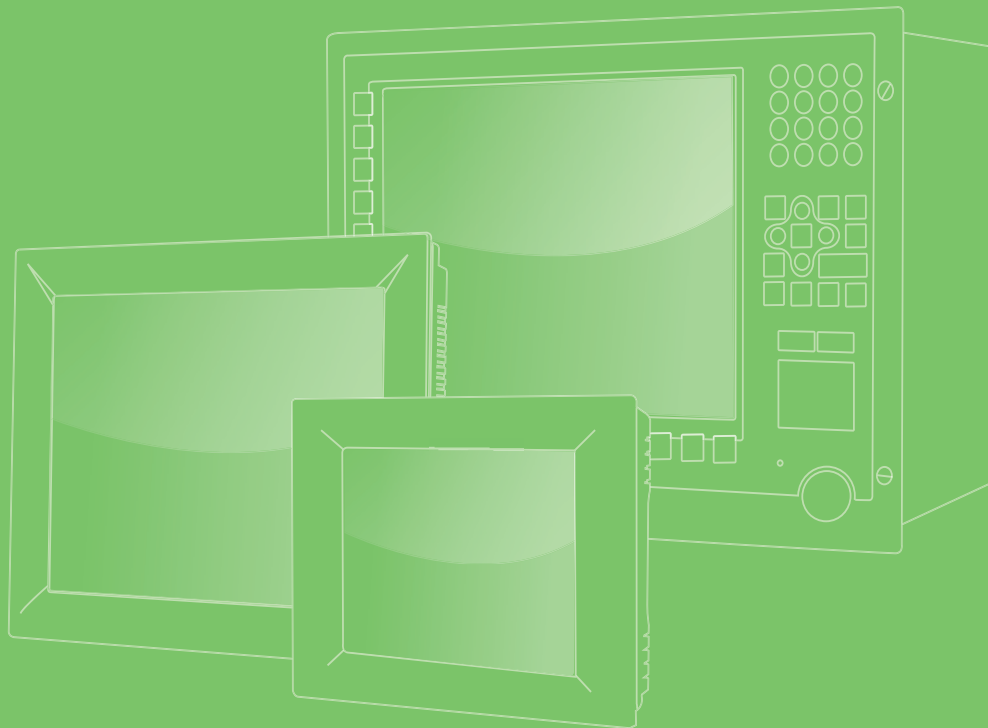


User Manual



SPC-515 Series

Stainless Steel Multi-Touch
Panel Computer with Intel
Skylake Processor

VICPAS
HMI Parts Center

ADVANTECH

Enabling an Intelligent Planet

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This Manual Covers the Following Models:

- SPC-515
SPC-515-633AE; SPC-515-6C3AE; SPC-515-653AE; SPC-515-673AE
SPC515631901-T; SPC515631902-T; SPC515631903-T; SPC515631904-T;
SPC515631905-T;
SPC515632001-T; SPC515632002-T; SPC515632003-T; SPC515632004-T;
SPC515632005-T;
SPC515632101-T; SPC515632102-T; SPC515632103-T; SPC515632104-T;
SPC515632105-T;
SPC515632201-T; SPC515632202-T; SPC515632203-T; SPC515632204-T;
SPC515632205-T;
SPC515632301-T; SPC515632302-T; SPC515632303-T; SPC515632304-T;
SPC515632305-T;
SPC515632401-T; SPC515632402-T; SPC515632403-T; SPC515632404-T;
SPC515632405-T;

ATTENTION!

Pour éviter les chocs. Ne pas retirer le couvercle. Aucune pièce réparable par l'utilisateur. Pour l'entretien adressez-vous aux personnes qualifiées, s.v.p.

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 merchandise 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.

Declaration of Conformity

CE

This product has passed the CE test for environmental specifications when shielded cables are used for external wiring. We recommend the use of shielded cables. This kind of cable is available from Advantech. Please contact your local supplier for ordering information.

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
3. This product is intended to be supplied by a listed power supply complying with UL60950-1; rated 24V_{DC}, 1.5A.

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 60° C (140° 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.**

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.

Caution! *Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.*



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Chapter 1

General Information

1.1 Introduction

SPC-515 is a 15" fully sealed stainless steel multi-touch panel PC. It has an all round IP69k and 304L stainless steel housing which makes it suitable for food & beverage or pharmaceutical industries. With great CPU performance and intuitive multi-touch support, it can be used as either a data visualization gateway or a control panel. SPC-515 is EN 1672-2 compliant to fulfill strict hygiene requirements and the enhanced front glass touch screen is rugged and shatter resistant.

Key features:

- 15" XGA TFT LED LCD display
- Intel Skylake Intel® Core™ U-series processor with independent GPU, advanced graphical performance
- PCT multi-touch
- Built-in function and home key button used for intuitive UI
- Waterproof M12 connectors for I/O
- Supports Mini-PCIe expansion slot
- Front LED indicator shows operating status
- Fanless passive cooling

1.2 Packing List

- 4 x VESA mount screws
- 1 x Registration and warranty card
- 1 x Simplified chinese manual
- 1 x China ROHS list

1.3 Specifications

1.3.1 System Kernel

- **CPU:** Intel Core i3 6100U processor
- **BIOS:** AMI UEFI 128 Mbit
- **VGA:** Intel HD Graphics 620/520/510 (Celeron)
- **Memory:** 8GB SO-DIMM DDR3; DRAM
- **LAN:** 10/100/1000Base-T x 2 (connection:M12 A-coding, 8-pin female)
- **Watchdog Timer:** 1 ~ 255 sec (system)
- **Expansion Slots:** Full-size Mini PCI-E x 1 (optional)
- **Storage:** 2.5" SATA HDD x 1(optional)
- **OS:** Microsoft® Win 10 / Linux

1.3.2 I/O Ports

- **1 Serial Port:** RS-232 x 1 (connection:M12 A-coding, 8-pin male)
- **2 USB Port:** USB 2.0 x 2 (connection:M12 A-coding, 8-pin female)

