CO-W121C/P2302 Series

21.5" TFT-LCD Full HD 16:9 Open Frame Display Modular Panel PC with Intel Meteor Lake-PS Core Series (LGA Socket) Slim / Expandable Embedded Computer Embedded Computer

ALL-NEW OPEN FRAME PANEL PC

| CO-100/P2000 Series Fits Any Machine Perfectly |

Overview

✉ CONTACT

Cincoze open-frame high-performance industrial panel PC (CO-100/P2302) is equipped with an Intel® Core™ Ultra U-series (Meteor Lake-PS) Processors, rich I/O interfaces (2.5 GbE LAN, USB 3.2 Gen 2x1, COM, DIO, etc.), and flexible expansion. The biggest highlight is its adjustable mounting bracket design (Patent No.: D224544, D224545, I802427) that allows flexible adjustment and multi-stage locking to greatly improve the convenience of installation, effectively reducing the degree of customization required when integrating with equipment. It is purpose-built for equipment manufacturers.

Key Features

▪ 21.5" TFT-LCD Full HD 16:9 with Projected Capacitive Touch

▪ Intel® Meteor Lake-PS Core™ Ultra 7/5/3 Processor

▪ 2 x DDR5 SO-DIMM Socket, Supports up to 5600MHz 64GB Memory

▪ Quad Independent Display (CDS / HDMI / DP / VGA)

▪ 1x M.2 Key E Type 2230 Socket for Wireless / Bluetooth Module Expansion

▪ 1 x M.2 Key B Type 3052/3042 Socket for 5G/Storage/Add-on Card Expansion

▪ 1x M.2 Key B Type 3042 Socket for Storage/Add-on Card Expansion

▪ Front Panel IP65 Compliant

## Improved Performance x Power-Saving x AI Boost

The CO-100/P2302 series supports Intel® 4 Core Ultra 7/5/3 U Series (Meteor Lake-PS) processors with up to 12 cores and 15W low power consumption, providing 1.8 times the performance of the previous model. The new built-in Intel NPU provides faster and more efficient AI acceleration capabilities for high-volume image processing and AI recognition.

intel CORE ULTRA 3 | intel CORE ULTRA 7 | intel CORE ULTRA 5

**1.8x** Faster Processing Power

Meteor Lake PS

Alder Lake-P
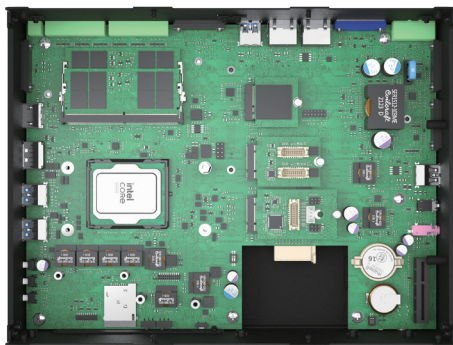
High Flexibility, Unlimited Applications

The P2302 series offers outstanding flexibility, supporting Core Ultra U-series LGA CPUs for customizable performance. It features M.2 Key B/E slots for 5G, Wi-Fi, Bluetooth, NVMe SSDs, and I/O expansion. The P2302E further supports PCI/PCIe slots for expansion cards (up to 75W, 111 × 169 mm), enabling diverse applications.

CDS Technology

Our exclusive CDS (Convertible Display System) technology enables easy maintenance in the field and simplifies future upgrades. Replacing the display or improving system performance only requires replacing a single component, significantly saving upgrade costs.

CDS Convertible Display System
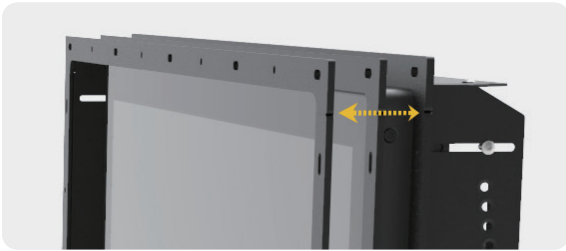
Easy to Install

The Adjustable Mounting Bracket has thickness adjustment options and supports multiple locking methods (Panel Type / Boss Type), providing a simpler and more convenient integration for industrial machines using flat and standard mounts.

