Outdoor Gateway Enclosure

Weatherproof PoE-Powered Gateway Housing

BEFORE YOU START!

Scan this QR code to...

➤ Connect to **our team of dedicated Signal Specialists** - They are eager to help!

➤ **Get your free Virtual Site Survey** - including a map of cell towers and where to mount your Outdoor Gateway Enclosure.
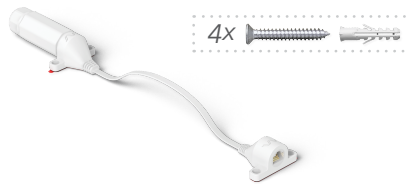
➤ View a **digital copy** of this manual.

setup.wf/OGE

Developed by WAVEFORM in the USA

What's in the Box

Outdoor Gateway Enclosure w/
4x Wall Brackets & Assembly Hardware
*(Contains a mounted 60W USB-C/ethernet PoE splitter with
1.5 ft USB-C and ethernet cables)*

PoE Injector & Power
Supply

Cables and Accessories

3x Ethernet Cables
(1x 10 ft (3 m) & 2x 25 ft (7.6 m) cables)

BAGS

4x

Ethernet Window Entry Cable
(Manual included in bag)

BAG

6x Wall Screws &
Anchors*

BAG

* Includes extras

What Hardware Do You Need?

You'll need a **Phillips-#2 screwdriver**. Depending on where you mount the Outdoor Gateway Enclosure and how you route the cables, **you may also need:**

- Drill
- 5/16 inch (8 mm) drill bit — for wall anchors (concrete/brick mortar/plaster/drywall)

Install Manuals, Who Needs 'Em?

Heads up: Finding the optimal location for your Outdoor Gateway Enclosure, one that provides your gateway with stronger signal, better performance, and higher data speeds, may take a bit of patience.

This manual is based on feedback from hundreds of customers like you. We've poured our hearts and souls into it, to make it as helpful as possible.

We promise **you'll be glad if you read it from start to finish before you get started**. It'll help you save time, avoid common pitfalls, and ensure your system works as well as possible.

Who We Are

Hi! We're Waveform. We've been around since 2007, and while we've grown a bunch since then, we're still a small team. There's just a handful of us answering texts, and picking up calls.

The four of us pictured below lead support and product development. Feel free to reach out to us at any time; our emails are all just our first names @waveform.com
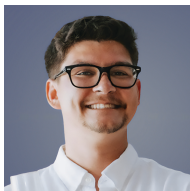
| Ian (Support) | Marcus (Product) | Sina (CEO) | Austin (Product) |

Stuck? Have Questions? *Please:* Contact Us!

We're a small team, but we *really* care about helping you get the best results.

If you're having issues, please reach out. Sometimes a small tweak can make all the difference.

Even if everything goes smoothly, let us know how your system is performing! And we love getting feedback: if you think of a way we could make the Outdoor Gateway Enclosure, accessories, the install process, or this manual better - let us know!

Simply visit **setup.wf/OGE** to **connect with our team** of dedicated Signal Specialists, and access a **bunch of helpful resources!**

01 Install Process Overview

0   **Scan this QR code** to get your virtual site survey and connect to our team of signal specialists.

1   **Read this manual** — Ideally from start to finish, so that you understand the whole installation process before you begin.

2   **Prepare your "Test Setup" and find the best position for your Outdoor Gateway Enclosure** *(Pages 5-6)* — You'll connect your system in the "test setup" to make finding the best position for the outdoor enclosure as easy as possible. This step is the most time-consuming, but it's worth the effort and has a huge impact on performance.

3   **Plan your cable path** *(Page 7)* — Before making any holes in your roof or walls, you'll plan your cable path to ensure that all of the equipment in your system can be reached.

4   **Verify performance and install everything** *(Page 8-10)*. You'll fully connect your system and run speed tests. If everything looks good, you'll finalize the cable runs and mount your Outdoor Gateway Enclosure.

5   **Tell us how your system is doing** — Nothing makes our day like hearing from customers. And if for any reason you're not seeing the results you were hoping for, we can help.

