EDS-G512E Series

12G-port (with 8 PoE+ ports option) full Gigabit managed Ethernet switches

Features and Benefits

- 8 IEEE 802.3af and IEEE 802.3at PoE+ standard ports
- 36-watt output per PoE+ port in high-power mode
- Turbo Ring and Turbo Chain (recovery time < 50 ms @ 250 switches), RSTP/STP, and MSTP for network redundancy
- RADIUS, TACACS+, MAB Authentication, SNMPv3, IEEE 802.1X, MAC ACL, HTTPS, SSH, and sticky MAC-addresses to enhance network security
- Security features based on IEC 62443
- EtherNet/IP, PROFINET, and Modbus TCP protocols supported for device management and monitoring
- Supports MXstudio for easy, visualized industrial network management
- V-ON™ ensures millisecond-level multicast data and video network recovery

Certifications

Introduction

The EDS-G512E Series is equipped with 12 Gigabit Ethernet ports and up to 4 fiber-optic ports, making it ideal for upgrading an existing network to Gigabit speed or building a new full Gigabit backbone. It also comes with 8 10/100/1000BaseT(X), 802.3af (PoE), and 802.3at (PoE+)-compliant Ethernet port options to connect high-bandwidth PoE devices. Gigabit transmission increases bandwidth for higher performance and transfers large amounts of triple-play services across a network quickly.

Redundant Ethernet technologies such as Turbo Ring, Turbo Chain, RSTP/STP, and MSTP increase the reliability of your system and improve the availability of your network backbone. The EDS-G512E Series is designed specifically for communication demanding applications, such as video and process monitoring, ITS, and DCS systems, all of which can benefit from a scalable backbone construction.

Additional Features and Benefits

- Command line interface (CLI) for quickly configuring major managed functions
- Advanced PoE management function (PoE port setting, PD failure check, and PoE scheduling)
- DHCP Option 82 for IP address assignment with different policies
- Supports EtherNet/IP, PROFINET, and Modbus TCP protocols for device management and monitoring
- IGMP snooping and GMRP for filtering multicast traffic
- Port-based VLAN, IEEE 802.1Q VLAN, and GVRP to ease network planning
- Supports the ABC-02-USB (Automatic Backup Configurator) for system configuration backup/restore and firmware upgrade
- Port mirroring for online debugging

- QoS (IEEE 802.1p/1Q and TOS/DiffServ) to increase determinism
- Port Trunking for optimum bandwidth utilization
- RADIUS, TACACS+, MAB Authentication, SNMPv3, IEEE 802.1X, MAC ACL, HTTPS, SSH, and sticky MAC address to enhance network security
- SNMPv1/v2c/v3 for different levels of network management
- RMON for proactive and efficient network monitoring
- Bandwidth management to prevent unpredictable network status
- Lock port function for blocking unauthorized access based on MAC address
- Automatic warning by exception through email and relay output

Specifications

Input/Output Interface

Alarm Contact Channels	1, Relay output with current carrying capacity of 1 A @ 24 VDC
Buttons	Reset button
Digital Input Channels	1
Digital Inputs	+13 to +30 V for state 1 -30 to +3 V for state 0 Max. input current: 8 mA

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Ethernet Interface

10/100/1000BaseT(X) Ports (RJ45 connector)	EDS-G512E-4GSFP: 8 Auto negotiation speed Full/Half duplex mode Auto MDI/MDI-X connection
PoE Ports (10/100/1000BaseT(X), RJ45 connector)	EDS-G512E-8PoE-4GSFP: 8
100/1000BaseSFP Slots	4
Standards	IEEE 802.3 for 10BaseT IEEE 802.3u for 100BaseT(X) and 100BaseFX IEEE 802.3ab for 1000BaseT(X) IEEE 802.3z for 1000BaseSX/LX/LHX/ZX IEEE 802.3x for flow control IEEE 802.1D-2004 for Spanning Tree Protocol IEEE 802.1w for Rapid Spanning Tree Protocol IEEE 802.1s for Multiple Spanning Tree Protocol IEEE 802.1p for Class of Service IEEE 802.1Q for VLAN Tagging IEEE 802.1X for authentication IEEE 802.3ad for Port Trunk with LACP

Ethernet Software Features

Filter	802.1Q VLAN, Port-based VLAN, GVRP, IGMP v1/v2/v3, GMRP
Industrial Protocols	EtherNet/IP, Modbus TCP, PROFINET IO Device
Management	LLDP, Back Pressure Flow Control, BOOTP, Port Mirror, DHCP Option 66/67/82, DHCP Server/Client, Fiber check, Flow control, IPv4/IPv6, RARP, RMON, SMTP, SNMP Inform, SNMPv1/v2c/v3, Syslog, Telnet, TFTP
MIB	Ethernet-like MIB, MIB-II, Bridge MIB, P-BRIDGE MIB, Q-BRIDGE MIB, RMON MIB Groups 1, 2, 3, 9, RSTP MIB
Redundancy Protocols	Link Aggregation, MSTP, RSTP, STP, Turbo Chain, Turbo Ring v1/v2
Security	Broadcast storm protection, HTTPS/SSL, TACACS+, SNMPv3, MAB authentication, Sticky MAC, NTP authentication, MAC ACL, Port Lock, RADIUS, SSH, SMTP with TLS
Time Management	NTP Server/Client, SNTP

Switch Properties

IGMP Groups	2048
Jumbo Frame Size	9.6 KB
MAC Table Size	8 K
Max. No. of VLANs	256
Packet Buffer Size	4 Mbits
Priority Queues	4
VLAN ID Range	VID 1 to 4094

USB Interface

Storage Port	USB Type A

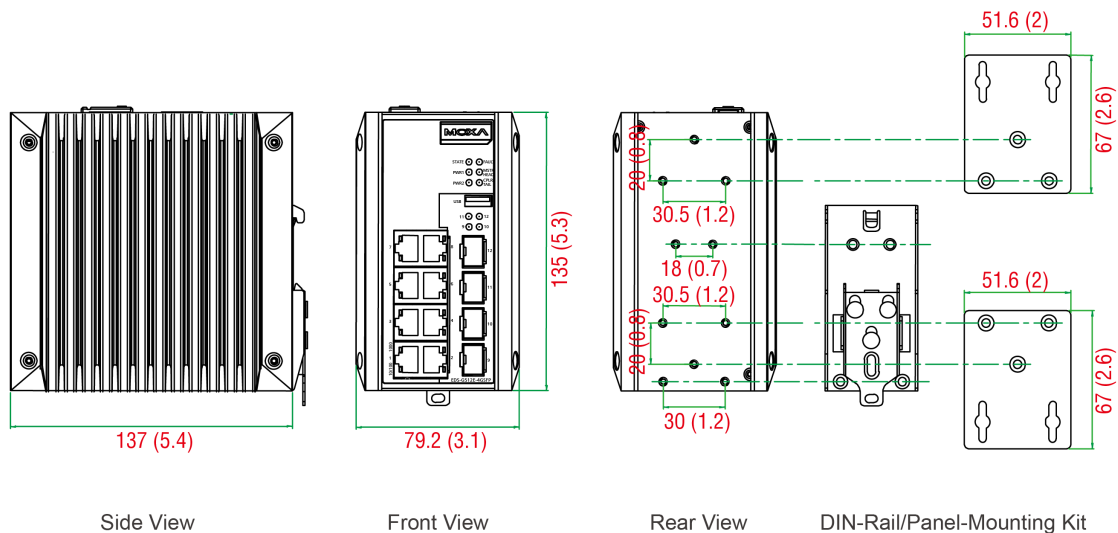## LED Interface

LED Indicators	PWR1, PWR2, STATE, FAULT, 10/100M (TP port), 1000M (TP port), 100/1000M (SFP port), MSTR/HEAD, CPLR/TAIL, smart PoE LED (EDS-G512E-8PoE-4GSFP Series only)

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Serial Interface

Console Port	USB-serial console (Type B connector)

DIP Switch Configuration

DIP Switches	Turbo Ring, Master, Coupler, Reserve

Power Parameters

Connection	2 removable 4-contact terminal block(s)
Input Current	EDS-G512E-4GSFP Series: 0.34 A @ 24 VDC EDS-G512E-8PoE-4GSFP Series: 5.30 A @ 48 VDC
Input Voltage	EDS-G512E-4GSFP Series: 12/24/48/-48 VDC EDS-G512E-8PoE-4GSFP Series: 48 VDC (Both series have redundant dual input)
Operating Voltage	EDS-G512E-4GSFP Series: 9.6 to 60 VDC EDS-G512E-8PoE-4GSFP Series: 44 to 57 VDC (> 50 VDC for PoE+ output recommended)
Overload Current Protection	Supported
Reverse Polarity Protection	Supported
Power Budget	EDS-G512E-8PoE-4GSFP: Max. 240 W for total PD consumption EDS-G512E-8PoE-4GSFP: Max. 36 W for each PoE port
Power Consumption (Max.)	EDS-G512E-8PoE-4GSFP: Max. 14.36 W full loading without PDs' consumption Note: When selecting a power supply, check the PD power consumption.