Patent No. I802427, D224544, D224545

Integrated Structure

The series is flexible and reliable, supporting standalone use or integration in device machines. Its all-in-one design supports installation in a 19" rack or standalone use by removing the mounting bracket and installing via VESA mount.

Rugged, Safe, Reliable

The CO-100/P2302 series has industrial-grade protections, such as fanless design, wide temperature, wide voltage, and IP65 waterproof and dustproof front panel for field-side HMI applications in extreme industrial environments.

9 - 48VDC

IP65

CO-W121C Specifications

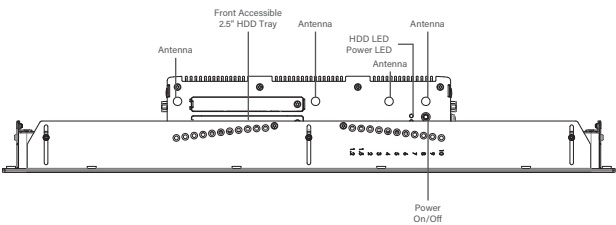| Model Name	CO-W121C
Display	
LCD Size	▪ 21.5" (16:9)
Resolution	▪ 1920 x 1080
Brightness	▪ 300 cd/m2
Contrast Ratio	▪ 5000 : 1
LCD Color	▪ 16.7M
Pixel Pitch	▪ 0.24825 (H) x 0.24825 (V) mm
Viewing Angle	▪ 178 (H) / 178 (V)
Backlight LED Life Time	▪ 50,000 hrs
Touch Screen	
Touchscreen Type	▪ Projected 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℃ to 60℃ (with Industrial Grade Peripherals)
Storage Temperature	▪ -20℃ to 60℃
Humidity	▪ 80% RH @ 50℃ (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

P2302 Specifications

Model Name	P2302	P2302E
System		
Processor	▪ Intel® Meteor Lake-PS Core™ Ultra 7/5/3 Processor - Intel® Core™ Ultra 7 Processor 165UL 12 Cores Up to 4.9 GHz, TDP 15W - Intel® Core™ Ultra 7 Processor 155UL 12 Cores Up to 4.8 GHz, TDP 15W - Intel® Core™ Ultra 5 Processor 135UL 12 Cores Up to 4.4 GHz, TDP 15W - Intel® Core™ Ultra 5 Processor 125UL 12 Cores Up to 4.3 GHz, TDP 15W - Intel® Core™ Ultra 3 Processor 105UL 8 Cores Up to 4.2 GHz, TDP 15W	
Memory	▪ 2x DDR5 5600 MHz SO-DIMM Socket, Supports Un-buffered and ECC Type, Up to 64 GB	
BIOS	▪ AMI BIOS	
Graphics		
Graphics Engine	▪ Intel® Graphics	
Maximum Display Output	▪ Supports Quad Independent Display	
CDS	▪ 1x CDS Connector (1920 x 1080 @60Hz)	
DP	▪ 1x DisplayPort Connector (4096 x 2304 @60Hz) * Verified maximum resolution: 3840 x 2160 @ 60Hz	
HDMI	▪ 1x HDMI Connector (3840 x 2160 @30Hz)	
VGA	▪ 1x VGA Connector (1920 x 1080 @60Hz)	
Audio		
Audio Codec	Realtek® ALC888, High Definition Audio	
Line-out	▪ 1x Line-out, Phone Jack 3.5mm	
Mic-in	▪ 1x Mic-in, Phone Jack 3.5mm	
I/O		
LAN	▪ 2x 2.5GbE LAN, RJ45 - GbE1: Intel® I225 - GbE2: Intel® I225	
COM	▪ 4x RS-232/422/485 with Auto Flow Control (Supports 5V/12V), DB9	
USB	▪ 2 x USB 3.2 Gen2x1 (10Gbps), Type A ▪ 1 x USB 3.2 Gen1x1 (5Gbps), Type A ▪ 1 x USB 2.0 (480Mbps), Type A	
DIO	▪ 16x Isolated Digital I/O (8in/8out), 20-Pin Terminal Block	
Storage		
SSD/HDD	▪ 2x 2.5" SATA HDD/SSD Bay (SATA 3.0)	
M.2 SSD	▪ 1x M.2 SSD Shared by M.2 Key B Type 3042/3052 Socket, Support PCIe Gen 4x2 NVMe SSD ▪ 1x M.2 SSD Shared by M.2 Key B Type 3042 Socket, Support PCIe Gen 3x2 NVMe SSD	
RAID	▪ RAID 0/1	
Expansion		
M.2 Key E Socket	▪ 1x M.2 Key E Type 2230 Socket (PCIe Gen 3x1 / USB2.0), Support Wireless/Bluetooth Module Expansion	
M.2 Key B Socket	▪ 1x M.2 Key B Type 3042/3052 Socket (PCIe Gen 4x2 / USB3.2 Gen2 x1 / USB2.0), Support 5G/Storage/Add-on Card Expansion ▪ 1x M.2 Key B Type 3042 (PCIe Gen 3x2), Support Storage/Add-on Card Expansion	
PCI Express		▪ 1x PCI or 1x PCIe Gen3 x4 Expansion slot (with Optional Riser Card) ▪ Supports maximum dimensions of add-on card (H x L) : 111 x 169mm

