

MC-1100 Series

Quad-core fanless DIN-rail automation computer



- > Intel Atom Quad-core E3845 processor
- > Dual-storage (SD and CFAST slots)
- > Dual-independent displays (VGA + display port)
- > Variety of interfaces: 2 serial ports, 4 Giga LANs, 4 DIs, 4 DOs, 2 USB 2.0 ports
- > Mini-PCIe sockets for WiFi, 3G, LTE, GPS
- > 12 to 36 VDC, wide range isolated power
- > -40 to 70°C system operating temperature range
- > Moxa SmartRecovery utility to recover system from boot failure (W7E only)
- > Marine-grade and Zone 2 compliance



Overview

The Moxa MC-1100 series DIN-rail, fanless, x86 embedded computers use the Intel® Atom™ E3800 series processor, feature the most reliable I/O design to maximize connectivity, and support wireless modules (WiFi/3G/LTE), making them suitable for a diverse range of communication applications.

The MC-1100's wide operating temperature range (-40 to 70°C) and Safety/EMI/EMS compliances makes it ideal for intelligent computing and communication solutions in critical environments, including marine communication, oil & gas field site monitoring, and transportation.

The MC-1100 series supports "Moxa Proactive Monitoring" for device I/O status monitoring and alerts, system temperature monitoring and

alerts, and system power management. Close monitoring of the system status makes it easier to recover from errors and provides the most reliable platform for your applications.

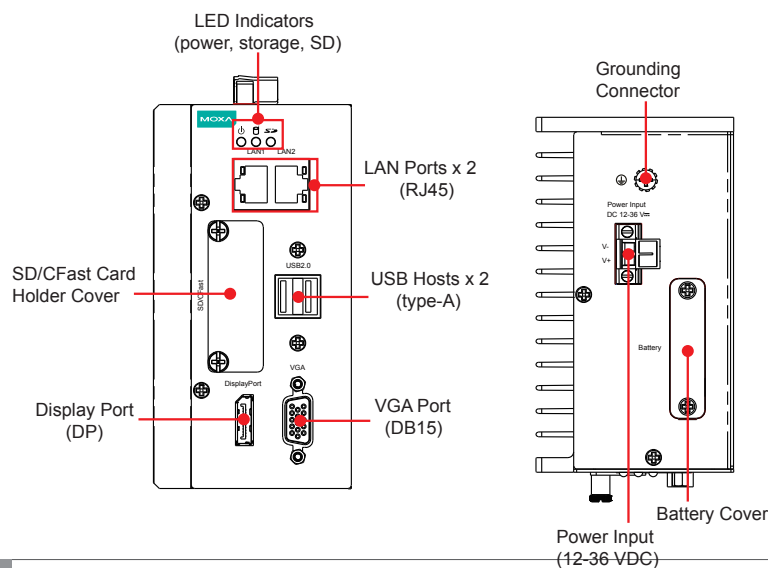
The MC-1100 series is Microsoft Azure Certified for IoT. It can leverage the Microsoft reference configuration and has been tested to work with Microsoft Azure IOT services for industrial IoT applications.

For more information on the Azure Certified for IOT program, visit: <https://catalog.azureiotsuite.com/>

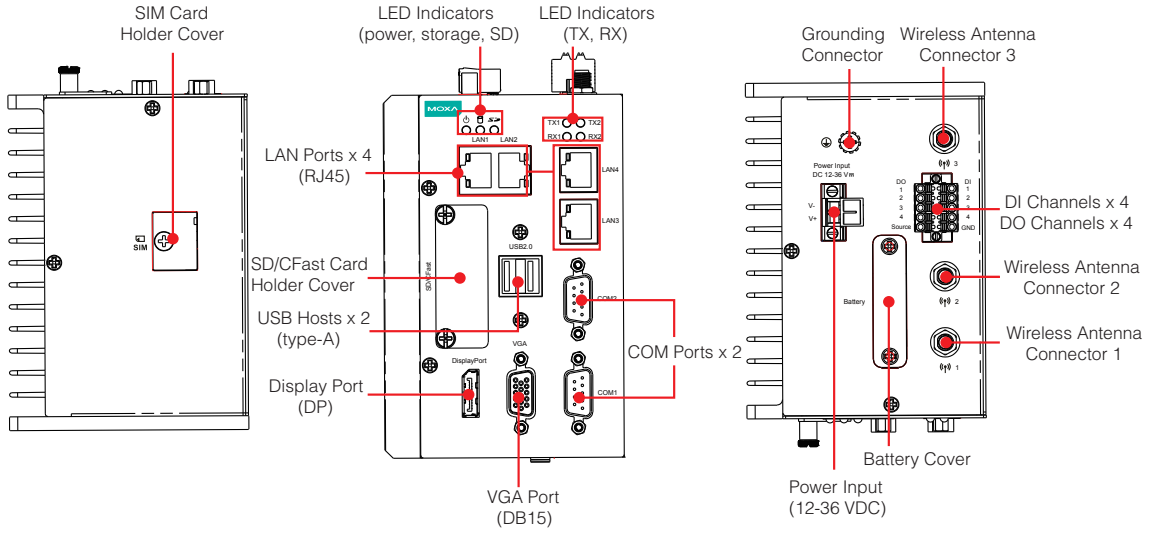
A complete list of Moxa's Azure Certified for IoT products is available at: <https://catalog.azureiotsuite.com/?q=moxa>

