

MOXA®

Reliable Networks ▲ Sincere Service

Built for the Extreme

Rugged panel computers and displays
for tough environments



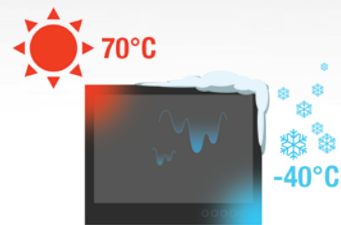
EN 50155



IoT Solutions
Alliance

www.moxa.com/RuggedHMI

Enabling Continuous Process Visibility in Any Environment



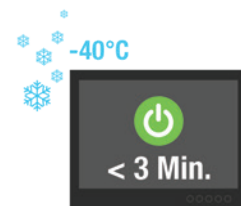
Wide Operating Temperature Range

Packed in a fanless enclosure, the MPC and MD series HMI panels are designed to operate in temperatures between -40 to 70°C.



Sunlight-readable 1000-nit Display

Sunlight-readable displays in the HMI panels provide an excellent user experience for outdoor applications.



Fast Boot-up at Sub-zero Temperatures

At -40°C, the MPC series can boot up in less than 3 minutes without requiring a heater.



DNV GL, C1D2, ATEX Zone 2, EN 50155 Certified

Moxa's panel computers and displays are certified for applications in marine, oil and gas, and railway.

Control systems in the field can consist of various PLCs and SCADA systems. Moxa's extensive experience in providing HMI solutions enable us to offer panel computers that work smoothly with different SCADA software and HMI applications such as:

- FactoryTalk View SE/ME
- SIMATIC WinCC
- Wonderware InTouch
- GP-Pro
- Ignition
- PcVue
- TwinCAT
- FreeSCADA

Operating in harsh and hazardous environments pose many critical challenges that include blistering hot or freezing cold temperatures, high exposure to dust and water, and exposure to explosive atmospheres. Moxa offers rugged panel computers and displays that are ideal for deploying in extreme operating environments for HMI applications such as:

- Rig-floor monitoring
- Drilling control
- Solar inverter monitoring
- Marine deck/bridge monitoring
- Driver information display for TCMS
- Control and monitoring in factories with gas or dust explosion concerns

Key Features



Wide Temperature



Sunlight Readable



Glove-friendly Multi-touch



Fanless Design



Waterproof



Full Dimming



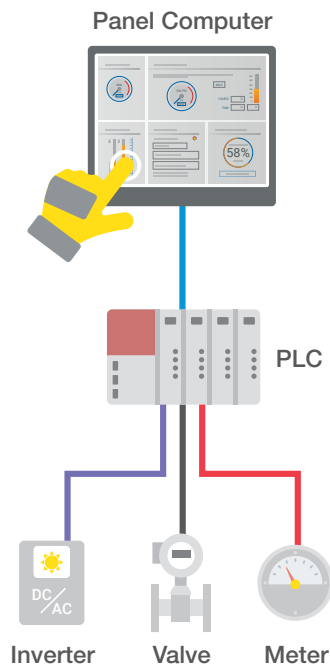
Color Calibration



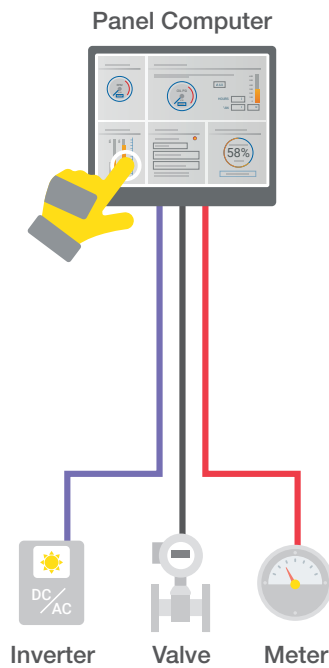
Power Isolation

System Architectures

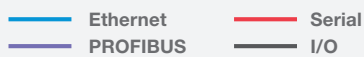
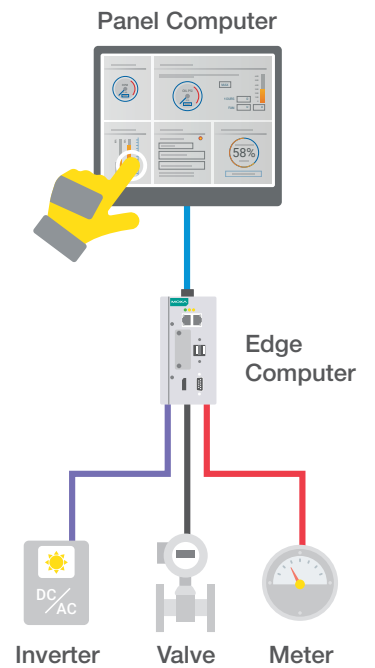
1 Device control using a PLC



