

MPC-3121 Series

12.1-inch fanless industrial panel PCs with EN 50155 certifications



Features and Benefits

- 12-inch panel PCs
- Intel Atom® x6425E quad-core processor
- 500-nit or 1000-nit sunlight-readable LCD
- Glove-friendly, multi-touch screen
- -40 to 70°C wide-temperature design, no fan or heater
- 24 to 110 VDC wide range isolated power input
- Complies with all EN 50155 mandatory test items¹

Certifications



EN 50155



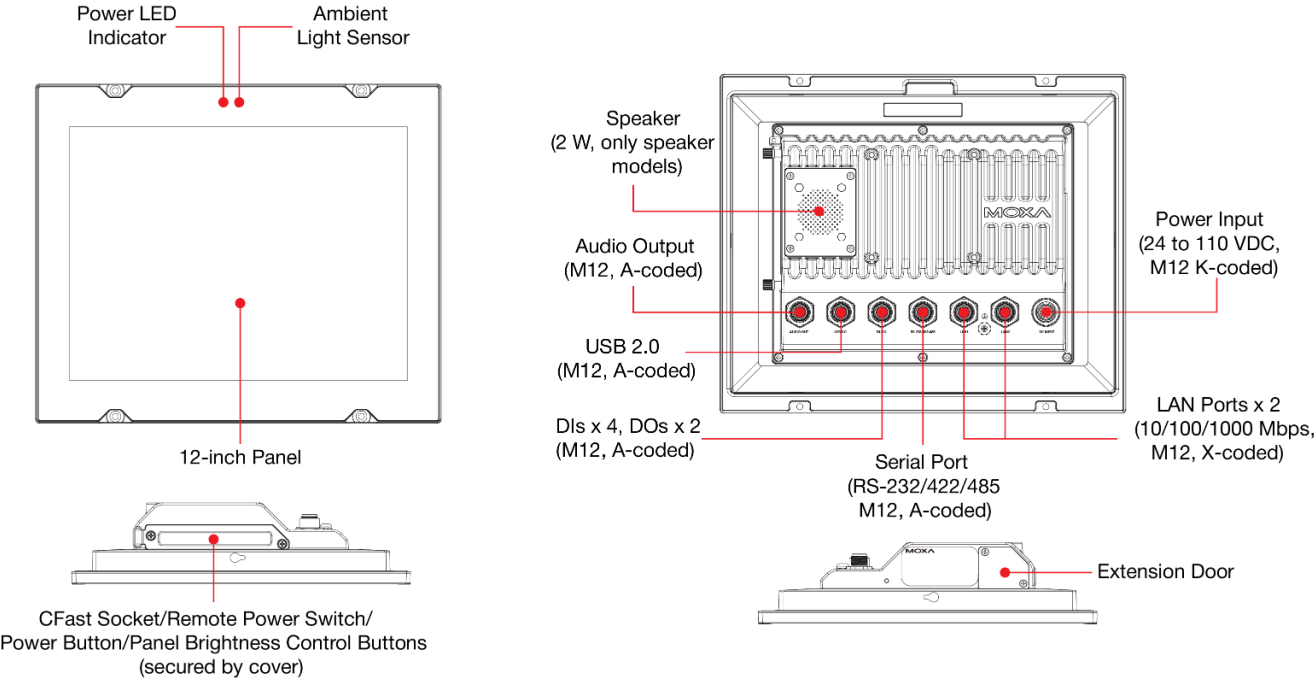
Introduction

The MPC-3121 12-inch panel PCs with Intel Atom® x6425E quad-core processor deliver a reliable, durable, and versatile platform for use in industrial environments. All interfaces come with IP66-rated M12 connectors to provide anti-vibration and waterproof connections. With two software selectable RS-232/422/485 serial ports and two Gigabit Ethernet ports, the MPC-3121 panel PCs support a wide variety of serial interfaces as well as high-speed IT communications, all with native network redundancy.

The MPC-3121 panel PCs are designed for the -40 to 70°C temperature range, and come with a fanless, streamlined enclosure for highly efficient heat dissipation. This makes the computers a reliable industrial platform for harsh, hot, outdoor environments like oil and gas fields, or drilling platforms. The MPC-3121 also features a 500-nit or 1000-nit LCD panel offering a sunlight-readable, projected-capacitive, glove-friendly, multi-touch screen, for an excellent user experience.

1. This product is suitable for rolling stock railway applications, as defined by the EN 50155 standard. For a more detailed statement, click here: www.moxa.com/doc/specs/EN_50155_Compliance.pdf

