Quick Installation Instructions

PTP 820E
System Release 10.9
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Introduction

This guide provides basic instructions for setting up and configuring a PTP 820E 1+0 link. For more detailed instructions:

- Installation Guide for PTP 820E – Detailed instructions for hardware assembly of all supported PTP 820E link types.

PTP 820E Rear View (Left) and Front View (Right)

PTP 820E Interfaces

Cable Gland Construction
Note
Do not remove the transparent pressure window located on the antenna interface.

For horizontal polarization, locate the twist with the letter “H” at 3 o’clock and fasten the two screws.

For vertical polarization, locate the twist with the letter “V” at 3 o’clock and fasten the two screws.
Mount the PTP 820E on the antenna using the four M8 captive screws and washers that are supplied, assembled, in the PTP 820E, and tighten the screws. When tightening the captive screws, use 20 Nm torque. In order to avoid misalignment, screws should be tightened progressively.
To connect an optical Ethernet cable and SFP:

1. Split the connector into two separate LC connectors, one for each fiber.
2. Remove the gland cap and rubber from the gland body.
3. Slide the gland cap into the cable. Slide the rubber into the cable. Insert the fibers with the connectors one by one into the cable gland.
4. Secure the cable to the lip of the gland using a tie wrap. This is to prevent the cable from slipping from the gland when raising the cable to a radio unit on a tower.
5. Connect the fibers to the SFP transceiver. Listen for the “click” to ensure that they are fully inserted.
6. Remove the tie wrap securing the cable to the gland and connect the connector into the PTP 820E connector.
7. Hand-tighten the gland to the radio unit until there is full contact between the gland and the radio unit and hand-tighten the gland cap.
8. Secure the cable to the gland using a tie wrap.
To connect an electrical Ethernet cable:

1. Remove the gland cap and rubber from the gland body.
2. Insert the CAT5E cable into the gland cap and into the rubber gland.
3. Secure the cable to the lip of the gland using a tie wrap. This is to prevent the cable from slipping from the gland when raising the cable to a radio unit on a tower.
4. Connect the CAT5E cable to the PTP 820E.
5. Hand-tighten the gland to the radio unit until there is full contact between the gland and the radio unit and hand-tighten the gland cap.
6. Secure the cable to the gland using a tie wrap.

To connect a DC power cable:

1. Strip off 45 mm from the cable jacket and expose 10 mm at the edge of each of the two wires.
2. Remove the gland cap and rubber from the gland body.
3. Insert the power cable wires into the power connector. Match "-" to the 0V wire and "+" to the 46V wire and tighten the two top screws.
4. Insert the power cable into the gland.
5. Plug the power cable with connector into the PTP 820E power connector.
6. Hand-tighten the gland to the radio unit until there is full contact between the gland and the radio unit and hand-tighten the gland cap.
7. Secure the cable to the gland using a tie wrap.
Cable Grounding

- No grounding is required for optical (SFP) cables.
- External shielded CAT5E cable should be grounded to the antenna tower at the top (next to the PTP 820 unit) and the bottom of the external run and every 50m using the kit CAT5E_gnd_kit.
Installing and Connecting a PoE Injector

To mount a PoE Injector on the wall:

1. Mount and tighten the PoE Injector to a wall using two M6 bolts and anchors. Use Anchor Stainless Steel with flanged Hexagonal nut M6X70.

2. Drill two 6mm diameter holes with 100mm between the center of the holes.

3. Insert the anchors with the bolts, place the washers on the bolts, and tighten the nuts.
To mount a PoE Injector on a pole:

1. Mount and tighten the Injector to a 114mm pole using a stainless steel hose clamp.
2. Pass the hose clamp through the pole mount slots.
3. Attach the Injector to the pole.
4. Connect the ends of the hose clamp and tighten using the captive screw.

To mount a PoE Injector on a 19" rack:

1. Mount the Injector to a 19" rack using a 19" rack adaptor.
2. Mount the Injector on the adaptor through the wall mounting holes, using M6 screws and washers.
3. Mount the adaptor to the rack using four M6 screws and cage nuts.

To mount a PoE Injector on an ETSI rack:

1. Mount the PoE Injector to an ETSI rack using a 19" rack adaptor and ETSI adapting ears.
2. Connect ETSI adapting ears to a 19" rack adaptor using four M6 screws.
3. Mount the PoE Injector on the adaptor through the wall mounting holes, using M6 screws and washers.
4. Mount the 19" rack adaptor with the ETSI ears on the ETSI rack using four M6 screws and cage nuts.

To ground a PoE Injector:

1. On the right side of the PoE Injector, loosen the screw, plain washer, and serrated washer.
2. Place the cable lug supplied with the PoE Injector kit between the plain and serrated washer.
3. Tighten the screw.

To connect the PoE Injector cables:

- The total length of the cable between the PTP 820E port and the Switch/Router the device is connected to should not exceed 100m/328ft. This length includes the connection between the PTP 820E and the PoE Injector ($X1 + X2 \leq 100m/328ft$ in the figure to the right).
- The length of the cable connecting the customer equipment to the PoE injector should not be longer than 10m (according to ANSI/TIA-568 standard).
Grounding the PTP 820E

1. Loosen the nut, plain washer, and serrated washer from the GND stud, using the metric offset hexagon key and the wrench.