2 Device control using Moxa's panel computer



3 Device control using Moxa's edge computer



Rugged Panel Computers



Series	MPC-2260	MPC-2240	MPC-2190	MPC-2150
Display				
Panel Size	26 inches	24 inches	19 inches	15 inches
Aspect Ratio	16:10	16:9	5:4	4:3
Pixels	1920 x 1200	1920 x 1080	1280 x 1024	1020 x 768
View Angles	176° / 176°	178° / 178°	178° / 178°	160° / 140°
Brightness	300 nits	300 nits	300 nits	1000 nits
Touch screen	–	Capacitive (Optional)	Capacitive (Optional)	Capacitive (Optional)
Computing System				
CPU	Intel® Core™ i7-3517UE / Celeron 1047UE	Intel® Core™ i7-3517UE / Celeron 1047UE	Intel® Core™ i7-3517UE / Celeron 1047UE	Intel® Core™ i7-3517UE / Celeron 1047UE
System Memory	4 GB preinstalled (up to 8 GB)	4 GB preinstalled (up to 8 GB)	4 GB preinstalled (up to 8 GB)	4 GB preinstalled (up to 8 GB)
Storage Slot	2 x SSD	2 x SSD	1 x SSD (Internal)	1 x SSD, 1 x CFast
USB Ports	4 x USB 2.0	4 x USB 2.0	4 x USB 2.0	4 x USB 2.0
LAN Ports	2 x RJ-45	2 x RJ-45	2 x RJ-45	2 x RJ-45
Serial Ports	2 x RS-232/422/485 (DB9)	2 x RS-232/422/485 (DB9)	2 x RS-232/422/485 (DB9)	2 x RS-232/422/485 (DB9)
NMEA 0183 Ports	8 (Terminal Block)	8 (Terminal Block)	4 (Terminal Block)	–
Video Output	1 x DVI-D, 1 x VGA	1 x DVI-D, 1 x VGA	1 x DVI-D, 1 x VGA	1 x DVI-D, 1 x VGA
Audio Input/Output	1 x Line in, 1 x Line out	1 x Line in, 1 x Line out	1 x Line in, 1 x Line out	1 x Line in, 1 x Line out
Power Input	100 to 240 VAC, 24 VDC	100 to 240 VAC, 24 VDC	100 to 240 VAC, 24 VDC	100 to 240 VAC, 12/24 VDC
Wireless Expansion	–	–	–	–
Physical Characteristics				
Dimensions	621 x 440 x 90 mm (24.45 x 17.48 x 3.57 in)	595 x 393 x 75 mm (23.43 x 15.47 x 2.95 in)	429 x 387 x 75 mm (16.89 x 15.24 x 2.95 in)	356 x 315 x 77.2 mm (14.02 x 12.40 x 3.04 in)
Mounting Method	VESA, Desktop, Panel	VESA, Desktop, Panel	VESA, Desktop, Panel	VESA, Panel
Operating Temperature	-15 to 55°C	-15 to 55°C	-15 to 55°C	-40 to 70°C
IP Rating	IP54 (Front); IP20 (Rear)	IP54 (Front); IP20 (Rear)	IP54 (Front); IP20 (Rear)	IP66 (Front); IP20 (Rear)
Standards and Certifications				
EMC	UL, FCC, CE, CCC	UL, FCC, CE, CCC	UL, FCC, CE, CCC	UL, FCC, CE
Hazardous Certifications	–	–	–	Class I Division 2, ATEX Zone 2, IECEx Zone 2
Marine Certifications	DNV GL, ABS, CCS, EU-RO-MR	DNV GL, ABS, CCS, EU-RO-MR	DNV GL, ABS, CCS, EU-RO-MR	DNV GL, EU-RO-MR



