Specifications

Operating Frequency Range
     U-NII Mid band   5.745 to 5.805 GHz
Access Method   TDD/TDMA
Data Rate   10 Mbps
Modulation Type   High Index BFSK/4FSK
     (Optimized for interference rejection)
Carrier to Interference (C/I)   3dB Ber $1*10^{-4}$
Receiver Sensitivity   -84dBm $1*10^{-4}$
Error Floor   Better than 10^{-9} BER, unfaded
Operating Range (All Weather)   Up to 2 miles with integrated antenna,
Transmitter Power   Meets FCC UNII ERP Limit
DC Power   24 VDC @ 0.3 Amp (active state)
Interface   10 Base-T, RJ45
     Rate auto negotiated (802.3 compliant)
Protocols Used by CANOPY   IPV4, UDP, TCP, ICMP, Telnet,
     HTTP, FTP, SNMP

Protocols Supported by CANOPY   Switched Layer 2 Transport with support for all common Ethernet protocols including IPV6, NetBIOS, DHCP, IPX, etc.

Software Upgrade Path   Remotely downloaded into FLASH
     via RF link

Network Management   HTML, TELNET, SNMP

Environmental
     Wind   190 km/hr
     Humidity   Relative Humidity 95% at 35°C
     Temperature   -30° to +55° C

Physical
     Dimensions   11.75"H x 3.4"W
     x 1.1"D (not counting mounting bracket)
     x 3.4"D (including mounting bracket)
     Weight   Approx 1 lb, 0.5 kg

CANOPY
Motorola Wireless Internet Platform

CANOPY
Motorola Wireless Internet Platform

MOTOROLA

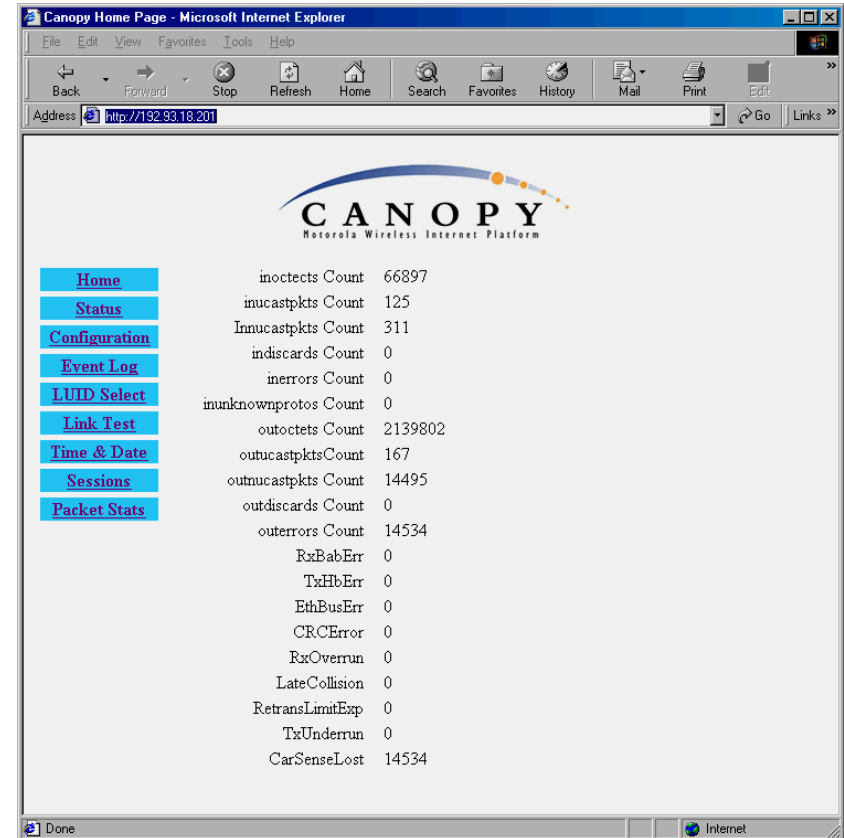**Getting Started with Motorola**

CANOPY™ AP

Warranty Information

Motorola offers a warranty covering a period of 90 days from the date of purchase by the retail customer. If a product is found defective during the warranty period, Motorola will repair or replace the product with the same or a similar model, which may be a reconditioned unit, without charge for parts or labor.
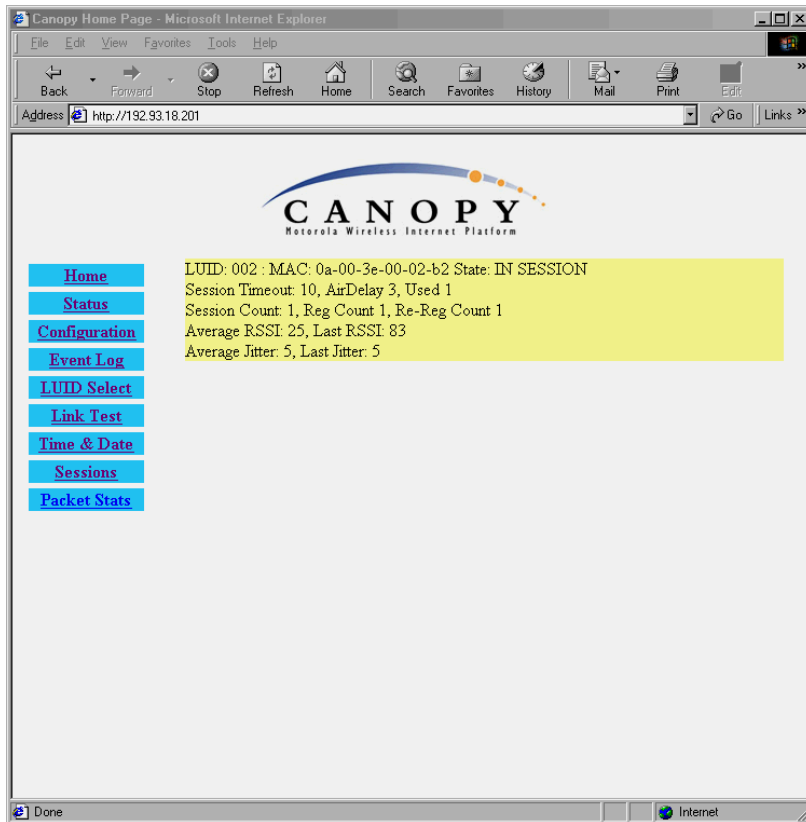
Packet Stats

Information on Packet Stats is for tech support personnel only.

Sessions

Information on Sessions is for tech support personnel only.

Congratulations!

You have purchased a Motorola CANOPY radio, the laest innovation in high speed wireless networking. The Motorola CANOPY radio lets you easily network at high speeds with no wiring.

- Network speeds of 10baseT.
- Small compact design
- No special set up on your PC.

Getting to Know your Radio.
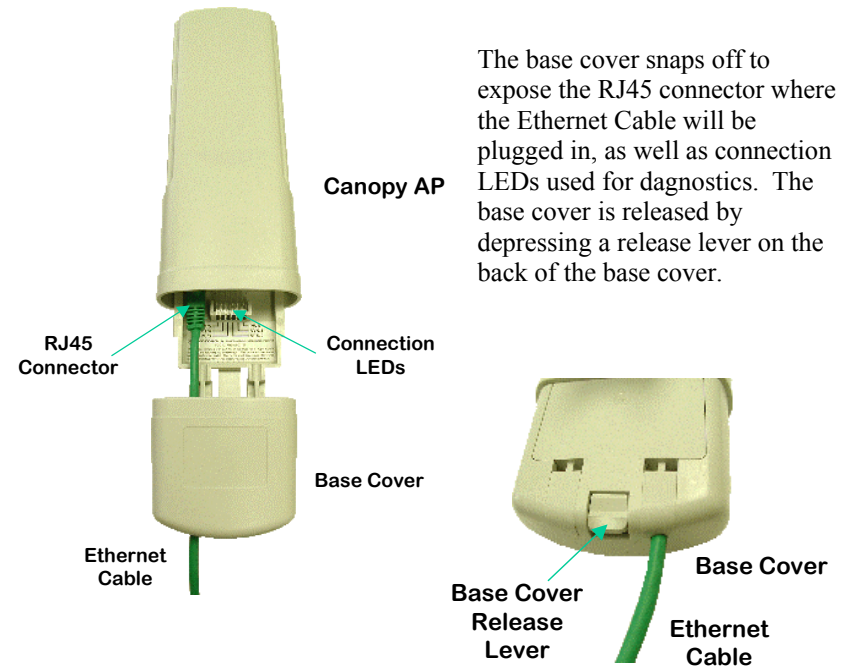
The base cover snaps off to expose the RJ45 connector where the Ethernet Cable will be plugged in, as well as connection LEDs used for dagnostics. The base cover is released by depressing a release lever on the back of the base cover.

Canopy AP

RJ45 Connector

Connection LEDs

Base Cover

Ethernet Cable

Base Cover Release Lever

Base Cover

Ethernet Cable

Installing CANOPY

Mount from 1 to 6 CANOPY AP radios in a location where it is facing the community to be served. Pick a location, pole, tower, rooftop or other structure which provides an unobstructed view over the rooftops of the surrounding buildings.

