Politac

DEN
Distributable Emergency Network

# Starlink Guide for First Responders

## Special Hurricane Helene Edition Release 10/5/24

# Emergency Publication for Hurricane Helene Response

**IMPORTANT**

*** Please note that Starlink products and service plans change often and the information in this guide will expire. This guide was last updated Oct 5, 2024. This guide is meant to be used as a reference and should not be relied upon for life-saving operations or major purchasing decisions. Please use common sense in your decision making and do not stake the success of your operations on the information found in this guide as it is published as a free best-effort product. Politac LLC is not affiliated with Starlink.

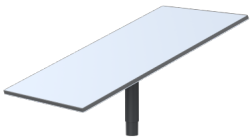
For the most accurate and up-to-date information contact Starlink Support at: https://support.starlink.com

If you find any information in this guide that is inaccurate or if there is any information that you would like to see added to this guide please email us at heleneresponse@densystems.com.

# Starlink Models Comparison

| |  |  |  |
|---|---|---|---|
| | **Standard Gen 2 Actuated** | **Standard Gen 3 Flat** | **Mini** |
| Possible Uses | Deployable, Command Post, EOC, PSAP, Fixed Sites | Deployable, Command Post, EOC, PSAP, Fixed Sites | Deployable, Command Post, Vehicle Dashboard, Fits in Backpack |
| Advantage | Availability, Speed | Speed, Price, Size | Portability, Low Power Usage, 12V Capable |
| Hardware Cost | No longer sold | $299 | $599 |
| Package Weight | 18lbs | 15lbs | 14.83 lbs |
| Kit Contents Weight | ~18lbs | ~12.5lbs | 3.37 lb |
| Package Size | 23.5" x 14" x 10.6" | 26" x 18" x 4" | 16.92" x 13.14" x 3.11" |
| Power Input | 100-240VAC | 100-240VAC | 12-48VDC 60W |
| Avg. Power Use | 50-75W | ~ 2.5A 50-60 Hz | 25-40W |
| Ethernet Ports | 0<br>Ethernet adapter available | 2 | 1 |
| Motorized | Yes | No | No |
| Compatible Mobility Plans | Roam Unlimited | Roam Unlimited<br>Roam 50GB | Roam Unlimited<br>Roam 50GB |

# Starlink Models Comparison

| |  |  |  |
|---|---|---|---|
| | **High Performance Actuated** | **High Performance Flat** | **Enterprise** |
| Possible Uses | EOC, PSAP, Fixed Sites, Large Deployable | EOC, PSAP, Fixed Sites, Vehicle Mount, Large Deployable | Deployable, Command Post, EOC, PSAP, Fixed Sites |
| Advantage | Great signal acquisition, Speed | Great signal acquisition, Speed | |
| Hardware Cost | No longer sold | $2500 | $699 |
| Package Weight | 38.5lbs | 38.5lbs | 25 lbs |
| Package Size | 23.2" x 26" x 9.8" | 26.7" x 24.1" x 7.5" | 27" x 19" x 6" |
| Power Input | 100-240V | 100-240V | 100-240V 50-60Hz |
| Avg. Power Use | 6.3A 50-60 Hz | 6.3A 50-60 Hz | 75-100 W |
| Ethernet Ports | Plug direct to unit with provided ethernet cable (may not come with router) | Plug direct to unit with provided ethernet cable (may not come with router) | Plug direct to dish with provided ethernet cable (does not come with router) |
| Motorized | Yes | No | No |
| Compatible Mobility Plans | Legacy Only | 50GB Mobile Priority<br>1TB Mobile Priority<br>5TB Mobile Priority | None (Fixed Site Only) |

# Starlink Mobility Plans Comparison

Please note this shows only mobility plans, not plans for fixed sites. While there are several public safety applications where fixed site use may be preferred, this guide is focused on deployable assets which are best used on mobility plans.

