



User Manual

UTC-510/515/520/532/542

10.1"/15.6"/21.5"/32"/42.5"
Ubiquitous Touch Computer

ADVANTECH

Enabling an Intelligent Planet

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This manual is applicable for UTC-510/515/520/532/542.

Declaration of Conformity

FCC Class A

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 this event, users are required to correct the interference at their own expense.

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Packing List

Before installing the UTC system, check that the following materials have been included in the shipment:

- UTC-510/515/520/532/542 unit
- Accessories for UTC-510/515/520
 - DC 12V/5A 60W adaptor (UTC-515D/F/G)
 - DC 12V/3A 36W adaptor (UTC-510)
 - DC 12V/7A 84W adaptor (UTC-515H/I/J, UTC-520/C/D/E/F/G/H/I/J)
 - SATA cable (not applicable for UTC-510)
 - Packet of screws (not applicable for UTC-510)
- Accessories for UTC-532
 - SATA cable
 - Packet of screws
 - Antenna

If any of these items are missing or damaged, contact your distributor or sales representative immediately.

Technical Support and Assistance

1. Visit the Advantech website at www.advantech.com/support to obtain the latest product information.
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 calling:
 - 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

Warnings, Cautions, and Notes

Warning! Warnings indicate conditions that if not observed can cause personal injury!



Caution! Cautions are included to help prevent hardware damage and data losses. For example,



“Batteries are at risk of exploding if incorrectly installed. Do not attempt to recharge, force open, or heat the battery. Replace the battery only with the same or equivalent type as recommended by the manufacturer. Discard used batteries according to the manufacturer's instructions.”

Note! Notes provide additional optional information.



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Safety Instructions

1. Read these safety instructions carefully.
2. Retain this user manual for future reference.
3. Disconnect the equipment from all AC outlets before cleaning. Use only a damp cloth for cleaning. Do not use liquid or spray detergents.
4. For pluggable equipment, the power outlet socket must be located near the equipment and easily accessible.
5. Protect the equipment from humidity.
6. Place the equipment on a reliable surface during installation. Dropping or letting the equipment fall may cause damage.
7. The openings of the enclosure are for air convection. Protect the equipment from overheating. Do not cover the openings.
8. Ensure that the voltage is correct before connecting the equipment to a power outlet.
9. Position the power cord away from high-traffic areas. Do not place anything over the power cord.
10. All cautions and warnings on the equipment should be noted.
11. If unused for a long time, disconnect the equipment from the power source to avoid damage from transient overvoltage.
12. Never pour 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 occurs, have the equipment checked by authorized service personnel:
 - The power cord or plug is damaged.
 - Liquid has penetrated the equipment.
 - The equipment has been exposed to moisture.
 - The equipment is malfunctioning or does not operate according to the user manual.
 - The equipment has been dropped and damaged.
 - The equipment shows obvious signs of breakage.
15. Do not store the equipment in an environment with a room temperature of below -20°C (-4°F) or above 60°C (140°F) as this may cause damage. The equipment should be stored in a controlled environment.
16. Batteries are at risk of exploding if incorrectly installed. Replace only with the same or equivalent type as recommended by the manufacturer. Discard used batteries according to the manufacturer's instructions.
17. Use only the recommended mounting apparatus to avoid damage caused by falling.
18. In accordance with the IEC 704-1:1982 specifications, the sound pressure level at the operator position does not exceed 70 dB (A).

DISCLAIMER: These instructions are provided according to IEC 704-1 standards. Advantech disclaims all responsibility for the accuracy of any statements contained herein.

Warning! *Because of the risk of electric shock, do not remove the equipment cover during operation or when connected to a power outlet.*



Caution! *To avoid short circuits and otherwise damaging the device, do not allow fluids to come in contact with the device. If fluids are accidentally spilled on the equipment, remove the affected unit from service as soon as possible and contact service personnel to verify that personal safety is not compromised. If the computer clock is unable to maintain accurate time or the BIOS configuration resets to default settings, check the battery.*



Caution! *Do not replace the battery yourself. Contact a qualified technician or your retailer. The computer is equipped with a battery-powered real-time clock circuit. There is a danger of explosion if the battery is incorrectly replaced. Replace only with same or equivalent type as recommended by the manufacturer. Discard used batteries according to the manufacturer's instructions.*



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Chapter 1

General Information

1.1 Introduction

Advantech's UTC-500 series products are 10.1", 15.6", 21.5", 32", and 42.5" fanless, low-power, all-in-one touch panel computers suitable for use as control room computing devices, production line industrial digital signage, showroom interactive signage, self-service kiosks, and public service terminals that support diverse digital retail, hospitality, healthcare, education, entertainment, and information processing applications. Featuring a protective enclosure, advanced touchscreen technology, wireless capabilities, and multiple I/O, the high-performance UTC-500 series devices can also be integrated with a wide range of optional peripherals and accessories according to specific application requirements.

1.2 Specifications

1.2.1 UTC-510

System	CPU	Intel® Celeron® J1900 (UTC-510D)	Intel® Celeron® N3350 (UTC-510G)	Intel® Pentium® N4200 (UTC-510G)
	Base Frequency	2 GHz (quad-core)	1.10 GHz (dual-core)	1.10 GHz (dual-core)
	Cache	L2 cache 2 MB	L2 cache 2 MB	L2 cache 2 MB
	Memory	1 x 204-pin SODIMM DDR3L 1333 MHz, up to 8 GB	1 x 204-pin SODIMM DDR3L 1866 MHz, up to 8 GB	
	HDD	1 x 2.5 internal SATA HDD bay		
	Network (LAN)	1 x Gigabit Ethernet port (with Wake-on-LAN support)		
	I/O	2 x RS-232 COM (COM1 RS-422/485 supported) 1 x USB 2.0/1 x USB 3.0/ 2 x USB 2.0 (optional) 1 x Gigabit Ethernet (RJ-45) 1 x VGA 1 x Audio Line-Out, 1 x Mic-In	2 x RS-232 COM (COM1 RS-422/485 supported) 2 x USB 3.0/2 x USB 2.0 (optional) 1 x Gigabit Ethernet (RJ-45) 1 x VGA 1 x Audio Line-Out, 1 x Mic-In	
	Stereo Speaker	1 x 2W		
	Bus Expansion	1 x Half-size mini PCIe 1 x Half-size mSATA	1 x Half-size mini PCIe 1 x Half-size mSATA	
	Mount Options	VESA 75 x 75 mm		
	Dimensions (W x H x D)	265.4 x 182.4 x 39.55 mm (10.44 x 7.18 x 1.55 in)		
	Weight	1.80 kg (3.97 lb)		

OS Support		WES7P 32/64bit WES7E 32 bit Windows Pro Embedded 7 Pro 32/64 bit WE8S 32 bit Windows Embedded 8.1 Industry Pro 64 bit Windows 10 IoT Enterprise 64 bit Linux Ubuntu 16.04 Android 4.4	Windows 10 IoT Enterprise Linux Ubuntu 16.04 Android 6.0
	Front Panel Protection	IP65 compliant	
Environmental	Operating Temperature	0 ~ 35° C (32 ~ 95° F)	0 ~ 45° C (32 ~ 113° F)
	Relative Humidity	10 ~ 95% @ 40° C non-condensing	
	Vibration	1 Grms	
	Shock	5G peak acceleration (11 msec. duration)	
	Certification	CE, FCC, CB, UL, CCC, BSMI	
	Power Supply	Input Rating	12 V/3 A (36W ITE adapter)
Power Consumption		Typical 10W Max. 20W	
LCD Panel	Size/Type	10.1" TFT LCD with LED backlight	
	Max. Resolution	1280 x 800	
	Max. Color	16.7M	
	Pixel Pitch	169.5 x 169.5 um	
	Brightness	350 cd/m ²	
	Viewing Angle	170°/170°	
	Camera	5 megapixel (optional)	
Touch-screen (PE/GE)	Type	Glass panel with projected capacitive touch	
	Light Transmission	80% ± 5%/90%	
	Controller	USB interface	

1.2.2 UTC-510 (PoE)

System	CPU	Intel® Celeron® N2807 (UTC-510D)	Intel® Celeron® J1900 (UTC-510D)
	Base Frequency	1.58 GHz (dual-core)	2 GHz (quad-core)
	Cache	L2 cache 1 MB	L2 cache 2 MB
	Memory	1 x SODIMM DDR3L 1333 MHz, up to 8 GB	1 x SODIMM DDR3L 1333 MHz, up to 8 GB
	HDD	1 x 2.5 internal SATA HDD bay	
	Network (LAN)	2 x Gigabit Ethernet ports (with Wake-on-LAN support)	
	I/O	2 x RS-232 COM (COM2 support for RS-422/485 optional) 3 x USB 2.0/1 x USB 3.0/1 x USB 2.0 (optional) 2 x Gigabit Ethernet ports (1 with PoE) 1 x Headphone with mic 1 x HDMI	
	Stereo Speaker	2 x 2W	
	Bus Expansion	1 Full-size mini PCIe/mSATA 1 Half-size mini PCIe	
	Mount Options	VESA 75 x 75 mm	
	Dimensions (W x H x D)	265.4 x 182.4 x 39.55 mm (10.44 x 7.18 x 1.55 in)	
Weight	1.80 kg (3.97 lb)		
OS Support	WES7P 64bit Windows Pro Embedded 7 64bit Windows POSReady7 32bit Win 10 IoT Enterprise 64bit Linux Ubuntu 14.04 Android 6.0		
Environmental	Operating Temperature	0 ~ 40° C (32 ~ 104° F)	
	Relative Humidity	10 ~ 95% @ 40° C non-condensing	
	Vibration	1 Grms	
	Shock	5G peak acceleration (11 msec. duration)	
	Certification	CE, FCC, CB, UL, CCC, BSMI	
	Front Panel Protection	IP65 compliant	
Power Supply	Power over Ethernet	IEEE 802.3at/30W	
	Input Rating	12 V/3 A ~ 24 V/1.5 A, 36W ITE adapter (optional)	
	Power Consumption	Typical 10 W Max. 20 W	

LCD Panel	Size/Type	10.1" TFT LCD with LED backlight
	Max. Resolution	1280 x 800
	Max. Color	16.7 M
	Pixel Pitch	169.5 x 169.5 um
	Brightness	350 cd/m ²
	Viewing Angle	170°/170°
	Camera	5 megapixel (optional)
Touchscreen (PE/GE)	Type	Glass panel with projected capacitive touch
	Light Transmission	80% ± 5%/90%
	Controller	USB interface

1.2.3 UTC-515D/F

System	CPU	Intel® Celeron® J1900 (UTC-515D)	Intel® Core™ i3- 6100U (UTC-515F) Intel® Core™ i5-6300U (Available)* Intel® Core™ i7-6600U (Available)*
	Base Frequency	2 GHz (quad-core)	2.3 GHz (dual-core)
	Cache	L2 cache 2 MB	L3 cache 3 MB
	Memory	1 x SODIMM DDR3L 1333 MHz, up to 8 GB	1 x SODIMM DDR3L 1333 MHz, up to 16 GB
	HDD	1 x 2.5 internal SATA HDD bay	
	Network (LAN)	2 x Gigabit Ethernet ports (with Wake-on-LAN support)	
	I/O	2 x RS-232 COM (RS-422/485 optional) 3 x USB 2.0/1 x USB 3.0 2 x Gigabit Ethernet (RJ-45) 1 x VGA 1 x HDMI 1 x Audio Line-Out 1 x Mic-In	2 x RS-232 COM (RS-422/485 optional) 2 x USB 2.0/2 x USB 3.0 2 x Gigabit Ethernet (RJ-45) 1 x VGA 1 x HDMI 1 x Audio Line-Out 1 x Mic-In
	Stereo Speaker	2 x 1W	
	Bus Expansion	1 x Full-size mini PCIe/mSATA	
	Mount Options	VESA 100 x 100 mm	
	Dimensions (W x H x D)	389.81 x 240.12 x 45.20 mm (15.34 x 9.45 x 1.77 in)	
	System	Weight	4.85 kg (10.67 lb)
OS Support		Windows 10 IoT Enterprise Linux Ubuntu 14.04, Android 6	Windows 10 IoT Enterprise Linux Ubuntu 20.04

Environmental	Operating Temperature	0 ~ 40° C (32 ~ 104° F)	
	Relative Humidity	10 ~ 95% @ 40° C non-condensing	
	Vibration	Operating 10G peak acceleration (11ms duration), follow IEC 60068-2-27	
	Shock	Operating Random Vibration Test 5 ~ 500Hz, 1Grms @with HDD; 2Grms @with SSD, follow IEC 60069-2-64	
	Certification	CE (RED Compliance), EN 61000-6-2: 2005/AC: 2005, FCC, CB, UL, CCC, BSMI	
	Front Panel Protection	IP65/NEMA4 compliant	
Power Supply	Input Rating	12 V/5 A (60W ITE adapter)	12 V/5 A (60W ITE adapter)
	Power Consumption	Typical 35W Max. 40W	Typical 40W, Max. 50W
LCD Panel	Size/Type	15.6" TFT LCD with LED backlight	
	Max. Resolution	1366 x 768 (FHD 1920 x 1080 optional)	
	Max. Color	16.7M	
	Pixel Pitch	252 x 252 um	
	Brightness	400 cd/m ²	
	Viewing Angle	170°/160°	
Touchscreen (PE/RE/GE)	Type	Glass panel with projected capacitive/5-wire analog resistive touch	
	Light Transmission	90% ± 2%/80% ± 5%/90%	
	Controller	USB interface	

1.2.4 UTC-515G

System	CPU	Intel® Pentium® N4200 (UTC-515G)
	Base Frequency	1.1 GHz (N4200/quad-core)
	Cache	L2 cache 2 MB
	Memory	1 x 204 pin SODIMM DDR3L 1867 MHz, up to 8 GB
	HDD	1 x 2.5 internal SATA HDD bay
	Network (LAN)	2 x Gigabit Ethernet ports (with Wake-on-LAN support)
	I/O	2 x RS-232 COM (RS-422/485)* 2 x USB 2.0 / 2 x USB 3.0 2 x Gigabit Ethernet (RJ-45) 1 x VGA 1 x HDMI 1 x Audio Line-Out 1 x Mic-In
	Stereo Speaker	2 x 1W
	Bus Expansion	1 x Full-size MiniPCIe/mSATA 1 x M.2 E-key 2230

System	Mount Options	VESA 100 x 100 mm
	Dimensions (W x H x D)	389.81 x 240.12 x 45.20 mm (15.34 x 9.45 x 1.77 in)
	Weight	4.85 kg (10.67 lb)
OS Support		Windows 10 IoT Enterprise Android 6.0 Linux Ubuntu 17.04
Environmental	Operating Temperature	0 ~ 40 °C (32 ~ 104 °F)
	Relative Humidity	10 ~ 95% @ 40 °C non-condensing
	Vibration	Operating 10G peak acceleration (11ms duration), follow IEC 60068-2-27
	Shock	Operating Random Vibration Test 5 ~ 500Hz, 1Grms @with HDD; 2Grms @with SSD, follow IEC 60069-2-64
	Certification	CE (RED Compliance), EN 61000-6-2: 2005/AC: 2005, FCC, UL, CB, CCC, BSMI
	Front Panel Protection	IP65/NEMA4 Compliant
Power Supply	Input Rating	12 V/5 A (60 W ITE adapter)
	Power Consumption	Typical 35W Max. 40W
LCD Panel	Size/Type	15.6" TFT LCD with LED backlight
	Max. Resolution	1366 x 768 (FHD 1920 x 1080 optional)
	Max. Color	16.7M
	Pixel Pitch	252 x 252 um
	Brightness	400 cd/m ²
	Viewing Angle	170°/160°
	Camera	5 megapixel (optional)
Touchscreen (PE/RE/GE)	Type	Glass panel with projected capacitive/5-wire analog resistive touch
	Light Transmission	90% ± 2%/80% ± 5%/90%
	Controller	USB interface

