Spectrum D3.1 Advanced Voice Modem User Guide

Contents

Spectrum

Spectrum D3.1 Advanced Voice Modem

Product Specifications

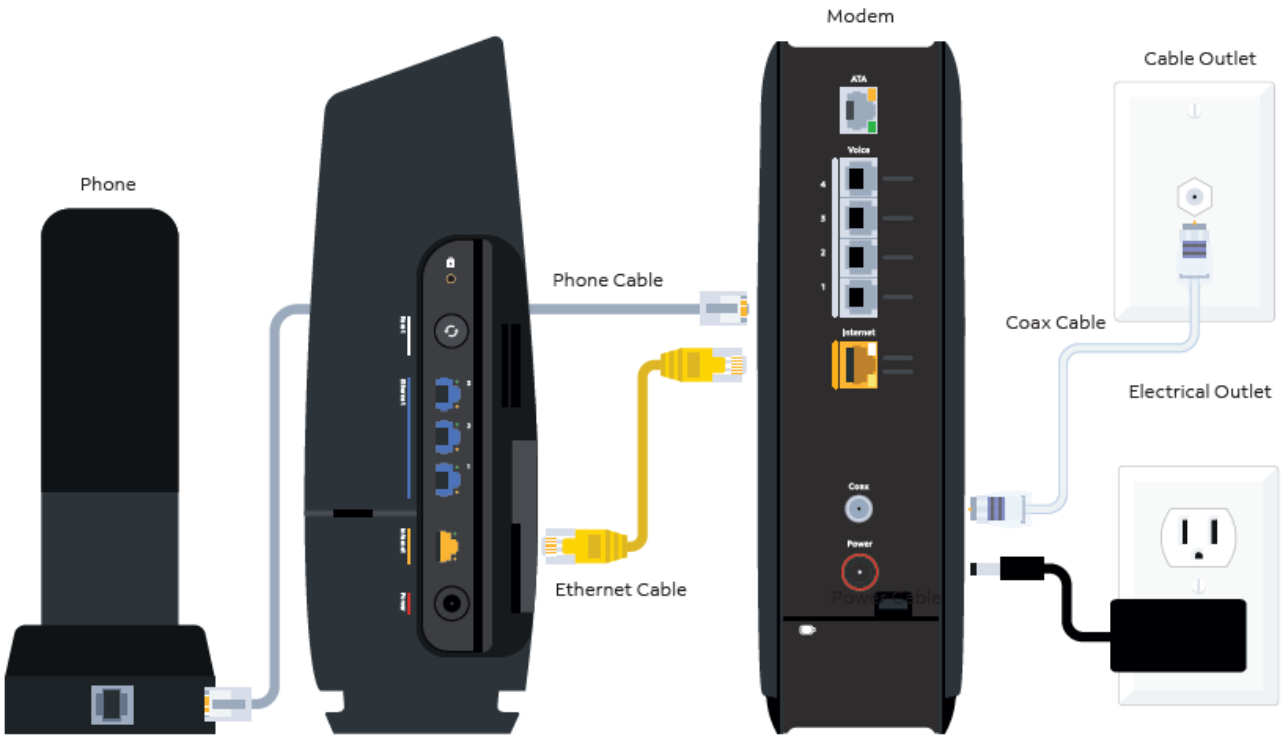
- Model: Spectrum Business eMTA DOCSIS D3.1 Advanced Voice Modem
- Battery: 8-hour internal battery
- Connectivity: Ethernet (RJ45), Coaxial Cable, Analog Telephone (RJ-11)

Connection

Understanding Device Connections

Rear Panel:

- **Voice** 1-4: Use to connect analog telephones to the device. Telephone service must be enabled by the service provider.
- **Cable:** Use to connect to the coaxial cable from your Internet service provider.
- **Ethernet (Internet):** Connects to an Ethernet-enabled device such as a wireless router using an RJ45 Ethernet cable.
- **Power:** Connects to the power adapter. Plug the other end into the wall power outlet.
- **Battery:** 8 hour internal battery.
- **ATA:** Used to connect additional voice hardware (not yet available in all markets).

