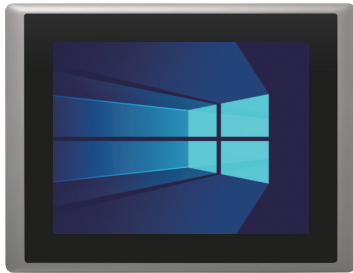


# CV-112H/P2102E

## 12.1" TFT-LCD Modular and Expandable Panel PC with 8th Gen. Intel® Core™ U Series Processor



- 12.1" 1024 x 768 (XGA) TFT-LCD with Resistive 5-wire Touch / Projected Capacitive
- Onboard 8th Generation Intel® Core™ U Series Processor
- 2x DDR4 SO-DIMM Socket, Supports Up to 2400MHz, 64GB
- Supports Triple Independent Display
- Integrated USB 3.2 Gen 2 supports up to 10Gbps
- M.2 E Key Socket for Wireless Module or Intel CRF Module
- Supports Ignition Sensing Function (IGN) (with optional CFM module)
- Supports 2x PoE+ Function (with optional CFM module)
- 1x PCI or 1x PCIe Slot for Add-on Card Expansion: Max. Length 180mm including Bracket (with optional riser card)
- Designed with Rugged Aluminum Die-casting Front Bezel
- True Flat IP65 Compliant Front Panel Protection
- Supports Panel / VESA / Rack Mounting



### Overview

The CV-112H/P2102E is a 12.1" TFT-LCD expandable panel PC with Intel® 8th generation Core™ U Series Processor and suitable for the high-performance requirement in factory and machine automation applications. The processor brings outstanding computing performance boost up to 84% at a TDP of 15 watts, compared to 6th generation Intel® Core™ U series. To enable faster responsiveness and deal with multi tasks with ease, the panel PC is equipped with two DDR4 2400 SODIMM sockets for up to 64 GB memory.

For expansion requirements, the CV-112H/P2102E has 1x PCI/PCIe x4, 1x M.2 2230 E key and 2x full-size Mini-PCIe expansions which can be installed various add-on cards to increase desired functions. Besides, the CV-112H/P2102E supports Control Function Module (CFM) Technology to install optional CFM modules for increasing power over ethernet and power ignition sensing functions according to user's specific applications.

Featuring rigorous industrial protections, wide range operating temperature, IP65 dust/waterproof front panel, and wide range DC power input (9 to 48VDC), the CV-112H/P2102E is appropriate for harsh environments and critical industrial applications.

Furthermore, the CV-112H/P2102E supports Cincoze patented Convertible Display System (CDS) technology, allowing users to replace display module or computer module on-site easily and thereby reducing maintenance costs and downtime.

### Highlights



**4X Cores**

#### High Performance Per Watt

Powered by 8th generation Intel® Core™ U series processor (up to 4 cores, 4.10 GHz) at a TDP of only 15W, the CV-112H/P2102E can fulfill a variety of applications that require high-performance computing and low power budget simultaneously.



#### Flexible Expansions

Featuring 1x PCI/PCIe x4 slot, 1x M.2 2230 E key socket, and 2x full-size Mini-PCIe slots, the CV-112H/P2102E can be added a variety of expansion cards for your desired applications, such as data acquisition, motion control, and wireless communication.



#### Patented CDS Technology

Thanks to Cincoze patented Convertible Display System (CDS) technology, the CV-112H/P2102E not only makes maintenance easier but also provides upgradability whenever requested.

## Specifications

### Display

- LCD Size: 12.1" (4:3)
- Max. Resolution: 1024 x 768
- Brightness (cd/m<sup>2</sup>): 500
- Contrast Ratio: 700 : 1
- LCD Color: 16.2M
- Pixel Pitch (mm): 0.24 (H) x 0.24 (V)
- Viewing Angle (H-V): 160 / 160
- Backlight MTBF: 30000 hrs (LED Backlight)

### Touch

- Resistive 5-wire Touch for CV-112HR/P2102E Only
- Projected Capacitive Touch for CV-112HC/P2102E Only

### Processor System

- Onboard 8th Intel® Core™ U Processors (Whiskey Lake)
  - Intel® Core™ i5-8365UE Quad Core Processor (6M Cache, up to 4.10 GHz)
  - Intel® Core™ i3-8145UE Dual Core Processor (4M Cache, up to 3.90 GHz)
  - TDP: 15 W

### Memory

- 2x DDR4 2400 MHz 260-Pin SO-DIMM Socket
- Supports up to 64 GB (un-buffered and non-ECC)

### Graphics

- Integrated Intel® UHD Graphics 620
- Supports Triple Independent Display (via VGA and DisplayPort Outputs)