Appearance



Specifications

Computer	
CPU	Intel Atom® x6425E processor (Quad core, 1.5M cache, 2 GHz)
Graphics Controller	Intel® UHD Graphics
System Memory Pre-installed	8 GB DDR4 2400 MHz (32 GB max)
System Memory Slot	SODIMM DDR4 2400 slots x 1 (up to 32 GB max.)
Supported OS	Windows images and drivers supported: - Windows 10 IoT Enterprise LTSC 2021 (64-bit) - Windows 11 Professional (64-bit) - Windows 11 IoT Enterprise LTSC 2024 Linux image supported: - Debian 13 (kernel 6.10) Linux driver supported: - Ubuntu 24.04 LTS (kernel 6.10)
Storage Slot	CFast slot x 1 M.2 M-key 2242 sockets x 1
Expansion Slots	mPCIe slots x 1
Speaker	MPC-3121-E4-LB-SPK-CT-T/E4-SPK-CT-T: 1 (built-in, 2 W)
Computer Interface	
Ethernet Ports	Auto-sensing 10/100/1000 Mbps ports (M12 push-pull X-coded) x 2
Serial Ports	RS-232/422/485 ports (M12 push-pull A-coded 12P) x 1
Digital Input	DIs x 4 (M12 push-pull A-coded connector)
Digital Output	DOs x 2 (M12 push-pull A-coded connector)
Audio Input/Output	1 x Speaker out/Line out (M12 push-pull A-coded 8-pin)

USB	USB 2.0 hosts x 1 (M12 push-pull A-coded 5-pin), type-A connectors
TPM	TPM v2.0
Display	
Panel Size	12 in (viewable image)
Aspect Ratio	4:3
Active Display Area	245.76 (H) x 184.32 (V) mm
Contrast Ratio	1000:1 (typ.)
Light Intensity (Brightness)	MPC-3121-E4-LB-CT-T/E4-LB-SPK-CT-T: 500 nits MPC-3121-E4-CT-T/E4-SPK-CT-T: 1000 nits
Max. No. of Colors	16.7M (8-bit/color)
Panel Type	AAS
Pixel Pitch (RGB)	0.240 (H) x 0.240 (V) mm
Pixels	1024 x 768
Response Time	(Tr+Tf) 25 ms
Viewing Angles	178°/178°
Touch Function	
Touch Type	Projective Capacitive touchscreen (PCAP)
Touch Support Points	4 points
Glove Support	Yes
Ethernet Interface	
Magnetic Isolation Protection	1.5 kV (built-in)
Serial Interface	
Bitrate	50 bps to 115.2 kbps
Data Bits	5, 6, 7, 8
Flow Control	RTS/CTS, XON/XOFF, Automatic Data Direction Control (ADDC) for RS-485, RTS Toggle (RS-232 only)
Parity	None, Even, Odd, Space, Mark
Stop Bits	1, 1.5, 2
Serial Signals	
RS-232	TxD, RxD, RTS, CTS, DTR, DSR, DCD, GND
RS-422	Tx+, Tx-, Rx+, Rx-, GND
RS-485-2w	Data+, Data-, GND
RS-485-4w	Tx+, Tx-, Rx+, Rx-, GND
Digital Inputs	
Isolation	Optical: 3 kV
Sensor Type	Dry contact

	Wet contact (NPN)
Voltage	Dry contact @25 Hz: 0 to 30 VDC
Dry Contact	DI to COM Logic 0: Close to GND Logic 1: Open
Wet Contact	Source to DI: Logic 1: 3 VDC max Logic 0: 10 to 30 VDC
Digital Outputs	
Isolation	Optical: 3 kV
I/O Type	Sink
Current Rating	Max. 200 mA per channel
Voltage	Logic 0: 200 mA (max. per channel), sink Logic 1: 24 VDC (typ.), 30 VDC (max.), open collector
LED Indicators	
System	Power x 1
Power Parameters	
Input Voltage	24 to 110 VDC
Power Consumption	51 W
Physical Characteristics	
Housing	Metal
IP Rating	IPMPC-3121-E4-LB-SPK-CT-T/E4-SPK-CT-T: - IP66 (front) - IP40 (rear) MPC-3121-E4-LB-CT-T/E4-CT-T: - IP66 (front and rear)
Dimensions	297 x 238 x 59 mm (11.69 x 9.37 x 2.32 in)
Weight	3100 g (6.83 lb)
Environmental Limits	
Operating Temperature	-40 to 70°C (-40 to 158°F)
Storage Temperature (package included)	-40 to 70°C (-40 to 158°F)
Ambient Relative Humidity	5 to 95% (non-condensing)
Standards and Certifications	
EMC	EN 55032/35
EMI	CISPR 32, FCC Part 15B Class A
EMS	IEC 61000-4-2 ESD: Contact: 6 kV; Air: 8 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m IEC 61000-4-4 EFT: Power: 2 kV; Signal: 1 kV IEC 61000-4-5 Surge: Power: 1 kV; Signal: 1 kV IEC 61000-4-6 CS: 10 V IEC 61000-4-8 PFMF
Mechanical Protection Rating	IEC 60529, IP code

Safety	IEC 62368-1 UL 62368-1
Shock	EN 50155 standard
Vibration	EN 50155 standard