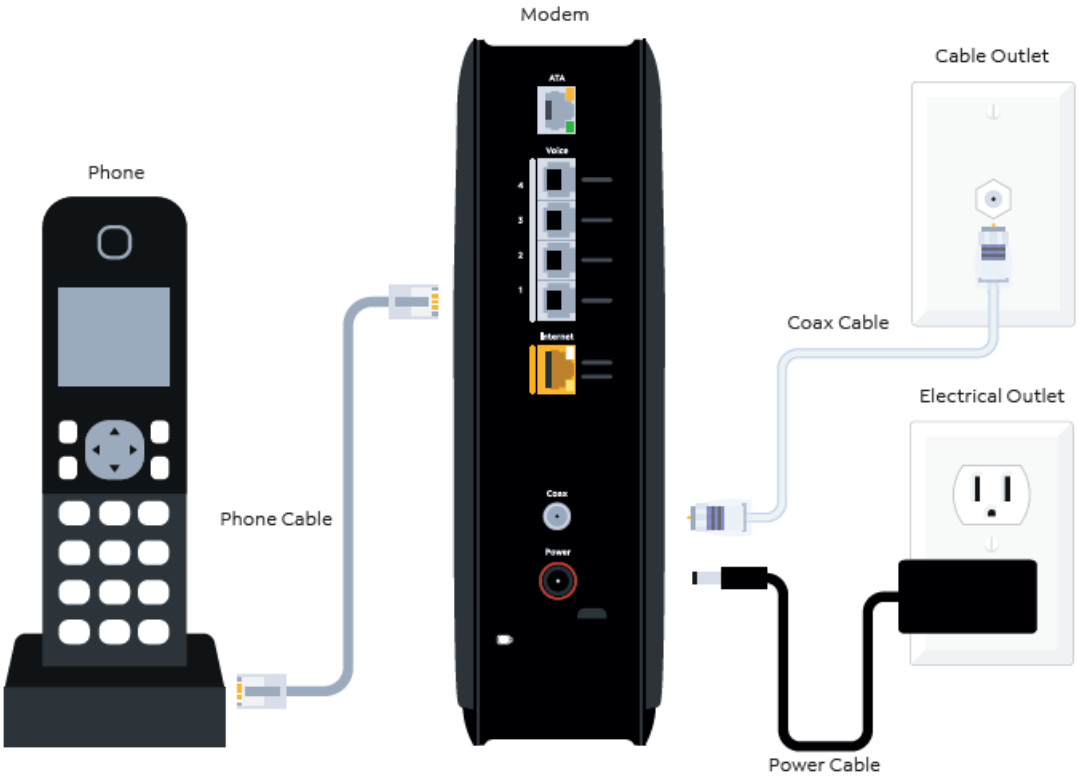


Installation

Installing Modem

1. Connect the coaxial cable to the cable connector on the rear panel of the eMTA and connect the other end to the cable wall outlet. Do not bend or over tighten the cables, as this may strain the connector and cause damage. To connect an eMTA and a television to the same wall outlet, you must use a cable line splitter (not included).
2. Connect the Ethernet cable (supplied) to the Ethernet (Internet) port on the back panel of the eMTA and connect the other end to an Ethernet port on a wireless router (or other Ethernet-enabled device).
3. Connect an RJ-11 phone cable (not supplied) to Voice 1 through 4 starting with Voice 1 on the modem (when provisioned for voice service as specified by the service provider), and connect the other end to the phone port of the telephone. If voice service is not provisioned through the service provider, telephone service is not available.
4. Connect the power adapter (supplied) to the Power port on the modem. Connect the other end to a power outlet.

Installation Diagram



Instructions

Device Wall Mount Instructions
You can mount the modem on a wall using the included wall mounting kit. Two round or pan head screws are recommended. See the figure below for measurements.

To mount the device on a wall:

