



Oxygen 3 Plus Wireless Gateway and Ready State Assistance Service Installation Guide

| | |
|----------|---------------|
| Model | Oxygen 3 Plus |
| Revision | Revision 1.1 |

3066 Beta Avenue | Burnaby, B.C. | V5G4K4
Office: 604.294.4465 | Toll Free (Canada): 1.877.985.2878
www.cypress.bc.ca | Technical Support: support@cypress.bc.ca
Sales Inquiries & Orders: orders@cypress.bc.ca

Oxygen 3 Plus Wireless Modem - Installation Guide

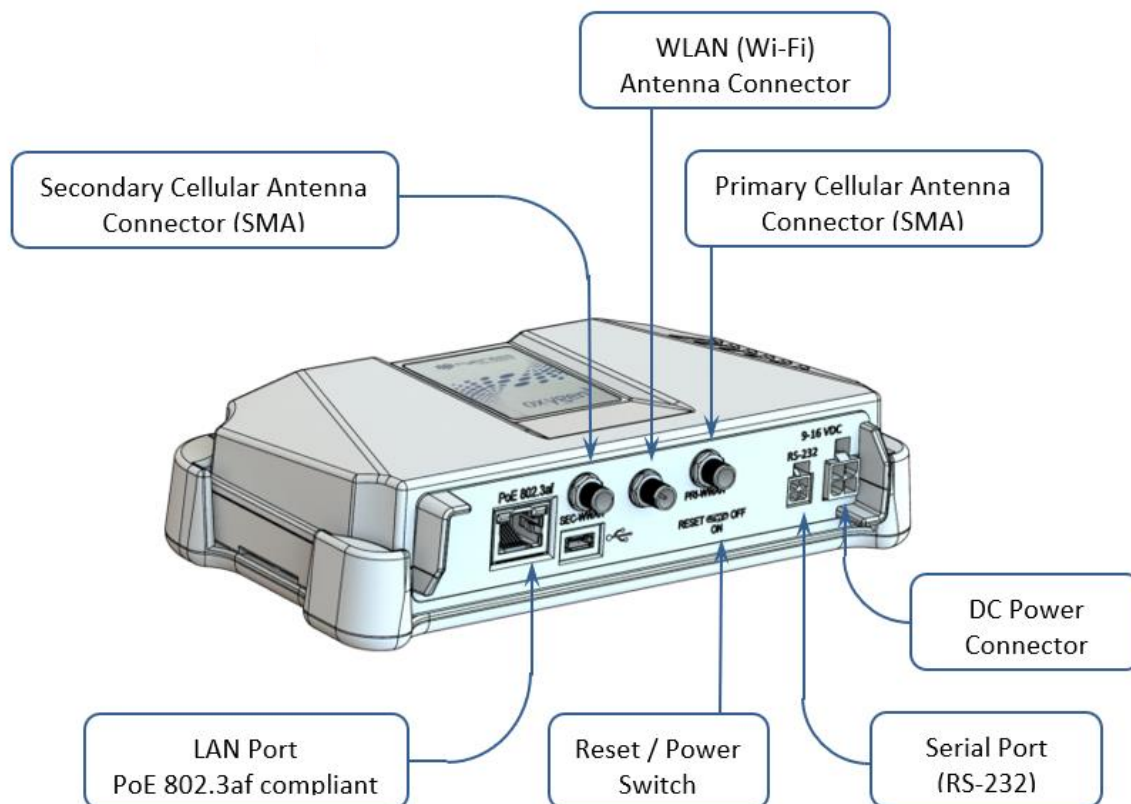
Introduction

Cypress Oxygen 3 Plus modem operates on the HSPA and LTE networks and has a back-up battery in the event of a power outage.