Canopy AP Radios

Optimum Access Point height on building or pole should minimally clear the surrounding community
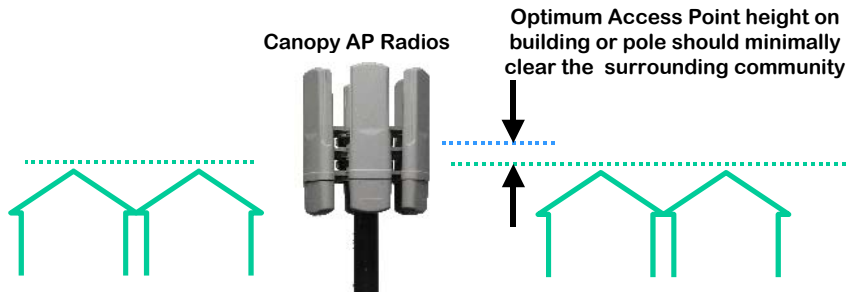
6 CANOPY AP radios on a pole will serve the surrounding community in all directions.
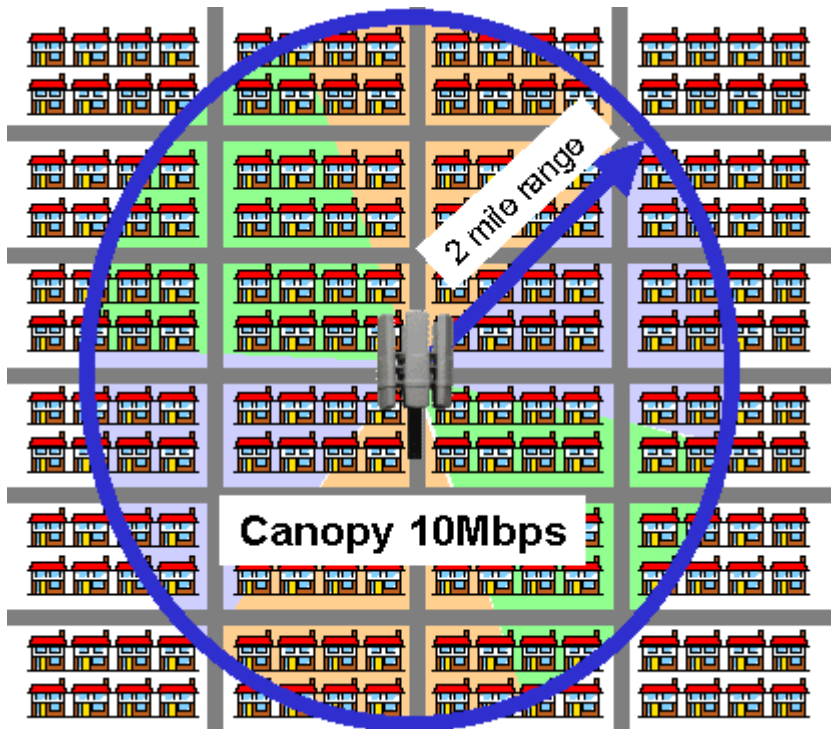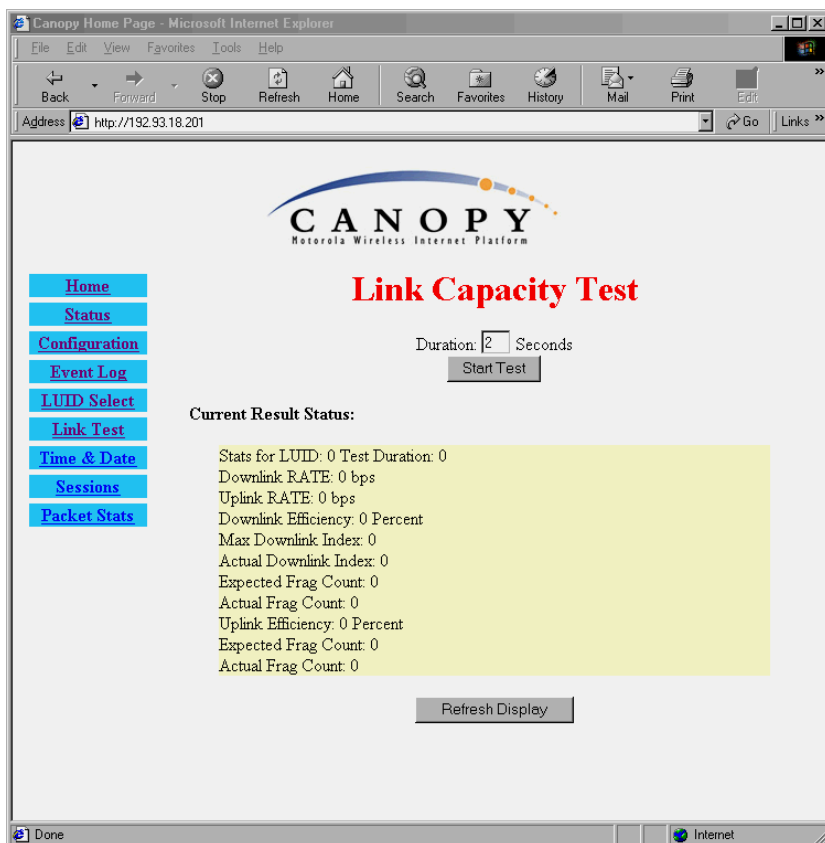

Time & Date
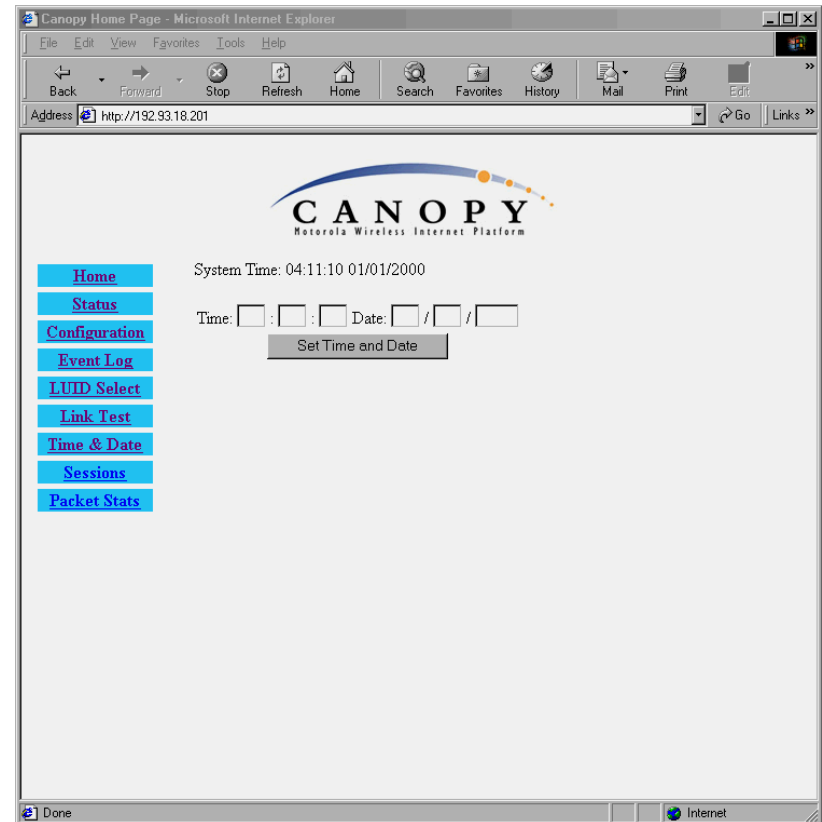
Each Canopy AP Unit can be configured with time & date. Further, the entered Time & Date are automatically conveyed over the air to all registered Canopy Subscriber Modules at the time of their next time of registration.
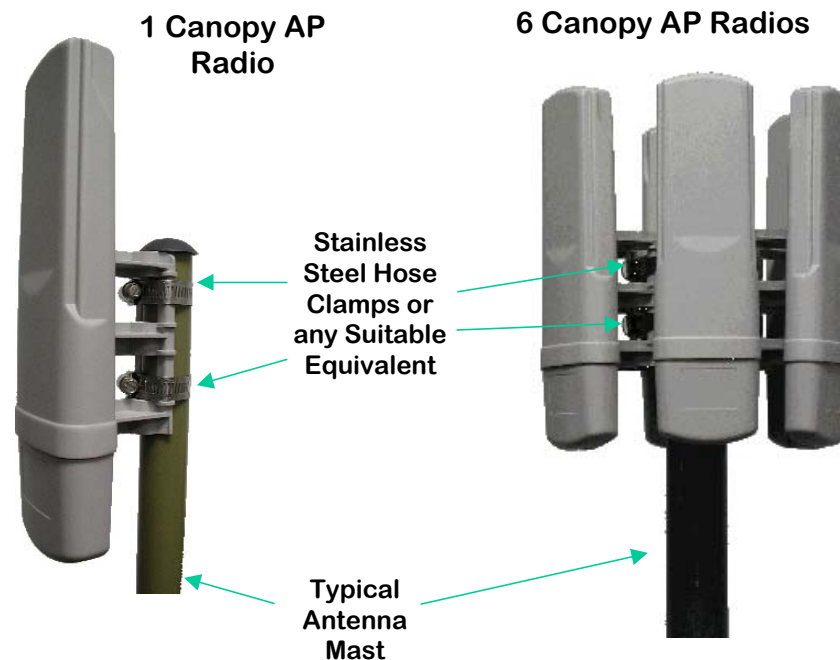
Time & Date are configured automatically in multiple Canopy AP Unit sites where the Canopy AP Junction contains GPS.

Link Test

In concert with the LUID select page, the radio link to the currently selected Canopy SM Unit may be tested.

Mounting Your Canopy AP Units

1 Canopy AP Radio

6 Canopy AP Radios

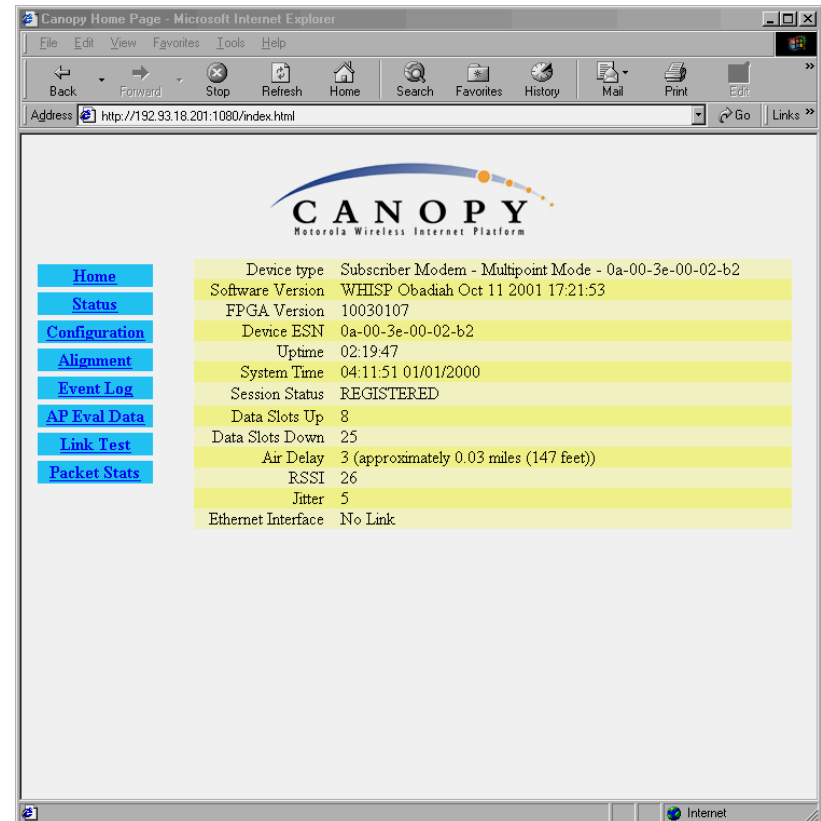Stainless Steel Hose Clamps or any Suitable Equivalent

Typical Antenna Mast

- IMPORTANT NOTE: To comply with FCC RF exposure compliance requirements, the following antenna installation and device operating configurations must be satisfied. The Canopy AP Units must be installed to provide a separation distance of at least 20cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter. Installers must follow the Canopy AP Unit installation instructions and transmitter operating conditions for satisfying RF exposure compliance.