Physical Characteristics

Housing	Metal
IP Rating	IP30
Dimensions	79.2 x 135 x 137 mm (3.1 x 5.3 x 5.4 in)
Weight	EDS-G512E-4GSFP: 1,440 g (3.18 lb) EDS-G512E-8PoE-4GSFP: 1,540 g (3.40 lb)
Installation	DIN-rail mounting, Wall mounting (with optional kit)

Environmental Limits

Operating Temperature	Standard Models: -10 to 60°C (14 to 140°F) Wide Temp. Models: -40 to 75°C (-40 to 167°F)
Storage Temperature (package included)	-40 to 85°C (-40 to 185°F)
Ambient Relative Humidity	5 to 95% (non-condensing)

Standards and Certifications

Safety	EDS-G512E-4GSFP/EDS-G512E-8PoE-4GSFP Series: UL 508 EDS-G512E-8PoE-4GSFP Series: EN 60950-1 (LVD)
EMC	EN 61000-6-2/-6-4
EMI	CISPR 32, FCC Part 15B Class A
EMS	EDS-G512E-4GSFP: IEC 61000-4-2 ESD: Contact: 8 kV; Air: 15 kV EDS-G512E-4GSFP: IEC 61000-4-3 RS: 80 MHz to 1 GHz: 10 V/m EDS-G512E-8PoE-4GSFP: IEC 61000-4-3 RS: 80 MHz to 1 GHz: 20 V/m EDS-G512E-4GSFP: IEC 61000-4-4 EFT: Power: 4 kV; Signal: 4 kV EDS-G512E-8PoE-4GSFP: IEC 61000-4-4 EFT: Power: 2 kV; Signal: 2 kV EDS-G512E-4GSFP: IEC 61000-4-5 Surge: Power: 4 kV; Signal: 4 kV EDS-G512E-8PoE-4GSFP: IEC 61000-4-5 Surge: Power: 2 kV; Signal: 4 kV

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	IEC 61000-4-6 CS: 10 V IEC 61000-4-8 PFMF
Hazardous Locations	EDS-G512E-4GSFP Series: ATEX, Class I Division 2
Maritime	EDS-G512E-4GSFP: DNV-GL, EDS-G512E-4GSFP: LR, EDS-G512E-4GSFP: ABS, EDS-G512E-4GSFP: NK
Power Substation	IEC 61850-3, IEEE 1613
Railway	EN 50121-4
Traffic Control	EDS-G512E-4GSFP: NEMA TS2
Shock	IEC 60068-2-27
Freefall	IEC 60068-2-32
Vibration	IEC 60068-2-6

MTBF

Time	EDS-G512E-4GSFP Series: 816,823 hrs EDS-G512E-8PoE-4GSFP Series: 361,368 hrs
Standards	Telcordia (Bellcore), GB

Warranty

Warranty Period	5 years
Details	See www.moxa.com/warranty

Package Contents

Device	1 x EDS-G512E Series switch
Cable	1 x USB type A male to USB type B male
Installation Kit	4 x cap, plastic, for RJ45 port
Documentation	1 x quick installation guide 1 x warranty card 1 x product certificates of quality inspection, Simplified Chinese 1 x product notice, Simplified Chinese
Note	SFP modules need to be purchased separately for use with this product.

Dimensions

Unit: mm (inch)

| Side View | Front View | Rear View | DIN-Rail/Panel-Mounting Kit |

Side View: 137 (5.4)
Front View: 135 (5.3), 79.2 (3.1)
Rear View: 20 (0.8), 30.5 (1.2), 18 (0.7), 30.5 (1.2), 20 (0.8), 30 (1.2)
DIN-Rail/Panel-Mounting Kit: 51.6 (2), 67 (2.6)

Ordering Information

Model Name	10/100/1000BaseT(X) Ports, RJ45 Connector	PoE Ports, 10/100/ 1000BaseT(X), RJ45 Connector	IEEE 802.3af/at for PoE/PoE+ Output	100/1000Base SFP Slots	Operating Temp.
EDS-G512E-4GSFP	8	–	–	4	-10 to 60°C
EDS-G512E-4GSFP-T	8	–	–	4	-40 to 75°C
EDS-G512E-8PoE-4GSFP	–	8	✓	4	-10 to 60°C
EDS-G512E-8PoE-4GSFP-T	–	8	✓	4	-40 to 75°C

Accessories (sold separately)

Storage Kits

ABC-02-USB	Configuration backup and restoration tool, firmware upgrade, and log file storage tool for managed Ethernet switches and routers, 0 to 60°C operating temperature
ABC-02-USB-T	Configuration backup and restoration tool, firmware upgrade, and log file storage tool for managed Ethernet switches and routers, -40 to 75°C operating temperature

SFP Modules

SFP-1FELLC-T	SFP module with 1 100Base single-mode with LC connector for 80 km transmission, -40 to 85°C operating temperature
SFP-1FEMLC-T	SFP module with 1 100Base multi-mode with LC connector for 4 km transmission, -40 to 85°C operating temperature
SFP-1FESLC-T	SFP module with 1 100Base single-mode with LC connector for 40 km transmission, -40 to 85°C operating temperature
SFP-1G10ALC	WDM-type (BiDi) SFP module with 1 1000BaseSFP port with LC connector for 10 km transmission; TX 1310 nm, RX 1550 nm, 0 to 60°C operating temperature
SFP-1G10ALC-T	WDM-type (BiDi) SFP module with 1 1000BaseSFP port with LC connector for 10 km transmission; TX 1310 nm, RX 1550 nm, -40 to 85°C operating temperature
SFP-1G10BLC	WDM-type (BiDi) SFP module with 1 1000BaseSFP port with LC connector for 10 km transmission; TX 1550 nm, RX 1310 nm, 0 to 60°C operating temperature
SFP-1G10BLC-T	WDM-type (BiDi) SFP module with 1 1000BaseSFP port with LC connector for 10 km transmission; TX 1550 nm, RX 1310 nm, -40 to 85°C operating temperature
SFP-1G20ALC	WDM-type (BiDi) SFP module with 1 1000BaseSFP port with LC connector for 20 km transmission; TX 1310 nm, RX 1550 nm, 0 to 60°C operating temperature

