

# 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 |

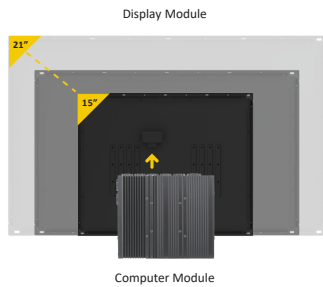
### Overview

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.

- 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

## 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.



## 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 Pending

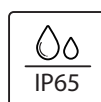
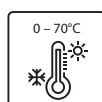
## Integrated Structure

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 (0-70°C), and wide voltage (9-48 VDC).



**CO-W121C Specifications**

<b>Display</b>	
LCD Size	• 21.5" (16:9)
Resolution	• 1920 x 1080
Brightness	• 300 cd/m2
Contract Ratio	• 5000 : 1
LCD Color	• 16.7M
Pixel Pitch	• 0.24825 (H) x 0.24825 (V) mm
Viewing Angle	• 178 (H) / 178 (V)
Backlight MTBF	• 50,000 hrs
<b>Touch Screen</b>	
Touchscreen Type	• Projected Capacitive Touch
<b>Physical</b>	
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 )
<b>Protection</b>	
Ingress Protection	• Front Panel IP65 Compliant * According to IEC60529
<b>Environment</b>	
Operating Temperature	• 0°C to 70°C
Storage Temperature	• -20°C to 70°C
Humidity	• 80% RH @ 40°C (non-condensing)
EMC	• CE, UKCA, FCC, ICES-003 Class A
Safety	• UL, cUL 62368-1 (Pending)

## P2002 Specifications

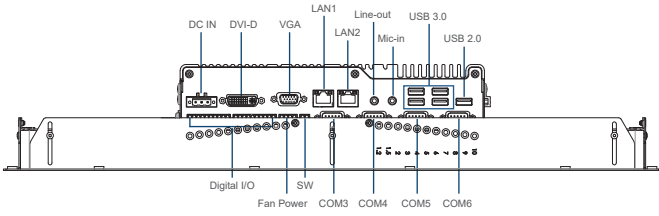
Model Name	P2002	P2002E
<b>System</b>		
Processor	Onboard 6th Intel® Core™ U processors (Skylake) <ul style="list-style-type: none"> <li>• Intel® Core™ i5-6300U processor (3M Cache, up to 3.00 GHz)</li> <li>• Intel® Core™ i3-6100U processor (3M Cache, 2.30 GHz)</li> <li>• TDP: 15 W</li> </ul>	
Memory	<ul style="list-style-type: none"> <li>• 2x DDR4 2133 MHz SO-DIMM Sockets</li> <li>• Support Un-buffered and Non-ECC Type up to 64 GB</li> </ul>	
BIOS	<ul style="list-style-type: none"> <li>• AMI 64Mbit SPI BIOS</li> </ul>	
<b>Graphics</b>		
Graphics Engine	<ul style="list-style-type: none"> <li>• Intel® HD Graphics 520</li> </ul>	
Maximum Display Output	<ul style="list-style-type: none"> <li>• Supports Triple Independent Display (1x CDS, 1x VGA, 1x DVI-D)</li> </ul>	
VGA	<ul style="list-style-type: none"> <li>• 1x VGA Connector (Up to 1920 x 1080 @ 60Hz), DB-15</li> </ul>	
DVI-D	<ul style="list-style-type: none"> <li>• 1x DVI-D Connector (Up to 1920 x 1080 @ 60Hz)</li> </ul>	
<b>Audio</b>		
Audio Codec	<ul style="list-style-type: none"> <li>• Realtek® ALC888, High Definition Audio</li> </ul>	
<b>I/O</b>		
LAN	<ul style="list-style-type: none"> <li>• 2x GbE LAN (Supports WoL, Teaming, Jumbo Frame &amp; PXE), RJ45</li> <li>- GbE1: Intel® I219LM</li> <li>- GbE2: Intel® I210</li> </ul>	
PoE+	<ul style="list-style-type: none"> <li>• 2x PoE+ (with Optional CFM PoE Module)</li> <li>- Comply with IEEE 802.3at, Offers Up to 25.5W Per Port</li> </ul>	
USB	<ul style="list-style-type: none"> <li>• 4x USB 3.2 Gen1 (Type A), 1x USB 2.0 (Type-A)</li> </ul>	
Serial Port	<ul style="list-style-type: none"> <li>• 6x RS-232/422/485 with Auto Flow Control Support 5V/12V, DB9 (Compatible with slim type serial cable with connector length below 25mm.)</li> </ul>	
DIO	<ul style="list-style-type: none"> <li>• 16x Isolated Digital I/O (8in/8out), 10-Pin Terminal Block</li> </ul>	
Line-out & Mic-in	<ul style="list-style-type: none"> <li>• 1x Line-out &amp; 1x Mic-in, Phone Jack 3.5mm</li> </ul>	
Power Mode Switch	<ul style="list-style-type: none"> <li>• 1x AT/ATX Mode Switch</li> </ul>	
Power Switch	<ul style="list-style-type: none"> <li>• 1x Power On/Off Switch</li> </ul>	
Reset Button	<ul style="list-style-type: none"> <li>• 1x Reset Button</li> </ul>	
Remote Power On/Off	<ul style="list-style-type: none"> <li>• 1x Remote Power On/Off Connector, 2-pin Terminal Block</li> </ul>	
External Fan	<ul style="list-style-type: none"> <li>• 1x External FAN Connector, 4-Pin Terminal Block</li> </ul>	
<b>Storage</b>		
SSD/HDD	<ul style="list-style-type: none"> <li>• 2x 2.5" SATA HDD/SSD Bay, Support RAID 0/1 (Gen3)</li> </ul>	
mSATA	<ul style="list-style-type: none"> <li>• 2x mSATA (One Shared by Mini-PCIe Socket) (Gen2)</li> </ul>	
CFast	<ul style="list-style-type: none"> <li>• 1x CFast Socket (Gen3)</li> </ul>	