- The Canopy AP Units can be mounted in a variety of ways. Mounting to a typical rooftop antenna mast is illustrated above as an example using readily available stainless steel hose clamps or any equivalent fasteners.

- The Canopy AP Units should be installed away from the service mast and grounding of masts or brackets must be in accordance with applicable requirements within section 810 of the National Electrical Code (NEC).

Connecting Your Single Canopy AP Unit
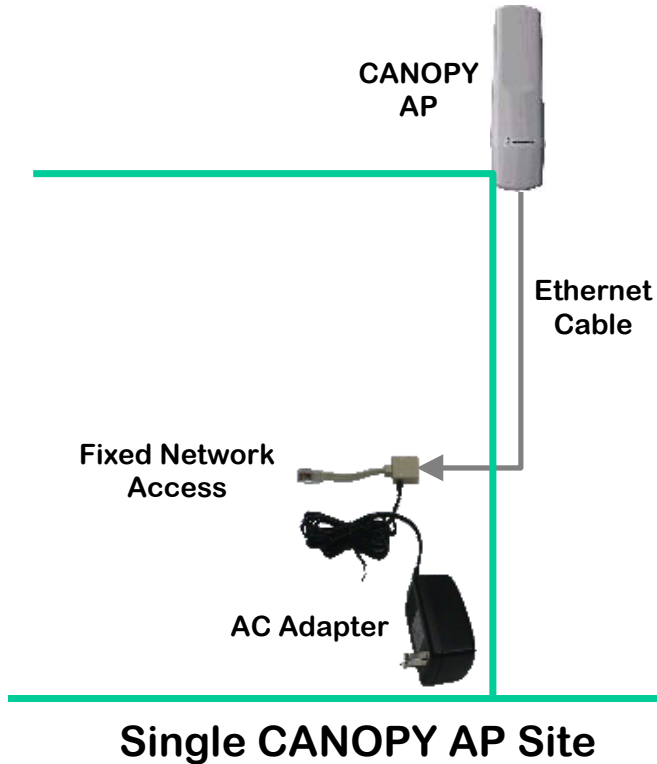
View Subscriber Module

CANOPY AP

Ethernet Cable

Fixed Network Access

AC Adapter

Single CANOPY AP Site

- Connect a CAT-5 Ethernet cable, such as Belden-E Datatwist ® 5E 1585LC, between the power adapter Ethernet patch and the RJ45 socket on the CANOPY AP.

- Plug the AC Adapter into an AC outlet. Plug the other side of the power adapter's Ethernet patch into a computer Ethernet port, hub, router, or Ethernet switch.

- If connecting to a COMPUTER, use a Straight-Thru Ethernet cable. If connecting to a HUB, SWITCH, or ROUTER, use a Cross-Over Ethernet cable.

In concert with the LUID Select page, the currently selected Canopy Subscriber Module internal web pages can be accessed. Once selected, other pages within the currently selected Subscriber Module can be accessed. In this way, the system provider can examine, or even reconfigure registered Canopy Subscriber Modules.

LUID Select
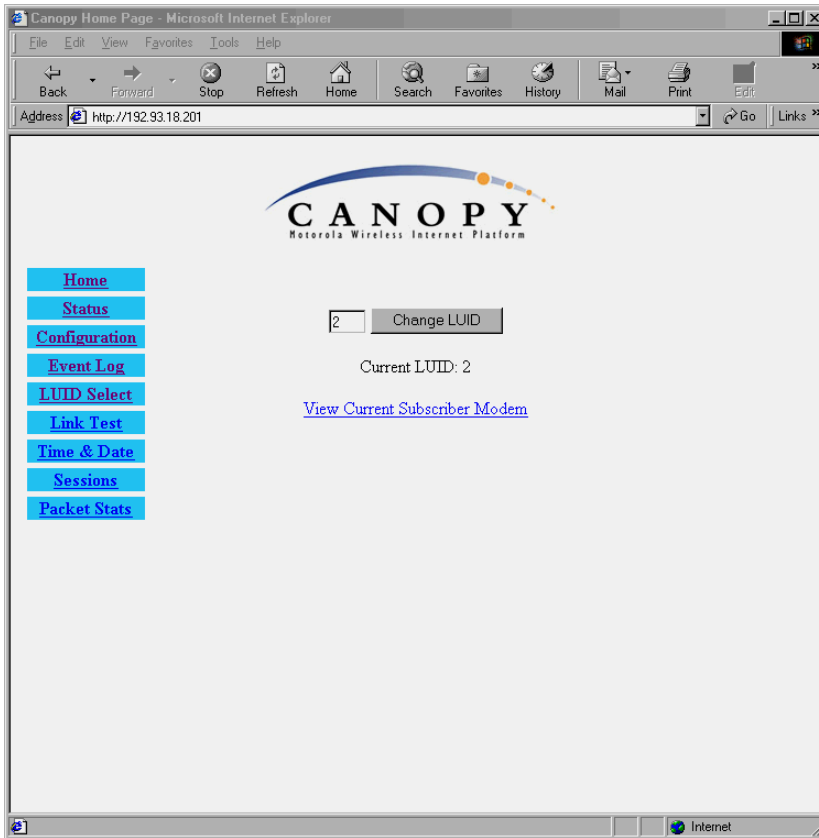
The user can select any of the registered Canopy SM Units currently registered on this Canopy AP Unit for purposes of Link Testing or accessing the Canopy SM Unit configuration web pages over the radio link.

Configuring your Canopy AP Units for a Multiple AP Unit Site

- All Canopy AP radios come pre-configured with the same default IP address, 169.254.1.1. When mounting multiple Canopy AP radios together at a site, they should first be reconfigured to different individual IP addresses, or it will not be possible to individually address them later.

- Use a Windows laptop or computer configured for a dynamic IP address. Startup the laptop with no Ethernet connection. This automatically assigns a compatible IP address to the laptop in the 169.254 subnet.
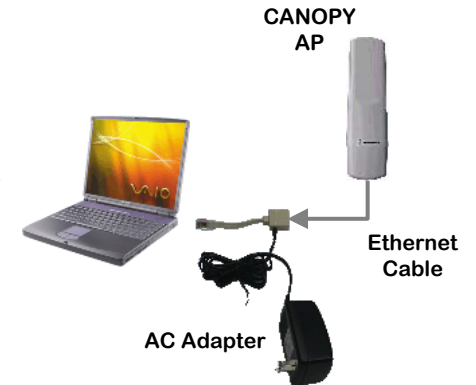
- Connect a straight-thru Ethernet cable from the power-adapter Ethernet patch to the RJ45 socket on the Canopy AP. Plug the AC adapter into an AC outlet. Connect the other side of the power adapter's Ethernet patch into your PC Ethernet port.

- Using a web browser, go to the default URL (http://169.254.1.1) to access the Canopy AP internal configuration web pages. Keeping a permanent record, assign a sequentially consecutive address to each Canopy AP unit.

Example:
    1st Canopy AP Unit   IP Address 192.168.1.2
    2nd Canopy AP Unit   IP Address 192.168.1.3
    3rd Canopy AP Unit   IP Address 192.168.1.4
    4th Canopy AP Unit   IP Address 192.168.1.5
    5th Canopy AP Unit   IP Address 192.168.1.6
    6th Canopy AP Unit   IP Address 192.168.1.7

- Changing the subnet assignment to valid IP addresses on your network, and it is also recommended to begin IP assignments at 2.

- Once the Canopy AP Unit flash has been updated & the unit rebooted, it may only be accessed thereafter by it's new IP address.

Connecting Your Multiple Canopy AP Units

GPS Antenna

6 Canopy AP Radios

- Once the Canopy AP Units have been assigned unique IP addresses, they are ready to be connected to the Canopy AP Installation Kit. Mount the Canopy AP Installation Kit near the Canopy AP Units.

- Connect AC to the Canopy AP Installation Kit.

- Connect a CAT-5 Ethernet cable, such as Belden-E Datatwist ® 5E 1585LC, between the AP Installation Kit and each CANOPY AP Unit.

- Connect an RJ11c phone cable between the AP Installation Kit *Sync connectors* and each CANOPY AP Unit.

- Connect a CAT-5 Ethernet cable between the AP Installation Kit and a 100baseT network.

- Consult the AP Installation Kit user guide for more detailed instructions.

Ethernet & Sync Cables

Multiple Canopy AP Installation Kit

AC

100BaseT Ethernet
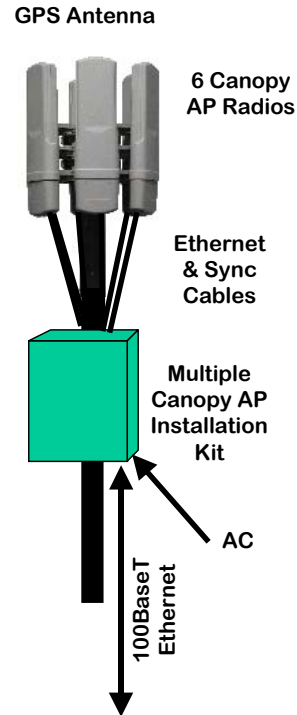
Sync Input

One of the Sync connectors on the Canopy AP Junction is labeled *MASTER*. Make a permanent note of which Canopy AP Unit is connected to the *MASTER Sync connector*.

- On the Canopy AP Unit internal configuration screen, select *Sync AP to Received Signal* to the *Sync Input* field for all connected to the Canopy AP Junction. The GPS receiver within the Canopy AP Junction will generate sync for all attached Canopy AP Units.

