

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/Bluetooth/Intel CNVi Module Expansion
- 1x M.2 Key B Type 3042/3052 Socket for 5G/GNSS/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

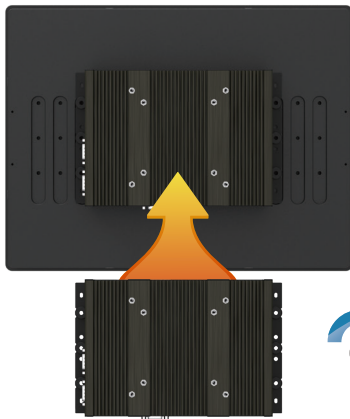
Alder Lake-N

Elkhart Lake

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

Alder Lake-N

Elkhart Lake



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 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
Display	
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 LED Life Time	• 50,000 hrs (LED Backlight)
Touch Screen	
Touch Type	• Projected Capacitive
Wet Touch Tracking	v
Physical	
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
Power	
Power Consumption	• 31.25W (Max.)
Environment	
Front Panel Protection	• IP 65 Compliant
Operating Temperature	• -20°C to 70°C (-4°F to 158°F) (With Industrial Grade Peripherals; Ambient with air flow)
Storage Temperature	• -20°C to 80°C (-4°F to 176°F)
Relative Humidity	• 90% RH @ 40°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

P1301 Specifications

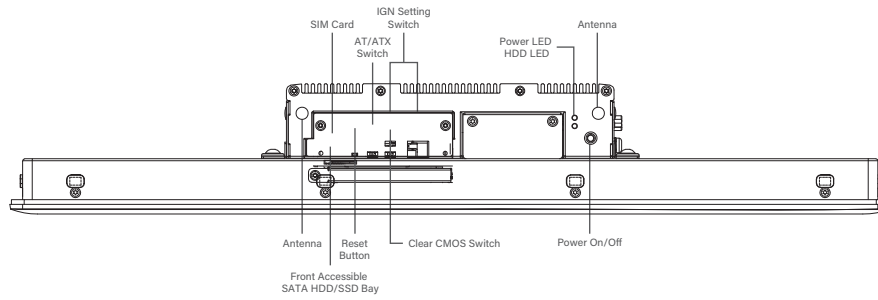
Model Name	P1301
System	
Processor	Onboard Intel® Alder Lake-N Series Processor: - Intel® Core™ i3-N305 8 Cores Up to 3.80 GHz, TDP 15W - Intel® Processor N97 4 Cores Up to 3.60 GHz, TDP 12W - Intel Atom® x7425E 4 Cores Up to 3.40 GHz, TDP 12W
Memory	1x DDR5 4800MHz SO-DIMM Socket Supports Un-buffered and Non-ECC Type, Up to 16GB
BIOS	AMI BIOS
Graphics	
Graphics Engine	Integrated Intel® UHD Graphics
Maximum Display Output	Supports Triple 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
VGA	1x VGA Connector (1920 x 1200 @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 / GbE2: Intel® I226
COM	2x RS-232/422/485 with Auto Flow Control Support 5V/12V, DB9
USB	3 x USB 3.2 Gen2x1 (10Gbps), Type A 1 x USB 2.0 (480Mbps), Type A
DIO	8x Isolated Digital I/O (4in/4out), 10-Pin Terminal Block
Storage / Expansion	
2.5" SSD/HDD	1x 2.5" Front Accessible SATA HDD/SSD Bay
M.2 Key E Socket	1x M.2 Key E Type 2230 Socket (PCIe Gen 3x1 / USB2.0), Support Wireless/Bluetooth/Intel CNVi Module Expansion
M.2 Key B Socket	1x M.2 Key B Type 3042/3052 Socket (PCIe Gen 3x1 / USB3.2 Gen2 x1 / SATA), Support 5G/GNSS/Storage/Add-on Card Expansion
SIM Socket	1x 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
Other Function	
Clear CMOS Switch	1x Clear CMOS Switch
Reset Button	1x Reset Button
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, HDD LED
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
Remote Power LED	1x Remote Power LED, 2-pin Terminal Block
Max. Power Consumption	- i3-N305 CPU: 48.59W - N97 CPU: 34.04W - Test conducted with CPU, 1x RAM, and 1x storage - 100% load during burn-in testing
Inrush Current (Peak)	- i3-N305 CPU: 5.538 A@12V - N97 CPU: 5.242 A@12V
Operating System	
Microsoft® Windows®	Windows®11, Windows®10
Linux	Ubuntu Desktop 22.04 LTS
Physical	
Dimension (W x D x H)	204.5 x 149 x 46.5mm
Weight	1.57 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	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	306,338 Hours - Database: Telcordia SR-332 Issue3, Method 1, Case 3
Environment	
Operating Temperature	- Intel® Processor N97: -20°C to 70°C (-4°F to 158°F) - Intel Atom® x7425E : -40°C to 70°C (-40°F to 158°F) - Intel® Core™ i3-N305: -20°C to 60°C (-4°F to 140°F) * PassMark Burn-In 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 85°C (-40°F to 185°F)
Relative Humidity	- Intel® Processor N97 / Atom® x7425E: 95%RH @ 70°C (non-Condensing) - Intel® Core™ i3-N305: 95%RH @ 60°C (non-Condensing)
Shock	Operating, 50 Grms, Half-sine 11 ms Duration (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 - EN61000-6-4, EN61000-6-2 @ DC-input 24V

