CCD-07W01 /

CCD-10W01 series

Panel PC

USER Manual

2nd Ed –17 October 2017

Copyright

Declaration of Conformity

CE Conformity Statement

Radio products with the CE alert marking comply with the R&TTE Directive (1999/5/EC) issued by the Commission of the European Community. Compliance with this directive implies conformity to the following European Norms (in brackets are the equivalent international standards)

■ EN 60950-1 (IEC60950-1) - Product Safety

Products that contain the radio transmitter are labeled with CE alert marking and may also carry the CE logo.

FCC Compliance Statement

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. The device may not cause harmful interference;
2. The device must accept any interference received, including interference that may cause undesired operation.

⚠ CAUTION!

The radiated output of this device is far below the FCC radio frequency exposure limits. Nevertheless, the device shall be used in such a manner that the potential for human contact during normal operation is minimized. When connecting an external antenna to the device, the antenna shall be placed in such a manner to minimize the potential for human contact during normal operation. In order to avoid the possibility of exceeding the FCC radio frequency exposure limits, human proximity to the antenna shall not be less than 20 cm (8 inches) during normal operation.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try and correct the interference by one or more of the following measures.

However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

■ Reorient or relocate the receiving antenna

- Increase the separation between the equipment and receiver
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected
- Consult the dealer or an experienced computer technician for help

Technical Support and Assistance

1. Contact your distributor or sales representative 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 peripherals attachments
   - Description of your software (OS, version, application software, etc.)
   - A complete description of your problems
   - The exact wording or any error messages

Safety Instruction

Use the following safety guideline to help protect yourself and CCD.

- Do not attempt to service the CCD yourself. Always follow installation instructions closely.
- Be sure that nothing rests on the AC adapter's power cable and that the cable is not located where it can be tripped over or stepped on.
- Do not cover the AC adaptor with papers or other items that will reduce cooling; also, do not use the AC adapter while it is inside a carrying case. Use only the AC adapter, power cord, and batteries that are approved for use with this CCD. Use of another type of battery or AC adapter may cause risk of fire or explosion.
- If you use an extension cable with the AC adapter, ensure that the total ampere rating of the products plugged in to the extension cable does not exceed the ampere rating of the extension cable.
- When you move the CCD between environments with very different temperature and/or humidity ranges, condensation may form on or within the CCD. To avoid damaging the CCD, allow sufficient time for the moisture to evaporate before using the CCD.
- When you disconnect a cable, pull on its connector or on its strain relief loop, not on the cable itself. As you pull out the connector, keep it evenly aligned to avoid bending any connector pins. Also, before you connect a cable make sure both connectors are correctly oriented and aligned.

Battery Safety

RTC Battery Caution

RISK OF EXPLOSION IF BATTERY IS REPLACED BY AN INCORRECT TYPE. DISPOSE OF USED BATTERIES ACCORDING TO THE INSTRUCTIONS.

- Do not place the battery incorrectly as this may cause danger of explosion.
- Dispose of used batteries according to the manufacturer's instructions.
- Do not dispose of batteries in a fire. They may explode. Check with local authorities for disposal instructions.

⚠️ **_CAUTION!_**

- The battery used in this device may present a risk of fire or chemical burn if mistreated. Do not disassemble, heat above 50°C, or incinerate. Replace the battery with certified CR2032 only. Use of another battery may present a risk of fire or explosion.
- Dispose of used batteries according to local disposal regulations. Keep away from children. Do not disassemble and do not dispose of in a fire.

Contents

CHAPTER 1

Understanding Your CCD

Thank you for choosing the CCD series product. We will start here to introduce the basics of CCD. Information described in this chapter includes: features, specification, packing list, I/O ports and appearance giving you an overall picture about your embedded panel PC.

1.1 Product Features

- Cross-platform capability to satisfy versatile application needs
- Streamline, modern design with IPS panel and projected capacitive multi-touch screen, giving excellent user experiences
- Ease integration and configuration effort with rich I/O and wireless communication technology
- Scratch resistance, no moving parts, maintenance free
- Standard VESA mount support, simplifying the field installation

1.2 Technical Specification

Specification		7"	10.1"
Display	Resolution	1024 x 600	1280 x 800
	Luminance	300 nits	350 nits
	Type	TFT LED-backlit TN LCD	TFT LED-backlit IPS LCD
Touch	Type	10-point projected capacitive touch screen	
System	CPU & Chipset	Intel® Atom™ Z3735G QC 1.33GHz Processor with Turbo Boost to 1.83GHz	
	Memory	Onboard 2GB DDR3L 1600 MT/s (Z3735F)	
	Storage	Onboard 32G eMMC	
Power	Input Voltage	12 – 24 VDC	
	Type	AT mode	
	Battery	1 x RTC battery	
I/O	Power	1 x DC-in Jack	
	HDMI	1 x Standard HDMI 1.4a	
	USB	2 x USB 2.0	
	LAN	1 x RJ-45	
	Audio	1 x 3-pole 3.5mm Headphone Jack	
Ethernet	Speed	10/100	
Communication	Wi-Fi	Built-in 802.11 b/g/n	
	Bluetooth	Built-in Bluetooth 4.0	
OS Support	Windows	Windows 10 IoT	
	Android	Android 5.1	
	Linux	Ubuntu 16.04 (kernel: V4.5)	
Mechanical	Construction	Plastic	
	Dimension	191 x 124 x 30 mm	261 x 175 x 34 mm
	Weight	580 g	800 g
	Mounting	VESA (75 x 75)	
Environmental	Temperature	Operating Temperature: 0°C ~ +40 °C	
		Storage Temperature: -20°C ~ +60°C	

	Relative Humidity	0 ~ 90%@40°C (non-condensing)
	Vibration	IEC 60068-2-64, random, 5Grms 5-500Hz, 1Oct./min, 1hr/axis
	Shock	IEC 60068-2-27, half sine, 50G, 11ms
Certification	EMC	CE/FCC Class B
	Safety	CB

1.3 Checking the Delivery Package

1.3.1 Procedure

1. When accepting a delivery, please check the packaging for visible transport damage.
2. If any transport damage is present at the time of delivery, lodge a complaint at the shipping company in charge. Have the shipper confirm the transport damage.
3. Unpack the device at its installation location.
4. Keep the original packaging in case you have to transport the unit again.

NOTICE!

Damage to the device during transport and storage!

If a device is transported or stored without packaging, shocks, vibrations, pressure and moisture may impact the unprotected unit. A damaged packaging indicates that ambient conditions have already had a massive impact on the device.

The device may be damaged.

Do not dispose of the original packaging. Pack the device during transportation and storage.

1.3.2 Packing Contents

Before setting up the system, please check the contents of the packaging and any accessories you may have ordered for completeness and damage. If the contents of the packaging are incomplete, damaged or do not match your order, inform the responsible delivery service or contact your dealer immediately.

- CCD x 1
- 40W/19V Adaptor x 1
- 3-pin power cord

1.4 Optional Accessories

This chapter contains the scope of accessories valid at the time these operating instructions were written.

- 60W/12V adapter with power cord
- 65W/19V adapter with power cord

1.5 Exploring CCD

1.5.1 Dimension
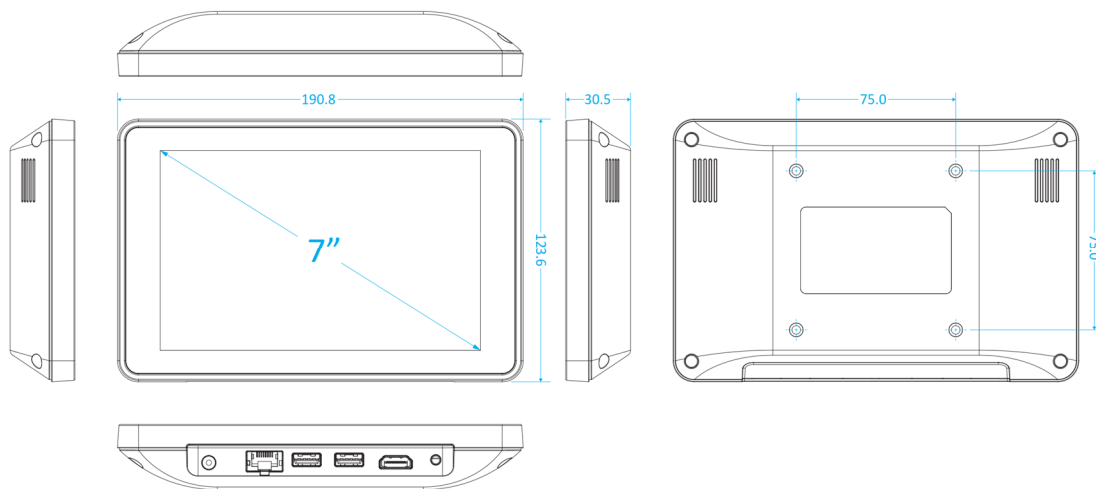
▲ Figure: 7" Panel PC Dimension
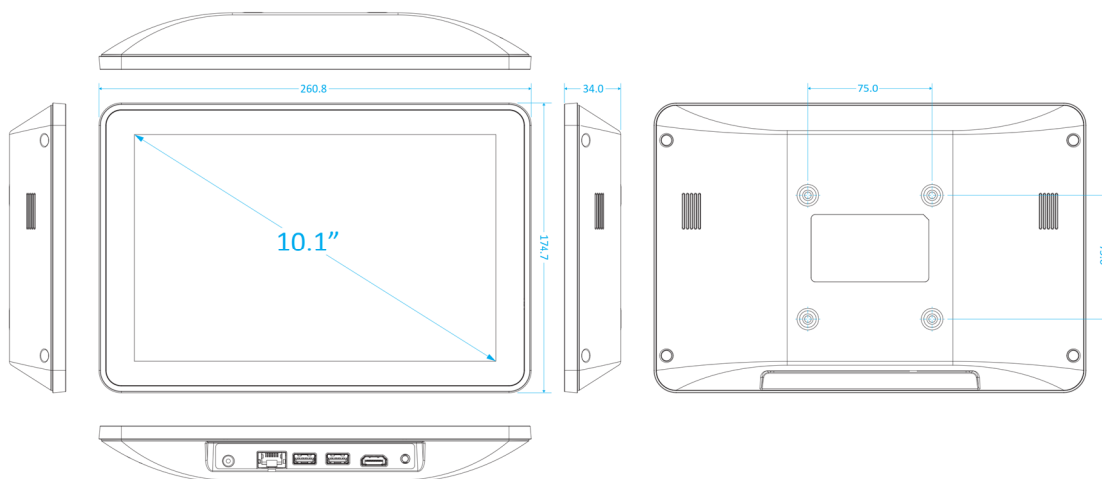
▲ Figure: 10.1" Panel PC Dimension