Event Log
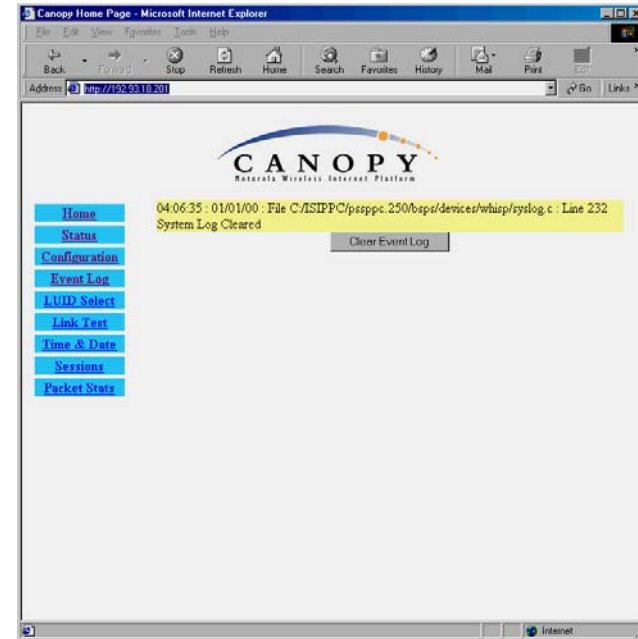
Information on Event Log is for tech support personnel only.

The user should not clear this data unless instructed to do so by tech support personnel.

LED Display

FCC ID: ABZ89FC3789   S/N: 0A003E-XXXXXX

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions; (1) This device may not cause harmful interference, and (2) This device must accept any interference received, including interference that may cause undesired operation.

PWR	RED – Indicates the Canopy AP is powered
SYN/1	YELLOW – indicates AP Unit is operational
SES/2	GREEN – not used on the AP Unit
GPS/3	RED – indicates Sync input is active, if Sync Input is configured as an input.
ACT/4	YELLOW – 10/100BaseT link activity, RX or TX
LNK/5	GREEN – 10/100BaseT link indicator

In Normal Operating Mode the LED indicators inside the Canopy AP Unit provide various status states. Each adjacent LED employs a different colored LED to help you distinguish one from another. There are no color coded meanings associated with RED, YELLOW, or GREEN.

Planning Multiple Canopy AP Units

- Once the Canopy AP Units have been assigned unique IP addresses, Sync Input, mounted, and connected to the Canopy AP Junctions, they should be configured according to a frequency plan. Construct a diagram of all the installed Canopy AP Units, and label each with the assigned unique IP address and identify the Sync Master for each site … preferably on a map overlay. This will become useful later when providing directions for configuring Canopy Subscriber Modules. Consider the example below depicting 24 Canopy AP Units at 4 sites.
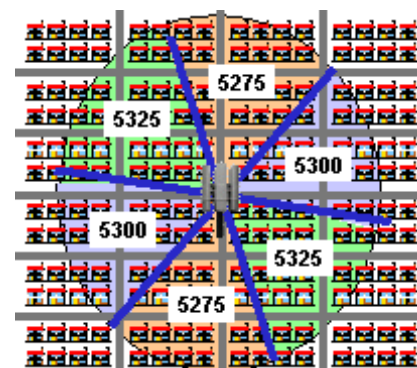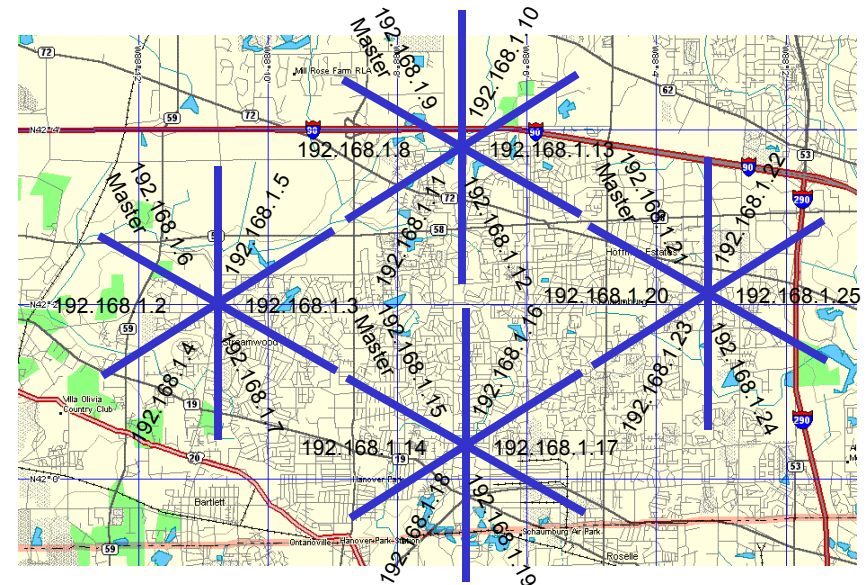
- Using the configured IP addresses, go to the configuration tab on the internal web pages for each Canopy AP Unit.

- Select an RF frequency for each Canopy AP Unit based on it's direction / orientation using the example guide shown at the left. Units should be assigned different frequencies in each adjacent cell, while cells pointed in opposite directions may use the same fre-quency.

Accessing your Canopy AP Unit Configuration

A PC for accessing your Canopy AP Unit configuration does not require any special setup beyond proper installation of Ethernet interface device, drivers, and TCP/IP protocol.

Configuring the CANOPY AP Unit

During normal operation, the Canopy AP Unit provides a variety of status & diagnostic information should this become necessary. The Canopy AP Unit requires little configuration for operation and is delivered with default operating parameters. As described earlier, in a multiple AP system, reconfiguration of the Canopy AP Units is required to assign unique IP address assignments, as well as coordinate Canopy AP Unit frequencies.

Open your web browser (such as Microsoft Internet Explorer) and enter the Canopy AP Unit default URL (http://169.254.1.1), or the URL with the unique IP address assigned to a specific Canopy AP Unit. If the CANOPY radio is powered and a proper network connection exists to your computer, you will see the CANOPY AP Unit status page open in your web browser. These web pages are within the CANOPY AP Unit, and no connection to the Internet is required. Various web pages within the CANOPY AP Unit can be selected from the choices on the left.

Status
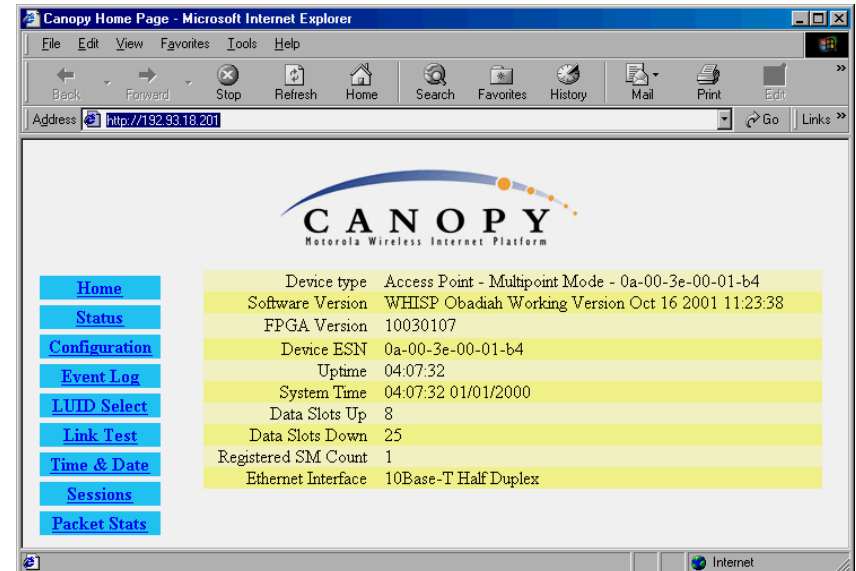
Device type	should read **Access Point – Multipoint Mode**. Any other label indicates an inappropriate preconfiguration of the CANOPY AP Unit
Software Version	should be noted in the event you have technical difficulties and need to contact technical support
FPGA Version	should be noted in the event you have technical difficulties and need to contact technical support
Device ESN	is the Link Layer Ethernet Address assigned to your CANOPY radio. Every CANOPY radio, Ethernet card, or Network Interface Card (NIC) will have a unique number preconfigured
Uptime	is the length of time your CANOPY radio has been operating since power was last applied
System Time	is the time set by the wireless service provider
Data Slots Up	This information is for use of technical support
Data Slots Down	This information is for use of technical support
Registered SM Count	The number of Canopy SM Units currently registered with this Canopy AP Unit
Ethernet Interface	10/100 Base T, either half or full Duplex This information is for use of technical support
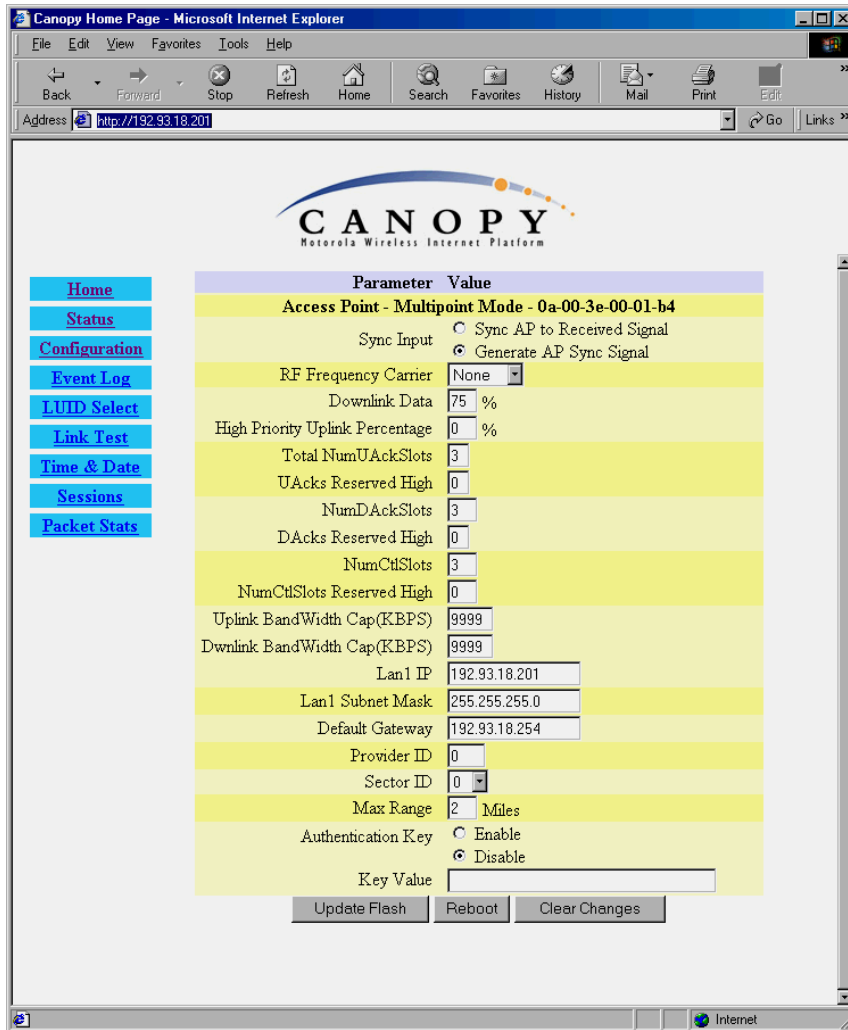
Lan1 IP	is preconfigured to the address **169.254.1.1**. In multiple AP systems these should be changed to insure each Canopy AP is assigned a unique IP address.
Lan1 Subnet Mask	is preconfigured to the value **255.255.0.0** for all Canopy AP Units. Change this as appropriate when changing the Lan1 IP address.
Default Gateway	is preconfigured to the address **169.254.0.0** for all Canopy AP Units. Change this as appropriate for your network gateway.
Provider ID	All Canopy Units (AP & SM) in a system should be configured with a unique provider ID which will permit all radio messages between Canopy Units of another system to be ignored.
Sector ID	A number may be entered into this field which is conveyed to all registering Canopy SM Units under the heading Sector ID. It may be useful to assign sequential sector IDs to each Canopy AP Unit in multiple AP Unit sites.
Max Range	is preconfigured to 2 miles, and establishes the maximum Canopy SM Unit range which will be allowed to register.
Update Flash	overwrites configuration previously saved to the CANOPY radio. Changes will not take effect until the radio is power-cycled or rebooted.
Reboot	Initiates a radio reboot.
Clear Changes	Re-displays current configuration of CANOPY configuration.