Appearance

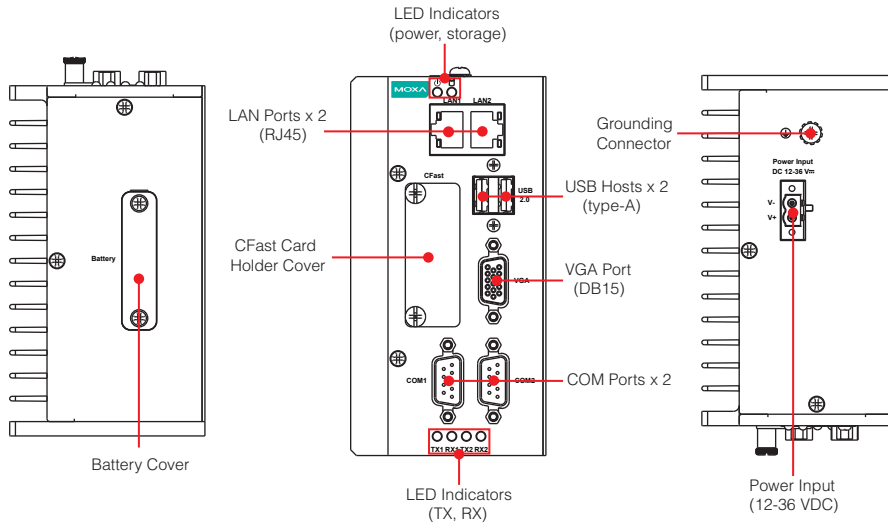
MC-1111



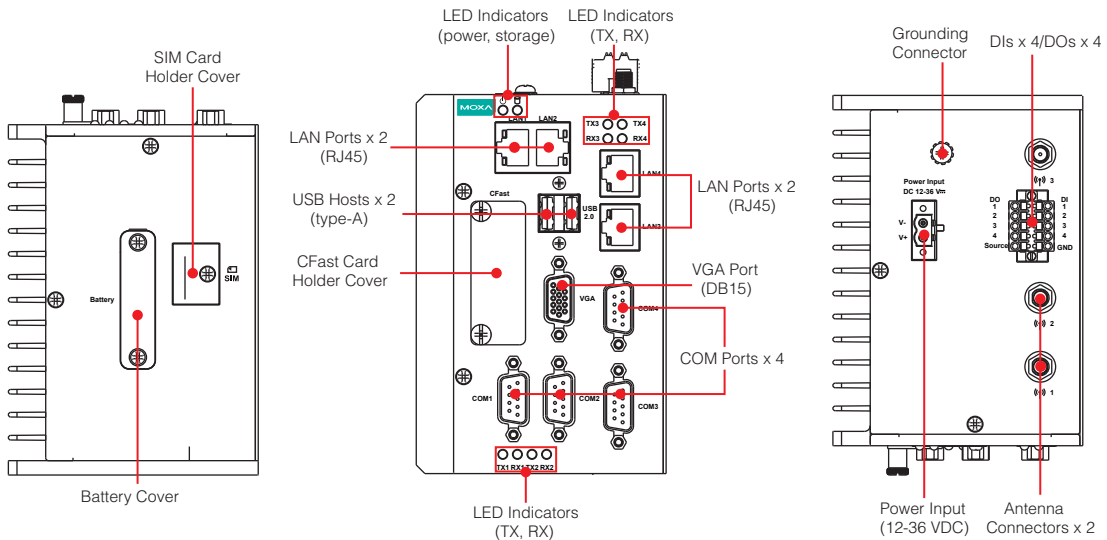
MC-1121



MC-1112



