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

Version 2.0, September 2026

Technical Support Contact Information
www.moxa.com/support

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P/N: 1802065000163

Package Checklist

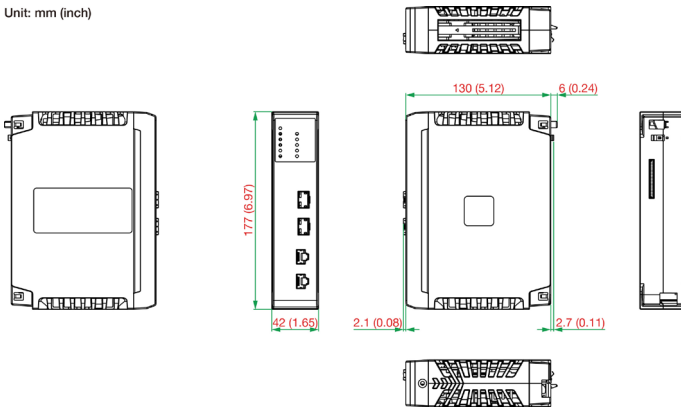
- 1 x 65M module
- 1 x Quick installation guide (printed)
- 1 x Warranty card

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

Dimensions

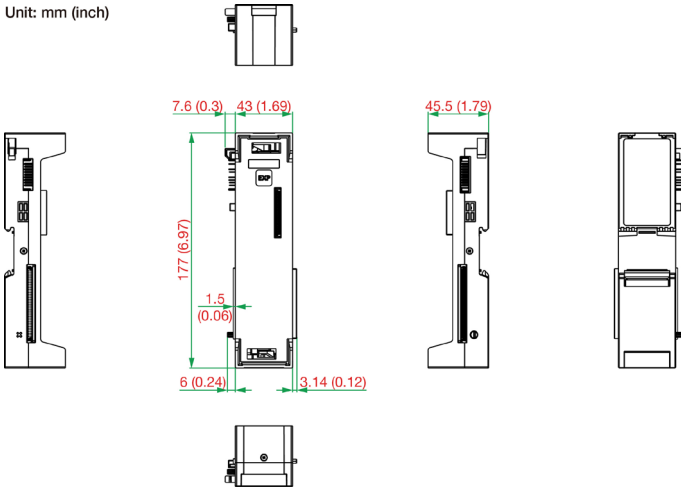
65M-5290-CT-T

Unit: mm (inch)



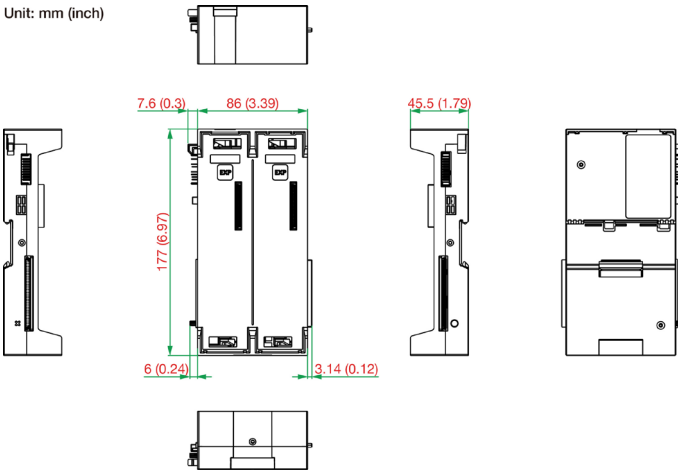
65M-BMEXP01-CT-T

Unit: mm (inch)



65M-BMEXP02-CT-T

Unit: mm (inch)