Home
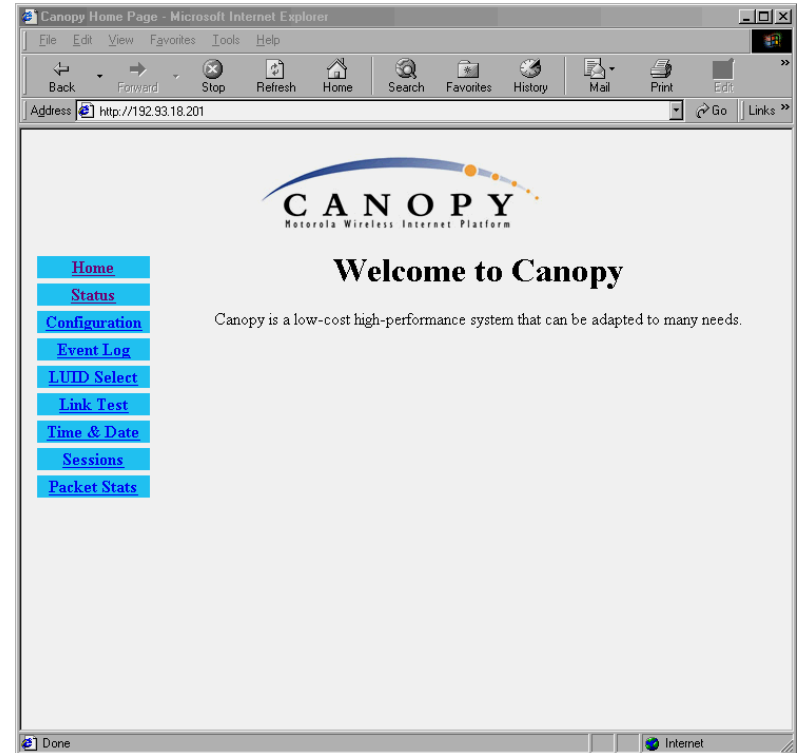
This is the CANOPY AP **Home** page. You may select any of the other pages within the CANOPY AP Unit, such as the **Status**, **Configuration**, **Event Log**, **LUID Select**, **Link Test**, **Time & Date**, **Sessions**, or **Packet Stats**.

Configuration

Canopy Home Page - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Refresh Home Search Favorites History Mail Print Edit

Address http://192.93.18.201 Go Links

CANOPY
Motorola Wireless Internet Platform

Home
Status
Configuration
Event Log
LUID Select
Link Test
Time & Date
Sessions
Packet Stats

Parameter	Value
Access Point - Multipoint Mode - 0a-00-3e-00-01-b4	
Sync Input	○ Sync AP to Received Signal ⦿ Generate AP Sync Signal
RF Frequency Carrier	None
Downlink Data	75 %
High Priority Uplink Percentage	0 %
Total NumUAckSlots	3
UAcks Reserved High	0
NumDAckSlots	3
DAcks Reserved High	0
NumCtlSlots	3
NumCtlSlots Reserved High	0
Uplink BandWidth Cap(KBPS)	9999
Dwnlink BandWidth Cap(KBPS)	9999
Lan1 IP	192.93.18.201
Lan1 Subnet Mask	255.255.255.0
Default Gateway	192.93.18.254
Provider ID	0
Sector ID	0
Max Range	2 Miles
Authentication Key	○ Enable ⦿ Disable
Key Value	

Update Flash   Reboot   Clear Changes

Internet

Use this page to configure operating parameters for the Canopy AP Unit. Sync Input, RF Frequency, and Lan1 IP Address will require reconfiguration for multiple AP Unit Sites.

Device type	The second line should read **Access Point – Multipoint Mode**. Any other label indicates an inappropriate preconfiguration of the CANOPY radio
Sync Input	Default is **Generate AP Sync Signal**. In multiple AP sites, all APs should be set to **Sync AP to Received Signal** when fed from the Canopy AP Junction.
RF Frequency Carrier	Select the RF frequency for this Canopy AP Unit. The RF frequency for all Canopy AP Units should be coordinated to insure that adjacent cells operate on different frequencies.
Downlink Data	Preallocate a division of the total bandwidth between downlink (to the subscribers) and uplink (from the subscribers). Typical web-browsing applications typically are served best by more bandwidth allocated to downlink. The default value is 75%.
High Priority Uplink Percentage	is preconfigured to 0. This value permits establishing a portion of uplink bandwidth for VoIP services.
Total NumUAckSlots	is preconfigured to 3. This value permits tuning of the number of slots per frame for Uplink Acknowledgements.
Uacks Reserved High	is preconfigured to 0. This value permits tuning of the number of slots per frame for Uplink Acknowledgements for VoIP services.
NumD AckSlots	is preconfigured to 3. This value permits tuning of the number of slots per frame for Downlink Acknowledgements.
DAcksReserved High	is preconfigured to 0. This value permits tuning of the number of slots per frame for Downlink Acknowledgements for VoIP services.
NumCtlSlots	is preconfigured to 3. This value permits tuning of the number of contention slots per frame based on the number of registered SM users.
NumCtlSlots Reserved High	is preconfigured to 0. This value permits tuning of the number of contention slots per frame for VoIP services based on the number of registered SM users.
Uplink BandWidth Cap (KBPS)	is preconfigured to 9999. This value permits creating a per SM user capacity for Uplink data.
Dwnlink BandWidth Cap (KBPS)	is preconfigured to 9999. This value permits creating a per SM user capacity for Uplink data.

Specifications

Operating Frequency Range
    U-NII Mid band   5.745 to 5.805 GHz
Access Method   TDD/TDMA
Data Rate   10 Mbps
Modulation Type   High Index BFSK/4FSK
                                 (Optimized for interference rejection)
Carrier to Interference (C/I)   3dB Ber $1*10^{-4}$
Receiver Sensitivity   -84dBm $1*10^{-4}$
Error Floor   Better than 10^{-9} BER, unfaded
Operating Range (All Weather)   Up to 2 miles with integrated antenna
Transmitter Power   Meets FCC UNII ERP Limit
DC Power   24 VDC @ 0.3 Amp (active state)
Interface   10 Base-T, RJ45
                                 Rate auto negotiated (802.3 compliant)
Protocols Used by CANOPY   IPV4, UDP, TCP, ICMP, Telnet,
                                 HTTP, FTP, SNMP

Protocols Supported by CANOPY   Switched Layer 2 Transport with support for all common Ethernet protocols including IPV6, NetBIOS, DHCP, IPX, etc.

Software Upgrade Path   Remotely downloaded into FLASH
                                  via RF link

Network Management   HTML, TELNET, SNMP

Environmental
    Wind   190 km/hr
    Humidity   Relative Humidity 95% at 35°C
    Temperature   -30° to +55° C

Physical
    Dimensions   11.75"H x 3.4"W
                                  x 1.1"D (not counting mounting bracket)
                                  x 3.4"D (including mounting bracket)
    Weight   Approx 1 lb, 0.5 kg

MOTOROLA

Getting Started with Motorola

CANOPY™ BH

Warranty Information

Motorola offers a warranty covering a period of 90 days from the date of purchase by the retail customer. If a product is found defective during the warranty period, Motorola will repair or replace the product with the same or a similar model, which may be a reconditioned unit, without charge for parts or labor.

## Detailed Configuration & Operation

Each of your Canopy BH units operate logically as a Canopy AP or Canopy SM. Detailed operational guide can be found within the associated user guides:

- **Canopy AP User Guide**

- **Canopy AP User Guide**

Where an AP Installation kit is used to connect, power, & synchronize a Canopy BH-AP, detailed connection & setup can be found within the associated user guide:

- **Canopy AP Installation Kit**

Connecting Your Canopy BH Units
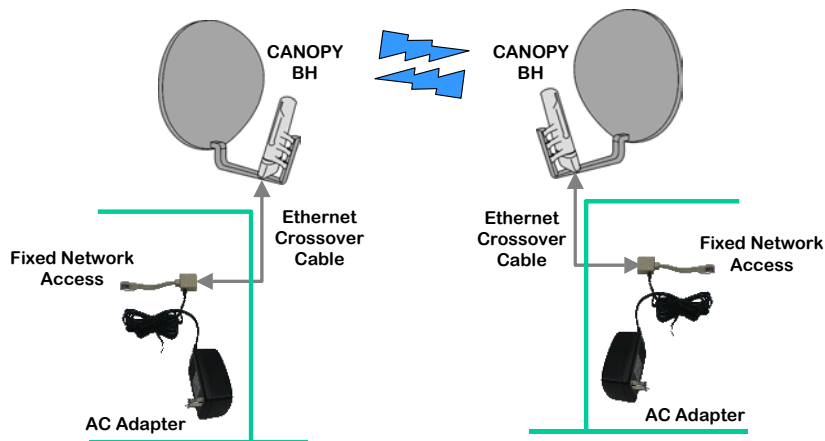
- Connect a CAT-5 Ethernet cable, such as Belden-E Datatwist ® 5E 1585LC, between the power adapter Ethernet patch and the RJ45 socket on the CANOPY BH.