<b>Expansion</b>		
PCI Express		<ul style="list-style-type: none"> <li>• 1x PCI or 1x PCIe4 Expansion slot</li> <li>• Optional Riser Card: 1x PCI, 1x PCIe4</li> <li>• Support maximum dimension of add-on card (H x L): 100mm x 200mm</li> </ul>
Mini PCI Express	• 2x Full-size Mini-PCIe Socket	
SIM Socket	• 1x SIM Socket	
CFM (Control Function Module) Interface	<ul style="list-style-type: none"> <li>• Optional CFM IGN Module for Power Ignition Function</li> <li>• Optional CFM PoE Module for Power over Ethernet Function</li> </ul>	
CDS (Convertible Display Systems) Technology	• 1x CDS Interface, Compact PCI Connector	
I/O Brackets	• 1x Universal I/O Bracket	
Antenna Hole	• 4x Antenna Hole	
<b>Other Function</b>		
Audio Codec	• Realtek® ALC888, High Definition Audio	
Instant Reboot	• Support Instant Reboot Technology (0.2 sec)	
OSD Function	• LCD On/Off, Brightness Up, Brightness Down for CDS Display Module	
Internal Speaker	• AMP 2W + 2W	
CMOS Battery Backup	• SuperCap Integrated for CMOS Battery Maintenance-free Operation	
Watchdog Timer	• Software Programmable Supports 256 Levels System Reset	
<b>Power</b>		
AT/ATX Power	• Support AT, ATX Mode	
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	
<b>Physical</b>		
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	• Support Wall / VESA / CDS Mounting	
Physical Design	<ul style="list-style-type: none"> <li>• Fanless Design</li> <li>• Jumper-less Design</li> </ul>	
<b>Reliability &amp; Protection</b>		
Reverse Power Input	• Yes	
Over Voltage Protection	<ul style="list-style-type: none"> <li>• Protection Range: 51~58V</li> <li>• Protection Type: shut down operating voltage, re-power on at the present level to recover</li> </ul>	
Over Current Protection	• 15A	
ESD Protection	• +/-8kV (air), +/-4kV (contact)	
Surge Protection	• 2kV	
CMOS Battery Backup	• SuperCap Integrated for CMOS Battery Maintenance-free Operation	