1.5.2 Front View
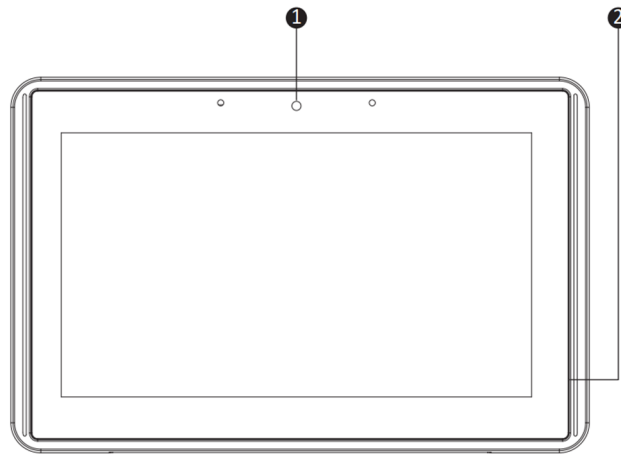
▲ **Figure: 7" Panel PC Front View**

No.	Description
1	Camera
2	Microphone
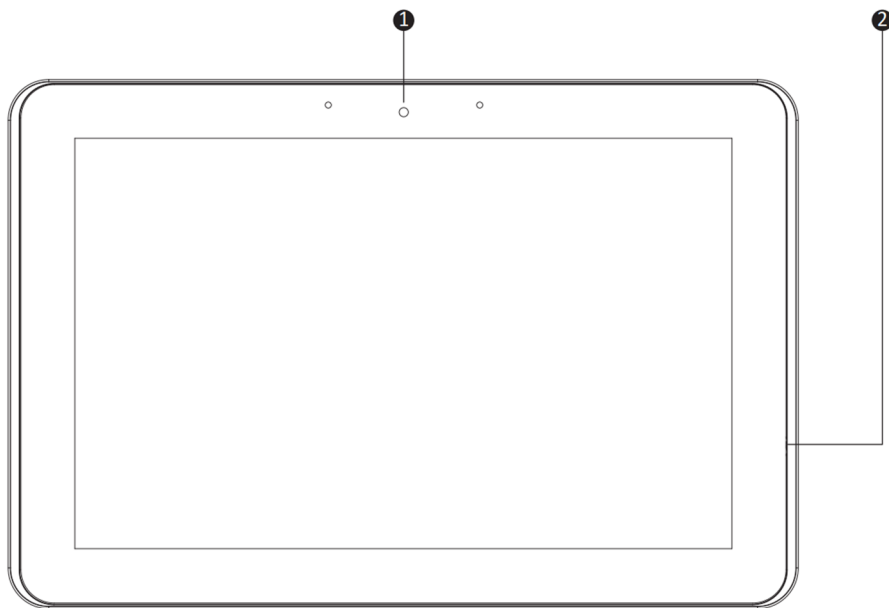
▲ **Figure: 10.1" Panel PC Front View**

No.	Description
1	Camera
2	Microphone

1.5.3 Rear View
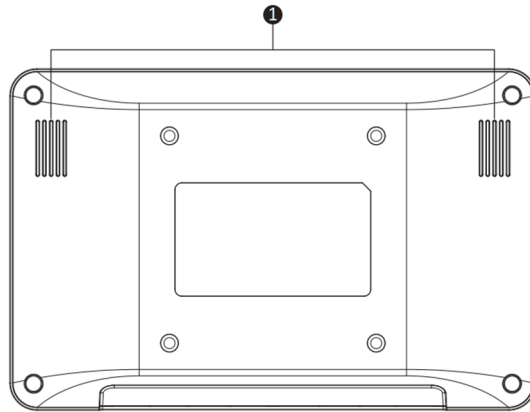
▲ Figure: 7" Rear View

No.	Description
1	Speaker
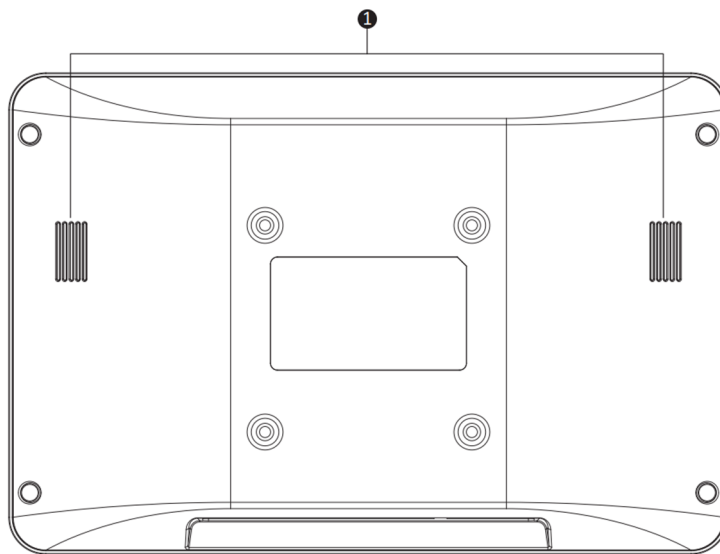
▲ Figure: 10.1" Rear View

No.	Description
1	Speaker

1.6 Ordering Information

There are two SKUs – 7" and 10.1" in CCD series, as listed below:

Model	P/N	Description
CCD-07W01 Win10	CCD-07W01-7V38C-1R	7" Panel PC with Intel®Atom™ Z3735F, 2GB DRAM, 32GB eMMC, Win10 IoT 2016
CCD-07W01 Linux	CCD-07W01-7V37C-1R	7" Panel PC with Intel®Atom™ Z3735F, 2GB DRAM, 32GB eMMC, Linux Ubuntu 16.04
CCD-07W01 Android	CCD-07W01-7V39C-1R	7" Panel PC with Intel®Atom™ Z3735F, 2GB DRAM, 32GB eMMC, Android 5.1
CCD-10W01 Win10	CCD-10W01-7V38C-1R	10.1" Panel PC with Intel®Atom™ Z3735F, 2GB DRAM, 32GB eMMC, Win10 IoT 2016
CCD-10W01 Linux	CCD-10W01-7V37C-1R	10.1" Panel PC with Intel®Atom™ Z3735F, 2GB DRAM, 32GB eMMC, Linux Ubuntu 16.04
CCD-10W01 Android	CCD-10W01-7V39C-1R	10.1" Panel PC with Intel®Atom™ Z3735F, 2GB DRAM, 32GB eMMC, Android 5.1

CHAPTER 2

Hardware Functionality

2.1 Power Connector

CCD comes with a round-headed DC-in jack that carries $12 - 24$ V_{DC} external power supply. To prevent damage to the CCD, always use the verified power adapter provided by us.