### Audio Codec

- Realtek ALC888-GR

### External I/O Interface

- 1x VGA (1920 x 1200 @60Hz)
- 1x DisplayPort (4096 x 2304 @ 60Hz)
- 2x GbE LAN (Supports WoL, Teaming, Jumbo Frame & PXE), RJ45
  - GbE1: Intel® I219-LM
  - GbE2: Intel® I210
- 3x USB 3.2 Gen2 (Type A)
- 2x USB 2.0 (Type A)
- 4x RS-232/422/485 with Auto Flow Control (Supports 5V/12V), DB9
- 1x Speaker-out & 1x Mic-in, Phone Jack 3.5mm
- 1x ATX Power On/Off Button
- 1x Reset Button
- 1x AT/ATX Mode Switch
- 1x Clear CMOS Switch
- 1x Remote Power On/Off Connector, 2-pin Terminal Block
- 16x Isolated DIO (8x DI/8x DO), 20-Pin Terminal Block
- 1x Ignition DIP Switch (12V/24V, need to work with CFM module)

### Storage

- 2x 2.5" HDD/SSD Drive Bay (SATA 3.0), Supports RAID 0/1

### Expansion

- 2x Full-size Mini-PCIe Socket
- 1x M.2 2230 E Key Socket for Wireless Module, Supports Intel CRF Module
- 2x Control Function Module (CFM) Interface
- 1x PCI or 1x PCIe x4 Expansion slot (with Optional Riser Card)
- 2x Universal I/O Bracket
- 1x Front Accessible SIM Socket
- 4x Antenna Hole

### Other Functions

- Watchdog Timer: Software Programmable Supports 256 Levels System Reset
- Internal Speaker AMP 2W + 2W
- OSD Function: LCD On/Off, Brightness Up, Brightness Down
- SuperCap Integrated for CMOS Battery Maintenance-free Operation
- Supports Instant Reboot Technology (0.2 sec)

### Power Requirement

- Supports AT/ATX Power Type
- Power Input Voltage 9~48VDC
- 1x 3-pin Terminal Block
- Power Adapter (Optional): AC/DC 12V/5A 60W, AC/DC 24V/5A 120W or 24V/9.2A 220W

### Physical

- Dimension (WxDxH, mm): 345 x 265.3 x 89 mm
- Weight: 5.9 kg
- Construction: Rugged Aluminum Die-casting Front Bezel and Heavy Duty Metal Chassis
- Mounting: Panel / VESA / \*Rack Mounting (\*with optional mounting kit)
- Fanless Design
- Jumper-less Design

### Environment

- Operating Temperature: -30°C to 70°C (with Extended Temperature Peripherals; Ambient with Air Flow)
- Storage Temperature: -30°C to 70°C
- Relative Humidity: 80% RH @ 40°C (Non-condensing)
- Shock: Operating, 15 Grms, Half-sine 11 ms Duration (w/ SSD, according to IEC60068-2-27)
- Vibration: Operating, 1.5 Grms, 5-500 Hz, 3 Axes (w/ SSD, according to IEC60068-2-64)
- IP Level: IP65 Compliant Front Panel
- EMC: CE, FCC Class A

### Protection

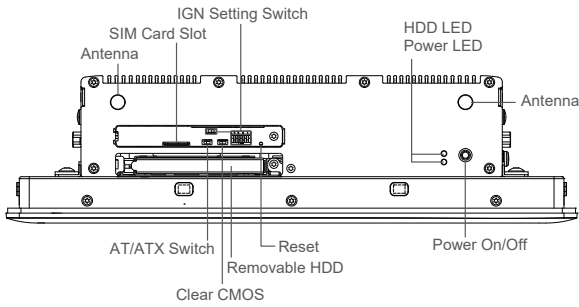
- Reverse Power Input Protection
  - Protection Range: 51~58V
  - Protection Type: shut down operating voltage, re-power on at the preset level to recover
- Over Current Protection: 15A
- ESD Protection: +/-8kV (air), +/-4kV (contact)
- Surge Protection: 3.84 kV (impedance 12 ohm 1.2/50µs waveform)

### Operating System

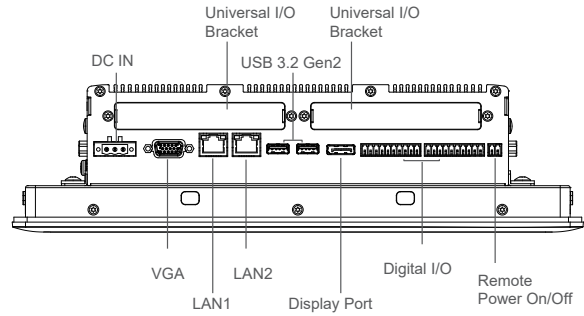
- Windows® 10
- Linux: Supports by project