Hardware Overview

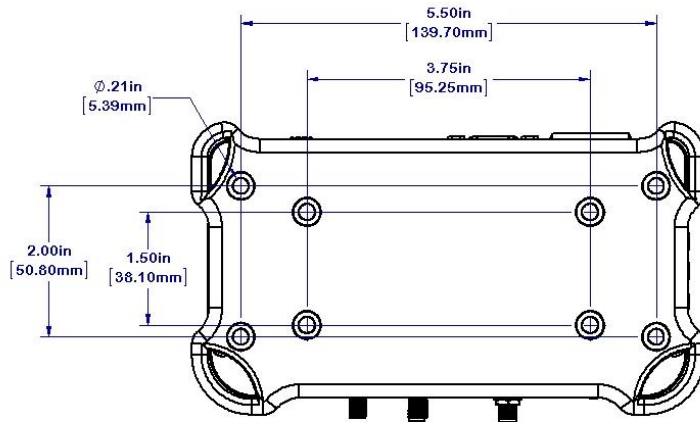
Included in the Box:

- Oxygen 3 Plus wireless gateway
- Cellular/LTE antennas (2)
- 6-8 hours battery (installed)
- SIM (installed)
- Rubberized mounting bracket
- Power adaptor, 90-250VAC to 12VDC
- Cat5e Cable



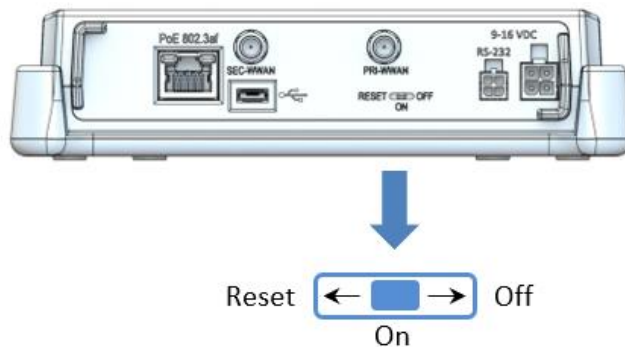


The mounting bracket has 8 holes to mount it securely to a flat surface. It is recommended to use at least two mount points in diagonally opposite corners.



Three modes of operation:

- When in the "Off" position, only the system clock is active.
- When in the "On" position, the gateway will power when given AC power.
- Moving to the "Reset" position for one second will power the gateway on battery.
- The "Reset" position can also be used to restore configuration.

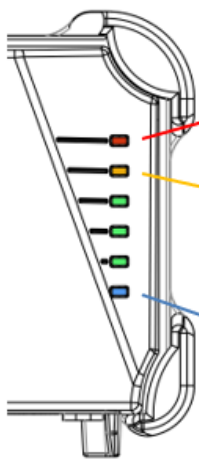


When set to the 'Off' position, the Oxygen 3 Plus is permanently off with only the integrated Real Time Clock (RTC) still being powered.

Moving the switch to the temporary 'Reset' position will allow the Oxygen 3 Plus to power-up using battery power, even if no DC or PoE power is applied. The switch is spring-loaded and will not remain in the 'Reset' position but will automatically move back to the 'On' position. When performing the site survey, the internal battery is used.

When set to the 'On' position, the modem will power-up immediately when the DC power cord is applied. The modem will remain 'On' and will continue to run off the built-in battery if either DC power or PoE power is removed.

Overview of LED's



| | | |
|---------------|---|---|
| Online Status | On: Rapid Flashing: Flashing: | Online Attempting to Connect Disconnected |
| Network Type | On: Flashing: Off: | 4G (LTE) 3G (WCDMA) 2G |
| Power | On: *Flashing: *Rapid Flashing: Off: | Unit is turned on Unit using battery power Battery below 20% Unit is powered off |

*Oxygen-3 Plus only

Instructions for Optional RF Site Assessment Service

Technicians will be installing Oxygen 3 Plus wireless modems at customer locations and testing the device to ensure it is performing properly. Please be aware of customer's busy operations and various activities that may be occurring while you are at the site.

Time to set-up and test the equipment is estimated to be less than 60 minutes.

Techs will review installation comments to obtain serial numbers of the specific Oxygen 3 Plus device that will be installed at the client's site.

Note: Each unit will be pre-programmed for each site, therefore, it is important to pick up the correct one for specific site to be installed.

To help with that, each box the unit will be packaged and labelled with a unique serial number printed on a sticker and placed on the box.



Comments:

Notes will have a set of standard comments entered on each order to help technicians with proper installation of Oxygen 3 Plus modem:

- Modem Serial Number provided by Cypress (unique for each install in the following format: OXY031234567890).
- Reference internal project number: TBA.
- Reference customer specific information
- If the MIMO antenna is not required, please return it back to depot.

Antenna Installation

For a standard install, the modem will require either two stubby antennas or one MIMO antenna.