      Visit **setup.wf/OGE** to **connect with our team** of dedicated Signal Specialists and access a **bunch of helpful resources!**

02 How Does it Work?

The **PoE (Power over Ethernet) Injector**, which is placed indoors, combines power and data over a single ethernet cable that reaches the outdoor enclosure, eliminating the need for you to route separate power and data cables. Inside the enclosure, a **PoE Splitter** then separates and delivers power and data to the appropriate ports on your gateway.

Boot-up Sequence

After being powered on, the PoE Injector's "POWER" light will turn green. Once it **detects an active connection** through your system, it's "ACTIVE" light will also turn green.

03 Positioning Your Outdoor Gateway Enclosure

Finding the best position for your Outdoor Gateway Enclosure is the most important part of the install. In this section, we'll walk you through a simple and effective method for positioning your Outdoor Gateway Enclosure.
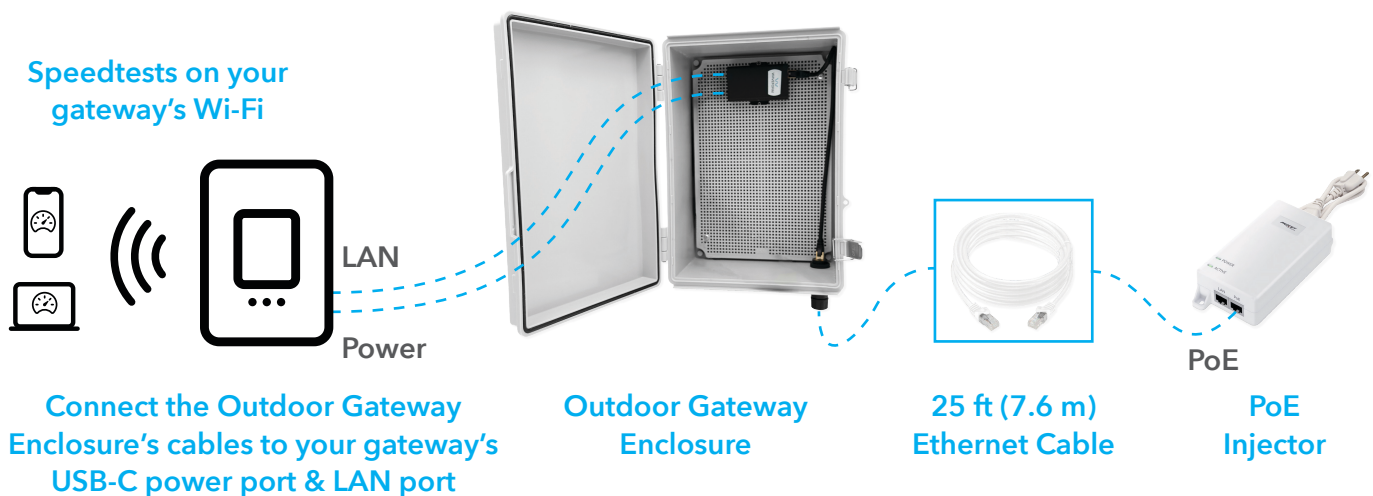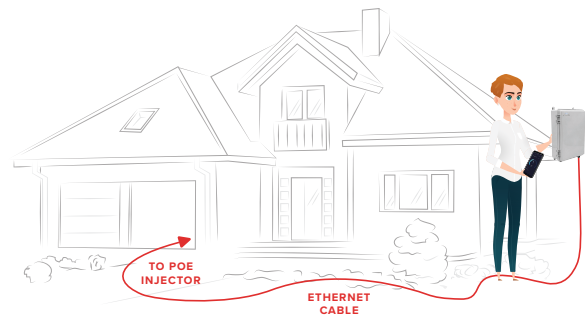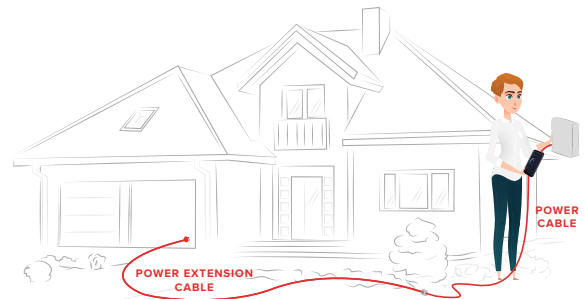
The Goal

Your goal is to find the best position for your Outdoor Gateway Enclosure. Its position should maximize the data speeds from your gateway. It can take a little patience, but spending some extra time here can have a huge impact on performance - it's worth the extra effort.