▲ Figure: DC-in Jack
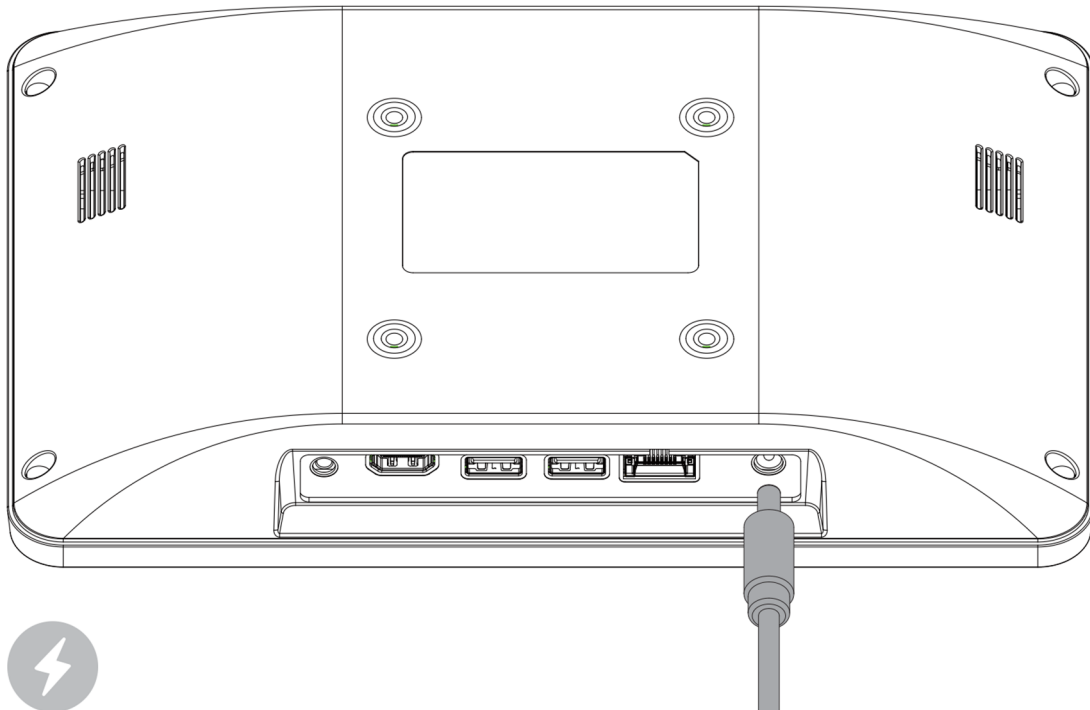
▲ Figure: Connecting Adaptor via DC-in Jack

⚠️ **CAUTION!**

The power adapter may become warm to hot when in use. Do not cover the adapter and keep it away from your body.

2.2 HDMI 1.4a Display Port

The HDMI (High Definition Multimedia Interface) port supports a Full-HD device such as a LCD TV or a monitor to allow viewing on a larger external display. You could refer to Appendix B.1 for pin assignments.
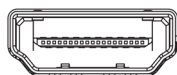
▲ **Figure: HDMI Connector**
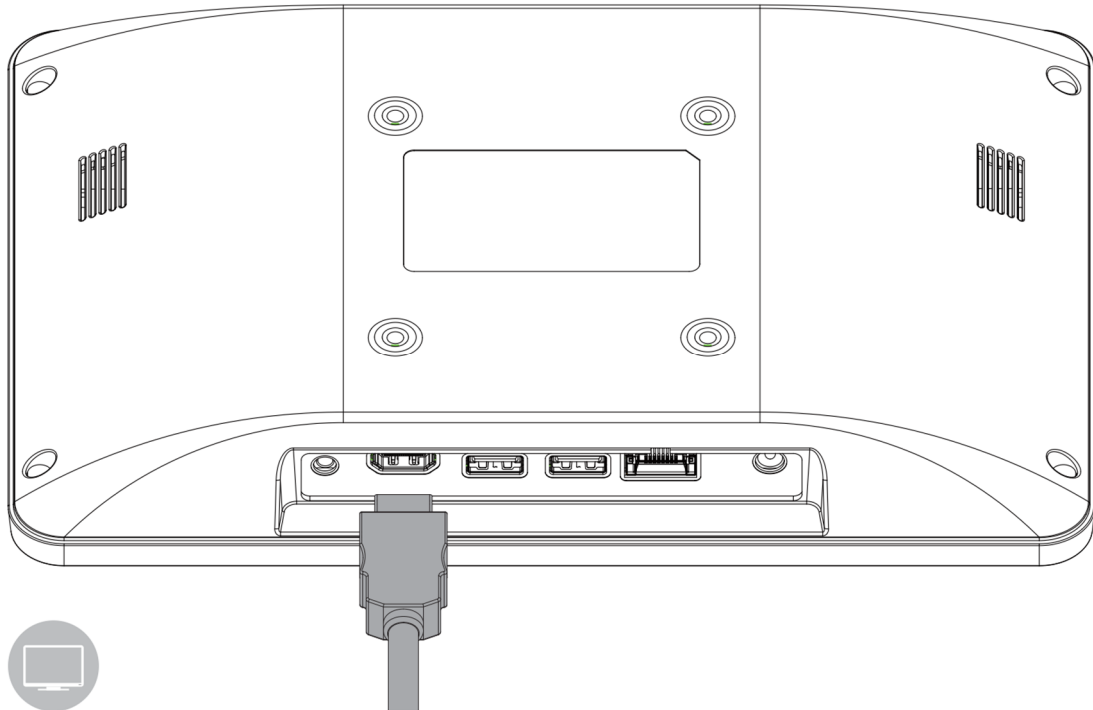
▲ **Figure: Connecting display via HDMI**

2.3 USB 2.0 Port

The USB (Universal Serial Bus) 2.0 ports are compatible with USB 1.1 devices such as keyboards, mouse, cameras, and hard disk drives. USB allows many devices to run simultaneously on a single computer with some peripherals acting as additional plug-in hubs.

▲ **Figure: USB 2.0 Connector**
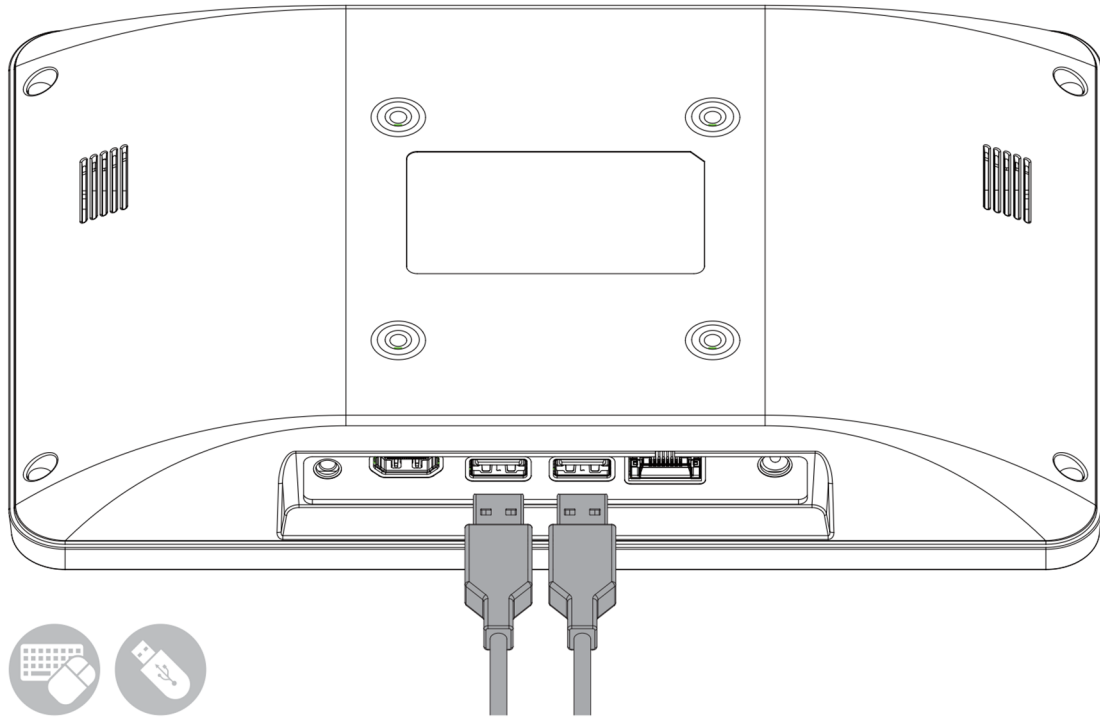
▲ Figure: Connecting USB Device via USB 2.0 Port

2.5 Ethernet: LAN Port

The 8-pin RJ-45 LAN port equipped 10/100 controller which is fully IEEE 802.3 10BASE-T and 802.3u