SFP-1G20ALC-T	WDM-type (BiDi) SFP module with 1 1000BaseSFP port with LC connector for 20 km transmission; TX 1310 nm, RX 1550 nm, -40 to 85°C operating temperature
SFP-1G20BLC	WDM-type (BiDi) SFP module with 1 1000BaseSFP port with LC connector for 20 km transmission; TX 1550 nm, RX 1310 nm, 0 to 60°C operating temperature
SFP-1G20BLC-T	WDM-type (BiDi) SFP module with 1 1000BaseSFP port with LC connector for 20 km transmission; TX 1550 nm, RX 1310 nm, -40 to 85°C operating temperature
SFP-1G40ALC	WDM-type (BiDi) SFP module with 1 1000BaseSFP port with LC connector for 40 km transmission; TX 1310 nm, RX 1550 nm, 0 to 60°C operating temperature
SFP-1G40ALC-T	WDM-type (BiDi) SFP module with 1 1000BaseSFP port with LC connector for 40 km transmission; TX 1310 nm, RX 1550 nm, -40 to 85°C operating temperature
SFP-1G40BLC	WDM-type (BiDi) SFP module with 1 1000BaseSFP port with LC connector for 40 km transmission; TX 1550 nm, RX 1310 nm, 0 to 60°C operating temperature
SFP-1G40BLC-T	WDM-type (BiDi) SFP module with 1 1000BaseSFP port with LC connector for 40 km transmission; TX 1550 nm, RX 1310 nm, -40 to 85°C operating temperature
SFP-1GEZXLC	SFP module with 1 1000BaseEZX port with LC connector for 110 km transmission, 0 to 60°C operating temperature
SFP-1GEZXLC-120	SFP module with 1 1000BaseEZX port with LC connector for 120 km transmission, 0 to 60°C operating temperature
SFP-1GLHLC	SFP module with 1 1000BaseLH port with LC connector for 30 km transmission, 0 to 60°C operating temperature
SFP-1GLHLC-T	SFP module with 1 1000BaseLH port with LC connector for 30 km transmission, -40 to 85°C operating temperature
SFP-1GLHXLC	SFP module with 1 1000BaseLHX port with LC connector for 40 km transmission, 0 to 60°C operating temperature
SFP-1GLHXLC-T	SFP module with 1 1000BaseLHX port with LC connector for 40 km transmission, -40 to 85°C operating temperature
SFP-1GLSXLC	SFP module with 1 1000BaseLSX port with LC connector for 500 m transmission, 0 to 60°C operating temperature
SFP-1GLSXLC-T	SFP module with 1 1000BaseLSX port with LC connector for 500 m transmission, -40 to 85°C operating temperature
SFP-1GLXLC	SFP module with 1 1000BaseLX port with LC connector for 10 km transmission, 0 to 60°C operating temperature
SFP-1GLXLC-T	SFP module with 1 1000BaseLX port with LC connector for 10 km transmission, -40 to 85°C operating temperature
SFP-1GSXLC	SFP module with 1 1000BaseSX port with LC connector for 300/550 m transmission, 0 to 60°C operating temperature
SFP-1GSXLC-T	SFP module with 1 1000BaseSX port with LC connector for 300/550 m transmission, -40 to 85°C operating temperature
SFP-1GZXLC	SFP module with 1 1000BaseZX port with LC connector for 80 km transmission, 0 to 60°C operating temperature
SFP-1GZXLC-T	SFP module with 1 1000BaseZX port with LC connector for 80 km transmission, -40 to 85°C operating temperature
SFP-1GTXRJ45-T	SFP module with 1 1000BaseT port with RJ45 connector for 100 m transmission, -40 to 75°C operating temperature

Wall-Mounting Kits

WK-51-01	Wall-mounting kit, 2 plates, 6 screws, 51.6 x 67 x 2 mm

Rack-Mounting Kits

RK-4U	19-inch rack-mounting kit

Software

MXview-50	Industrial network management software with a license for 50 nodes (by IP address)
MXview-100	Industrial network management software with a license for 100 nodes (by IP address)
MXview-250	Industrial network management software with a license for 250 nodes (by IP address)

MXview-500	Industrial network management software with a license for 500 nodes (by IP address)
MXview-1000	Industrial network management software with a license for 1000 nodes (by IP address)
MXview-2000	Industrial network management software with a license for 2000 nodes (by IP address)
MXview Upgrade-50	License expansion of MXview industrial network management software by 50 nodes (by IP address)

IKS-6728A Series

24+4G-port Gigabit modular managed PoE+ Ethernet switches

Features and Benefits

- 8 built-in PoE+ ports compliant with IEEE 802.3af/at (IKS-6728A-8PoE)
- Up to 36 W output per PoE+ port (IKS-6728A-8PoE)
- 1 kV LAN surge protection for extreme outdoor environments
- PoE diagnostics for powered-device mode analysis
- 4 Gigabit combo ports for high-bandwidth communication
- -40 to 75°C operating temperature range at 720 W full loading
- Supports MXstudio for easy, visualized industrial network management
- V-ON™ ensures millisecond-level multicast data and video network recovery

Certifications

CE FC DNV·GL MARITIME EN 50121-4

Introduction

The IKS-6728A Series is designed to meet the demands of mission-critical applications for business and industry. The IKS-6728A and IKS-6728A-8PoE come with up to 24 10/100BaseT(X), or PoE/PoE+, and 4 combo Gigabit Ethernet ports. The IKS-6728A-8PoE Ethernet switches provide up to 30 watts of power per PoE+ port in standard mode, and also support high-power output of up to 36 watts for heavy-duty industrial PoE devices, such as weather-proof IP surveillance cameras with wipers/heaters, high-performance wireless access points, and rugged IP phones.

IKS-6728A-8PoE Ethernet switches support two types of power input sources: 48 VDC for PoE+ ports and system power, and 110/220 VAC for system power. These Ethernet switches also support a variety of management functions, including STP/RSTP, Turbo Ring, Turbo Chain, PoE power management, PoE device auto-checking, PoE power scheduling, PoE diagnostic, IGMP, VLAN, QoS, RMON, bandwidth management, and port mirroring. The IKS-6728A-8PoE is designed especially for harsh outdoor applications with 3kV surge protection to ensure the uninterrupted reliability of PoE systems.

Additional Features and Benefits

- Advanced PoE management functions: PoE output setting, PD failure check, PoE scheduling, and PoE diagnostics
- Command line interface (CLI) for quickly configuring major managed functions
- DHCP Option 82 for IP address assignment with different policies
- Supports EtherNet/IP, PROFINET, and Modbus TCP protocols for device management and monitoring
- Turbo Ring and Turbo Chain (recovery time < 20 ms @ 250 switches), and STP/RSTP/MSTP for network redundancy
- IGMP snooping and GMRP for filtering multicast traffic
- Port-based VLAN, IEEE 802.1Q VLAN, and GVRP to ease network planning
- QoS (IEEE 802.1p/1Q and TOS/DiffServ) to increase determinism
- IEEE 802.3ad, LACP for optimum bandwidth utilization

- TACACS+, IEEE 802.1X, SNMPv3, HTTPS, and SSH to enhance network security
- SNMPv1/v2c/v3 for different levels of network management
- RMON for proactive and efficient network monitoring
- Bandwidth management prevents unpredictable network status with "Lock port" to restrict access to authorized MAC addresses
- Port mirroring for online debugging
- Automatic warning by exception through email and relay output
- Automatic recovery of connected device's IP addresses
- Line-swap fast recovery
- Configurable by web browser, Telnet/serial console, CLI, Windows utility, and ABC-02-USB automatic backup configurator

Specifications

Input/Output Interface

Alarm Contact Channels	1 relay output with current carrying capacity of 1 A @ 24 VDC

Ethernet Interface

10/100BaseT(X) Ports (RJ45 connector)	8
Combo Ports (10/100/1000BaseT(X) or 100/1000BaseSFP)	4

Module	2 modular slots for any 8-port or 6-port Interface Modules with 10/100BaseT(X), 100BaseFX (SC/ST connector), 100Base PoE/PoE+, or 100Base SFP[1]
Standards	IEEE 802.1D-2004 for Spanning Tree Protocol IEEE 802.1p for Class of Service IEEE 802.1Q for VLAN Tagging IEEE 802.1s for Multiple Spanning Tree Protocol IEEE 802.1w for Rapid Spanning Tree Protocol IEEE 802.1X for authentication IEEE 802.3 for 10BaseT IEEE 802.3ab for 1000BaseT(X) IEEE 802.3ad for Port Trunk with LACP IEEE 802.3u for 100BaseT(X) and 100BaseFX IEEE 802.3x for flow control IEEE 802.3z for 1000BaseSX/LX/LHX/ZX

Ethernet Software Features

Management	Back Pressure Flow Control, BOOTP, DDM, DHCP Option 66/67/82, DHCP Server/Client, Flow control, IPv4/IPv6, LLDP, Port Mirror, RARP, RMON, SMTP, SNMP Inform, SNMPv1/v2c/v3, Syslog, Telnet, TFTP
Filter	802.1Q, GMRP, GVRP, IGMP v1/v2/v3
Redundancy Protocols	Link Aggregation, MSTP, RSTP, STP, Turbo Chain, Turbo Ring v1/v2, V-ON
Security	Access control list, Broadcast storm protection, HTTPS/SSL, MAB authentication, NTP authentication, Port Lock, RADIUS, SSH, TACACS+
Time Management	NTP Server/Client, SNTP
Industrial Protocols	EtherNet/IP, Modbus TCP, PROFINET
MIB	Ethernet-like MIB, MIB-II, P-BRIDGE MIB, Q-BRIDGE MIB, RMON MIB Groups 1, 2, 3, 9, RSTP MIB

Switch Properties

IGMP Groups	2048
Jumbo Frame Size	9.6 KB
MAC Table Size	16 K
Max. No. of VLANs	64
Packet Buffer Size	12 Mbits
Priority Queues	4
VLAN ID Range	VID 1 to 4094

USB Interface

Storage Port	USB Type A

Serial Interface

Console Port	USB-serial console (Type B connector)

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1.   See the IM-6700A datasheet for Fast Ethernet module product information.

