CO-W121C/P2002 Series

21.5" 6th Gen. Intel® Core™ Processor U Series Fanless Touch Panel PC with CFM & CDS Technology

ALL-NEW OPEN FRAME PANEL PC

| CO-100/P2002 Series Fits Any Machine Perfectly |

Overview

CONTACT

Cincoze's high-performance open-frame modular panel PCs (CO-W121C/P2002 Series) use Intel® Core U series processors that provide high-performance data processing and graphics computing capabilities with only 15W low power consumption. The CO-100/P2002 series supports CFM technology that extends system functions according to requirements, with options such as Power Ignition Sensing (IGN) and Power over Ethernet (PoE). The series has multiple sizes, display ratios (4:3 and 16:9), and touchscreen options. Its integrated structure, exclusive adjustable mounting bracket, and support for multiple mounting methods to perfectly fit cabinets of different materials and thicknesses. The robust design also meets the application needs of harsh industrial environments.

Key Features

▪ 21.5" TFT-LCD with Projected Capacitive Touch
▪ Onboard Intel® 6th Generation Core™ Processor U Series (15W)
▪ 2x DDR4 SO-DIMM Socket, Support Up to 32 GB
▪ Designed with Adjustable Mounting Bracket
▪ Support Flat / Standard / VESA / Rack Mount
▪ Front Panel IP65 Compliant
▪ Wide Operating Temperature
▪ Cincoze Patent CDS Technology Support

Certifications

IP65   FC   CE   CDS Convertible Display System

High Performance and Power Saving

Intel® Core U series processors provide high-performance data processing and graphics computing capabilities with a 15W low power consumption, support for up to 64GB of memory and two 2.5″ HDD/SSD.

intel. CORE

15W TDP CPU Design

Display Module

24″

15″

Computer Module
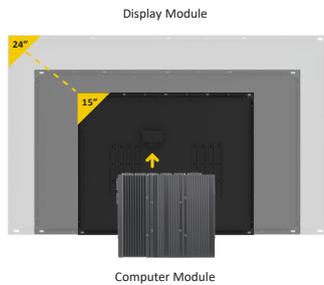
Patented CDS Technology

The patented CDS (Convertible Display System) technology makes maintenance easy and offers flexibility for future upgrades. To upgrade the panel size, replace the display module, or to upgrade the system performance, replace the computer module.

Patent No. M482908

Flexibility for Various Applications

Mini-PCIe and PCI/PCIe expansion slots support data acquisition cards, motion control cards, I/O expansion, and other applications.

[PCI/PCIe expansion slot available Model : CO- W121C/P2002E]

Flexible Design and Easy Installation

Exclusive adjustable mounting bracket with thickness adjustment setting and two panel-locking methods (panel or boss type) make modular panel PC easier and more convenient to integrate into industrial machinery.

Patent No.: D224544, D224545, I802427

Integrated Structure

As standard, the open frame modular panel pc can be deployed in equipment machines, but remove the mounting bracket and it becomes a standalone panel pc for use with a VESA mount or in a 19″ rack.

Strong, Reliable and Durable

Meets the requirements for HMI applications in harsh industrial environments: IP65 waterproof and dustproof front panel, fanless, wide temperature, and wide voltage (9–48 VDC).