100BASE-T compliant supports a standard Ethernet cable for connecting to a local network.
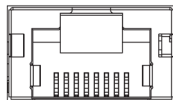
▲ Figure: 10/100 LAN Port
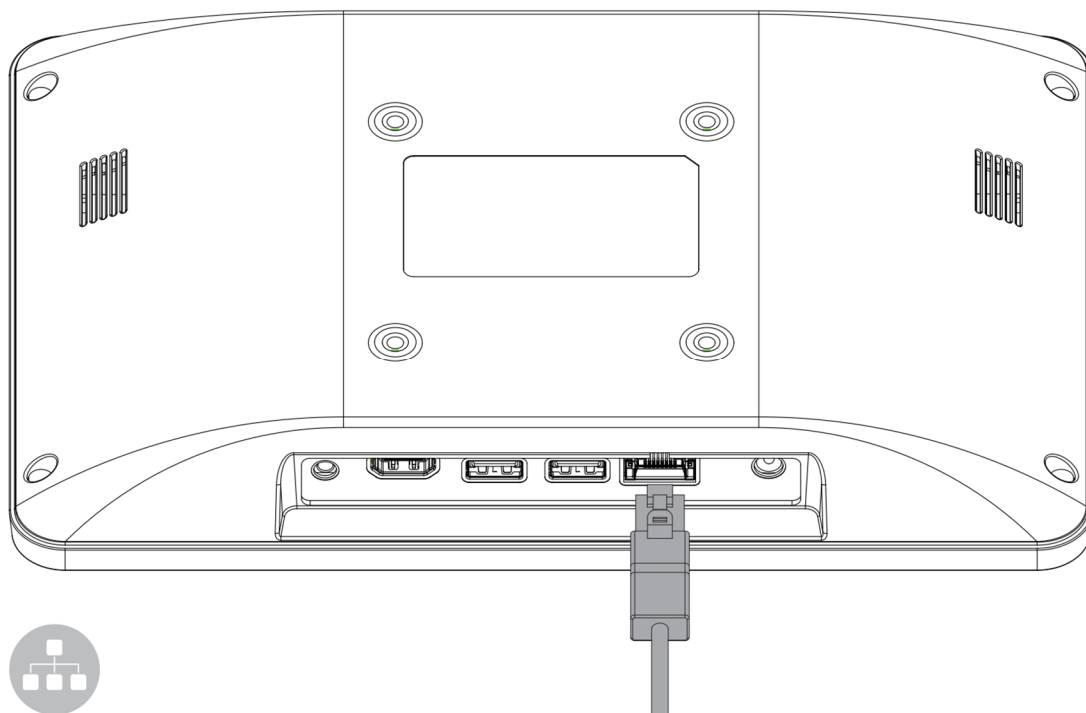
▲ **Figure: Connecting network via LAN Port**

2.6 Audio Port

The supported interface with 3.5 mm audio jack in CCD is:

▪ Line-out

LINE-OUT

▲ **Figure: Audio Jack**
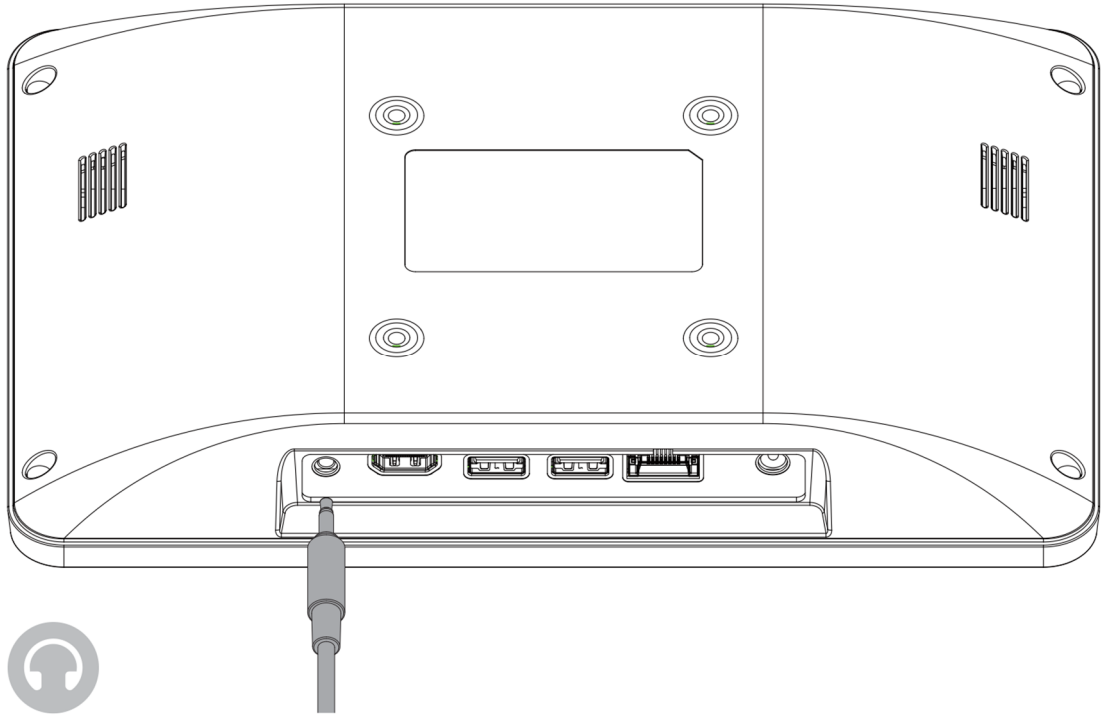
▲ **Figure: Connecting Audio via Line Out**

CHAPTER 3

Wireless Connections

3.1 Wi-Fi Connection

Connecting to a new Wi-fi network with Windows 10 is very easy. This may be helpful when setting up a new device or if you're bringing your device to a new place. Follow these steps:

NOTICE!

Make sure you have installed and configured the wireless network (i.e. Hot Spot) correctly; you'll notice the new wireless network icon in the system tray. To connect to your network, click the network icon in the system tray and select from one of the available networks.