1. Prepare your Test Setup

Is your gateway battery-powered? Or, do you have a power extension cord?

If so, simply take your gateway outside and **connect your phone to your gateway's Wi-Fi** to start testing.

If not, no worries! For your test setup, temporarily **connect your gateway into your Outdoor Gateway Enclosure** (as shown below), and take them both outside to start testing.

POWER CABLE

POWER EXTENSION CABLE

TO POE INJECTOR

ETHERNET CABLE

Speedtests on your gateway's Wi-Fi

LAN

Power

PoE

Connect the Outdoor Gateway Enclosure's cables to your gateway's USB-C power port & LAN port

Outdoor Gateway Enclosure

25 ft (7.6 m) Ethernet Cable

PoE Injector

2. Get Ready to Perform Speed Tests

Since the goal is improved data speeds for your gateway, it makes sense to **judge the best position for the Outdoor Gateway Enclosure by measuring its data speeds**. We recommend using Speedtest by Ookla for this. Visit **waveform.com/speedtest** to get there easily.

Once your test setup is ready and your testing phone or laptop is connected to your gateway, **you'll have everything you need to start testing** at different positions outside.

Go ahead and **run a couple of speed tests to get a baseline**. You'll notice your results fluctuate a between tests – that's completely normal.

3. Take Outdoor Measurements

With each new location, restart your gateway by disconnecting and reconnecting it's power cable. This forces your gateway to connect to the best bands available at each location.

We recommend **running 2-3 speed tests at each of the following outdoor positions** with your gateway, and writing down each of your results.
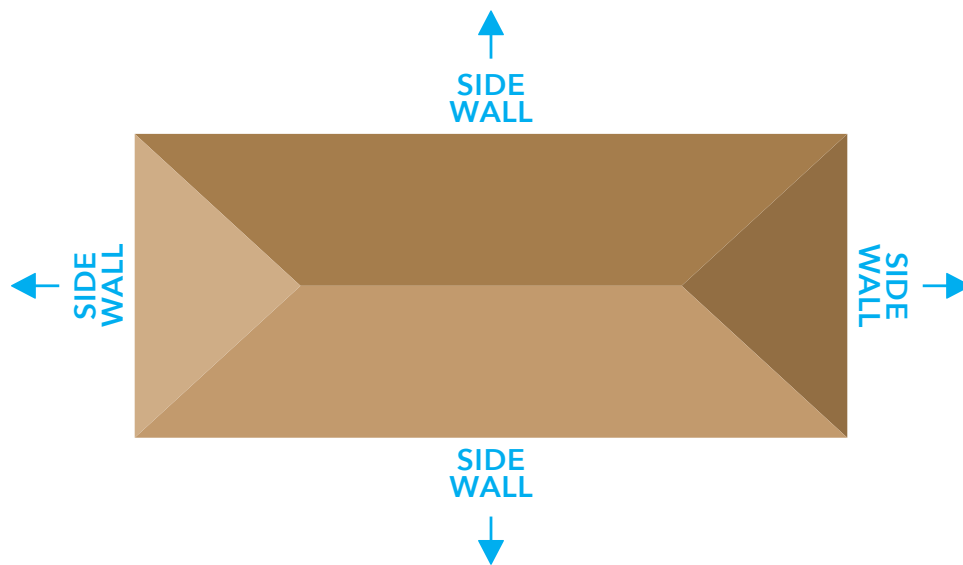
Don't just go to the highest point of the building! While signal is generally stronger the higher you go, there's also often more interference. We've found it's often better to mount cellular equipment on the side of the building where the cellular antennas inside your gateway are better shielded from interference.

