



TARANA

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# AbsoluteAir 2

## **Manual**

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## **Tarana Wireless AbsoluteAir User Guide**

This user guide incorporates features and functions provided with Tarana's AbsoluteAir 2 products.

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# 1 Warnings and Safety Information

## 1.1 General Warnings

Failure to observe these safety precautions may result in personal injury or damage to equipment.

- Follow all warnings and instructions marked on this product.
- Use standard safety guidelines when mounting. Installation and maintenance procedures must be followed and performed by trained personnel only.
- Before unmounting the product, disconnect power input to reduce the risk of hazards.
- Do not exceed 60V of input.
- Do not open the device. Opening the device voids the warranty.
- Do not stack anything on the radome.
- Dust covers must be installed on all connectors when not in use.
- Cable ends must be protected from weather if not connected to the device.
- This is a Class 1 laser product. Invisible laser radiation can be emitted from the aperture of the port when no fiber is connected; therefore, avoid exposure to laser radiation and do not stare into open apertures.

## 1.2 Health and Safety Warning

All personnel must comply with the relevant health and safety practices when working on or around the AbsoluteAir radio equipment.

The AbsoluteAir system has been designed to meet relevant US and European health and safety standards as outlined in IEC/EN 60950-1/22.

AbsoluteAir is a Class B product. It is intended to be used exclusively in telecommunications centers.

Local safety regulations must be used if required. Safety instructions in this section should be used in addition to the local safety regulations. In the case of conflict between safety instructions stated herein and those indicated in local regulations, mandatory local norms will prevail. Should local regulations not be mandatory, then safety norms herein will prevail.

The following table describes general health and safety information about the AbsoluteAir radio.

**Table 1. General Health and Safety Information**

Topic	Explanation
Flammability	The equipment is designed and constructed to minimize the risk of smoke and fumes during a fire.
Hazardous Materials	No hazardous materials are used in the construction of this equipment.

Hazardous Voltage	The AbsoluteAir system meets global product safety requirements for safety extra-low voltage (SELV) rated equipment.
Safety Signs	External warning signs or other indicators on the equipment are not required.
Surface Temperatures	The external equipment surfaces become warm during operation, due to heat dissipation. However, the temperatures reached are not considered hazardous.

The following table describes the precautions that relate to installing or working on the AbsoluteAir radio.

**Table 2. Operator Health and Safety Information**

Topic	Explanation
Equipment Protrusions	The equipment has been designed to be free of unnecessary protrusions or sharp surfaces that may catch or otherwise cause injury during handling. However, always take care when working on or around the equipment.
Lifting Equipment	Be careful when hoisting or lifting the system during installation or maintenance. The AbsoluteAir product is approximately 5.4 kg (12 lbs) for the CN and EN-HP, 4.9kg (11 lbs) for the EN-SP.
Protection from RF Exposure	The AbsoluteAir radio does not generate RF fields intense enough to cause RF burns. However, when installing, servicing or inspecting an antenna, always comply with the Protection from RF Exposure guidelines under General Hazards (Table 3).
Safety Warnings	When a practice or procedure poses implied or potential harm to the user or to the radio equipment, a warning is included in this manual.

The following table describes general hazards that must be addressed when planning and installing an AbsoluteAir system.