1.2.5 UTC-515H

Model	UTC-515H	
Processor System	CPU	Intel® Core™ i3-8145UE (UTC-515H) Intel® Core™ i5-8365UE (Optional)* Intel® Core™ i7-8665UE (Optional)*
	Base Frequency	1.60 GHz (Quad-core)
	LLC	6MB
	Memory	Dual Channel/Dual Socket DDR4 2400 up to 32 GB
	I/O ports	2 x RS-232 COM (RS-422/485)* 4 x USB 3.1 2 x Gigabit Ethernet (RJ-45) 1 x HDMI Audio Line-out x 1, Mic-in x1
	Bus Expansion	1 x M.2 E-key 2230 1 x M.2 B-key 2280 (NVMe PCIe x2), 3042 LTE module (support USB2.0 only), optional M-key 2280 NVMe PCIe x4
Board Feature	Watchdog Timer	65536 level, 0~65535 sec
	TPM	TPM2.0 (SLB9670XQ2.0)
OS Support		Win 10 IoT Enterprise
Environmental Specifications	Operating Temperature	0 ~ 40° C (32 ~ 104° F)
	Relative Humidity	10 ~ 95% @ 40° C non-condensing
	Vibration	0.5G
	Shock	5G peak acceleration (11 msec. duration)
	EMC/Safety	CE (No RED certification), EN 61000-6-2: 2005 / AC: 2005, FCC, UL, CB, CCC, BSMI
	Front Panel Protection	IP65/ NEMA4 Compliant
Power Supply	Input Rating	12~24V/7A (84W ITE Adapter)
	Power Consumption	Typical 40W
LCD Display	Size/Type	15.6" TFT LCD with LED backlight
	Max. Resolution	1366 x 768 (FHD 1920 x 1080 Optional)
	Max. Color	16.7M
	Pixel Pitch (um)	252 (H) x 252 (V)
	Brightness (cd/m ²)	400 nits
	Viewing Angle	178°/178°

Touch Screen Option (PE/RE/GE)	Type	Projected Capacitive. Anti-Glare Available
	Light Transmission	90% ± 2%/80% ± 5%/90%
	Controller	USB Interface

1.2.6 UTC-515I/J

System	CPU	i5-1145G7E(UTC-515I) Intel® Core™ i3-1115G4E (optional) Intel® Core™ i7-1185GRE (optional)	Intel® Celeron® J6412 (UTC-515J)
	Base Frequency	1.50/ 2.6 GHz/ Quad Core	2.0GHz
	Cache	L3 Cache 8MB	1.5 MB L2 Cache
	Memory	DDR4-3200 up to 64GB	DDR4-3200 up to 32GB
	HDD	1 x 2.5 internal SATA HDD bay	
	Network (LAN)	2 x GbE, LAN1: Intel i219LM, LAN2: Intel i210AT/IT (support Wake on LAN)	2 x RJ-45; LAN1: Realtek RTL8111H, LAN2: Realtek RTL8111H
	I/O	1 x HDMI/1 x DP 2 x RS-232/422/485 1 x Audio Line-out 1 x Mic-in 4 x USB3.2 Gen. 2x1 10Gbps 1 x USB type-C, USB3.2 Gen. 2x2 20Gbps, support DP1.4a via Alt. Mode	4 x USB3.2 Gen2 (10Gbps) 2 x GbE, LAN1: Intel i219LM, LAN2: Intel i210AT/IT 1 x HDMI/1 x DP 1 x Audio Line-out 1 x Mic-in 2 x RS-232 COM (RS-422/485)*
	Stereo Speaker	2 x 2W	
	Expansion	1 x M.2 E-Key 2230(PCIe x 1, USB2.0, I2C) 1 x M.2 B-Key 3042 (USB2.0) w/ Nano-SIM 1 x M.2 M-Key 2280 (PCIe x4 Gen.4 for PCIe SSD), optional SATA	1x E-Key for wireless module (Type: 2230) optional B-Key for LTE module 1x M-Key support SATA M.2 2242 module
Mechanical	Mount Options	VESA 100 x 100 mm	
	Dimensions (W x H x D)	389.81 x 240.12 x 45.20 mm	
	Weight	4.85 kg (10.67 lb)	
Board Features	Watchdog Timer	65536 intervals, 0 ~ 65535 sec	Programmable 1 ~ 255 sec/min
	TPM	TPM2.0 (SLB9670XQ2.0)	TPM2.0
Operating Systems		Windows 10 IoT Enterprise, Linux Ubuntu 20.04	Win 10 IoT/Win 11 IoT

Environmental	Operating Temperature	0 ~ 40 °C/32 ~ 104 ° F
	Relative Humidity	10 ~ 95% @ 40 °C/104 °F, non-condensing
	Shock	Operating 10G peak acceleration (11ms duration), follow IEC 60068-2-27
	Vibration	Operating Random Vibration Test 5 ~ 500Hz, 1Grms @with HDD; 2Grms @with SSD, follow IEC 60069-2-64
	EMC/Safety	CE (RED Compliance), EN 61000-6-2: 2005 /AC: 2005, FCC, UL, CB, CCC, BSMI
	Front Panel Protection	IP65 rated/NEMA4 compliant
Power Supply	Input Voltage	12~24Vdc
	Power Consumption	Typical 40W Max 50W
	Adapter	12V, 7A (84W ITE adapter)
LCD Display	Size/Type	15.6" TFT LCD with LED backlight
	Max. Resolution	1366 x 768 (FHD 1920 x 1080 Optional)
	Max. Color	16.7M
	Pixel Pitch (H x V)	248.25 x 248.25
	Brightness	400 nits
	Viewing Angle	170°/160°
Touchscreen (PE/RE/GE)	Type	Projected capacitive, Single point Analog Resistive 5-wires touch
	Light Transmission	88% ± 2%, 80% ± 3%
	Controller	USB interface

1.2.7 UTC-520D/F

System	CPU	Intel® Celeron® J1900 (UTC-520D)	Intel® Core™ i5-6300U (UTC-520F) Intel® Core™ i3-6100U (Available)* Intel® Core™ i7-6600U (Available)*
	Base Frequency	2 GHz (quad-core)	3.0 GHz (i5-6300U/Dual-Core)
	Cache	L2 cache 2 MB	L3 cache 3 MB
	Memory	1 x SODIMM DDR3L 1333 MHz, up to 8 GB	2 x SODIMM DDR3L 1600 MHz, up to 16 GB
	HDD	1 x 2.5 internal SATA HDD bay	
	Network (LAN)	2 x Gigabit Ethernet ports (with Wake-on-LAN support)	
	I/O	2 x RS-232 COM (RS-422/485 optional) 3 x USB 2.0/1 x USB 3.0 2 x Gigabit Ethernet (RJ-45) 1 x VGA/HDMI 1 x Audio Line-Out 1 x Mic-In	2 x RS-232 COM (RS-422/485 optional) 3 x USB 2.0/2 x USB 3.0 2 x Gigabit Ethernet (RJ-45) 1 x VGA/HDMI 1 x Audio Line-Out 1 x Mic-In
	Stereo Speaker	2 x 3W	
	Bus Expansion	1 x VGA 1 x HDMI	
	Mount Options	VESA 100 x 100 mm	
	Dimensions (W x H x D)	517.64 x 313.51 x 43.50 mm (20.37 x 12.34 x 1.71 in)	
	Weight	8 kg (17.6 lb)	
OS Support	Windows Embedded 7/8, Windows 10 IoT Enterprise, Linux Ubuntu 14.04, Android 4.4.2	Win 10 IoT Enterprise Linux Ubuntu 20.04	
Environmental	Operating Temperature	0 ~ 40° C (32 ~ 104° F)	
	Relative Humidity	10 ~ 95% @ 40° C non-condensing	
	Vibration	Operating 10G peak acceleration (11ms duration), follow IEC 60068-2-27	
	Shock	CE (RED Compliance), EN 61000-6-2: 2005/AC: 2005, FCC, UL, CB, CCC, BSMI	
	EMC/Safety	CE (No RED certification) (EN 61000-6-2: 2005/AC: 2005), FCC, CB, UL, CCC, BSMI	
	Front Panel Protection	IP65/NEMA4 compliant	
Power Supply	Input Rating	12 V/7A (84W ITE adapter)	12 V/7A (84W ITE adapter)
	Power Consumption	Typical 45W Max. 65W	Typical 45W Max. 65W

LCD Panel	Size/Type	21.5" TFT LCD with LED backlight
	Max. Resolution	1920 x 1080
	Max. Color	16.7M
	Pixel Pitch (H x V)	248.25 x 248.25 um
	Brightness	250 cd/m ² (400 cd/m ² optional)
	Viewing Angle	178°/178°
Touchscreen (PE/RE/GE)	Type	Glass panel with projected capacitive/5-wire analog resistive touch
	Light Transmission	90% ± 2%/80% ± 5%/90%
	Controller	USB interface

1.2.8 UTC-520G

System	CPU	Intel® Pentium® N4200 (UTC-520G)
	Base Frequency	1.1 GHz (N4200/quad-core)
	Cache	L2 cache 2 MB
	Memory	1 x 204 pin SO-DIMM DDR3L 1867 MHz up to 8GB
	HDD	1 x 2.5 internal SATA HDD bay
	Network (LAN)	2 x Gigabit Ethernet ports (with Wake-on-LAN support)
	I/O	2 x RS-232 COM (RS-422/485)* 2 x USB2.0/ 2 x USB3.0 2 x Gigabit Ethernet (RJ-45) 1 x VGA 1 x HDMI 1 x Audio Line-Out 1 x Mic-In
	Stereo Speaker	2 x 3W
	Bus Expansion	1 x Full-size MiniPCIe/mSATA 1 x M.2 E-key 2230
	Mount Options	VESA 100 x 100 mm
	Dimensions (W x H x D)	517.64 x 313.51 x 43.50 mm (20.37 x 12.34 x 1.71 in)
	Weight	8 kg (17.6 lb)
OS Support	Win 10 IoT Enterprise Android 10 Linux Ubuntu 20.04	

Environmental	Operating Temperature	0 ~ 40° C (32 ~ 104° F)
	Relative Humidity	10 ~ 95% @ 40° C non-condensing
	Vibration	Operating Random Vibration Test 5 ~ 500Hz, 1Grms @with HDD; 2Grms @with SSD, follow IEC 60069-2-64
	Shock	Operating 10G peak acceleration (11ms duration), follow IEC 60068-2-27
	Certification	CE (RED Compliance), EN 61000-6-2: 2005 /AC: 2005, FCC, UL, CB, CCC, BSMI
	Front Panel Protection	IP65/ NEMA4 compliant
Power Supply	Input Rating	12 V/7A (84W ITE adapter)
	Power Consumption	Typical 35W, Max 40W
LCD Panel	Size/Type	21.5" TFT LCD with LED backlight
	Max. Resolution	1920 x 1080
	Max. Color	16.7M
	Pixel Pitch	248.25 (H) x 248.25 (V)
	Brightness	250 cd/m ² (400 cd/m ² optional)
	Viewing Angle	178°/178°
Touchscreen (PE/RE/GE)	Type	Projected Capacitive. Analog Resistive 5-wires
	Light Transmission	88% ± 2%, 80% ± 3%
	Controller	USB interface

1.2.9 UTC-520H

Model	UTC-520H	
System	CPU	Intel® Core™ i3-8145UE (Available) Intel® Core™ i5-8365UE (UTC-520H) Intel® Core™ i7-8665UE (Available)*
	Base Frequency	1.60 GHz (quad-core)
	LLC	L3 Cache 6MB
	Memory	1 x 260 pin SO-DIMM DDR4 2400 MHz up to 32GB
	HDD	1 x 2.5" internal SATA HDD bay
	Network (LAN)	2 x Gigabit Ethernet Ports, Intel I210IT; Intel I219LM(supports Wake on LAN)
	I/O	2 x RS-232 COM (RS-422/485 optional) 4 x USB 3.1 2 x Gigabit Ethernet (RJ-45) 1 x HDMI 1 x Audio Line-out 1 x Mic-in
	Stereo Speaker	2 x 3W
	Expansion	1 x M.2 E-key 2230 1 x M.2 B-key 2280 (NVMe PCIe x 4)/M.2 B-Key 3042 LTE module supports USB 2.0 only (optional)
	Mechanical	Mount Options
Dimensions (W x H x D)		517.64 x 313.51 x 43.5 mm/20.37 x 12.34 x 1.71 in
Weight		8 kg/17.6 lb
Board Features	Watchdog Timer	65536 intervals, 0 ~ 65535 sec
	TPM	TPM2.0 (SLB9670XQ2.0)
Operating System		Windows 10 IoT Enterprise Linux Ubuntu 18.04
Environmental	Operating Temperature	0 ~ 40° C/32 ~ 104° F
	Relative Humidity	10 ~ 95% @ 40° C/104° F, non-condensing
	Vibration	Operating Random Vibration Test 5 ~ 500Hz, 1Grms @with HDD; 2Grms @with SSD, follow IEC 60069-2-64
	Shock	Operating 10G peak acceleration (11ms duration), follow IEC 60068-2-27
	Certification	CE (RED Compliance), EN 61000-6-2: 2005 /AC: 2005, FCC, UL, CB, CCC, BSMI
	Front Panel Protection	IP65 rated/NEMA4 compliant
Power Supply	Input Rating	12~24V, 7 A (84W ITE adapter)
	Power Consumption	Typical 40W Max. 50W

LCD Display	Size/Type	21.5" TFT LCD with LED backlight
	Max. Resolution	1920 x 1080
	Max. Color	16.7M
	Pixel Pitch	248.25 x 248.25 μ m
	Brightness	250 cd/m ² (400 cd/m ² optional)
	Viewing Angle	178°/178°
Touchscreen (PE/RE/GE)	Type	Projected Capacitive. Analog Resistive 5-wires
	Light Transmission	88% \pm 2%, 80% \pm 3%
	Controller	USB interface

1.2.10 UTC-520I/J

System	CPU	i5-1145G7E (UTC-515I) Intel® Core™ i3-1115G4E (available) Intel® Core™ i7-1185GRE (available)	Intel® Celeron® J6412 (UTC-515J)
	Base Frequency	1.50/2.6 GHz/Quad Core	2.0GHz
	Cache	L3 Cache 8MB	1.5 MB L2 Cache
	Memory	DDR4-3200 up to 64GB	DDR4-3200 up to 32GB
	HDD	1 x 2.5 internal SATA HDD bay	
	Network (LAN)	2 x GbE, LAN1: Intel i219LM, LAN2: Intel i210AT/IT (support Wake on LAN)	2 x RJ-45; LAN1: Realtek RTL8111H, LAN2: Realtek RTL8111H
	I/O	1 x HDMI/1 x DP 2 x RS-232/422/485 1 x Audio Line-out 1 x Mic-in 4 x USB3.2 Gen. 2x1 10Gbps 1 x USB type-C, USB3.2 Gen. 2x2 20Gbps, support DP1.4a via Alt. Mode	4 x USB3.2 Gen2 (10Gbps) 2 x GbE, LAN1: Intel i219LM, LAN2: Intel i210AT/IT 1 x HDMI/1 x DP 1 x Audio Line-out 1 x Mic-in 2 x RS-232 COM (RS-422/485)*
	Stereo Speaker	2 x 3W	
	Expansion	1 x M.2 E-Key 2230 (PCIe x 1, USB2.0, I2C) 1 x M.2 B-Key 3042 (USB2.0) w/ Nano-SIM 1 x M.2 M-Key 2280 (PCIe x4 Gen.4 for PCIe SSD), optional SATA	1x E-Key for wireless module (Type: 2230) optional B-Key for LTE module 1x M-Key support SATA M.2 2242 module
Mechanical	Mount Options	VESA 100 x 100 mm	
	Dimensions (W x H x D)	517.6 x 313.51 x 43.5 mm	
	Weight	8 kg (17.6 lb)	

Board Features	Watchdog Timer	65536 intervals, 0 ~ 65535 sec	Programmable 1 ~ 255 sec/min
	TPM	TPM2.0 (SLB9670XQ2.0)	TPM2.0
Operating System		Windows 10 IoT Enterprise, Linux Ubuntu 20.04	Win 10 IoT/ Win 11 IoT
Environmental	Operating Temperature	0 ~ 40° C/32 ~ 104° F	
	Relative Humidity	10 ~ 95% @ 40 °C/104 °F, non-condensing	
	Shock	Operating 10G peak acceleration (11ms duration), follow IEC 60068-2-27	
	Vibration	Operating Random Vibration Test 5 ~ 500Hz, 1Grms @with HDD; 2Grms @with SSD, follow IEC 60069-2-64	
	EMC/Safety	CE (RED Compliance), EN 61000-6-2: 2005 /AC: 2005, FCC, UL, CB, CCC, BSMI	
	Front Panel Protection	IP65 rated/NEMA4 compliant	
Power Supply	Input Voltage	12~24Vdc	
	Adapter	12~24V, 7 A (84W ITE adapter)	
	Power Consumption	Typical 40W, Max 50W	
LCD Display	Size/Type	21.5" TFT LCD with LED backlight	
	Max. Resolution	1920 x 1080	
	Max. Color	16.7M	
	Pixel Pitch (H x V)	248.25 x 248.25	
	Brightness	250 nits (400 nits optional)	
	Viewing Angle	178°/178°	
Touchscreen (PE/RE)	Type	Projected capacitive, Single point Analog Resistive 5-wires touch	
	Light Transmission	88% ± 2%, 80% ± 3%	
	Controller	USB interface	