IP65

CO-W121C Specifications

Model Name	CO-W121C
Display	
LCD Size	▪ 21.5″ (16:9)
Resolution	▪ 1920 x 1080
Brightness	▪ 300 cd/m2
Contrast Ratio	▪ 5000 : 1
LCD Color	▪ 16.7M
Pixel Pitch	▪ 0.24825 (H) x 0.24825 (V) mm
Viewing Angle	▪ 178 (H) / 178 (V)
Backlight LED Life Time	▪ 50,000 hrs
Touch Screen	
Touchscreen Type	▪ Projected Capacitive Touch
Physical	
Dimension (W x D x H)	▪ 550 x 343.7 x 63.3
Weight	▪ 7.16 kg
Construction	▪ One-piece and Slim Bezel Design
Mounting Type	▪ Flat / Standard / VESA / Rack Mount
Mounting Bracket	▪ Pre-installed Mounting Bracket with Adjustable Design (Support 11 different stages of adjustment)
Power	
Power Consumption	▪ 24.8W (Max.)
Protection	
Ingress Protection	▪ Front Panel IP65 Compliant * According to IEC60529
Environment	
Operating Temperature	▪ Ambient with Air flow: 0°C to 60°C (with Industrial Grade Peripherals)
Storage Temperature	▪ -20°C to 60°C
Humidity	▪ 80% RH @ 50°C (Non-condensing)
EMC	▪ CE, UKCA, FCC, ICES-003 Class A
EMI	▪ CISPR 32 Conducted & Radiated: Class A ▪ EN/BS EN 55032 Conducted & Radiated: Class A ▪ EN/BS EN IEC 61000-3-2 Harmonic current emissions: Class A ▪ EN/BS EN61000-3-3 Voltage fluctuations & flicker ▪ FCC 47 CFR Part 15B, ICES-003 Conducted & Radiated: Class A
EMS	▪ EN/IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV ▪ EN/IEC 61000-4-3 RS: 80 MHz to 1000 MHz: 3 V/m ▪ EN/IEC 61000-4-4 EFT: AC Power: 1 kV; DC Power: 0.5 kV; Signal: 0.5 kV ▪ EN/IEC 61000-4-5 Surges: AC Power: 2 kV; Signal: 1 kV ▪ EN/IEC 61000-4-6 CS: 3V ▪ EN/IEC 61000-4-8 PFMF: 50 Hz, 1A/m ▪ EN/IEC 61000-4-11 Voltage Dips & Voltage Interruptions: 0.5 cycles at 50 Hz
Safety	▪ UL, cUL, CB, IEC, EN 62368-1

P2002 Series Specifications

| Model Name	P2002	P2002E
System		

Processor	• Onboard 6th Intel® Core™ U processors (Skylake)
	  - Intel® Core™ i5-6300U processor (3M Cache, up to 3.00 GHz)
	  - Intel® Core™ i3-6100U processor (3M Cache, 2.30 GHz)
	  - TDP: 15 W	

Memory	• 2x DDR4 2133 MHz 260-Pin SO-DIMM Socket • Support Un-buffered and Non-ECC Type up to 32 GB	
BIOS	• AMI 64Mbit SPI BIOS	
Graphics		
Graphics Engine	• Integrated Intel® UHD Graphics 520	
Maximum Display Output	• Supports Triple Independent Display	
CDS	• 1x CDS Connector for Cincoze Display Module	
VGA	• 1x VGA Connector(1920 x 1080 @60Hz), DB-15	
DVI-D	• 1x DVI-D Connector (1920 x 1080 @ 60Hz)	
Audio		
Audio Codec	• Realtek® ALC888, High-Definition Audio	
Speaker-out	• 1x Speaker-out, Phone Jack 3.5mm	
Mic-in	• 1x Mic-in, Phone Jack 3.5mm	
I/O		

LAN	• 2x GbE LAN (Supports WoL, Teaming, Jumbo Frame & PXE), RJ45
	  - GbE1: Intel® I219LM
	  - GbE2: Intel® I210	

USB	• 4x USB 3.2 Gen1 (Type A), 1x USB 2.0 (Type A)	
Serial Port	• 6x RS-232/422/485 with Auto Flow Control Support 5V/12V, DB9	
DIO	• 16x Isolated Digital I/O (8in/8out), 10-Pin Terminal Block	
Storage		
SSD/HDD	• 2x 2.5" HDD/SSD Bay, Support RAID 0/1 (Gen3)	
mSATA	• 2x mSATA (One Shared by Mini-PCIe Socket) (Gen2)	
CFast	• 1x CFast Socket (Gen 3)	
Expansion		
Mini PCI Express	• 2x Full-size Mini-PCIe Sockets	
PCI Express		• 1x PCI or 1x PCIe x4 Expansion slot (with Optional Riser Card) • maximum dimension of add-on card:100mm x 200mm (H x L)
SIM Socket	• 1 x Front Accessible SIM Socket	
Universal Bracket	• 1x Universal I/O Bracket	
CFM (Control Function Module) Interface	• 2x CFM Interface for optional CFM-IGN or CFM-PoE (max 25.5W) Module Expansion	
CDS (Convertible Display System) Technology	• 1x Convertible Display System (CDS) Interface, Compact PCI Connector	