**Table 3. General Hazards**

Topic	Explanation
Chassis Earthing	The AbsoluteAir chassis earth must be connected directly to the DC supply system earthing conductor, or to a bonding jumper from an earthing terminal bar, or bus to which the DC supply system earthing is connected.
Protection from RF Exposure	<p>When installing, servicing or inspecting an antenna always comply with the following:</p> <ul style="list-style-type: none"> <li>• Locate the antenna such that it does not infringe the RF Exposure Limit Distance, relating to the Compliance Boundary General Public.</li> <li>• Stay aware of the potential risk of RF exposure and take appropriate precautions.</li> <li>• Do not stand in front of or look into an antenna without first ensuring the associated transmitter or transmitters are switched off.</li> <li>• At a multi-antenna site ask the site owner or operator for details of other radio services active at the site and for their requirements/recommendations for protection against potentially harmful exposure to RF radiation.</li> <li>• When it is not possible to switch transmitters off at a multi-antenna site and there is potential for exposure to harmful levels of RF radiation, wear a protective suit.</li> </ul>
Fiber Optic Cables	<ul style="list-style-type: none"> <li>• Handle optical fibers with care. Keep them in a safe and secure location during installation.</li> <li>• Do not attempt to bend them beyond their minimum bending radius.</li> <li>• Protect/cover unconnected optical fiber connectors with dust caps.</li> </ul>
Grounding Connections	Reliable grounding of the AbsoluteAir chassis must be maintained.
Mains Power Supply Routing	AbsoluteAir DC power is not to be routed with any AC mains power lines. They are also to be kept away from any power lines which cross them.
Maximum Ambient Temperature	The maximum ambient temperature for the AbsoluteAir product is 60 degrees C. To ensure correct operation and to maximize long term component reliability, ambient temperatures must not be exceeded. Operational specification compliance is not guaranteed for higher ambients. AbsoluteAir should be mounted in such a way as to permit the vertical free flow of air through its cooling fins.
Mechanical Loading	When installing the AbsoluteAir on a tower, ensure that the tower is securely anchored. Ensure that the additional loading of devices will not cause any reduction in the mechanical stability of the tower.

Topic	Explanation
Power Supply Connection	AbsoluteAir operates from a nominal -48 VDC power supply.
Power Supply Disconnect	An appropriate power supply disconnect device should be provided as part of the installation.
Rack Mount Temperature Considerations	AbsoluteAir is designed to operate in an outdoor environment with no significant obstructions in front of the radome. Do not install AbsoluteAir in a closed or multi-unit rack assembly, because such a closed rack would impede the propagation of the RF signals. The maximum ambient temperature applies to the immediate operating environment of the AbsoluteAir product.

### 1.3 Warning Labels

#### **WARRANTY VOID**

DO NOT BREAK THE TAMPER SEALS ON HARDWARE. DOING SO WILL VOID THE WARRANTY.

#### **WARNING**

Making adjustments and/or modifications to this equipment that are not in accordance with the provisions of this User Guide, the Installation Guide or other supplementary documentation may result in personal injury or damage to the equipment, and may void the equipment warranty.

#### **AVERTISSEMENT**

Tout réglage ou modification faits à cet équipement hors du cadre édicté par ce guide d'utilisation ou par toute autre documentation supplémentaire pourraient causer des blessures ou endommager l'équipement et peut entraîner l'annulation de sa garantie.

#### **WARNUNG**

Die an diesen Geräten gemachte Einstellungen und/oder Änderungen, welche nicht gemäß dieser Bedienungsanleitung, oder gemäß anderen zusätzlichen Anleitungen, ausgeführt werden, können Verletzungen oder Materialschäden zur Folge haben und eventuell die Garantie ungültig machen.

#### **ATENCIÓN**

Llevar a cabo ajustamientos y/o modificaciones a este equipo, sin seguir las instrucciones provistas por este manual u otro documento adicional, podría resultar en lesiones a su persona o daños al equipo, y anular la garantía de este último.

#### **警告**

进行调整和/或修改本设备是不符合本用户指南的规定，安装手册或其他补充文件可能导致人身伤害或设备损坏，并可能会使设备保修。

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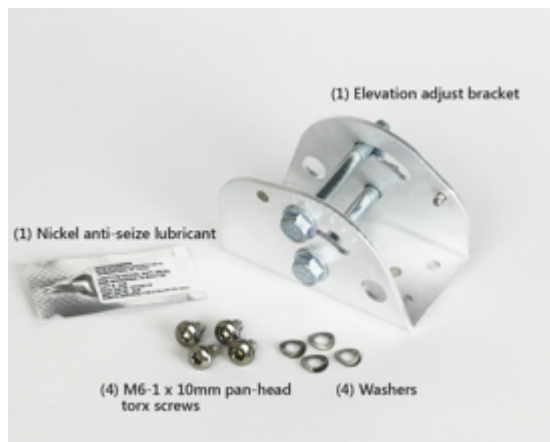
## 2 Package Contents

The Tarana AbsoluteAir™ 2 solution ships with the following.

