

## CS-W121/P1301 Series

21.5" TFT-LCD 1000nits Sunlight Readable Touch Panel PC with Intel® Alder Lake-N Platform, Slim Embedded Computer & P-Cap. Touch



## POWER EFFICIENT SUNLIGHT READABLE PANEL PC

| CS-100/P1000 Series |

### Overview

 CONTACT

The CS-100/P1301 series is a sunlight-readable panel PC that provides ultra-high brightness of up to 1,800 nits. It is equipped with an Intel® Alder Lake-N processor that provides a complete selection of screen sizes, ratios, and brightnesses. Rich I/O, flexible expansion, rugged, easy on-site maintenance, and other features make the CS-100/P1301 series the best choice for outdoor kiosk or HMI applications.

### Key Features

- 21.5" TFT-LCD Full HD with Ultra High Brightness up to 1,000 nits
- Onboard Intel® Alder Lake-N Core™ i3-N305, Processor N97 and Atom® x7425E Processor
- 1x DDR5 SO-DIMM Socket, Supports up to 4800MHz & 16GB Memory
- 1x M.2 Key E Type 2230 Socket for Wireless/Intel CNVi Module Expansion
- 1x M.2 Key B Type 3042/3052 Socket for 5G/Storage/Add-on Card Expansion
- Front Panel IP65 Compliant
- Designed with Rugged Aluminum Die-casting Front Bezel
- Supports Panel / VESA / Rack Mount
- Supports Cincoze Patent CDS Technology (Patent No. M482908)

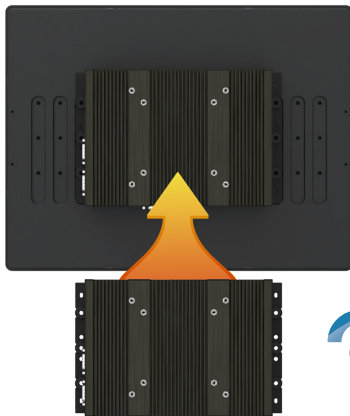
### AI & Multitasking Performance

The CS-100/P1301 is equipped with an Intel Alder Lake-N quad-core processor based on the Intel® 7 process. Compared with the previous generation Elkhart Lake platform, the CPU single-thread performance is improved by up to 130%, and the multi-thread performance is improved by 109%. The built-in UHD graphics chip improves AI inference, with 6.85 times the object recognition performance.

#### CPU Single-Thread Performance Up to **1.30X** Improvement



#### CPU Multi-Thread Performance Up to **1.09X** Improvement



### Convenient Upgrades & Repairs

Cincoze Convertible Display System (CDS) patented technology makes field-side maintenance and future upgrades easier. Replacing a display or improving system performance only requires replacing a single component, which significantly cuts upgrade costs.

Patent No. M482908

### Complete Product Portfolio

The CS-100/P1301 series offers a variety of display options, with screen sizes from 8.4 to 24 inches, support for up to full HD resolution, high brightness up to 1,800 nits, and multi-point P-Cap touchscreen, which can be selected according to application needs.



### Wide Temps, Safe, & Reliable

In order to overcome the harsh outdoor environment and unpredictable climate, the CS-100/P1301 series has a series of industrial-grade protections, including a wide operating temperature range (-20°C to 70°C) that beats the industry standard and an IP65 dustproof/water resistant front panel to ensure a high degree of product safety.