Other Function

Instant Reboot	▪ Support 0.2sec Instant Reboot technology
Watchdog Timer	▪ Software Programmable Supports 256 Levels System Reset
Internal Speaker	▪ AMP 2W + 2W
OSD Function	▪ LCD On/Off, Brightness Up, Brightness Down
Reset Button	▪ 1x Reset Button
External Fan Connector	▪ 1x External Fan Connector, 4-pin Terminal Block

Power

Power Button	▪ 1x ATX Power On/Off Switch
Power Mode Switch	▪ 1x AT/ATX Mode Switch
Power Input	▪ 1x 3-pin Terminal Block Connector with Power Input 9~48VDC
Power Adapter (Optional)	▪ 1x Optional AC/DC 12V/5A 60W or 24V/5A 120W ▪ 1x Optional AC/DC 24V/9.2A 220W (For P2002E only)
Remote Power On/Off	▪ 1x Remote Power On/Off Connector, 2-pin Terminal Block

Physical

Dimension(W x D x H)	▪ 254.5 x 220 x 54mm	▪ 254.5 x 220 x 72 mm
Weight Information	▪ 2.92 kg	▪ 3.18 kg
Mechanical Construction	▪ Extruded Aluminum with Heavy Duty Metal	
Mounting	▪ Wall / VESA / CDS	
Physical Design	▪ Fanless Design ▪ Jumper-less Design	

Reliability & Protection

Reverse Power Input	▪ Yes
Over Voltage Protection	▪ Protection Range: 51~58V ▪ Protection Type: shut down operating voltage, re-power on at the present level to recover
Over Current Protection	▪ 15A
CMOS Battery Backup	▪ SuperCap Integrated for CMOS Battery Maintenance-free Operation

Operating System

Microsoft® Windows®	▪ Windows® 10, Windows® 8.1, Windows® 7
Linux	▪ Linux® Kernel 4.4

Environment

|	
Operating Temperature	▪ Ambient with Air Flow: -25°C to 70°C (with Extended Temperature Peripherals)
Storage Temperature	▪ -40°C to 85C
Relative humidity	▪ 95% RH @ 40˚C (Non-condensing)
Shock	▪ Operating, 50 Grms, Half-sine 11ms Duration (w/ SSD, according to IEC60068-2-27)
Vibration	▪ Operating, 5 Grms, 5-500 Hz, 3 Axes (w/ SSD, according to IEC60068-2-64)
EMC	▪ CE, UKCA, FCC, ICES-003 Class A

|	
EMI	▪ CISPR 32 Conducted & Radiated: Class A ▪ EN/BS EN 55032 Conducted & Radiated: Class A ▪ EN/BS EN IEC 61000-3-2 Harmonic current emissions: Class A ▪ EN/BS EN61000-3-3 Voltage fluctuations & flicker ▪ FCC 47 CFR Part 15B, ICES-003 Conducted & Radiated: Class A
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## CO-W121C/P2002 External Layout