AbsoluteAir 2 Unit



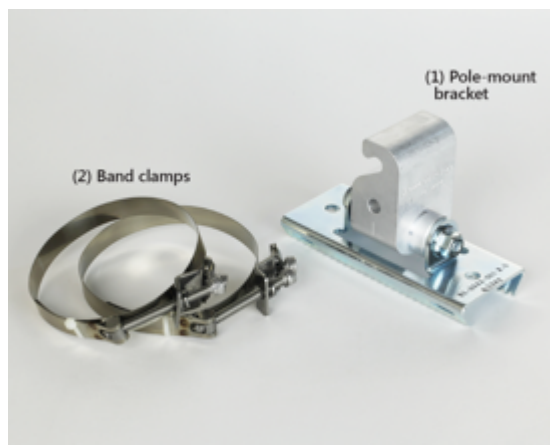
Mounting Bracket Kit



Mounting Kit

Options for pole-size ranges:

- 6.4 - 11.4 cm
- 11.4– 26.7 cm
- 26.7 - 35.5 cm





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## 3 Product Overview

An AbsoluteAir 2 (AA2) link bridges layer 2 Ethernet traffic across a point-to-point RF communication link and consists of two devices, a Concentrator Node (CN) at the base and an Edge Node (EN) at or near the edge of the network.

The CN obtains network synchronization by leveraging an integrated GPS module. Power requirements for both units are modest and can be powered over Ethernet (PoE).

As an all-in-one device, AA2 (CN or EN) becomes fully functional upon connection of a power cable and Ethernet. Enclosed in the IP67 housing are printed circuit board assemblies (PCBAs) that contain the IP packet processing and radio electronics coupled to an internal passive antenna for over-the-air transmission. To achieve the highest throughput for particular link conditions, the system dynamically adapts to the best modulation scheme. The system utilizes time division duplex (TDD) radio transmission.

The Tarana AA2 system is designed to enable the deployment of inexpensive, high capacity wireless links in difficult non-line-of-sight (NLoS) propagation environments. The system design enables efficient and rapid deployment of 3G and 4G base stations, helping operators to dramatically increase the capacity of their cellular networks while overcoming the backhaul bottleneck.

AbsoluteAir products are available for operation in the 2.5-2.7 GHz band and the 3.3-3.8 GHz band as separate SKUs.

Figure 1 shows a CN .

**Figure 1. Concentrator Node (CN)**



### 3.1 Deployment Configuration

Two AA2 devices (CN and EN) make up a complete link. In point-to-multipoint (PMP) scenarios, the system consists of up to four independent point-to-point (PTP) links operating on one frequency channel with the CN devices mounted together at the same location. The CN and EN carry bi-directional Ethernet traffic across the radio link.

## 3.2 Non-Line-of-Sight, Point-to-Multipoint Backhaul

AbsoluteAir products operate in all propagation morphologies and conditions. They operate at the same capacity and link rate regardless of the type of multipath, whether it is characterized as non-line of sight (NLoS), near line of sight (nLoS), or line of sight (LoS). The advanced signal processing and the state-of-the-art antenna technology is able to re-assemble all wavefronts and eliminate destructive fading.

The NLoS property frees network operators from deploying point-to-point (PTP) LoS wireless links with large rooftop microwave dishes that must be carefully engineered, sited, and aligned.

In point-to-multipoint (PMP) scenarios, the system consists of up to four (4) independent PTP links operating on one frequency channel, with the CN devices mounted together at the same location. All these aggregated backhaul links share the same 10 MHz or 20 MHz radio channel, and operate simultaneously at full rate. This is achieved via advanced mutual interference cancellation between links. Multiple CN devices can be co-located at a given location. The system capacity of this PMP system in 20 MHz is 800 Mbps (first hop).