---

1. Click the **Start** menu > **Settings**
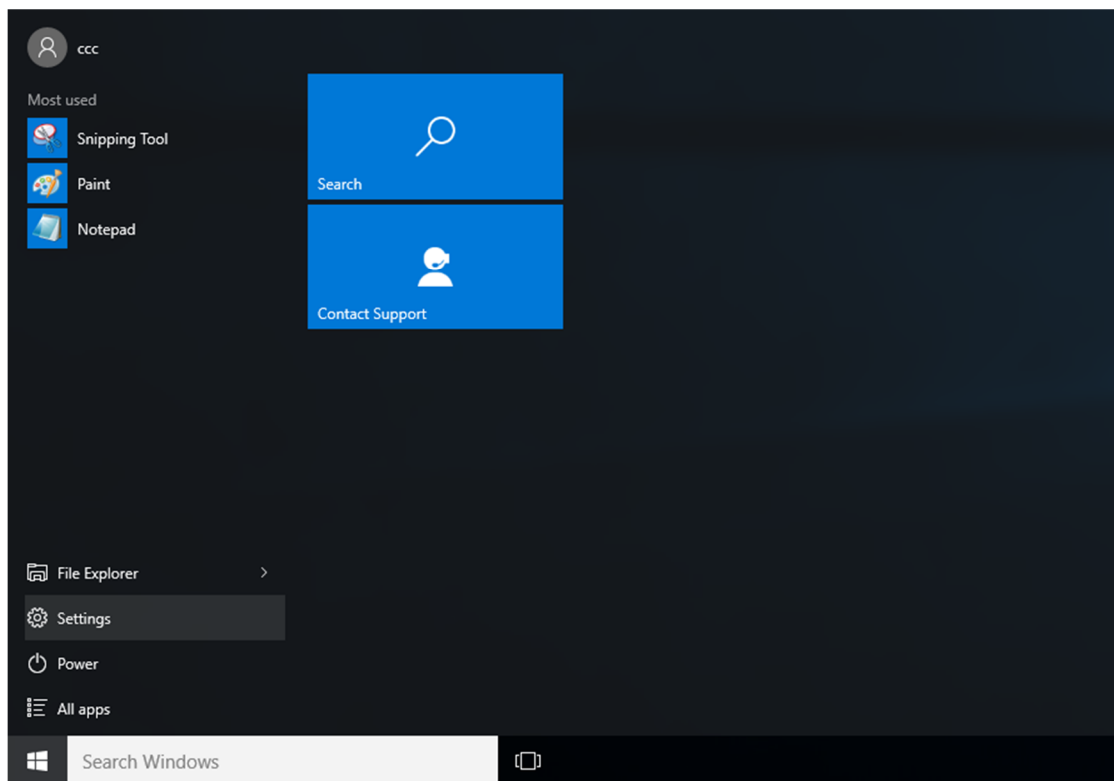
2. Click **Network & Internet**
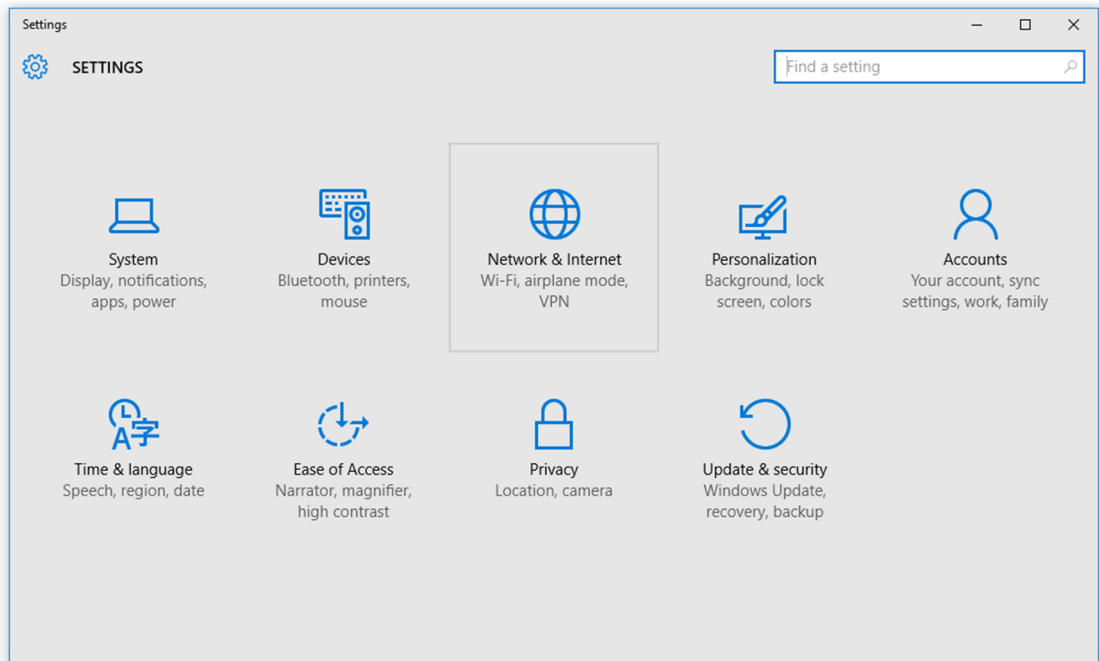
3. Turn Wi-Fi button on
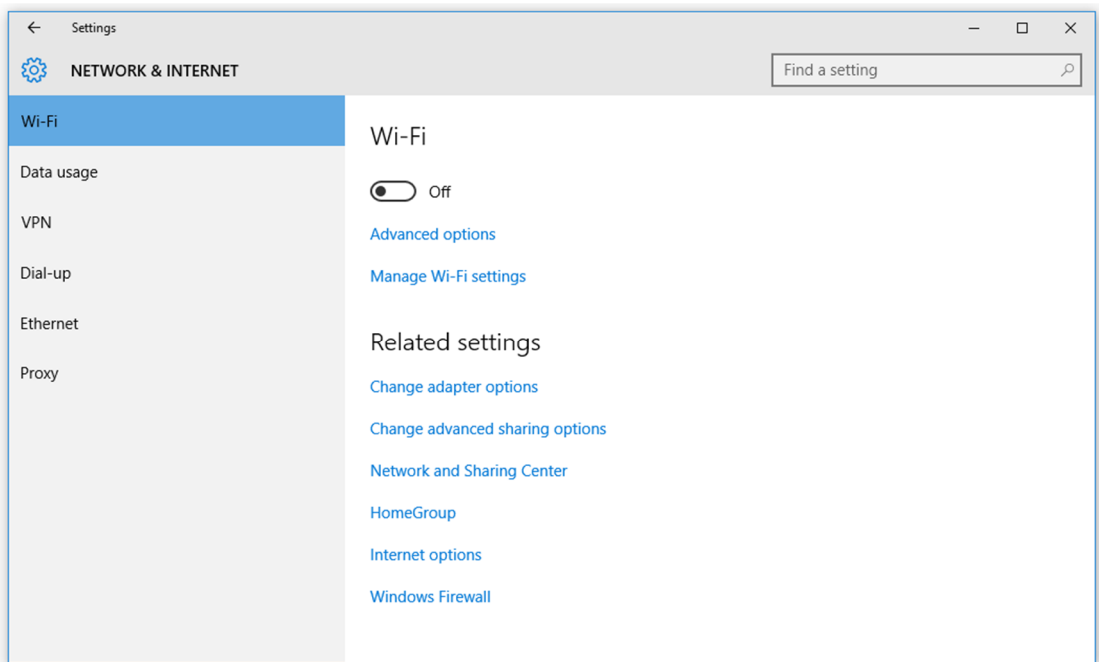
4. In the Wi-Fi section, you'll find all the wireless networks available to you, which is the same list you see in the system tray. Select one of them and enter the Wi-Fi password if needed.
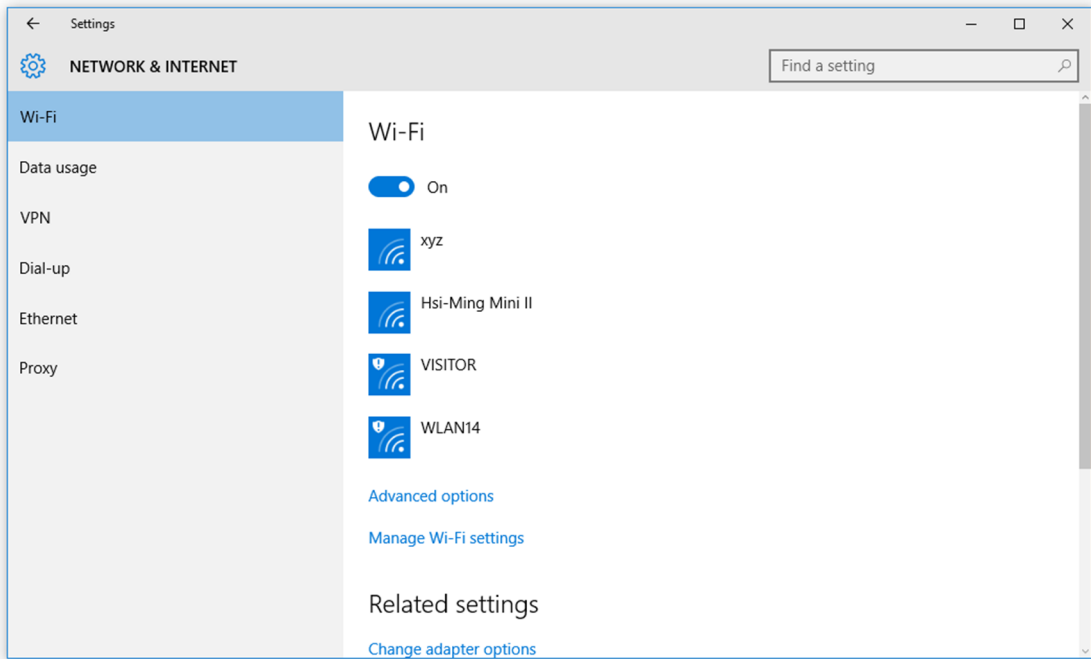
3.2 Bluetooth Connection

There are many different types of Bluetooth enabled devices you can add and pair to your CCD, such as mobile phones, wireless headsets, and wireless mouse devices and keyboards. Here's how to find Bluetooth settings:

