# **MPC-2190 Series**

## 19-inch ECDIS color calibrated, fanless panel computers



#### **Features and Benefits**

- Third-generation Intel® processor (Intel® Core™ i7 3517UE 1.7 GHz or Celeron® 1047UE, 1.40 GHz)
- 19-inch panel computer
- · Color calibrated for ECDIS compliance (available by CTOS)
- · SavvyTouch display controls
- · Fanless system design
- Built-in NMEA 0183 and 3-in-1 software selectable RS-232/422/485 interfaces
- Multiple power supplies (AC & DC)

# Certifications

#### Introduction

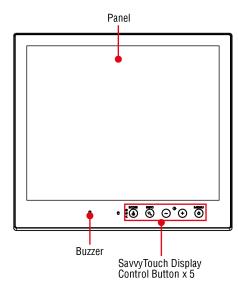
MPC-2190 panel computers feature an Intel® 3rd generation processor matched to 4 GB of system memory, delivering a reliable, highperformance platform of wide versatility for use in industrial marine environments. With its two RS-232/422/485 serial ports, four NMEA 0183 ports, and two Gigabit Ethernet ports, the MPC-2190 panel computer supports a wide variety of serial and marine-specific interfaces as well as highspeed IT communications, all with native network redundancy.

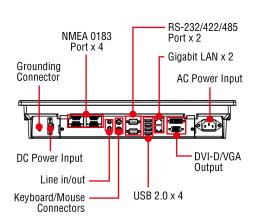
The MPC-2190 Series comes with a range of standard display enhancements useful in industrial environments (including full range dimming, wide viewing angles, and optional optical bonding), as well as a few innovations especially deployed for maritime environments: user-friendly OSD controls, called SavvyTouch, featuring a proximity sensor for convenient adjustment in dark situations, immediate BIOS-level reports on hardware status (useful for determining why a machine will not boot up), and a quick-switch ECDIS button (for color-calibrated ECDIS models only) that allows instant brightness adjustments to any of the three pre-set calibrations dictated by the ECDIS standard. In addition to all of this, the MPC-2190 Series features a modular design that makes device integration into either new or existing industrial systems much simpler, reducing deployment costs and overall time-to-market.

The MPC-2190 panel computers are compliant with several industrial marine standards, including IEC 60945, IEC 61162, IEC 61174, DNV, and IACS E10, verifying their resilience for maritime operations. The IP54 (front panel) and IP22 (rear panel) rated unibody shell provides strong additional protection against the harsh conditions found in marine environments.

Color-calibrated ECDIS models are available upon request, providing an ideal HMI alternative for ECDIS charting and navigation stations.