If you're running into issues, we'd love to help. Simply visit **setup.wf/OGE** to **get connected with our team** of dedicated Signal Specialists.

04 Routing Cables & Connecting Your System

Once you've found the best position for the Outdoor Gateway Enclosure, **it's time to route and install your cables.**

Planning Your Cable Path

Before permanently installing any equipment, **take a moment to plan the route of your cables**. How the outdoor ethernet cable enters the building will depend on whether you use the included **Window Entry Cable** or route the cable through a wall or another entry point.

Every building's different, so there's no step-by-step instructions we can apply to every building – but here are some tips to help you figure out the best approach.

» **Window**. Don't want to drill holes into your walls or roof to route the outdoor ethernet cable into the building? Install the included Window Entry cable in a convenient window to create a cable path into the building.

» **Conduits and grommets.** You may have existing cable channels into your building from other equipment (e.g. Cable internet, TV antenna, land-line phones, etc.)

» **Drilled through the wall.** Don't want to use the Window Entry Cable and don't have any existing conduits? You'll need to drill a 5/8 inch (15 mm) diameter hole through an exterior wall to run the ethernet cable from outside into the building.

Cable Tips

When planning your cable path, *keep these best practices in mind:*

- Before attempting to route the cables through your building, **lay the ethernet cables out flat to straighten them**. This will make them easier to work with.
- **Avoid sharp bends, kinks, or twists** that could damage your cables.
- **Avoid sharp edges** that might wear down the cable over time.
- **Manage your cables** with zip ties to keep them safe and out of the way. If a cable runs along the wall, consider using cable saddles to secure it to the wall.
- When pulling your cables, **always pull on the cable jacket** and never on the connectors to prevent damage.
- **Create a small "drip-loop" in the outdoor ethernet cable** before it enters your building – this helps prevent water from entering your building.

Getting Your System Connected

*Refer to the diagram on the next page as needed* ⟶

1   **Place the Outdoor Gateway Enclosure** near the preferred mounting location.

2   **Within the Outdoor Gateway Enclosure**, connect the USB-C cable to your gateway's power port & the ethernet cable to its "LAN" port. Then, **close and latch the enclosure.**

3   **Place your Wi-Fi router & the PoE Injector** at their preferred locations inside the building.

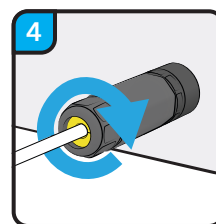**4**   **Install the 25 ft ethernet cable** into the Outdoor Gateway Enclosure's cable gland.
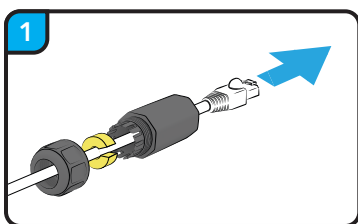
1   **Feed the outdoor cable** through the gland's cap, seal, then tube.
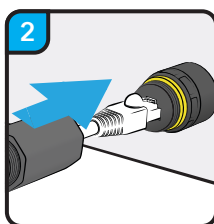
2   Plug the **cable** into the enclosure's external port.
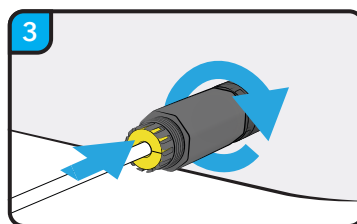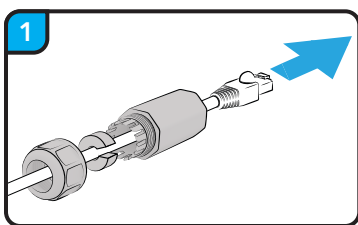
3   **Fasten the tube** onto the enclosure. Then, **push the seal** between the forks.
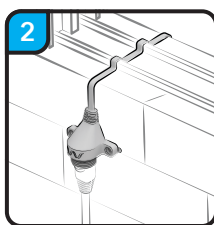
4   **Fasten the cap** onto the tube.