Series	MPC-2120	MPC-2070	MPC-2121	MPC-2101
Display				
Panel Size	12 inches	7 inches	12 inches	10 inches
Aspect Ratio	4:3	16:9	4:3	4:3
Pixels	1024 x 768	800 x 480	1024 x 768	1024 x 768
View Angles	160° / 140°	160° / 160°	160° / 140°	176° / 176°
Brightness	500 / 1000 nits	350 / 1000 nits	500 / 1000 nits	500 / 1000 nits
Touch screen	Capacitive	Capacitive	Capacitive	Capacitive
Computing System				
CPU	Intel Atom® E3826 / E3845	Intel Atom® E3826	Intel Atom® E3845	Intel Atom® E3845
System Memory	4 GB preinstalled (up to 8 GB)	4 GB preinstalled (up to 8 GB)	4 GB preinstalled (up to 8 GB)	4 GB preinstalled (up to 8 GB)
Storage Slot	1 x CFast, 1 x SD	1 x CFast, 1 x SD	1 x CFast, 1 x SD	1 x CFast, 1 x SD
USB Ports	2 x USB 2.0	2 x USB 2.0	1 x USB 2.0 (M12)	1 x USB 2.0 (M12)
LAN Ports	2 x RJ-45	2 x RJ-45	2 x Ethernet (M12)	2 x Ethernet (M12)
Serial Ports	2 x RS-232/422/485 (DB9)	2 x RS-232/422/485 (DB9)	1 x RS-232/422/485 (M12)	1 x RS-232/422/485 (M12)
DI/DO	4 x DIs, 4 x DOs (TB)	4 x DIs, 4 x DOs (TB)	4 x DIs, 2 x DOs (M12)	4 x DIs, 2 x DOs (M12)
Video Output	-	-	-	-
Audio Input/Output	-	-	Line out x 1, Speaker out (M12)	Line out x 1, Speaker out (M12)
Power Input	12/24 VDC	12/24 VDC	24/28/36/48/72/96/110 VDC	24/28/36/48/72/96/110 VDC
Wireless Expansion	-	-	Wi-Fi or LTE	Wi-Fi or LTE
Physical Characteristics				
Dimensions	306 x 245 x 64 mm (12 x 9.6 x 2.5 in)	200 x 140 x 45 mm (7.9 x 5.5 x 1.8 in)	297 x 248 x 59 mm (11.69 x 9.76 x 2.32 in)	256.9 x 214.4 x 58.9 mm (10.11 x 8.44 x 2.32 in)
Mounting Method	VESA, Panel, DIN rail	VESA, Panel, DIN rail	VESA, Panel, DIN rail	VESA, Panel, DIN rail
Operating Temperature	-40 to 70°C	-40 to 70°C	-40 to 70°C	-40 to 70°C
IP Rating	IP66 (Front) ; IP20 (Rear)	IP66 (Front) ; IP20 (Rear)	IP66	IP66
Standards and Certifications				
EMC	UL, FCC, CE	UL, FCC, CE	UL, FCC, CE	UL, FCC, CE
Railway	-	-	EN 50155:2017	EN 50155:2017
Hazardous Certifications	Class I Division 2, ATEX Zone 2, IECEx Zone 2	Class I Division 2, ATEX Zone 2, IECEx Zone 2	-	-
Marine Certifications	DNV GL, EU-RO-MR	DNV GL, EU-RO-MR	-	-

Stand-alone Zone 2 Panel Computer



Series		EXPC-1519
Display	Panel Size	19 inches (5:4)
	Pixels	1280 x 1024
	View Angles	170° / 160°
	Brightness	1000 nits
	Touch screen	Capacitive
Computing System	CPU	Intel® Core™ i7-3555LE / Celeron 1047UE
	System Memory	4 GB preinstalled (up to 16 GB)
	Storage Slot	1 x SSD, 1 x CFast
	USB Ports	Up to 4 USB 2.0
	LAN Ports	2 x RJ-45, 2 x Fiber ST
	Serial Ports	2 x RS-232/422/485
	Video Output	1 x VGA
	Power Input	100 to 240 VAC, 24 VDC
Physical Characteristics	Dimensions	483 x 408 x 99.5 mm (19.02 x 16.06 x 3.92 in)
	Mounting Method	VESA, Desktop, Panel, Wall, Yoke
	Operating Temperature	-40 to 70°C
	IP Rating	IP66 (Completely Sealed)
Standards and Certifications	Hazardous Certifications	Class I Division 2, ATEX Zone 2, IECEx Zone 2

Standards and Certifications



UL Class I Division 2, ATEX / IECEx Zone 2

To avoid explosions, equipment in a location where ignitable gases, vapors, or liquids are present must be designed and tested to meet CID2/ATEX Zone 2/IECEx Zone 2 standards.



Maritime Certification

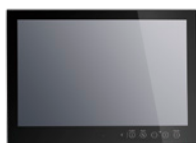
The maritime standards, which include DNV GL, ABS, LR, NK and CCS for individual regions, confirm a device's ability to withstand harsh maritime environments, such as salt, mist, and humidity.