**CS-W121 Specifications**

Model Name	CS-W121
<b>Display</b>	
LCD Size	• 21.5" (16:9)
Max. Resolution	• 1920 x 1080 (Full HD)
Brightness (cd/m2)	• 1000
Contrast Ratio	• 5000 : 1
LCD Color	• 16.7M
Pixel Pitch (mm)	• 0.24825 (H) x 0.24825 (V)
Viewing Angle (H-V)	• 178 / 178
Backlight MTBF	• 50,000 hrs (LED Backlight)
<b>Touch Screen</b>	
Touch Type	• Projected Capacitive
<b>Physical</b>	
Dimension ( W x D x H )	• 550 x 330.5 x 63.2mm
Weight Information	• 5.56 kg
Mechanical Construction	• Flat Rugged Aluminum Die-casting Bezel
<b>Environment</b>	
Front Panel Protection	• IP 65 Compliant
Operating Temperature	• 0°C to 80°C (With Industrial Grade Peripherals; Ambient with air flow)
Storage Temperature	• -20°C to 80°C
Relative Humidity	• 90% RH @ 40°C (Non-condensing)
EMC	• CE, UKCA, FCC, ICES-003 Class A
EMI	<ul style="list-style-type: none"> <li>• CISPR 32 Conducted &amp; Radiated: Class A</li> <li>• EN/BS EN 55032 Conducted &amp; Radiated: Class A</li> <li>• EN/BS EN IEC 61000-3-2 Harmonic current emissions: Class A</li> <li>• EN/BS EN61000-3-3 Voltage fluctuations &amp; flicker</li> <li>• FCC 47 CFR Part 15B, ICES-003 Conducted &amp; Radiated: Class A</li> </ul>
EMS	<ul style="list-style-type: none"> <li>• EN/IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV</li> <li>• EN/IEC 61000-4-3 RS: 80 MHz to 1000 MHz: 3 V/m</li> <li>• EN/IEC 61000-4-4 EFT: AC Power: 1 kV; DC Power: 0.5 kV; Signal: 0.5 kV</li> <li>• EN/IEC 61000-4-5 Surges: AC Power: 2 kV; Signal: 1 kV</li> <li>• EN/IEC 61000-4-6 CS: 3V</li> <li>• EN/IEC 61000-4-8 PFMF: 50 Hz, 1A/m</li> <li>• EN/IEC 61000-4-11 Voltage Dips &amp; Voltage Interruptions: 0.5 cycles at 50 Hz</li> </ul>
Safety	• UL, cUL, CB, IEC, EN 62368-1