#### Appearance







# **Specifications**

### Computer

CPUC2-1902-WFZ/21902/11
Graphics ControllerIntel® HD Graphics 520System Memory Pre-installed4 GB DDR3/DDR3LSystem Memory SlotSODIMM DDR3/DDR3L slot x 1Pre-installed OSWindows Embedded Standard 7 (WS7P) 64-bitSupported OSWindows T Pro 6 A-bit Windows T Pro 6 A-bit Pro 2010 Maps Pro 2010 Maps Mater Pro 2010 MapsGrap Drub Do 1000 Maps VGA x 1, 15-pin D-sub connector (female) VGA x 1, 15-pin D-sub connector (female) VGA x 1, 15-pin D-sub connector (female) VGA x 1, 15-pin D-sub connector (female) Mater Pro 1LiD Indicators Display Dis
System Memory Pre-installed         4 GB DDR3/DDR3L           System Memory Stot         SODIMM DDR3/DDR3L slot x 1           Pre-installed OS         Windows Embedded Standard 7 (WS7P) 64-bit           Supported OS         Windows Tor for Embedded Stystems Windows 10 Fm bedded Standard 7 (WS7P) 64-bit Windows 10 Fm bedded IST Ent 2016 LTSB Halp End EPKEA           Storage Slot         2.5-inch HDD/SSD slots x 2           Computer Interface         Auto-sensing 10/100/1000 Mbps ports (RJ45 connector) x 2           Ethemet Ports         Auto-sensing 10/100/1000 Mbps ports (RJ45 connector) x 2           Audio Input/Output         Lise in x 1, Line out x 1, 3.5 mm phone jack           PS/2         Keyboard PS/2 x 1, Mouse PS/2 x 1           Video Output         NEA 1083 ports x 4 (terminal block)           NEA Port         Power x 1           LAN         2 per port (10/1000 Mbps)           Stafu         Storage Slot
System Memory Slot         SODIMM DDR3/DDR3L slot x 1           Pre-installed OS         Vindows Embedded Standard 7 (WS7P) 64-bit           Supported OS         Windows TPro for Embedded Systems           Supported OS         Windows Embedded Standard 7 (WS7P) 64-bit           Windows 10 Embedded Standard 7 (WS7P) 64-bit         Windows 10 Embedded IST Ent 2016 LTSB High End EPKEA           Storage Slot         2.5-inch HDD/SSD slots x 2           Computer Interface         Vindows 10 Embedded IST Ent 2016 LTSB High End EPKEA           Storage Slot         Xdt-sensing 10/100/1000 Mbps ports (RJ45 connector) x 2           Storage Slot         NSP 23/422/486 ports x 2, software selectable (DB9 male)           Storage Slot         NSP 23/422/486 ports x 2, software selectable (DB9 male)           Storage Slot         Use 20, hosts x 4, type-A connectors           Storage Slot         Storage Slot X, 1, Software Selectable (DB9 male)           Storage Slot         Use 20, hosts x 1, time out x 1, 3.5 mm phone jack           Storage Slot         Keyboard PS/2 x 1, Mouse PS/2 x 1           Video Output         NtE 0 180 softs x 4 (terminal block)           LiD Indicators         Video X 1, 15-pin D-vib connectors (female)           System         Power x 1           LiD Indicators         Power x 1           Storage Slot         Storage Slot (MI0/1000 Mbps)
Pre-installed OS       Windows Embedded Standard 7 (WS7P) 64-bit         Supported OS       Windows T Pro for Embedded Systems         Sivindows Embedded Standard 7 (WS7P) 64-bit       Windows T Pro 64-bit         Windows 10 Pro 64-bit       Windows 10 Embedded OS End 7 (WS7P) 64-bit         Storage Slot       2.5-inch HDD/SSD slots x 2         Computer Interface       Kindows 10 Pro 64-bit         Ethernet Ports       2.5-inch HDD/SSD slots x 2         Storage Slot       2.5-inch HDD/SSD slots x 2         USB 2.0       Sol Sol x 2         Storage Slot       Sol - Sol x 2         Vindows Embedded Standard 7 (WS7P) 64-bit       Sol x 2         Ethernet Ports       Auto-sensing 10/100/1000 Mbps ports (RJ45 connector) x 2         Storage Slot       USB 2.0 hosts x 4, type-A connectors         USB 2.0       USB 2.0 hosts x 4, type-A connectors         Video Nutput       Une in x 1, Line out x 1, 3.5 mm phone jack         Nick Port       WIA 0438 ports x 4 (terminal block)         LED Indicators       Video X 1, 15-pin DV-D connector (female)         System       Power x 1         LAN       Power x 1         Storage Slot       Power x 1         Display       Fose x 1(10/10/1000 Mbps)         Lip Isplay Area       Tos x 2(H) x 30.36(H) mm    <
Supported OSWindows 7 Pro for Embedded Systems Windows 10 Pro 64-bit Windows 10 Pro 64-bit Windows 10 Embedded IoT Ent 2016 LTSB High End EPKEA Windows 10 Embedded IoT Ent 2016 LTSB High End EPKEA Windows 10 Embedded IoT Ent 2016 LTSB Value EPKEAStorage Slot2.5-inch HDD/SSD slots x 2Computer InterfaceAuto-sensing 10/100/1000 Mbps ports (RJ45 connector) x 2Steral PortsAuto-sensing 10/100/1000 Mbps ports (RJ45 connector) x 2USB 2.0USB 2.0 hosts x 4, type-A connectorsAudio Input/OutputLine in x 1, Line out x 1, 3.5 mm phone jackPS/2Keyboard PS/2 x 1, Mouse PS/2 x 1Video OutputDVI-bx 1, 29-pin DVI-D connectors (female) VGA x 1, 15-pin D-sub connector (female)NEA PortDVI-bx 1, 3.5 mm phone jackLED IndicatorsVida VII &