1.3.3 Safety and Environment

Safety

- FCC Class A
- CE certificated

Environment

- **Operating Temperature:** 0 ~ 50 °C (32 ~ 122 °F)
- **Storage Temperature:** -20 ~ 60°C (-4 ~ 140°F)
- **Humidity:** 40°C @ 10~95% relative humidity (non-condensing, test times: 48hrs)
- **Vibration: With SSD:** 3 Grms (5 ~ 500 Hz) (operating, random vibration)

1.4 LCD Specifications

SPC-515	
Display Type	XGA LED LCD
Size (diagonal)	15"
Maximum Resolution	1024 x 768
Maximum Colors	16.7M
Viewing Angle	176° / 176°
Luminance (cd / m2)	300
Backlight	LED

Note! *There might be several bright or dark pixels on the LCD. This phenomenon is normal in today's LCD manufacturing.*



1.5 Touchscreen Specifications

- **Touch Type:** Projected capacitive
- **Base Glass Construction:** Tempered glass
- **Light Transmission:** ≥88% (measured by BYK-Gardner at 550nm, and the test method accorded to ASTM D1003)
- **Controller:** USB Interface

1.6 Power

- **Input Voltage:** 24V_{DC} (Typical)
- **Power Consumption:** 60W (Typical)

This product is intended to be supplied by a listed power adapter or DC power source, rated 24Vdc, 2.5A minimum and Tma 55°C minimum, if you need further assistance, please contact Advantech for further information.

1.7 I/O Ports Arrangement

The arrangement of the I/O ports is shown in Figure 1.1.

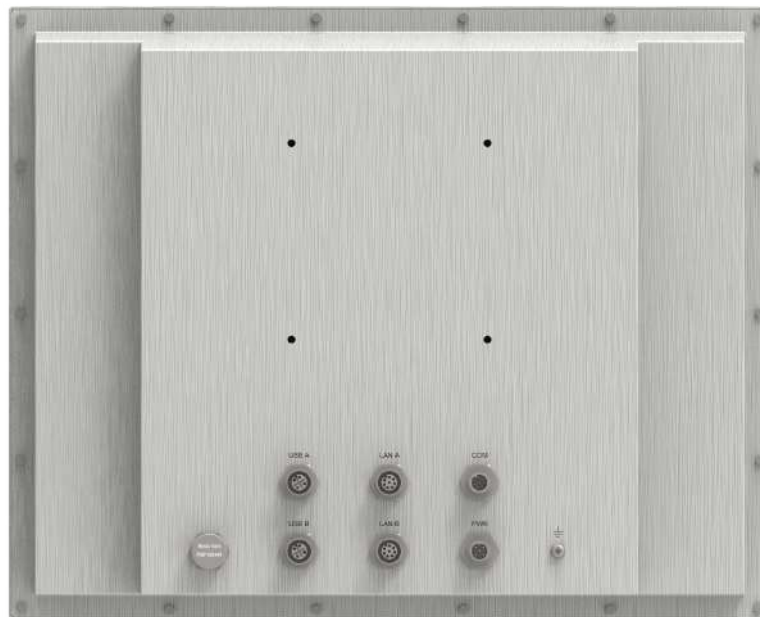


Figure 1.1 SPC-200 Rear View- I/O Port Arrangement

1.8 VESA Mounting

The SPC-200 has been designed with support for the VESA mount standard which supports 100mm standard VESA dimension holes (Refer to figure 1.2.). Use M4 screws (Length 8mm to 10 mm).

Warning! Use suitable mounting apparatus to avoid risk of injury.

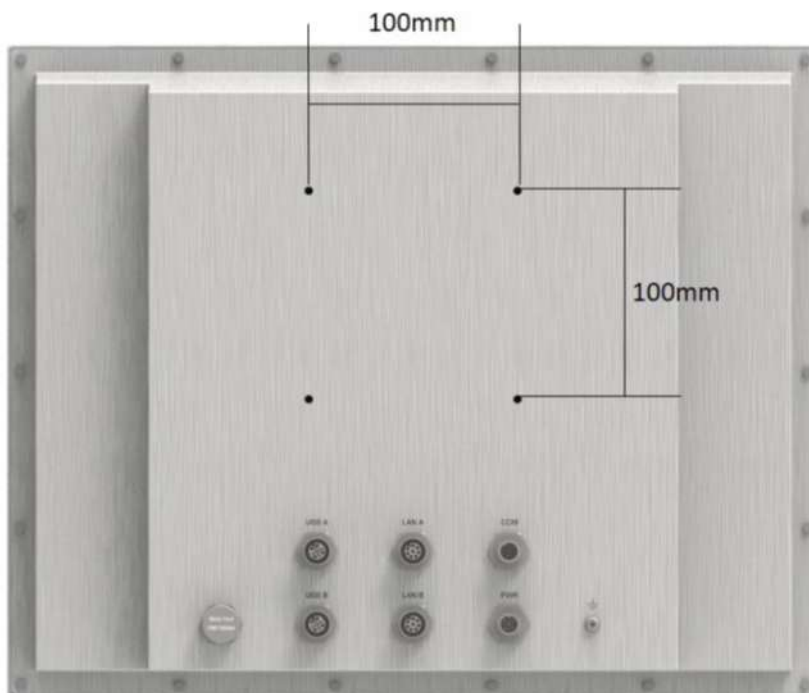


Figure 1.2 VESA Mounting

1.9 Dimensions and Cutout

SPC-515

- **Weight:** 10kg
- **Dimensions (W x H x D):**
 - 389.6 x 313.7 x 56 mm (15.33 x 12.34 x 2,2 in)