1.2.11 UTC-532A/C

System	CPU	AMD® G-Series T40E dual-core 1.0 GHz (UTC- 532A)	Intel® Core™ i7 3517UE 1.7 GHz (UTC-532C)
	Chipset	T40E + A50M	Intel® QM77
	Cache	L2 cache 512 KB	L2 cache 1 MB (L3 cache 4 MB)
	Memory	1 x SODIMM DDR3 1066 MHz, up to 4 GB	1 x SODIMM DDR3/DDR3L 1333/1600 MHz, up to 8 GB
	HDD	1 x 2.5 internal SATA HDD bay	
	Network (LAN)	2 x Gigabit Ethernet ports	
	I/O	3 x RS-232 COM (RS-422/485 optional) 4 x USB 2.0 2 x Gigabit Ethernet (RJ-45) 1 x VGA/HDMI 1 x Audio Line-Out 1 x Mic-In	2 x RS-232 COM (RS-422/485 optional) 2 x USB 2.0, 2 x USB 3.0 2 x Gigabit Ethernet (RJ-45) 1 x VGA/HDMI 1 x Audio Line-Out 1 x Mic-In
	Stereo Speaker	2 x 3W	
	Bus Expansion	1 x Full-size mini PCIe/mSATA	
	Dimensions (W x H x D)	785.64 x 480.24 x 62.50 mm (30.93 x 18.9 x 2.46 in)	
	Weight 1	18 kg (39.6 lb)	
OS Support	Windows XP/XPE, Windows Embedded 7/8	Windows Embedded 7/8, Win- dows 10 IoT Enterprise	
Environmental	Operating Temperature	0 ~ 40° C (32 ~ 104° F)	
	Relative Humidity	10 ~ 95% @ 40° C non-condensing	
	Vibration	Operating 10G peak acceleration (11ms duration), follow IEC 60068-2-27	
	Shock	Operating Random Vibration Test 5 ~ 500Hz, 1Grms @with HDD; 2Grms @with SSD, follow IEC 60069-2-64	
	EMC	CE, FCC, UL, CB, CCC, BSMI	
	Front Panel Protection	IP65/NEMA4 compliant	
Power Supply	Input Rating	100 ~ 240 V _{AC} 50/60 Hz 2.5 A	
	Power Consumption	Typical 95W Max. 105W	

LCD Panel	Size/Type	32" TFT LCD with LED backlight
	Max. Resolution	1920 x 1080
	Max. Color	16.7M
	Pixel Pitch	0.36375 x 0.36375 mm
	Brightness	300 cd/m ²
	Viewing Angle	178°/178°
Touchscreen (PE/GE)	Type	Glass panel with projected capacitive touch (no touch function optional)
	Light Transmission	90% ± 2%/90%
	Controller	USB interface

1.2.12 UTC-532E/F/G

System	CPU	Intel® Pentium® N4200 (UTC-532G) Intel® Atom® E3950 (available upon request)	Intel® Core™ i5-6300U (UTC-532F)	Intel® Core™ i5-4300U (UTC-532E) Intel® Core™ i3-4010U (available upon request) Intel® Celeron® 2980U (available upon request)
	Base Frequency	1.1 GHz (N4200/quad-core) 1.6 GHz (E3950/quad-core)	2.4GHz (dual-core)	1.9 GHz (dual-core)
	Cache	L2 cache 2 MB	L3 cache 3 MB	L3 cache 3 MB
	Memory	1 x 204-pin SODIMM DDR3L 1867 MHz, up to 8 GB	2 x 204-pin SODIMM DDR3L 1600 MHz, up to 16 GB	1 x 204-pin SODIMM DDR3L 1333/1600 MHz, up to 8 GB
	HDD	1 x 2.5 internal SATA HDD bay		1 x 2.5 internal SATA HDD bay
	Network (LAN)	2 x Gigabit Ethernet ports (with Wake-on-LAN support)		
	I/O	2 x RS-232 COM (RS-422/485)* 2 x USB2.0/ 2 x USB3.0 2 x Gigabit Ethernet (RJ-45) 1 x VGA 1 x HDMI 1 x Audio Line-Out 1 x Mic-In		2 x RS-232 COM (RS-422/485)* 2 x USB 2.0 / 2 x USB 3.0 2 x Gigabit Ethernet (RJ-45) 1 x VGA & 1 x HDMI 1 x Audio Line-Out 1 x Mic-In
	Stereo Speaker	3 W x 2		
	Bus Expansion	1 x Full-size mini PCIe/M.2	1 x Full-size mini PCIe/mSATA	
	Dimensions (W x H x D)	764.5 x 459 x 62.5 mm (30 x 18 x 2.46 in)		
	Weight	18 kg (39.6 lb)		

OS Support		Windows 10 IoT Enterprise Android 6.0 Linux Ubuntu 17.04	WES 7P 32 bit WES 7E 32 bit Windows Pro Embedded 7 SP1 64 bit WES 8 64 bit Windows Embedded 8.1 Industry Pro 64 bit Windows 10 IoT Enterprise Linux Ubuntu 16.04	WES 7P 32 bit WES 7E 32 bit Windows Pro Embedded 7 SP1 64 bit WES 8 64 bit Windows Embedded 8.1 Industry Pro 64 bit Windows 10 IoT Enterprise Linux Ubuntu 16.04
Environmental	Operating Temperature	0 ~ 40° C (32 ~ 104° F)		
	Relative Humidity	10 ~ 95% @ 40° C non-condensing		
	Vibration	Operating 10G peak acceleration (11ms duration), follow IEC 60068-2-27		
	Shock	Operating Random Vibration Test 5 ~ 500Hz, 1Grms @with HDD; 2Grms @with SSD, follow IEC 60069-2-64		
	EMC	CE, FCC, UL, CB, CCC, BSMI		
	Front Panel Protection	IP65/ NEMA4 compliant		
Power Supply	Input Rating	100 ~ 240 V _{AC} ~ 50/60 Hz 2.5 A		
	Power Consumption	Typical 95W Max. 105W		
LCD Panel	Size/Type	31.5" TFT LCD with LED backlight		
	Max. Resolution	1920 x 1080		
	Max. Color	16.7 M		
	Pixel Pitch	0.36375 x 0.36375 mm		
	Brightness	300 cd/m ²		
	Viewing Angle	178°/178°		
Touchscreen (PE/GE)	Type	Glass panel with projected capacitive touch/glass panel with no touch function		
	Light Transmission	90% ± 2%/90%		
	Controller	USB interface		

1.2.13 UTC-542D/F/G

System	CPU	Intel® Celeron® J1900 (UTC-542D)	Intel® Core™ i5-6300U (UTC-542F) Intel® Core™ i7-6600U (available upon request) Intel® Core™ i3-6100U (available upon request)	Intel® Pentium® N4200 (UTC-542G) Intel® Atom® E3950 (available upon request)
	Base Frequency	2 GHz (quad-core)	2.4 GHz (dual-core)	1.1 GHz (N4200/quad-core) 1.6 GHz (E3950/quad-core)
	Cache	2 MB	3 MB	L2 cache 2 MB
	Memory	1 x 204-pin SODIMM DDR3L 1333 MHz	2 x 204-pin SODIMM DDR3L 1600Mhz	1 x 204-pin SODIMM DDR3L 1867 MHz
	HDD/SSD	Dual hot-swappable HDD/SSD slots with RAID 0,1 support		
	Network (LAN)	2 x Gigabit Ethernet ports		
	I/O	2 x RS-232 COM (RS-422/485)* 4 x USB 2.0/1 x USB 3.0 2 x Gigabit Ethernet (RJ-45) 1 x VGA 1 x HDMI	2 x RS-232 COM (RS-422/485)* 3 x USB 2.0/2 x USB 3.0 2 x Gigabit Ethernet (RJ-45) 1 x VGA 1 x HDMI	
	Stereo Speaker	2 x 10W		
	Bus Expansion	1 x Full-size mini PCIe/mSATA		
	Dimensions (W x H x D)	990.6 x 578.8 x 60.2 mm (Mirror Glass) 1016.9 x 605.2 x 60.5mm (Pcap/Mirror Pcap*)		
Weight	24.6 kg			
OS Support	WES 7P 32 bit WES 7E 32 bit Windows Pro Embedded 7 SP1 64 bit WES 8 64 bit Windows Embedded 8.1 Industry Pro 64 bit Windows 10 IoT Enterprise Linux Ubuntu 16.04 Android 4.4.2**	WES 7P 32 bit WES 7E 32 bit Windows Pro Embedded 7 SP1 64 bit WES 8 64 bit Windows Embedded 8.1 Industry Pro 64bit Windows 10 IoT Enterprise Linux Ubuntu 16.04	Windows 10 IoT Enterprise Android 6.0** Linux Ubuntu 17.04	

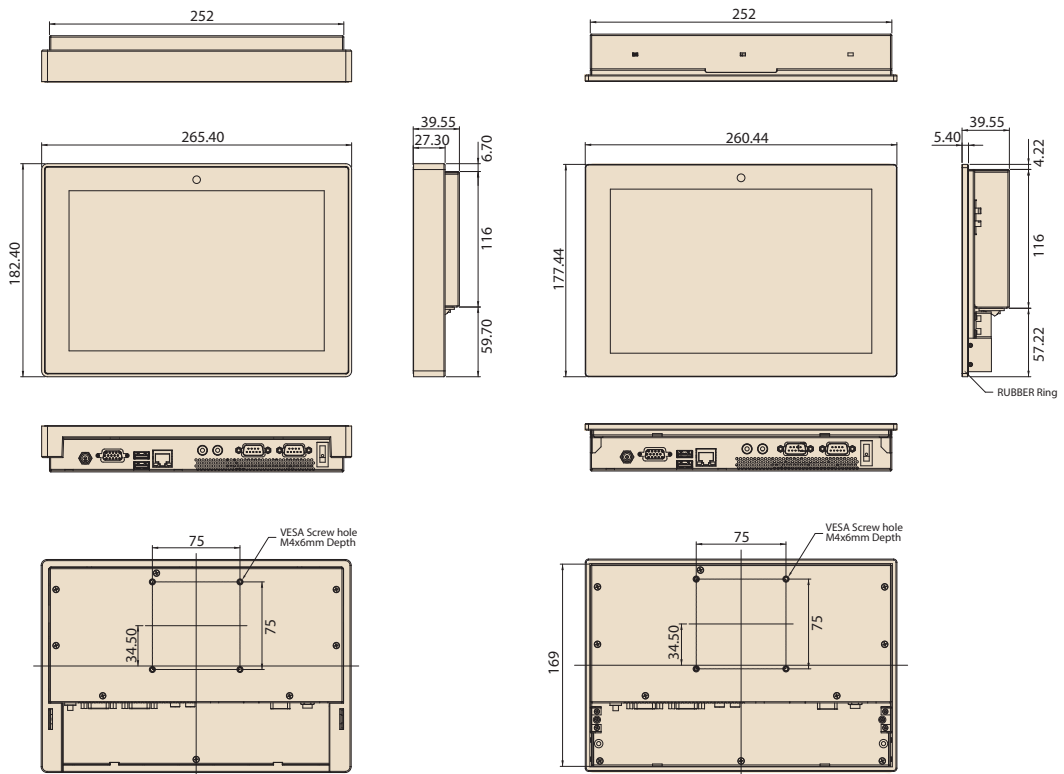
Environmental	Operating Temperature	0 ~ 40° C (32 ~ 104° F)
	Relative Humidity	10 ~ 95% @ 40° C non-condensing
	Vibration	Operating 10G peak acceleration (11ms duration), follow IEC 60068-2-27
	Shock	Operating Random Vibration Test 5 ~ 500Hz, 1Grms @with HDD; 2Grms @with SSD, follow IEC 60069-2-64
	Front Panel Protection	IP65/NEMA4 compliant
Power	Input Rating	100 ~ 240V _{AC} ~ 50/60 Hz 3.7A
LCD Panel	Size/Type	42.5" TFT LCD with LED backlight
	Max. Resolution	1920 x 1080
	Pixel Pitch	0.49 x 0.49
	Brightness	450 cd/m ²
	Viewing Angle	178°/178°
Touchscreen (PE/GE)	Type	Glass panel with projected capacitive touch/mirrored glass panel with no touch function/mirrored glass panel with projected capacitive touch*
	Light Transmission	>90% (pure glass); >25% (mirror coated)
	Controller	USB interface

* Mirrored PCAP touchscreen available upon request.

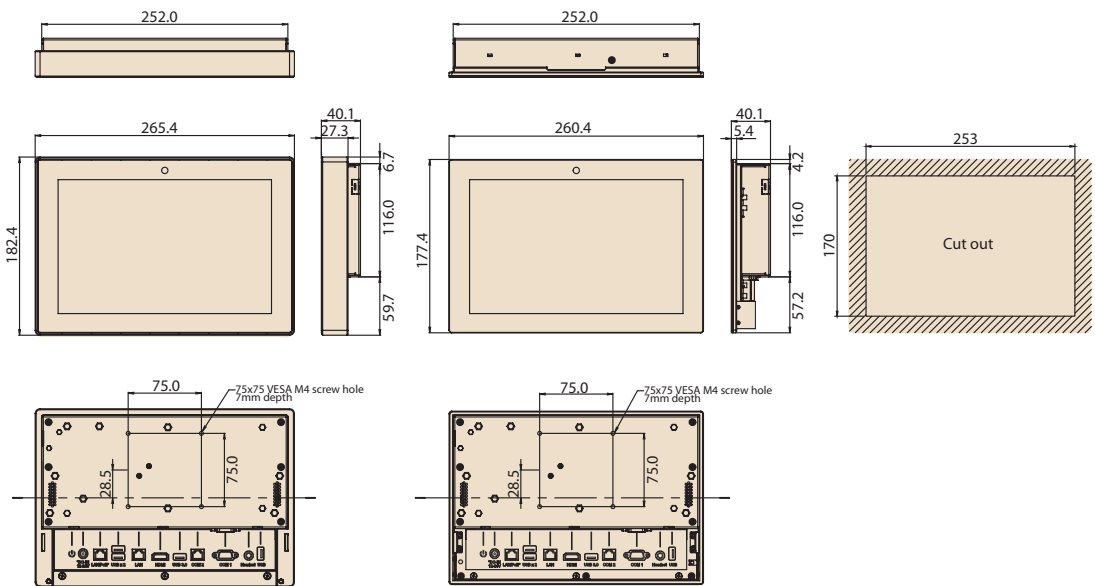
** Only UTC-542D and UTC-542G models support Android OS.