SIM Socket	▪ 1 x Front Accessible SIM Socket
CFM (Control Function Module) Interface	▪ 1x CFM Interface for optional IGN Module Expansion ▪ 1x CFM Interface for optional PoE Module Expansion
CDS (Convertible Display System) Interface	▪ 1x CDS Interface for Convertible Display Module

Other Function

Clear CMOS Switch	▪ 1x Clear CMOS Switch
Reset Button	▪ 1x Reset Button
Instant Reboot	▪ Support 0.2sec Instant Reboot Technology
Watchdog Timer	▪ Software Programmable Supports 256 Levels System Reset
OSD Button	▪ LCD On/Off, Brightness Up, Brightness Down
Internal Speaker	▪ AMP 2W + 2W
Status LED Indicator	▪ Power LED, Storage LED
Antenna Holes	▪ 6x Antenna Holes

Power

Power Button	▪ 1x ATX Power On/Off Button
Power Mode Switch	▪ 1x AT/ATX Mode Switch
Power Input	▪ 9 - 48VDC, 3-pin Terminal Block
Remote Power On/Off	▪ 1x Remote Power On/Off, 2-pin Terminal Block

Max. Power Consumption	▪ Intel Core™ Ultra 7 Processor 165UL: 79.7W
	  - Test conducted with CPU, 1x RAM, and 1x storage
	  - 100% load during burn-in testing

Inrush Current (Peak)	▪ Intel Core™ Ultra 7 Processor 165UL: 5.010 A@24V

Operating System

Windows	▪ Windows®11, Windows®10
Linux	▪ Ubuntu Desktop 24.04 LTS

Physical

Dimension(W x D x H)	▪ 254.5 x 190 x 49.5 mm	▪ 254.5 x 190 x 69 mm
Weight Information	▪ 2.16 kg	▪ 2.26 kg
Mechanical Construction	▪ Extruded Aluminum with Heavy Duty Metal	
Mounting	▪ Wall / VESA / CDS / DIN Rail	
Physical Design	▪ Fanless Design ▪ Jumper-less Design	

Reliability & Protection

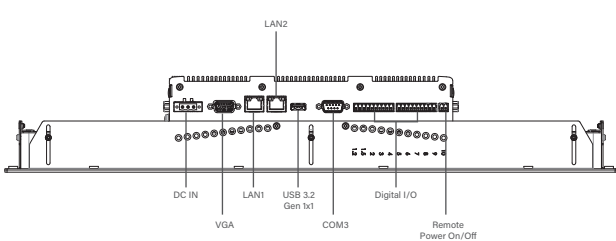| Reverse Power Input Protection	▪ Yes
Over Voltage Protection	▪ Protection Range: 51~58V ▪ Protection Type: shut down operating voltage, re-power on at the preset level to recover
Over Current Protection	▪ 15A
CMOS Battery Backup	▪ SuperCap Integrated for CMOS Battery Maintenance-free Operation
MTBF	▪ TBC Hours - Database: Telcordia SR-332 Issue3, Method 1, Case 3