5   **Route that 25 ft ethernet cable into the building** via the Window Entry Cable, or a wall/roof.
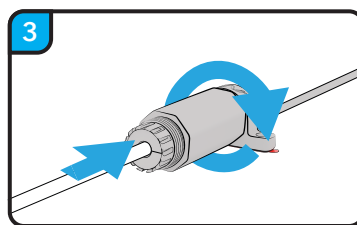
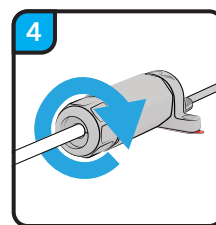### Option 1   Using the Window Entry Cable

1   **Feed the outdoor cable** through the entry cable's cap, seal, then tube.

2   Plug that **cable** into the entry cable.

3   **Fasten the tube** onto the entry cable. Then, **push the seal** between the forks.

4   **Fasten the cap** onto the tube.

For the Window Entry Cable's **full install instructions**, follow its included manual or find its manual online at **waveform.com/ethernet-entry-manual**
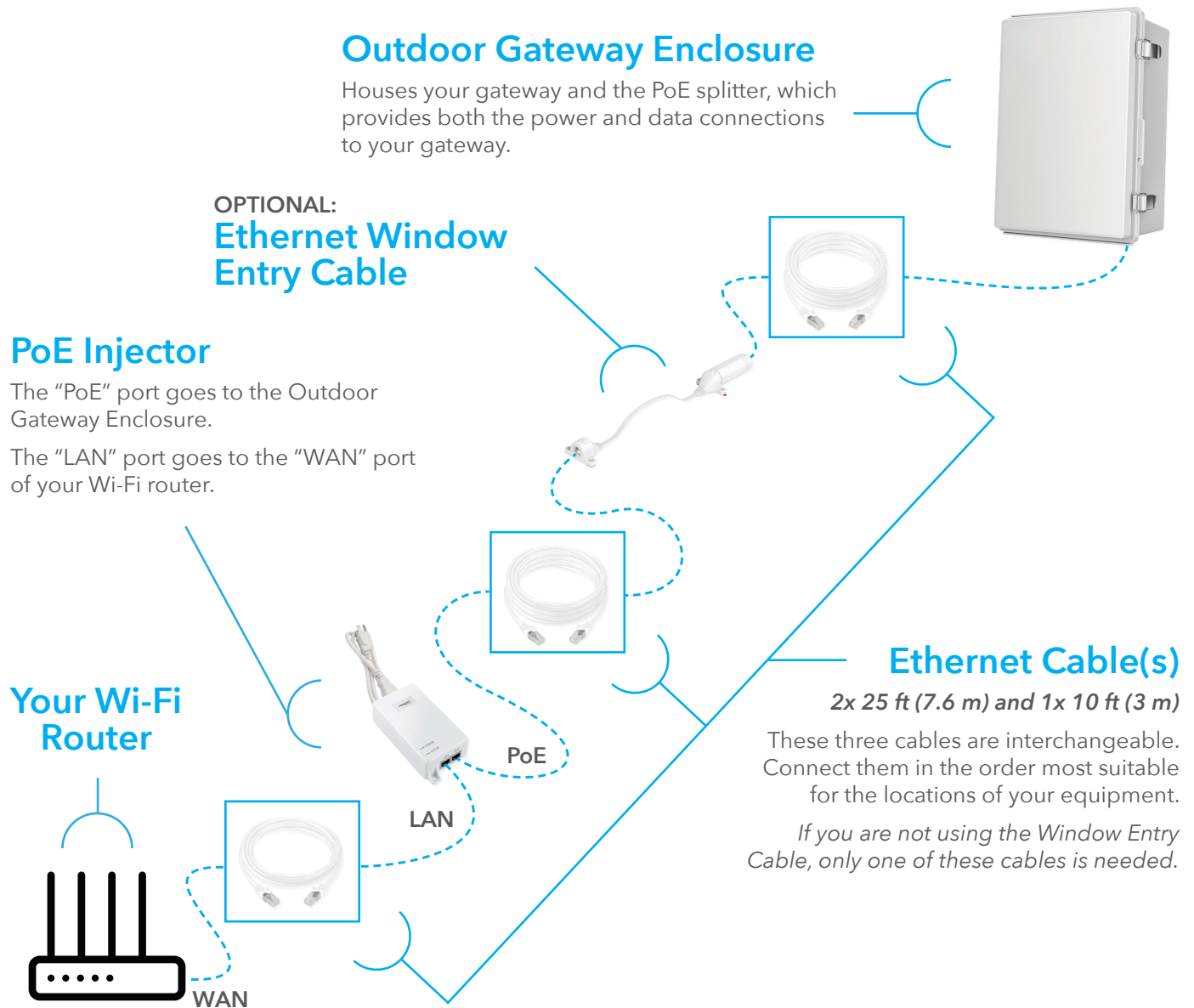
Then, **plug the second 25 ft ethernet cable** between the Window Entry Cable's indoor connector and the "PoE" port of the PoE injector.