LED Description

LED	Color	Status	Description
STATUS (module status)	Green	Blinking (0.5 Hz)	Module initializing
		Solid	Module running normally
		Double blink (1.11 Hz)	Module located
		Blinking (5 Hz)	Firmware upgrade in progress
	Red	Solid	Module failed to initialize or other component error
		Blinking (5 Hz)	Connection to CPU lost
		Blinking (0.5 Hz)	Firmware upgrade failed
PREV	Green	Solid	• Module initialized • I/O link connection established between the master PREV and slave NEXT
		Blinking (0.5 Hz)	Acting as the master PREV module without an active IO link
NEXT	Green	Solid	• Module initialized • IO link connection established between the master NEXT and slave PREV
		Blinking (0.5 Hz)	Acting as the master NEXT module without an active I/O link

Mounting Requirements

Mounting requires an earth-grounded DIN rail and sufficient clearance for heat dissipation.

CAUTION

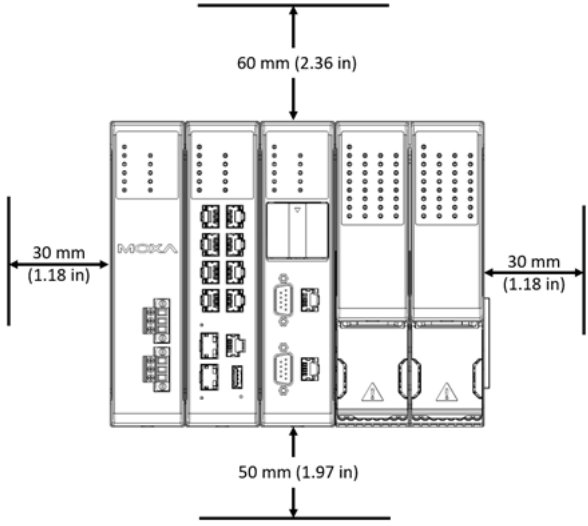
Risk of device malfunction. Install units with release latch facing up. Fanless heat dissipation requires exhaust vents on the top of each module to face up.

CAUTION

Risk of electrical hazard if ungrounded. DIN rails must be connected to earth ground.

The minimum clearance for heat dissipation is:

Direction	Clearance
Top	60 mm (2.36 in)
Sides	30 mm (1.18 in)
Bottom	50 mm (1.97 in)



Unit Installation Requirements and Limitations

Modules must be arranged in the following order from left to right:

1. Power Module(s)
2. Communication Module(s) (optional)
3. CPU Module(s) (Control units only)
4. Expansion Module (optional)
5. IO Module(s) (optional)

Determine the correct backplane and module sequence before mounting to avoid unmounting. Modules are hot-swappable. However, once mounted, module backplanes are difficult to rearrange without unmounting.

Unit/Module Limitations

Each unit may have the following:

Module Type	Maximum Backplanes	Multislot
Power	1	1-slot or 2-slot
Communication	1	1-slot or 2-slot
CPU	1	1-slot or 2-slot
Expansion	1	1-slot or 2-slot
IO	2	2-slot or 4-slot

CAUTION

Risk of device malfunction. Ensure total unit power draw does not exceed 75 W.

Assembling and Mounting Backplane Modules

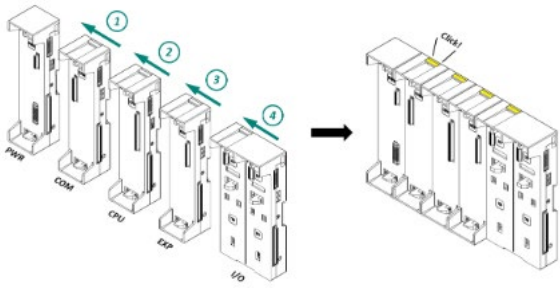
Backplanes link modules together and anchor them on the DIN rail. The backplane modules for each unit must follow a specific order. Refer to the *ioPAC 6500 Series Manual* for more information on the exact order and module compatibility.