**External Layout**

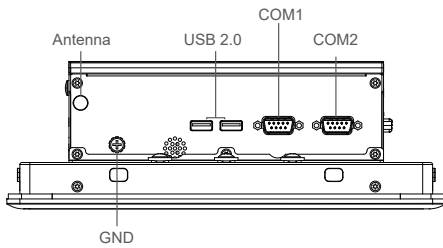
Front I/O



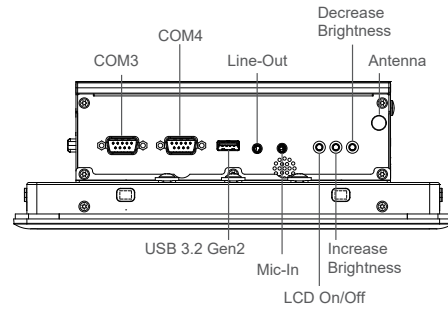
Rear I/O



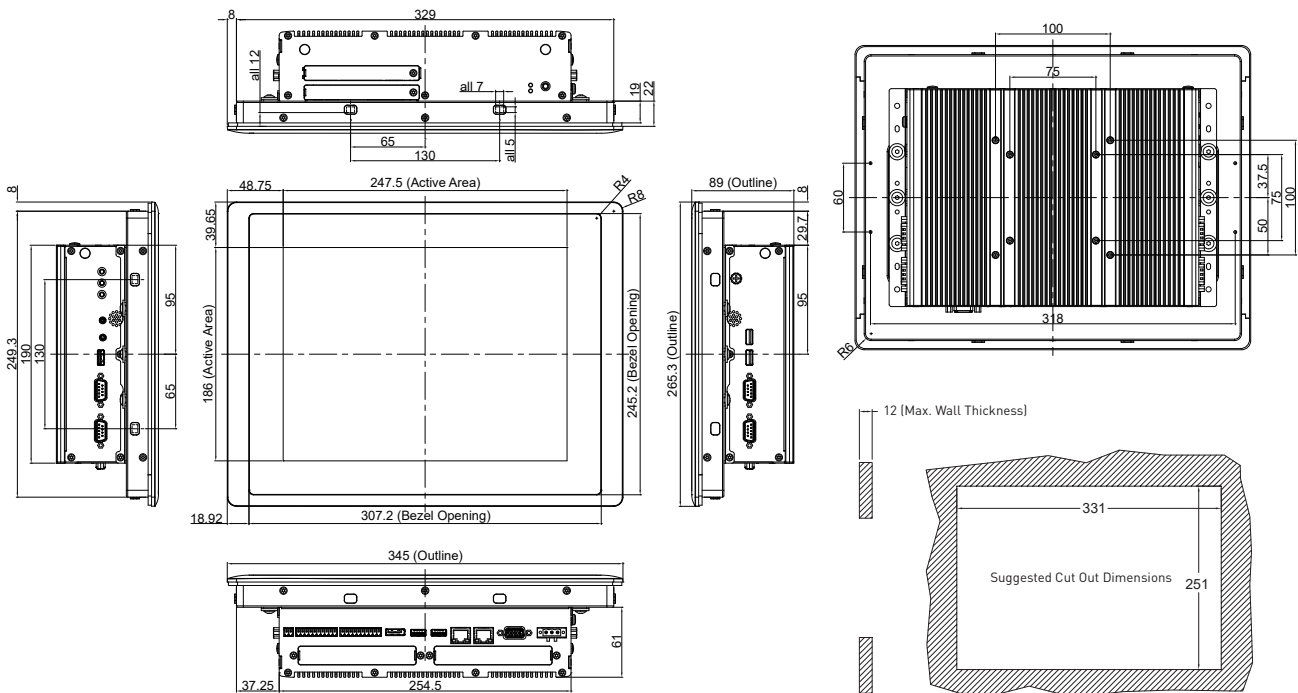
Left I/O



Right I/O



**Dimensions**



Unit: mm

## Ordering Information

### Available Models

Model No.	Description
CV-112HR-R10/P2102E-i5-R10	12.1" XGA TFT-LCD Modular and Expandable Panel PC with 8th Gen. Intel Core i5-8365UE Quad Core Processor and Resistive Touch
CV-112HR-R10/P2102E-i3-R10	12.1" XGA TFT-LCD Modular and Expandable Panel PC with 8th Gen. Intel Core i3-8145UE Dual Core Processor and Resistive Touch
CV-112HC-R11/P2102E-i5-R10	12.1" XGA TFT-LCD Modular and Expandable Panel PC with 8th Gen. Intel Core i5-8365UE Quad Core Processor and P-Cap. Touch
CV-112HC-R11/P2102E-i3-R10	12.1" XGA TFT-LCD Modular and Expandable Panel PC with 8th Gen. Intel Core i3-8145UE Dual Core Processor and P-Cap. Touch