1.3 Dimensions

1.3.1 UTC-510

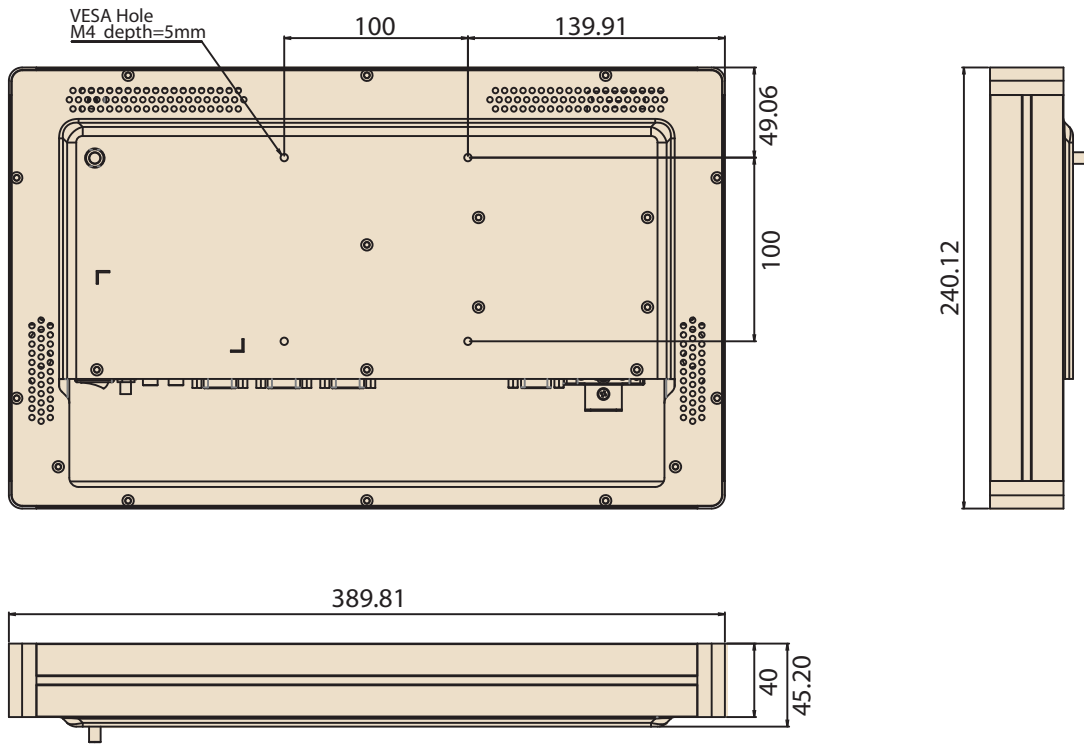


Unit: mm

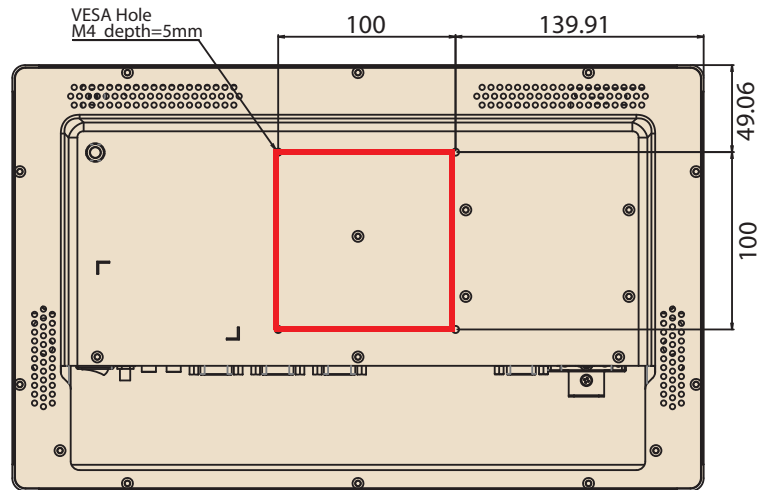


1.3.2 UTC-515 D/F/G/H

Dimensions: 390 x 240 x 45 mm (15.35 x 9.44 x 1.77 in)

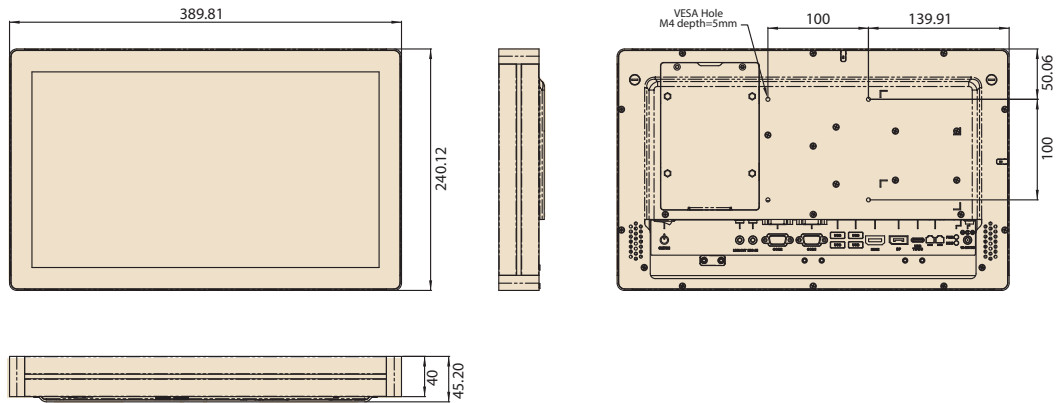


VESA Mount: 100 x 100 mm (3.93 x 3.93 in)



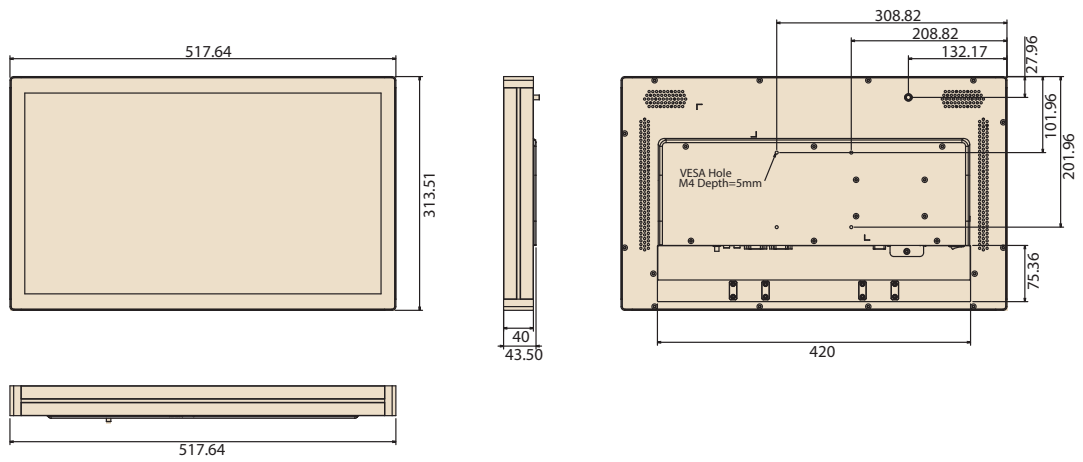
1.3.3 UTC-515I/J

Unit: mm



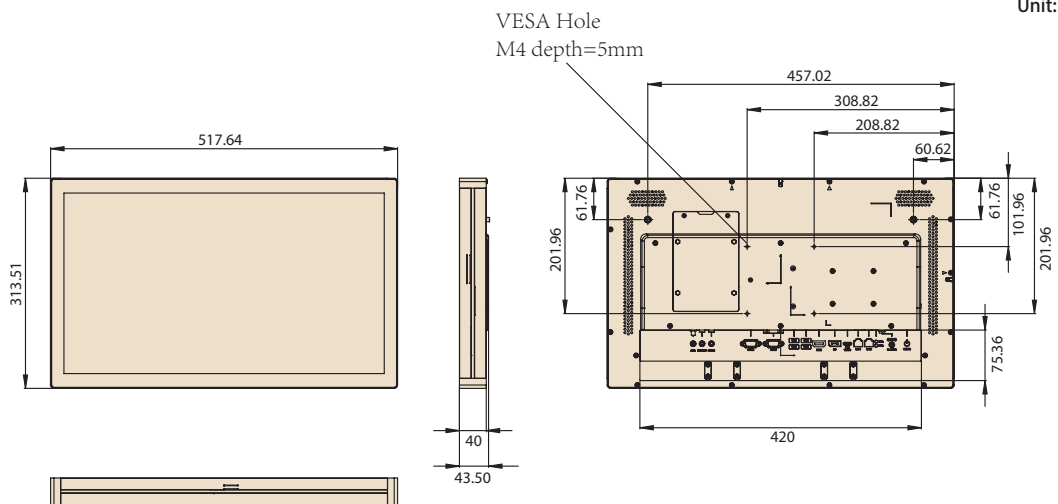
1.3.4 UTC-520 D/F/G/H

Unit: mm



1.3.5 UTC-520I/J

Unit: mm



1.3.6 UTC-532

Dimensions: 786 x 480 x 63 mm (30.9 x 18.89 x 2.48 in)

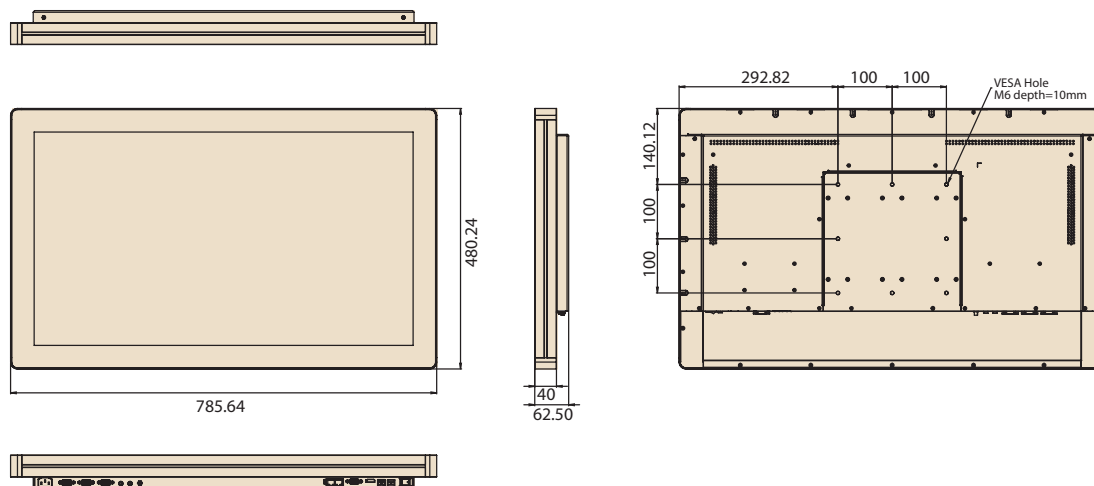
Applies to the following models:

UTC-532F-PE

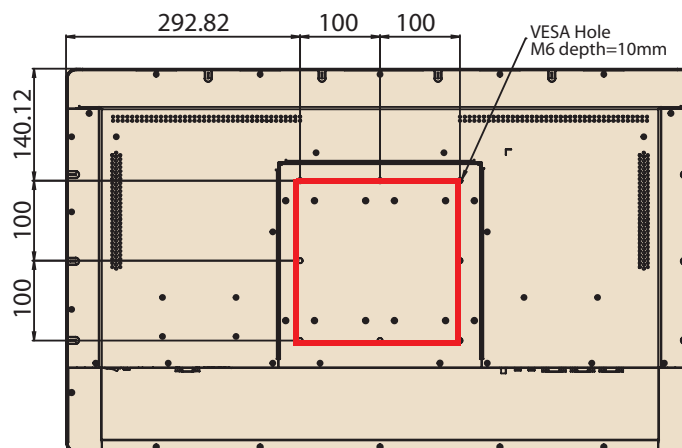
UTC-532E-PE

UTC-532D-PE

UTC-532C-PE



VESA Mounting: 200 x 200 mm (7.87 x 7.87 in)



Dimensions: 765 x 459 x 63 mm (30.11 x 18.07 x 2.48 in)

Applies to the following models:

UTC-532GP-ATB0E

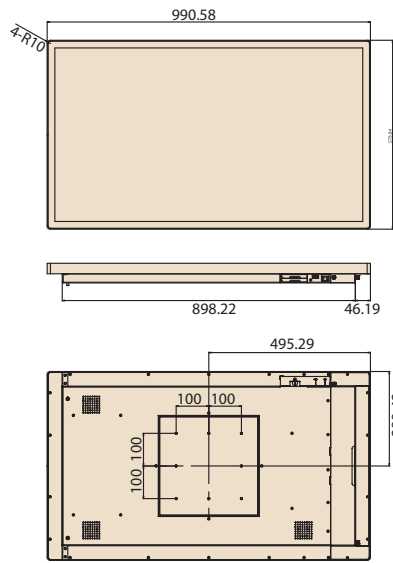
UTC-532FP-ATB0E

UTC-532EP-ATB0E

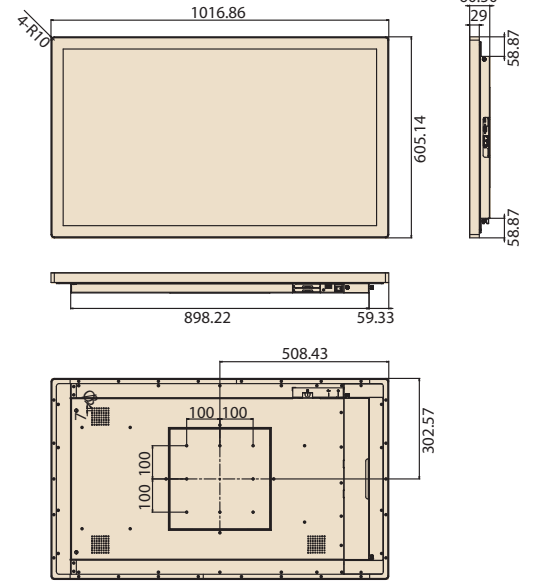
1.3.7 UTC-542

Unit: mm

Mirror



Pcap



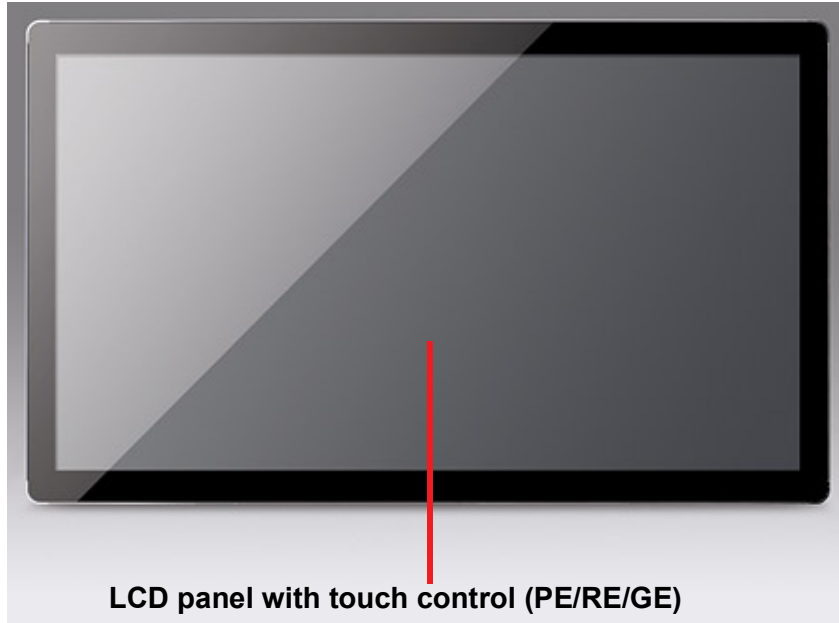
Chapter 2

System Setup

2.1 Quick Tour

Before setting up the system, take a moment to become familiar with the connector locations and functions, as shown in the images below.

2.1.1 Front View



Note! *The UTC-515 and UTC-520 PE models feature an anti-microbial Corning® Gorilla® Glass panel with projected capacitive touch control. See Appendix C for additional details. Resistive touch control is not available for the UTC-510/532/542 devices.*



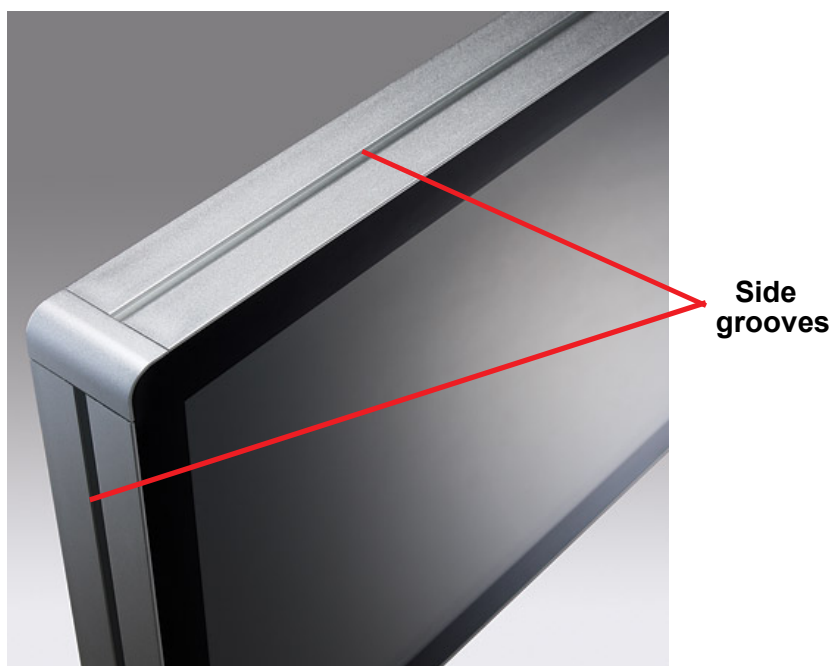
2.1.2 Rear View



Note! *Use only VESA-compatible floor, stand, and wall mount kits. See Appendix A for additional details. Refer to Section 2.2 for information regarding the system I/O, according to the specific UTC model.*



2.1.3 Side View

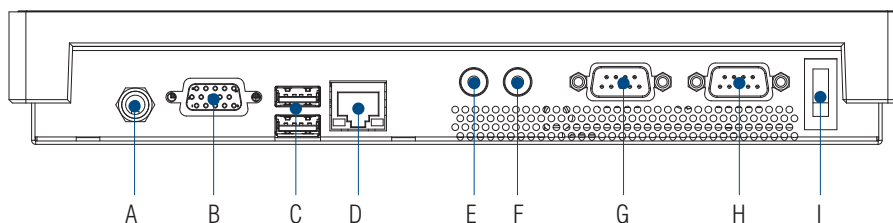


Note! The UTC-500 series devices (excluding the UTC-510/542 models) feature unique side grooves for easy integration of peripherals using two screws. Refer to Section 3.6 for installation information.