- Plug the AC Adapter into an AC outlet. Plug the other side of the power adapter's Ethernet patch into a computer Ethernet port, hub, router, or Ethernet switch.

• The Canopy BH units are depicted in the diagram above using a Cross-Over Ethernet cable, to connect to a Fixed Network such as a HUB, SWITCH, or ROUTER. If connecting to a COMPUTER, use a Straight-Thru Ethernet cable.

• Although Ethernet straight-through or crossover cables minimally connect pins 1,2,3, & 6, insure that your Ethernet cable passes through all connections (pins 4, 5, 7, & 8 convey power up to your Canopy radio).

If one side or the other employs a Canopy AP Installation Kit, power is provided without the need for an AC Adapter … however, the Ethernet cable should be straight (not cross-over) to the Canopy BH unit because the AP Installation Kit provides internal cross-over patches for all connected Canopy AP units.

Congratulations!

You have purchased a Motorola CANOPY backhaul radio, the latest innovation in high speed wireless networking. The Motorola CANOPY radio lets you easily network at high speeds with no wiring.

- Network speeds of 20Mbps.
- Small compact design.
- Transparent 100baseT networking.

Getting to Know your Radio.
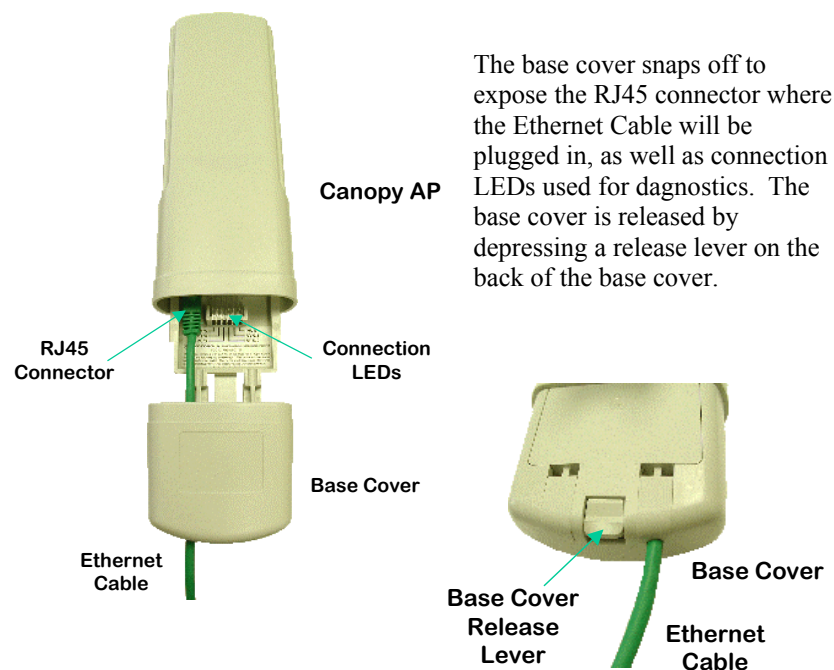
The base cover snaps off to expose the RJ45 connector where the Ethernet Cable will be plugged in, as well as connection LEDs used for dagnostics. The base cover is released by depressing a release lever on the back of the base cover.

Installing CANOPY BH

Mount the Canopy BH radios on any structures which will provide the pair of radios a clear unobstructed view.


The Canopy BH units are configured as a pair with one of the units designated as AP and one of the units designated as SM. Carefully align both the AP unit and SM unit to point at each other. If the distance is far enough that the target location is not visible, plan the direction using a map and align the units carefully with a compass. Install and power the AP unit first. Then when installing the SM location, the built-in alignment mode will be used to fine-tune the alignment and verify the link.

Either side of the Point-to-Point link can be the BH-AP Unit. If one of the following conditions applies, select the BH-AP unit accordingly:

- If one side of the Point-to-Point link is also intended to be the location of a Canopy Access Point to reach Point-to-MultiPoint Subscriber Modules, put the Canopy BH-AP unit on this side and connect it using the Canopy AP Installation Kit along with the other Canopy AP units.

- If there is no connection to a Canopy Point-to-Multipoint network (just a dedicated link), but one site is co-located with multiple Canopy Point-to-Point links in a star configuration, put the Canopy BH-AP unit on the multiple Canopy BH site … and use a Canopy AP Installation Kit.

- If there is no connection to a Canopy Point-to-Multipoint network (just a dedicated link) but the network is managed from one side, put the Canopy BH-AP unit on the side that the network is normally managed from.

Mounting Your Canopy BH Units
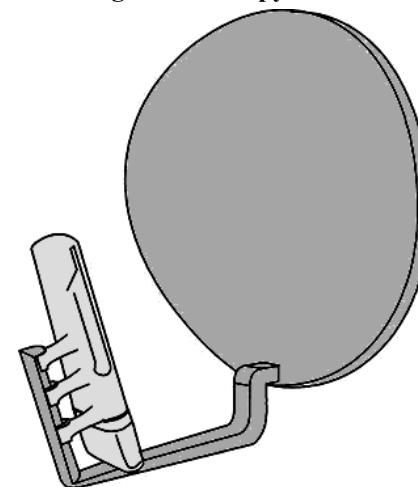
- IMPORTANT NOTE: To comply with FCC RF exposure compliance requirements, the following antenna installation and device operating configurations must be satisfied. The Canopy BH Units must be installed to provide a separation distance of at least 1.5meters from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter. Installers must follow the Canopy BH Unit installation instructions and transmitter operating conditions for satisfying RF exposure compliance.

- The Canopy BH Units can be mounted in a variety of ways. Mounting to a typical rooftop antenna mast is illustrated above as an example using the bracket built into the back of the reflector dish.

- The Canopy AP Units should be installed away from the service mast, and grounding of masts or brackets must be in accordance with applicable requirements within section 810 of the National Electrical Code (NEC).
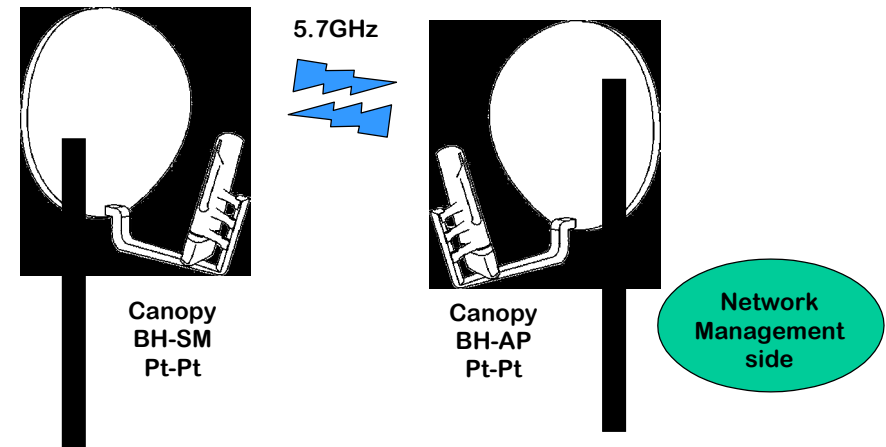
Canopy BH—Remote feed of multiple Canopy Access Points from a common remote location

Canopy BH—Dedicated Link
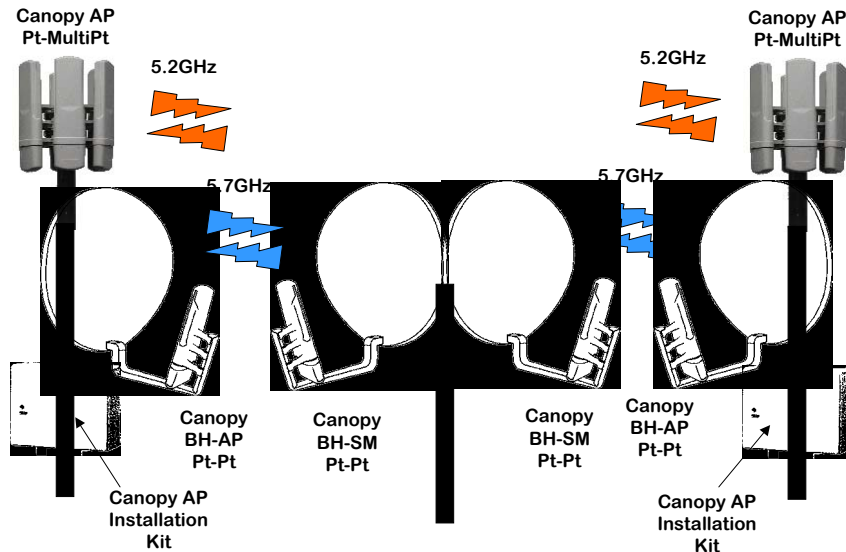
Where using Canopy BH to feed multiple Canopy Point-to-MultiPoint Access Points from a remote location, all Canopy BH links can be synchronized from the Point-to-MultiPoint Access Points (each is equipped with a Canopy AP Installation Kit). Here, the Canopy BH-SM units end up co-located, but operate synchronized, each synchronized by the Canopy BH-AP units co-located at the Point-to-MultiPoint Access Points.

