



AK500 Ethernet Compact CO Unit Quick Installation

Part #	Description	CLEI Code	Part #	Description
AK525CU	Compact CO Unit, 25 Mbps at CSA, 45 Mbps max	COM9P10E	AKCURB	Dual Compact Unit Rack Bracket
AK525CUP	Compact CO Unit, 25 Mbps at CSA, 45 Mbps max, line powering	COM9R10E	AKCUWB	Compact Unit Wall Mount Bracket
AK512CU	Compact CO Unit, 12 Mbps at CSA, 20 Mbps max	COM9M10E	AKCUF19	Compact Unit 19 inch rack flange mounts
AK512CUP	Compact CO Unit, 12 Mbps at CSA, 20 Mbps max, line powering	COM9N10E	AKCUF23	Compact Unit 23 inch rack flange mounts

The AK5000 Ethernet product family enables point to point transport of Ethernet services over bonded pairs of copper, optimized for CSA distances (9kft 26AWG or 12kft 24AWG). The AK5000 family includes the Ethernet Compact CO Unit that fits into optional 1RU high brackets for 19" and 23" racks or can be wall mounted. Line powering versions of the Compact CO Unit can line power the Compact Remote Unit. Aktino products utilize the technology "MIMO on DMT" which uses coordinated signal processing over multiple transceivers to achieve significant performance improvements over standard DSL technology. Refer to the AK500 Ethernet Compact Remote Unit Quick Installation (180-0035-001) for Remote installation. Refer to the AK5000 Ethernet Technical Practice (180-0037-001) for more comprehensive information and troubleshooting.

#1 Mounting

The AK500 Compact CO Units can be mounted with the AKCURB Rack Bracket (see Figure 1), with the AKCUF19 or AKCUF23 Rack Flange mounts (see Figure 2), or with the AKCUWB wall mounting bracket (see Figure 3).

#2 Connections

Frame Ground Connection (see Figure 4)

Crimp an eye lug to the ground wire and screw down on the #10 size Ground Lug located on the left hand side of the back panel. Use a wire gauge for grounding at least as heavy as the power wiring (within 25 feet 16 AWG is recommended, 10 AWG for longer lengths). Attach the grounding wire to the Ground Lug to a nearby grounding screw on the equipment rack or facility ground. **Note that the ground connection is required for proper system operation.**

Power Connection (see Figure 4)

A 5A UL listed fuse/circuit breaker must be installed ahead of this unit. Two redundant power buses are provided (A and B). The two power inputs are identical and can be used for redundant power configurations. Insert the ends of the -48 Vdc and Return power wires (within 25 feet, 18 AWG is recommended, 12 AWG for longer lengths) into the A and B holes on the left side of the power block..

Ethernet Data Connections (See Figure 5)

Attach Ethernet data cables to any of the four 10/100BaseT RJ45 plugs on the front panel or insert an SFP module in the front panel slot. Generally, any 100BaseFX or 1000BaseX SFP module is compatible; contact Aktino Customer Service with any question regarding SFP compatibility.

Caution In order to comply with the intrabuilding lightning surge requirements, intrabuilding Ethernet wiring must be shielded, and the shield for the wiring must be grounded at both ends.

