CPE INSTALLATION

AND

USER GUIDE

Gen6 CPE – model 2X

Users and Installation Manual V4

This guide covers the assembly and configuration of the 2xWireless CPE equipment.
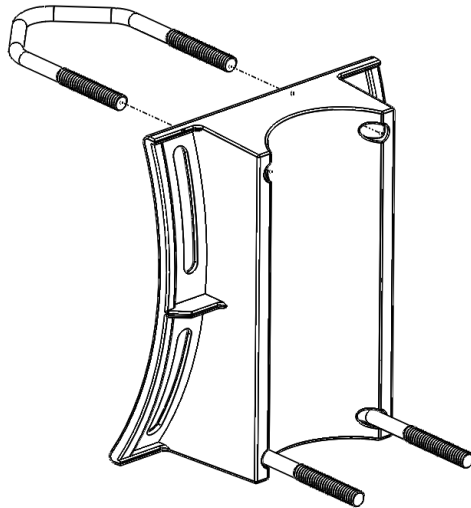
Introduction

The 2xWireless customer premise equipment (CPE) wireless device is a high performing, all outdoor device designed to provide high capacity data transfer, low latency and low jitter. The 2xWireless CPE provides a full duplex wireless connection utilizing a patent pending Frequency Division Duplex – Time Division Duplexing FDD-TDD 802.11 protocol capable of connection distances up to 25 miles. The protocols used in the CPE deliver latency of less than 1ms, over 1 million packets per second, and up to 40 Mbps of data. Designed with performance in mind, 2xWireless CPE's provide end users with increased throughput, better reliability, and a higher quality solution than many of the other wireless solutions on the market today. 2xWireless' CPE's are an easily deployed, affordable last mile solution for service providers.
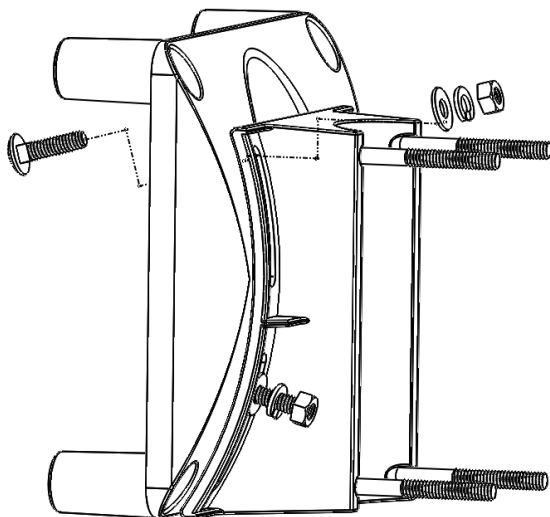
Contents

Each 2xWireless CPE kit comes with the following components. Shielded Ethernet cable and grounding cable are not included in the CPE package. Remove all parts from packaging and inspect for damage and missing parts before beginning assembly.