1. Click the **Start** menu > **Settings**
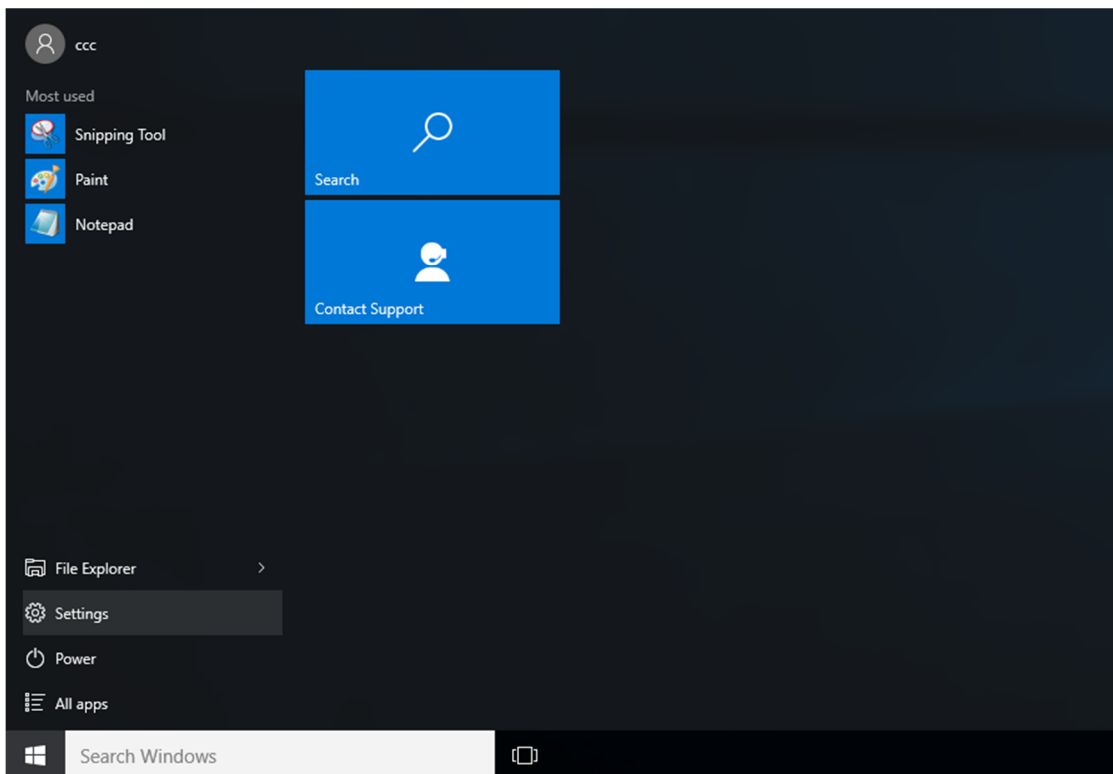
2. Click **Devices**
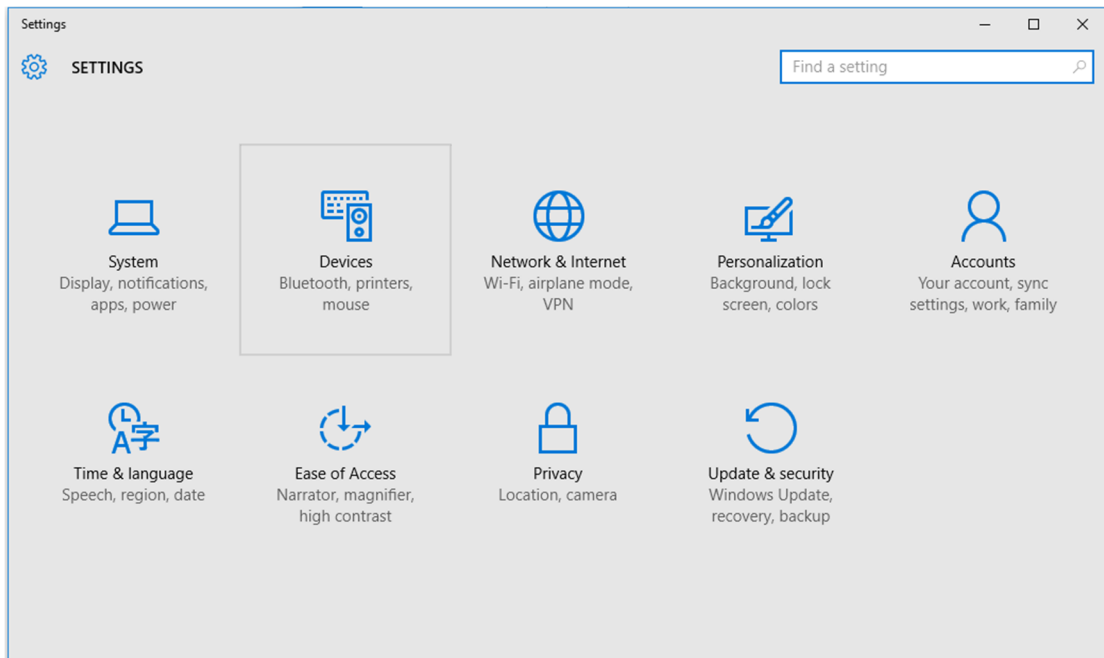
3. In the Devices section, you can find all Bluetooth devices supported. If you don't see Bluetooth listed in Devices settings, it might have Bluetooth hardware that's not recognized. Clicking on any existing device gives you the option to set that device as default or remove that device.
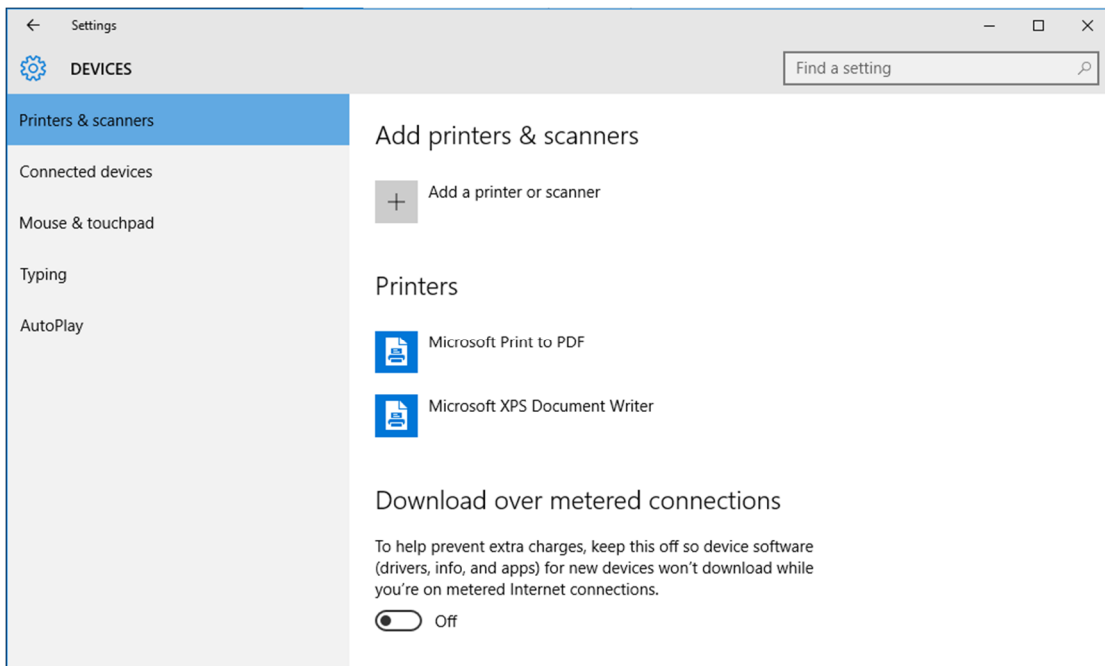
CHAPTER 4

BIOS Setup (SCU)

The System Configuration Utility (SCU) is a program for configuring the BIOS (Basic Input / Output System) settings your computer.

BIOS is a type of firmware used to perform hardware initialization during the booting process on IBM PC compatible computers and to provide runtime services for OS and programs. Your computer needs the BIOS settings to recognize types of installed devices and establish special functions.

This chapter describes the operation of the SCU program.

4.1 Overview

The BIOS Setup program, or BIOS Setup for short, is located, together with the setup parameters, in a FLASH block on the motherboard. Change the setup parameters of the device in the BIOS Setup, e.g. system time or boot sequence.

Your device configuration is preset for operating with the included software. You should only change the default setup parameters if technical modifications to your device require different parameters.

4.1.1 Basic Knowledge Required

A solid background in personal computers and Microsoft operating systems is required to understand this chapter.

4.2 Entering the BIOS Selection Menu

4.2.1 Procedure

Step 1: Switch on or restart the device.
Step 2: Immediately press the "**F2**" button and keep it pressed after switching on the device.

4.3 BIOS Setup (SCU)

4.3.1 Structure of the BIOS Setup Menu

The individual setup parameters are distributed between different menus and submenus. Not all menus are included in each supplied device configuration. The following table shows the menus.

Menu	Meaning
Main	Display system information, for example, BIOS version, processor and memory
Security	Security functions, e.g., setting a password
Boot	Determine boot options, e.g., boot order or USB boot

Exit	Save and exit (see Exit menu)

The menus always have the same structure. The figure below shows an example for the "Main" menu. Device-specific information is shown blocked.

```
                      InsydeH20 Setup Utility                  Rev. 5.0
 Main  Security  Boot  Exit

 BIOS Version                               This is the help for the
 Processor Type                            hour, minute, second
                                           field. Valid range is
 System Bus Speed                          from 0 to 23, 0 to 59, 0
 System Memory Speed                       to 59.  INCREASE/REDUCE :
 Total Memory                              +/-.

 Platform firmware Information
 PMC FW Patch
 TXE FW Version
 GOP
 Microcode Revision

 EC Version            N/A
 System Time           [15:42:57]
 System Date           [10/18/2017]
 Serial Port
 HSUART                <Disabled>



 F1  Help       ↑↓ Select Item    F5/F6 Change Values      F9  Setup Defaults
 Esc Exit       ↔  Select Menu    Enter Select ▶ SubMenu   F10 Save and Exit
```

4.3.2 Navigation and Options Selection

Information on the keyboard is located in the bottom of the screen. A brief use of the keyboard is described:

Button	Function
←, →	Select a menu title
↑, ↓	Select a menu item or option
+, -	Change the value
Enter	1) Shows the sub-menu, if it is available.
	2) Opens or closes the option window when an item has been selected.
Esc	1) Return from a submenu to the previous menu.
	2) Close an open window with options.
F9	Assign the values with the default settings.
F10	Save and exit the BIOS setup

4.3.3 Main Menu

The "Main" menu shows the most important parameters that identify your device. You can set the date and time. The following figure shows an example for the "Main" menu.

```
                     InsydeH20 Setup Utility                 Rev. 5.0
 Main  Security  Boot  Exit

 BIOS Version                              This is the help for the
 Processor Type                           hour, minute, second
                                          field. Valid range is
 System Bus Speed                         from 0 to 23, 0 to 59, 0
 System Memory Speed                      to 59. INCREASE/REDUCE :
 Total Memory                             +/-.

 Platform firmware Information
 PMC FW Patch
 TXE FW Version
 GOP
 Microcode Revision

 EC Version              N/A
 System Time             [15:42:57]
 System Date             [10/18/2017]
 Serial Port
 HSUART                  <Disabled>



 F1  Help      ↑↓ Select Item    F5/F6 Change Values     F9  Setup Defaults
 Esc Exit      ↔  Select Menu    Enter Select ▶ SubMenu  F10 Save and Exit
```

Parameter	Option	Meaning
BIOS Version	NA	Current software version of installed BIOS.
Processor Type	NA	Display the CPU model and speed.
System Bus Speed	NA	Display the auto-detected speed of the system.
System Memory Speed	NA	Display the auto-detected speed of the system memory.
Total Memory	NA	Display the total amount of detected system memory installed.
Platform firmware Information	NA	
PMC FW Patch	NA	
TXE FW Version	NA	
GOP	NA	
Microcode Revision	NA	
EC Version	NA	

System Time	Adjust time	Current time of the device. Format: "Hour/Minute/Second".
System Date	Adjust date	Current date of the device. "Month/Day/Year".
Serial Port	NA	
HSUART	Enabled	Enable the High Speed UART
	Disabled	Disable the High Speed UART

You can use the <Enter> key to move within a format, for example, from hour to minute. You can use the [+] and [-] keys to set the desired values for the date and time.

