



# AK500 Ethernet Compact Remote Unit Quick Installation

Part #	Description	CLEI Code	Part #	Description
AK525RU	Compact RT Unit, 25 Mbps at CSA, 45 Mbps max	COM9S10E	AKCURB	Dual Compact Unit Rack Bracket
AK512RU	Compact RT Unit, 12 Mbps at CSA, 20 Mbps max	COM9T10E	AKCUWB	Compact Unit Wall Mount Bracket
			AKCUF19	Compact Unit 19 inch rack flange mounts
			AKCUF23	Compact Unit 23 inch rack flange mounts
			AKRUPA	Compact RT Unit AC adapter

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 Remote Unit that fits into optional 1RU high brackets for 19" and 23" racks or can be wall mounted with the optional wall mount bracket. The Compact Remote Unit is either locally powered or line powered by the Central Office Compact Unit or Line Card. 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 CO Unit Quick Installation (180-0034-001) or the AK500S Ethernet Multislot Shelf Quick Installation (180-0036-001) for CO installation. Refer to the AK5000 Ethernet Technical Practice (180-0037-001) for more comprehensive information and troubleshooting.

## #1 Mounting

The AK500 Compact Remote 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 a #10 ring lug to a ground wire and attach it onto the #10 ground stud located on the right side of the rear panel. Use a wire gauge for grounding at least as heavy as the power wiring. Attach the grounding wire from 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

The Aktino Compact Remote Unit can either be line powered from the Aktino Central Office Unit or Line card, or locally powered with the optional AKRUPA AC adapter. For maximum reliability, both line power and local power can be used simultaneously. If locally powering, plug the AKRUPA AC adapter into the power jack on the back of the Compact Remote Unit (see Figure 4).

### 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.

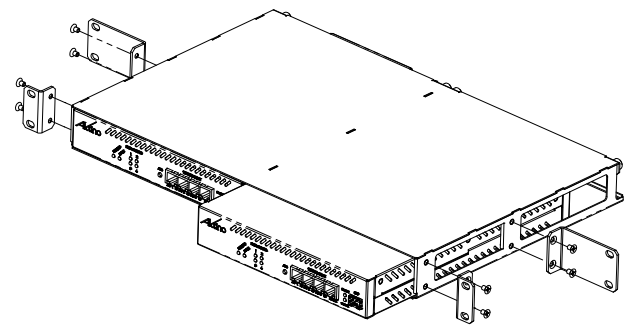


Figure 1 Rack Bracket Mounting

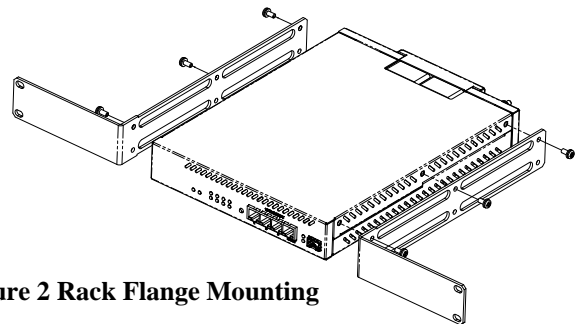


Figure 2 Rack Flange Mounting

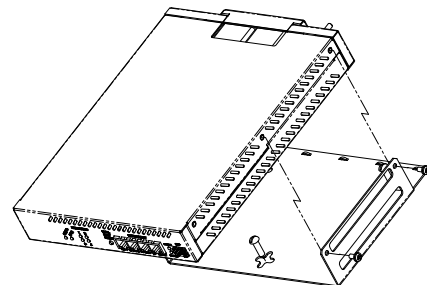


Figure 3 Wall Mounting

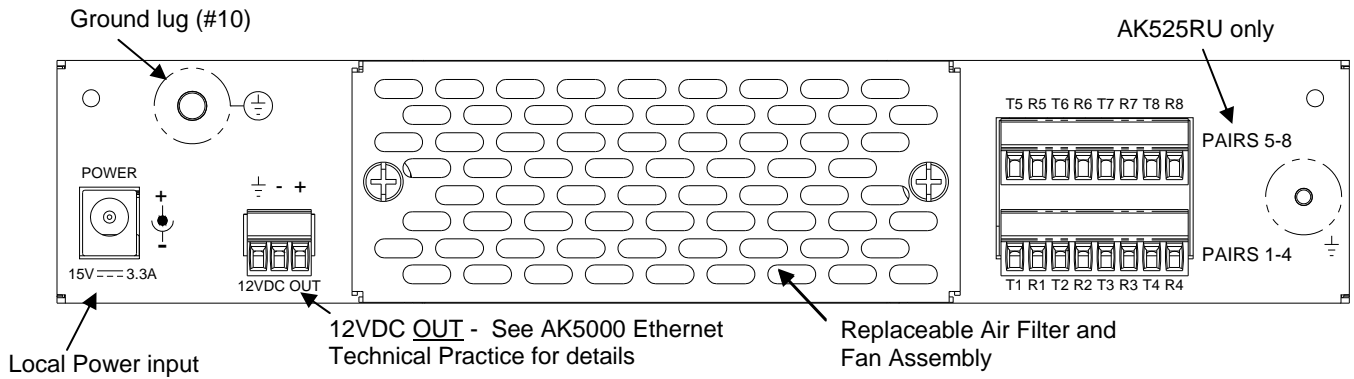


Figure 4 Compact Remote Unit Back Panel (AK525RU shown)