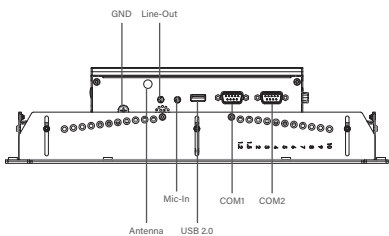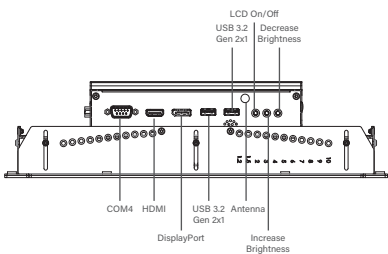| Environment	
Operating Temperature	▪ -40°C to 65°C * PassMark BurnIn Test: 100% CPU, 2D/3D Graphics (without thermal throttling) * With extended temperature peripherals; Ambient with air flow * According to IEC60068-2-1, IEC60068-2-2, IEC60068-2-14
Storage Temperature	▪ -40°C to 65°C
Relative Humidity	▪ 95%RH @ 65°C (non-Condensing)
Shock	▪ Operating, 50 Grms (w/ SSD, according to IEC60068-2-27)
Vibration	▪ Operating, 1 Grms, 10-500 Hz, 3 Axes (w/ SSD, according to IEC60068-2-6) ▪ 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
EMS	▪ EN/IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV ▪ EN/IEC 61000-4-3 RS: 80 MHz to 1000 MHz: 10 V/m ▪ EN/IEC 61000-4-4 EFT: AC Power: 2 kV; DC Power: 1 kV; Signal: 1 kV ▪ EN/IEC 61000-4-5 Surges: AC Power: 2 kV; Signal: 1 kV ▪ EN/IEC 61000-4-6 CS: 10V ▪ EN/IEC 61000-4-8 PFMF: 50 Hz, 30A/m ▪ EN/IEC 61000-4-11 Voltage Dips & Voltage Interruptions: 1 cycles at 60 Hz
Industrial Environment	▪ EMC - EN/BS/IEC 61000-6-4: 2019 Class A - EN/BS/IEC 61000-6-2: 2019

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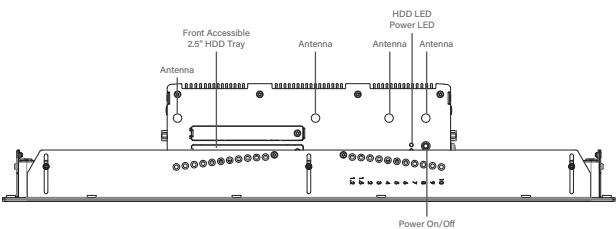## CO-W121C/P2302 External Layout

Front I/O

Antenna
Front Accessible 2.5" HDD Tray
Antenna
HDD LED
Power LED
Antenna
Antenna
Power On/Off

Rear I/O

LAN2
DC IN
VGA
LAN1
USB 3.2 Gen 1x1
COM3
Digital I/O
Remote Power On/Off

Left I/O

GND
Line-Out
Mic-In
Antenna
USB 2.0
COM1
COM2

Right I/O

LCD On/Off
USB 3.2 Gen 2x1
Decrease Brightness
COM4
HDMI
DisplayPort
USB 3.2 Gen 2x1
Antenna
Increase Brightness

CO-W121C/P2302E External Layout

Front I/O

Front Accessible 2.5" HDD Tray
Antenna
HDD LED
Power LED
Antenna
Antenna
Antenna
Power On/Off

Rear I/O

Universal I/O Bracket
LAN2
DC IN
VGA
LAN1
USB 3.2 Gen 1x1
COM3
Digital I/O
Remote Power On/Off