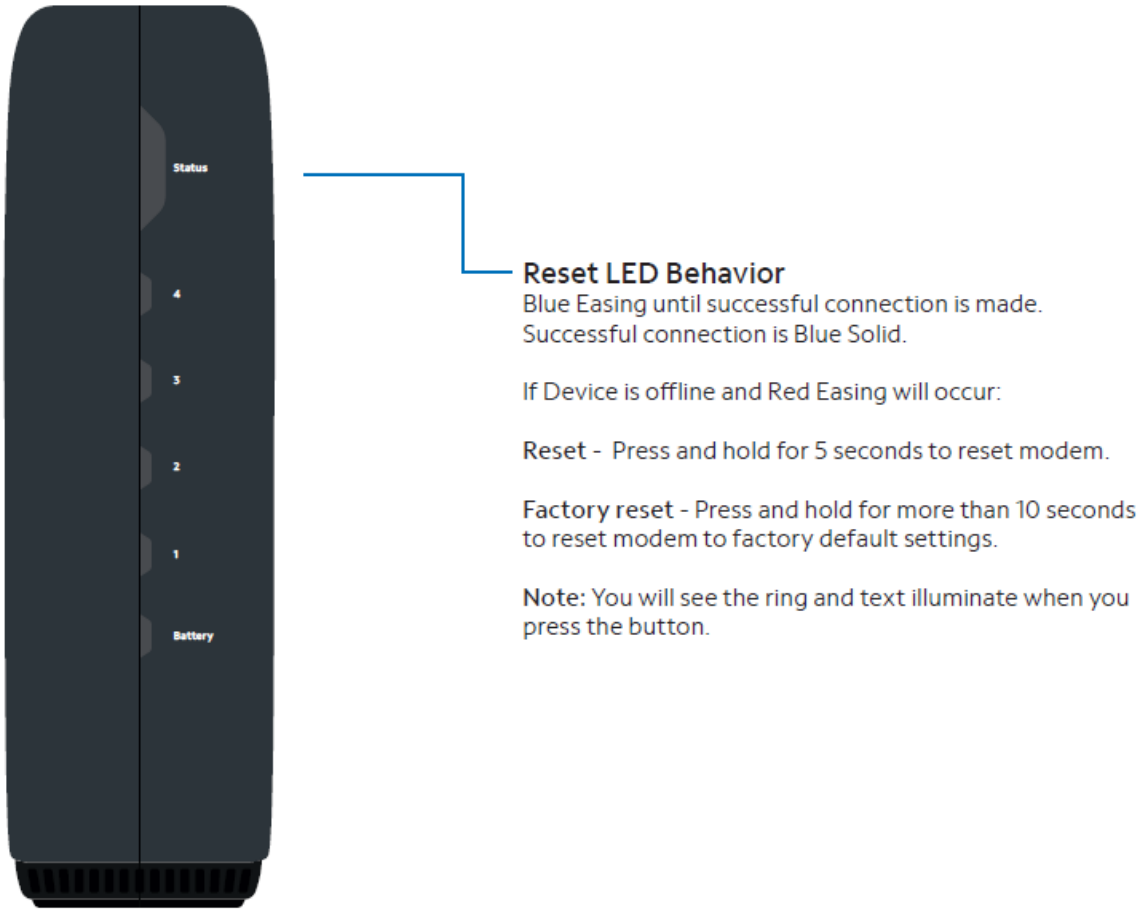
1. Secure the bracket provided in wall mounting kit to the wall using the 2 wall anchors and screws.

2. After the wall bracket is secure, place the device on the wall bracket. The device should snap into place.
3. There are 2 locking screws on the bottom of the bracket to secure the device to the bracket.

Note to CATV System Installer:
This reminder is provided to call the CATV systems installer's attention to section 820-93 of the National Electric Code, which provides guidelines for proper grounding and in particular, specify that the Coaxial cable shield shall be connected to grounding system of the building, as close to the point of cable entry as practical.

Resetting the Modem

Front Panel:
Reset: Use the reset button to either reboot (power cycle) the modem or reset the device to factory default settings. When the reset button is pressed and held for 4 to 10 seconds, the device will reboot (power cycle). If the reset button is pressed and held for 10 seconds or more, the Spectrum eMTA will reset to factory default settings. Refer to the LED Behavior table on page 5 for the reset button LED behavior.



Note: When the device is in a state that suggests a power cycle (the button icon and the surrounding ring are lit), a factory reset cannot be performed. The user must power cycle the device, then perform a factory reset.

LED Behavior

LEDs	Color	Description
Voice Status Light	Blue	• Voice Service Not Provisioned: Off • Voice Service Active: On Blue • Phone Cable Connected to Voice Port: On Blue • Phone Cable Not Connected to Voice Port: On Blue • Phone Off-Hook: Easing between On Blue and Off • Phone Off-Hook and the modem is powered by internal battery: Flashing betwe en On Blue and Off • Unable to Establish Phone Connection: Off
Battery Status Light	Blue R ED	• Battery at 21% (of usable charge) or Higher: On Blue • Battery at 20% (of usable charge) or Lower: On Red • Battery at 10% (of usable charge) or Lower: Flashing between On Red and Off • No Battery Installed: Off • Battery Charging: Easing between On Blue and Off
Ethernet (Internet) Left Status Light	Green Amber	• On Green – An Ethernet Device is Connected at 1000Mbps (1G) • On Amber – An Ethernet Device is Connected at 2500 Mbps (2.5G) • Off – An Ethernet Device is Connected at 100 Mbps
Ethernet (Internet) Right Status Light	Amber	• On Amber – Data is Being Passed Between the modem and the Connected De vice • Off – No link is established