Front I/O

DC IN DVI-D VGA LAN1 LAN2 Line-out Mic-in USB 3.0 USB 2.0

Digital I/O Fan Power SW COM3 COM4 COM5 COM6

Rear I/O

CFast / SIM Card

HDD / SSD Power On/Off

Left I/O

Antenna Antenna Universal I/O Bracket AT/ATX Switch Reset

Power LED HDD LED LCD On/Off Decrease Brightness Increase Brightness

Right I/O

Antenna Antenna

COM1 COM2
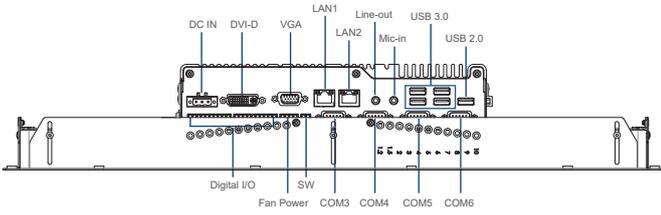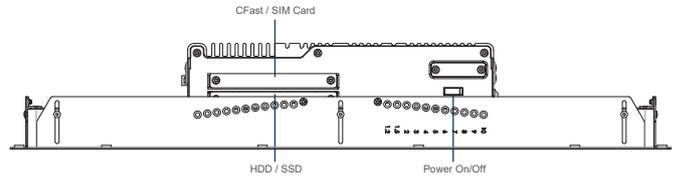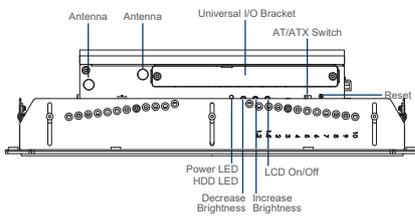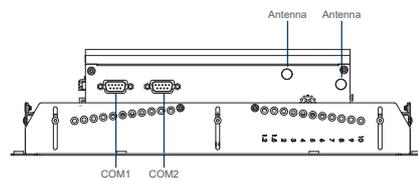
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Left I/O

Antenna Antenna Universal I/O Bracket AT/ATX Switch Reset

Power LED HDD LED LCD On/Off Decrease Brightness Increase Brightness

Right I/O

Antenna Antenna

COM1 COM2
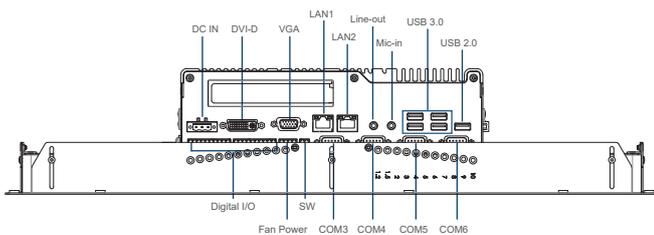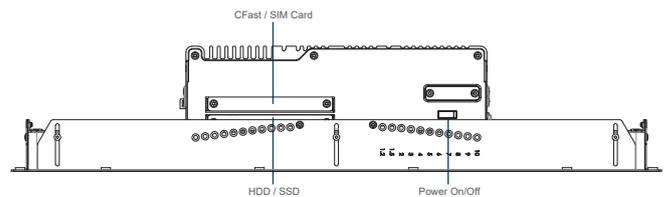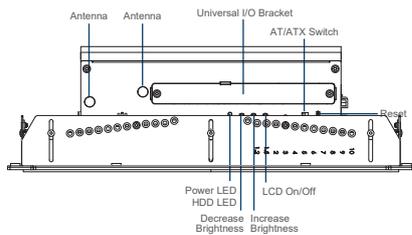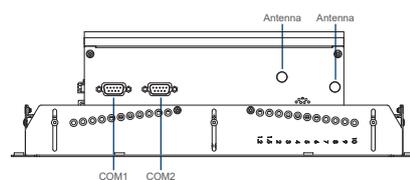
CO-W121C/P2002 Dimensions