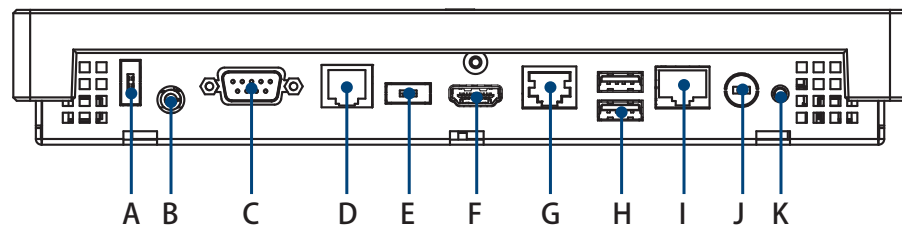
2.2 I/O Ports

2.2.1 UTC-510



- | | |
|-----------------------------|-----------------|
| A. DC power jack | F. Line-out |
| B. VGA | G. COM 2 |
| C. 1 x USB 3.0, 1 x USB 2.0 | H. COM 1 |
| D. LAN | I. Power switch |
| E. Mic-In | |

2.2.2 UTC-510(PoE)



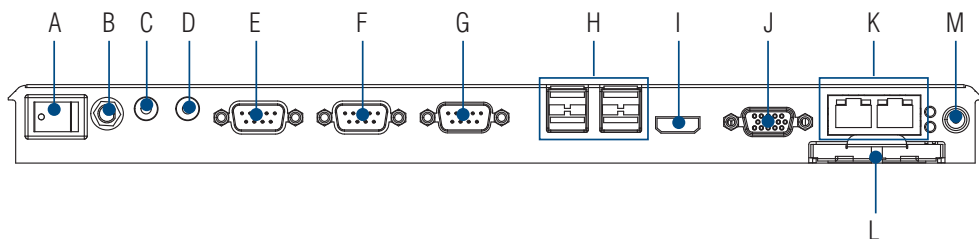
- | | |
|------------------------------|------------------------------------|
| A. USB 2.0 (DC version only) | G. LAN |
| B. Headset | H. 2 x USB 2.0 |
| C. COM1 | I. LAN/PoE |
| D. COM2 | J. DC power jack (DC version only) |
| E. USB 3.0 (DC version only) | K. Power switch |
| F. HDMI | |

With the standard UTC-510 PoE model, users are recommended to avoid using the USB 2.0 (A) and USB 3.0 (E) ports. To change the configuration, the total power input must be under 25.5 W.



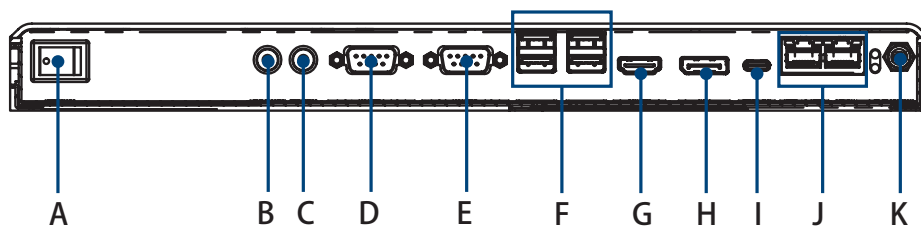
Caution! The UTC-510 (PoE) model is a PoE-powered device that consumes energy. Always use power sourcing equipment (PSE) that complies with the IEEE 802.3at PoE standard, also known as “PoE+” or “PoE plus”, and provides up to 30W of DC power output because only 25.5W is guaranteed to be available because of in-cable power dissipation.

2.2.3 UTC-515 D/F/G/H



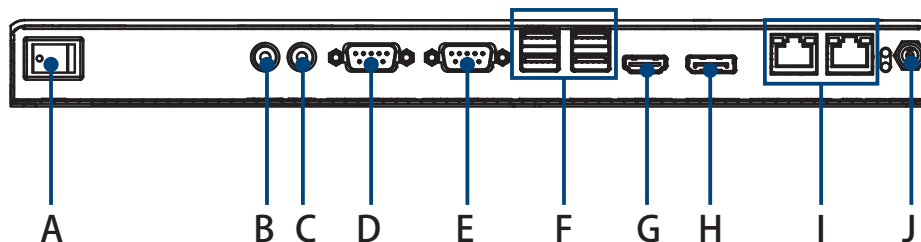
- | | |
|---------------------------|--------------------------------|
| A. Power switch | H. 4 x USB 2.0 |
| B. Antenna connector | (2 x USB 3.0 for UTC-515C/E/F) |
| C. Line-Out | I. HDMI |
| D. Mic-In | J. VGA |
| E. COM3 (UTC-515A/B only) | K. 2 x LAN |
| F. COM2 | L. CFast (UTC-515A/B only) |
| G. COM1 | M. DC input |

2.2.4 UTC-515I



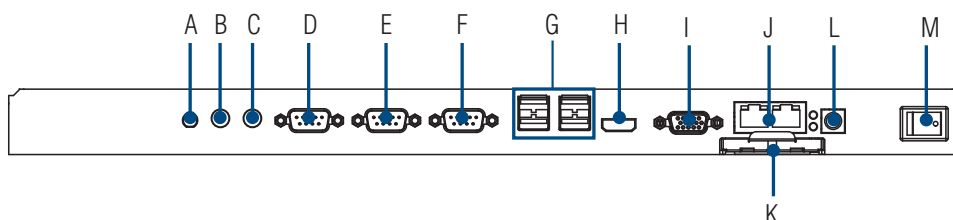
- | | |
|-----------------|------------------|
| A. Power switch | G. HDMI |
| B. Line-Out | H. DP |
| C. Mic-In | I. USB Type-C |
| D. COM2 | J. LAN ports x 2 |
| E. COM1 | K. DC input |
| F. USB 3.2 x 4 | |

2.2.5 UTC-515J



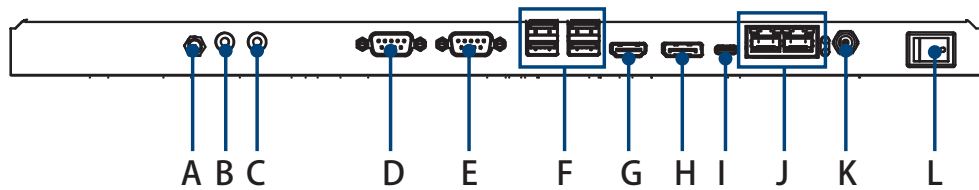
- | | |
|-----------------|------------------|
| A. Power switch | F. USB 3.2 x 4 |
| B. Line-Out | G. HDMI |
| C. Mic-In | H. DP |
| D. COM2 | I. LAN ports x 2 |
| E. COM1 | J. DC input |

2.2.6 UTC-520 D/F/G/H



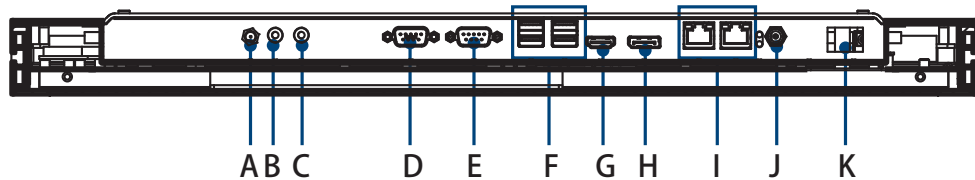
- | | |
|-----------------------------------------------------------------------|----------------------------|
| A. Antenna connector | H. HDMI |
| B. Line-Out | I. VGA |
| C. Mic-In | J. 2 x LAN |
| D. COM3 (UTC-520A/B only) | K. CFast (UTC-520A/B only) |
| E. COM2 | L. DC input |
| F. COM1 | M. Power switch |
| G. 4 x USB 2.0 (1 x USB 3.0 for UTC-520D; 2 x USB 3.0 for UTC-520C/E) | |

2.2.7 UTC-520I



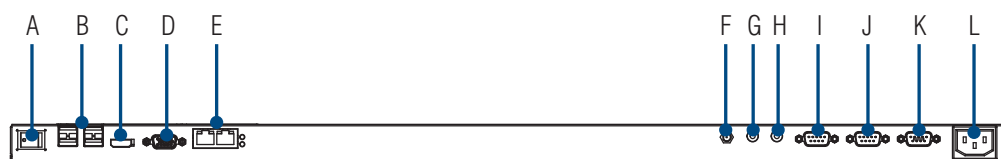
- | | |
|-----------------|------------------|
| A. Antenna Port | G. HDMI |
| B. Line-Out | H. DP |
| C. Mic-In | I. USB Type C |
| D. COM2 | J. LAN ports x 2 |
| E. COM1 | K. DC input |
| F. USB 3.2 x 4 | L. Power Switch |

2.2.8 UTC-520J



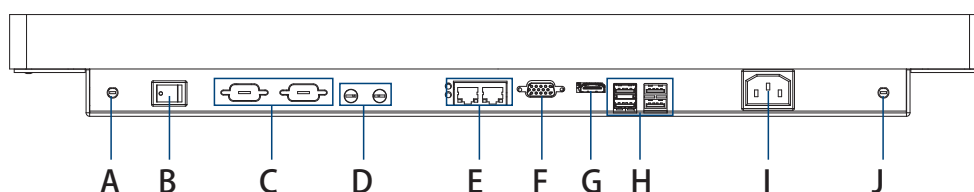
- | | |
|-----------------|------------------|
| A. Antenna Port | G. HDMI |
| B. Line-Out | H. DP |
| C. Mic-In | I. LAN ports x 2 |
| D. COM2 | J. DC input |
| E. COM1 | K. Power Switch |
| F. USB 3.0 x 4 | |

2.2.9 UTC-532



- | | |
|-----------------------------------------------------------------------------|-------------------------|
| A. Power switch | F. Antenna connector |
| B. 4 x USB 2.0
(1 x USB 3.0 for UTC-532D;
2 x USB 3.0 for UTC-532C/E) | G. Line-Out |
| C. HDMI | H. Mic-In |
| D. VGA | I. COM3 (UTC-532A only) |
| E. 2 x LAN | J. COM2 |
| | K.COM1 |
| | L. AC input |

2.2.10 UTC-542



- | | |
|----------------------|----------------------------------------|
| A. Antenna connector | G. HDMI |
| B. Power switch | H. 1 x USB 3.0, 3 x USB 2.0 (UTC-542D) |
| C. 2 x COM | USB 3.0 x 2, USB 2.0 x 2 (UTC-542F) |
| D. Mic-In/Line-Out | I. AC power |
| E. 2 x LAN | J. Antenna connector |
| F. VGA | |

2.3 Setup Procedures

2.3.1 System Power On

1. For the UTC-510 model, connect the system to a power adaptor with 12V/3A input voltage. For the UTC-515 and UTC-520A/B/C/D/E models, a 12V/5A power adaptor. For the UTC-520C/E models, a 12V/7A power adaptor. For the UTC-532/542 models, connect the system to an AC power cable.
2. Hold power cords by the plugs ends only. Refer to Section 2.2 for the location of the DC/AC power input and power switch.
3. Press the power switch to activate the system. The PWR LED should emit a green light.

2.3.2 BIOS Setup

For most UTC series, the system setup and configuration will be completed by the dealer or system integrator prior to delivery. However, users may still need to access the BIOS setup program to adjust the system configuration, such as the date/ time or hard drive type. The setup program is stored in read-only memory (ROM) and can be accessed following system reset or by pressing the “Del” key after powering on the computer. The settings selected in the setup program are recorded in CMOS RAM memory, which is backed up by a battery to ensure the settings are retained after the system is powered off. When booting up, the system compares the settings stored in CMOS RAM with the POST self test results. If a discrepancy is found, an error message is displayed on screen and users are prompted to run the setup program.

2.3.3 System Software Installation

Recent releases of operating systems from major vendors include setup programs that load automatically and guide users through hard disk preparation and operating system installation. Some distributors and system integrators may have already installed software prior to shipping the product.

Note! Before software or driver installation, the system must be equipped with additional storage that users must purchase separately.



2.3.4 Driver Installation

After installing the system software, users can set up the Ethernet, XGA, audio, and touchscreen functions.

Note! *The relevant drivers and utilities are subject to change without notice. Download the latest drivers for UTC series products from the Advantech website at <http://support.advantech.com> or contact our application engineers for further assistance.*



Chapter 3

Upgrades and
Installation

3.1 Introduction

Advantech's UTC series systems are PC-based computers housed in an aluminum enclosure. To perform system maintenance or hardware upgrades, such as installing an HDD, DRAM, or CompactFlash (A/B models only), simply remove the unit's rear cover.

Warning! *Do not remove the rear cover until you have verified that power is not flowing within the device. The system power should be switched off and the power cord unplugged before opening the device enclosure.*

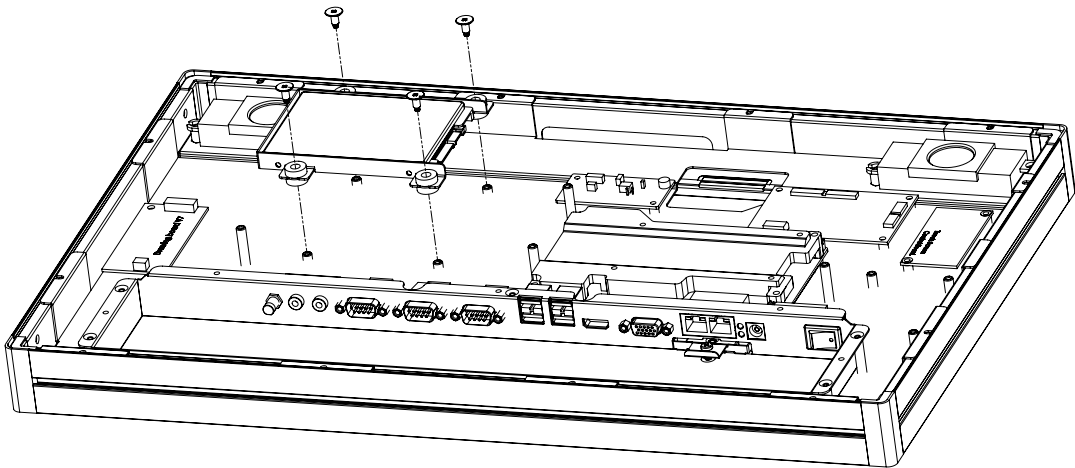
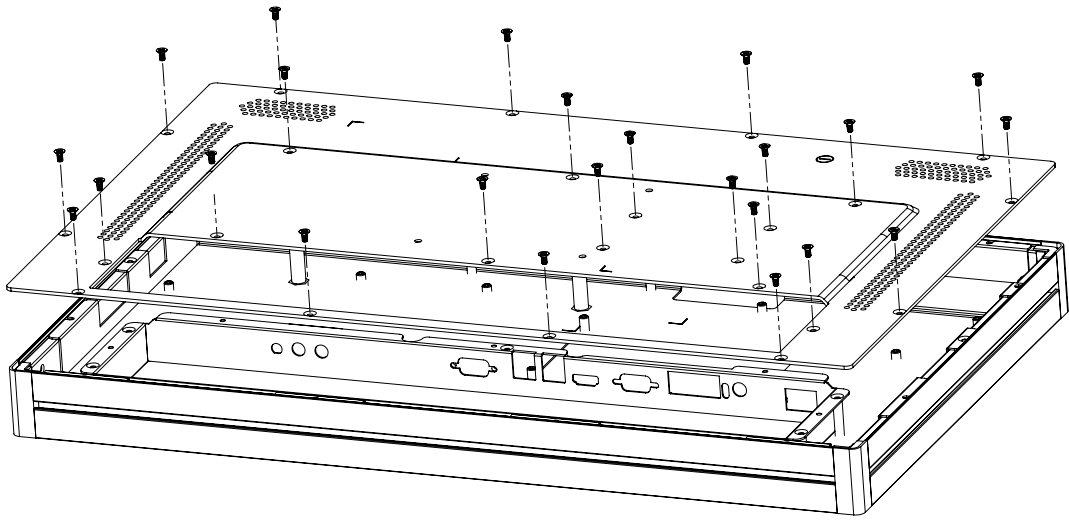


3.2 Installing a 2.5" SATA HDD

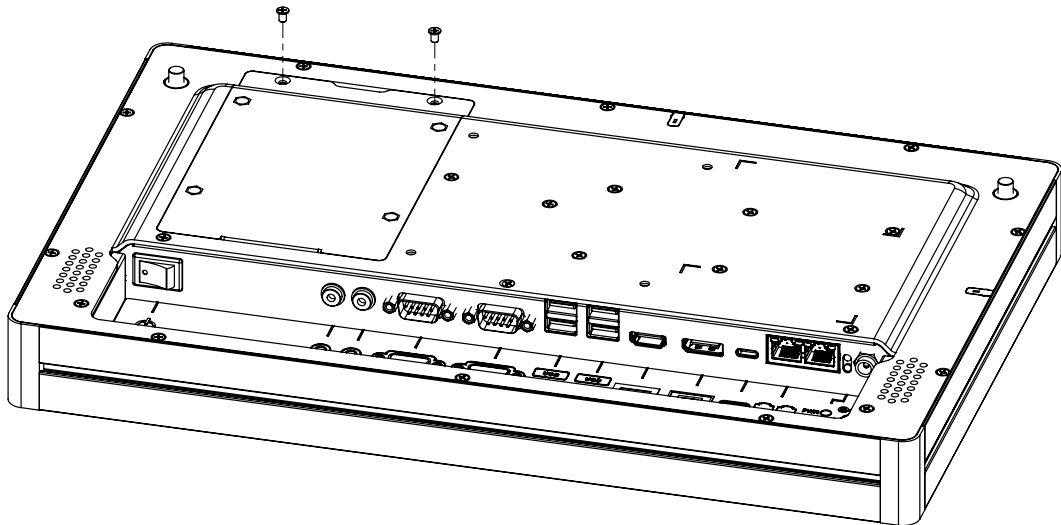
UTC systems feature a 2.5" SATA HDD bay reserved for customizable storage. To install a 2.5" SATA HDD, follow the steps below.