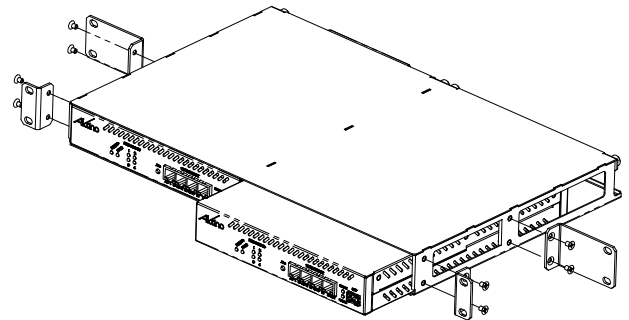


Figure 2 Rack Bracket Mounting

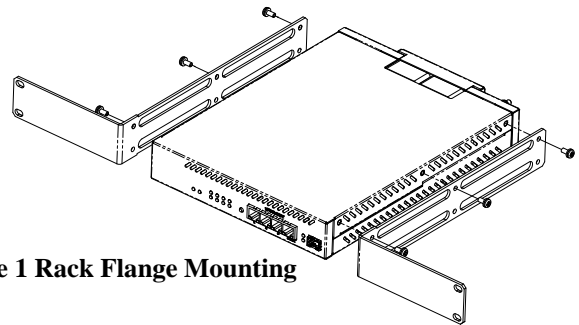


Figure 1 Rack Flange Mounting

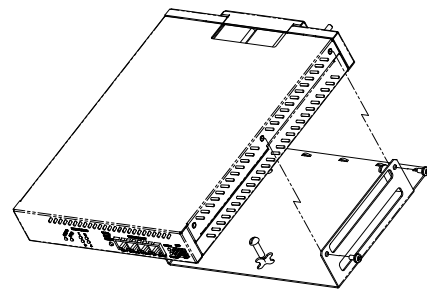


Figure 3 Wall Mounting

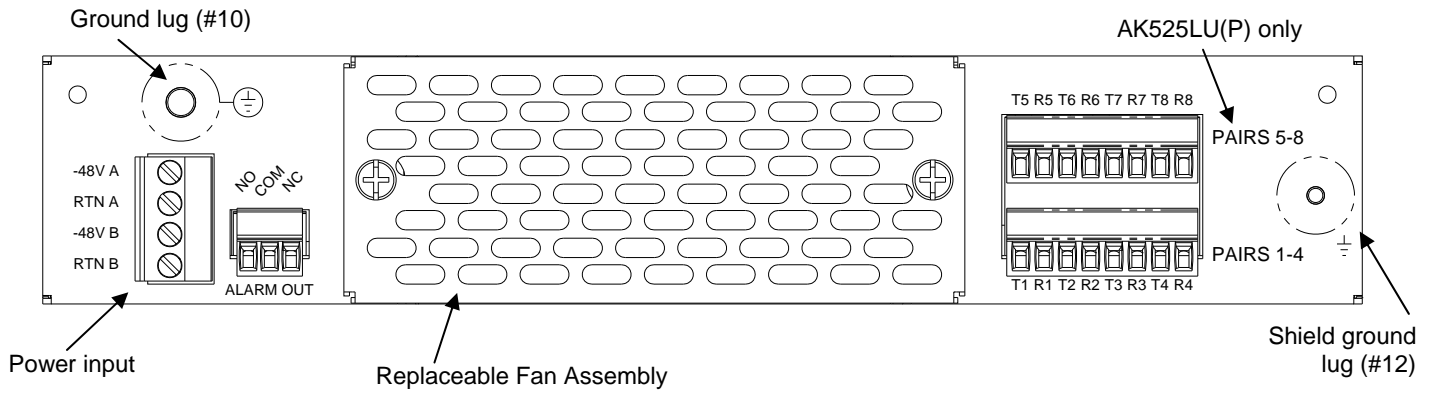


Figure 4 Compact CO Unit Back Panel (AK525LU shown)

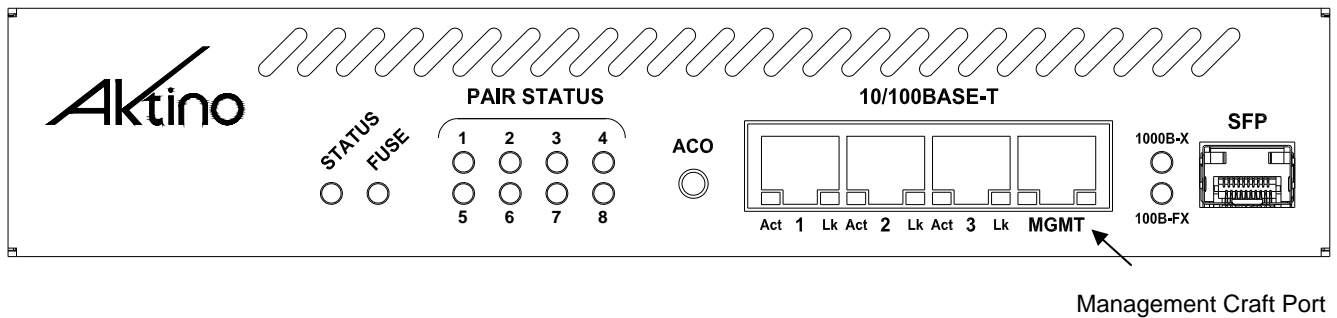


Figure 5 Compact CO Unit Front Panel (AK525LU shown)

MSPAN Pluggable Connector

MultiPair Connection

The MultiPair pluggable connector is used to connect the Aktino Compact CO to the outside plant pairs. The AK512LU(P) uses one four pair connector. The AK525LU(P) uses two four pair connectors. Insert the tip and rings into the connector as shown in Figure 6. Tighten screws on top of the connector. Insert the connector into the MSPAN plug on the back of the Compact CO Unit (see Figure 4). The Compact CO Unit MSPAN cable's shield should be connected to the ground lug.