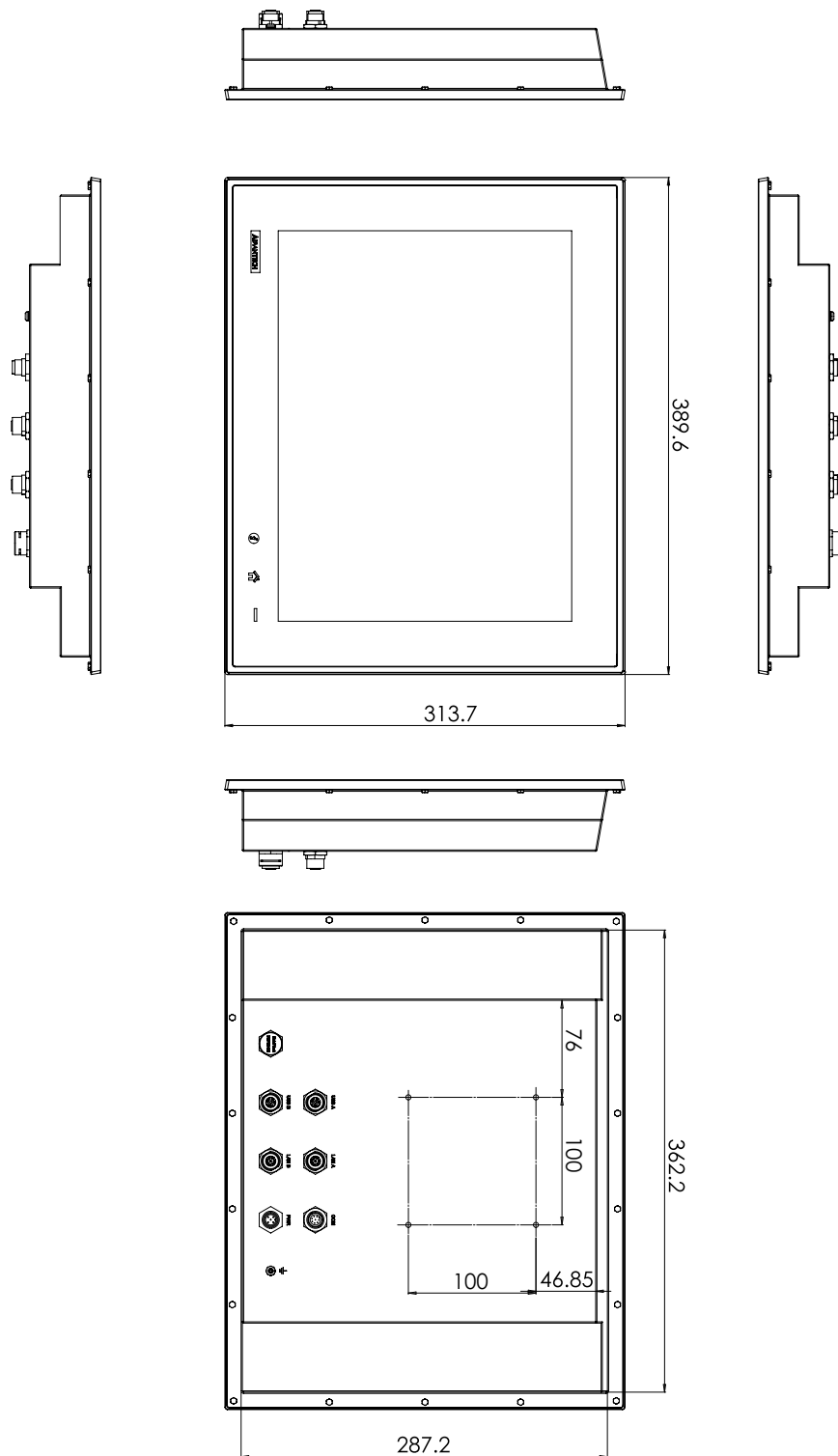


Figure 1.3 SPC-218 Dimensions

Chapter 2

System Setup

2.1 System Setup

You can easily get SPC started by following the below steps.

1. Unpack the SPC package. Check the packing list at the beginning of this manual to make sure all items have been included.



Figure 2.1 Unpack the Package

2. Connect the power connector with M12 connector to the 24 V_{DC} power lines. The power lines can either be of some power adapter or in-house power source.

3.

Power Input	Pin Number	Signal	(Male)
M12-A-5P-M Power	1	DC 24V-	
	2	DC 24V-	
	3	DC 24V+	
	4	DC24V+	
	5	F_GND	