## Standard/Personal Plans

| | **Roam** | **Boats** |
|---|---|---|
| Features | Countrywide Coverage<br>In-motion Use<br>International Travel<br>Coastal Coverage<br>Pause Service | Unlimited Inland Data<br>In-motion + Ocean Use<br>Network Priority<br>Priority Support |
| Best Uses | Deployable Assets | |
| Compatible Units | Standard Gen 2<br>Standard Gen 3 Flat<br>Mini | |
| Price Options | 50GB - $50/month<br>Unlimited - $165/month *** | Mobile Priority 50GB - $250/month<br>Mobile Priority 1TB - $1000/month |
| Priority | Optional - pay by the GB | Yes |
| Unlimited | Yes | Unlimited de-prioritized after plan limit |

*** Excellent option for public safety and first responder smaller deployable units (Gen 3 Flat and Mini)

## Business Plans

| | **Land Mobility** |
|---|---|
| Features | Unlimited Inland Data<br>In-motion + Ocean Use<br>Network Priority<br>Priority Support |
| Best Uses | Deployable Assets |
| Compatible Units | High Performance Flat |
| Price Options | Mobile Priority 50GB - $250/month<br>Mobile Priority 1TB - $1000/month<br>Mobile Priority 5TB - $5000/month |
| Priority | Yes |
| Unlimited | Unlimited de-prioritized after plan limit |
| Notes | Additional Mobile Priority Data available by the GB |

* Note: A maritime plan is available for use at sea

# Starlink Router Models

Starlink Gen 2 Router

Starlink Gen 3 Router

**Starlink Gen 2 Router**
The Starlink Gen 2 Router is normally only seen with Starlink Gen 2 Standard Actuated. It requires  a special Starlink ethernet adapter to connect external ethernet sources. It runs on AC power only.

**Starlink Gen 3 Router**
The Starlink Gen 3 Router is seen on many devices and can be connected to the Gen 3 Standard Flat, the High Performance Flat, and the Enterprise models. The Gen 3 Router can function as the primary Starlink router or as a mesh WiFi access point. It runs on AC power via adapter but can be easily converted to DC using a step-up adapter.

**Starlink Mini**
The Starlink Mini has a built-in router with WiFi and an ethernet port. It does not need to be connected to an external router.

# Starlink Ethernet Connection by Model

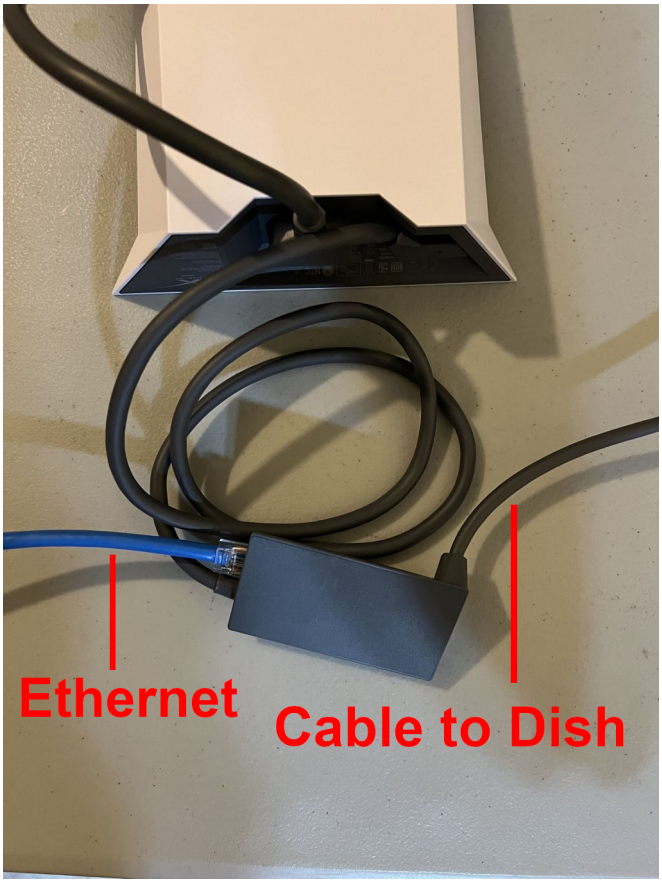
**Standard Gen 2 Actuated**

Requires Starlink Ethernet Adapter if using original Gen 2 router:
https://shop.starlink.com/products/us-consumer-ethernet-adapter-gen2

If using Gen 3 router follow directions for Standard Gen 3 Flat below.

