ioPAC 6500 (65M) Expansion and Expansion Backplane Modules Quick Installation Guide

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Technical Support Contact Information
www.moxa.com/support

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P/N: 1802065000162

Package Checklist

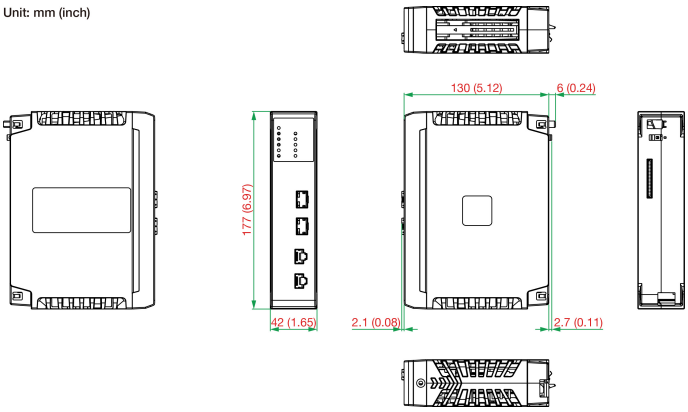
- 1 x 65M module
- 1 x Quick installation guide (printed)
- 1 x Warranty card

NOTE Notify your sales representative if any of the above items are missing or damaged.

Dimensions

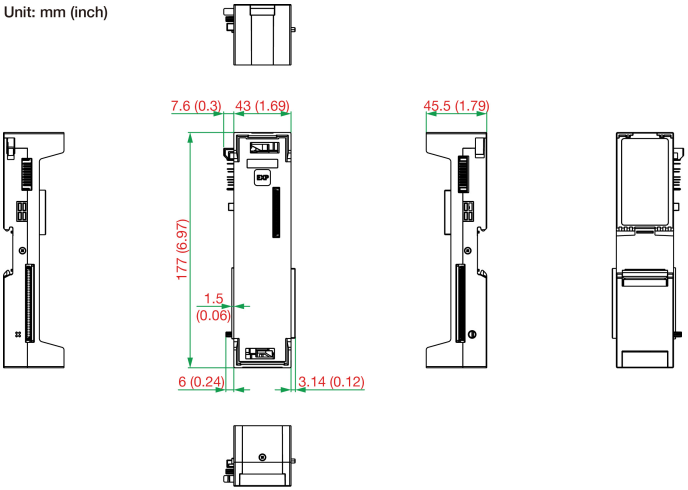
65M-5290-CT-T

Unit: mm (inch)



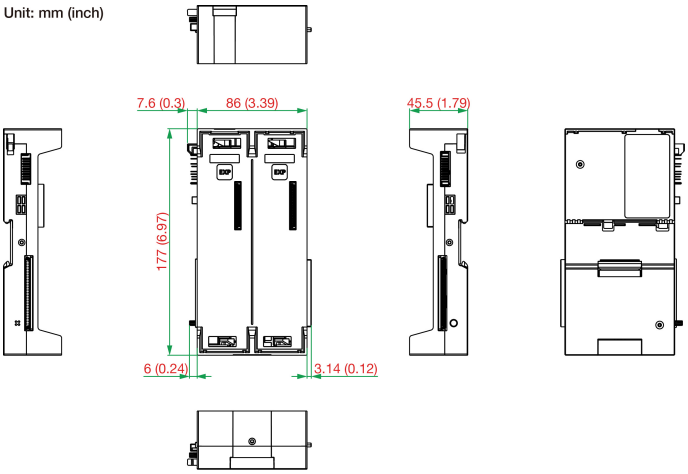
65M-BMEXP01-CT-T

Unit: mm (inch)



65M-BMEXP02-CT-T

Unit: mm (inch)



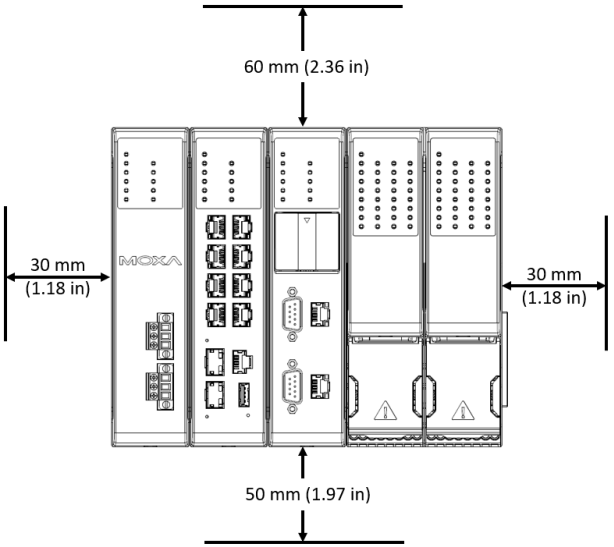
LED Description

Expansion Module (65M-5290-CT-T)