Figure 2.2 Pin Definition of Power Connector

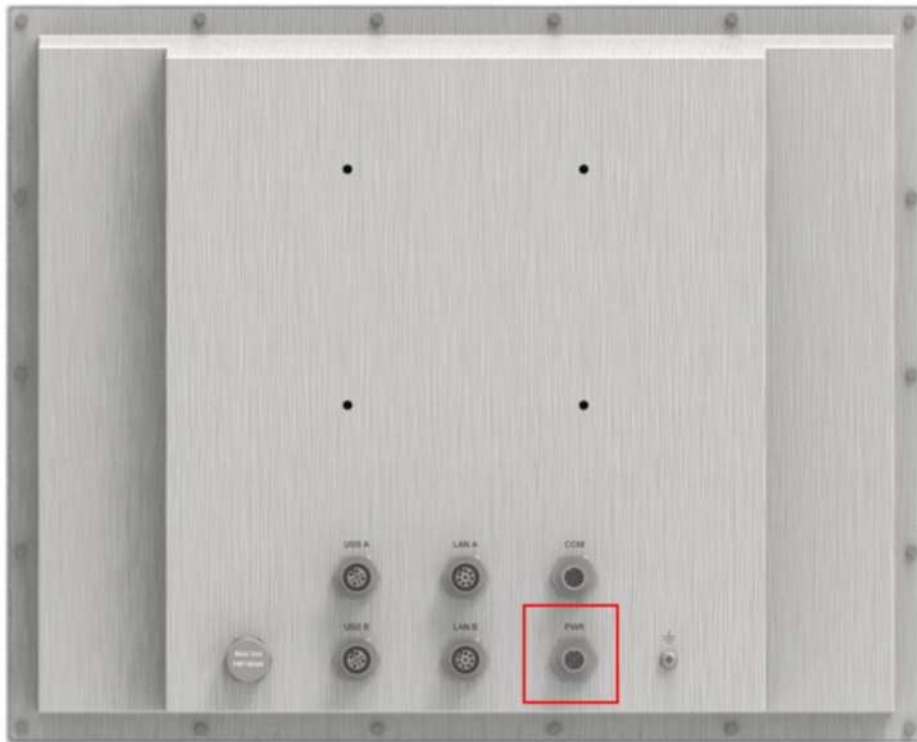


Figure 2.3 Power Receptor with M12 Connector

4. Plug the power lines into the system power receptor with M12 connector.
5. Power on the system.

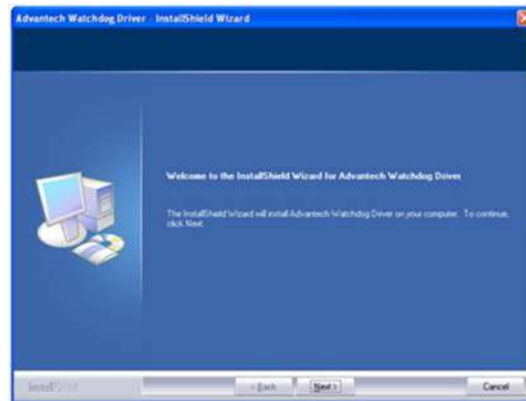
2.2 Installing the Drivers

2.2.1 Installation of Touch Screen Driver

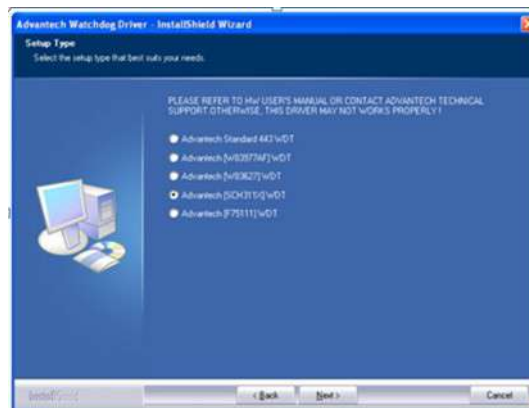
SPC-218/221 will use the built-in PCT touch driver in the OS if operating under Windows 10.

2.2.2 Installation of Watchdog Driver

1. Enter into Watchdog folder, double click AdvWDT icon, and then click **Next** under InstallShield Wizard window.



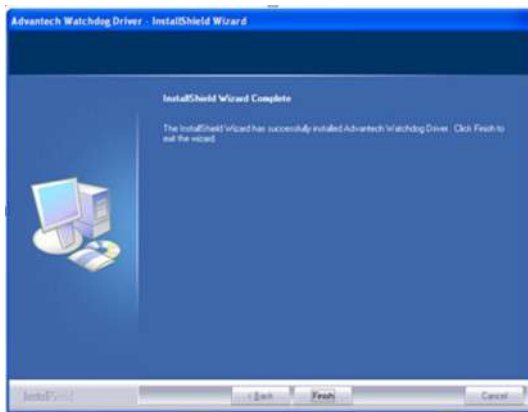
2. Select "Advantech [SCH311X] WDT" and click "Next".



3. Click "Install".



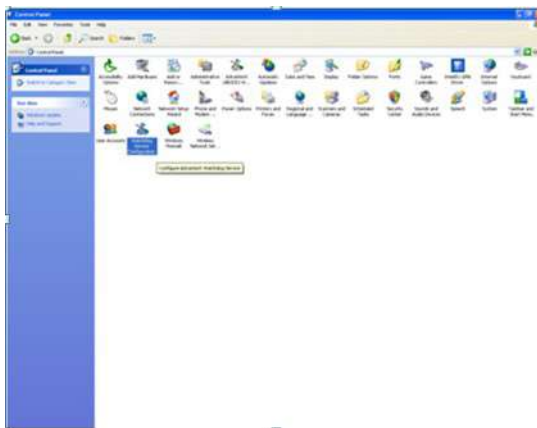
- Click "Finish" to finish the installation.



- Select "Yes, I want to restart my computer now" and click "OK".



- After installing Watchdog driver, a "Watchdog Service Configuration" icon will show in control panel.



7. Double click the "Watchdog Service Configuration" icon, and you can configure the Watchdog timer function.



2.2.3 Installation of Graphic Driver

1. Enter into TS folder, enter into "graphic driver for Windows 7" Driver folder and double click setup icon, and then click **Next** under setup wizard window.



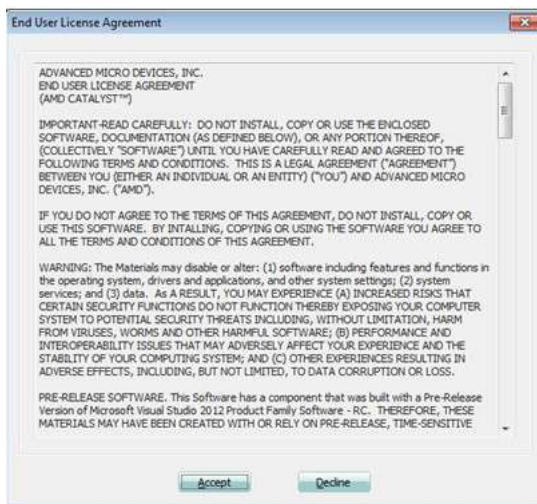
2. Click **Install**.



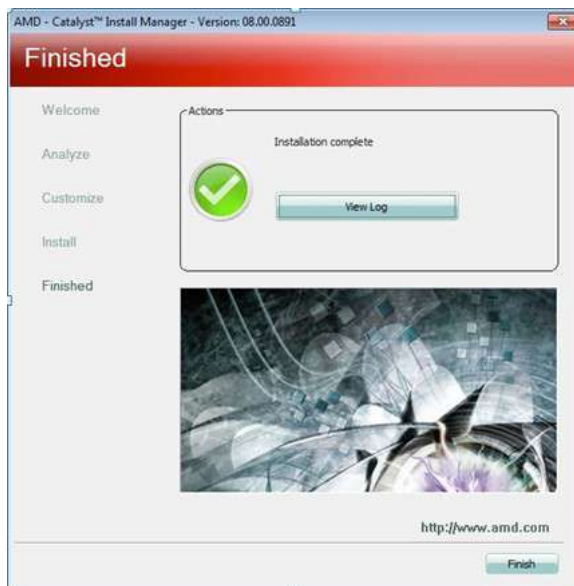
3. Select "Express" and click **Next**.