The Canopy BH-AP unit receives powered and GPS synchronization from the Canopy AP Installation Kit. The Canopy BH-AP units must be configured to "Sync AP to Received Signal", and not "Generate AP Sync Signal".
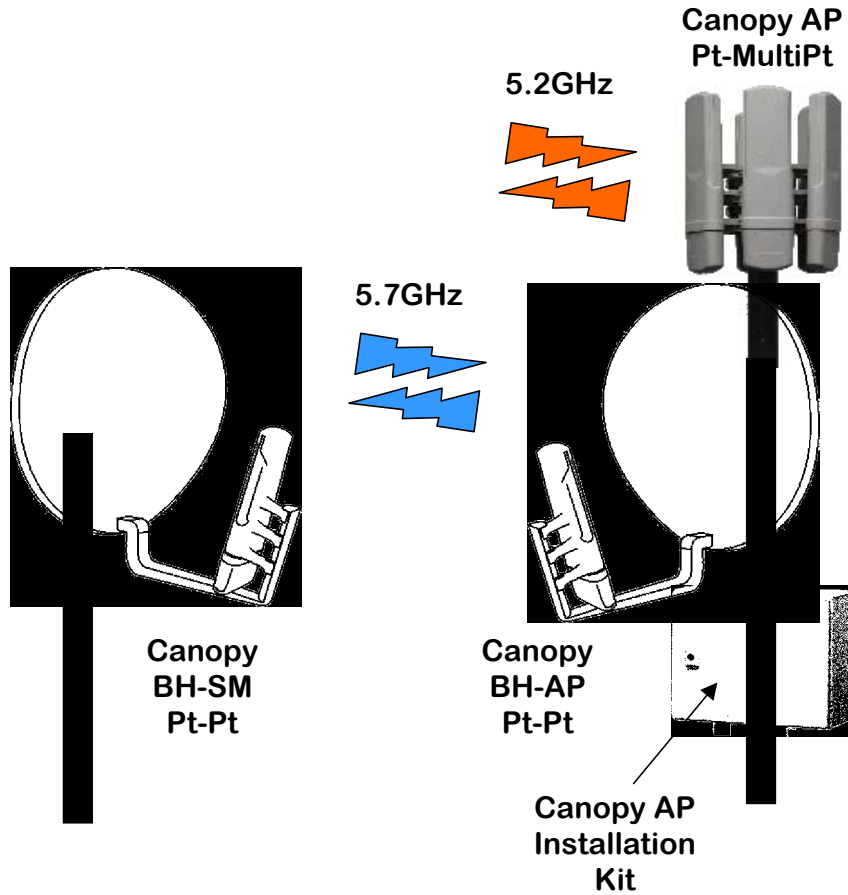

This is a basic, simple, stand-alone dedicated link using Canopy BH. Either side can be SM or AP. For convenience, the Canopy BH-AP unit should be on the side of the link where normal management functions are performed. The management side can directly access the internal web pages of the Canopy BH-AP unit, and can access the Canopy BH-SM web pages through the Canopy BH-AP unit.

Both Canopy BH units (SM & AP) both are powered by AC Adapters … neither side uses a Canopy AP Installation Kit. Since there is no Canopy AP Installation kit at either side, there is no GPS synchronization, and the Canopy BH-AP unit must be configured to "Generate AP Sync Signal", and not "Sync AP to Received Signal".

Canopy BH—Remote Internet Feed to Canopy 5.2GHz Access Point

Canopy BH—Co-Located Canopy BH units (multiple dedicated links)

**Canopy AP
Pt-MultiPt**

5.2GHz

5.7GHz

5.7GHz

7GHz

**Canopy
BH-SM
Pt-Pt**

**Canopy
BH-AP
Pt-Pt**

**Canopy AP
Installation
Kit**

**Canopy
BH-SM
Pt-Pt**

**Canopy
BH-AP
Pt-Pt**

**Canopy
BH-AP
Pt-Pt**

**Canopy
BH-SM
Pt-Pt**

**Canopy AP
Installation
Kit**

This is a basic use of Canopy BH to provide a remote Ethernet feed to a Canopy 5.2GHz Pt-MultiPt Access Point. The Canopy Access Point provides power and GPS for all Canopy units at the site, including the Canopy BH-AP unit.

The Canopy BH-AP unit receives powered and GPS synchronization from the Canopy AP Installation Kit. The Canopy BH-AP unit must be configured to "Sync AP to Received Signal", and not "Generate AP Sync Signal".

Where multiple Canopy BH links share a site in common, a Canopy AP Installation Kit can be employed to (a) power all the Canopy units at the same site, and (b) provide synchronization. In this configuration, Canopy BH-AP units should be placed at the same site, and the end-points of the star configuration should be configured as Canopy BH-SM units.

The Canopy BH-AP unit receives powered and GPS synchronization from the Canopy AP Installation Kit. The Canopy BH-AP unit must be configured to "Sync AP to Received Signal", and not "Generate AP Sync Signal".

CANOPY
Motorola Wireless Internet Platform

**MOTOROLA**

Getting Started with Motorola

CANOPY™ AP INSTALLATION KIT
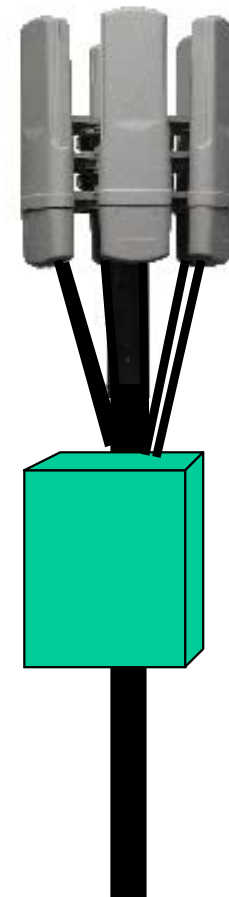
Warranty Information

Motorola offers a warranty covering a period of 90 days from the date of purchase by the retail customer. If a product is found defective during the warranty period, Motorola will repair or replace the product with the same or a similar model, which may be a reconditioned unit, without charge for parts or labor.

Connecting the GPS Antenna
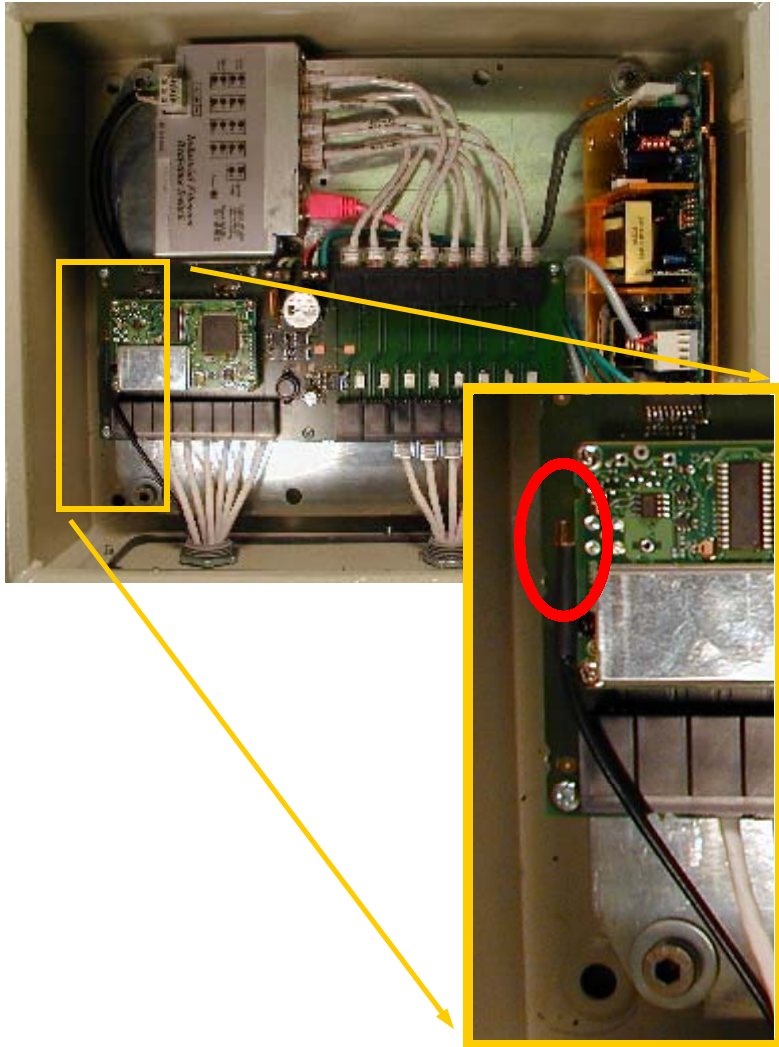
The GPS antenna cable plugs into a matching socket just below the left side of the GPS receiver board. The GPS antenna at the other end of the GPS antenna cable should be mounted above the Canopy AP Units on the mounting mast, facing upwards towards the sky with an unobstructed view.

Congratulations!

You have purchased a Motorola CANOPY AP Installation Kit, an accessory to the latest innovation in high speed wireless networking. The Motorola CANOPY radio lets you easily network at high speeds with no wiring.

- Network speeds of 10baseT.
- Small compact design
- No special set up on your PC.

The Canopy AP Installation Kit provides everything necessary to get a multiple Canopy AP Unit Access Point operational.


Getting to Know your Canopy AP Installation Kit.

Ethernet Switch   AC Supply

GPS   Interconnect Board
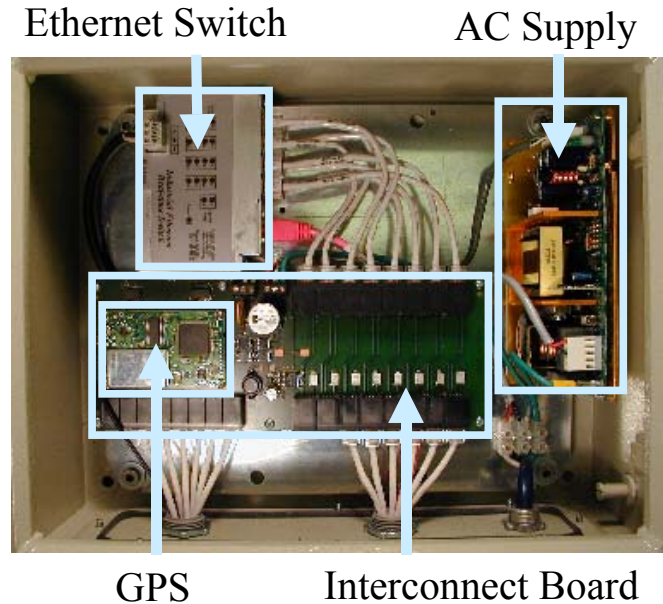
Installing CANOPY AP Installation Kit