Qty - Description

A (1) 16" Dish

B (1) Radio Unit

C (1) Mounting Bracket 1

D (1) Mounting Bracket 2

E (2) Steel Tooth Bracket

F (4) 10-24 Phillips Machine Screws

G (1) Power Supply

H (1) Ethernet Patch Cable

Qty - Description

I (2) V-Bolts

J (4) ¼"-20 Serrated Flange Nuts

K (8) ¼"-20 Carriage Bolts

L (8) ¼"-20 Hex Nuts

M (8) ¼" Lock Washers

N (8) ¼" Flat Washers

O (1) Surge Suppressor

CPE Assembly Instructions

Assembly of the mounting bracket

1. Insert both V-bolts through the inside of mounting bracket 1. The completed step should look like this.
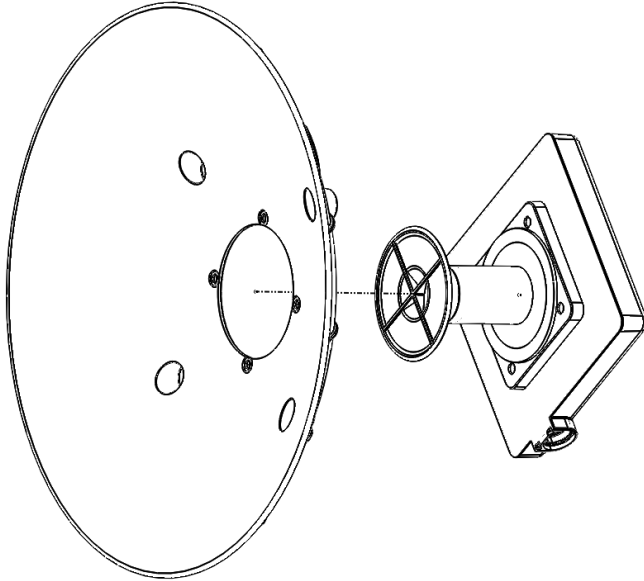
2. Insert (4) of the 1" carriage bolts through the flat side of mounting bracket 2 as shown. Seat the base of the carriage bolt into the square hole in the bracket. Place the 2 halves of the bracket together, the larger end of bracket A should be facing downwards. Bolt plastic brackets together using (4) flat washers, (4) lock washers, and (4) ¼"-20 hex nuts. Finger tighten only. These bolts will be tightened during installation and adjustment. Set the assembly aside.
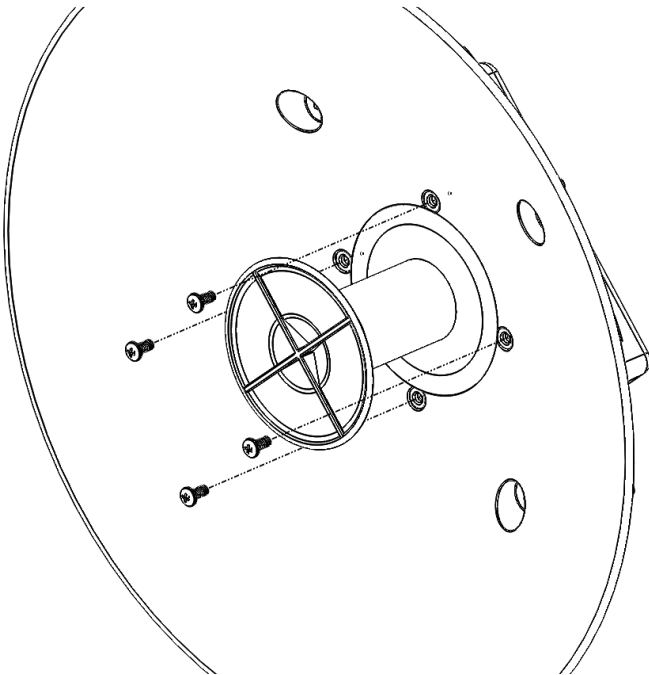
3. Insert the feed horn of the radio unit through the hole of the reflector plate as shown. Orientation is not important at this time.