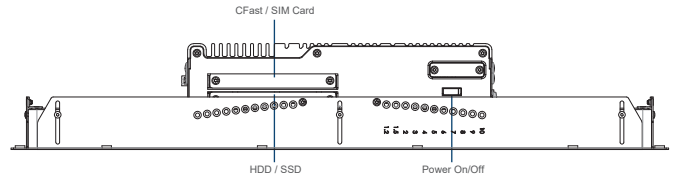
<b>Operating System</b>	
Microsoft® Windows®	• Windows®10, Windows® 8.1, Windows® 7
Linux	• Linux® Kernel 4.4
<b>Environment</b>	
Operating Temperature	• Operating Temperature: -25°C to 70°C (With extended temperature peripherals; Ambient with air flow According to IEC60068-2-1, IEC60068-2-2, IEC60068-2-14)
Storage Temperature	• Storage Temperature: -40°C to 85°C
Relative Humidity	• Relative Humidity: 95% RH @ 40°C (Non-condensing)
Shock	• Operating, 50 Grms, Half-sine 11 ms Duration (with SSD, according to IEC60068-2-27)
Vibration	• Operating, 5 Grms, 5-500 Hz, 3 Axes (with SSD, according to IEC60068-2-64)
EMC	• CE, UKCA, FCC, ICES-003 Class A