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Power Parameters

Input Voltage	IKS-6728A-4GTXSFP-24-T: 24 VDC IKS-6728A-4GTXSFP-24-24-T: 24 VDC (redundant dual inputs) IKS-6728A-4GTXSFP-48-T: 48 VDC IKS-6728A-4GTXSFP-48-48-T: 48 VDC (redundant dual inputs) IKS-6728A-4GTXSFP-HV-T: 110/220 VAC IKS-6728A-4GTXSFP-HV-HV-T: 110/220 VAC (redundant dual inputs) IKS-6728A-8PoE-4GTXSFP-48-T: 48 VDC IKS-6728A-8PoE-4GTXSFP-48-48-T: 48 VDC (redundant dual inputs) IKS-6728A-8PoE-4GTXSFP-HV-T: 110/220 VAC IKS-6728A-8PoE-4GTXSFP-HV-HV-T: 110/220 VAC (redundant dual inputs)
Operating Voltage	IKS-6728A-4GTXSFP-HV-T: 85 to 264 VAC IKS-6728A-4GTXSFP-HV-HV-T: 85 to 264 VAC IKS-6728A-4GTXSFP-24-T: 18 to 36 VDC IKS-6728A-4GTXSFP-24-24-T: 18 to 36 VDC IKS-6728A-4GTXSFP-48-T: 36 to 72 VDC IKS-6728A-4GTXSFP-48-48-T: 36 to 72 VDC IKS-6728A-8PoE-4GTXSFP-48-T: 36 to 72 VDC IKS-6728A-8PoE-4GTXSFP-48-48-T: 36 to 72 VDC IKS-6728A-8PoE-4GTXSFP-HV-T: 85 to 264 VAC IKS-6728A-8PoE-4GTXSFP-HV-HV-T: 85 to 264 VAC
Overload Current Protection	Supported
Reverse Polarity Protection	Supported
Input Current	IKS-6728A-4GTXSFP-24-T/4GTXSFP-24-24-T: 0.36 A @ 24 VDC IKS-6728A-4GTXSFP-48-T/4GTXSFP-48-48-T: 0.19 A @ 48 VDC IKS-6728A-8PoE-4GTXSFP-48-T/8PoE-4GTXSFP-48-48-T: 0.53 A @ 48 VDC IKS-6728A-4GTXSFP-HV-T/4GTXSFP-HV-HV-T: 0.28/0.14 A @ 110/220 VAC IKS-6728A-8PoE-4GTXSFP-HV-T/8PoE-4GTXSFP-HV-HV-T: 0.33/0.24 A @ 110/220 VAC

Physical Characteristics

IP Rating	IP30
Dimensions	440 x 44 x 280 mm (17.32 x 1.37 x 11.02 in)
Weight	4100 g (9.05 lb)
Installation	Rack mounting

Environmental Limits

Operating Temperature	-40 to 75°C (-40 to 167°F)
Storage Temperature (package included)	-40 to 85°C (-40 to 185°F)
Ambient Relative Humidity	5 to 95% (non-condensing)

Standards and Certifications

Freefall	IEC 60068-2-32
EMC	EN 55032/24
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: 10 V/m IEC 61000-4-4 EFT: Power: 2 kV; Signal: 2 kV IEC 61000-4-5 Surge: Power: 2 kV; Signal: 1 kV IEC 61000-4-6 CS: 10 V IEC 61000-4-8 PFMF
Railway	EN 50121-4
Maritime	IKS-6728A Series non-PoE models: ABS, CCS, DNV-GL, LR, NK
Safety	EN 60950-1, UL 60950-1

Shock	IEC 60068-2-27
Vibration	IEC 60068-2-6

MTBF

Time	120,731 hrs
Standards	Telcordia (Bellcore), GB

Warranty

Warranty Period	5 years
Details	See www.moxa.com/warranty

Package Contents

Device	1 x IKS-6728A Series switch
Cable	1 x USB type A male to USB type B male
Installation Kit	2 x rack-mounting ear 8 x cap, plastic, for SFP slot
Power Supply	IKS-6728A-4GTXSFP-HV-T: 1 x power cord, EU type IKS-6728A-4GTXSFP-HV-HV-T: 2 x power cord, EU type IKS-6728A-8PoE-4GTXSFP-HV-T: 1 x power cord, EU type IKS-6728A-8PoE-4GTXSFP-HV-HV-T: 2 x power cord, EU type IKS-6728A-4GTXSFP-HV-T: 1 x power cord, US type IKS-6728A-4GTXSFP-HV-HV-T: 2 x power cord, US type IKS-6728A-8PoE-4GTXSFP-HV-T: 1 x power cord, US type IKS-6728A-8PoE-4GTXSFP-HV-HV-T: 2 x power cord, US type
Documentation	1 x document and software CD 1 x quick installation guide 1 x warranty card
Note	1. If you want to turn on PoE, please add a 48 V external power supply. 2. 48 V external power supply, SFP modules and/or modules from the IM-6700A Module Series need to be purchased separately for use with this product.

Dimensions

Unit: mm (inch)

Rear View

Front View

Top View

280 (11.02)

440 (17.32)