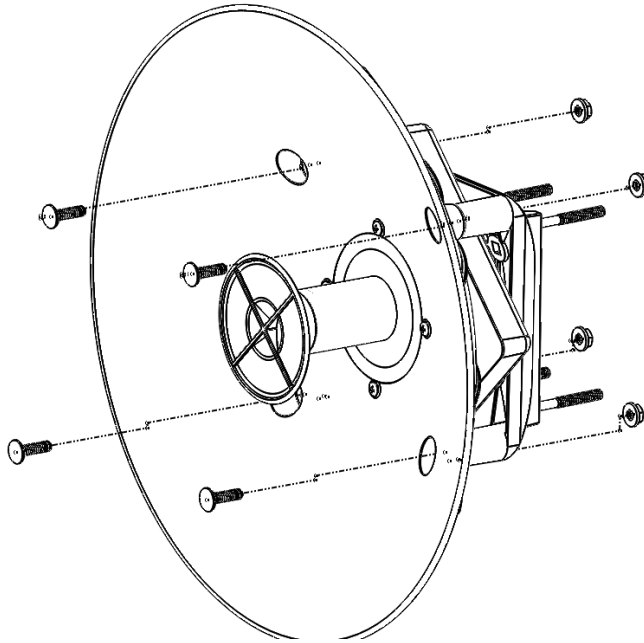4. Attach the reflector to the radio unit with (4) 10-24 Phillips machine screws. Tighten the screws ¼ turn past snug.
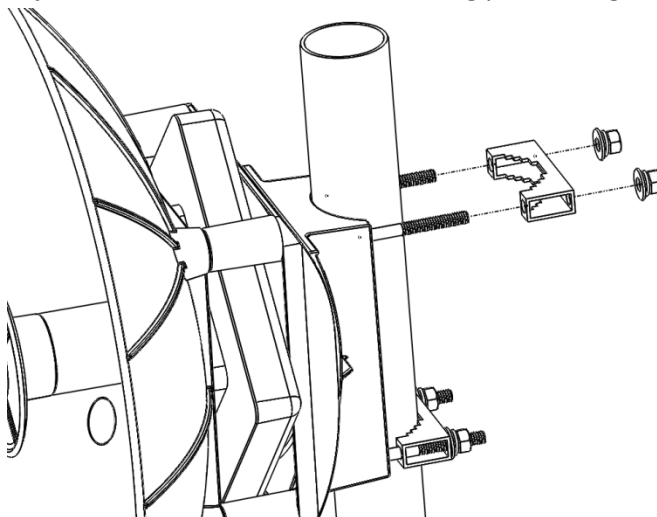
Final assembly

5. Bolt the reflector and radio assembly to the mounting bracket assembly with the remaining four 1" long ¼"-20 carriage bolts and the four Serrated flange nuts. Tighten the nuts ¼ turn past snug. Note: The cable entry port must be facing down to prevent water from entering the device. Improper installation will cause water damage and void the warranty.
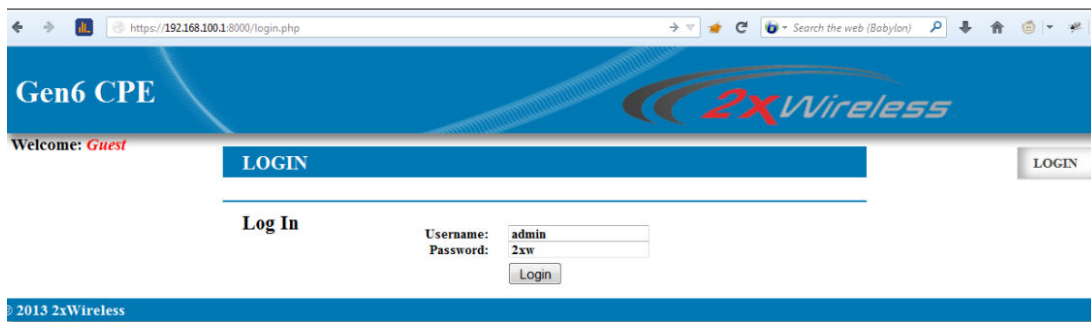