**CO-W121C/P2002 External Layout**

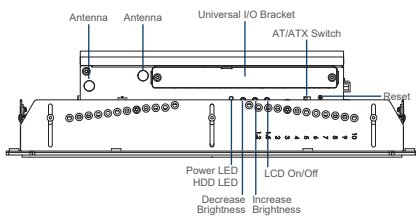
Front I/O



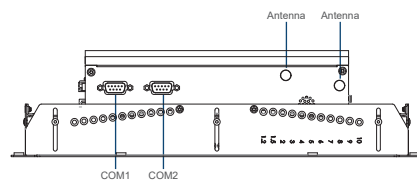
Rear I/O



Left I/O

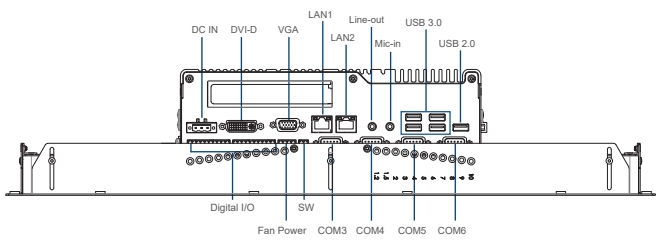


Right I/O

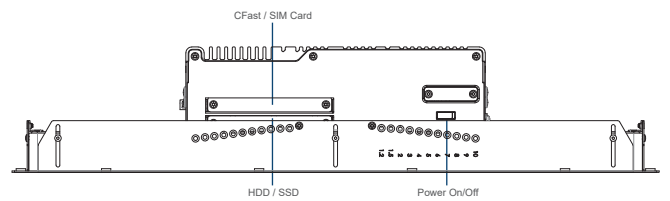


**CO-W121C/P2002E External Layout**

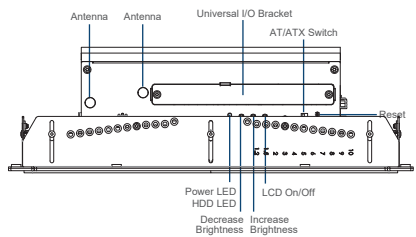
Front I/O



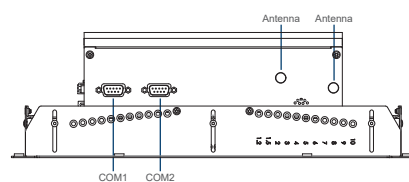
Rear I/O



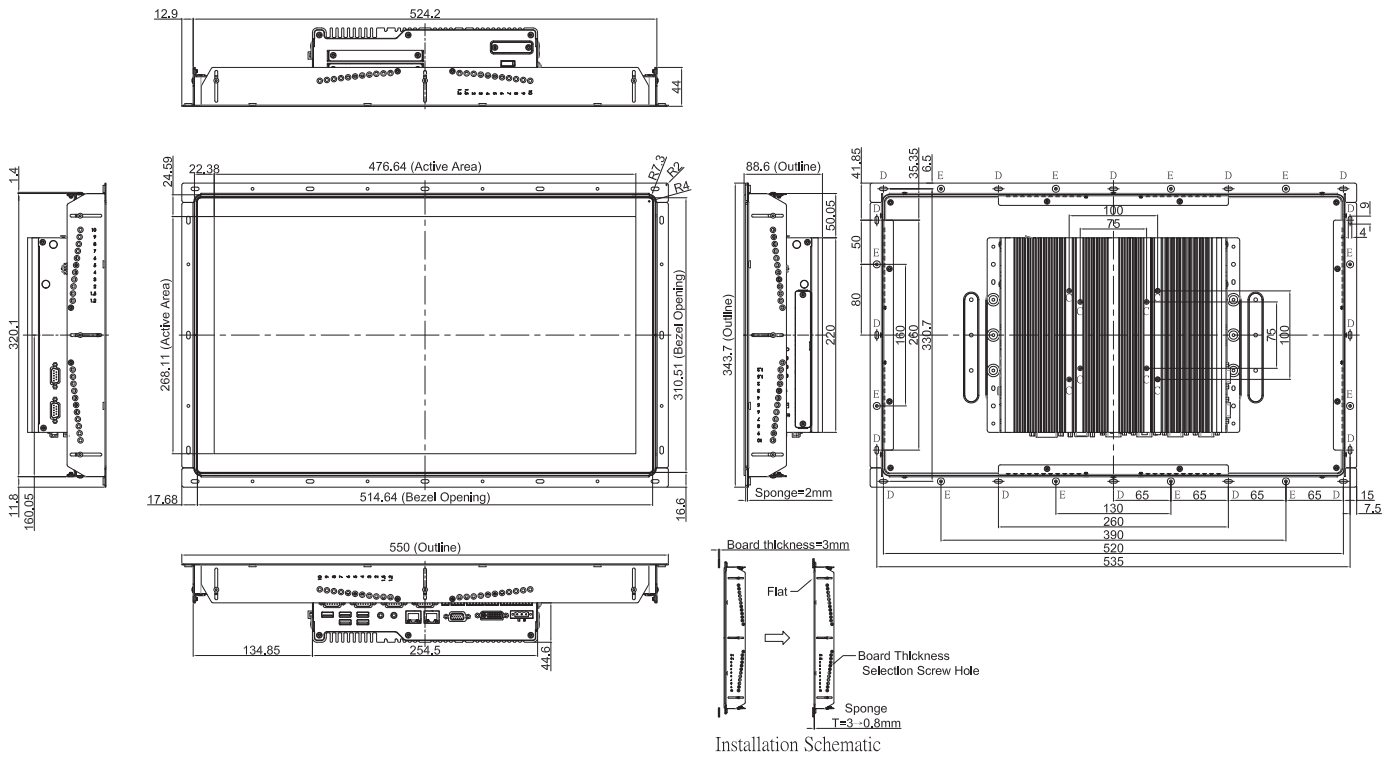
Left I/O



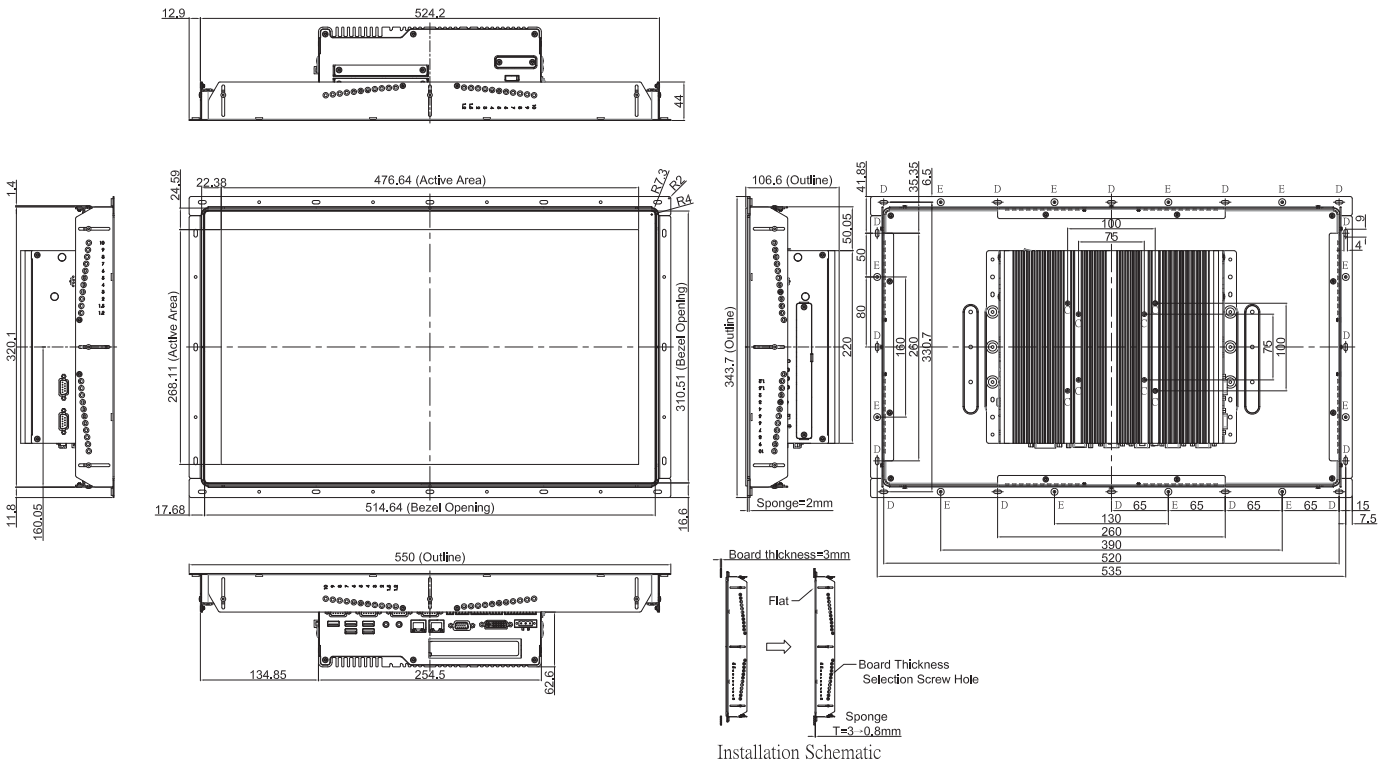
Right I/O



**CO-W121C/P2002 Dimensions**



**CO-W121C/P2002E Dimensions**





## 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 PCIe4 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 PCIe4 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

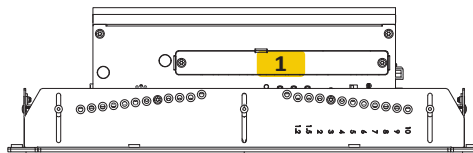
- |   |   |
|---|---|
| • CO-W121C/P2002 Series Panel PC x 1        | • Power Terminal Block Connector (Female) x 1 |
| • Utility DVD Driver x 1                    | • Screw Pack x 1                              |
| • DIO Terminal Block Connector (Female) x 1 | • Fan Terminal Block Connector x 1            |
| • Power On/Off Terminal Block Connector x 1 |   |





### Optional Modules and Accessories

Model No.	Description
MEC-COM-M212-DB9	Mini-PCIe Module with 2x RS-232 Serial Ports, 1x Standard DB9 Cable