## P1301 Specifications

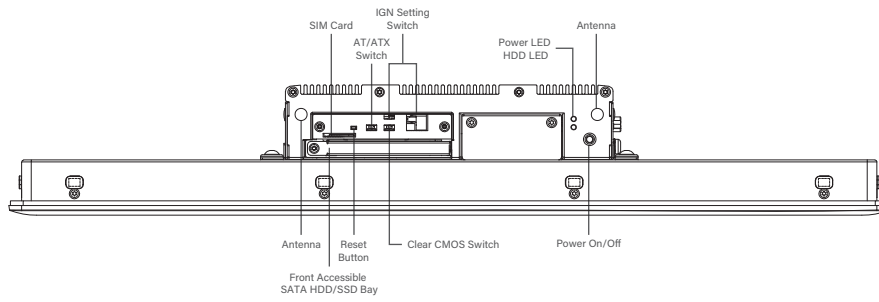
Model Name	P1301
<b>System</b>	
Processor	<ul style="list-style-type: none"> <li>Onboard Intel® Alder Lake-N Series Processor:                             <ul style="list-style-type: none"> <li>Intel® Core™ i3-N305 8 Cores Up to 3.80 GHz, TDP 15W</li> <li>Intel® Processor N97 4 Cores Up to 3.60 GHz, TDP 12W</li> <li>Intel Atom® x7425E 4 Cores Up to 3.40 GHz, TDP 12W</li> </ul> </li> </ul>
Memory	<ul style="list-style-type: none"> <li>1x DDR5 4800MHz SO-DIMM Socket</li> <li>Supports Un-buffered and Non-ECC Type, Up to 16GB</li> </ul>
BIOS	<ul style="list-style-type: none"> <li>AMI BIOS</li> </ul>
<b>Graphics</b>	
Graphics Engine	<ul style="list-style-type: none"> <li>Integrated Intel® UHD Graphics</li> </ul>
Maximum Display Output	<ul style="list-style-type: none"> <li>Supports Triple Independent Display</li> </ul>
CDS	<ul style="list-style-type: none"> <li>1x CDS Connector (1920 x 1080 @60Hz)</li> </ul>
DP	<ul style="list-style-type: none"> <li>1x DisplayPort Connector (4096 x 2304 @60Hz)</li> <li>* Verified maximum resolution: 3840 x 2160 @ 60Hz</li> </ul>
VGA	<ul style="list-style-type: none"> <li>1x VGA Connector (1920 x 1200 @60Hz)</li> </ul>
<b>Audio</b>	
Audio Codec	Realtek® ALC888, High Definition Audio
Line-out	<ul style="list-style-type: none"> <li>1x Line-out, Phone Jack 3.5mm</li> </ul>
Mic-in	<ul style="list-style-type: none"> <li>1x Mic-in, Phone Jack 3.5mm</li> </ul>
<b>I/O</b>	
LAN	<ul style="list-style-type: none"> <li>2x 2.5GbE LAN, RJ45</li> <li>- GbE1 / GbE2: Intel® I225</li> </ul>
COM	<ul style="list-style-type: none"> <li>2x RS-232/422/485 with Auto Flow Control Support 5V/12V, DB9</li> </ul>
USB	<ul style="list-style-type: none"> <li>3 x USB 3.2 Gen2x1 (10Gbps), Type A</li> <li>1 x USB 2.0 (480Mbps), Type A</li> </ul>
DIO	<ul style="list-style-type: none"> <li>8x Isolated Digital I/O (4in/4out), 10-Pin Terminal Block</li> </ul>
<b>Storage</b>	
SSD/HDD	<ul style="list-style-type: none"> <li>1x 2.5" Front Accessible SATA HDD/SSD Bay</li> </ul>
M.2 SSD	<ul style="list-style-type: none"> <li>1 x M.2 SSD Shared by M.2 Key B Socket</li> </ul>
<b>Expansion</b>	
M.2 Key E Socket	<ul style="list-style-type: none"> <li>1x M.2 Key E Type 2230 Socket (PCIe Gen 3x1 / USB2.0), Support Wireless/Intel CNVi Module Expansion</li> </ul>
M.2 Key B Socket	<ul style="list-style-type: none"> <li>1x M.2 Key B Type 3042/3052 Socket (PCIe Gen 3x1 / USB3.2 Gen2 x1 / SATA ), Support 5G/Storage/Add-on Card Expansion</li> </ul>
SIM Socket	<ul style="list-style-type: none"> <li>1x Front Accessible SIM Socket</li> </ul>
CFM (Control Function Module) Interface	<ul style="list-style-type: none"> <li>1x CFM Interface for optional IGN Module Expansion</li> <li>1x CFM Interface for optional PoE Module Expansion</li> </ul>
<b>Other Function</b>	
Clear CMOS Switch	<ul style="list-style-type: none"> <li>1x Clear CMOS Switch</li> </ul>
Reset Button	<ul style="list-style-type: none"> <li>1x Reset Button</li> </ul>
Instant Reboot	<ul style="list-style-type: none"> <li>Support 0.2sec Instant Reboot Technology</li> </ul>