## 3.3 Frequency Bands and Frequency Reuse

AA2 systems operate using TDD in 10 or 20 MHz of unpaired spectrum, and are available in two licensed frequency bands: the 2496 - 2690 MHz band, the 3400 - 3800 MHz band.

The universal frequency reuse pattern allows a single RF channel to be reused for all links in the service area. This is in keeping with the design philosophy to maximize the amount of spectrum available for access and to minimize the amount of spectrum needed for backhaul.

## 3.4 Key Applications

### Cellular Backhaul

AbsoluteAir products enable cellular carriers to expand their networks in rural and urban areas quickly and cost-effectively, which leads to a lower total cost of ownership. AbsoluteAir systems are ideally suited for a broad range of cellular backhaul deployment scenarios. Using the system's key wireless enhancements, including NLoS, auto-alignment, and interference cancellation, allows carriers to extend network coverage, densify their existing network, and deploy small cells in otherwise challenging environments.

### IP Backhaul

The AbsoluteAir radio series offers a unique, highly scalable and cost-effective backhaul solution. Designed to suit a wide range of topologies, AbsoluteAir is easy to install and maintain, enabling wireless operators to expand their networks and introduce new services to a growing subscriber base.

### Private Networks

AbsoluteAir is the ideal solution for private networks such as enterprises and organizations that want to own and manage their own networks and eliminate recurring charges from local service providers. The cost-effective AbsoluteAir solution enables a variety of organizations to connect geographically dispersed sites at ranges of up to 10 km.

## 4 Deployment Overview

### 4.1 Electrical Power

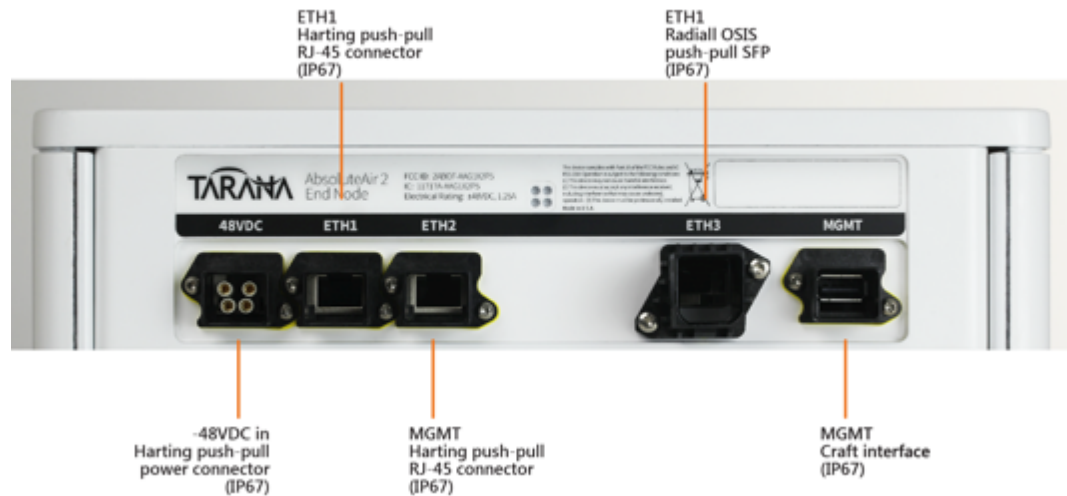
Electrical power is supplied to the devices through a 4-pin connector. Usually a red wire in the cable carries the most positive voltage to pin 1 and a black wire in the cable carries the most negative voltage.

Table 4 and Figure 2 show the CN and EN electrical interfaces.