Option 2   Routing through a Wall or Roof

Route that 25 ft ethernet cable into your building and plug it into the "PoE" port of the PoE injector. Refer to the previous page for suggestions on how to route that cable.

6 Connect the 10 ft (3.0 m) ethernet cable between the PoE Injector's "LAN" port and the "WAN" port of your Wi-Fi router. Then, plug the PoE Injector into power.

7 Restart your Wi-Fi router. Once it's back online and your phone or laptop can connect to it, run a few speed tests to confirm your router can get internet from your gateway in the outdoor gateway enclosure. Speed results may vary between tests, that's normal.

Outdoor Gateway Enclosure
Houses your gateway and the PoE splitter, which provides both the power and data connections to your gateway.

OPTIONAL:
Ethernet Window Entry Cable

PoE Injector
The "PoE" port goes to the Outdoor Gateway Enclosure.

The "LAN" port goes to the "WAN" port of your Wi-Fi router.

Ethernet Cable(s)
2x 25 ft (7.6 m) and 1x 10 ft (3 m)

These three cables are interchangeable. Connect them in the order most suitable for the locations of your equipment.

If you are not using the Window Entry Cable, only one of these cables is needed.

## Your Wi-Fi Router

PoE

LAN

WAN

Install Tips

- When connecting the ethernet cables, **make sure to follow the ports as labeled in the diagram above** to ensure each cable plugs into the correct port. Most importantly, **the cable from the PoE Injector's LAN port must connect to your Wi-Fi router's WAN port.**

- **Unsure which port is the WAN port of your Wi-Fi router? Labels can vary!** WAN ports are usually labeled "WAN", "Internet", or shown with a globe icon – and is often blue. LAN ports are usually labeled with numbers (1, 2, 3, etc.) and may be yellow or unmarked.

05 Mounting Your Outdoor Gateway Enclosure

Now that everything is connected and you've **verified that you can access the internet from your gateway while it's in the Outdoor Gateway Enclosure,** it's time to mount your Outdoor Gateway Enclosure directly against the side of your building!
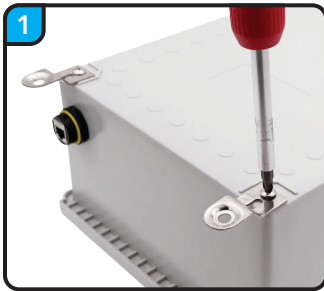
Secure each mounting pad to the back of the enclosure.
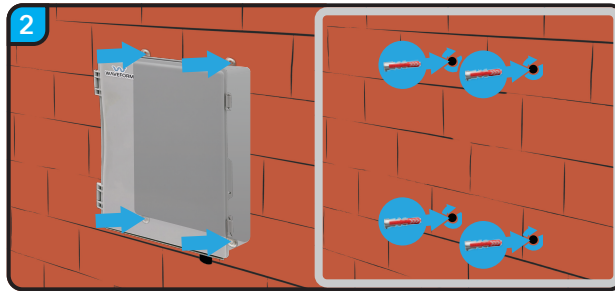
Position the enclosure against the wall, with its external port facing downwards. Then, mark each hole and **drill the pilot holes**.