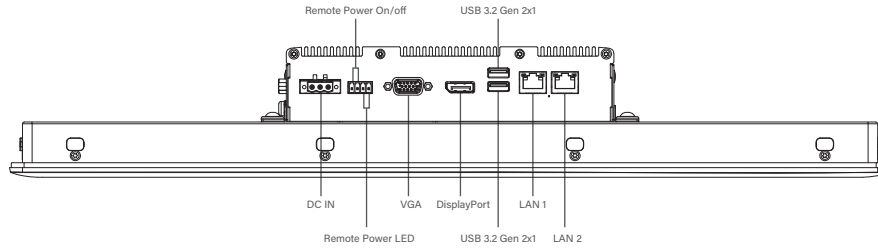
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EMS	• EN/IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV • EN/IEC 61000-4-3 RS: 80 MHz to 1000 MHz: 10 V/m • EN/IEC 61000-4-4 EFT: AC Power: 2 kV; DC Power: 1 kV; Signal: 1 kV • EN/IEC 61000-4-5 Surges: AC Power: 2 kV; Signal: 1 kV • EN/IEC 61000-4-6 CS: 10V • (**Compliant with the standard when utilizing shielded ethernet cable.) • EN/IEC 61000-4-8 PFMF: 50 Hz, 30A/m • EN/IEC 61000-4-11 Voltage Dips & Voltage Interruptions: 1 cycles at 60 Hz
Safety	• UL, cUL, CB, IEC, EN 62368-1