**Table 4. CN and EN Electrical Interfaces**

Interface	Specification
Power	1X - Push-pull power connector, 48 VDC, 3 pole, 1.25 A, IP67
Ethernet (Electrical)	2X - Push-pull RJ-45 connector, 1000BaseT, IP67
Ethernet (Optical)	1X - Push-pull SFP connector, 1000BaseFX or 100/1000BaseT IP67
Console/Maintenance	1X – USB port
Electrical Ground	1X - Standard telecommunications equipment two hole lug (2 X M6) 1X - single hole lug (M6)

**Figure 2. CN and EN Electrical Interfaces**

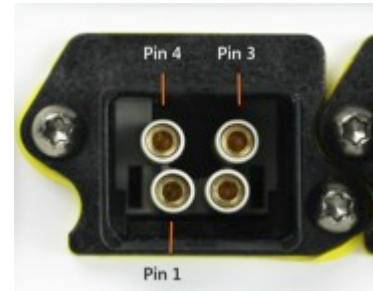


Pin 1 is +48 V compared to pin 4, or pin 4 is -48 V compared to pin 1. Pin 1 and pin 4 are isolated from the chassis ground, while pin 3 is connected to chassis ground inside the device. Pin 3 of the cable must be connected to earth ground on the other side of the cable. The following figures show the numbering of the pins in the cable connector and the chassis connector.

**Figure 3. Power Connector, Cable View**



**Figure 4. Power Connector, Chassis View**



The power supply for the unit is rated at 90 W (1.8 A @ 48 V). The power consumption is a function of the percentage of the time that a unit transmits. For example, for a configuration with DL:UL ratio 1:1, the CN typically consumes 46 W and the EN consumes 38 W.

## 4.2 Power and Data Options

The device has three data connectors.

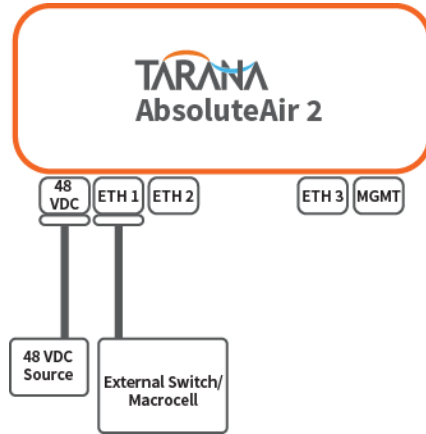
**Table 5. Data Connectors**

Connector	Power	Data Traffic	Management
Eth1 port	Yes (via Tarana PoE)	Yes	Yes (Management by VLAN)
Eth2 port	Yes (via Tarana PoE)	Yes	Yes (Management by VLAN)
Eth3 port (SFP)	No	Yes	Yes (Management by VLAN)

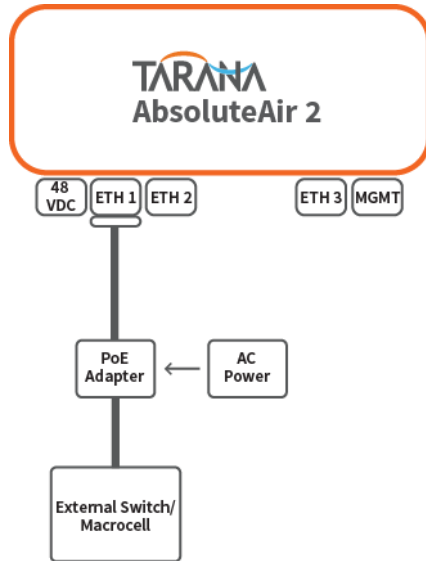
All the 3 Eth ports can be used to bring in Gigabit ethernet traffic for the link. So a variety of 3 different data sources can be multiplexed here. The two Ethernet ports, Eth1 and Eth2 are equipped to provide power over ethernet (PoE) for the device. By bringing in PoE to the device, the power connection through the dedicated power cable(as discussed in the previous section) can be avoided.

As a result, to connect the unit to a single data source, the following two ways can be used.

1. Dedicated power and dedicated Data connection



2. Single Data connection connected through PoE



By default, Tarana units use the native VLAN 1 for management purposes. So, no dedicated interface for management is necessary.