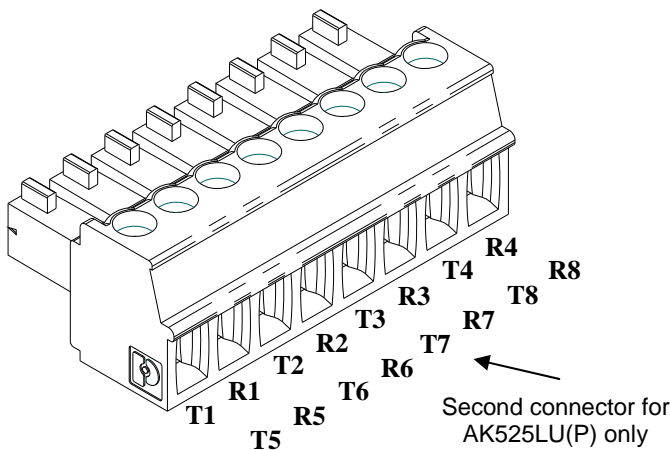


Figure 6 Compact CO Unit

Management Craft Port

Management craft access is through the MGMT port on the front panel.

- 1) Connect an Ethernet cable between the maintenance computer and the Compact CO Unit's MGMT port.
- 2) The Compact CO Unit has a factory default IP address of 192.168.10.1.
- 3) Configure the maintenance computer's IP address to 192.168.10.3 and Netmask to 255.255.255.0. Note the maintenance computer's original settings.
- 4) Run AktinoView using 192.168.10.1 as the IP address for the Aktino unit. The default user name and password is "superuser" (case sensitive).
- 5) If desired, the Aktino units can now be provisioned with AktinoView.
- 6) If local LAN management access is required, the LAN IP address should be provisioned. Note: The connection to the system will be lost when the IP address is changed. To re-establish connection, repeat step 4 using new IP address.
- 7) Exit AktinoView.
- 8) Reconfigure the maintenance computer's IP address to original setting.

#3 Provisioning (see Table 1)

AktinoView V3 software is used to provision and monitor the system. Load AktinoView software onto the maintenance computer per the instructions on the CDROM package.

Provisioning with AktinoView V3

AktinoView V3 uses the front panel MGMT Ethernet port for access to the Aktino unit. The CO unit is used to set up the system. AktinoView V3 should be started to provisioning and verify the health of the circuit. The default user name and password is “superuser”. To provide system security, the password for superuser and user accounts should be set up with AktinoView V3 menus. See Table 1 below for provisioning parameters available. Ethernet and other parameters are available via the Provisioning Tree menu.

Table 1 Common Provisioning Selections

Parameter	Values
MSPAN Rate	Rate (Kbps)
# Pairs	1 to 4 (AK512), 1 to 8 (AK525) Individual pairs can be set to UP or DOWN in the Pair menu
Line Powering	Off, -135v, -185v (-185v default) Note, line powering is only on AK5xxLCP line card and AK5xxCUP compact unit
MSPAN SNR Margin (MSPAN menu)	0..18db (5db default)
Ethernet Parameters	Each port’s parameter values can be provisioned in the Ethernet Menus

#4 System Health Verification

As soon as power is applied to the CO unit (and the RT unit if locally powered), the system automatically starts up. The front panel indicators show the status of the system (see Figure 5 and Table 2). If any of the LEDs is not Normal, AktinoView can be used to determine the source of the problem.

AktinoView V3 main status screen shows an overview of the system. Performance monitoring for Ethernet, MSPAN, and Pair is available through the tree menu. Current system alarms (see Table 3) are displayed on the main status screen. Alarm history and logs are available through the tree menu.

Table 2 Front Panel Indicators

LED	Condition	Function
STATUS	Off	Power off
	Green	Normal
	Red	Unit in alarm
LOCAL PWR	Off	Local power is not connected
	Green	Local power is connected
PAIR STATUS	Off	Pair is disabled
	Solid green	Pair is up
	Flashing green	Pair is acquiring
	Solid red	Pair LOS/Open circuit/Short
10/100BaseT Act	Off	No data present
	Green	Data present
10/100BaseT Lk	Off	Ethernet link is down
	Green	Ethernet link is up
100B-FX	Off	SFP is not present
1000B-X	Green	SFP present and active

Table 3 Common Alarms (displayed by AktinoView)

Alarm Fault	Troubleshooting
MSPAN LOS	MultiPair Span pairs are down, check pairs
MSPAN Capacity	MultiPair Span capacity below configured rate; increase number of pairs or decrease system margin or reduce rate. Check Pairs PM to ensure proper operation.
Pair LOS	Pair is connected but not receiving signal, check Pair PM.
Pair Open Circuit	Pair is not connected