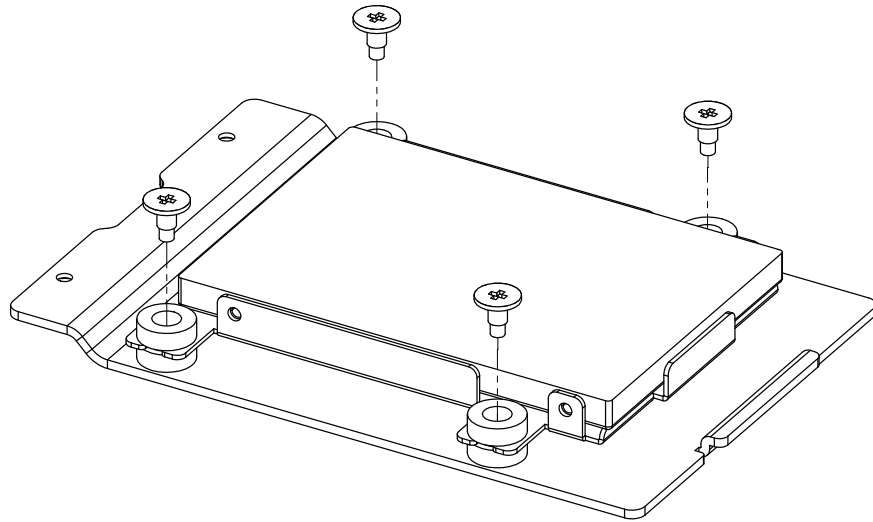
1. Loosen the affixing screws and remove the rear cover.
2. Insert the SATA HDD into the metal bracket and fasten in place with screws.
3. Use a power cable to connect the SATA HDD to the power supply unit.
4. Use a SATA data cable to connect the SATA HDD to the motherboard.
5. Replace the rear cover and tighten the screws.

3.2.1 UTC-515.520D/F/G/H, UTC-532.542



3.2.2 UTC-515.520I/J

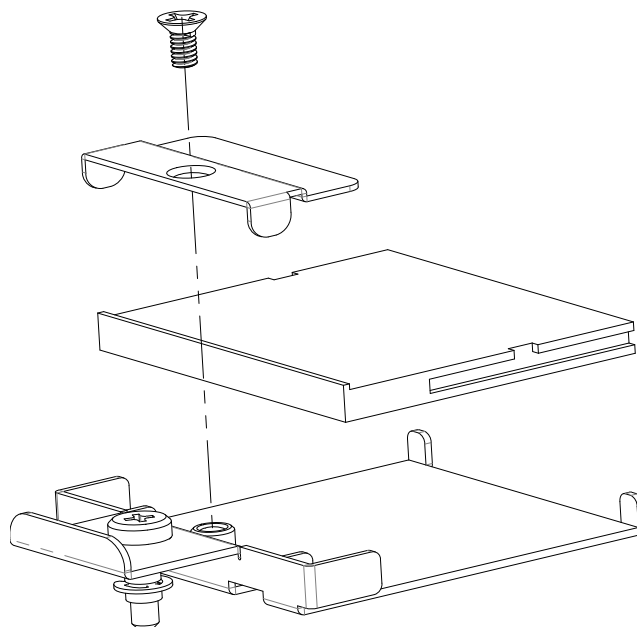




1. Loosen the affixing screws and remove HDD bracket.
2. Insert 2.5" storage into metal bracket with screws.
3. Connect SATA HDD cable and power cable from 2.5" storage to MB.
4. Replace HDD cover and tighten up screws.

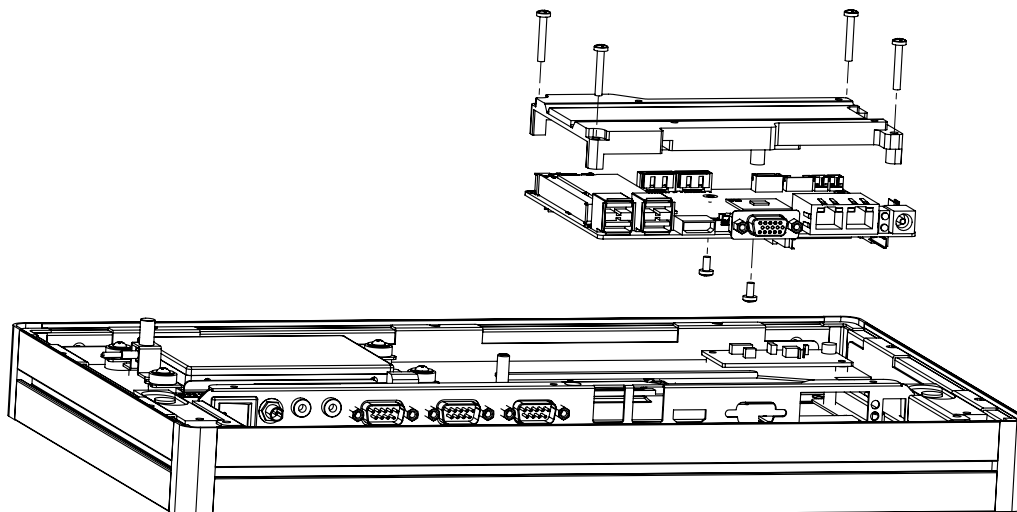
3.3 Installing a CFAST Card (A/B Models Only)

The image below illustrates the process for installing a CFAST card. (Note the direction of the CFAST card during assembly).



3.4 Installing a Memory Module

1. Loosen the affixing screws and remove the rear cover.
2. Remove the 4 screws from the DRAM memory module heatsink.
3. Turn the memory module over and remove the 2 screws on the underside.
4. Install the DRAM module into the SODIMM socket.



3.5 Installing a Wireless LAN Card (Optional)

1. Loosen the affixing screws and remove the rear cover.
2. Remove the four screws holding the heatsink in place.
3. Insert the WLAN card into the mini PCIe slot located on the underside of the motherboard.
4. Connect a coaxial cable to ANT1 and ANT2 ports on the WLAN card.
5. Install the antenna brackets, washers, and nuts inside chassis.
6. Reassemble the back cover.
7. Install the antenna on SMA connector on chassis exterior.

Note! *If the motherboard is removed from the chassis and the cables detached and reattached, Pin 1 of the header can be located by aligning the red side of the ribbon cable to the edge indicated by a small triangle marking on the PCB.*

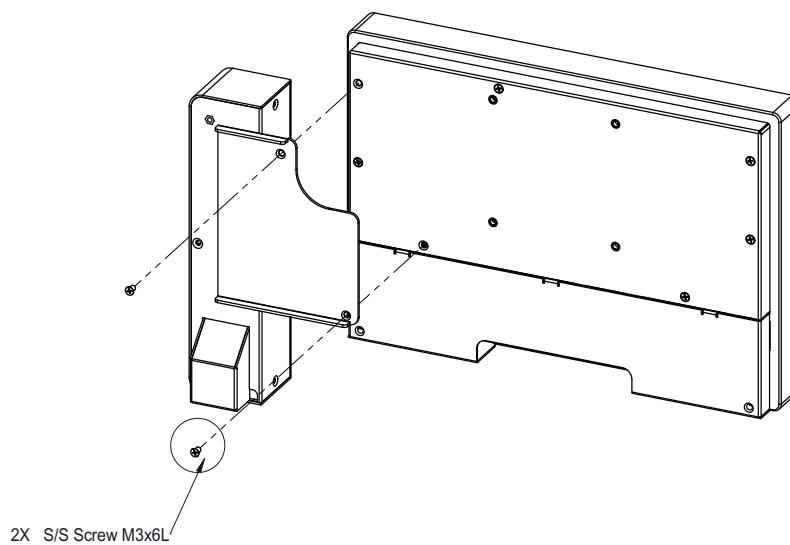
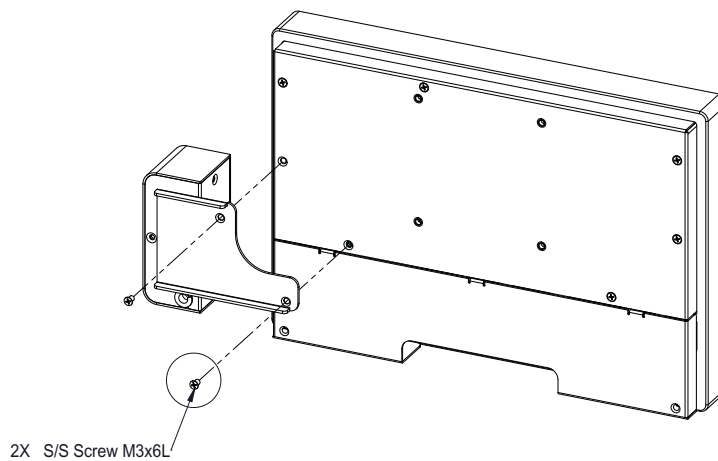
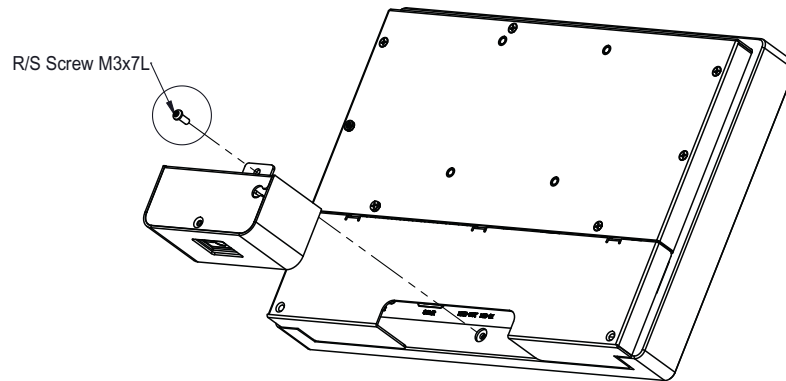


3.6 Installing Peripherals (Optional)

3.6.1 UTC-510/510 (PoE)

Installing Optional Modules

1. Attach the peripheral module to the bottom of the UTC system.
2. Affix the module in place using the screws removed from the frame.
3. Connect a cable to the peripheral module and to an I/O port (USB).

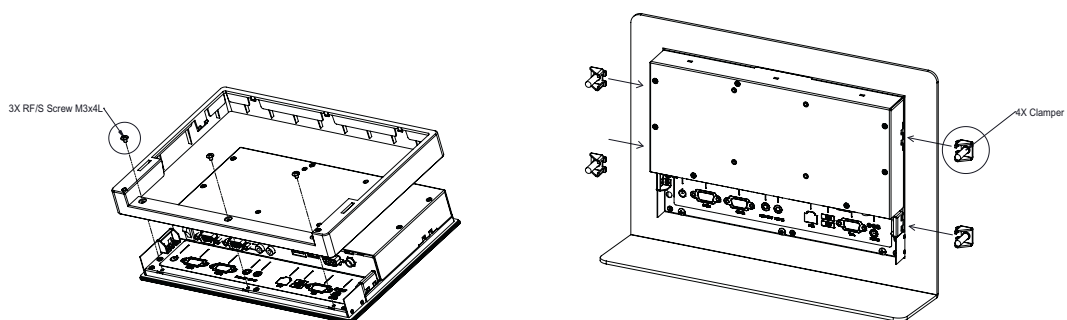


3.6.2 UTC-515/520/532

1. Affix the peripheral module to the computing device via the side grooves.
2. Use two screws to fasten the module in place.
3. Connect a cable to the peripheral module and to an I/O port (USB).
4. Place the cable clamp in a secure location and attach the cable to it for simple cable routing.