Side View

44 (1.73)
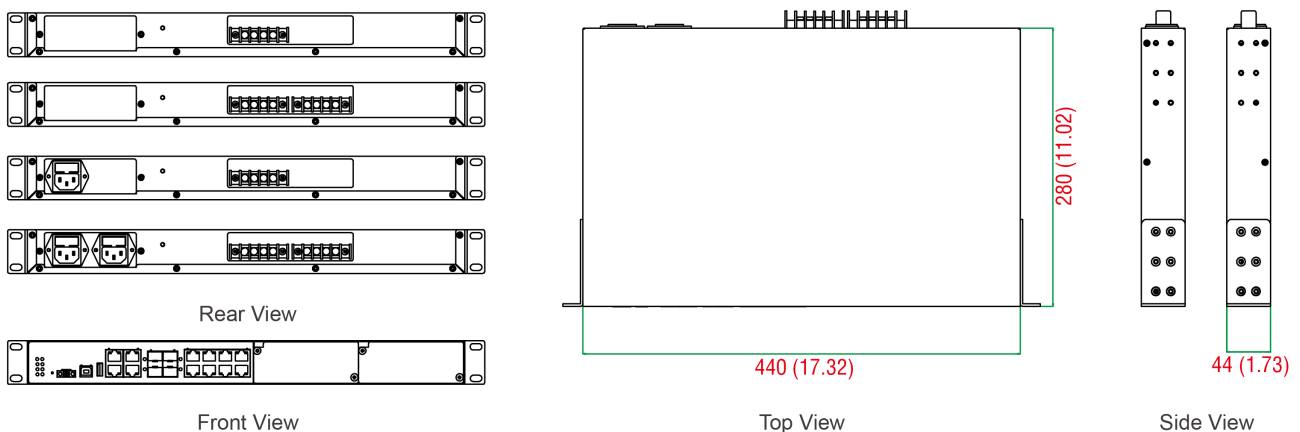
Ordering Information

Model Name	Combo Ports (10/100/ 1000BaseT(X) or 100/1000BaseSFP)	100BaseSFP Slots	10/100BaseT(X) Ports RJ45 Connector	100BaseFX Ports	Operating Temp.	Input Voltage	Redundant Dual Input	PoE Support
IKS-6728A-4GTXSFP-HV-T	4	Up to 18	Up to 24	Up to 12	-45 to 75°C	110/220 VAC power supply	–	–
IKS-6728A-4GTXSFP-HV-HV-T	4	Up to 18	Up to 24	Up to 12	-45 to 75°C	110/220 VAC power supply	✓	–
IKS-6728A-4GTXSFP-24-T	4	Up to 18	Up to 24	Up to 12	-45 to 75°C	24 VDC power supply	–	–
IKS-6728A-4GTXSFP-24-24-T	4	Up to 18	Up to 24	Up to 12	-45 to 75°C	24 VDC power supply	✓	–
IKS-6728A-4GTXSFP-48-T	4	Up to 18	Up to 24	Up to 12	-45 to 75°C	48 VDC power supply	–	–
IKS-6728A-4GTXSFP-48-48-T	4	Up to 18	Up to 24	Up to 12	-45 to 75°C	48 VDC power supply	✓	–
IKS-6728A-8PoE-4GTXSFP-HV-T	4	Up to 18	Up to 24	Up to 12	-45 to 75°C	110/220 VAC power supply	–	Up to 24 PoE ports
IKS-6728A-8PoE-4GTXSFP-HV-HV-T	4	Up to 18	Up to 24	Up to 12	-45 to 75°C	110/220 VAC power supply	✓	Up to 24 PoE ports
IKS-6728A-8PoE-4GTXSFP-48-T	4	Up to 18	Up to 24	Up to 12	-45 to 75°C	48 VDC power supply	–	Up to 24 PoE ports
IKS-6728A-8PoE-4GTXSFP-48-48-T	4	Up to 18	Up to 24	Up to 12	-45 to 75°C	48 VDC power supply	✓	Up to 24 PoE ports

Accessories (sold separately)

IM-6700A Module Series

IM-6700A-2MSC4TX	Fast Ethernet module with 2 multi-mode 100BaseFX ports with SC connectors and 4 10/100BaseT(X) ports
IM-6700A-2MST4TX	Fast Ethernet module with 2 multi-mode 100BaseFX ports with ST connectors and 4 10/100BaseT(X) ports
IM-6700A-2SSC4TX	Fast Ethernet module with 2 single-mode 100BaseFX ports with SC connectors and 4 10/100BaseT(X) ports
IM-6700A-4MSC2TX	Fast Ethernet module with 4 multi-mode 100BaseFX ports with SC connectors and 2 10/100BaseT(X) ports
IM-6700A-4MST2TX	Fast Ethernet module with 4 multi-mode 100BaseFX ports with ST connectors and 2 10/100BaseT(X) ports
IM-6700A-4SSC2TX	Fast Ethernet module with 4 single-mode 100BaseFX ports with SC connectors and 2 10/100BaseT(X) ports
IM-6700A-6MSC	Fast Ethernet module with 6 multi-mode 100BaseFX ports with SC connectors
IM-6700A-6MST	Fast Ethernet module with 6 multi-mode 100BaseFX ports with ST connectors
IM-6700A-6SSC	Fast Ethernet module with 6 single-mode 100BaseFX ports with SC connectors
IM-6700A-8PoE	Fast Ethernet PoE+ module with 8 100BaseT(X) PoE/PoE+ ports (for IKS-6728A-8PoE Series only)
IM-6700A-8SFP	Fast Ethernet module with 8 100BaseSFP slots
IM-6700A-8TX	Fast Ethernet module with 8 10/100T(X) ports

Storage Kits

ABC-02-USB	Configuration backup and restoration tool, firmware upgrade, and log file storage tool for managed Ethernet switches and routers, 0 to 60°C operating temperature

SFP Modules

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SFP-1FELLC-T	SFP module with 1 100Base single-mode with LC connector for 80 km transmission, -40 to 85°C operating temperature
SFP-1FEMLC-T	SFP module with 1 100Base multi-mode with LC connector for 4 km transmission, -40 to 85°C operating temperature
SFP-1FESLC-T	SFP module with 1 100Base single-mode with LC connector for 40 km transmission, -40 to 85°C operating temperature
SFP-1G10ALC	WDM-type (BiDi) SFP module with 1 1000BaseSFP port with LC connector for 10 km transmission; TX 1310 nm, RX 1550 nm, 0 to 60°C operating temperature
SFP-1G10ALC-T	WDM-type (BiDi) SFP module with 1 1000BaseSFP port with LC connector for 10 km transmission; TX 1310 nm, RX 1550 nm, -40 to 85°C operating temperature
SFP-1G10BLC	WDM-type (BiDi) SFP module with 1 1000BaseSFP port with LC connector for 10 km transmission; TX 1550 nm, RX 1310 nm, 0 to 60°C operating temperature
SFP-1G10BLC-T	WDM-type (BiDi) SFP module with 1 1000BaseSFP port with LC connector for 10 km transmission; TX 1550 nm, RX 1310 nm, -40 to 85°C operating temperature
SFP-1G20ALC	WDM-type (BiDi) SFP module with 1 1000BaseSFP port with LC connector for 20 km transmission; TX 1310 nm, RX 1550 nm, 0 to 60°C operating temperature
SFP-1G20ALC-T	WDM-type (BiDi) SFP module with 1 1000BaseSFP port with LC connector for 20 km transmission; TX 1310 nm, RX 1550 nm, -40 to 85°C operating temperature
SFP-1G20BLC	WDM-type (BiDi) SFP module with 1 1000BaseSFP port with LC connector for 20 km transmission; TX 1550 nm, RX 1310 nm, 0 to 60°C operating temperature
SFP-1G20BLC-T	WDM-type (BiDi) SFP module with 1 1000BaseSFP port with LC connector for 20 km transmission; TX 1550 nm, RX 1310 nm, -40 to 85°C operating temperature
SFP-1G40ALC	WDM-type (BiDi) SFP module with 1 1000BaseSFP port with LC connector for 40 km transmission; TX 1310 nm, RX 1550 nm, 0 to 60°C operating temperature
SFP-1G40ALC-T	WDM-type (BiDi) SFP module with 1 1000BaseSFP port with LC connector for 40 km transmission; TX 1310 nm, RX 1550 nm, -40 to 85°C operating temperature
SFP-1G40BLC	WDM-type (BiDi) SFP module with 1 1000BaseSFP port with LC connector for 40 km transmission; TX 1550 nm, RX 1310 nm, 0 to 60°C operating temperature
SFP-1G40BLC-T	WDM-type (BiDi) SFP module with 1 1000BaseSFP port with LC connector for 40 km transmission; TX 1550 nm, RX 1310 nm, -40 to 85°C operating temperature
SFP-1GEZXLC	SFP module with 1 1000BaseEZX port with LC connector for 110 km transmission, 0 to 60°C operating temperature
SFP-1GEZXLC-120	SFP module with 1 1000BaseEZX port with LC connector for 120 km transmission, 0 to 60°C operating temperature
SFP-1GLHLC	SFP module with 1 1000BaseLH port with LC connector for 30 km transmission, 0 to 60°C operating temperature
SFP-1GLHLC-T	SFP module with 1 1000BaseLH port with LC connector for 30 km transmission, -40 to 85°C operating temperature
SFP-1GLHXLC	SFP module with 1 1000BaseLHX port with LC connector for 40 km transmission, 0 to 60°C operating temperature
SFP-1GLHXLC-T	SFP module with 1 1000BaseLHX port with LC connector for 40 km transmission, -40 to 85°C operating temperature
SFP-1GLSXLC	SFP module with 1 1000BaseLSX port with LC connector for 500 m transmission, 0 to 60°C operating temperature
SFP-1GLSXLC-T	SFP module with 1 1000BaseLSX port with LC connector for 500 m transmission, -40 to 85°C operating temperature
SFP-1GLXLC	SFP module with 1 1000BaseLX port with LC connector for 10 km transmission, 0 to 60°C operating temperature
SFP-1GLXLC-T	SFP module with 1 1000BaseLX port with LC connector for 10 km transmission, -40 to 85°C operating temperature
SFP-1GSXLC	SFP module with 1 1000BaseSX port with LC connector for 300/550 m transmission, 0 to 60°C operating temperature
SFP-1GSXLC-T	SFP module with 1 1000BaseSX port with LC connector for 300/550 m transmission, -40 to 85°C operating temperature
SFP-1GZXLC	SFP module with 1 1000BaseZX port with LC connector for 80 km transmission, 0 to 60°C operating temperature