Installation Schematic
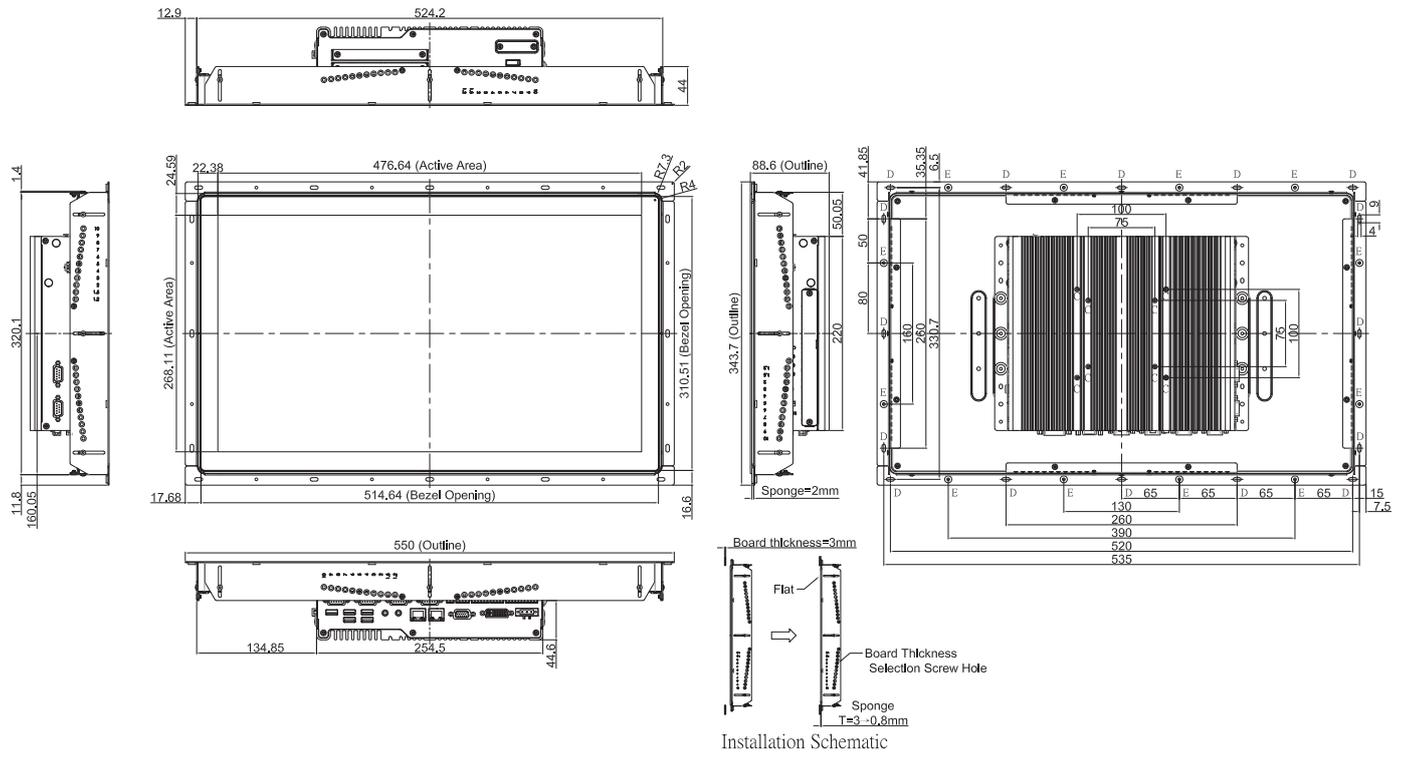
CO-W121C/P2002E Dimensions