Watchdog Timer	<ul style="list-style-type: none"> <li>• Software Programmable Supports 256 Levels System Reset</li> </ul>
OSD Button	<ul style="list-style-type: none"> <li>• LCD On/Off, Brightness Up, Brightness Down</li> </ul>
Internal Speaker	<ul style="list-style-type: none"> <li>• AMP 2W + 2W</li> </ul>
Status LED Indicator	<ul style="list-style-type: none"> <li>• Power LED, HDD LED</li> </ul>
<b>Power</b>	
Power Button	<ul style="list-style-type: none"> <li>• 1x ATX Power On/Off Button</li> </ul>
Power Mode Switch	<ul style="list-style-type: none"> <li>• 1x AT/ATX Mode Switch</li> </ul>
Power Input	<ul style="list-style-type: none"> <li>• 9 - 48VDC, 3-pin Terminal Block</li> </ul>
Remote Power On/Off	<ul style="list-style-type: none"> <li>• 1x Remote Power On/Off, 2-pin Terminal Block</li> </ul>
Remote Power LED	<ul style="list-style-type: none"> <li>• 1x Remote Power LED, 2-pin Terminal Block</li> </ul>
<b>Operating System</b>	
Microsoft® Windows®	<ul style="list-style-type: none"> <li>• Windows®11, Windows®10</li> </ul>
Linux	<ul style="list-style-type: none"> <li>• Ubuntu 22.04</li> </ul>
<b>Physical</b>	
Dimension ( W x D x H )	<ul style="list-style-type: none"> <li>• 204.5 x 149 x 46.5mm</li> </ul>
Weight	<ul style="list-style-type: none"> <li>• 1.57 kg</li> </ul>
Mechanical Construction	<ul style="list-style-type: none"> <li>• Extruded Aluminum with Heavy Duty Metal</li> </ul>
Mounting	<ul style="list-style-type: none"> <li>• Wall / VESA / CDS / DIN Rail</li> </ul>
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	<ul style="list-style-type: none"> <li>• Yes</li> </ul>
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 preset level to recover</li> </ul>
Over Current Protection	<ul style="list-style-type: none"> <li>• 15A</li> </ul>
CMOS Battery Backup	<ul style="list-style-type: none"> <li>• SuperCap Integrated for CMOS Battery Maintenance-free Operation</li> </ul>
MTBF	<ul style="list-style-type: none"> <li>• 306,338 Hours - Database: Telcordia SR-332 Issue3, Method 1, Case 3</li> </ul>
<b>Environment</b>	
Operating Temperature	<ul style="list-style-type: none"> <li>• Intel® Processor N97 / Atom® x7425E: -40°C to 70°C</li> <li>• Intel® Core™ i3-N305: -40°C to 60°C</li> <li>* PassMark Burn-In Test: 100% CPU, 2D/3D Graphics (without thermal throttling)</li> <li>* With extended temperature peripherals; Ambient with air flow</li> <li>* According to IEC60068-2-1, IEC60068-2-2, IEC60068-2-14</li> </ul>
Storage Temperature	<ul style="list-style-type: none"> <li>• -40°C to 70°C</li> </ul>
Relative Humidity	<ul style="list-style-type: none"> <li>• Intel® Processor N97 / Atom® x7425E: 95%RH @ 70°C (non-Condensing)</li> <li>• Intel® Core™ i3-N305: 95%RH @ 60°C (non-Condensing)</li> </ul>
Shock	<ul style="list-style-type: none"> <li>• Operating, 50 Grms, Half-sine 11 ms Duration (w/ SSD, according to IEC60068-2-27)</li> </ul>
Vibration	<ul style="list-style-type: none"> <li>• Operating, 1 Grms, 10-500 Hz, 3 Axes (w/ SSD, according to IEC60068-2-6)</li> <li>• Operating, 5 Grms, 5-500 Hz, 3 Axes (w/ SSD, according to IEC60068-2-64)</li> </ul>
EMC	<ul style="list-style-type: none"> <li>• CE, UKCA, FCC, ICES-003 Class A</li> <li>• EN61000-6-4, EN61000-6-2 @ DC-input 24V</li> </ul>