Labeling	Indication	Qty	Color	Behavior	Description
STATUS	Module status	1	Green	Blinking at 0.5 Hz	Module starts up
				On	Module operates normally
				Double Blinking	Locate
				Blinking at 5 Hz	Firmware upgrade in process
			Red	On	Startup failed or other component error
				Blinking at 5 Hz	Connection to CPU lost
				Blinking at 0.5 Hz	Firmware upgrade failed
PREV	PREV Status	1	Green	On	• Module starts up • I/O link connection established between the master PRE and slave NEXT
				Blinking at 0.5 Hz	Acting as the master PREV module without an active IO link
NEXT	NEXT Status	1	Green	On	• Module Startup • IO link connection established between the master NEXT and slave PREV
				Blinking at 0.5 Hz	Acting as the master NEXT module without an active I/O link

Horizontal Installation

Before mounting the device onto a DIN rail, ensure that there is enough space around the device so that heat generated can effectively dissipate. The minimum space allowance recommendation around the device is shown in the following diagram:



CAUTION

DO NOT install the device upright because the fanless heat dissipation design will not perform as intended in this position.

Installing the System on a DIN Rail

Install the ioPAC 6500 Series from left to right in the following order:

Power Module > Communication (switch) Module (optional) > CPU Module > Expansion Module (optional) > I/O Module.

NOTE **LIMITATIONS**

The system combinations have the following limitations:

- Maximum unit: 5 (1 control unit, 4 expansion units)
- Maximum power backplane in the control unit: 1 (1 slot or 2 slots)
- Maximum CPU backplane in the control unit: 1 (1 slot or 2 slots)
- Maximum communication backplane in the control unit: 1 (1 slot or 2 slots)
- Maximum I/O backplane in the control unit: 2 (2 slots or 4 slots)

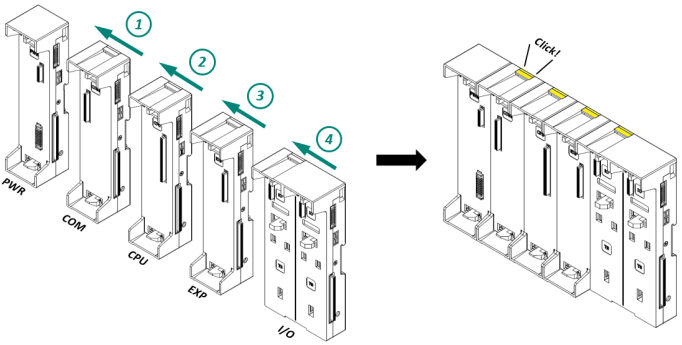
To mount the modules on to a DIN rail, do the following:

The system configuration shown in this document includes a power module, a communication module (switch), a CPU module, an expansion module, and two I/O modules.

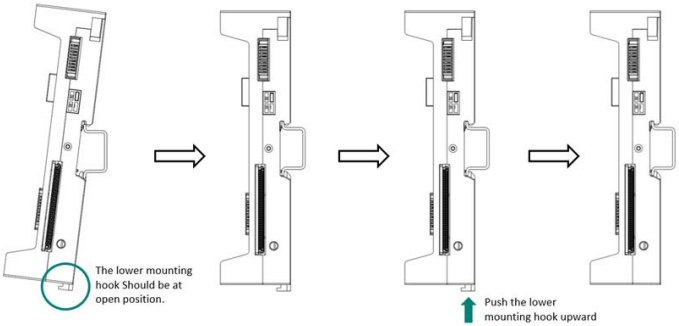
Step 1: Assemble all the backplane modules that you need before mounting them onto the DIN rail.

You must assemble the modules in the following order:
Power Module > Communication Module (Switch) > CPU Module > Expansion Module (optional) > IO Module.

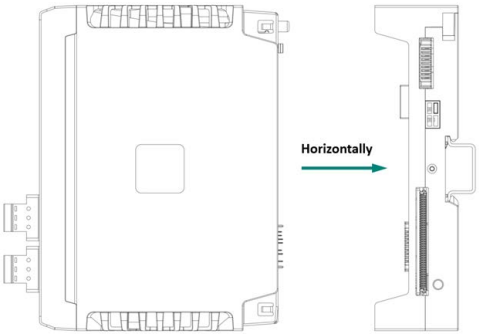
A click sound from the top clip indicates that the backplane modules are connected properly.