(Optional) Install **wall anchors** into each hole.
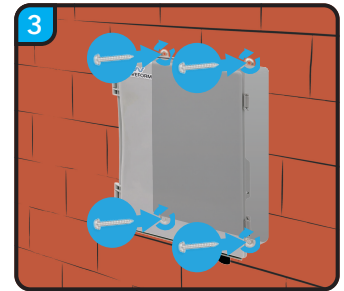
Place the enclosure against the wall and **install the screws**.

Cable Tips

The fasteners you use to mount the outdoor enclosure depend on its mounting surface:

- **Semi-soft materials** (e.g. wood), use the **Phillips-head wood screws**.
- **Hard or very soft materials** (e.g. concrete/brick/plaster/drywall), use the **Phillips-head wood screws** & **anchors.** The anchors require a **pre-drilled 8mm x 50mm hole.**

06 Some Final Tips

» **If data speeds decrease over time, consider re-optimizing your system.** Occasionally carriers will update their towers to broadcast different bands, light up new towers, or simply turn off existing towers altogether. If your data speeds get worse, try repositioning your Outdoor Gateway Enclosure to get better results.

» **Have a T-Mobile Gateway?** Use T-Mobile's T-Life App, or the third-party HINT Control App, to disable its Wi-Fi, improving cooling and reducing Wi-Fi interferance for your indoor Wi-Fi Router. The HINT Control App provides additional functionality over T-Life.

Find T-Mobile's T-Life App at **t-mobile.com/apps** *or find the HINT Control App in the* **Apple App** *store,* **Google Play** *store, and* **GitHub** *(for MacOS, Linux, and Windows).*

07 Tell Us How It Works

Did your installation go well? Are you having trouble installing your Outdoor Gateway Enclosure? Do you think our manual could be improved?

Please tell us: Visit **setup.wf/OGE** to **connect with our team** of dedicated Signal Specialists, access a **bunch of helpful resources**, and more!

We're a small team who loves hearing how our products perform and helping folks get the absolute best data speeds in any given situation. **So please, reach out!**

Three ways to get money back!

Get $50/£40/€45 by sending us a video of your install:

We'd love to feature your success! Send a 30+ sec video to **videos@waveform.com** showing **your installed kit** and **speed test results from *before* and *after*** your install. *If your Outdoor Gateway Enclosure is already installed*, briefly switch to your original setup to get your "before" results. Once we review your video, we'll PayPal you those funds!

Earn 5% cash back for each friend you refer:

Love your Outdoor Gateway Enclosure? Refer a friend! They'll get 5% off their kit, and you'll earn 5% (via PayPal) when they purchase directly from **waveform.com**. Visit **waveform.com/referrals** to get started.

Get up to $1000 for each U.S. business you refer:

Know a business in the U.S. with poor cellular signal? Send them our way! If they deploy one of our cellular coverage solutions, you can earn via PayPal:

- **$250** for spaces between 20,000 and 100,000 sq. ft.
- **$1,000** for spaces over 100,000 sq. ft.

To get started, send an email introduction with your referral to **coverage@waveform.com**, and we'll handle the rest.

Need help? We're ready and waiting.

Outdoor Enclosures, like the one offered by Waveform, aren't always easy to install. But the end result is worth it.

One of the benefits of buying from Waveform is our **lifetime technical support** on every system we sell. We can walk you through troubleshooting and fine-tuning your installation for best results.

Simply **scan this QR code** or visit **setup.wf/OGE** to **connect with our team** of dedicated Signal Specialists, get your **free Virtual Site Survey**, access **installation guides**, and more!

We love solving tricky install problems.

v1.0.1

WAVEFORM

3411 W. Lake Center Dr.,
Santa Ana, CA 92704

setup.wf/OGE

www.waveform.com