Installation and adjustment

6. Place assembly with bracket against pole and slide the two steel tooth brackets onto the V bolts as shown. For proper installation, the larger end of bracket A should be on the bottom and the cable entry point should be pointing down. The brackets are held in place with (4) flat washers, (4) split lock washers and (4) ¼"-20 hex nuts. Finger tighten at this time to allow azimuth adjustment of the CPE on the mounting pole during alignment.
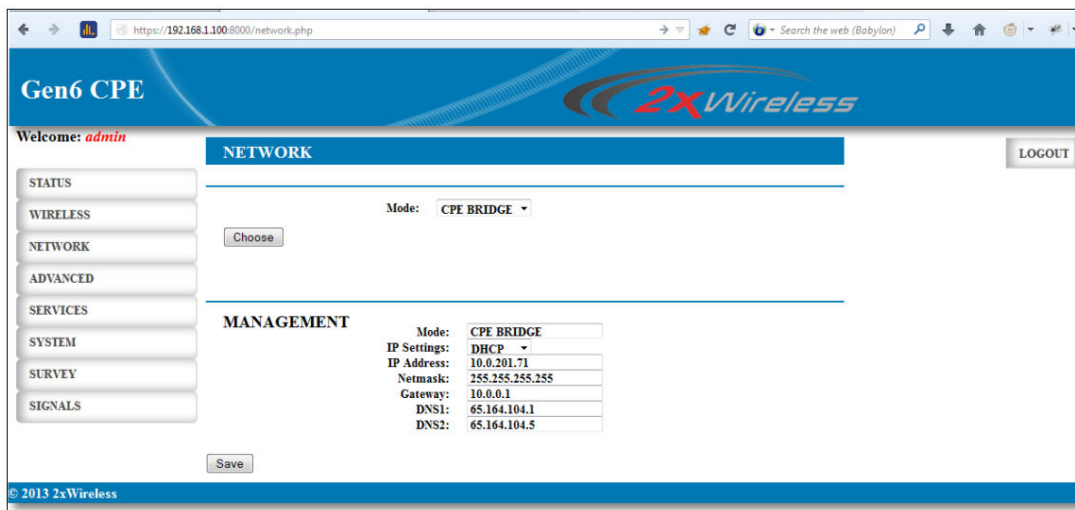
7. Insert the cable through rubber grommet and terminate the cable end. The cabling for installation is standard EIA/TIA 586B. For reference, the wiring diagram is included below the programming information.
8. Insert the cable end into the CPE. The tab on the end should click when properly seated in the radio unit. Confirm the end is securely seated in the radio unit. Slide the rubber grommet into the cable entry point. It will fit snugly and recess into the case approximately ½ the thickness of the grommet.
9. Complete the wire run to the entry point of the building and install the surge suppressor per the instructions supplied with the surge device.
10. Connect the power cord with the power supply and insert it into a surge protected outlet or uninterruptible power supply (UPS). Connect the cable leading from the surge device to the power supply port marked 'POE'. Connect the port labeled 'LAN' to a computer for programming with a standard patch cable. CAUTION: connecting any device other than the CPE to the POE port may cause damage.
11. When correctly installed and powered up the CPE will issue DHCP addresses in the 192.168.100.x subnet.
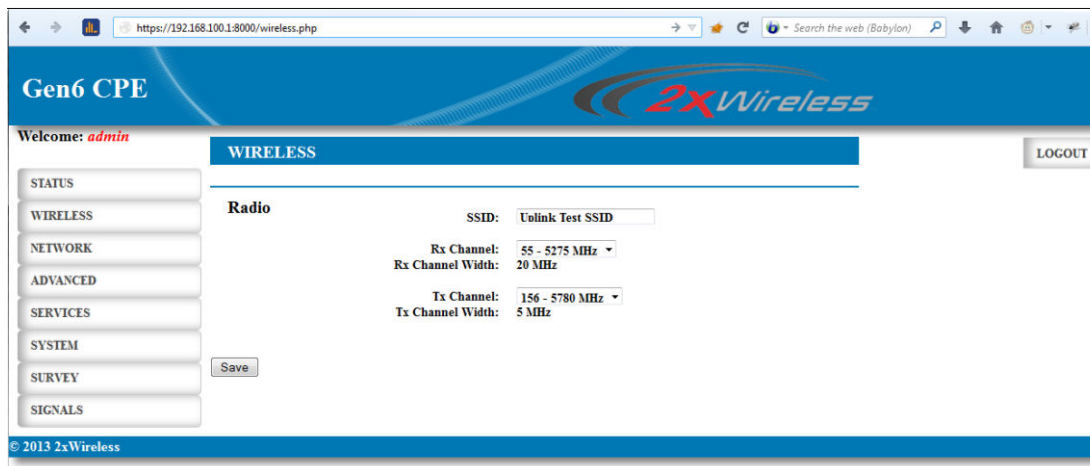
CPE Login Instructions

1. Access the web interface via the default address: *https://192.168.100.1:8000*
2. At the log in prompt, enter the default username: *admin* and password: *2xw* as shown below.