SFP-1GZXLC-T	SFP module with 1 1000BaseZX port with LC connector for 80 km transmission, -40 to 85°C operating temperature

Power Cords

PWC-C13AU-3B-183	Power cord with Australian (AU) plug, 1.83 m
PWC-C13CN-3B-183	Power cord with three-prong China (CN) plug, 1.83 m
PWC-C13EU-3B-183	Power cord with Continental Europe (EU) plug, 1.83 m
PWC-C13UK-3B-183	Power cord with United Kingdom (UK) plug, 1.83 m
PWC-C13US-3B-183	Power cord with United States (US) plug, 1.83 m
PWC-C7AU-2B-183	Power cord with Australian (AU) plug, 2.5A/250V, 1.83 m
PWC-C7EU-2B-183	Power cord with Continental Europe (EU) plug, 2.5A/250V, 1.83 m
PWC-C7UK-2B-183	Power cord with United Kingdom (UK) plug, 2.5A/250V, 1.83 m
PWC-C7US-2B-183	Power cord with United States (US) plug, 10A/125V, 1.83 m

Software

MXview-50	Industrial network management software with a license for 50 nodes (by IP address)
MXview-100	Industrial network management software with a license for 100 nodes (by IP address)
MXview-250	Industrial network management software with a license for 250 nodes (by IP address)
MXview-500	Industrial network management software with a license for 500 nodes (by IP address)
MXview-1000	Industrial network management software with a license for 1000 nodes (by IP address)
MXview-2000	Industrial network management software with a license for 2000 nodes (by IP address)
MXview Upgrade-50	License expansion of MXview industrial network management software by 50 nodes (by IP address)

MC-7200-MP-T Series

x86 fanless, wide-temperature industrial computers

Features and Benefits

- Intel® Core™ processor: i7 3555LE, i3 3120ME, or Celeron 1047UE

- Fanless design

- Full marine I/O design

- PCI/PCIe slot

- 3 independent displays (DVI-D x 2 + VGA x1)

- 2 USB 3.0 ports, 6 USB 2.0 ports

- 2 SATA drive slots for greater storage capacity

- Dual power: 100 to 240 VAC and 24 VDC

- -40 to 70°C operating temperature range

- Supports Moxa Proactive Monitoring software

Certifications

Introduction

The MC-7200-MP-T marine computer is powered by the Intel® Core™ i7 3555LE processor and delivers a full range of I/O connectivity, including 8 NMEA 0183 ports, 4 serial ports, 4 Gigabit Ethernet ports, as well as 6 USB 2.0 and 3 SuperSpeed USB 3.0 ports. The MC-7200-MP-T is designed to provide outstanding PC performance, bringing a new level of flexibility and control to marine applications.

Designed with the highest quality and durability in mind, the marine-grade MC-7200-MP-T computer features a rugged chassis that can withstand vibrations up to 1G to provide the most reliable operation for harsh environments and conditions. In addition, low power consumption delivers an optimal thermal solution and makes installation easy for bridge systems in marine applications. In addition, the PCIe (x16) slot and two universal PCI slots allow users to easily install a variety of adapters, including radar cards, PROFIBUS cards, and VGA graphics cards, to fully satisfy their marine network needs.

Users can easily install Windows XP Embedded, Windows XP Professional, or Windows 7 to provide a flexible and friendly environment for system development and application implementation.
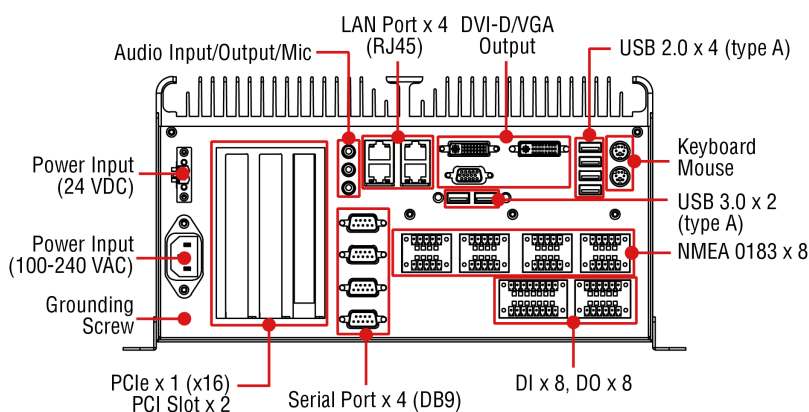
The MC-7200-MP-T supports Moxa Proactive Monitoring software, which is a small-footprint, resource-friendly, easy-to-use utility that allows users to track a number of system parameters. Users can view the current parameter values for these key parts by simply clicking on the icons corresponding to the parameters in the user interface. User-defined key part indicators (KPIs) are used to monitor the computer's key parts. Visible and/or audio alerts are triggered automatically via relay and SNMP traps when these KPIs exceed their preset threshold values, making it extremely convenient for operators to avoid system downtime by setting up predictive maintenance tasks well in advance.

Appearance

Front View

Front View labels:
- System LEDs (Power, Storage)
- Reset Button
- LPT Port (Dongle)
- USB 2.0 x 2 (type A)
- Power Button
- CD/DVD-ROM
- Removable Storage Tray

Rear View

Rear View labels:
- Audio Input/Output/Mic
- LAN Port x 4 (RJ45)
- DVI-D/VGA Output
- USB 2.0 x 4 (type A)
- Power Input (24 VDC)
- Power Input (100-240 VAC)
- Grounding Screw
- Keyboard Mouse
- USB 3.0 x 2 (type A)
- NMEA 0183 x 8
- PCIe x 1 (x16) PCI Slot x 2
- Serial Port x 4 (DB9)
- DI x 8, DO x 8
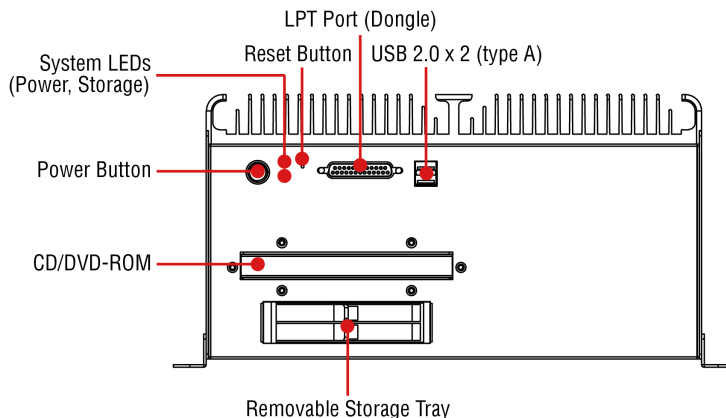
Specifications

Computer

CPU	Intel® Celeron® Processor 1047UE (2M Cache, 1.40 GHz) Intel® Core™ i3-3120ME Processor (3M Cache, 2.40 GHz) Intel® Core™ i7-3555LE Processor (4M Cache, up to 3.20 GHz)
System Chipset	Mobile Intel® QM77 Express Chipset
Graphics Controller	Intel® HD Graphics 4000 (integrated)
System Memory Pre-installed	4 GB DDR3/DDR3L
System Memory Slot	SODIMM DDR3/DDR3L slot x 2
Supported OS	Windows Embedded Standard 7 (WS7P) 64-bit Windows 10 Embedded IOT Ent 2016 LTSB High End EPKEA Windows 10 Embedded IOT Ent 2016 LTSB Value EPKEA
Storage Slot	2.5-inch HDD/SSD slots x 2

Computer Interface

Ethernet Ports	Auto-sensing 10/100/1000 Mbps ports (RJ45 connector) x 4
Serial Ports	RS-232 ports x 2 (DB9 male) RS-232/422/485 ports x 2, software selectable (DB9 male)
USB 2.0	USB 2.0 hosts x 6, type-A connectors
USB 3.0	USB 3.0 hosts x 2, type-A connectors