Basic Modem Info

Example of Cable RF MAC Address	00:71:CC:8E:54:C7
Firmware Version Example	GA-EU2251-P20-01.03.00-BAN.000
Compatibility	• DOCSIS 3.1/3.0/2.0/1.1/1.0 certified • Ethernet 100/1000/2500 Mbps • PacketCable 1.5 and 2.0

Product Specifications

Interfaces & Standards

- **Cable:** F-Connector, female

- **Models:** EU4251, ES4251
- **LAN:** One 10/100/2.5 Gbps RJ-45 port
- **Telephony:** 4 RJ-11
- PacketCable 1.5 (NCS) or 2.0 (IMS/SIP) compatible
- DOCSIS 3.1 certified

Downstream

- **Frequency Range:** 258MHz-1218MHz
- **Capture Bandwidth:** 1.218GHz
- **Modulation:** 64 or 256 QAM and OFDM: up to 4096 QAM
  - **Maximum DOCSIS 3.1 Data Rate:** 2 x 192MHz OFDM channels provide capacity up to 5Gbps
  - **Maximum DOCSIS 3.0 Data Rate:** 32 downstream channels provide speeds up to 1372Mbps
- **Symbol Rate:** 5361 Ksps
- **RF (cable) Input Power:**
  - -15 to +15dBmV (64/256 QAM)
  - -6 to +15dBmV (4096 QAM)
- **Input Impedance:** 75 Ω

Upstream

- **Frequency Range**: 5MHz ~ 42MHz/85MHz switchable
- **Modulation:** QPSK or 8/16/32/64/128 QAM and OFDMA: up to 4096 QAM
  - **Maximum DOCSIS 3.1 Data Rate**: 2 x 96MHz OFDMA channels provide capacity up to 2Gbps
  - **Maximum DOCSIS 3.0 Data Rate:** 8 upstream channels provide speeds up to 246Mbps
- **Symbol Rate:** 160, 320, 640, 1280, 2560, 5120 Ksps
- **RF (cable) Output Power:**
  - A-TDMA/S-CDMA (one channel): +65dBmV
- **OFDMA:** +65dBmV

Security
DOS (denial of service) attack protection

Regulatory
UL/FCC Class B, Energy Star Certified

Voice

- **PacketCable** 1.5 (NCS) or 2.0 (IMS/SIP) compatible
- **Line Voltage On-hook:** -48 Volts, Loop Current: 20mA/41mA, Ring Capability: 2K ft., 5REN, Hook State: Signaling Loop Start
- DTMF Tone Detection, T.38 Fax Relay (G.711), Echo Cancellation (G.168) / Silence Suppression, Voice Active Detection and Comfort Noise Generation
- G.722 codec, WB SLIC

Physical and Environmental

- **Dimensions:** 75mm, 2.95 inches (W), 256mm, 10.07 inches (H), 183.6mm, 7.22 inches (D)
- **Weight:** 632.6g (1.4 lbs), unit only
- **Power:** 12V 2A (output), 100-240VAC, 50-60Hz, 1A Max (input), external PSU
- **Operating Temperature:** 0°C ~ 40°C (32°F ~ 104°F)
- **Humidity:** 5 ~ 95% (non-condensing)
- Internal 8 Hour Battery

Frequently Asked Questions (FAQ)

- **How do I know if my voice service is provisioned by the service provider?**
  - If your voice service is provisioned, you will be able to connect analog telephones to Voice 1-4 ports on the modem. Contact your service provider for confirmation.
- **Can I use a different power adapter with the modem?**
  - It is recommended to use the supplied power adapter to ensure compatibility and proper functionality of the device.

Documents / Resources

	Spectrum D3.1 Advanced Voice Modem [pdf] User Guide D3.1 Advanced Voice Modem, D3.1, Advanced Voice Modem, Voice Modem, Modem

References

- User Manual