Windows In Demoded Standard 7 (WS7P) 64-bit Windows 10 Pm 64-bit Windows 10 Embedded IoT Ent 2016 LTSB High End EPKEA Windows 10 Embedded IoT Ent 2016 LTSB High End EPKEAStorage Slot2.5-inch HDD/SSD slots x 2Computer InterfaceAuto-sensing 10/100/1000 Mbps ports (RJ45 connector) x 2Ethernet PortsAuto-sensing 10/100/1000 Mbps ports (RJ45 connector) x 2Serial PortsSes 232/422/485 ports x 2, software selectable (DB9 male)USB 2.0USB 2.0 hosts x 4, type-A connectorsAudio Input/OutputLine in x 1, Line out x 1, 3.5 mm phone jackPS/2Vi-D x 1, 29-pin DVI-D connectors (female) VGA x 1, 15-pin D-sub connector (female)NMEA PortNMEA 0183 ports x 4 (terminal block)LED IndicatorsPower x 1SystemPower x 1LAN2 per port (10/1000 Mbps)DisplayXi (10, 1000 Mbps)Attive Display Area3632(H) x 301.06 (V) mm
Computer Interface         Ethemet Ports       Auto-sensing 10/1000 Mbps ports (RJ45 connector) x 2         Serial Ports       RS-232/422/485 ports x 2, software selectable (DB9 male)         USB 2.0       USB 2.0 hosts x 4, type-A connectors         Audio Input/Output       Line in x 1, Line out x 1, 3.5 mm phone jack         FS/2       Keyboard PS/2 x 1, Mouse PS/2 x 1         Video Output       DVI-D x 1, 29-pin DVI-D connectors (female)         Video Output       DVI-D x 1, 29-pin DVI-D connectors (female)         Video Output       DVI-D x 1, 29-pin DVI-D connectors (female)         System       MEA 0183 ports x 4 (terminal block)         LED Indicators       Spare port (10/1000 Mbps)         System       Power x 1         LAN       2 per port (10/1000 Mbps)         Display       Total (Display Area)
Ethernet PortsAuto-sensing 10/1000 Mbps ports (RJ45 connector) x 2Serial PortsRS-232/422/485 ports x 2, software selectable (DB9 male)USB 2.0USB 2.0 hosts x 4, type-A connectorsAudio Input/OutputLine in x 1, Line out x 1, 3.5 mm phone jackPS/2Keyboard PS/2 x 1, Mouse PS/2 x 1Video OutputDVI-D x 1, 29-pin DVI-D connectors (female) VGA x 1, 15-pin D-sub connector (female)NMEA PortNMEA 0183 ports x 4 (terminal block)LED IndicatorsPower x 1SystemPower x 1LAN2 per port (10/1000 Mbps)DisplayTo 522 (H) x 301.06 (M) mm
Serial PortsRS-232/422/485 ports x 2, software selectable (DB9 male)USB 2.0USB 2.0 hosts x 4, type-A connectorsAudio Input/OutputLine in x 1, Line out x 1, 3.5 mm phone jackPS/2Keyboard PS/2 x 1, Mouse PS/2 x 1Video OutputDVI-D x 1, 29-pin DVI-D connectors (female) VGA x 1, 15-pin D-sub connector (female)NMEA PortNMEA 0183 ports x 4 (terminal block)LED IndicatorsPower x 1SystemPower x 1LAN2 per port (10/100/ Mbps)DisplayActive Display Area
USB 2.0USB 2.0 hosts x 4, type-A connectorsAudio Input/OutputLine in x 1, Line out x 1, 3.5 mm phone jackPS/2Keyboard PS/2 x 1, Mouse PS/2 x 1Video OutputDVI-D x 1, 29-pin DVI-D connectors (female) VGA x 1, 15-pin D-sub connector (female)NMEA PortNMEA 0183 ports x 4 (terminal block)LED IndicatorsPower x 1SystemPower x 1LAN2 per port (10/100/1000 Mbps)Display376.32 (H) x 301.06 (V) mm
Audio Input/Output       Line in x 1, Line out x 1, 3.5 mm phone jack         PS/2       Keyboard PS/2 x 1, Mouse PS/2 x 1         Video Output       DVI-D x 1, 29-pin DVI-D connectors (female) VGA x 1, 15-pin D-sub connector (female)         NMEA Port       NMEA 0183 ports x 4 (terminal block)         LED Indicators       Power x 1         System       Power x 1         LAN       2 per port (10/1000 Mbps)         Display       Aria S 201, S 20
PS/2       Keyboard PS/2 x 1, Mouse PS/2 x 1         Video Output       DVI-D x 1, 29-pin DVI-D connectors (female)         NMEA Port       NMEA 0183 ports x 4 (terminal block)         LED Indicators       Power x 1         System       Power x 1         LAN       2 per port (10/1000 Mbps)         Display       S632 (H) x 301.06 (V) mm
Yideo Output     DVI-D x 1, 29-pin DVI-D connectors (female) VGA x 1, 15-pin D-sub connector (female)       NMEA Port     NMEA 0183 ports x 4 (terminal block)       LED Indicators     Power x 1       System     Power x 1       LAN     2 per port (10/1000 Mbps)       Display     Active Display Area
VGA x 1, 15-pin D-sub connector (female)         NMEA Port       NMEA 0183 ports x 4 (terminal block)         LED Indicators       Power x 1         System       Power x 1         LAN       2 per port (10/100/ Mbps)         Display       376.32 (H) x 301.06 (V) mm
LED Indicators       System     Power x 1       LAN     2 per port (10/1000 Mbps)       Display     376.32 (H) x 301.06 (V) mm
System     Power x 1       LAN     2 per port (10/1000 Mbps)       Display     376.32 (H) x 301.06 (V) mm
LAN     2 per port (10/1000 Mbps)       Display     376.32 (H) x 301.06 (V) mm
Display Active Display Area 376.32 (H) x 301.06 (V) mm
Active Display Area 376.32 (H) x 301.06 (V) mm
Aspect Ratio 5:4
Contrast Ratio 2000:1
Light Intensity (Brightness)     300 cd/m <sup>2</sup>
Max. No. of Colors 16.7M (8-bit/color)
Panel Size 19-inch viewable image
Panel Type MVA
Panel Type MVA Pixel Pitch (RGB) 0.294 (H) x 0.294 (V) mm