Left I/O

GND
Line-Out
Antenna
Mic-In
USB 2.0
COM1
COM2

Right I/O

LCD On/Off
USB 3.2 Gen 2x1
Decrease Brightness
COM4
HDMI
DisplayPort
USB 3.2 Gen 2x1
Antenna
Increase Brightness
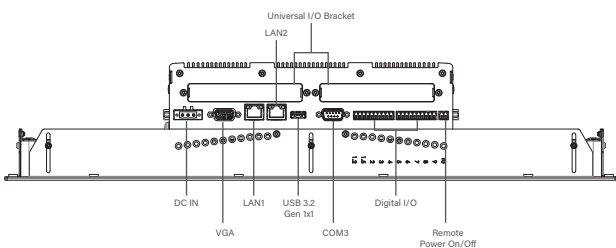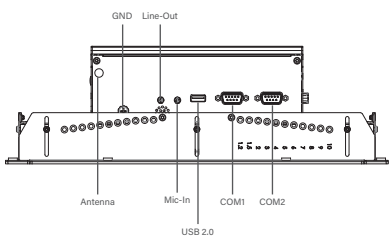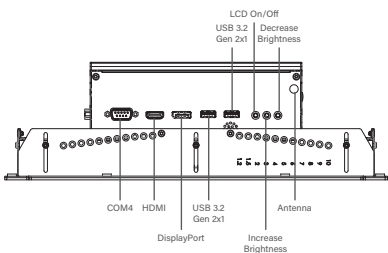
CO-W121C/P2302 Dimensions

1.C=8_M4 VESA Screw holes(5 mm Length Limits)
2.D=16_9*4 Oblong Hole
3.E=12_M4 Screw Hole
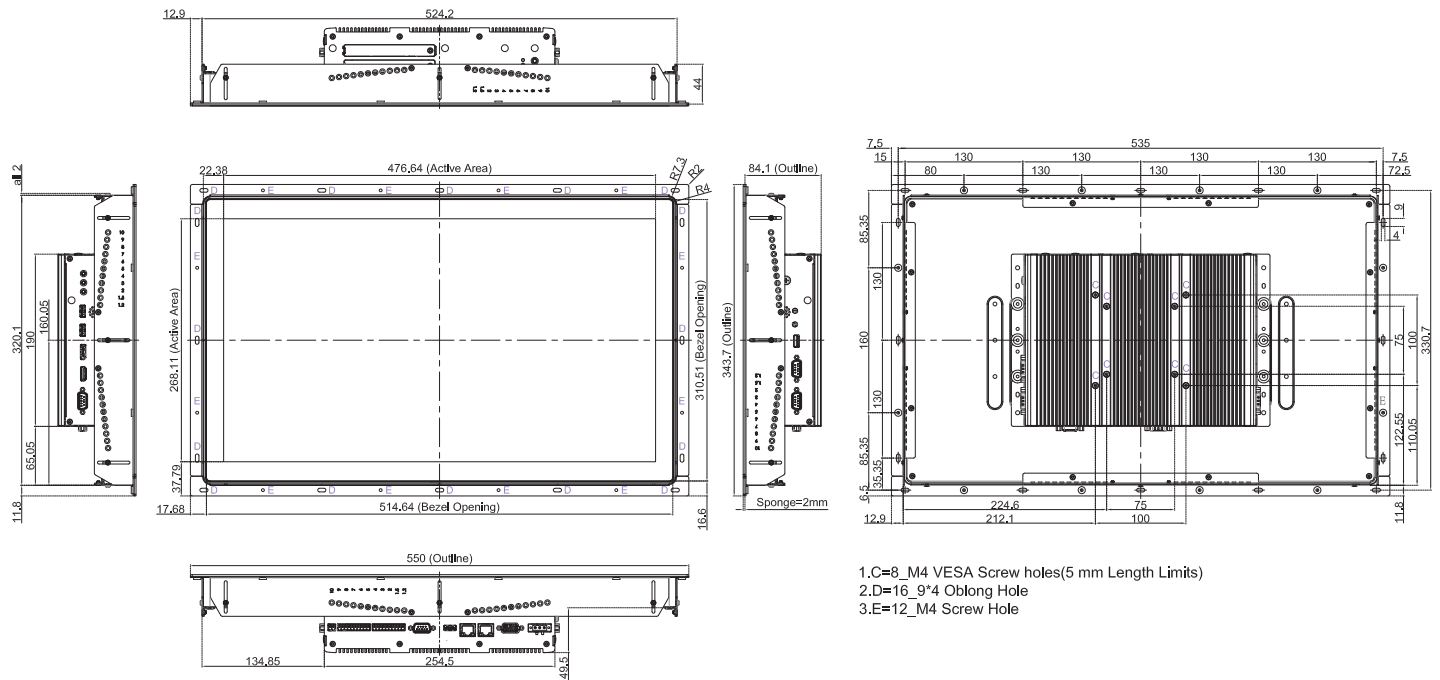
CO-W121C/P2302E Dimensions