Audio Input/Output	Line in x 1, Line out x 1, microphone x 1, 3.5 mm phone jack
Digital Input	DIs x 8
Digital Output	DOs x 8
Expansion Slots	PCIe x16 slot x 1 PCI slots x 2
LPT port	1, 25-pin D-sub
PS/2	Keyboard PS/2 x 1, Mouse PS/2 x 1
Video Output	DVI-D x 2, 29-pin DVI-D connectors (female) VGA x 1, 15-pin D-sub connector (female)
NMEA Port	NMEA 0183 ports x 8 (terminal block)

Digital Inputs

Connector	Screw-fastened Euroblock terminal
Dry Contact	On: short to GND Off: open
I/O Mode	DI

Relays

Connector	Screw-fastened Euroblock terminal
Contact Current Rating	Resistive load: 2 A @ 30 VDC
Contact Resistance	50 milli-ohms (max.)
Initial Insulation Resistance	1,000 mega-ohms (min.) @ 500 VDC
Mechanical Endurance	100,000,000 operations
Minimum Permitted Load	20 A @ 30 VDC

LED Indicators

System	Power x 1 Storage x 1
LAN	2 per port (10/100/1000 Mbps)

Serial Interface

Baudrate	50 bps to 115.2 kbps
Connector	DB9 male
Data Bits	5, 6, 7, 8
Flow Control	ADDC® (automatic data direction control) for RS-485, RTS/CTS, XON/XOFF
Isolation	N/A

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Parity	None, Even, Odd, Space, Mark
NMEA Interface	Serial Standards: NMEA 0183: RS-422 Baudrate: 4800 bps Data Bits: 8 Handshake: None Optical Isolation Protection: 3 kV Parity: None Serial Standards: NMEA 0183v2 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

Power Parameters

Input Voltage	100 to 240 VAC, 24 VDC
Power Connector	Terminal block (for DC power input)
Power Consumption (Max.)	120 W

Reliability

Automatic Reboot Trigger	Built-in WDT

Physical Characteristics

Housing	Metal
Dimensions (with ears)	320 x 340 x 160 mm (12.6 x 13.39 x 6.3 in)
Weight	9,215 g (20.32 lb)
Installation	Wall mounting

Environmental Limits

Operating Temperature	-40 to 70°C (-40 to 158°F)
Storage Temperature (package included)	-50 to 80°C (-58 to 176°F)
Ambient Relative Humidity	5 to 95% (non-condensing)

Standards and Certifications

EMC	EN 55032/24
EMI	CISPR 32, FCC Part 15B Class A
Maritime	CCS, DNV-GL, IEC 60945
Radio Frequency	FCC
Safety	UL 60950-1

Warranty

Warranty Period	3 years
Details	See www.moxa.com/warranty

Package Contents

Device	1 x MC-7200-MP-T Series computer
Cable	1 x terminal block to power jack converter
Installation Kit	1 x terminal block, 2-pin (for DC power input) 1 x terminal block, 2-pin (for power ON/OFF) 2 x terminal block, 6-pin 2 x terminal block, 8-pin
Documentation	1 x document and software CD 1 x quick installation guide 1 x warranty card

Dimensions

Unit: mm (inch)
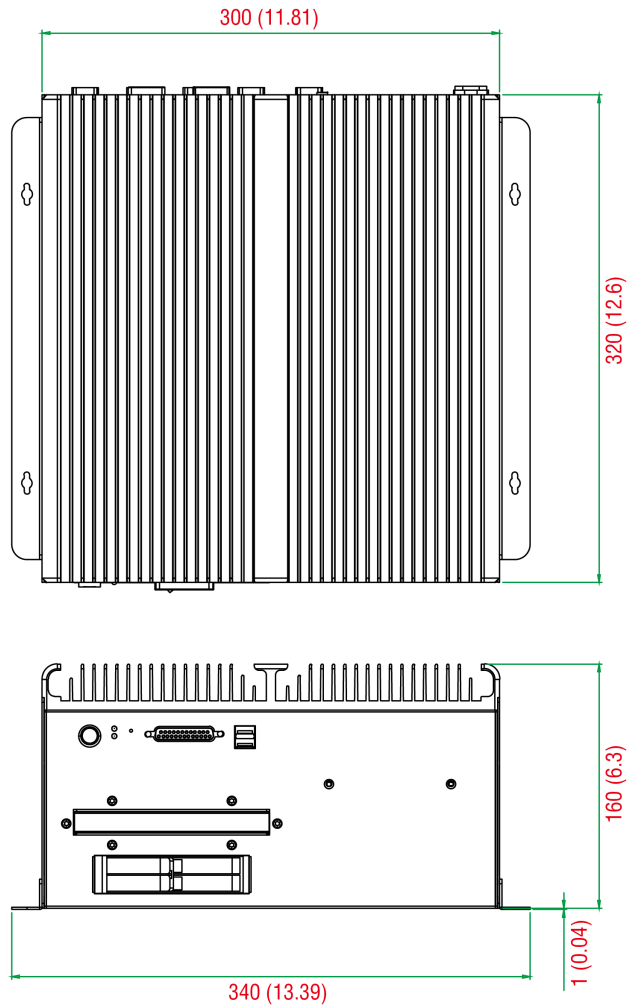
Ordering Information

Model Name	CPU	RAM	Storage	LAN	Serial	USB 2.0/3.0	DI/DO	NMEA 0183	Video Outputs
MC-7210-MP-T	Celeron 1047UE	4 GB	2 x SSD tray	4	4	6/2	8/8	8	1 x VGA, 2 x DVI-D
MC-7230-MP-T	i3-3120ME	4 GB	2 x SSD tray	4	4	6/2	8/8	8	1 x VGA, 2 x DVI-D
MC-7270-MP-T	i7-3555LE	4 GB	2 x SSD tray	4	4	6/2	8/8	8	1 x VGA, 2 x DVI-D

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Accessories (sold separately)

Cables

PWC-C13AU-3B-183	Power cord with Australian (AU) plug, 1.83 m
PWC-C13CN-3B-183	Power cord with three-prong China (CN) plug, 1.83 m
PWC-C13EU-3B-183	Power cord with Continental Europe (EU) plug, 1.83 m
PWC-C13UK-3B-183	Power cord with United Kingdom (UK) plug, 1.83 m
PWC-C13US-3B-183	Power cord with United States (US) plug, 1.83 m

MD-224 Series

24-inch marine display

Features and Benefits

- 24-inch display, 16:9 aspect ratio
- 300-nit or sunlight-readable 1000-nit LED backlight
- Color calibrated for ECDIS compliance (available by CTOS)
- Full range dimming, 0 to 100%
- SavvyTouch display controls
- Built-in RS-232/422/485 interfaces
- Dual power supplies (AC & DC)
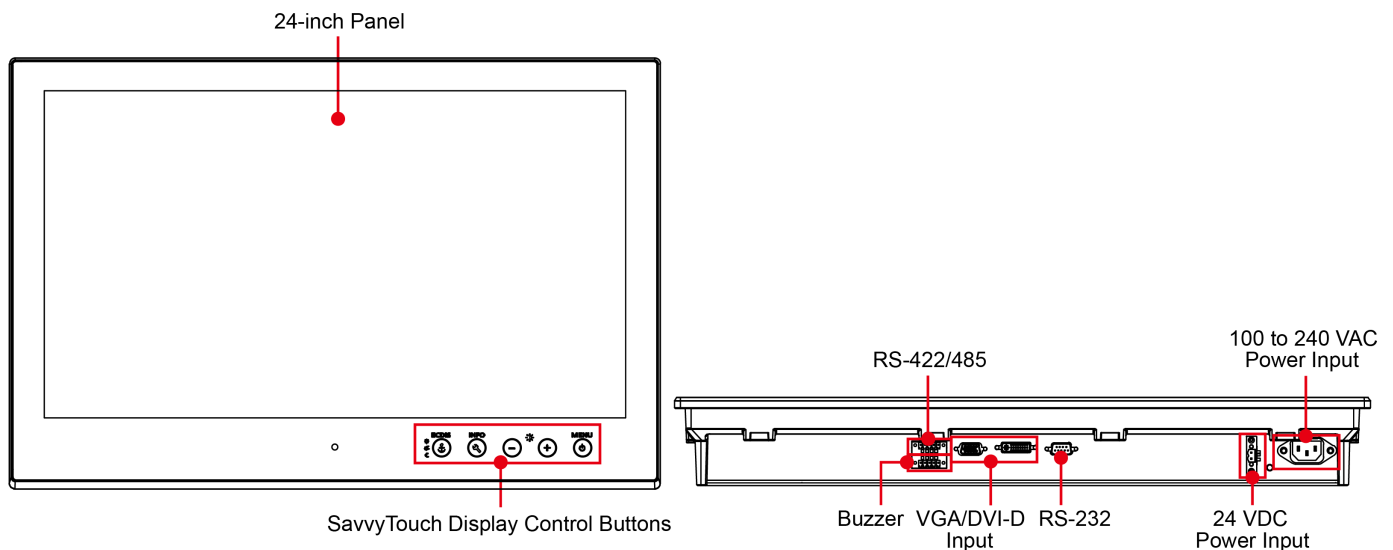- IP54-rated front panel (IP66 available by request)