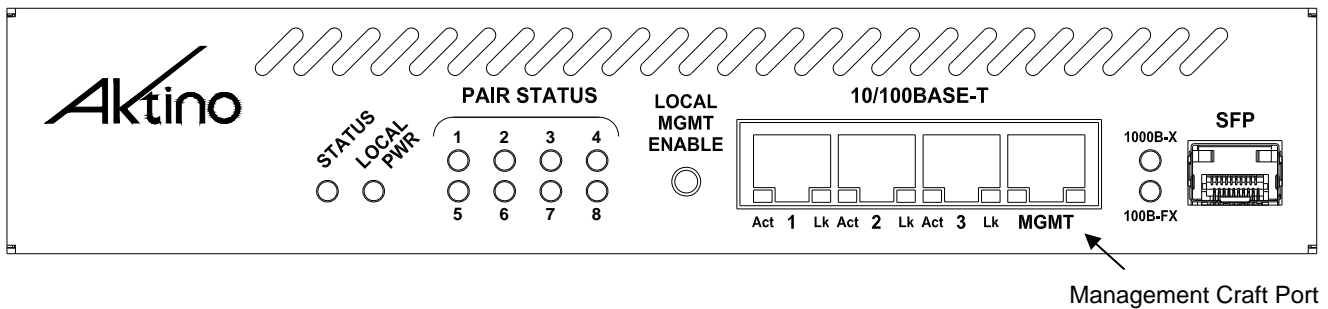


Figure 5 Compact Remote Unit Front Panel (AK525RU shown)

### MultiPair Connection

The MultiPair pluggable connector is used to connect the Aktino Compact Remote to the outside plant pairs. The AK512RU uses one four pair connector. The AK525RU 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 Remote Unit (see Figure 4). The Compact Remote Unit MSPAN cable's shield should generally not be connected to ground (leave open).

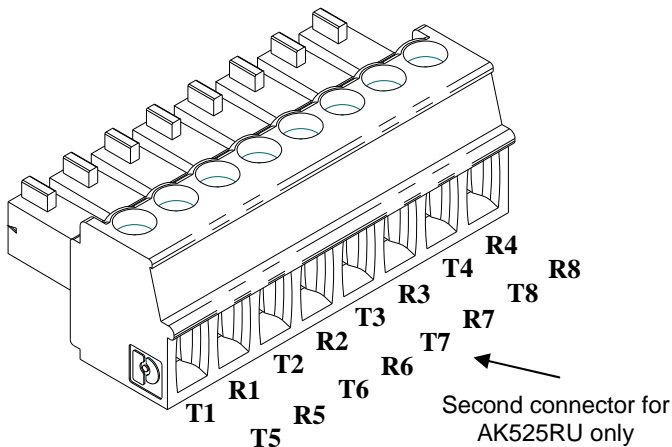


Figure 6 Compact Remote Unit MSPAN Pluggable Connector

### Management Craft Port

Local management craft access is through the MGMT port on the front panel IF remote management is enabled from the CO shelf or unit.

- 1) Connect an Ethernet cable between the maintenance computer and the Compact Remote Unit's MGMT port.
- 2) The Compact Remote Unit has a factory default IP address of 192.168.10.2.
- 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 V3 using 192.168.10.2 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 monitored with AktinoView. The Compact Remote Unit provides read only capability only, system parameters cannot be change. Note, MSPAN must be up to monitor the system.
- 6) Exit AktinoView V3.
- 7) Reconfigure the maintenance computer's IP address to original setting.

### #3 Monitoring (see Table 1)

AktinoView V3 or higher software is used to monitor the system. Load AktinoView V3 software onto the maintenance computer per the instructions on the CDRROM package.

#### Provisioning from the CO shelf or unit

Provisioning can only be done from the CO shelf or unit. AktinoView V3 uses the front panel MGMT Ethernet port for access to the Aktino unit. AktinoView V3 should be started 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 Craft Access tabs under the Provisioning tab.

See Table 1 below for provisioning parameters available at the CO shelf or unit. Ethernet and other parameters are available via the Provisioning tabs.

**Table 1 Common Provisioning Selections (provisionable from the CO shelf or unit only)**

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 tabs

### #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 V3 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 tabs. Current system alarms (see Table 3) are displayed on the main status screen. Alarm history and logs are available through the tabs.

**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 V3)**

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