Facts for Antenna installs:

- To start, always connect 2 Stubby Antennas to the modem.
- Cypress Support will determine if a MIMO is to be installed.
- The MIMO (Multi In Multi Out) antenna will be used for helping to obtain a better signal when the stubby antennas are not effective.
- When attaching an antenna to a modem, it must be hand tightened – do not use pliers or a wrench.

Oxygen 3 Plus Installation Process

Unpack the equipment and place it next to the network equipment. Once turned on, the device will be running on battery power. Boot-up time is ~45 seconds.

1. Text Cypress Solutions at 1.877.992.7751, using the following format: "START" space and the 'site survey code' from the label on the Oxygen 3 Plus device.

Example of the text message to Cypress:

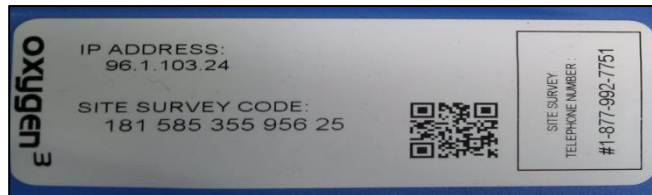


= PASS

= FAIL

Alternatively, you can scan the QR code to initiate the site remediation test.

Note: You may consider downloading a free QR app to enable your smartphone to read QR codes.



2. Once the response comes back (~3 minutes), it will have a site survey ID number and confirmation if it Passed, Failed, or Caution message will be received. This will be based on: Technology, Signal Strength, Noise, Latency, Packet Loss, Upload Speed and Download Speed.

To date, Cypress Solutions has run thousands of surveys. Based on this, the present thresholds for pass/fail are:

- Technology = LTE
- Latency = 210 ms
- Signal Strength = SQI 43%
- Upload = 2 Mbps
- Signal to Noise = -12 dBm
- Download = 2 Mbps
- Packet Loss = 0%

Explanation of possible outcomes:

- PASS: the wireless link conditions for the location under test meet the requirements.
- FAIL: the wireless link conditions for the location under test do not meet the requirements.

If a FAIL:

- You must call Cypress Solutions at 1.844.462.9773 (non-toll free: 778.372.4603).
- With assistance from Cypress Solutions this site can either be:
 - Remediated - with changes to Oxygen 3 Plus modem placement or changes to selected radio frequency bands or the addition of a MIMO antenna. Conditions are improved enough so a subsequent survey receives a passing grade.
 - Failed - remediation does not improve conditions enough to meet test thresholds.
 - Step outside the customer's building and using the Oxygen 3 Plus modem, run the site survey to check if the LTE signal issue resides within client's building or if the issue is with the LTE network coverage in the area.

Note: Run the outdoor LTE signal test without using MIMO antenna.

3. Connect to the Ethernet port of router/firewall/switch.

Note: Replace existing Ethernet cable with the new Ethernet cable that comes with the Oxygen 3 Plus.

4. Mount the device in the area close to installed router/firewall/switch and connect the power to the nearest electrical outlet.
5. Disconnect and re-package any existing wireless modems and return it back to depot.
6. Sign-off the job.

Note: In the event the site was not switched to Oxygen 3 Plus modem, the device will be sent back to Cypress.

Troubleshooting

A wireless link with a FAIL will likely result in less than satisfactory network performance. This can occur 5% of the time.

There are three possible outcomes in the FAIL scenario. In each case, technicians are required to contact Cypress Solutions at 1 844-462-9773 (non-toll free: 778-372-4603) for support.

- The survey fails. Cypress remediates the site remotely or through repositioning guidance.

- The survey fails. After investigation, Cypress requests the installation of a MIMO antenna to remediate the site to a PASS.
- The survey fails. Cypress requests the installation of a MIMO antenna and the site still receives a fail.

MIMO Antenna Installation

It is expected MIMO antennas will be used at ~10% of the sites.

Connect the antenna to the modem and place or mount the antenna on the metal surface parallel to the ground.

When signing off the job, make notes indicating the location had MIMO antenna installed.

In the event that MIMO antenna did not work, signoff and make notes.



Test and Turn-up

Texting Cypress Solutions with site survey code: 1.877.992.7751

On-site trouble during installs: 1.844.462.9773 (non-toll free: 778.372.4603)