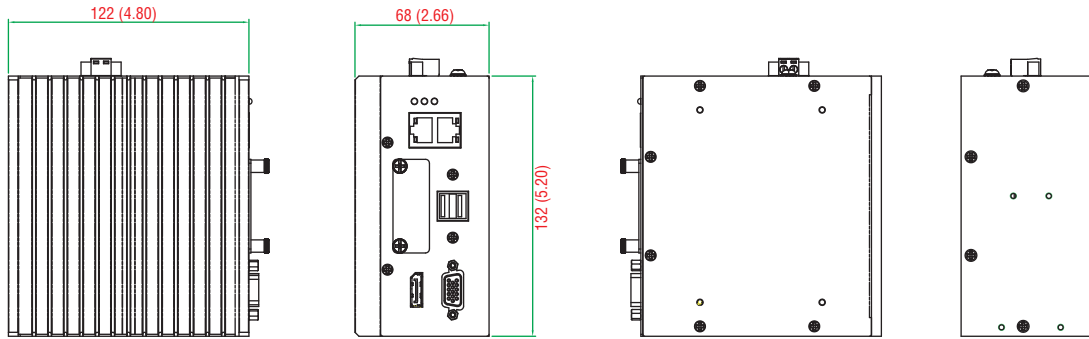
MC-1122



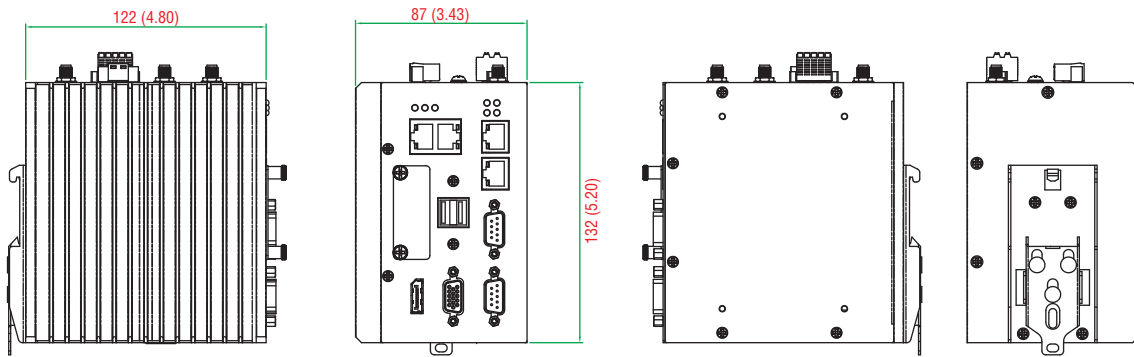
Dimensions

Unit: mm (inch)