Installation Schematic

Unit: mm
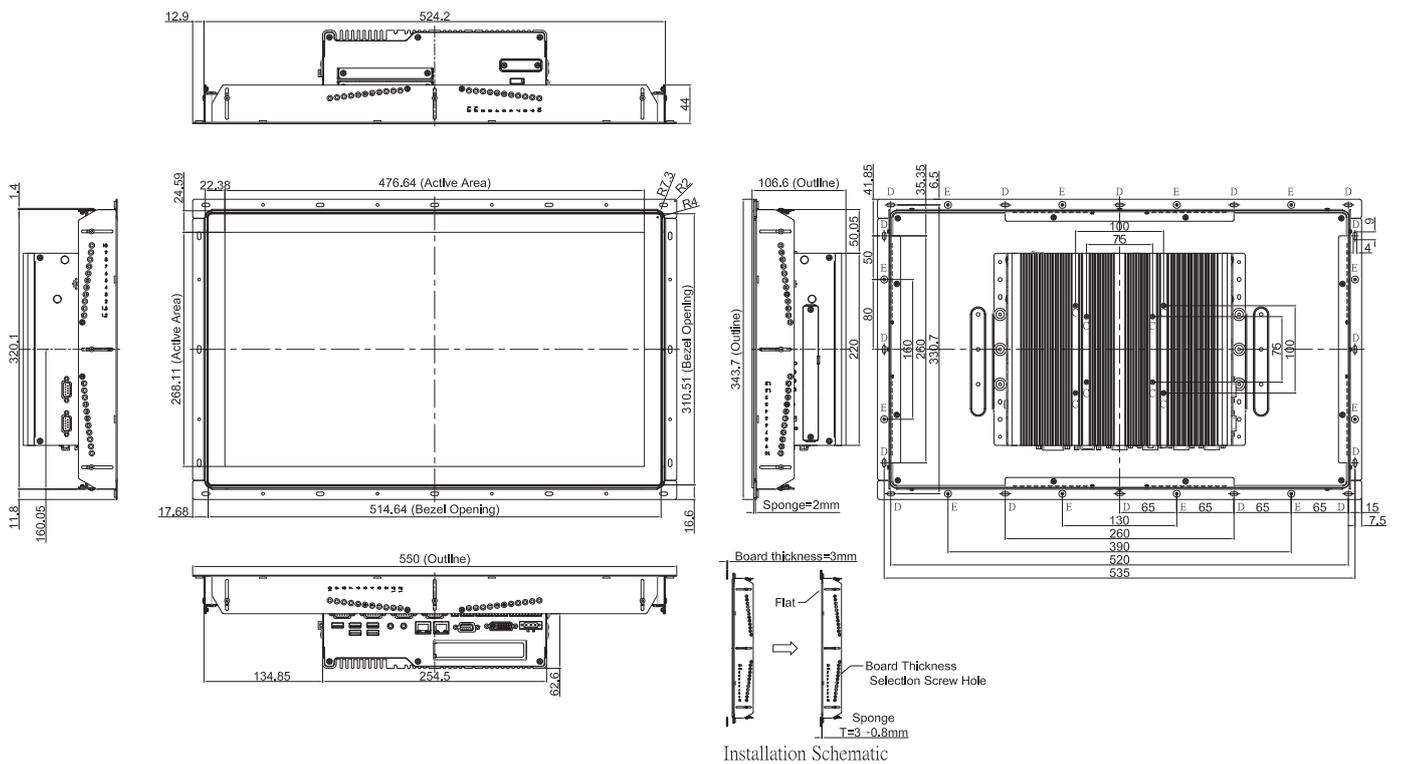
Ordering Information

Available Models

Model No.	Description
CO-W121C-R10/P2002-i5-R10	21.5" TFT-LCD Full HD 16:9 Open Frame Display Module with Projected Capacitive Touch and Intel 6th Gen. Core i5-6300U Fanless Computer, CFM Interface, CDS Interface
CO-W121C-R10/P2002E-i5-R10	21.5" TFT-LCD Full HD 16:9 Open Frame Display Module with Projected Capacitive Touch and Intel 6th Gen. Core i5-6300U Expandable Fanless Computer, CFM Interface, CDS Interface
CO-W121C-R10/P2002E-i5-E4-R10	21.5" TFT-LCD Full HD 16:9 Open Frame Display Module with Projected Capacitive Touch and Intel 6th Gen. Core i5-6300U Fanless Computer, CFM Interface, CDS Interface, 1x PCIex4 Expansion
CO-W121C-R10/P2002E-i5-PI-R10	21.5" TFT-LCD Full HD 16:9 Open Frame Display Module with Projected Capacitive Touch and Intel 6th Gen. Core i5-6300U Expandable Fanless Computer, CFM Interface, CDS Interface, 1x PCI Expansion
CO-W121C-R10/P2002-i3-R10	21.5" TFT-LCD Full HD 16:9 Open Frame Display Module with Projected Capacitive Touch and Intel 6th Gen. Core i3-6100U Fanless Computer
CO-W121C-R10/P2002E-i3-R10	21.5" TFT-LCD Full HD 16:9 Open Frame Display Module with Projected Capacitive Touch and Intel 6th Gen. Core i3-6100U Expandable Fanless Computer, CFM Interface, CDS Interface
CO-W121C-R10/P2002E-i3-E4-R10	21.5" TFT-LCD Full HD 16:9 Open Frame Display Module with Projected Capacitive Touch and Intel 6th Gen. Core i3-6100U Fanless Computer, CFM Interface, CDS Interface, 1x PCIex4 Expansion
CO-W121C-R10/P2002E-i3-PI-R10	21.5" TFT-LCD Full HD 16:9 Open Frame Display Module with Projected Capacitive Touch and Intel 6th Gen. Core i3-6100U Expandable Fanless Computer, CFM Interface, CDS Interface, 1x PCI Expansion