Mount the Canopy AP Installation Kit in a convenient location below the Canopy AP Radio Units, on a multiple Canopy AP radio site. The illustration below depicts a typical 6 Canopy AP Unit configuration on an antenna mast or pole. In such a configuration, the Canopy AP Installation Kit would be conveniently mounted on the same mast or pole below the Canopy AP radio units.
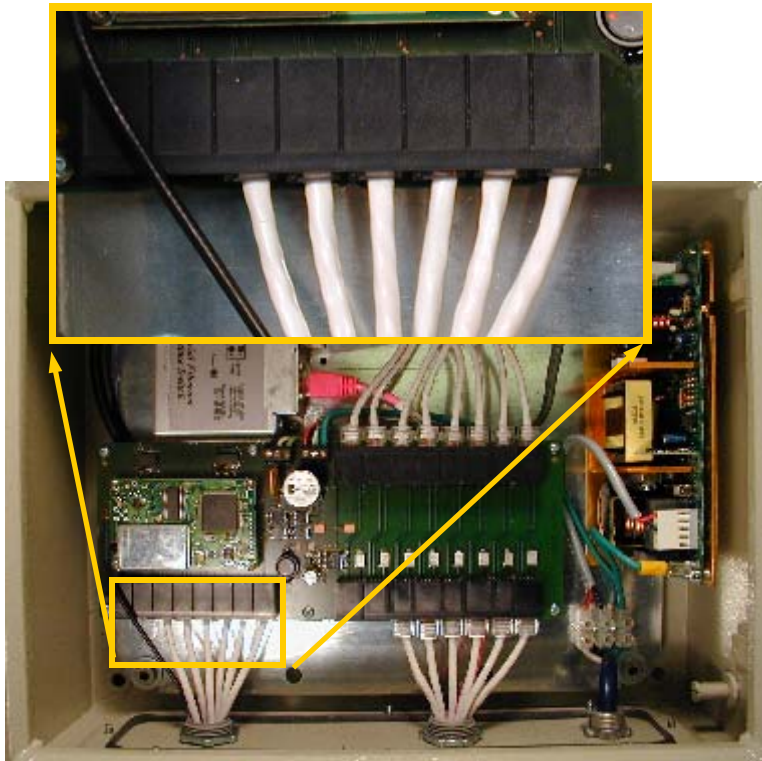
GPS Antenna

6 Canopy AP Radios

Ethernet & Sync Cables

Multiple Canopy AP Installation Kit

AC
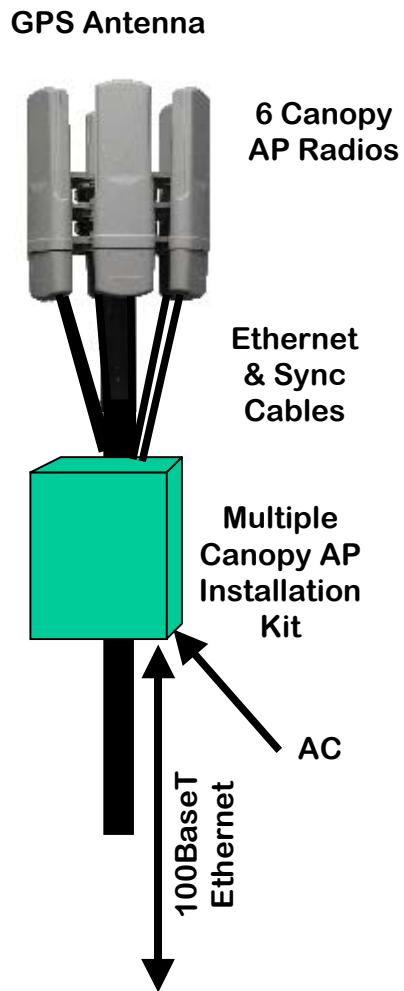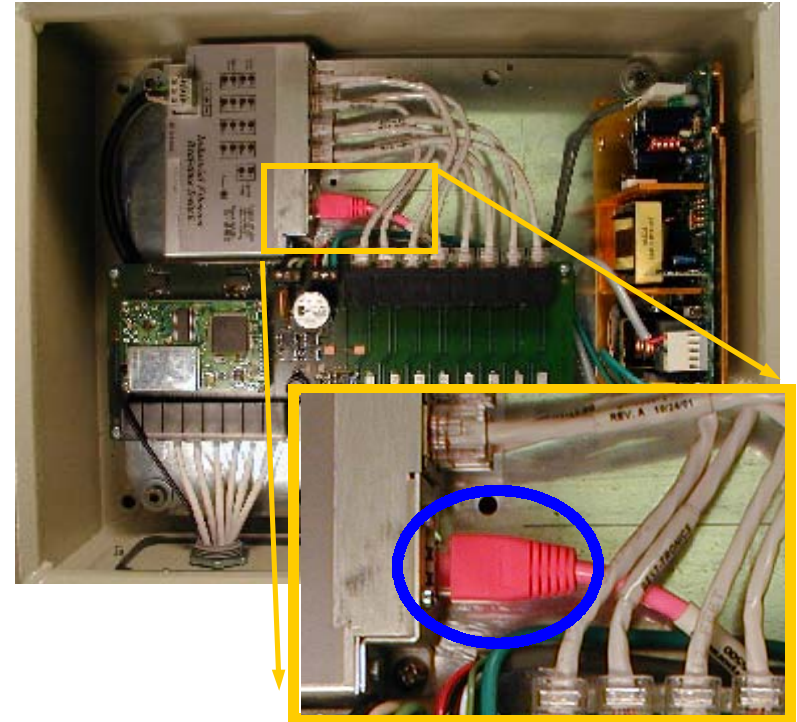
100BaseT Ethernet

The network should be connected to a 100baseT network source with a CAT5 Ethernet Cable, as depicted by the pink cable in the photo above.

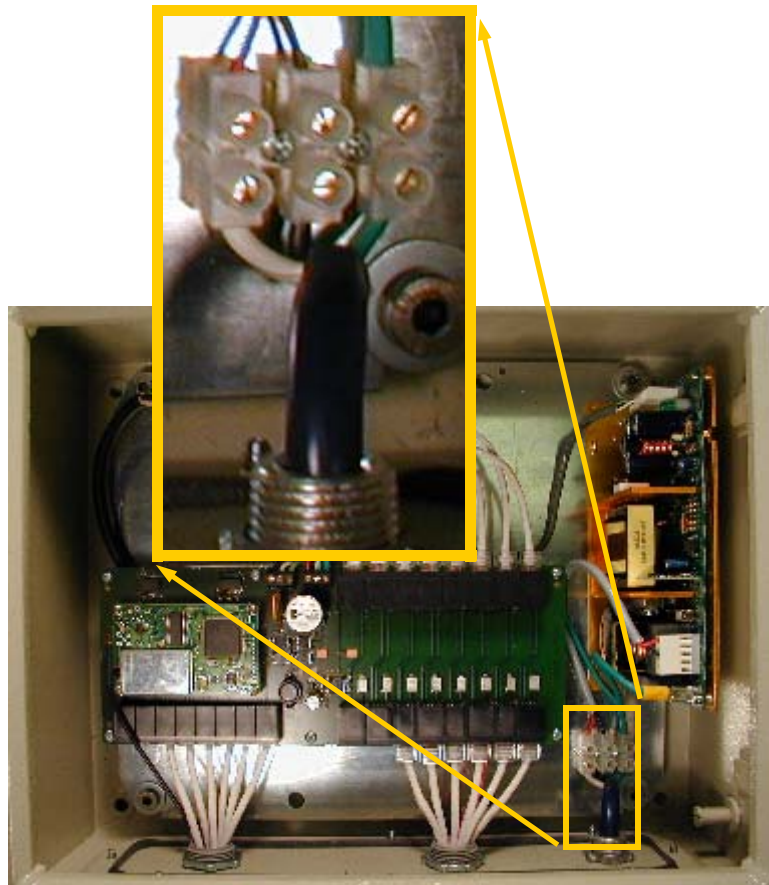## Connecting GPS Sync to the Canopy AP Units

The GPS Sync cables utilize RJ11 connectors (standard telephone size) and connect to the matching RJ11 socket in each Canopy AP Unit at the site, including backhaul units. A total of 8 sockets are available on the Canopy AP Installation Kit, to accommodate a full 6 Canopy AP Units and 2 Canopy BH Units. Only 6 Canopy AP Units are depicted connected in the photo above, with 2 unused sockets for Canopy BH Units.

Overview of Installation

- Once the Canopy AP Units have been assigned unique IP addresses, they are ready to be connected to the Canopy AP Installation Kit (details in the Canopy AP Unit User Guide). Mount the Canopy AP Installation Kit near the Canopy AP Units.

1 Connect AC to the Canopy AP Installation Kit.

2 Connect a CAT-5 Ethernet cable, such as Belden-E Datatwist ® 5E 1585LC, between the AP Installation Kit and each CANOPY AP Unit.

3 Connect an RJ11c phone cable between the AP Installation Kit *Sync connectors* and each CANOPY AP Unit.

4 Connect a CAT-5 Ethernet cable between the AP Installation Kit and a 100baseT network.

5 Mount the GPS Antenna facing upwards on top of the antenna mast, and connect it to the AP Installation Kit GPS antenna port.
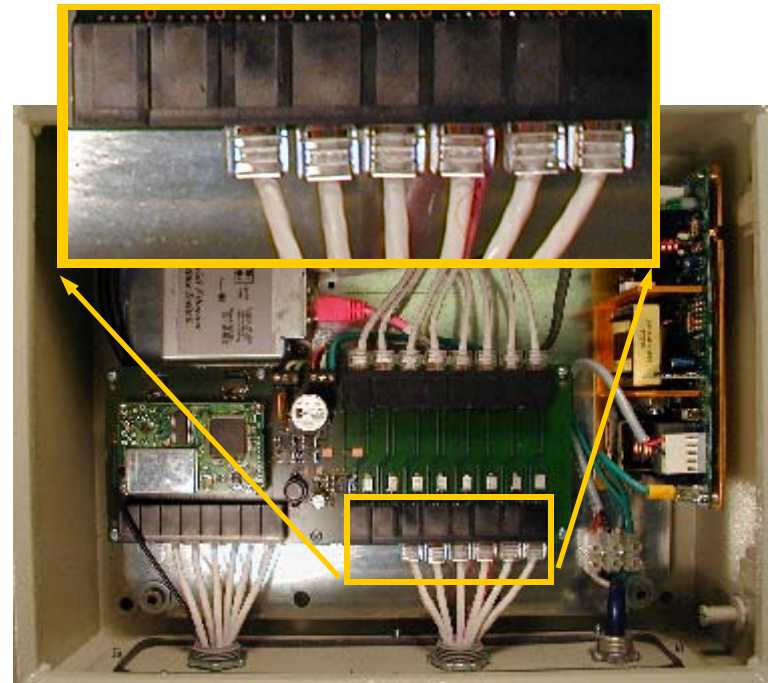
The following sections will take you through these steps one at a time.

Connecting AC Power

Connecting Ethernet to the Canopy AP Units

The Ethernet cables utilize RJ45 connectors (standard Ethernet) and connect to the matching RJ45 socket in each Canopy AP Unit at the site, including backhaul units. A total of 8 sockets are available on the Canopy AP Installation Kit, to accommodate a full 6 Canopy AP Units and 2 Canopy BH Units. Only 6 Canopy AP Units are depicted connected in the photo above, with 2 unused sockets for Canopy BH Units.

Connect standard AC hot, common, & ground to the connection junction just above the AC access opening in the housing.