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## 5 Pre-Provisioning

The provisioning tasks described in this section can be done before AA2 Units are installed to the field.

Map out unit locations and requirements (physical locations, power, and data availability). You can collocate 1 to 4 CN devices on a pole that has network connectivity, and locate the EN devices separately at locations that do not yet have network connectivity. You must locate the EN devices for a given cell closer to the CN devices for that cell than for any other CN nodes in any other cells.

To prepare for installation in the field:

1. Complete any network planning and site acquisition activities.
2. Perform the pre-provisioning tasks described in this section.

### 5.1 Required Information for Pre-Provisioning

- Center frequency of the channel.
- Link code. Each CN must have a unique link code, and all EN devices that connect to that CN must have the same link code.
- Network profile. Use the same network profile for all backhaul nodes in the network, including uplink/downlink ratio and cyclic prefix size.
- Management interface static IP address/DHCP and any dedicated VLAN for system management by IP.

### 5.2 Pre-Provision Using the Command Line Interface

**Note** Commands are shown in **Bold** command font and sample values are shown in ***Bold Italic***.

1. Connect one end of an Ethernet cable to any of the Ethernet ports. Connect the other end of the cable to a laptop. Configure the static IP address 192.168.10.10/24 for the laptop. The default CN or EN IP address is 192.168.10.2.
2. SSH into the device as user **operator** and password **Operator\$123**.

```
$ ssh operator@192.168.10.2
```

3. Enter configuration mode.

```
tws# configure terminal  
tws(config)#
```

4. Change password (recommended).

```
tws(config)# user operator password newPassword12
```

5. Set the mode (master/slave), frequency (MHz), profile (0), link code (group-id.set-id.cell-id.link-id). See Network Link Code Planning for more information on the link code.

```
tws(config)# quick-setup node-mode slave frequency 2515.0  
profile 0 link-code 1.0.0.1
```

6. Unmute the transmitter.

```
tws(config)# radio tx-opmode on
tws(config)# end
tws#
```

7. Verify the settings.

```
tws# show radio config
cory-mlk-slave# show radio config
Carrier Freq, MHz:      XXXX.XXX
Network Profile:       1 (5 ms frame at 1:1)
Link Code:             0.0.1.3
Max Tx Power, dBm:    XX.X
Tx Op Mode:           On
....
```

8. If the other end of the link is already configured and powered on, you can verify in a couple of minutes if the link has come **up(Track)**.

```
tws# show rf-interface 0 status
Link ID:           0
Link Code:        0.0.1.3
Link State:       UP (track)
Frame Number:    3819530
Link Uptime,:     40s
...
```

9. Save the settings.

```
tws# configure terminal
tws(config)# configure save
Configuration saved
tws(config)# end
tws#
```

10. Configure a static or dynamic IP address.

Enter the VLAN configure mode using the default VLAN ID 1

```
tws(config)# interface vlan 1
```

For static assignment, modify the following command as needed. The first 4-tuple is the IP address and the second 4-tuple is the subnet-mask.

```
tws(config-if)# ip address 10.100.10.22 255.255.255.0
```

For dynamic addressing, use the following command, and verify the MAC address to IP address mapping in the DHCP server.

```
tws(config-if)# ip address dhcp
```

11. Apply and save the configuration. Connectivity to the device is lost.

```
tws(config)# configure save
Configuration saved
```

12. Power the device down. It is now ready for installation in the field.

---

## 6 Quick Install

Following pre-provisioning, installation in the field requires only the following:

- Hardware mounting
- Power and data connection
- RF Link optimization

Additional configuration, such as quality of service (QoS), can be configured from the EMS or command line interface (CLI). See the *CLI User Guide* for more information.

Follow these guidelines when mapping out device locations and requirements (physical locations, power, and data availability):

- Locate up to 4 CN units on a pole that has network connectivity.
- Locate EN units separately at locations that don't yet have network connectivity.
- Locate the EN for a cell closer to the CN for that cell than to the CN for any other cell.