For Gen 2 router, plug ethernet adapter into router and then plug Starlink cable into ethernet adapter. Ethernet cable can be plugged directly into ethernet adapter.


Starlink Gen 2 Router with Ethernet Adapter




Starlink Gen 2 Router All Connections

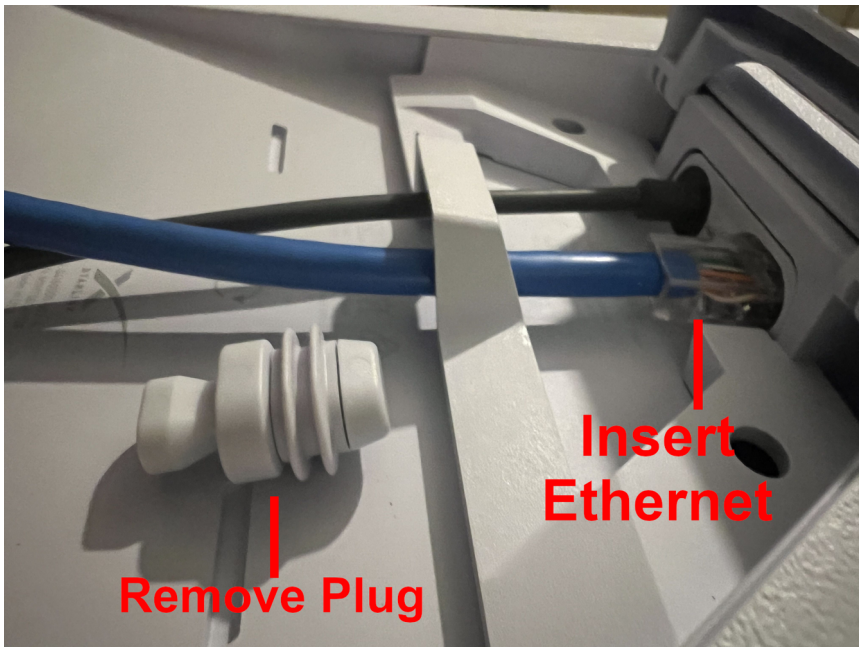
**Standard Gen 3 Flat**

Remove rubber cover from Gen 3 router. Plug ethernet cable into one of the ethernet ports.

Rear of Gen 3 Router

**Mini**

Remove protective rubber plug from unit. Insert ethernet cable with tab facing up. Cable will snap in like a normal ethernet connection. Pull hard to remove. Consider cable stress relief measures to prevent accidental removal.




Bottom of Starlink Mini Dish

### High Performance Actuated

High Performance Model by default does not come with a router. Plug provided ethernet cable directly into power supply. If adding a Starlink Gen 3 router, plug router into Starlink ethernet cable (other end plugged into power supply) then follow instructions for Standard Gen 3 Flat above.

### High Performance Flat

High Performance Model by default does not come with a router. Plug provided ethernet cable directly into power supply. If adding a Starlink Gen 3 router, plug router into Starlink ethernet cable (other end plugged into power supply) then follow instructions for Standard Gen 3 Flat above.