MEC-COM-M334-TDB9	Mini-PCIe Module with 4x RS-232/422/485 Serial Ports, 2x Thin DB9 Cable
MEC-LAN-M102-30	Mini-PCIe Module with 2x LAN Ports, 2x 30cm
MEC-USB-M102-30	Mini-PCIe Module with 2x USB 3.2 Gen1 Ports

Model No.	Description
CFM-IGN100	CFM Module with Power Ignition Sensing Control Function, 12V/24V Selectable (41 x 35 mm)
CFM-PoE100	PoE Control Function Module, Individual Port 25.5W (50 x 44 x 15 mm) (For P2002 only)
CFM-PoE101	PoE Control Function Module, Individual Port 25.5W (50 x 44 x 15 mm) (For P2002E only)
RC-E4-01	Riser Card with 1x PCIe4 Slot(For P2002E only)
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 (For P2002E only)**



Model No.	Description	1
 <p>MEC-COM-M212-DB9/UB0503</p>	Mini-PCIe Module with 2x COM Ports, 1x Standard DB9 Cable, 1x Universal Bracket each with 2x DB9 Cutout	V
 <p>MEC-COM-M334-TDB9/UB0504</p>	Mini-PCIe Module with 4x RS-232/422/485 Serial Ports, 1x Universal Bracket each with 4x DB9 Cutout	V
 <p>MEC-LAN-M102-30/UB0511</p>	Mini-PCIe Module with 2x LAN Ports, 2x 30cm cable, w/ 1x Universal Bracket with 2x RJ45 Cutout	V
 <p>MEC-USB-M102-30/UB0514</p>	Mini-PCIe Module with 2x USB 3.2 Gen1 Ports, 1x 30cm cable, 1x Universal Bracket with 2x USB Cutout	V

V : Compatible