CAUTION

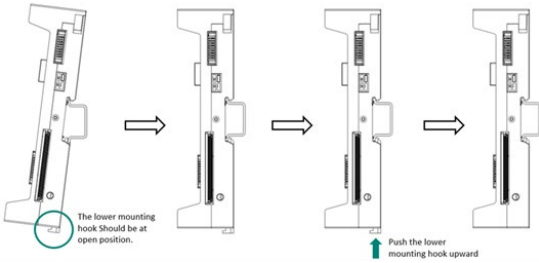
Install in a suitable tool-accessible enclosure. Devices are open-type. Open-type equipment is for indoor use. IP rating is not safety-certified.

NOTE Assembled units may be heavy. Mounting backplanes first is recommended before installing modules into slots.

1. To attach one backplane to another, align the two backplanes and gently push.



   The top clip should snap downward when connected. If the clip does not snap, gently push it down. Do not force. If it still doesn't lock, make sure the backplanes are in the correct order and flush, then try again.
2. Repeat until all necessary backplanes are connected and all top clips are flush.
3. On the back of the assembled backplanes, make sure that the lower mounting hooks of all backplane modules are extended.
4. Hang the upper mounting hook of the assembled backplanes on the upper lip of the DIN rail.
5. Allow the bottom mounting hook of the assembled backplanes to rest flush against the DIN rail.
6. Secure the backplanes by pushing the lower mounting hook clasps up.
   The backplane modules are now secure.



Installing Modules Into Slots

CAUTION

Do not force. Valid module combinations should snap easily into place. Consult the *ioPAC 6500 Series Manual* for valid combinations.

1. Hold the module with both hands, and insert it horizontally into the corresponding slot on the backplane assembly.



Repeat until all modules are installed.

NOTE The tab on the top of the module should be flush with the top of the module. Some modules have special installation instructions. See the *ioPAC 6500 Series Manual* and the corresponding QIG for details.

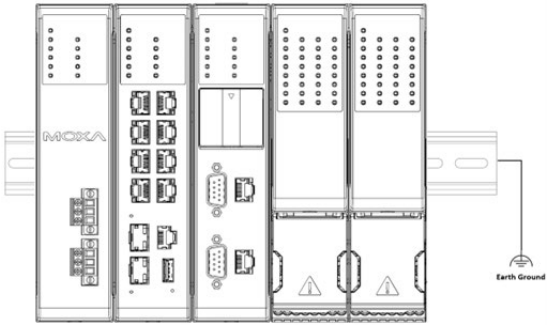
Module Power

Backplane modules distribute power to each module in the unit. Modules are powered automatically once power is supplied to the unit. After the power supply is turned on, boot-up takes approximately 90 seconds. Consult the *ioPAC 6500 Series Manual* and *ioPAC 6500 (65M) Power and Power Backplane Modules Quick Installation Guide* for more information.

Module Grounding

Modules must be grounded through the following mechanisms:

- Each backplane module has a grounding spring that directly connects to the grounded DIN rail. DIN rails must be connected to earth ground.



- Each backplane module connects to the other backplane modules, with their own grounds.

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).

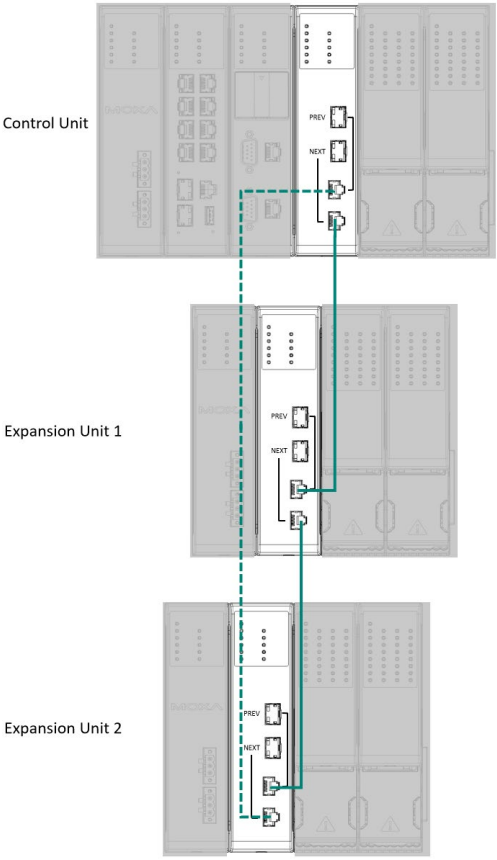
This document shows one control unit and two expansion units connected via RJ45 ports with one or two expansion modules. However, based on the application, the system supports up to four expansion units.