Model Configuration

	CO-W121C	P2002 (i3/i5)	P2002E (i3/i5/E4/PI)
CO-W121C/P2002	V	V	--
CO-W121C/P2002E	V	--	V

V : Compatible

Package Checklist

|	
▪ CO-W121C/P2002 Series Panel PC x 1	▪ DIO Terminal Block Connector x 2
▪ Wall / CDS Mounting Kit x 1	▪ Remote Power On/Off Terminal Block Connector x 1
▪ Power Terminal Block Connector x 1	▪ Screw Pack x 1
▪ Fan Terminal Block Connector x 1	

Model No.	Description
RC-PI-01	Riser Card with 1x PCI Slot(For P2002E only)
UB0503	Universal Bracket with 2x DB9 Cutout
UB0504	Universal Bracket with 4x DB9 Cutout
UB0511	Universal Bracket with 2x RJ45 Cutout
UB0514	Universal Bracket with 2x USB Cutout
URM01	Universal 19" Rack Mount Kit for Industrial Panel PC & Industrial Monitor
GST220A24-CIN	Adapter AC/DC 24V 9.2A 220W with 3pin Terminal Block Plug 5.0mm Pitch, with TUBES, GST220A24-CIN
GST120A24-CIN	Adapter AC/DC 24V 5A 120W, GST120A24-CIN, wide temp(-30°C ~ +70°C), level VI
GST60A12-CIN1	Adapter AC/DC 12V 5A 60W, GST60A12-CIN1, wide temp(-30°C ~ +70°C)
SL2-SL3	US 2 heads power cord, US B type to IEC C13,SVT 18AWG/3C Black 1.8M
SL6-SL3	EU 2 heads power cord, EU G type to IEC C13,H05VV-F 0.75mm2/3G Black 1.8M
QP026-SL3	UK 2 heads power cord, UK I type to IEC C13,H05VV-F 0.75mm2/3G Black 1.8M

Optional Module Configuration

P2002
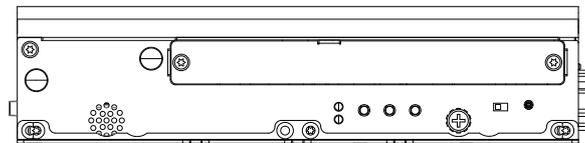
P2002E
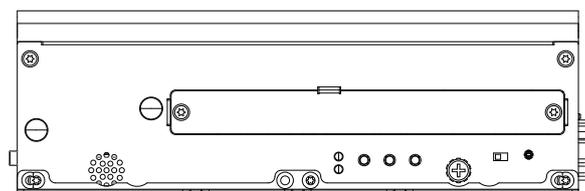
Model No.	Description	P2002	P2002E
MEC-COM-M212/UB0503	Mini-PCIe Module with 2x COM Ports, 1x Universal Bracket with 2x DB9 Cutout (154 x 17 mm)	V	V
MEC-COM-M334/UB0504	Mini-PCIe Module with 4x RS-232/422/485 Serial Ports, 1x Universal Bracket with 4x DB9 Cutout (154 x 17 mm)	V	V
MEC-LAN-M102-30/UB0511	Mini-PCIe Module with 2x LAN Ports, 2x 30cm cable, 1x Universal Bracket with 2x RJ45 Cutout (154 x 17 mm)	V	V
MEC-USB-M102-30/UB0514	Mini-PCIe Module with 2x USB 3.0 Ports, 1x Universal Bracket with 2x USB Cutout (154 x 17 mm)	V	V

V : Compatible