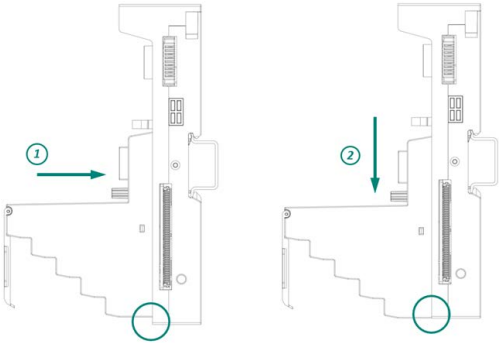
Step 2: Attach the upper mounting hook of all assembled backplanes to the upper lip of the DIN rail, while making sure the lower mounting hooks of all of them are open as shown in the following illustrations (side view), and push the assembled backplane towards the DIN rail, and finally push the lower mounting hooks upwards until the backplane modules are securely latched to the DIN rail.



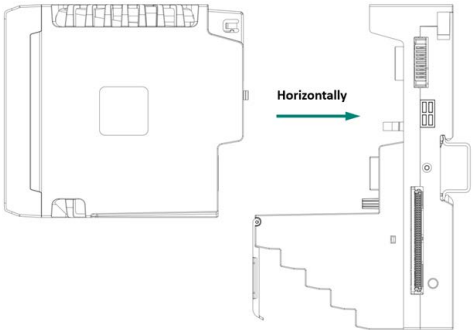
Step 3: Hold the power module with both hands and install it horizontally onto the power backplane module. Do the same with the CPU module, switch module (if applicable), and expansion module (if applicable).



Step 4: Place the terminal-block module onto the I/O backplane module and then pull down the terminal-block module to secure it in its position.



Step 5: Hold the I/O module with both hands and install it horizontally onto the I/O backplane module.
Use the poka-yoke (error-proof) design to ensure that you install the I/O module in the correct slot.



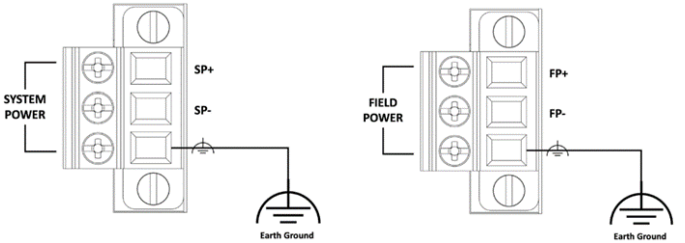
ATTENTION

These devices are OPEN-TYPE and are required to be installed in a suitable enclosure so that the devices can only be accessed with the use of a tool.

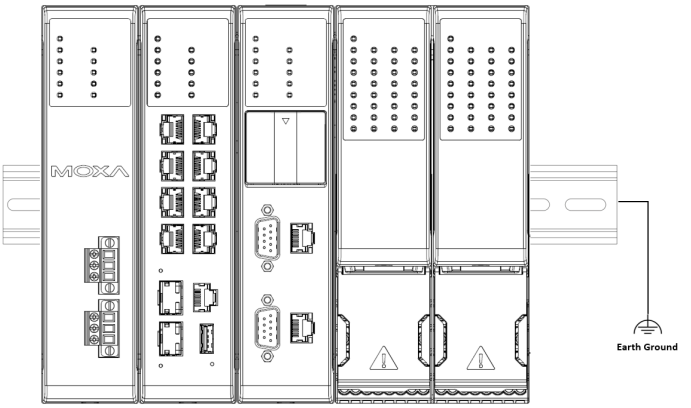
Grounding the System

The illustrations in this section show the system-power and field-power connectors for the power modules.

Ensure that you properly ground the system. Connect the three points to the earth ground as shown in the following illustrations.



NOTE The grounding spring on the rear side of the backplane modules will directly connect to the DIN rail when they are successfully mounted.



Connecting the Expansion Unit

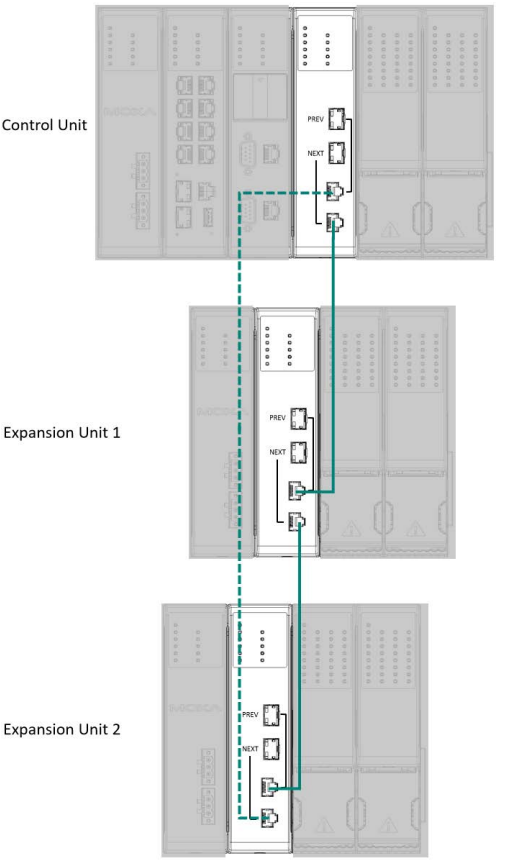
The ioPAC 6500 expansion module features a combo port design. When both optical fiber ports (SFP) and RJ45 ports are used, priority is given to the optical fiber ports (SFP).