4. Click **Accept**.

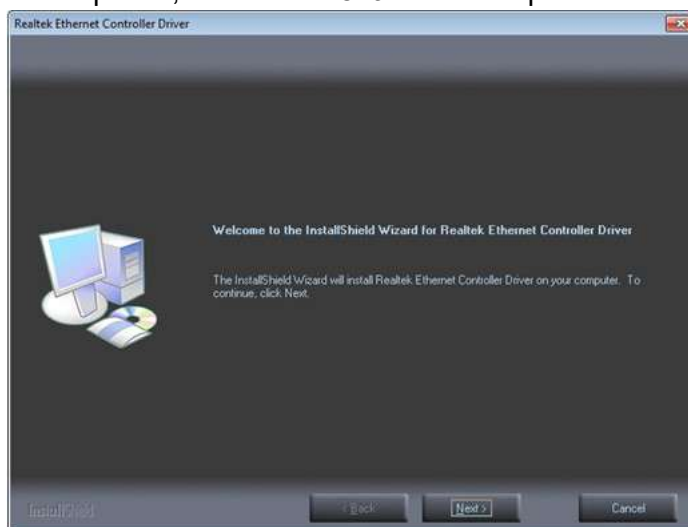


5. Click **Finish** to finish the installation.

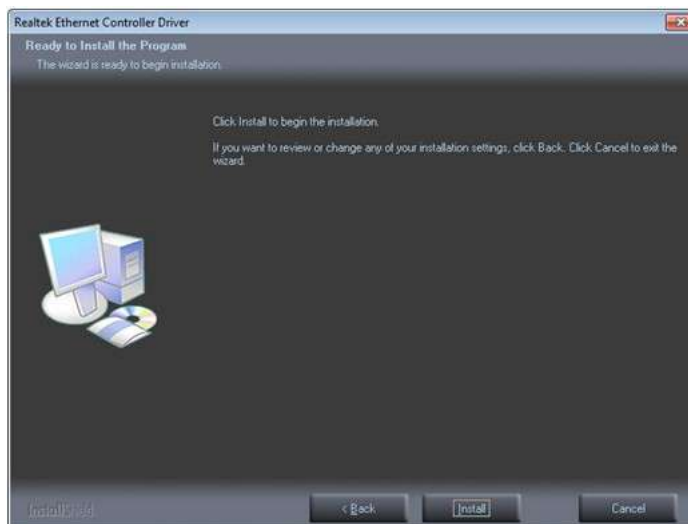


2.2.4 Installation of LAN Driver

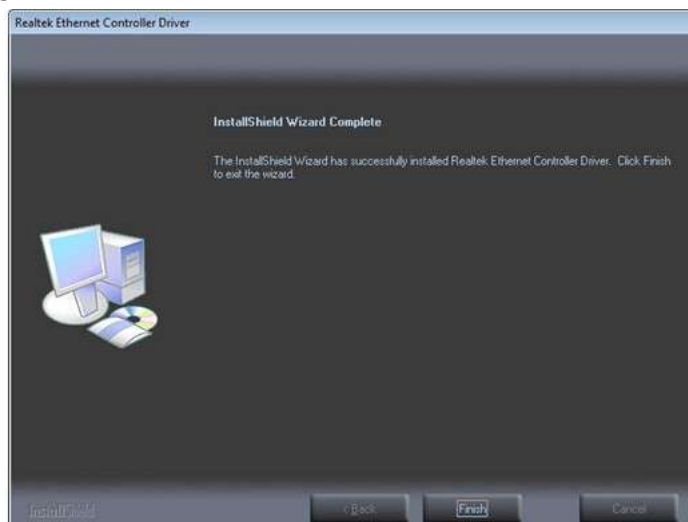
1. Enter TS folder, then go to "Ethernet driver for Windows 7 Driver" folder and
1. Double click setup icon, then click **Next** under setup wizard window.



2. Click **Install**.

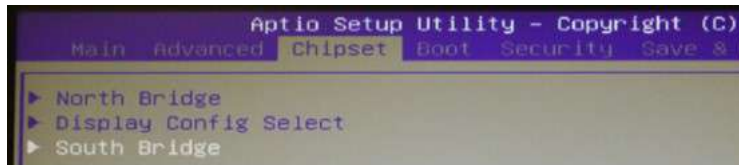


3. Click **Finish** to finish the installation.

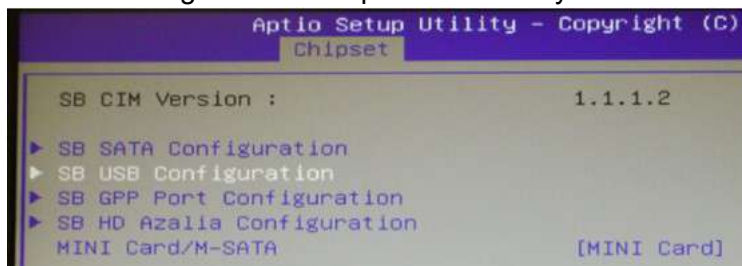


2.3 Wake up from Suspend Mode

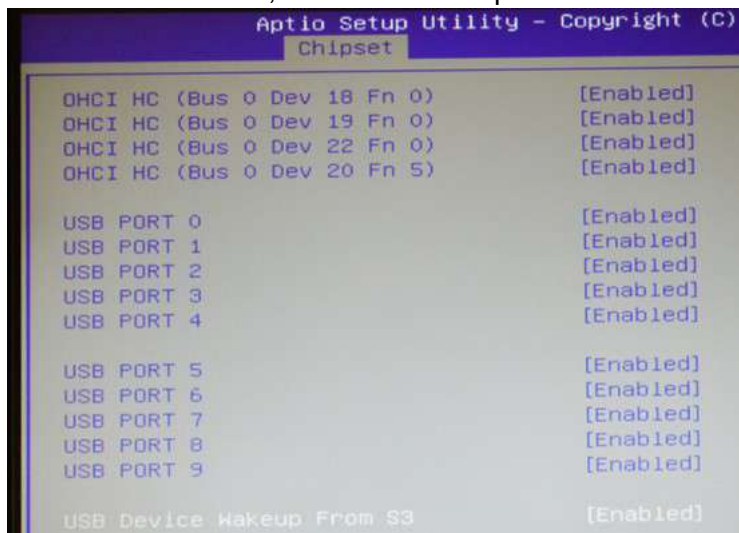
1. SPC-515 can wake up from Suspend Mode (S3) by touch and USB devices (For example USB mouse or USB keyboard).
2. User can disable USB wake up function through BIOS setting as follows.
 - a. Press **Delete** key on the keyboard to go into the BIOS setup utility, then select chipset / south bridge and press **Enter** key.