CS-W121/P1301 External Layout

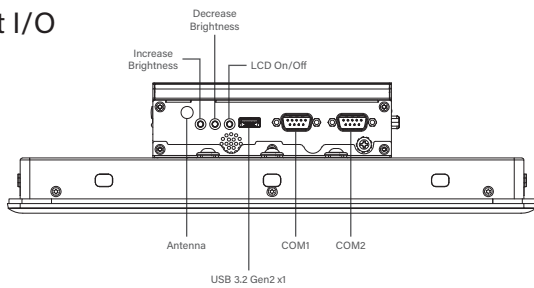
Front I/O



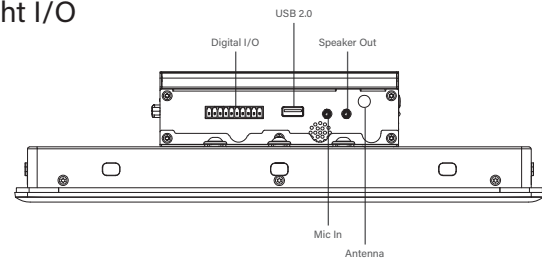
Rear I/O



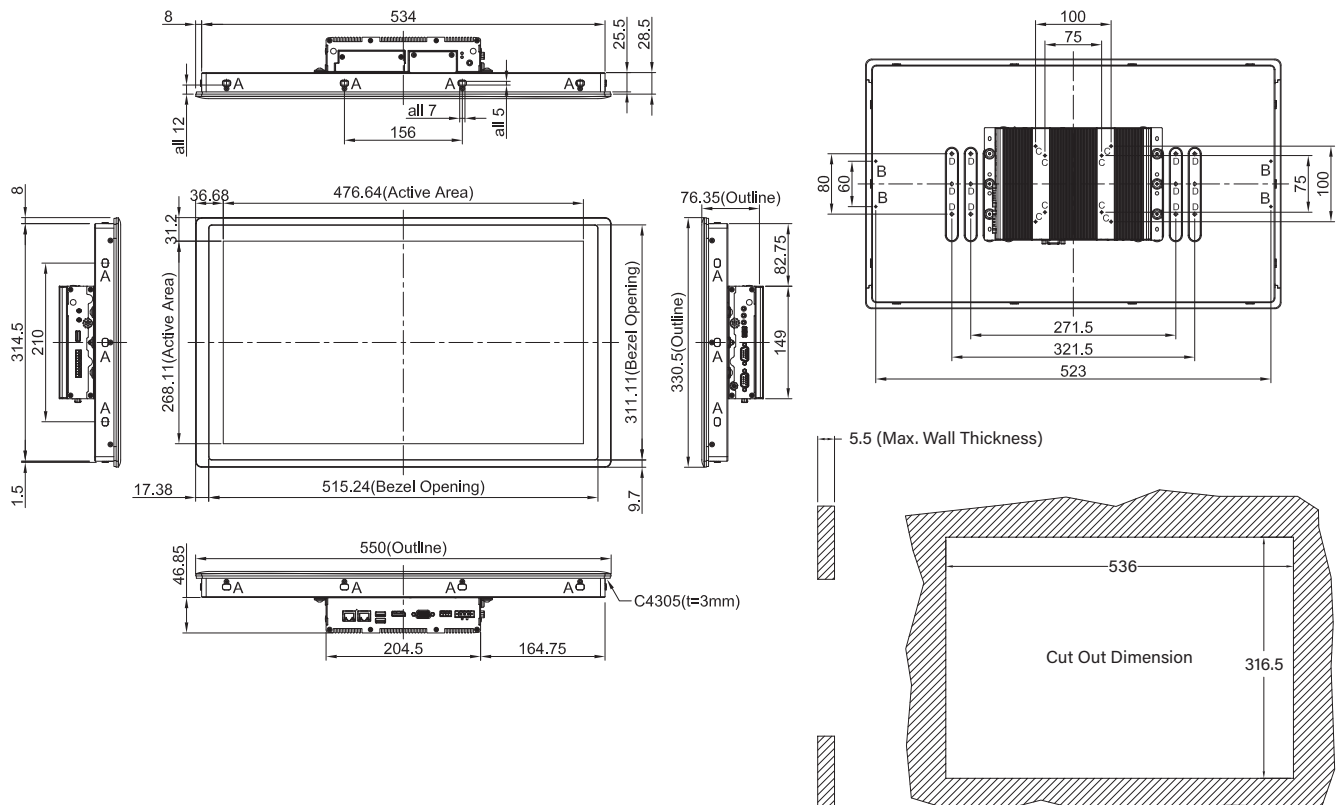
Left I/O



Right I/O



CS-W121/P1301 Dimensions



Unit: mm

Ordering Information

Available Models

Model No.	Description
CS-W121C-R10/P1301-N97-R11	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-R11	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	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
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