This document shows one control unit and two expansion units connected via RJ45 ports with one or two expansion modules. However, based on the application, the system supports up to four expansion units.

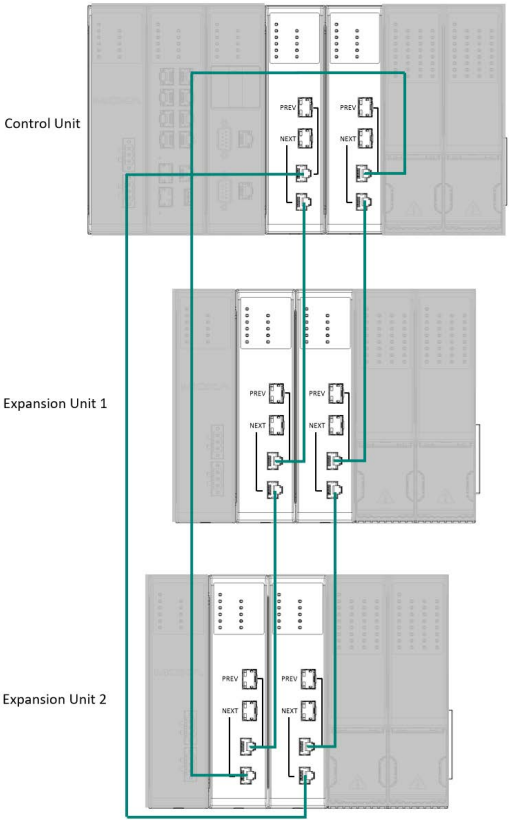
NOTE 1 Expansion Module Ring Topology:

The **NEXT** port on the last expansion module (expansion unit 2) must be connected to the **PREV** port on the first expansion module (control unit).

Daisy-chain topology—without the dotted line.



NOTE 2 Expansion Modules Ring Topology:



Powering the Units

When the installation and wiring are complete, turn on the power to boot up the system. Turning on the system's power supply takes about 90 seconds for the operating system to boot up. The green Ready LED will stay lit until the operating system is ready.

Specifications

Power Consumption	
System Power	12 VDC @ 0.38 A
Expansion Connection	
Port Interfaces	RJ45 x 2, Optical Fiber (SFP) x 2
Protocol	Proprietary
Physical Characteristics	
Weight	65M-5290-CT-T: 501.1 g (1.1 lb) 65M-BMEXP01-CT-T: 173 g (0.38 lb) 65M-BMEXP02-CT-T: 322 g (0.71 lb)
Mounting Options	DIN-rail mount (default) Rackmount (with optional kit)

Environmental Limits	
Operating Temperature	-40 to 75°C (-40 to 167°F)
Storage Temperature	-40 to 85°C (-40 to 185°F) including package
Relative Humidity	5 to 95% (non-condensing)
IP Protection	IP20
Operating Altitude	Up to 2,000 meters
Standards and Certifications	
EMC	EN 55032/35 EN 61000-6-2/6-4
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: DC Power: 1 kV; Signal: 1 kV IEC 61000-4-5 Surge: DC Power: 0.5 kV L-N, 1 kV L/N-PE; Signal: 1 kV; IO: 0.5 kV IEC 61000-4-6 CS: DC Power: 10 Vrms; Signal: 10 Vrms IEC 61000-4-8 PFMF: 30 A/m
Safety	UL 61010-1, UL 61010-2-201
Shock	IEC 60068-2-27 Half Sine Wave: Acceleration: 15 g; Duration Time: 11 ms
Vibration	IEC 60068-2-6 • DIN-rail mounted: 7 mm peak-peak (p-p) (2 to 8.42 Hz), 1 g (8.42 to 150 Hz) • Rackmounted (with optional kit): 7 mm peak-peak (p-p) (2 to 8.42 Hz), 0.5 g (8.42 to 150 Hz)
Package Vibration/ Drop Test	ISTA-1A

Warranty	
Warranty period	5 years
Details	See www.moxa.com/tw/warranty