4.3.4 Security Menu

The "Security" menu lets you block access to your device using passwords. The following figure shows an example for the "Security" menu.

```
                          InsydeH20 Setup Utility                                    Rev. 5.0
  Main  Security  Boot  Exit

                                                              Install or Change the password and the
                                                              length of password  must be greater than
  Supervisor Password              Installed                  one character.
  User Password                    Not Installed

  Set Supervisor Password
  Power on Password                <Disabled>
  User Access Level                <Full>
  Set User Password




  F1  Help              ↑↓ Select Item         F5/F6 Change Values          F9  Setup Defaults
  Esc Exit              ↔ Select Menu          Enter Select ▶ SubMenu        F10 Save and Exit
```

Parameter	Option	Meaning
Supervisor Password	Not Installed	The general password is set (Installed) or not set (Not Installed).
	Enter Password	
User Password	Not Installed	The user password is set (Installed) or not set (Not Installed).
	Enter Password	
Set Supervisor Password	NA	Set supervisor password for full access to the BIOS Setup. A password prompt appears before the BIOS is opened. This field opens the password input dialog. This can be changed by new entry after correct input of the supervisor password. If you input an empty password (only <Enter> key), the set password is deleted and the password prompt disabled.
Set User Password	NA	Set a user password to restrict access to the BIOS Setup. A password prompt appears before the BIOS is opened. This field opens the password input dialog. This can be changed by new entry after correct input of the user password. If you input an empty password (only <Enter> key), the set password is deleted and the password prompt disabled.
The following Setup parameters are visible if "Supervisor Password" is set (Installed).		
Power On Password	Enabled	The password prompt appears either during booting in the

	Disabled	self-test
		(Enabled) or only when you open the BIOS Setup (Disabled).
User Access Level	View Only	Read access to the BIOS is allowed. The setup parameters cannot be changed.
	Limited	Write access to the BIOS is allowed. Only certain setup parameters can be changed.
	Full	Full access to the BIOS is allowed. All setup parameters, except for the supervisor password, can be changed.

NOTICE!

Loss of the supervisor password.

If you forget or lose the supervisor password in the Supervisor Password parameter, the device must be returned to the factory at your own cost.

■ Write down the supervisor password.

■ Store the supervisor password in a safe location and protect it against unauthorized access.

4.3.5 Boot Menu

In the "Boot" menu, you specify the boot characteristics of the device and determine bootable device components (boot media) and boot order. The following figure shows an example for the "Boot" menu.

```
┌────────────────────────────────────────────────────────────────────────────┐
│              InsydeH20 Setup Utility                    Rev. 5.0            │
│   Main  Security  Boot  Exit                                                │
├─────────────────────────────────────────────┬──────────────────────────────┤
│                                              │ Network Stack Support:       │
│  Network Stack          <Disabled>           │   Windows 8 BitLocker        │
│  PXE Boot capability    <Disabled>           │ Unlock                       │
│  Add Boot Options       <Auto>               │   UEFI IPv4/IPv6 PXE         │
│                                              │   Legacy PXE OPROM           │
│  ▶EFI                                         │                              │
│                                              │                              │
│                                              │                              │
│                                              │                              │
│                                              │                              │
│                                              │                              │
│                                              │                              │
│                                              │                              │
│                                              │                              │
├──────────────────────────────────────────────┴──────────────────────────────┤
│ F1  Help      ↑↓ Select Item    F5/F6 Change Values    F9  Setup Defaults   │
│ Esc Exit      ↔  Select Menu    Enter Select ▶ SubMenu  F10 Save and Exit    │
└────────────────────────────────────────────────────────────────────────────┘
```
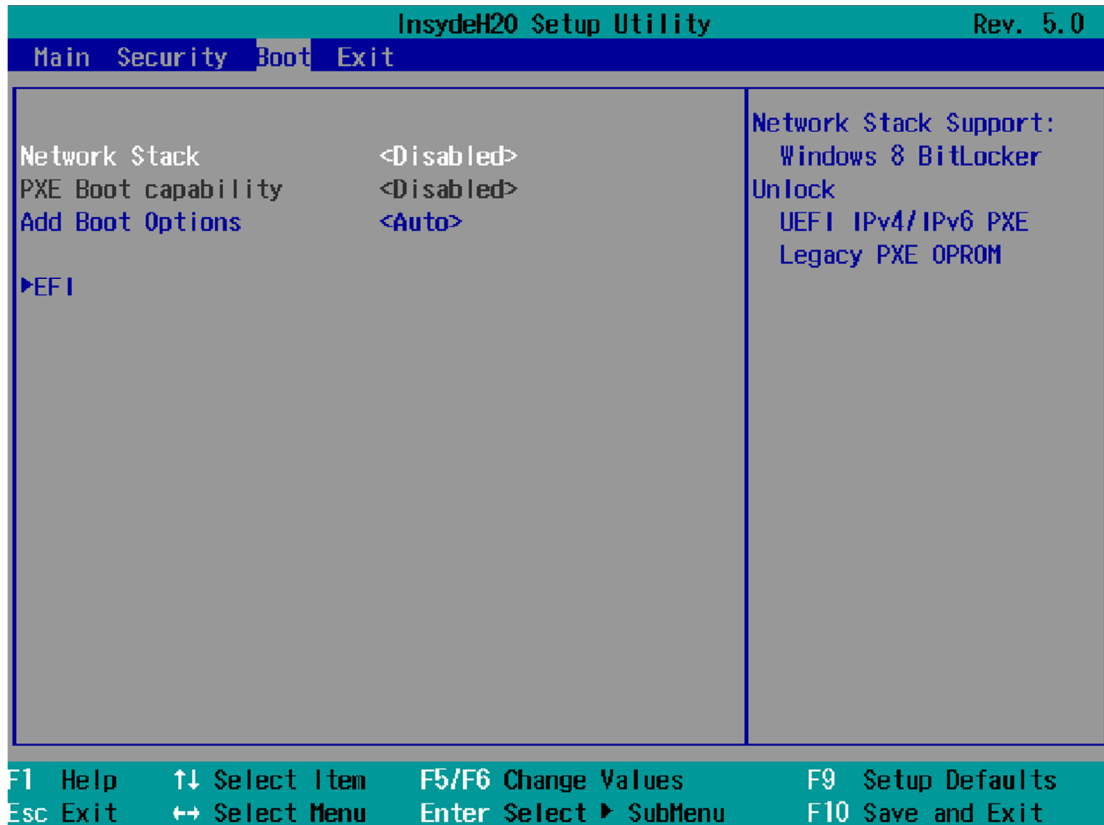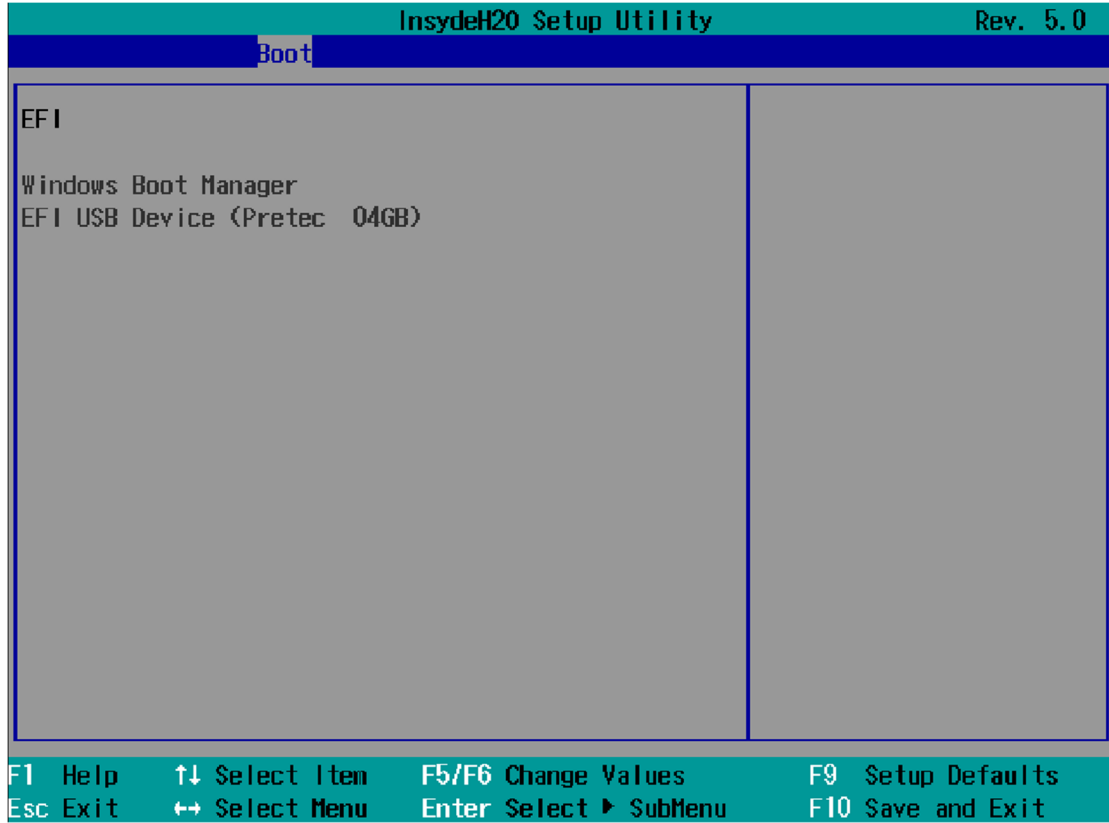
Parameter	Option	Meaning
Network Stack	Enabled	Specifies whether the UEFI Network Stack is available (Enabled) or not available (Disabled) for network access using UEFI. When disabled, for example, no UEFI installation is possible via PXE.
	Disabled	
PXE Boot Capability		Activates (Enabled) or deactivates (Disabled) booting for a boot image which can be loaded from the network (PXE: Pre-boot eXecutable Environment). Only available only if the "Network Stack" parameter is available (Enabled)
	Disabled	Only UEFI Network Stack is supported: PXE is not supported.
	UEFI: IPv4	Only UEFI boot media that support the Internet Protocol Version 4 are supported as PXE boot media.
	UEFI: IPv6	Only UEFI boot media that support the Internet Protocol Version 6 are supported as PXE boot media.
	UEFI: IPv4IPv6	Only UEFI boot media that support the Internet Protocol Version 4 and 6 are supported as PXE boot media.
Add Boot Options	First	Newly detected boot media are placed at the top of the boot order.
	Auto	Newly detected boot media are placed automatically in the boot order: e.g. at the top (First) for legacy boot media and