2. Place the cable lug supplied with the grounding kit in place on the screw and secure the cable lug.

3. Connect the second side of the GND cable to the main or terminal ground bar of the site.

4. Perform a resistance test between the 2 lugs of the GND cable and verify that the result is 0-2 ohms.

Notes:

The unit’s earthing screw terminal shall be permanently connected to protective earth in a building installation in accordance with applicable national code and regulations by a service person.

A 2-pole circuit breaker, a branch circuit protector, suitably certified in accordance with applicable national code and regulations, rated maximum 20A, shall be installed for full power disconnection in a building installation.

Any outdoor antenna cable shield shall be permanently connected to protective earth in a building installation.

Connecting to the Unit:

1. Connect your laptops LAN port to the MGT port on the PTP 820E.
2. Configure an IP address on the laptop within the same subnet as the PTP 820E unit. The default PTP 820 IP address is 192.168.1.1. Set the PC address to e.g. 192.168.1.10 and subnet mask to 255.255.255.0. Record the initial settings before changing.
3. On the laptop, open the Internal Protocol (TCP/IP) Properties page and set the parameters shown in the figure on the right.
4. Open a web browser (Internet Explorer or Mozilla Firefox), enter the default IP address “192.168.1.1” in the Address Bar. Once the Login page opens, enter “admin” in both the User Name and Password fields, and click Apply.
Changing the Default IP Address

Select Platform > Management > Networking > Local. The Local Networking Configuration page opens.

Select IPv4 or IPv6. The unit will use the selected protocol when initiating communications.

You can enter an IP address in IPv4 format (use the IP address field) or IPv6 format (use the IPv6 Address field).

Before configuring the radio link, ensure that both ends of the link have unique IP addresses.
Installing the Activation Key

New PTP 820E units are delivered with a default activation key that enables you to manage and configure the unit. Additional feature and capacity support requires you to enter an activation key cipher in the Activation Key Configuration page. Contact your vendor to obtain your activation key cipher.

If the activation-key-enabled capacity and feature set is exceeded, an Activation Key Violation alarm occurs and the Web EMS displays a yellow background and an activation key violation warning. After a 48-hour grace period, all other alarms are hidden until the capacity and features in use are brought within the activation key’s capacity and feature set.

Demo mode is available, which enables all features for 60 days. When demo mode expires, the most recent valid activation key goes into effect.

To enter a new activation key, select Platform > Activation Key > Activation Key Configuration. The Activation Key Configuration page opens.
Configuring the Link

The Web EMS provides wizards to configure radio links. The wizards guide you through configuration of the basic radio parameters and services necessary to establish a working pipe link.

To configure a 1+0 link using the Quick Configuration wizard, select **Quick Configuration > PIPE > Single Carrier > 1+0.** Page 1 of the 1+0 Quick Configuration wizard opens.

1. **Link Setup (PIPE) 1+0**
   - Select an Ethernet interface or LAG for the link. Click **Create LAG** to open a wizard that guides you through the steps to create a LAG.
   - Select a radio interface for the link.
   - Select the Attached Interface type for the service that will connect the radio and Ethernet interfaces:
     - s-tag – All S-VLANs and untagged frames are classified into the service.
     - dot1q – All C-VLANs and untagged frames are classified into the service.

2. **Link Setup Progress**
   - Set the transmission and received radio frequency in MHz.
   - Enter the desired TX signal level (TSL). The range of values depends on the frequency and RFU type.
   - Select On or Off to mute or unmute the TX output of the RFU.

3. **Link Setup (PIPE) 1+0**
   - Select the MRMC script you want to assign to the radio.
   - Select the ACM mode: **Fixed** or **Adaptive**.
     - Fixed ACM mode applies constant TX and RX rates.
     - In Adaptive ACM mode, TX and RX rates are dynamic. An ACM-enabled radio system automatically chooses which profile to use according to channel fading conditions.
   - If you selected **Fixed** in the Operational Mode field, the Profile field appears instead of these fields. Select the ACM profile for the radio in the Profile field.
   - If you selected **Adaptive** in the Operational Mode field, enter the maximum and minimum profiles for the script in these fields.

4. **Link Setup Progress**
   - Select **Yes** to configure in-band management or **No** if you do not need in-band management.
   - If you selected **Yes** above, select the Management VLAN.
   - Select this box if you want to use the Ethernet interface as well as the radio interface for in-band management.

5. **Link Setup (PIPE) 1+0**
   - Review the parameters and click **Submit** to complete configuration of the link. After you click **Submit**, the unit is reset.

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Link Verification

Verify that the Received Signal Level (RSL) is up to +/- 4 dB from the expected (calculated) level at both ends of the link.

You can measure the RSL at the BNC port indicated in the figure to the left. The voltage at the BNC port is 1.XX where XX is the RSL level. For example: 1.59V means an RSL of -59 dBm. Note that the voltage measured at the BNC port is not accurate and should be used only as an aid.

Verify that the Radio Bit Error Rate (BER) is 10E-11 or higher.

If working with ATPC, verify that ATPC is operating as expected (RSL = reference level).

To display the BER using the Web EMS, go to the Aggregate PM report (Radio > PM & Statistics > Aggregate).

To display the RSL PMs using the Web EMS, go to the Radio Parameters page (Radio > PM & Statistics > Signal Level).

To display the current RSL (RX) using the Web EMS, go to the Radio Parameters page (Radio > Radio Parameters).