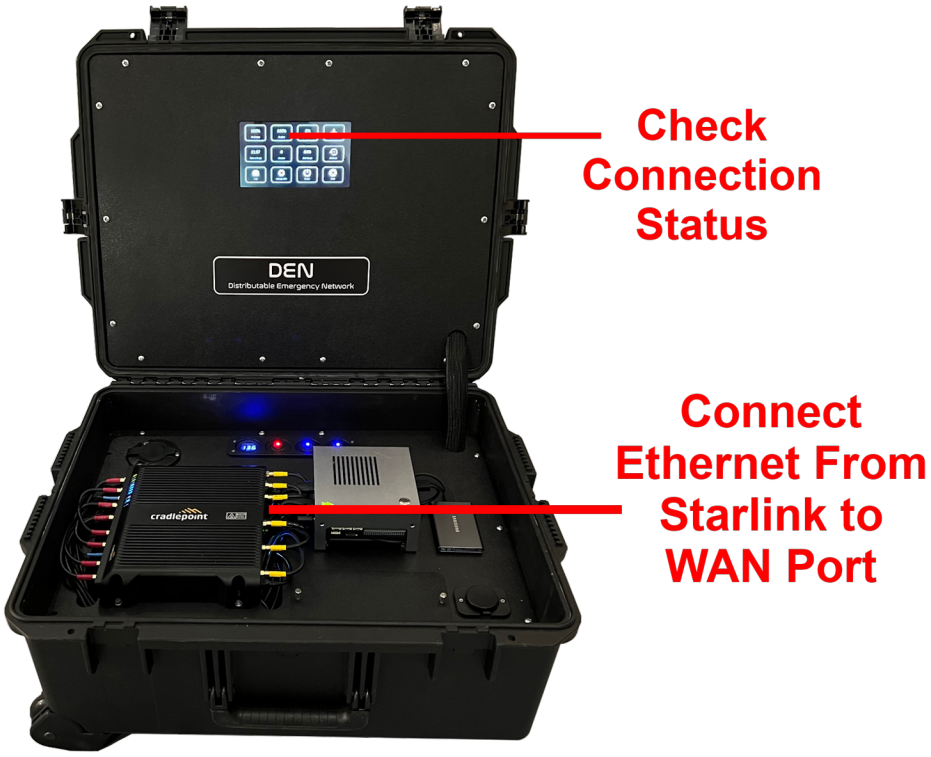
### Enterprise

Enterprise Model by default does not come with a router. Plug provided ethernet cable directly into power supply. If adding a Starlink Gen 3 router, plug router into Starlink ethernet cable (other end plugged into power supply) then follow instructions for Standard Gen 3 Flat above.

# Connecting Starlink to DEN

All DEN cases no matter what size and router type are equipped to handle a Starlink connection automatically. Simply plug ethernet cable in to the WAN port and the DEN case will recognize the Starlink connection and begin using it.

**Phones**
DEN cases equipped with built-in VOIP server will automatically connect through a VPN which will allow VOIP traffic to pass through the Starlink network. After connecting Starlink please make a test call (incoming and outgoing). The built-in conference line will be available as usual.



# Other Considerations

**WiFi Calling**
Starlink supports WiFi calling. Turn on WiFi calling, connect to the Starlink (or DEN) WiFi network. Make and receive calls as normal. Remember that as a phone moves farther away from the WiFi device and WiFi signal decreases, call quality will also decrease.

**VOIP Phones**
VOIP is possible over some Starlink plans but connections must be set up very carefully. A more viable option is to connect to VOIP through a VPN connection. DEN cases with built-in VOIP servers do this automatically. Direct VPN options include OpenVPN, IPSec, and others.

**Obstructions**
Starlink devices must be set up with a clear view of the sky. Obstructions may cause a loss of signal. Set up in an open area and place router and other non-weather resistant equipment under cover. In some circumstances a Starlink device can be set up inside a tent or under a thin layer of plastic or fiberglass. This can cause an unstable connection but can be attempted if no other options exist.

**Power**
Starlink devices that run on AC power require a clean power source to prevent damage. Only plug Starlink devices into power sources known to have clean power. This is especially important when using generator power. Look for "inverter generators" and "pure sign wave" inverters.