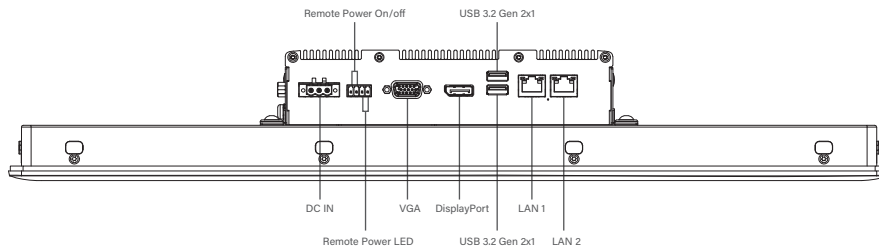
EMI	<ul style="list-style-type: none"> <li>• CISPR 32 Conducted &amp; Radiated: Class A</li> <li>• EN/BS EN 55032 Conducted &amp; Radiated: Class A</li> <li>• EN/BS EN IEC 61000-3-2 Harmonic current emissions: Class A</li> <li>• EN/BS EN61000-3-3 Voltage fluctuations &amp; flicker</li> <li>• FCC 47 CFR Part 15B, ICES-003 Conducted &amp; Radiated: Class A</li> </ul>
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Safety	<ul style="list-style-type: none"> <li>• UL, cUL, CB, IEC, EN 62368-1</li> </ul>