	based on the device path for UEFI boot media.
Last	Newly detected boot media are placed at the bottom of the boot order.

"EFI" Submenu

Shows all EFI boot media and the currently valid Windows Boot Manager.

```
InsydeH20 Setup Utility                              Rev. 5.0
            Boot

EFI

Windows Boot Manager
EFI USB Device (Pretec  04GB)




F1  Help      ↑↓ Select Item    F5/F6 Change Values      F9  Setup Defaults
Esc Exit      ↔  Select Menu    Enter Select ▶ SubMenu   F10 Save and Exit
```

4.3.6 Exit Menu

You always exit BIOS Setup in this menu.

```
                    InsydeH2O Setup Utility                    Rev. 5.0
  Main   Security   Boot   Exit

                                          Exit system setup and
                                          save your changes.
  Exit Saving Changes
  Save Change Without Exit
  Exit Discarding Changes
  Load Optimal Defaults
  Load Custom Defaults
  Save Custom Defaults
  Discard Changes




  F1  Help        ↑↓ Select Item    F5/F6 Change Values      F9   Setup Defaults
  Esc Exit        ↔ Select Menu     Enter Select ▶ SubMenu   F10  Save and Exit
```

Parameter	Meaning
Exit Saving Changes	All changes are saved and the system is restarted with the new setup parameters.
Save Change Without Exit	All changes are saved.
Exit Discarding Changes	All changes are discarded and the system is restarted with the old setup parameters.
Load Optimal Defaults	All setup parameters are reset to the safe default values. **Notice**: The existing setup parameters are overwritten by this.
Load Custom Defaults	The profile must be loaded with the custom setup parameters. Requirement: The parameters are saved prior to this with "Save Custom Defaults". **Notice**: All existing setup parameters are overwritten during loading. ■ Write down the BIOS setup settings beforehand ■ Save the BIOS setup settings as user-specific profile.
Save Custom Defaults	The currently configured Setup parameters are saved as a custom profile (see also "Load Custom Defaults").
Discard Changes	All changes are discarded.

Appendix A

Mounting Kits Installation

Ready to Begin?

7"/10.1" CCD supports standard VESA mounting (75x75) to fit field site installation needs. Please read through these instructions completely to be sure you're comfortable with this easy install process. Let's follow below assembly instructions to begin.

⚠️ ***CAUTIONS!***

Avoid potential personal injuries and property damage!

The wall must be capable of supporting the weight of CCD and mount combined.

- ■ Do not use the mounting kits for any purpose not explicitly specified by manufacturer.

- ■ Manufacturer is not responsible for damage or injury caused by incorrect assembly or use.
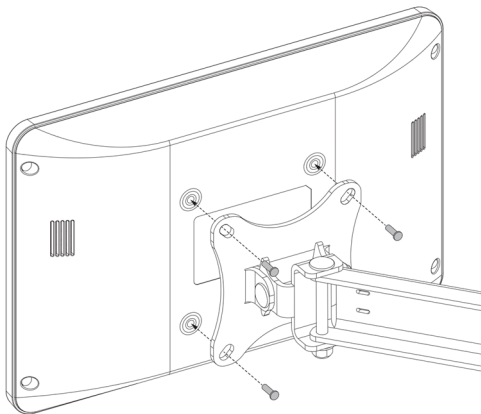

Mounting Instructions

The mounting instructions are described in the following sections using 7" CCD as an example. You can totally apply the same procedures to 10.1" CCD.

A.1 VESA Mounting Installation

Requirement

- ▪ 3rd party VESA mount adapter or monitor arm
- ▪ A PH1 screwdriver
- ▪ Four screws (4 x M4 4L recommended)
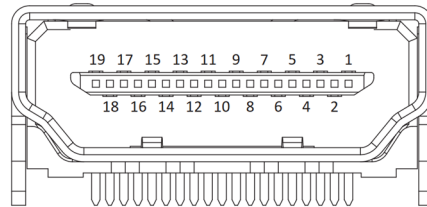
| **1**		- Align the screw holes and attach CCD to the 3rd party VESA mount adaptor or monitor arm. - Secure the back cover of CCD with 4 screws provided by the 3rd party VESA mount manufacturer and assure all mounting screws are properly engaged.

Appendix B

Pin Assignments

B.1 HDMI Connector

▲ Figure B.1 HDMI Connector

Pin	Name	Description
1	HDMI_P2	TMDS data2+
2	GND	TMDS data2+ shield
3	HDMI_N2	TMDS data2-
4	HDMI_P1	TMDS data1+
5	GND	TMDS data1+ shield
6	HDMI_N1	TMDS data1-
7	HDMI_P0	TMDS data0+
8	GND	TMDS data0 shield
9	HDMI_N0	TMDS data0-
10	HDMI_CLKP	TMDS clock+
11	GND	TMDS clock shield
12	HDMI_CLKN	TMDS clock-
13	NC	Not Connected
14	NC	Not Connected
15	HDMI_CTRL_CLK	DDC clock
16	HDMI_CTRL_DAT	DDC data
17	GND	DDC/CEC ground
18	5V	EDID/DDC power
19	HPD	Hot Plug Detect

B.2 USB 2.0 Type A Connector
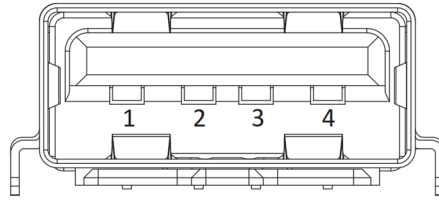
▲ Figure B.2 USB type A Connector

Pin	Name	Description
1	V_{CC}	+5v
2	D-	Data-
3	D+	Data+
4	GND	Signal ground

B.3 LAN Port (RJ-45)
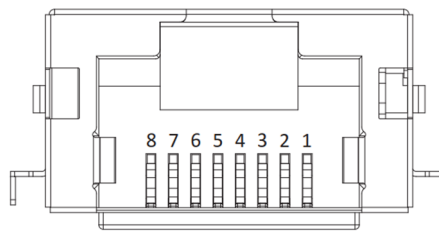
▲ Figure B.3 LAN RJ-45 Connector

Pin	Name	Description
1	TX+	Transmit Data+
2	TX-	Transmit Data-
3	RX+	Receive Data+
4	NC	Not Connected
5	NC	Not Connected
6	RX-	Receive Data-
7	NC	Not Connected
8	NC	Not Connected