Certifications

DNV-GL MARITIME TYPE APPROVED PRODUCT

c(UL)us LISTED

Introduction

The MD-224 Series of marine displays come with full range dimming, wide viewing angles, and optional optical bonding. These displays are built with a small-profile modular design that allows easier integration into industrial marine systems, thereby reducing deployment costs and overall time-to-market.

The innovative and user-friendly SavvyTouch display controls offer several unique features not found in most marine display consoles: a proximity sensor for convenient adjustments in dark conditions, an info button for immediate updates of power status, and a quick-switch to adjust between day, dusk, and night-time ECDIS modes (for color-calibrated ECDIS models only).

The MD-224 Series displays are compliant with IEC 60945, DNV, ABS, and IACS E10, making them suitable for maritime applications. Their IP54-rated (IP66-rated models available on request) enclosure provides additional protection against dust and moisture above and beyond the limits established by these international standards bodies.

ECDIS-approved models are also available, offering an excellent HMI solution for ECDIS charting and navigation stations.

Appearance

24-inch Panel

SavvyTouch Display Control Buttons

RS-422/485

100 to 240 VAC Power Input

Buzzer   VGA/DVI-D Input   RS-232

24 VDC Power Input

Specifications

Display

Aspect Ratio	16:9
Contrast Ratio	5,000:1
Max. No. of Colors	16.7M (8-bit/color)
Panel Size	24-inch viewable image
Panel Type	MVA
Pixels	1920 x 1080
Response Time	25 ms (gray to gray)
Viewing Angles	178°/178°
Light Intensity (Brightness)	MD-224X/224Z: 300 cd/m² MD-224Z-HB: 1000 cd/m²

Computer Interface

Serial Ports	RS-232 ports x 1 (DB9 male) RS-232/422/485 ports x 1, software-selectable (terminal block)
Video Input	DVI-D x 1, 29-pin DVI-D connectors (female) VGA x 1, 15-pin D-sub connector (female)

Touch Function

Touch Type	MD-224Z/224Z-HB: Capacitive Touch (PCAP) MD-224X: None
Touch Support Points	MD-224Z/224Z-HB: 4 points

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)
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

Power Parameters

Input Voltage	100 to 240 VAC, 24 VDC (18 to 30 V)
Power Consumption	40 W (max.)

Physical Characteristics

Housing	Metal
IP Rating	IP54, front IP20, rear
Dimensions	595 x 393 x 75 mm (23.43 x 15.47 x 2.95 in)
Weight	9,570 g (21.10 lb)
Installation	Desktop, Panel mounting, VESA mounting

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 Certifications

|	
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: 3 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: 1k V
Maritime	ABS, CCS, DNV-GL, IEC 60945
Safety	UL 60950-1

Warranty

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

Package Contents

Device	1 x MD-224 Series display
Cable	1 x DVI-D cable 1 x VGA
Installation Kit	1 x terminal block, 2-pin 1 x terminal block, 5-pin
Documentation	1 x document and software CD 1 x quick installation guide 1 x warranty card

Dimensions

Unit: mm (inch)
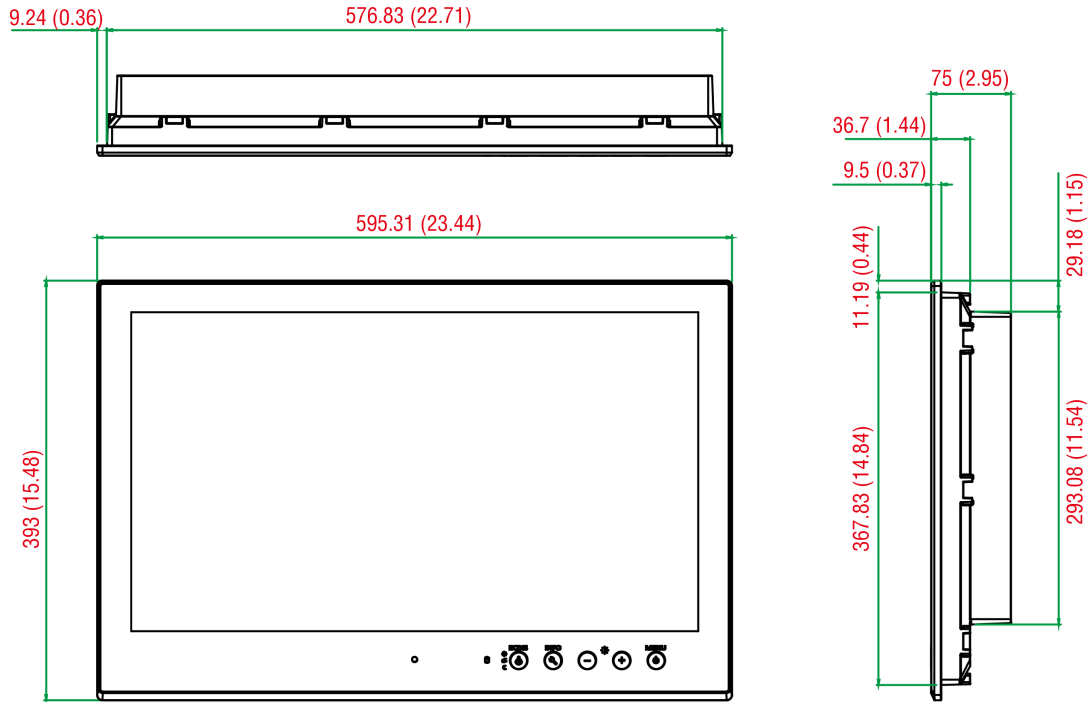
Ordering Information

Model Name	Panel	Video Inputs	Touchscreen	Power Input	IP Rating	Operating Temp.
MD-224X	24" (16:9) 300 nits	1 x VGA 1 x DVI-D	–	24 VDC (18-30 V) 100-240 VAC	IP54 (front), IP20 (rear)	-15 to 55°C
MD-224Z	24" (16:9) 300 nits	1 x VGA 1 x DVI-D	Multi-touch	24 VDC (18-30 V) 100-240 VAC	IP54 (front), IP20 (rear)	-15 to 55°C
MD-224Z-HB	24" (16:9) 1000 nits	1 x VGA 1 x DVI-D	Multi-touch	24 VDC (18-30 V) 100-240 VAC	IP54 (front), IP20 (rear)	-15 to 55°C

Accessories (sold separately)

Desktop Mounting Kits

MPC-MD-2-24-26-DMTK w/ hinge	Desktop-mounting kit for 24/26-inch panels
MPC-MD-2-24-26-DMTK w/o hinge	Desktop-mounting kit for 24/26-inch panels, (no hinge)

Panel Mounting Kits

MPC-MD-2-24-PMTK	24-inch panel-mounting kit, 14 mounting clamps
MPC-MD-2-24-RMTK	Rubber gasket for 24-inch panels

VESA Mounting Kits

MPC-MD-2-24-VESAMTK	VESA kit for 24-inch panels (can be used with 200 x 100 mm or 280 x 150 mm VESA mounts)