Viewing Angles178°/178°Fouch FunctionFouch TypeTouch TypeMPC-2190Z/2197Z: Capacitive Touch (PCAP) MPC-2190X/2197X: NoneTouch Support PointsMPC-2190Z/2197Z: 4 pointsSerial InterfaceMPC-2190Z/2197Z: 4 pointsBaudrate50 bps to 115.2 kbpsData Bits5, 6, 7, 8Flow ControlRTS/CTS, XON/XOFF, ADDC® (automatic data direction control) for RS-485, RTS Toggle (RS-232 only)ParityNone, Even, Odd, Space, Mark
Touch TypeMPC-2190Z/2197Z: Capacitive Touch (PCAP) MPC-2190X/2197X: NoneTouch Support PointsMPC-2190Z/2197Z: 4 pointsSerial InterfaceSerial InterfaceBaudrate50 bps to 115.2 kbpsData Bits5, 6, 7, 8Flow ControlRTS/CTS, XON/XOFF, ADDC® (automatic data direction control) for RS-485, RTS Toggle (RS-232 only)
MPC-2190X/2197X: NoneTouch Support PointsMPC-2190Z/2197Z: 4 pointsSerial Interface50 bps to 115.2 kbpsBaudrate50 bps to 115.2 kbpsData Bits5, 6, 7, 8Flow ControlRTS/CTS, XON/XOFF, ADDC® (automatic data direction control) for RS-485, RTS Toggle (RS-232 only)
Serial Interface         Baudrate       50 bps to 115.2 kbps         Data Bits       5, 6, 7, 8         Flow Control       RTS/CTS, XON/XOFF, ADDC® (automatic data direction control) for RS-485, RTS Toggle (RS-232 only)
Baudrate     50 bps to 115.2 kbps       Data Bits     5, 6, 7, 8       Flow Control     RTS/CTS, XON/XOFF, ADDC® (automatic data direction control) for RS-485, RTS Toggle (RS-232 only)
Data Bits     5, 6, 7, 8       Flow Control     RTS/CTS, XON/XOFF, ADDC® (automatic data direction control) for RS-485, RTS Toggle (RS-232 only)
Flow Control RTS/CTS, XON/XOFF, ADDC® (automatic data direction control) for RS-485, RTS Toggle (RS-232 only)
Toggle (RS-232 only)
Parity None, Even, Odd, Space, Mark
Stop Bits 1, 1.5, 2
NMEA InterfaceSerial Standards: NMEA 0183: RS-422 NMEA 2000: CAN bus (available on request) Baudrate: 4800 bps Data Bits: 8 Handshake: None Optical Isolation Protection: 3 kV Parity: None Serial Standards: NMEA 0183v2 (NMEA 2000 available on request) Stop Bits: 1, 1.5, 2 Voltage Differential: -6 V to +6 V (maximal differential level)
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
Power Parameters
Input Voltage 100 to 240 VAC, 18 to 34 VDC
Physical Characteristics
Housing Metal
IP Rating IP54, front IP20, rear
Dimensions 429 x 387 x 74.5 mm (16.89 x 15.24 x 2.93 in)
Weight 8,658 g (19.09 lb)
Environmental Limits
Operating Temperature -15 to 55°C (5 to 131°F)
Storage Temperature (package included) -20 to 60°C (-4 to 140°F)
Ambient Relative Humidity     5 to 95% (non-condensing)