1.C=8_M4 VESA Screw holes(5 mm Length Limits)
2.D=16_9*4 Oblong Hole
3.E=12_M4 Screw Hole

Unit: mm
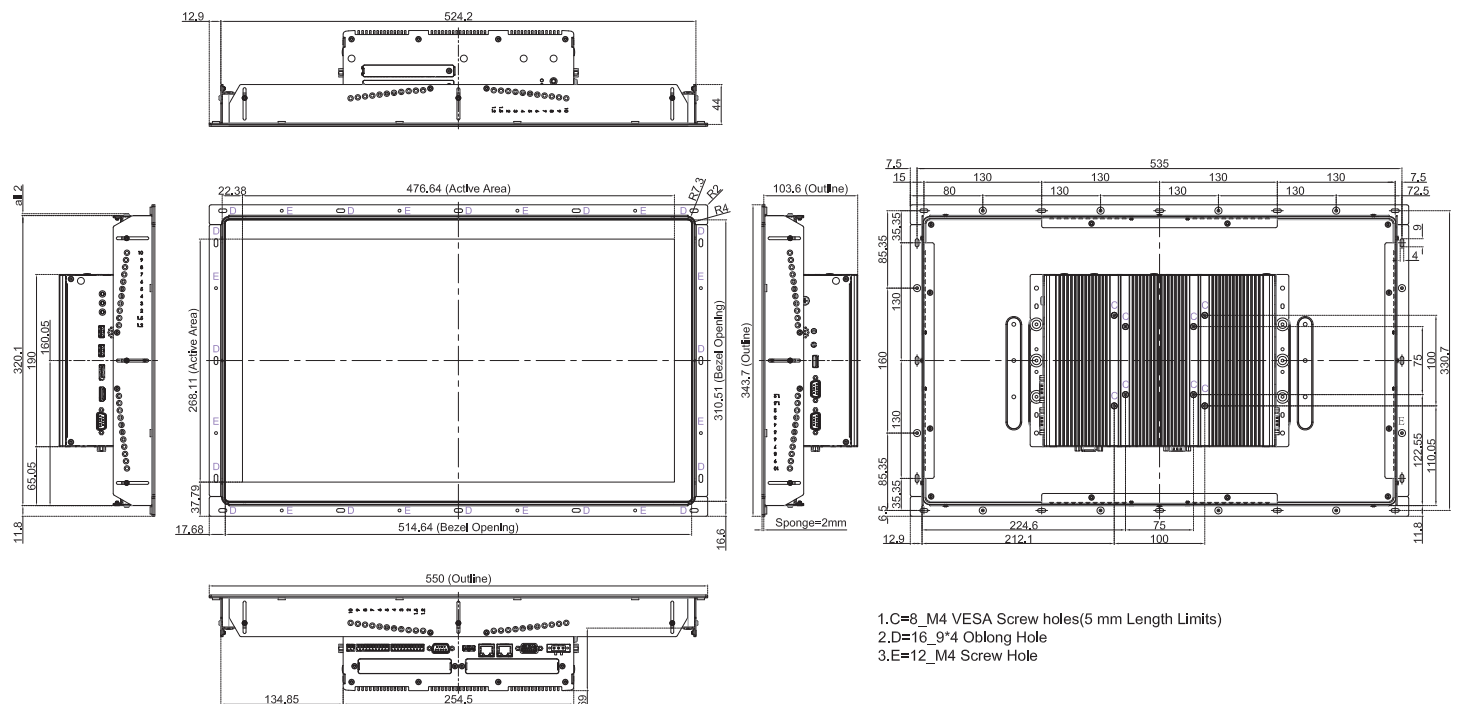
Ordering Information

Available Models

Model No.	Description
CO-W121C-R10/P2302-R10	21.5" TFT-LCD Full HD 16:9 Open Frame Display Modular Panel PC with Intel Meteor Lake-PS Core Series (LGA Socket) Slim Embedded Computer and Projected Capacitive Touch
CO-W121C-R10/P2302E-R10	21.5" TFT-LCD Full HD 16:9 Open Frame Display Modular Panel PC with Intel Meteor Lake-PS Core Series (LGA Socket) Expandable Embedded Computer, Supporting 1x PCI/PCIe Expansion Card and Projected Capacitive Touch

Model Configuration

	CO-W121C	P2302	P2302E
CO-W121C/P2302	V	V	--
CO-W121C/P2302E	V	--	V

V : Compatible

Package Checklist

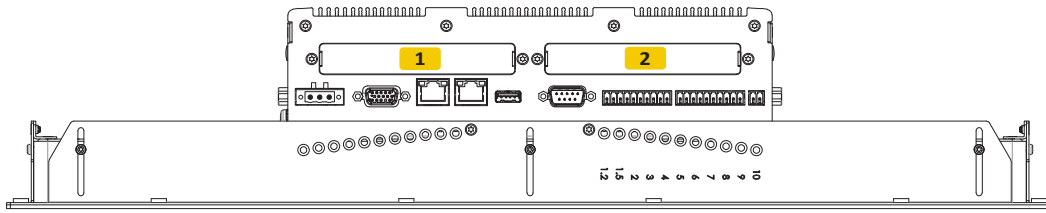|	
▪ CO-W121C/P2302 Series Panel PC x1	▪ PCI / PCIe Card Installation Kit x 1 (For P2302E Only)
▪ Power Terminal Block x1	▪ Screw Pack x4
▪ Remote Power On/Off Terminal Block Connector x1	▪ Heatsink Kit x1
▪ DIO Terminal Block Connector x2	▪ M.2 Key B Type 3052 to 3042 Adapter Bracket x1

Optional Modules and Accessories

Model No.	Description
CFM-IGN101	CFM Module with Power Ignition Sensing Control Function, 12V/24V Voltage Detection Selectable
CFM-PoE04	CFM Module with PoE Control Function, Individual Port 25.5W (For P2302 Only)
CFM-PoE05	CFM Module with PoE Control Function, Individual Port 25.5W (For P2302E Only)
MEC-LAN-2002i	M.2 2242/2260/2280 2-port 10/100/1000 Isolated Ethernet Board(-40℃~+85℃), 2x RJ45 Connector