3. Choose the desired mode for the CPE to operate in. 'Bridge' mode will pass the network without any routing required.
4. click the choose button.
5. You will then be able to set your network information, which his self-explanatory, including site-surveys.
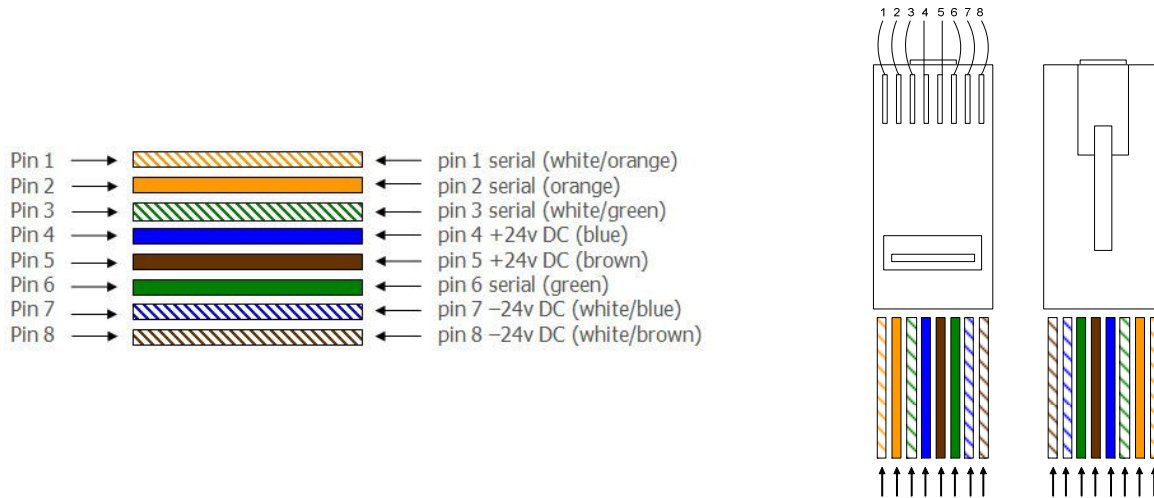
6. Wireless setup screen.

Cable Pin outs

An Industry Standard Ethernet pin-out is used in the installation of the CPE. Below is a picture depicting the cable pin-out for a straight-through cable. The image below conforms to the EIA/TIA industry standard for 568B.

FCC Compliance & Installation Statement for FCC ID: RHK-G6CPE

This is a **Class B digital device**. 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 device 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 device 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**.**

Modifications not expressly approved by the manufacturer could void the user's authority to operate the equipment under FCC rules.

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.

Attention: This equipment is intended for outdoor point-to-point use only.

FCC statement 15.27(b)

This device should be professionally installed by a trained technician. The installer shall be responsible for ensuring that the proper antenna is employed to comply with FCC requirements.   The equipment described herein may only be used in accordance with accessories listed in below for FCC ID numbers RHK-G6CPE.

Operational Transmit Channels

Channel Width	Lowest Channel (MHz)	Highest Channel (MHz)
15.247 5.725-5.85GHz Band		
5MHz	5730 (146)	5845 (169)
10MHz	5735 (147)	5840 (168)

Channel Width	Lowest Channel (MHz)	Highest Channel (MHz)
15.407 5.150-5.250GHz Band		
5MHz	5180 (36)	5245 (49)
10MHz	5180 (36)	5245 (49)

Notice of FCC power compliance for transmit power settings

15.247 ISM BAND (5725-5850MHz)

Channel Width Setting	*Maximum Transmit output power*
5 MHz	24dBm
10 MHz	25dBm

15.407 UNII BAND (5150-5250MHz)

Channel Width Setting	*Maximum Transmit output power*
5 MHz	24dBm (When using 24dBi dish)
5 MHz	20dBm (When using 29dBi dish)
10 MHz	24dBm (When using 24dBi dish)
10 MHz	20dBm (When using 29dBi dish)

RF Exposure Information (FCC MPE CALCULATION FOR UNII 15.407)

WARNING: Antenna(s) used with this transmitter must be fixed mounted on outdoor permanent structures and must be installed to provide a separation distance of at least 104cm from all person(s).

Parts List & Tune-Up Information

- Surge Suppression

Ethernet Surge Suppression (optional, but required for outdoor wall penetration with cat5 by National Electric Code standards in the United States.)