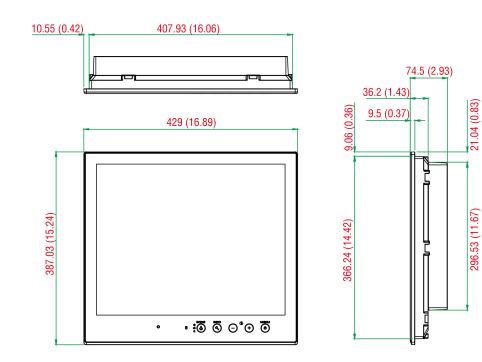


Standards and Sertifications	
EMC	EN 55032/24
EMI	CISPR 32, FCC Part 15B Class A
EMS	IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 10 V/m IEC 61000-4-4 EFT: Power: 1 kV; Signal: 0.5 kV IEC 61000-4-5 Surge: Power: 2 kV; Signal: 1 kV IEC 61000-4-6 CS: 10 V
Environmental Testing	IEC 60068-2-1, DNVGL-CG-0339 IEC 60068-2-2, DNVGL-CG-0339 IEC 60068-2-2, IEC 60945 IEC 60068-2-30, IEC 60945
Maritime	ABS, CCS, DNV-GL
Safety	EN 60950-1, IEC 60950-1, UL 60950-1
Vibration	IEC 60068-2-6, IEC 60945, IEC 60068-2-64, DNVGL-CG-0339
Declaration	
Green Product	RoHS, CRoHS, WEEE
Warranty	
Details	See www.moxa.com/warranty
Warranty Period	LCD: 1 year System: 3 years
Package Contents	
Device	1 x MPC-2190 Series computer
Installation Kit	1 x terminal block, 2-pin 1 x panel-mounting kit
Documentation	1 x document and software CD 1 x quick installation guide 1 x warranty card



# **Dimensions**

Unit: mm (inch)



# **Ordering Information**

Model Name	Panel	CPU	RAM	OS Preinstalled	Touchscreen	LAN	Serial	NME A 0183	Video Outputs	Power Input	IP Rating	Operating Temp.
MPC- 2190Z-W7E	19" (4:3) 300 nits	Celeron 1047UE	4 GB	W7E OS 64 GB SSD	Capacitive	2	2	4	1 x VGA 1 x DVI-D	12/24 VDC 100-240 VAC	IP54 (front), IP20 (rear)	-15 to 55°C
MPC-2190Z	19" (4:3) 300 nits	Celeron 1047UE	4 GB	-	Capacitive	2	2	4	1 x VGA 1 x DVI-D	12/24 VDC 100-240 VAC	IP54 (front), IP20 (rear)	-15 to 55°C
MPC-2190X	19" (4:3) 300 nits	Celeron 1047UE	4 GB	-	-	2	2	4	1 x VGA 1 x DVI-D	12/24 VDC 100-240 VAC	IP54 (front), IP20 (rear)	-15 to 55°C
MPC-2197Z	19" (4:3) 300 nits	i7- 3517UE	4 GB	-	Capacitive	2	2	4	1 x VGA 1 x DVI-D	12/24 VDC 100-240 VAC	IP54 (front), IP20 (rear)	-15 to 55°C
MPC-2197X	19" (4:3) 300 nits	i7- 3517UE	4 GB	-	-	2	2	4	1 x VGA 1 x DVI-D	12/24 VDC 100-240 VAC	IP54 (front), IP20 (rear)	-15 to 55°C

# Accessories (sold separately)

Desktop Mounting Kits	
MPC-MD-2-19-DMTK w/ hinge	Desktop-mounting kit for 19-inch panels
MPC-MD-2-19-DMTK w/o hinge	Desktop-mounting kit for 19-inch panels, (no hinge)
Panel Mounting Kits	
MPC-MD-2-19-RMTK	Rubber gasket for 19-inch panels



MPC-MD-2-19-VESAMTK

VESA kit for 19-inch panels (can be used with 100 x 100 mm or 280 x 150 mm VESA mounts)

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