- b. Select "SB USB Configuration" and press **Enter** key.



- c. Select "USB Device Wake up from S3" and change to **Disable** than save your change and exit. After reboot, the USB wake up function will be disabled.



Chapter 3

Features in Windows
Embedded

3.1 Features in Windows Embedded

SPC products support the embedded Windows platform. This section outlines the important features (EWF and HORM), that are provided in Windows XP embedded.

3.2 EWF

EWF stands for Enhanced Write Filter. It provides an upper filter in the storage device driver stack that redirects disk write operations to volatile (RAM) or non-volatile (disk) storage. EWF protects a volume from write access. The benefits are as the following.

Write-protect one or more partitions on your system.

Enable read-only media, such as CD-ROM or flash, to boot and run.

Prolong the lifespan of write-sensitive storage, such as CompactFlash.

SPC-218/221 XPE provides EWF RAM-REG mode on system partition. All writes to the system partition will be redirected to RAM once this mode is enabled. This mode is manually enabled by customers after they finish all their changes on the system such as installing their applications or adjusting system settings.

Advantech provides a pair of utilities to operate EWF, OSLock and OSUnlock. Refer to the training slide in the folder: "Advantech XPe Add-one.pdf".

3.3 HORM

HORM stands for Hibernate Once Resume Many. In HORM environment, a single hibernation file is used to boot the system repeatedly. To set a HORM environment, please follow the steps below.

Make sure EWF is disabled. You can run OSUnlock to disable EWF.

Enable hibernation support:

Run "power options" in control panel, and then select "Enable Hibernation" in hibernation pane.

Enable EWF:

Run OSLock, and then system reboot automatically.

Open those software that customers want to directly use after system resume from hibernation.

Hibernate via Advantech HORM utility:

Click **Start Menu->All Programs->Advantech->AdvWF**

HORM environment remains all along unless the following events occur:

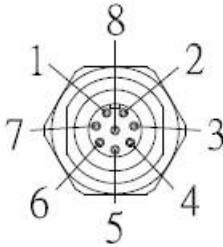
Run EWF commit command (ewfmgr c: -commit) and then reboot system.

Select "Discard hibernation file" by clicking F8 when system is starting up.

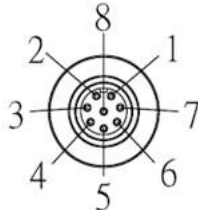
Appendix **A**

M12 connector I/O pin
definition

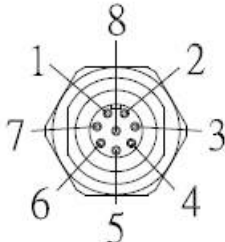
A.1 LAN1 / LAN2 Pin Definition with M12 Connectors

LAN	Pin Number	Signal	(Female)
M12-A-8P-F LAN	1	TX_D1+	
	2	TX_D1-	
	3	RX_D2+	
	4	BI_D3+	
	5	BI_D3-	
	6	RX_D2-	
	7	BI_D4+	
	8	BI_D4-	


A.2 RS-232 Pin Definition with M12 Connector

RS-232	Pin Number	Signal	(Male)
M12-A-8P-M RS-232	1	CD	
	2	RXD	
	3	TXD	
	4	DTR	
	5	GND	
	6	DSR	
	7	RTS	
	8	CTS	

A.3 USB Pin Definition with M12 Connector

USB	Pin Number	Signal	(Female)
M12-A-8P-F USB	1	Vcc	
	6	D-	
	3	D+	
	5	Vss	
	8	Shielding	

A.4 Power Input Pin Definition with M12 Connector

USB	Pin Number	Signal	(Male)
M12-A-5P-M Power	1	DC 24V-	
	2	DC 24V-	
	3	DC 24V+	
	4	DC 24V+	
	5	F_GND	

Appendix **B**

UI Operating Process

B.1 UI Operating Process

This section tells you how to operate the HMI utility (GL_Utility), you can download the utility from Advantech's product support portal of SPC-218/221 at <http://support.advantech.com>. See the process below:

1. There are 2 function buttons in the lower right corner of the front panel, "I" icon is the "intelligent" key while the house icon is the "home" key.



Intelligent Icon



Home Icon

Table B.1: Status Indicator Table

Indicator	Status
Blue	Power on
Orange	Stand by
No light	Off



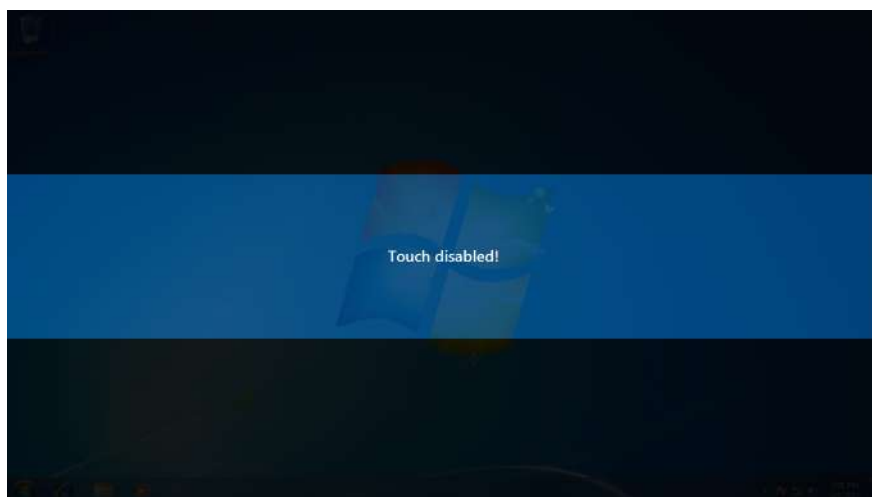
2. Press Home Key->

Home - Execute Home-key App (Set up in setting page)