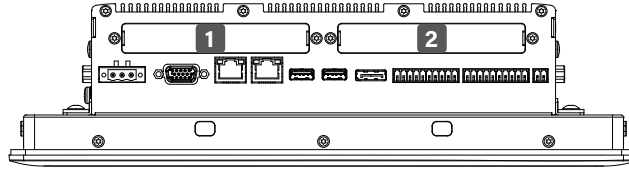
### Package Checklist

- CV-112H/P2102E Panel PC x 1
- Thermal Pad (for CPU Thermal Block) x 1
- Power Terminal Block Connector x 1
- Remote Power On/Off Terminal Block Connector x 1
- DIO Terminal Block Connector x 2
- Utility Driver DVD x 1
- Screws Pack x 5
- Panel Mounting Kit x 1
- PCI / PCIe Card Installation Kit x 1

### Optional Modules & Accessories

Model No.	Description
CFM-IGN101	CFM Module with Power Ignition Sensing Control Function, 12V/24V Voltage Detection Selectable
CFM-PoE05	CFM Module with PoE Control Function, Individual Port 25.5W
RC-E4-02	Riser Card with 1x PCIe x4 Slot for P2102E
RC-PI-02	Riser Card with 1x PCI Slot for P2102E
MEC-COM-M212-TDB9/UB1203	Mini-PCIe Module with 2x RS-232 Ports, 1x Thin DB9 Cable / 1x Universal Bracket with 2x DB9 Cutout for P2102E
MEC-COM-M334-TDB9/2xUB1203	Mini-PCIe Module with 4x RS-232/422/485 Ports, 2x Thin DB9 Cable / 2x Universal Bracket each with 2x DB9 Cutout for P2102E
MEC-USB-M102-30/UB1214	Mini-PCIe Module with 2x USB 3.0 Ports, 1x 30cm cable / 1x Universal Bracket with 2x USB Cutout for P2102E
MEC-LAN-M102-30/UB1211	Mini-PCIe Module with 2x LAN Ports, 2x 30cm cable / 1x Universal Bracket with 2x RJ45 Cutout for P2102E
GST60A12-CIN1	Adapter AC/DC 12V 5A 60W, GST60A12-CIN1, wide temp (-30°C ~ +70°C), level VI
GST120A24-CIN	Adapter AC/DC 24V 5A 120W, GST120A24-CIN, wide temp (-30°C ~ +70°C), level VI
GST220A24-CIN	Adapter AC/DC 24V 9.2A 220W with 3pin Terminal Block Plug 5.0mm Pitch, with TUBES, level VI
SL2-SL3	US 2 heads power cord, US B type to IEC C13, SVT 18AWG/3C Black 1.8M SL-2+SL-3
SL6-SL3	EU 2 heads power cord, EU G type to IEC C13, H05VV-F 0.75mm2/3G Black 1.8M SL-6+SL-3
QP026-SL3	UK 2 heads power cord, UK I type to IEC C13, H05VV-F 0.75mm2/3G Black 1.8M QP026+SL-3
URM01	Universal 19" Rack Mount Kit for Industrial Panel PC & Industrial Monitor

**Optional Module Configuration**



Model No.	Description	1	2
RC-E4-02	Riser Card with 1x PCIe x4 Slot for P2102E	V	-
RC-PI-02	Riser Card with 1x PCI Slot for P2102E	V	-
MEC-COM-M212-DB9/UB1203	Mini-PCIe Module with 2x RS-232 Ports, 1x Thin DB9 Cable / 1x Universal Bracket with 2x DB9 Cutout for P2102E	V	V
MEC-COM-M334-TDB9/2xUB1203	Mini-PCIe Module with 4x RS-232/422/485 Ports, 2x Thin DB9 Cable / 2x Universal Bracket each with 2x DB9 Cutout for P2102E	V	V
MEC-USB-M102-30/UB1214	Mini-PCIe Module with 2x USB 3.0 Ports, 1x 30cm cable / 1x Universal Bracket with 2x USB Cutout for P2102E	V	V
MEC-LAN-M102-30/UB1211	Mini-PCIe Module with 2x LAN Ports, 2x 30cm cable / 1x Universal Bracket with 2x RJ45 Cutout for P2102E	V	V

V : Compatible

## Assured Systems

Assured Systems is a leading technology company with over 1,500 regular clients in 80 countries, deploying over 85,000 systems to a diverse customer base in 12 years of business. We offer high-quality and innovative rugged computing, display, networking and data collection solutions to the embedded, industrial, and digital-out-of-home market sectors.

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