MEC-LAN-2002i-S	M.2 2242/2260/2280 2-port 10/100/1000 Isolated Ethernet Board(-0℃~+70℃), 2x RJ45 Connector
MEC-USB-2002-SP	M.2 2242/2260/2280 2 port USB 3.2 board(-0℃~+70℃), w/ IDE 20P 90° Cable, 2x USB Type A Connector *Only one MEC-USB-2002-SP can be installed on the P2302E
MEC-USB-2002C	M.2 2242/2260/2280 2-port USB 3.2 Board(-0℃~+70℃), 2x USB Type C Connector
MEC-CAN-2812i	M.2 2242/2260/2280 (B+M Key) 2x Isolated CAN Bus 2.0B Board (-40℃~+85℃), 2x DB9 Connector
MEC-CAN-2814i	M.2 2242/2260/2280 (B+M Key) 4x Isolated CAN Bus 2.0B Board (-40℃~+85℃), 4x DB9 Connector
MEC-COM-2012	M.2 2242/2260/2280 (B+M Key) 2-port RS-232 Serial Board (-40℃~+85℃), 2x DB9 Connector
MEC-COM-2032i	M.2 2242/2260/2280 (B+M key) 2-port RS-232/422/485 isolated serial board (-40℃~+85℃), 2x DB9 Connector
RC-E4-02	Riser Card with 1x PCIe x4 Slot (For P2302E Only)
RC-PI-02	Riser Card with 1x PCI Slot (For P2302E Only)
UB1203	Universal Bracket with 2x DB9 Cutout for MEC-COM & MEC-CAN Expansion
UB1211	Universal Bracket with 2x RJ45 Cutout for MEC-LAN Expansion
UB1233-R10	Universal Bracket with 2x USB Type C Cutout for MEC-USB Expansion
UB1234-R10	Universal Bracket with 2x USB Type A Cutout for MEC-USB (M.2 interface) Expansion
DIN01	DIN-RAIL Mount Kit, KMRH-K175
GST120A24-CIN	Adapter AC/DC 24V 5A 120W with 3pin Terminal Block Plug and Tubes, Level VI
GST220A24-CIN	Adapter AC/DC 24V 9.2A 220W with 3pin Terminal Block Plug 5.0mm Pitch, with TUBES, level VI
GST360A24-CIN	Adapter AC/DC 24V 15A 360W with 3pin Terminal Block Plug 5.0mm Pitch, with TUBES,GST360A24-CIN