NOTE For an expansion unit, you will only need a power module, an expansion module, and I/O modules.

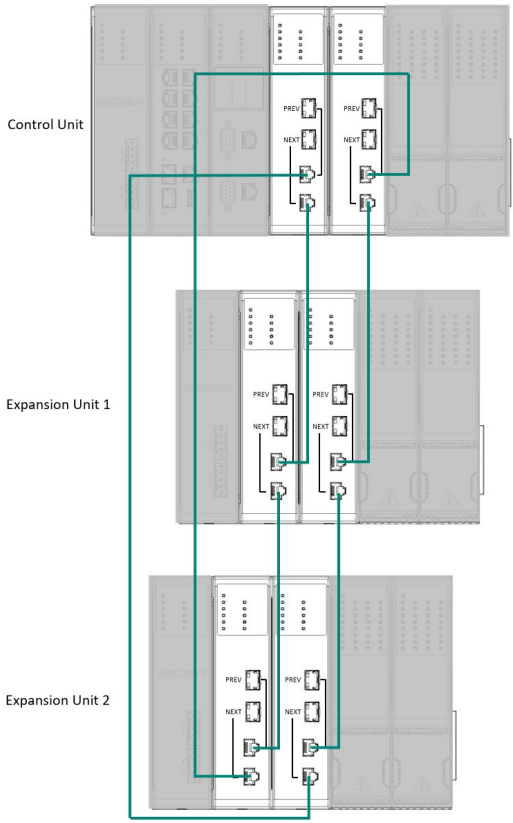
Ring Topology—One Expansion Module per Unit

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.



Ring Topology—Two Expansion Modules per Unit



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) • Rack mounted (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

*The SFP modules supported are listed in the following table:

Model	**Description**
SFP-1GLHLC-T	SFP module with 1 1000BaseLH port with LC connector for 30 km transmission, -40 to 85°C operating temperature
SFP-1GLSXLC-T	SFP module with 1 1000BaseLSX port with LC connector for 1km/2km transmission, -40 to 85°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-T	SFP module with 1 1000BaseSX port with LC connector for 300m/550m transmission, -40 to 85°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-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

Model	Description
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-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-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-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-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-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 2/4 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



CAUTION

This is a Class 1 Laser/LED product. To avoid causing serious damage to your eyes, do not stare directly into the laser beam.



CAUTION

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions:

- This device may not cause harmful interference
- This device must accept any received, including interference that may cause undesired operation.

Hazardous Location Specifications

Trade Mark	MOXA®	
Model/ Rating	Model	Rating
	65M-5290-CT-T	System power: 12 VDC, 0.38 A
ATEX information	CE Ex II 3G Ex ec IIC T4 Gc UL 26 ATEX 3542X Ambient Range for "-T" models: -40 °C ≤ Tamb ≤ +75 °C Ambient Range for non "-T" models: -10 °C ≤ Tamb ≤ +60 °C	
IECEx Cert. No.	IECEx UL 26.0030X	

CAUTION

These devices are suitable for use in Class I, Division 2, Groups A, B, C, and D, or for use in non-hazardous locations only.

Specific Conditions of Use

- The equipment shall be installed in an enclosure that provides a minimum ingress protection of IP 54 in accordance with EN IEC/IEC 60079-0.
- The equipment shall only be used in an area of at least pollution degree 2, as defined in EN IEC/IEC 60664-1.