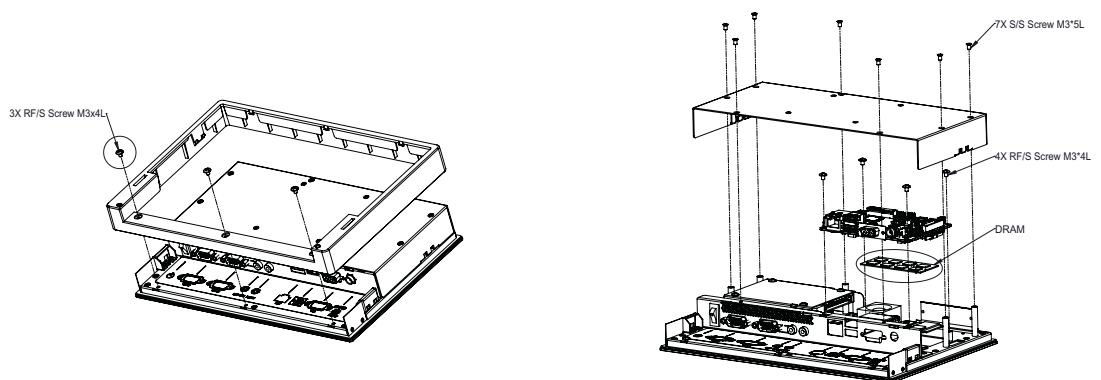


3.7 Panel Mount Installation for UTC-510

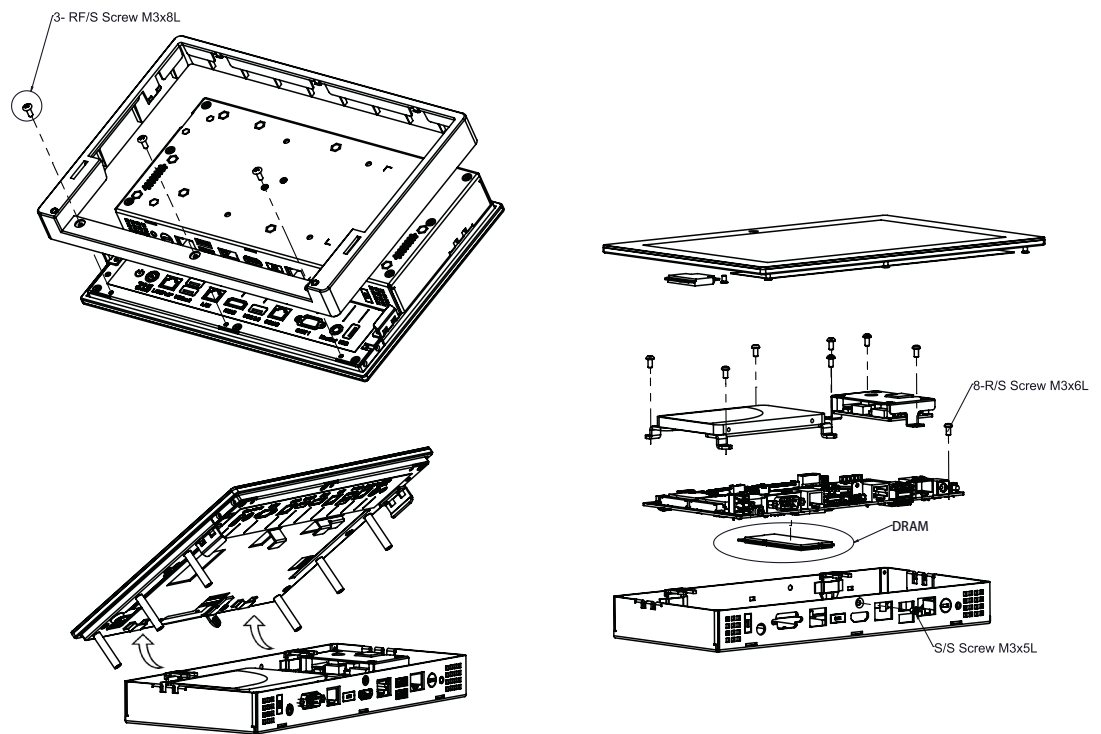


3.8 Installing a DRAM Module for UTC-510

3.8.1 UTC-510

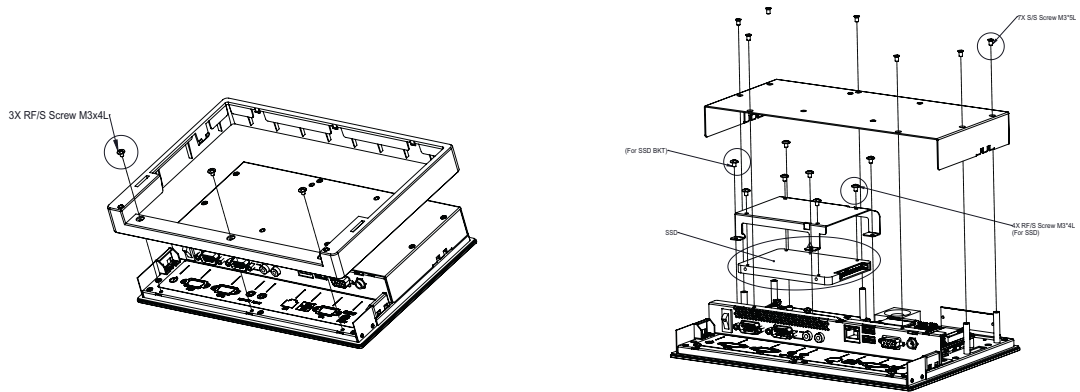


3.8.2 UTC-510 (PoE)

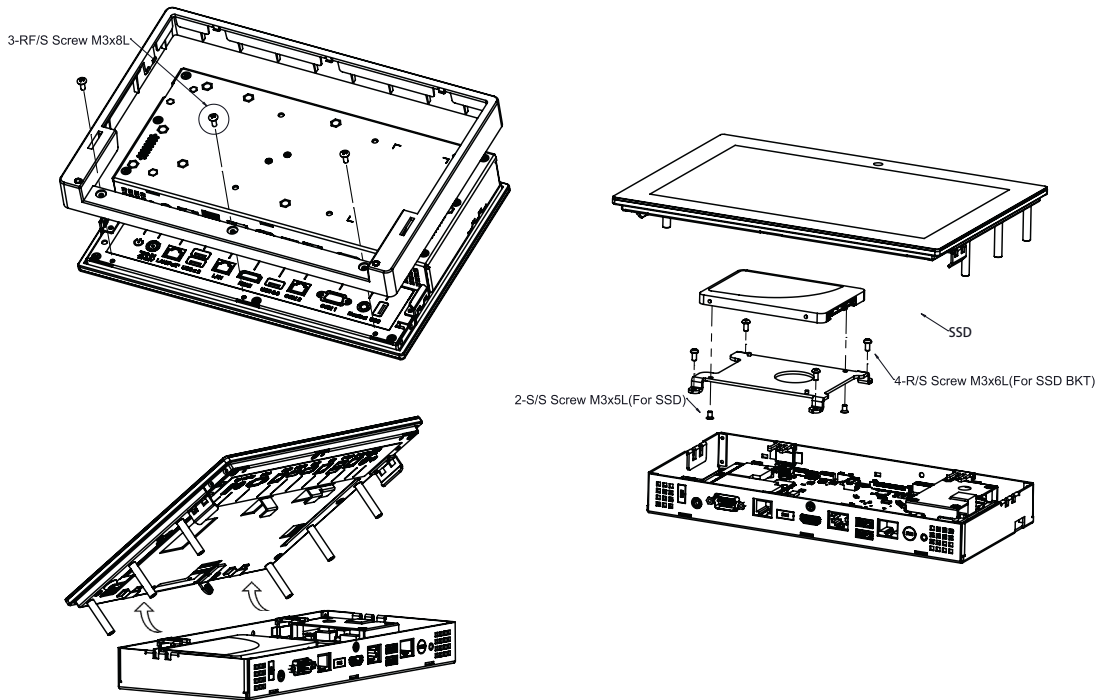


3.9 Installing an SSD Module for UTC-510

3.9.1 UTC-510

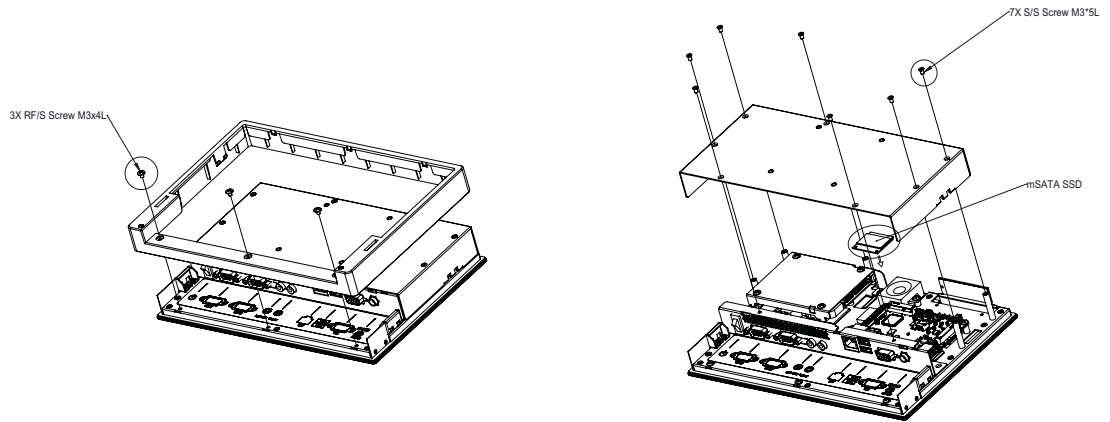


3.9.2 UTC-510 (PoE)

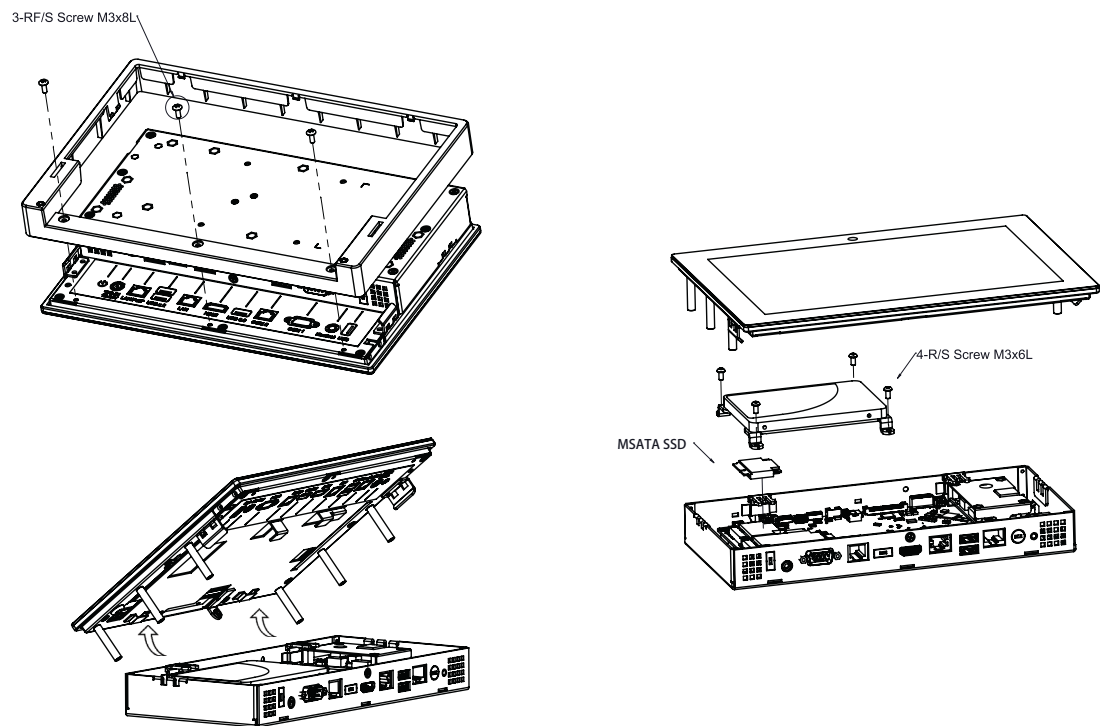


3.10 Installing an mSATA SSD Module for UTC-510

3.10.1 UTC-510

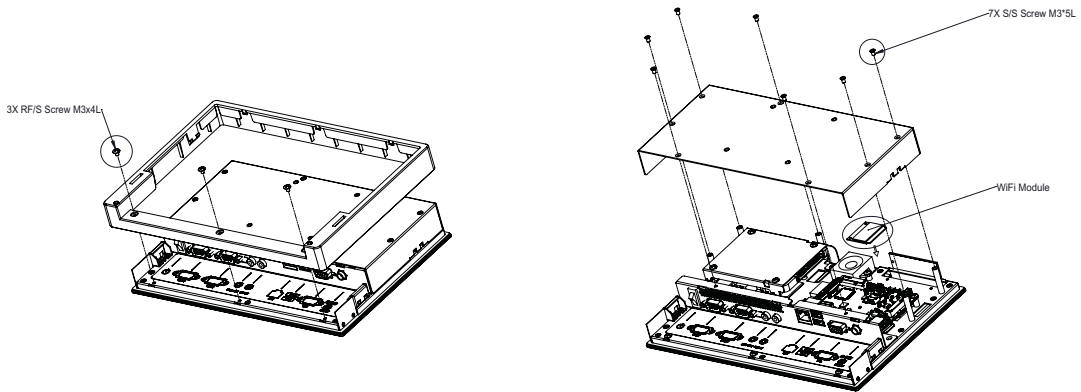


3.10.2 UTC-510 (PoE)

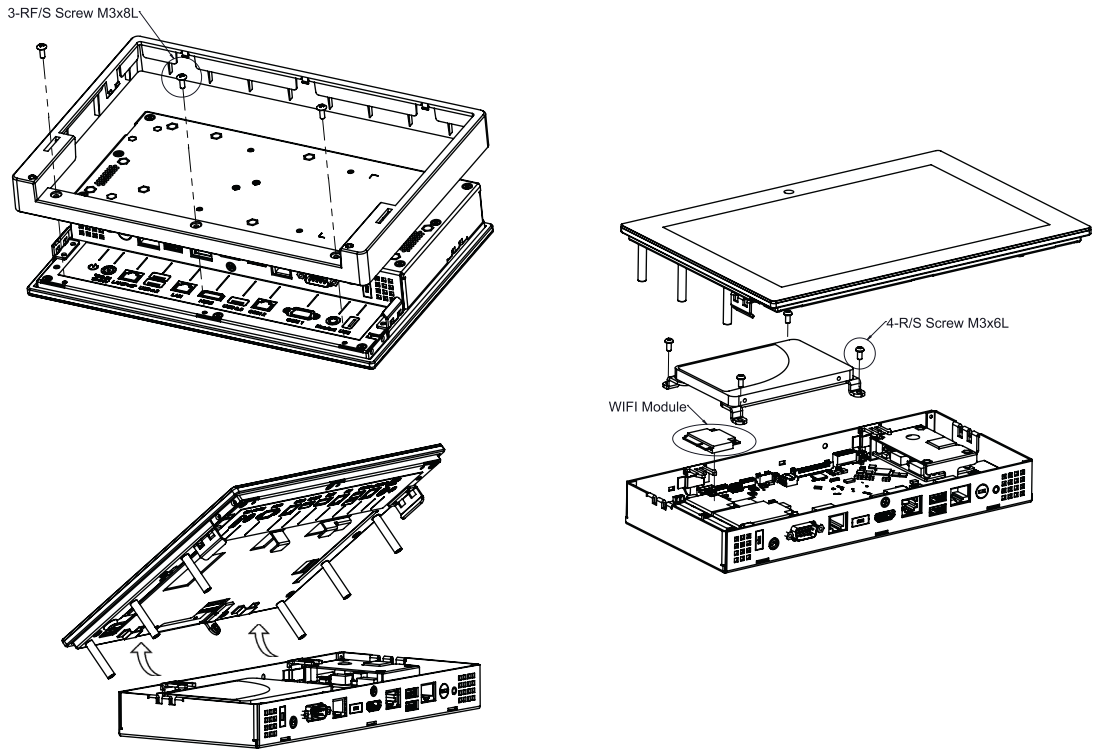


3.11 Installing a Wi-Fi Module for UTC-510

3.11.1 UTC-510



3.11.2 UTC-510(PoE)



Appendix **A**


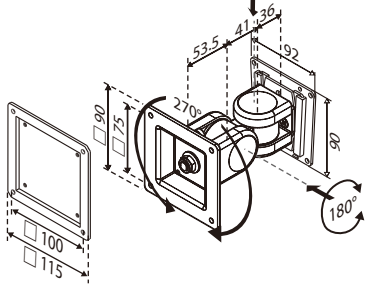

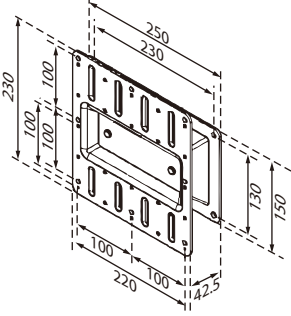
Installation
Accessories


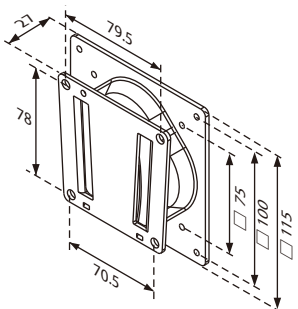
A.1 Introduction

The floor stand and wall mount accessories provided for Advantech's UTC series systems combine simplicity with style, making them easy to install without additional cost or space requirements. Additionally, because the UTC series are aimed at supporting applications in diverse usage scenarios, such as self-service kiosks in hospitality reception areas, the units are slim and compact, and feature an attractive elegant appearance that ensures integration in a variety of environments.