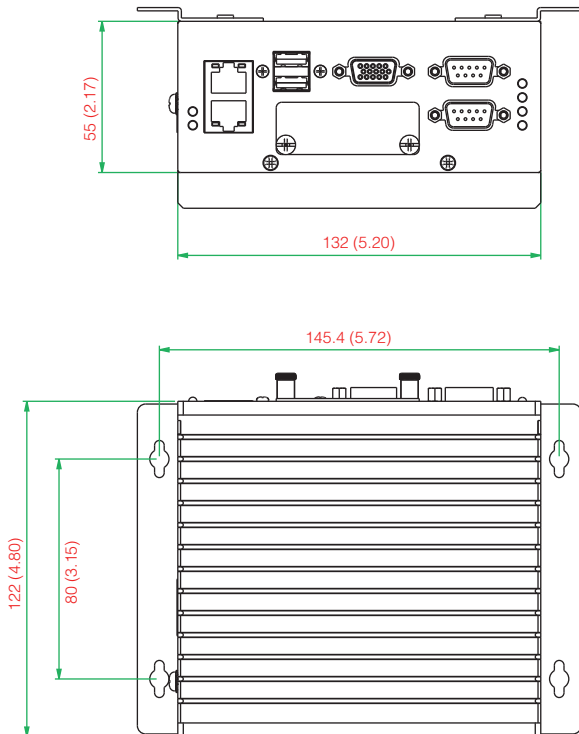
MC-1111



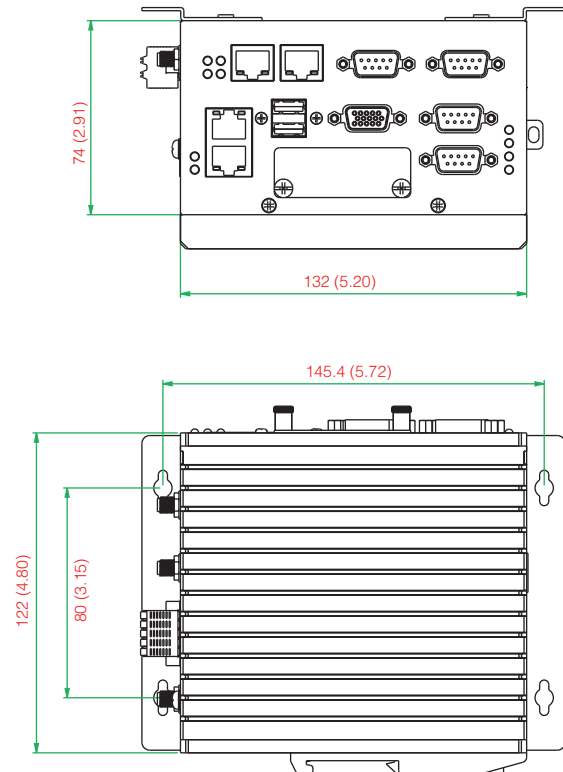
MC-1121



MC-1112



MC-1122



Hardware Specifications

Computer

CPU:

- MC-1100-E4 Series: Intel® Atom™ processor E3845 (quad-core, 1M cache, 1.91 GHz)
- MC-1100-E2 Series: Intel® Atom™ processor E3826 (dual-core, 1M cache, 1.46 GHz)

Operating System: Supports Windows 10 IoT, 64-bit Windows 7 Embedded, and Linux Debian 8

System Memory: 1 DDR3L SO-DIMM slot, 2 GB pre-installed; support 2 GB, 4 GB, and 8 GB.

USB: USB 2.0 hosts x 2, Type A connectors

Storage:

- CFast: 1 CFast socket for OS storage; CFast supports 16 GB, 32 GB, 64 GB and 128 GB
- SD: 1 SD 3.0 (SDHC/SDXC) socket for storage expansion; SD supports 16 GB, 32 GB, 64 GB, and 128 GB (only for the MC-1111 and MC-1121 series)

Other Peripherals

USB: 2 bootable USB 2.0 ports (type A)

TPM: TPM1.2 (only for the MC-1112 and MC-1122 series)

Expansion Slot: 1 MiniPCIe socket; USB signal for wireless Wifi/3G/LTE modules

USIM Slots: 1

Display

Graphics Controller: Intel® HD Graphics 4000

Display Interface:

- VGA interface x 1: 15-pin D-Sub connector (female), with resolution up to 1920 x 1200 pixels at 75 Hz
- Display port interface x 1: Display port connector, with resolution up to 2560 x 1600 pixels at 60 Hz (only for the MC-1111 and MC-1121 series)

Ethernet Interface

LAN: 2 or 4 auto-sensing 10/100/1000 Mbps ports (RJ45)

Magnetic Isolation Protection: 1.5 kV built in

Serial Interface

Serial Standards: 2 or 4 RS-232/422/485 ports, software-selectable (DB9 male)

Serial Communication Parameters

Data Bits: 5, 6, 7, 8

Stop Bits: 1, 1.5, 2

Parity: None, Even, Odd, Space, Mark

Flow Control: RTS/CTS, XON/XOFF, ADDC® (automatic data direction control) for RS-485

Baudrate: 50 bps to 115.2 kbps

Serial Signals

RS-232: TxD, RxD, DTR, DSR, RTS, CTS, DCD, GND

RS-422: TxD+, TxD-, RxD+, RxD-, GND

RS-485-4w: TxD+, TxD-, RxD+, RxD-, GND

RS-485-2w: Data+, Data-, GND

Digital Input

Input Channels: DI x 4 (non-isolation)

Input Voltage:

Logic level 0: Close to GND

Logic level 1: Open

Digital Output

Output Channels: DO x 4 (Non-Isolation)

Output Voltage:

Logic level 0: 0 to 0.55 V

Logic level 1: 5 VDC (4.7 to 5 V)