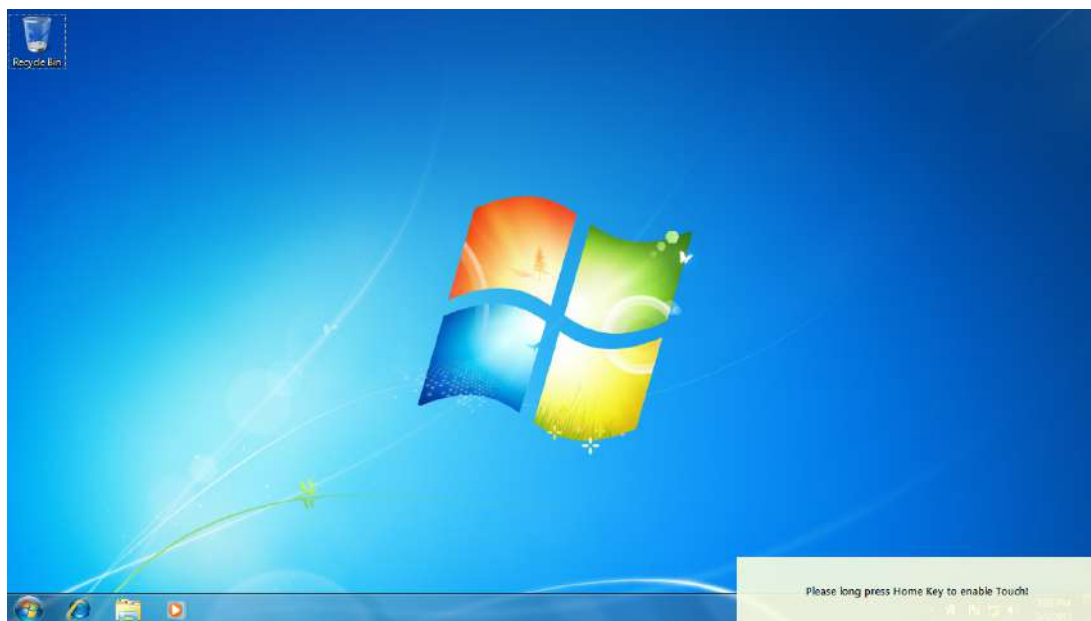


3. Long press Home Key->

Home - Long press to disable / enable touch function

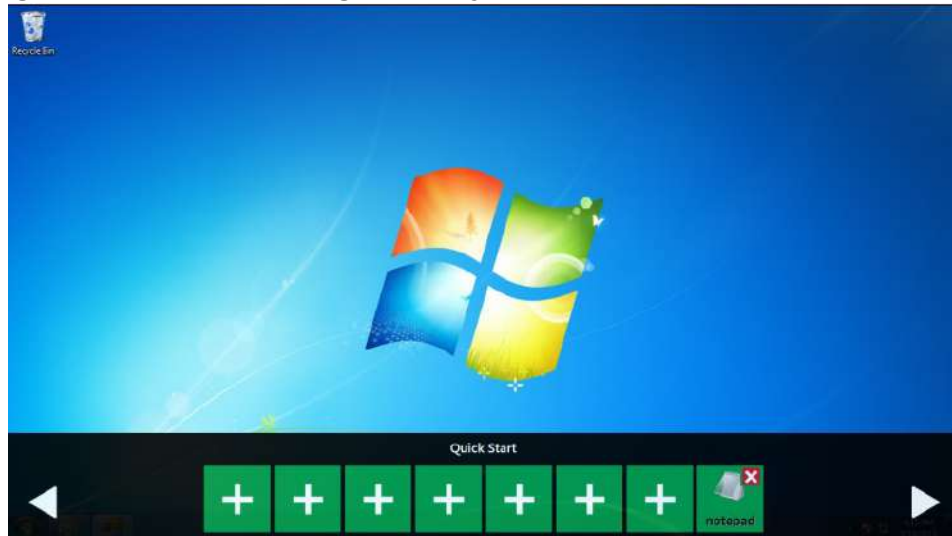


Note! When touch function is disabled, you'll see a message in the lower right corner of the screen.



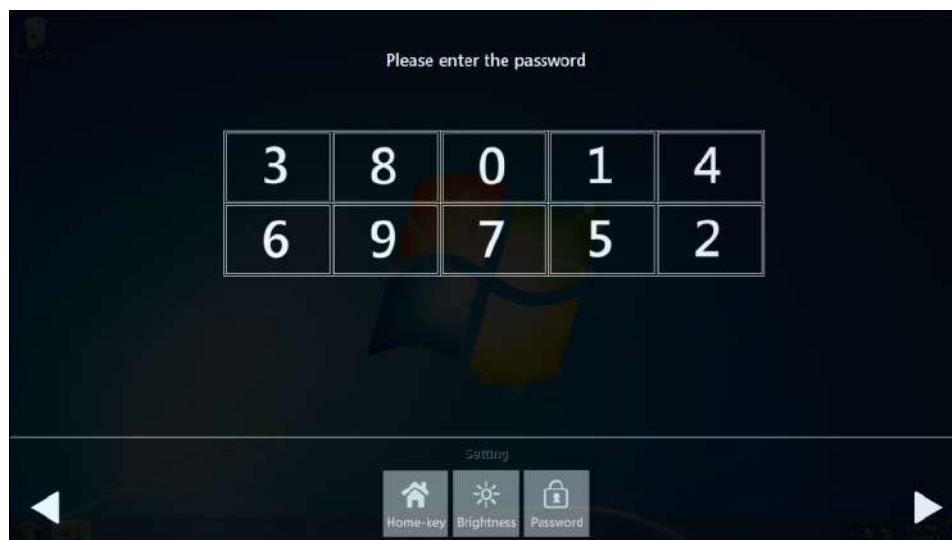
4. Press Intelligent Key->

Intelligent - Advantech Intelligent Utility



A. Quick start->

- Press “+” to add shortcut.
- Long press the icon to perform “right click” until an “X” mark appears in upper right corner to “delete”.