**CS-W121/P1301 External Layout**

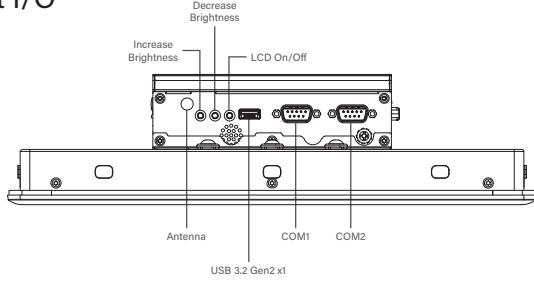
**Front I/O**



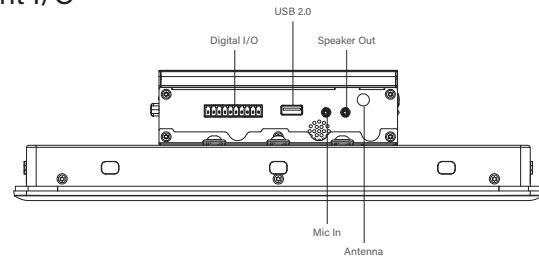
**Rear I/O**



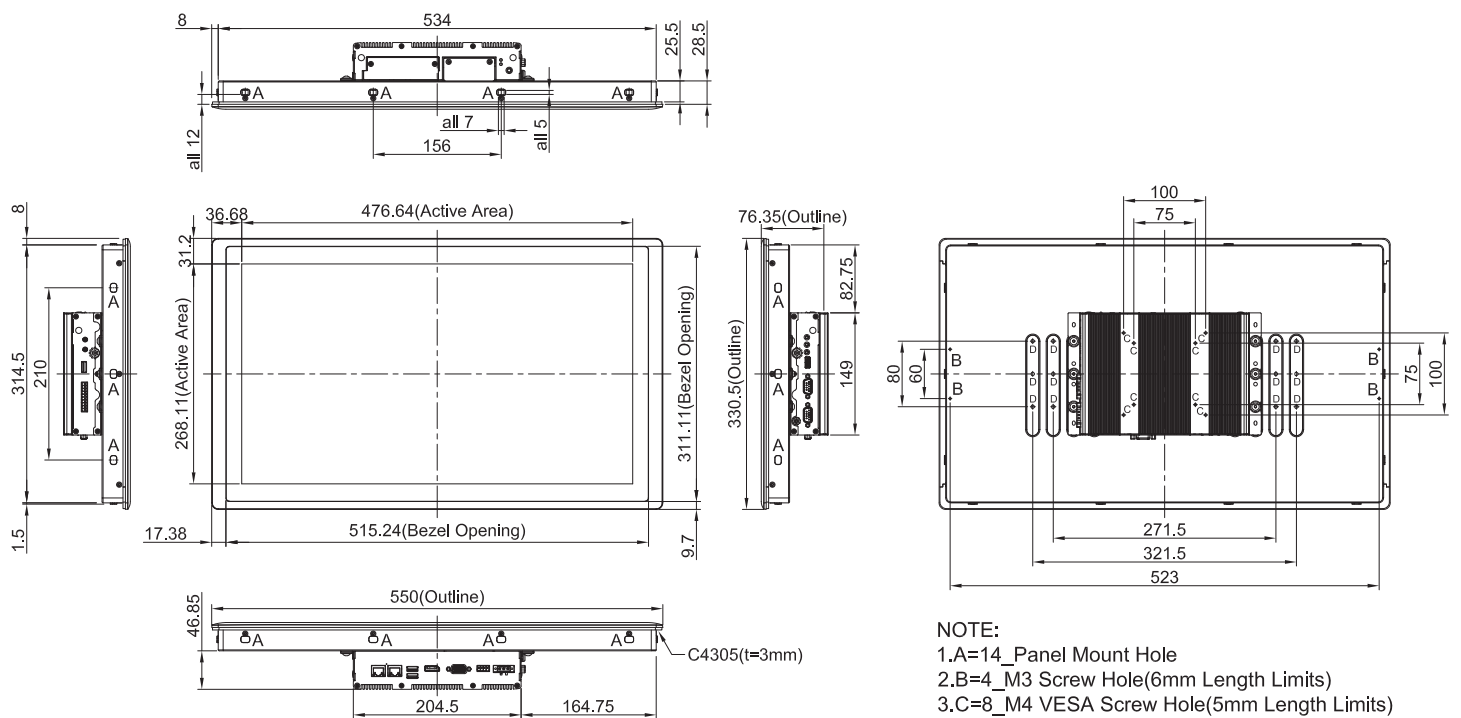
**Left I/O**



**Right I/O**



**CS-W121/P1301 Dimensions**



**NOTE:**  
 1.A=14\_Panel Mount Hole  
 2.B=4\_M3 Screw Hole(6mm Length Limits)  
 3.C=8\_M4 VESA Screw Hole(5mm Length Limits)  
 4.D=12\_M5 Screw Hole(5mm Length Limits)

**Unit: mm**

## Ordering Information

### Available Models

Model No.	Description
CS-W121C-R10/P1301-N97-R10	21.5" TFT-LCD 1000nits Sunlight Readable Touch Panel PC with Intel® Processor N97 Quad Core Slim Embedded Computer and P-Cap. Touch
CS-W121C-R10/P1301-X7425E-R10	21.5" TFT-LCD 1000nits Sunlight Readable Touch Panel PC with Intel® Atom® x7425E Quad Core Slim Embedded Computer and P-Cap. Touch
CS-W121C-R10/P1301-i3-R10	21.5" TFT-LCD 1000nits Sunlight Readable Touch Panel PC with Intel® Core i3-N305 Octa Core Slim Embedded Computer and P-Cap. Touch

### Model Configuration

	CS-W121C	P1301-N97	P1301-X7425E	P1301-i3
CS-W121C/P1301-N97	V	V	--	--
CS-W121C/P1301-X7425E	V	--	V	--
CS-W121C/P1301-i3-R10	V	--	--	V

V : Compatible

### Package Checklist

• CS-W121/P1301 Series Panel PC x 1	• Power Terminal Block Connector x 1
• Thermal Pad (for CPU Thermal Block) x 1	• Remote Function Terminal Block Connector x 1
• Screw Pack x 2	• DIO Terminal Block Connector x 1
• Panel Mounting Kit x 14	• M.2 Key B Type 3052 to 3042 Adapter Bracket x 1

### Optional Modules and Accessories

Model No.	Description
CFM-IGN101	CFM Module with Power Ignition Sensing Control Function, 12V/24V Selectable (43 x 36 mm)
CFM-PoE02	CFM Module with PoE Control Function, Individual Port 25.5W
URM01	Universal 19" Rack Mount Kit for Industrial Panel PC & Industrial Monitor
GST60A12-CIN1	Adapter AC/DC 12V 5A 60W, GST60A12-CIN1, wide temp(-30°C ~ +70°C)
GST120A24-CIN	Adapter AC/DC 24V 5A 120W, GST120A24-CIN, wide temp (-30°C ~ +70°C), level VI