Output Clamping Current: 24 mA

LEDs

System: Power

Storage: CFast, SD

LAN: 2 LEDs per port (100/1000 Mbps)

Serial: 2 LEDs per port (Tx and Rx)

Physical Characteristics

Housing: Aluminum, sheet metal

Weight:

- MC-1111/1112: 1.45 kg (3.20 lb)

- MC-1121/1122: 1.75 g (3.86 lb)

Dimensions:

- MC-1111/1112: 132 x 122 x 68 mm (5.20 x 4.81 x 2.68 in)

- MC-1121/1122: 132 x 122 x 87 mm (5.20 x 4.81 x 3.43 in)

Mounting: DIN rail, wall (DNV)

Environmental Limits

Operating Temperature: -40 to 70°C (-40 to 158°F)

(DNV: -25 to 70°C)

Storage Temperature: -45 to 75°C (-49 to 167°F)

Ambient Relative Humidity: 5 to 95% (non-condensing)

Anti-Vibration:

- 0.7 g @ DNV GL (Class A), sine wave, 2-100 Hz, 1 Oct./min., 1.5 hr per axis

- 1 g @ DNV GL, random wave, 3-100 Hz, 2.5 hr per axis

Anti-Shock: 50g/11ms ±X, ±Y, ±Z, 3 shocks each axis w/ CFast, SD

Power Requirements

Input Voltage: 12/24 VDC typical (11.4 to 36 VDC tolerance, 2-pin terminal block)

(DNV: 24 VDC)

Power Consumption: Less than 30 W

Standards and Certifications

Safety: UL 60950-1

Hazardous Environments: Class 1 Division 2*

EMC: EN 55032, EN 55024

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: 1 kV

IEC 61000-4-5 Surge: Power: 1 kV; Signal: 1 kV

IEC 61000-4-6 CS: 10 V

IEC 61000-4-8

Marine Standards: IEC 60945

Marine Type Approval: DNV GL

Green Product: RoHS, cRoHS, WEEE

Reliability

Automatic Reboot Trigger: Built-in watchdog timer (WDT), configurable for resets following 1-255 second hang intervals; software programmable

Warranty

Warranty Period: 3 years

Details: See www.moxa.com/warranty

Software Specifications

Linux

OS: Linux Debian 8 64-bit

Terminal Server (SSH): Provides secure encrypted communications between two un-trusted hosts over an insecure network

File System: EXT2, EXT3, EXT4

Internet Protocol Suite: TCP, UDP, IPv4, IPv6, SNMPv2, ICMP, ARP, HTTP, CHAP, PAP, DHCP, NTP, NFS, SSH, PPP, SFTP, RSYNC, SSL

Internet Security: OpenVPN, iptables

Secure Shell for Remote Access: SSH allows remote logins to a secure encrypted console from any connected network

Watchdog: Features a hardware function to trigger system reset in a user specified time interval (Linux standard API)

Embedded Self-Health Maintenance Software: Moxa Proactive Monitoring

Windows Embedded Standard 7

Core OS:

- 64-bit support
- Remote Client
- Remote Procedure Call

Applications and Services Development:

- Remote Desktop Protocol 7.1
- COM OLE Application Support
- COM+ Application Support
- MSMQ

Internet Services:

- Internet Explorer 8.0
- IIS 7.0

Diagnostics:

- Common Diagnostic Tools
- Problem Reports and Solutions

Fonts: Western, Middle Eastern, South East Asian, and South Asian Fonts

Graphics and Multimedia:

- MPEG Layer-3 Audio Codecs (MP3)
- MPEG4 Decoders
- DirectX and Windows Device Experience

Management:

- Group Policy Management
- Windows Management Instrument (WMI)
- Windows Update

Networking:

- Extensible Authentication Protocol (EAP)
- Internet Authentication Service
- Telnet Server
- Bluetooth
- Domain Services
- Network Access Protection
- Network and Sharing Center
- Quality of Service
- Remote Access Service (RAS)
- Telephony API Client
- Windows Firewall
- Wireless Networking

Security:

- Credential Roaming Service
- Credentials and Certificate Management
- Windows Authorization Manager (AZMAN)
- Windows Security Center
- Active Directory Rights Management
- Security Base
- Encrypted File System (EFS)

Embedded Features:

- Enhanced Write Filter (EWF)
- File-Based Write Filter (FBWF)
- Registry Filter
- WSDAPI for .NET