A.2 Wall Mount


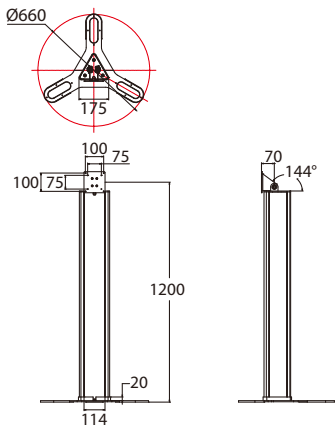
Part Number	UTC-WALLMOUNT1E	UTC-WALLMOUNT2E	UTC-WALLMOUNT3E
Description	VESA mount 75/100 mm	VESA mount 100/200 mm	VESA mount 75/100 mm
VESA Mount Pattern	75 x 75 mm 100 x 100 mm	200 x 200 mm	75 x 75 mm 100 x 100 mm
Weight Capacity	14 kg (30.86 lb)	35 kg (77.16 lb)	20 kg (44.09 lb)

UTC-WALL-MOUNT1E		
VESA 75/100 mm		
		
<ul style="list-style-type: none"> ■ Can be firmly fixed to a wall ■ Weight capacity: Up to 14 kg (30.86 lb) ■ Material: Steel ■ Tilt range: 180° up and down 	<ul style="list-style-type: none"> ■ Rotation: 270° for portrait or landscape orientation ■ Lift: 130.5 mm (5.13 in) ■ For UTC-515/520 	
<th>UTC-WALL-MOUNT2E</th>		UTC-WALL-MOUNT2E
<th>VESA 100/200 mm</th>		VESA 100/200 mm
		
<ul style="list-style-type: none"> ■ Flush fit without movement ■ Weight capacity: Up to 35 kg (77.16 lb) ■ Material: Steel 	<ul style="list-style-type: none"> ■ Sits: 42.5 mm (1.67 in) from the wall ■ for UTC-532 only 	

UTC-WALL-MOUNT3E	
VESA 75/100 mm	
	
<ul style="list-style-type: none"> ■ Can be firmly fixed to a wall ■ Weight capacity: Up to 20 kg (44.09 lb) ■ Material: Steel 	<ul style="list-style-type: none"> ■ Sits: 27 mm (1.06 in) from the wall ■ For UTC-515/520

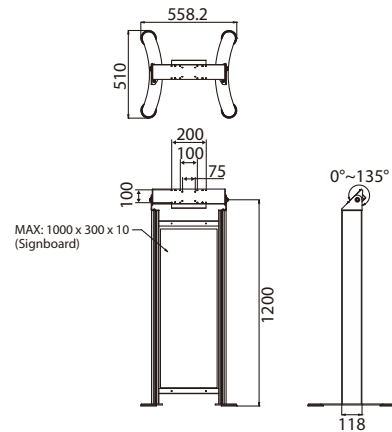
A.3 Floor Stand

Part Number	UTC-T01-STANDE	UTC-H01-STANDE
Description	Triangular floor stand	H-shape floor stand
VESA Mount Pattern	75 x 75 mm; 100 x 100 mm	75 x 75 mm; 100 x 100 mm
Height	120 cm (47.2 in)	120 cm (47.2 in)
Dimensions	Ø660 mm (25.98 in)	58 x 510 mm (2.28 x 20.07 in)
Weight	10 kg (22.04 lb)	10 kg (22.04 lb)

UTC-T01-STANDE	
Triangular Floor Stand	
	
	<ul style="list-style-type: none"> ■ Organized cable management ■ VESA 75/100 mm ■ Height: 120 cm (47.2 in) ■ Easy tilt for optimum viewing comfort ■ Dimensions: Ø660 mm (25.98 in) ■ Weight: 10 kg (22.04 lb)

UTC-H01-STANDE

H-Shape Floor Stand

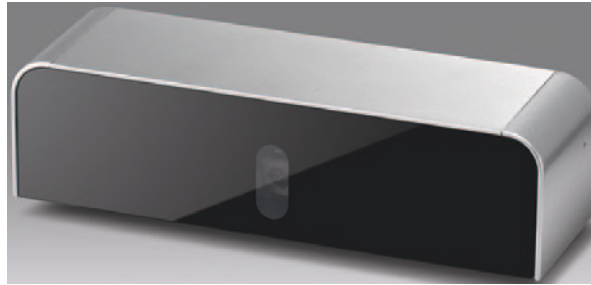


- Organized cable management
- VESA 75/100 mm
- Height: 120 cm (47.2 in)
- Easy tilt for optimum viewing comfort
- Dimensions: Ø660 mm (25.98 in)
- Weight: 10 kg (22.04 lb)
- Acrylic signboard not included

Appendix **B**

UTC Peripherals

B.1 UTC-P01 (Camera Module)



B.1.1 Specifications

Interface	USB (cable length: 50 cm/19.68 in)
Image Resolution	2592 (H) x 1944 (V)
Focusing Range	10 cm ~ ∞; supports auto focus
Frame Rate	640 x 480 @ 30 fps max.
	1280 x 1024 @ 30 fps max.
	1600 x 1200 @ 15 fps max.
	2592 x 1944 @ 15 fps max.
Video Format	MJPEG
OS Support	Windows XP/7/8
Dimensions	130 x 35 x 40 mm/5.11 x 1.37 x 1.57 in
Operating Temperature	0 ~ 40° C/32 ~ 104° F

B.1.2 Packing List

Description	Quantity
Cable clamp	2
Camera module	1

B.1.3 Ordering Information

Part Number	Description
UTC-P01-A1E	5 megapixel camera module for UTC-500 series

B.2 UTC-P02 (MSR)



B.2.1 Specifications

Interface	USB (cable length: 50 cm/19.68 in)
Track Configuration	TRACK 1/IATA/210 bpi/79 alphanumeric characters
	TRACK 2/ABA/75 bpi/40 numeric characters
	TRACK 3/thrift/210 bpi/107 numeric characters
Card Standard	ANSI, ISO, ABA
Read Speed	3 ~ 60 ips (7 ~ 152 cm/s)
Magnetic Head Life	1,000,000 times (ISO test standard)
OS Support	Windows 98/ME/2000/XP/7
Dimensions	130 x 35 x 40 mm/5.11 x 1.37 x 1.57 in
Operating Temperature	0 ~ 40 °C/32 ~ 104 °F

B.2.2 Packing List

Description	Quantity
Cable clamp	2
Magnetic strip reader module	1

B.2.3 Ordering Information

Part Number	Description
UTC-P02-A0E	Magnetic strip reader for UTC-500 series

B.3 UTC-P03 (RFID Reader)



B.3.1 Specifications

Interface	USB (cable length: 50 cm/19.68 in)			
Frequency	13.56 MHz			
Read Mode	ISO 15693, ISO 14443A, ISO 14443B, ISO 18000- 3 Mode 1, FeliCa			
Card Mode	Simulates ISO14443A mode			
P2P Mode	NFCIP-1, NFCIP-2, ISO 18092, 848 ~ 106 kps			
Support Tag Specifications				
Standard	Tag Model	UID	Read/Write Data	Applications
ISO 15693	NXP I-Code 2(SLI)	Yes	Yes	
	Texas Instruments Tag-it	Yes	Yes	
	MStar MSR3200	Yes	Yes	Library, medical, supply chains
Other ISO15693 compatible tag	OK	Yes		
ISO 14443A	NXP MIFARE® Ultralight	Yes	Yes	Transportation
	NXP MIFARE®	Yes		Access control
ISO 14443B	ST	Yes	Yes	
	ATMEL	Yes	Yes	
ISO 14443A	SONY-FeliCa (Suica/Edy card)	Yes		Japanese railways
Reading Range	3 cm ± 1 cm			
OS Support	Windows XP/7			
Dimensions	130 x 35 x 40 mm/5.11 x 1.37 x 1.57 in			
Operating Temperature	0 ~ 40 °C/32 ~ 104 °F			

B.3.2 Packing List

Description	Quantity
Cable clamp	2
RFID reader module	1

B.3.3 Ordering Information

Part Number	Description
UTC-P03-A0E	RFID reader for UTC-500 series

B.4 UTC-P06 (Smart Card Reader)



B.4.1 Specifications

Interface	USB (cable length: 50 cm/19.68 in)
Card Acceptor/ Reliability	User card friction type (ID-1), 200,000 cycles
Card Reader	CPU card, compliant with ISO7816-1,2,3,T=1 and T=0 protocols
	Memory card, synchronous 2-line, 3-line, and I2C interface
LED	Dual-color LED indicators
	Compliant with PC/SC, Version 1.0, standards
OS Support	Windows XP/ 7
Dimensions	130 x 35 x 40 mm/5.11 x 1.37 x 1.57 in
Operating Temperature	0 ~ 40 °C/32 ~ 104 °F

B.4.2 Packing List

Description	Quantity
Cable clamp	2
Smart card reader module	1

B.4.3 Ordering Information

Part Number	Description
UTC-P06-A0E	Smart card reader for UTC-500 series

B.5 UTC-P07 (Barcode Reader)



B.5.1 Specifications

Interface	USB (cable length: 50 cm/19.68 in)			
Scanning Performance	Scan rate: 2D mode; 53 images/s			
	Scan angle: 40°/26°			
	Optical resolution: 752 (H) x 480 (V) pixels, 256 gray levels			
Typical Reading Distances	Symbology	Density	Min. Distance	Max. Distance
	Code 39	0.125 mm/5 mils	4.7 cm/1.8 in	17.7 cm/7.0 in
		0.25 mm/10 mils	1.7 cm/0.7 in	33.2 cm/13.1 in
	UPC/EAN	0.33 mm/13 mils	2.5 cm /1.0 in	41.9 cm/16.5 in
	Data Matrix	0.254 mm/10 mils	2.7 cm /1.0 in	17.1 cm/6.7 in
		0.381 mm/15 mils	1.2 cm /0.5 in	24.6 cm/9.7 in
	PDF 417	0.254 mm/10 mils	2.2 cm /0.9 in	2.2 cm /9.4 in
* Minimum distance depends on symbology length and scan angle				
Symbologies	1D/Linear Symbologies: Automatically discriminates all standard 1D codes including GS1DataBar™ linear codes			
	2D Symbologies: Aztec code, China Han Xin code, DataMatrix, MaxiCode, Micro QR code, and QR code			
	Postal Codes: Australian Post, British Post, China Post, IMB, Japanese Post, KIX Post, Korea Post, Planet Code, Postnet, Royal Mail Code (RM4SCC)			
	Stacked Codes: EAN/JAN composites, GS1 DataBar composites, GS1 DataBar expanded stacked, GS1 DataBar stacked, GS1 DataBar			
	Stacked omnidirectional, MacroPDF, MicroPDF417, PDF417, UPC A/E composites			
OS Support	Windows 7/8			
Dimensions	130 x 52 x 40 mm/5.11 x 2.04 x 1.57 in			
Operating Temperature	0 ~ 40° C/32 ~ 104° F			

B.5.2 Packing List

Description	Quantity
Cable clamp	2
Barcode reader module	1

B.5.3 Ordering Information

Part Number	Description
UTC-P07-A1E	2D barcode reader for UTC-500 series

B.6 UTC-P21 (4-in-1 Module)



B.6.1 Specifications

RFID	13.56 MHz frequency
	Read mode: ISO 15693/14443A/B/18000-3/FeliCa
	Reading range: 3 +/- 1cm
2D Barcode Reader	2D mode scan rate: 56 images
	Linear emulation scan rate: 200 images/sec
	Optical resolution: 752 x 480 pixels, 256 gray levels
Smart Card Reader	User card friction type (ID-1), 200,000 cycles
	SAM card: 5000 insertion
	Compliant with CPU and memory cards
Magnetic Strip Reader	Card standards: ANSI, ISO, ABA
	Read speed: 3 ~ 60 ips (7 ~ 152 cm/s)
	Magnetic head life: 1,000,000 times (ISO test standard)
OS Support	Windows XP/7
Dimensions	300 x 35 x 40 mm/11.81 x 1.37 x 1.57 in
Operating Temperature	0 ~ 40 °C/32 ~ 104 °F

B.6.2 Packing List

Description	Quantity
Cable clamp	2
4-in-1 module	1

B.6.3 Ordering Information

Part Number	Description
UTC-P21-A0E	4-in-1 module for UTC-500 series

B.7 UTC-510P-R01E



Interface	USB			
Frequency	13.56 MHz			
NFC R/W Mode	NFC Type V/2/3/4			
HF RFID R/W	ISO 15693, ISO14443A, ISO14443B			
Support Tag Specification				
Standard	Tag Model	UID	R/W	Applications
NFC Type 2	NXP NTAG 213/215/216	OK	OK	Brand protection
	NXP MIFARE® S50/S70	OK	OK	Electronic wallet
NFC Type 3	Sony FeliCa RCS 919/965/966	OK	OK	e-Tickets
NFC Type 4	NXP MIFARE® DesFire EV1 4K	OK		Personal identification
	Panasonic MN63Y1213	OK	OK	BT and Wi-Fi pairing
ISO 15693 (NFC Type V)	TI Tag-it Standard/Pro/Plus	OK	OK	Libraries
	ST LRI2K	OK	OK	Access control
	NXP ICODE SLIX/SLI/SLI-L	OK	OK	Patrol
	Infineon my-d SRF55V02P	OK	OK	Mass transit and event ticketing
	Fujitsu/MM89R118/119	OK		Medical equipment
	ST M24LR04/16/64	OK	OK	Electronic shelf labelling
ISO 14443A	NXP MIFARE® Ultralight/Plus X/Plus S	OK		Asset tracking
ISO 14443B	ST SRIX4K	OK	OK	e-Purses
Reading Range	2 cm ± 1 cm			
OS Support	Windows XP/7/8/Windows 10 IoT Enterprise, Android, Linux			
Dimensions	90 x 35 x 38 mm/3.57 x 1.37 x 1.49 in			
Operating Temperature	0 ~ 40 °C/32 ~ 104 °F			

B.7.1 Packing List

Description	Quantity
RFID reader module	1

B.7.2 Ordering Information

Part Number	Description
UTC-510P-R01E	RFID reader for UTC-510 series (USB connection)

B.8 UTC-510P-S01E



Interface	USB (cable length: 50 cm/19.68 in)
Card Acceptor/Reliability	User card friction type (ID-1), 200,000 cycles
Card Reader	CPU card, compliant with ISO7816-1,2,3,T=1 and T=0 protocols Memory card, synchronous 2-line, 3-line and I2C interface
LED	Dual-color LED indicators Compliant with PC/SC, version 1.0, standards
OS Support	Windows XP/7/Windows 10 IoT Enterprise
Dimensions	94 x 38 x 22 mm/3.7 x 1.49 x 0.86 in
Operating Temperature	0 ~ 40 °C/32 ~ 104 °F

B.8.1 Packing List

Description	Quantity
Smart card reader module	1

B.8.2 Ordering Information

Part Number	Description
UTC-510P-S01	Smart card reader for UTC-510 series (USB connection)

B.9 UTC-510P-B



	UTC-510P-B01E		UTC-510P-B02E		
Data Type	1D linear		1D/2D		
Interface	USB				
Performance	Optical System	High-performance linear imaging engine	Image Sensor	752 x 480 CMOS	
	Print Contrast	20% minimum reflective difference	Processor	2D barcode decoder chip 72 MHz	
	Minimum Resolution	Typical 3 mil (code 39, PCS 0.9)	Illumination	Red LED 625 ± 10 nm	
	Working Distance *1	Up to 24" on 100% UPC/EAN symbols Up to 31.5" on 20 mil code 39	Reading Precision	≥ 5 mil	
	Light Source	630 nm visible red LED	Depth of Field	UPC-A	55 ~ 305 mm (13 mil)
	Scan Rate	Dynamic scanning rate up to 500 scans per second		PDF417	65 ~ 175 mm (6.67 mil); 50 ~ 215 mm (10 mil)
	Reading Direction	Bi-directional (forwards and backwards)		Data Matrix	50 ~ 220 mm (15 mil)
QR Code				65 ~ 235 mm (15 mil)	
		Symbol Contrast	≥ 25%		
Symbologies	Code 39, Code 39 Full ASCII, Code 32, Code 39 Trioptic Code 128, UCC/EAN-128, Codabar, Code 11, Code 93 Standard and Industrial 2 of 5, Interleaved & Matrix 2 of 5 German Postal Code, China Postal Code, IATA UPC/EAN/JAN, UPC/EAN/JAN with Addendum Telepen, MSI/Plessey and UK/Plessey GS1 DataBar (formerly RSS) Linear, Stacked Linear		2D: PDF417, Data Matrix (ECC200,ECC000,050,080,100,140), QR Code, etc. 1D: Code128, EAN-13, EAN-8, Code39, UPC-A, UPC-E, Codabar, Interleaved 2 of 5, ITF-6, ITF-14, ISBN, Code 93, UCC/EAN-128, GS1 Databar, Matrix 2 of 5, Code 11, Industrial 2 of 5, Standard 2 of 5, Plessey, MSI-Plessey, etc.		
OS Support	Windows 7/8, Windows 10 IoT Enterprise				
Dimensions	80 x 35 x 38 mm/3.14 x 1.37 x 1.49 in				
Operating Temperature	0 ~ 40 °C/32 ~ 104 °F				

B.9.1 Packing List

Description	Quantity
Barcode scanner module	1

B.9.2 Ordering Information

Part Number	Description
UTC-510P-B01E	1D barcode scanner for UTC-510 series (USB connection)
UTC-510P-B02E	1D/2D barcode scanner for UTC-510 series (USB connection)

B.10 UTC-510P-M01E



Interface	USB (cable length: 50 cm/19.68 in)
Track Configuration	TRACK 1/IATA/210 bpi/79 alphanumeric characters TRACK 2/ABA/75 bpi/40 numeric characters TRACK 3/thrift/210 bpi/107 numeric characters
Card Standard	ANSI, ISO, ABA
Read Speed	3 ~ 60 ips (7 ~ 152 cm/s)
Magnetic Head Life	1,000,000 times (ISO test standard)
OS Support	Android, Windows 7/XP, Windows 10 IoT Enterprise
Dimensions	94 x 38 x 22 (3.7 x 1.49 x 0.86 in)
Operating Temperature	0 ~ 40 °C/32 ~ 104 °F

B.10.1 Packing List

Description	Quantity
Magnetic strip reader module	1

B.10.2 Ordering Information

Part Number	Description
UTC-510P-M01E	Magnet strip reader for UTC-510 series (USB connection)

Appendix **C**

Touchscreen Options

C.1 Touchscreen Options

Touchscreen Type	5-wire analog resistive touch	Projected capacitive touch	Corning® Gorilla® panel with projected capacitive touch
Mineral Hardness	3H	7H	9H
Impact Test	510 g steel ball dropped from 50 cm - Pass	130 g iron ball dropped from 130 cm - Pass	530 g iron ball dropped from 130 cm - Pass
Touch Points	Single touch	Multi touch	Multi touch
Anti-Microbial	No	No	Yes
Visible Light Transmission	80 ±5%	90 ± 2%	90 ± 2%

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