Optional Module Configuration (For P2302E only)

Model No.	Description	1	2
MEC-LAN-2002i/UB1211	M.2 2242/2260/2280 2-port 10/100/1000 Isolated Ethernet Board (-40°C~+85°C), 2x RJ45 Connector / Universal Bracket with 2x RJ45 Cutout for MEC-LAN Expansion	V	V
MEC-LAN-2002i-S/UB1211	M.2 2242/2260/2280 2-port 10/100/1000 Isolated Ethernet Board (-0°C~+70°C), 2x RJ45 Connector / Universal Bracket with 2x RJ45 Cutout for MEC-LAN Expansion	V	V
MEC-USB-2002-SP/UB1234-R10	M.2 2242/2260/2280 2 port USB 3.2 board(-0°C~+70°C), w/ IDE 20P 90° Cable, 2x USB Type A Connector / Universal Bracket with 2x USB Type A Cutout for MEC-USB (M.2 interface) Expansion *Only one MEC-USB-2002-SP can be installed on the P2302E	V	V
MEC-USB-2002C/UB1233-R10	M.2 2242/2260/2280 2-port USB 3.2 Board(-0°C~+70°C), 2x USB Type C Connector / Universal Bracket with 2x USB Type C Cutout for MEC-USB Expansion	V	V
MEC-CAN-2812i/UB1203	M.2 2242/2260/2280 (B+M Key) 2x Isolated CAN Bus 2.0B Board (-40°C~+85°C), 2x DB9 Connector / Universal Bracket with 2x DB9 Cutout for MEC-COM & MEC-CAN Expansion	V	V
MEC-CAN-2814i/2x UB1203	M.2 2242/2260/2280 (B+M Key) 4x Isolated CAN Bus 2.0B Board (-40°C~+85°C), 4x DB9 Connector / 2x Universal Bracket with 2x DB9 Cutout for MEC-COM & MEC-CAN Expansion	V	
MEC-COM-2012/UB1203	M.2 2242/2260/2280 (B+M Key) 2-port RS-232 Serial Board (-40°C~+85°C), 2x DB9 Connector / Universal Bracket with 2x DB9 Cutout for MEC-COM & MEC-CAN Expansion	V	V
MEC-COM-2032i/UB1203	M.2 2242/2260/2280 (B+M key) 2-port RS-232/422/485 isolated serial board (-40°C~+85°C), 2x DB9 Connector / Universal Bracket with 2x DB9 Cutout for MEC-COM & MEC-CAN Expansion	V	V
RC-E4-02	Riser Card with 1x PCIe x4 Slot	V	-
RC-PI-02	Riser Card with 1x PCI Slot	V	-

V : Compatible