Field installation consists of the following tasks:

1. Verify that tools are available
2. Check package contents
3. Mount the unit
4. Connect data cables and power the unit
5. Perform link alignment

### 6.1 Verify That Tools are Available

#### Required installation tools

- Two 13mm combination wrenches or one 13mm socket wrench and one 13mm combination wrench
- One 5mm Allen driver or wrench (for mini bolt clamps)
- One T9 Pin in Torx driver (console cover screws)
- One T30 Torx driver (elevation adjustment bracket)

#### Optional tools

To field terminate the push-pull cable connector:

- Harting 09468000000 Power Cable Contact Crimping Tool
- Harting 09468000098 Power Cable Contact Removal Tool
- Harting 09468000099 Power Cable Contact Insertion Tool

To field terminate the shielded RJ-45 connector:

- Sentinel 900005 RJ-45 Crimping Tool w/900216 die set

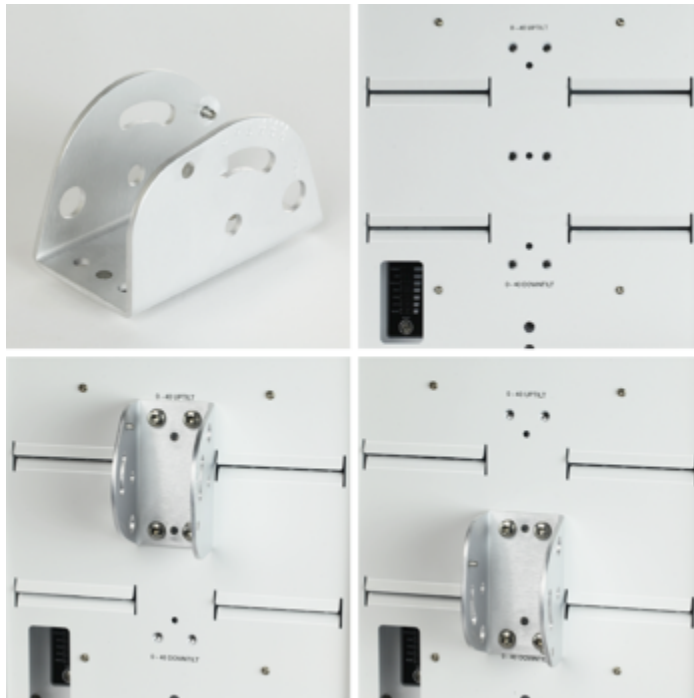


## 6.2 Check Package Contents

Verify that the contents of the shipping container match the items listed on the shipping list, including the model numbers and identification of CN and EN units.

## 6.3 Mount the Unit

To allow for proper link alignment, always install the CN prior to installing associated EN units. Position the elevation adjustment bracket on the elevation adjustment plate on the back of the device. Markings on the plate indicate the proper location for up tilt or down tilt orientation. There is only one way to position the bracket for each orientation so that the four mounting holes are aligned.



1. Attach and tighten the elevation adjustment bracket using a Torx T30 screwdriver and four M6 machine screws. Torque these screws to 42-60 in-lb (5-7 Nm).
2. If the pole mount kit has not already been assembled, place one RIPP lock washer in the each of the counter bores of the pole-mount gimbal. Insert the pole-mount gimbal into the pole-mount bracket and hand tighten using the azimuth adjustment bolt and nut.



3. Slip two Band-It mini bolt clamps through the pole bracket to complete the pole mount kit.



4. Attach the pole mount kit to the pole with the gimbal hook facing upward. To install the mini bolt clamps, insert the band through the slot under the Allen head locking bolt. Pull the band through the slot until nearly tight, then fold over the band at the edge of the locking bolt/slot. Torque the locking bolt with the 5mm Allen wrench to 42-44 in-lb (4.75-5 Nm). Clip off excess band if required. Partially tighten the tension bolt to secure the mini bolt clamp to the pole. Do not tighten completely, as you might want to adjust the location later as part of signal optimization.