Optional Ethernet/Power Surge Suppressor – Part # H-LS-001.01 – DigitalPath, Inc

UL # 3VEO – Model DPISURG5E

- Power Supply ITE 24V DC PoE – Model FAS24000050-C44

Ferrites on power lead (QTY 1) – Steward 28A2024-0A0. Placed on cat5 cable(s) coupled together with data/power together out from 24v DC power adapter. Included in installation package.

Warranty Information

2xWireless equipment must be professionally installed. Shielded Ethernet cable and earth grounding are necessary for proper operation of the surge device. Failure to properly ground the devices may result in damage to the devices, damage to other equipment and will void the product warranty. It is the installers responsibility to follow local building and safety regulations including operation within legal frequency channels, output power, and the installation is complete and secure. When installed, this equipment is to be connected to a Lightning/Surge Protection device that meets all applicable local and national safety requirements.

2xWireless equipment and devices are warranted against defects in materials and workmanship for a period of one (1) year from original date of purchase. The extent of the responsibility of 2xWireless through this warranty and the terms and conditions are as follows:

1. Proof of date of purchase is required for warranty service on this product.
2. This warranty will become void when service is performed by anyone other than 2xWireless.
3. This warranty does not apply to any product or device that has been taken apart, serviced by others, altered, subjected to abuse, neglect, or accident, exposed to faulty power, lightning strikes, had/has the serial number removed or altered, or that has been connected, installed or adjusted not in accordance with the instructions provided by 2xWireless.

4. This warranty does not cover the costs of labor for removing and reinstalling the equipment or device being sent in for repair or the costs of any expendable parts in need of replacement or associated with the removal or reinstallation of the equipment or device. Also, this Warranty does not cover loss of use, fees, loss of revenue or other costs associated with failure of any 2xWireless device, including damage to other property.
5. The sole responsibility of 2xWireless under this warranty shall be limited to repair or replacement of the faulty equipment or device, at the sole discretion of 2xWireless.
6. If it is necessary to return any defective device or part to 2xWireless, the product must be shipped in its original carton or equivalent packaging, fully insured with shipping charges prepaid. 2xWireless will not assume responsibility for any loss or damage incurred in shipping.

Warranty disclaimer: limitation of liability. Except in only the limited express warranty set forth above, there are no expressed or implied warranties of merchantability and fitness for a particular purpose. In no event will 2xWireless be liable for any direct, special, or consequential damages arising out of, or in connection with, the delivery, use, inability to use, or performance of this product. Should any difficulties arise with the performance of this product during warranty, contact 2xWireless at:

2xWireless
ATTN: Warranty Department
1065 Marauder Street
Chico, CA 95973

LIMITATION OF LIABILITY

2XWIRELESS SHALL NOT BE LIABLE FOR INDIRECT, SPECIAL, INCIDENTAL, CONSEQUENTIAL OR SPECIAL DAMAGES OF ANY NATURE INCLUDING WITHOUT LIMITATION LOSS OF PROFIT, PROMOTIONAL OR MANUFACTURING EXPENSES, OVERHEAD, DATA, INJURY TO REPUTATION OR LOSS TO CUSTOMERS, ARISING OUT OF OR IN CONNECTION WITH THE PURCHASE, SALE, USE, PERFORMANCE OR FAILURE OF THE PRODUCTS, WHETHER SUCH LIABILITY ARISES UNDER CONTRACT, TORT (INCLUDING NEGLIGENCE), STRICT PRODUCT LIABILITY OR OTHERWISE, EVEN IF 2XWIRELESS HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES OR IF SUCH DAMAGE COULD HAVE BEEN REASONABLY FORESEEN. IN NO EVENT WILL 2XWIRELESS' LIABILITY TO BUYER ARISING OUT OF OR RELATING TO THE PRODUCTS OR THESE TERMS EXCEED THE AMOUNT OF THE PURCHASE PRICE PAID TO 2XWIRELESS BY BUYER FOR THE PRODUCT THAT GIVES RISE TO THE CLAIM.