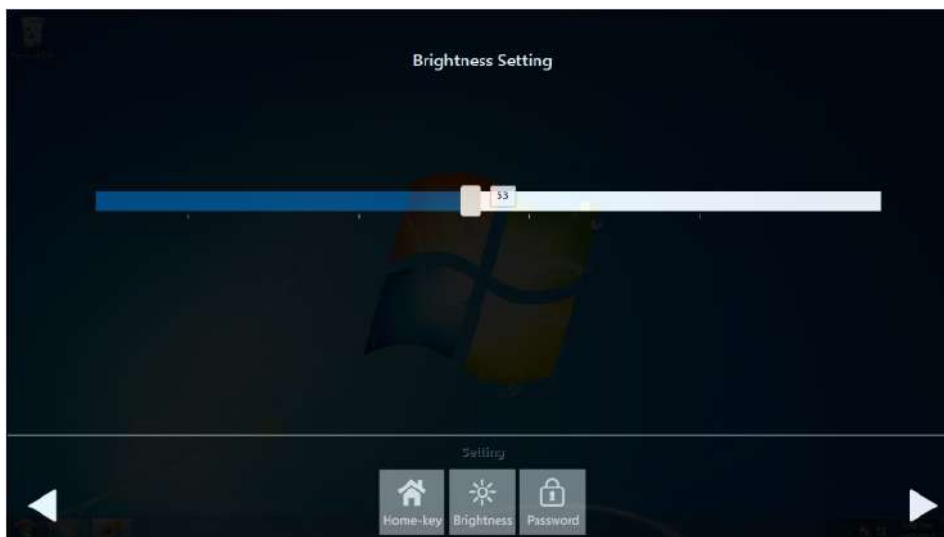


B. Setting ->

Password confirmation for authority confirmation is needed when you first log in, default password is "1234" without input order to active.



- Setting - Home-key: Select an executable file to set up as "Home-key" App, in default path is to show "desktop".

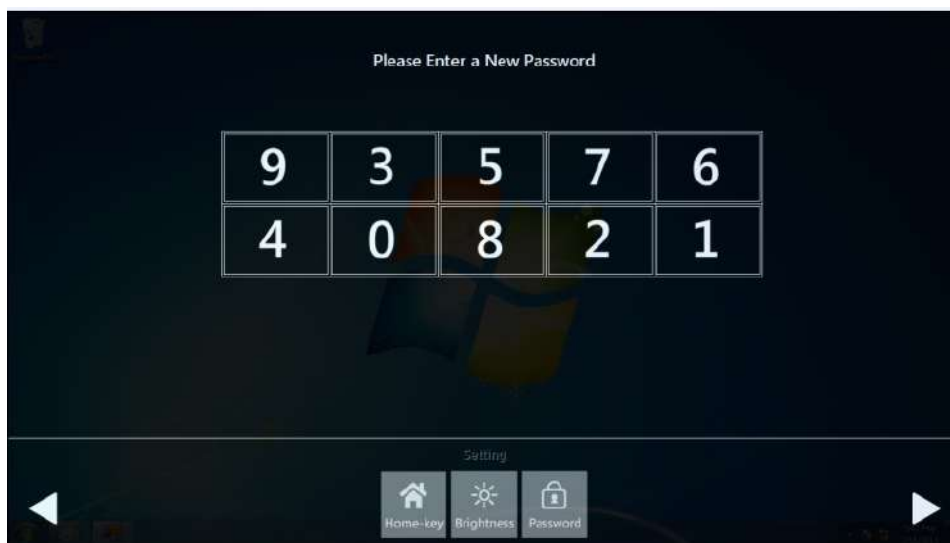
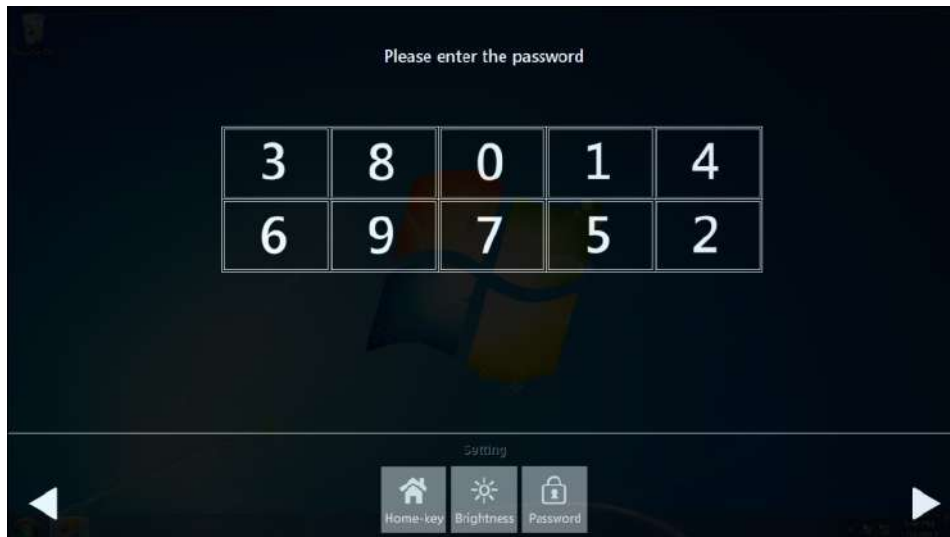


- Setting - Brightness: Brightness control from 1 to 8.

Note! *If you use other brightness setting tools such as iManager, remember not to adjust below 10 percent to prevent a black screen.*



- Setting - Password: Change password function.



C. System management->

– System information:





– Self Diagnosis:



Note!* *SPC-218/221 also provides open button code as following definition for customer's configuration to their Apps/SW applications. The codes are defined from general keyboard input.*



Table B.2: Button Code Hotkeys		
	One press	Long press
I - Intelligent Key Icon) 	Ctrl+Shift+Alt+I	Ctrl+Shift+Alt+U
H - Home Key Icon 	Ctrl+Shift+Alt+H	Ctrl+Shift+Alt+L

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