EN 50155

Electronic equipment installed on trains must withstand temperature, shock, vibration, and other such environmental conditions that could occur when in use. EN 50155 is an international standard covering electronic equipment used on rolling stock.

Rugged Displays



Series		MD-226	MD-224	MD-219	MD-215
Display	Panel Size	26 inches (16:10)	24 inches (16:9)	19 inches (5:4)	15 inches (4:3)
	Pixels	1920 x 1200	1920 x 1080	1280 x 1024	1024 x 768
	View Angles	176° / 176°	178° / 178°	178° / 178°	160° / 140°
	Brightness	300 nits	300 / 1000 nits	300 / 1000 nits	1000 nits
	Touch Screen	-	Capacitive (Optional)	Capacitive (Optional)	Capacitive (Optional)
System	Serial Ports	1 x RS-232 (DB9), 1 x RS-422/485 (TB)	1 x RS-232 (DB9), 1 x RS-422/485 (TB)	1 x RS-232 (DB9), 1 x RS-422/485 (TB)	1 x RS-232 (DB9), 1 x RS-422/485 (TB)
	Video Input	1 x DVI-D, 1 x VGA	1 x DVI-D, 1 x VGA	1 x DVI-D, 1 x VGA	1 x DVI-D, 1 x VGA
	Buzzer	Yes	Yes	Yes	-
	Power Input	100 to 240 VAC 24 VDC	100 to 240 VAC 24 VDC	100 to 240 VAC 24 VDC	100 to 240 VAC 12/24 VDC
Physical Characteristics	Dimensions	621 x 440 x 90 mm (24.45 x 17.48 x 3.57 in)	595 x 393 x 75 mm (23.43 x 15.47 x 2.95 in)	429 x 387 x 75 mm (16.89 x 15.24 x 2.95 in)	356 x 315 x 77.2 mm (14.02 x 12.40 x 3.04 in)
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	IP Rating	IP54 (Front) ; IP20 (Rear)	IP54 (Front) ; IP20 (Rear)	IP54 (Front) ; IP20 (Rear)	IP66 (Front) ; IP20 (Rear)
Standards and Certifications	Hazardous Certifications	-	Class I Division 2	Class I Division 2	-
	Marine Certifications	DNV GL, ABS, CCS, EU-RO-MR	DNV GL, ABS, CCS, EU-RO-MR	DNV GL, ABS, CCS, EU-RO-MR	DNV GL, EU-RO-MR

HMI Panels Certified for Extreme Environments

For more information, visit: www.moxa.com/RuggedHMI



Your Trusted Partner in Automation

Moxa is a leading provider of edge connectivity, industrial computing, and network infrastructure solutions for enabling connectivity for the Industrial Internet of Things. With over 30 years of industry experience, Moxa has connected more than 50 million devices worldwide and has a distribution and service network that reaches customers in more than 70 countries. Moxa delivers lasting business value by empowering industry with reliable networks and sincere service for industrial communications infrastructures.

The Americas

Moxa Americas

Toll Free: 1-888-MOXA-USA
Tel: +1-714-528-6777
Fax: +1-714-528-6778
usa@moxa.com

Moxa Brazil

Tel: +55-11-95261-6545
brazil@moxa.com

Europe

Moxa Germany

Tel: +49-89-37003-99-0
Fax: +49-89-37003-99-99
europe@moxa.com

Moxa France

Tel: +33-1-30-85-41-80
Fax: +33-1-30-47-35-91
france@moxa.com

Moxa UK

Tel: +44-1844-355-601
Fax: +44-1844-353-553
uk@moxa.com

Asia-Pacific

Moxa Asia-Pacific and Taiwan

Tel: +886-2-8919-1230
Fax: +886-2-8919-1231
asia@moxa.com
japan@moxa.com
taiwan@moxa.com

Moxa India

Tel: +91-80-4172-9088
Fax: +91-80-4132-1045
india@moxa.com

Moxa Russia

Tel: +7-495-287-0929
Fax: +7-495-269-0929
russia@moxa.com

Moxa Korea

Tel: +82-2-6268-4048
Fax: +82-2-6268-4044
korea@moxa.com

China

Moxa Shanghai

Tel: +86-21-5258-9955
Fax: +86-21-5258-5505
china@moxa.com

Moxa Beijing

Tel: +86-10-5976-6123/24/25/26
Fax: +86-10-5976-6122
china@moxa.com

Moxa Shenzhen

Tel: +86-755-8368-4084/94
Fax: +86-755-8368-4148
china@moxa.com