Declaration

Green Product	RoHS, CRoHS, WEEE
---------------	-------------------

Warranty

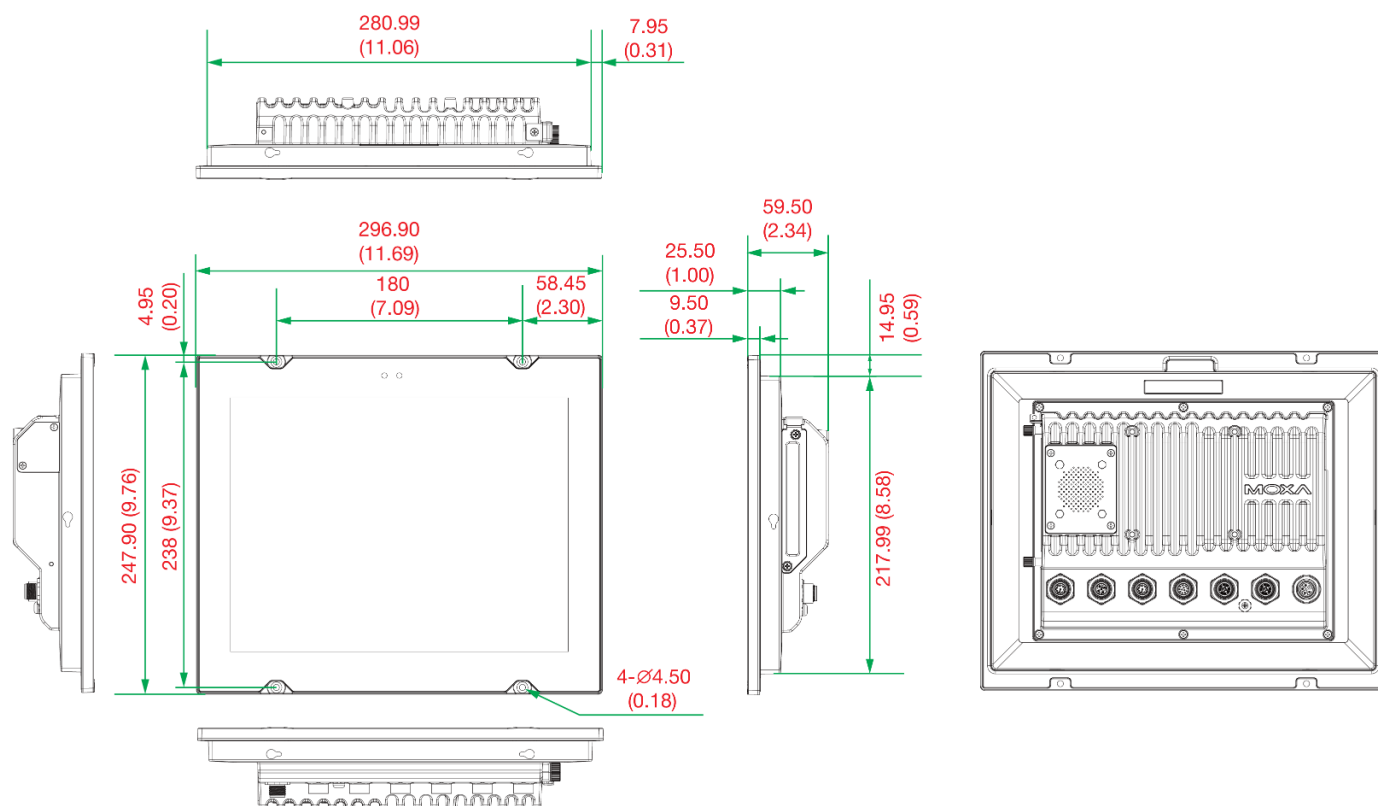
Warranty Period	System: 3 years LCD: 1 year
Details	See www.moxa.com/warranty

Package Contents

Device	1 x MPC-3121 Series computer
Installation Kit	1 x terminal block, 2-pin, for remote power switch 1 x panel-mounting kit
Cable	1 x M12 Type-A USB cable
Documentation	1 x quick installation guide 1 x warranty card

Dimensions

Unit: mm (inch)



Ordering Information

Model Name	Panel	CPU	RAM	Touchscreen	Embedded Speaker	LAN	Serial	DI/DO	Power Input	IP Rating	Operating Temp.
MPC-3121-E4-LB-CT-T	12" (4:3) 500 nits	PCAP	Intel Atom® x6425E	8 GB	–	2	1	4/2	24 to110 VDC	IP66 (front), IP66 (rear)	-40 to 70° C
MPC-3121-E4-LB-SPK-CT-T	12" (4:3) 500 nits	PCAP	Intel Atom® x6425E	8 GB	1 (2 W)	2	1	4/2	24 to110 VDC	IP66 (front), IP40 (rear)	-40 to 70° C
MPC-3121-E4-CT-T	12" (4:3) 1000 nits	PCAP	Intel Atom® x6425E	8 GB	–	2	1	4/2	24 to110 VDC	IP66 (front), IP66 (rear)	-40 to 70° C
MPC-3121-E4-SPK-CT-T	12" (4:3) 1000 nits	PCAP	Intel Atom® x6425E	8 GB	1 (2 W)	2	1	4/2	24 to110 VDC	IP66 (front), IP40 (rear)	-40 to 70° C

© Moxa Inc. All rights reserved. Updated Jul 15, 2026.

This document and any portion thereof may not be reproduced or used in any manner whatsoever without the express written permission of Moxa Inc. Product specifications subject to change without notice. Visit our website for the most up-to-date product information.