File Systems and Data Store:

- Windows Data Access Components
- Windows Backup and Restore

Maintenance: Moxa Proactive Monitoring & Moxa Smart Recovery

Ordering Information

Model Name	CPU	RAM (CTO*)	CFast (CTO*)	SD (CTO*)	OS (CTO*)	VGA	DP	LAN	Serial	DI/DO	USB 2.0	USIM slot	Expansion slot	TPM
MC-1121-E4-T-W7E	E3845	2 GB	32 GB	N/A	W7E 64 bits	1	1	4	2	4/4	2	1	1	-
MC-1111-E2-T	E3826	Default 2 GB (4 or 8 GB optional)	Default N/A (16, 32, 64, or 128 GB optional)	Default N/A (16, 32, 64, or 128 GB optional)	Default N/A (W7E or Debian 8 optional)	1	1	2	-	-	2	-	-	-
MC-1111-E4-T	E3845					1	1	2	-	-	2	-	-	-
MC-1121-E2-T	E3826	Default 4 GB (2 or 8 GB optional)	Default N/A (16, 32, 64, or 128 GB optional)	No SD slot	Default N/A (W7E or Debian 8 optional)	1	1	4	2	4/4	2	1	1	-
MC-1121-E4-T	E3845					1	1	4	2	4/4	2	1	1	-
MC-1112-E2-T	E3826	Default 4 GB (2 or 8 GB optional)	Default N/A (16, 32, 64, or 128 GB optional)	No SD slot	Default N/A (W7E or Debian 8 optional)	1	-	2	2	-	2	-	-	-
MC-1112-E4-T	E3845					1	-	2	2	-	2	-	-	-
MC-1122-E2-T	E3826	Default 4 GB (2 or 8 GB optional)	Default N/A (16, 32, 64, or 128 GB optional)	No SD slot	Default N/A (W7E or Debian 8 optional)	1	-	4	4	4/4	2	1	1	-
MC-1122-E4-T	E3845					1	-	4	4	4/4	2	1	1	-
MC-1122-E4-TPM-T	E3845					1	-	4	4	4/4	2	1	1	1

Note: Use the Moxa CTOS process to select RAM, storage, and OS options. Please contact your Moxa sales representative for details.

Package Checklist

- MC-1100 embedded computer
- Terminal block to power jack converter
- Din-rail mounting kit
- Quick installation guide (printed)
- Warranty card

Optional Accessories

Type	Model Name	Description
Wireless Accessories		
	Cellular Package CELLULAR-LTE-EU(LE910)	Includes: <ul style="list-style-type: none"> • 1 LTE module • 1 antennas with cable and connector • 2 black screws Note: LTE regions: Asia, Europe, Australia, New Zealand (compatible with LTE/EU, HSPA+, GPRS/GSM, and GPS). LTE: 800 (B20) / 1800 (B3) / 2600 (B7). UMTS/HSPA+: 900, 2100. GNSS (GPS+Glonass).
	WiFi Package Wi-Fi-BGN(252NI)	1 Wi-Fi module 2 antennas with cable and connector 2 black screws
	LTE-EU Antenna ANT-LTE-ASM-02	LTE-EU external antenna with SMA connectors x 1
	LTE-US External Antenna ANT-LTEUS-ASM-01	LTE-US external antenna with SMA connectors x 1
	Wi-Fi Antenna ANT-WDB-ARM-02	2.4/5.5 GHz 2 dBi dual-band antenna, RP-SMA (male) connector
Power Adapters		
	Adapter PWR-24270-DT-S1	Power adapter, input voltage 90 to 264 VAC, output voltage 24 V with 2.5 A DC load
	Power Cord PWC-C7US-2B-183	Power cord with 2-pin connector, USA plug
	Power Cord PWC-C7EU-2B-183	Power cord with 2-pin connector, Europe plug
	Power Cord PWC-C7UK-2B-183	Power cord with 2-pin connector, British plug
	Power Cord PWC-C7AU-2B-183	Power cord with 2-pin connector, Australia plug
	Power Cord PWC-C7CN-2B-183	Power cord with 2-pin connector, China plug
Mounting Kit Accessories		
	Wallmount Kit MC-1100 Wallmount Kit	Wallmount kit x 1, screws x 4
	DIN-Rail Kit MC-1100 DIN-Rail Kit	DIN-rail mounting kit x 1, screws x 4