5. The node has lifting holes on the elevation adjust plate. To keep the node from falling during installation, use a safety clip with a lanyard to tether the node to the pole structure.



6. Orient the node so that the product label is on the bottom. Position the node on the pole so that the hanger bolt on the elevation adjustment bracket slips onto the gimbal hook.

The node should be in maximum downtilt position (regardless of uptilt or downtilt orientation) and hang freely (swivel freely up and down). There will also be some horizontal

give because the azimuth adjustment bolt was only hand - tightened. When hanging the node, the gimbal must enter the two mechanical stops (a slight uptilt allows the node to be inserted between the two mechanical stops)

Verify that the hanger bolt is fully hanging on the gimbal hook.



7. Slide the elevation adjustment bolt through the gimbal and hand tighten. Do not torque the bolt at this time, as you might want to adjust the location later as part of link alignment. After the alignment has been completed, the torque applied to the nuts should be 25 ft-lb (33 Nm).
8. Rotate the node tilt to the desired elevation and hand tighten. Do not torque the bolt at this time, as you might want to adjust the location later as part of link alignment later on. After the alignment has been completed, the torque applied to the nuts should be 25 ft-lb (33 Nm).
9. Hand tighten the hanger bolt. Do not torque the bolt at this time, as you might want to adjust the location later as part of signal optimization.



## 6.4 Connect Data Cables and Power Up

1. Ground the unit by attaching the grounding wire assembly to the device and to earth ground in accordance with local electrical code requirements.



2. Remove the dust covers from the Power and required ETH ports. Push the data cables in until they click into place.



3. The unit supports 48 VDC or PoE power (see “Power and Data Options”). If you are using the 48V DC power option, remove the dust cover from the power connector and leave it hanging. Insert the 48 VDC power cable into the node and push until the cable connector clicks into place. (If you need to remove the cable press on the side and pull, no tools are required).
4. Attach the device to external power (48 VDC or PoE). As soon as the unit is connected to a power source, it powers up automatically.

---

## 7 Regulatory Information

### 7.1.1 Deployment in the US – FCC Statement

This product must be professionally installed.

This device complies with FCC Rules for Class B limits. 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.

Modifications not expressly approved by Tarana Wireless Inc. could void the user's authority to operate the equipment.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

This device complies with FCC RF exposure limits. This equipment should be installed and operated with a minimum distance of 29 cm (11.4 in.) between the radiator and user. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

### 7.1.2 Deployment in Canada - Industry Canada Statements

This product must be professionally installed.

Le produit final doit être installé par un professionnel

This Class B Digital apparatus meets all the requirements of ICES-003.

Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

To satisfy IC RF exposure requirements for RF transmitting devices, the following distances should be maintained between the antenna of this device and persons during device operation: 29cm.

IC avertissements d'exposition RF Pour satisfaire les exigences d'IC en ce qui a trait aux expositions aux RF pour RF dispositifs de transmission, les distances suivantes doit être maintenue entre l'antenne de ce dispositif et des personnes pendant le fonctionnement du dispositif: 29cm.

This device has been designed to ensure that radio frequency emissions are maintained within the band of operation under all normal operating conditions listed in this manual.

This device complies with Industry Canada RSS standard(s). Operation is subject to the following two conditions:

1. This device may not cause interference, and
2. This device must accept any interference, including interference that may cause undesired operation of the device

Ce dispositif a été conçu pour veiller à ce que les émissions de radiofréquences sont maintenus dans la bande de fonctionnement dans toutes les conditions normales de fonctionnement figurant dans ce manuel.

Cet appareil est conforme la norme d'Industrie Canada RSS (s). Son fonctionnement est soumis aux deux conditions suivantes:

1. Cet appareil ne peut pas causer d'interférences, et.
2. Cet appareil doit accepter toute interférence, y compris les interférences qui peuvent causer un mauvais fonctionnement de l'appareil.