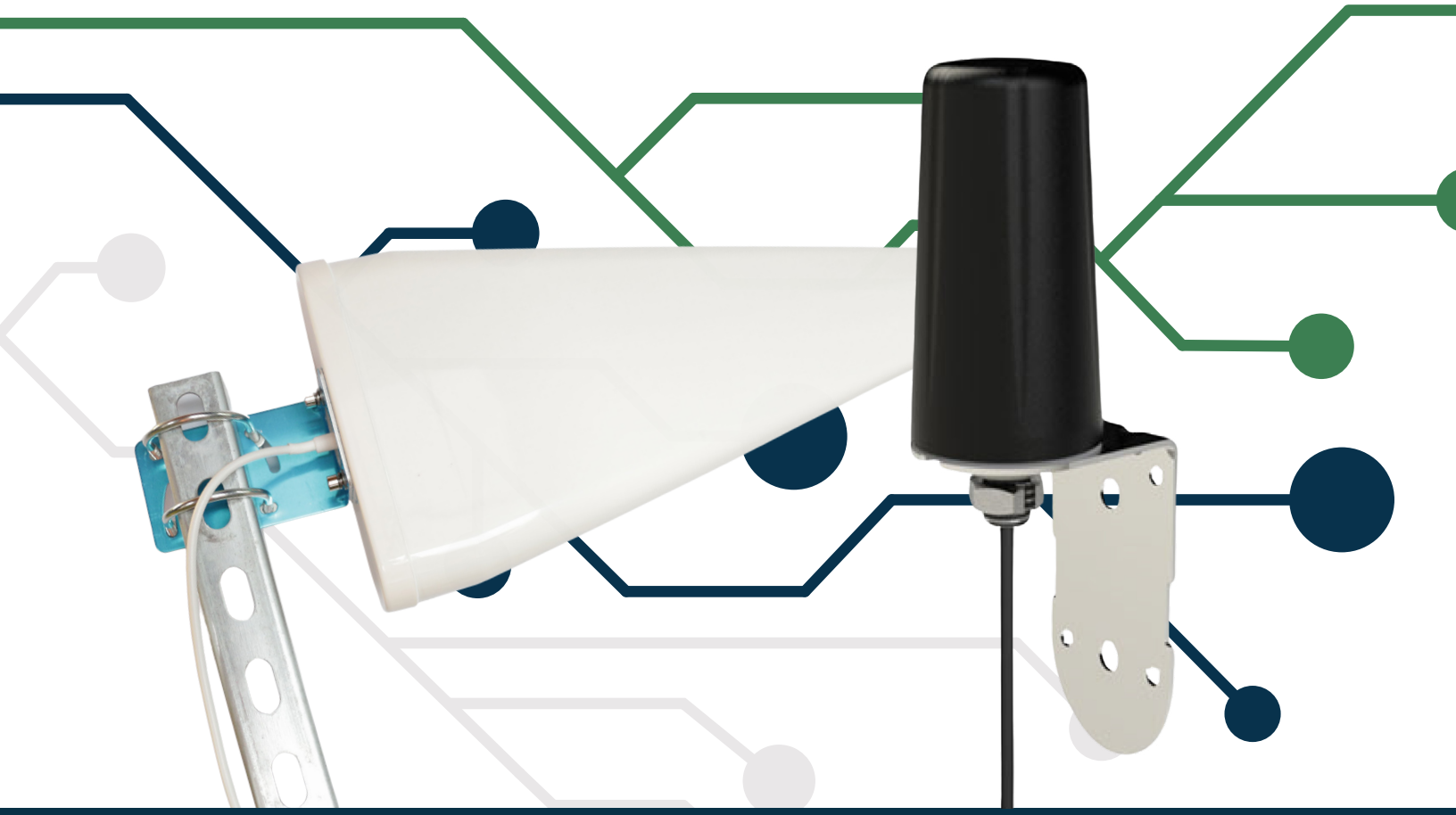
VERSION 1.6

ANTENNA GUIDE



About Omnisite

Our mission is to provide affordable and reliable monitoring solutions. We aim to surpass customer expectations by providing excellent products and services that are innovative, easy to use, and protect the environment.

317-885-6330

support@omnisite.com

203 West Morris Street
Indianapolis, IN 46225

OMNIDIRECTIONAL ANTENNA KIT W/ INTEGRATED 16’ COAX CABLE

The Omnidirectional antenna is our standard antenna offering and is suitable for most locations in the USA. This antenna offers a simple, cost-effective way of providing cellular reception for your Omnisite monitoring product. This antenna can come from our factory pre-mounted on top of our NEMA 4X outdoor enclosure option, be remote wall or pole mounted using the included bracket, or mounted on top of an electrical enclosure by removing the wall mounting bracket. **For areas with known weak cellular reception, see our directional high gain antenna option later in this document.**

Works With:

Crystal Ball

XR50

Order Information

Part Number: S-ANT-CX-BM16-KIT

Applications

Provide cellular reception for your XR50 or Crystal Ball

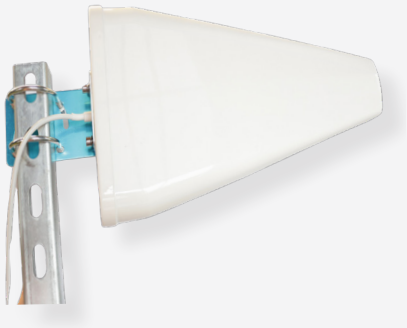
Kit Includes

1 x Omnidirectional Antenna with 16’ coax cable
1 x Mounting bracket with screws
1 x Cord Grip

Specifications

4G Frequencies:	617-960/1710-6000MHz ≤
Typical VSWR:	2.0
Peak Gain:	+ 5 dBi
Impedance:	50 ohm
Pattern:	Omni-directional
Polarization:	Vertical
Connector:	SMA Male with 16’ coax
Mounting Type:	Wall Mount, Pole or Panel Mount
Mounting Method:	Screw Mount; Jubilee Clip
Cable Length:	16’ for panel mount or 6” cable length available for direct weatherproof enclosure mounting

DIRECTIONAL HIGH GAIN ANTENNA KIT W/ INTEGRATED 10’ COAX CABLE



The directional high gain antenna offers a simple and cost effective way to improve your product’s cellular reception when located in an area where our standard antenna doesn’t receive a suitable signal. This antenna is mast mounted with the included mounting brackets, and is used in areas where the cellular signal is known to be weak. Easy to use, simply aim the pointed end of the antenna toward the closest cell tower.

Works With:

Crystal Ball

XR50

Order Information

Part Number: S-CBL-CX-DIRASM

Applications

Increase cellular reception for your XR50 or Crystal Ball

Kit Includes

1 x Directional Antenna with 10’ coax cable
2 x Mast Mount U-Bolt
1 x Weather Proof Tape
1 x Cord Grip

Specifications

4G Frequencies:	800-2500MHz
Typical VSWR:	≤ 2.0
Peak Gain:	+ 11 dBi
Impedance:	50 ohm
Pattern:	Directional
Polarization:	Linear
Connector:	SMA Male with 10’ cable
Mounting Type:	Mast Mount
Mounting Method:	Mast Clamp; U Bolt
Length:	17.5”
Width:	2.5”
Height:	8.85”

Extension Coax Cable Options

Omnisite offers 4 different standard lengths of coax cable used for connection to the end of either our omnidirectional or directional high gain antenna (same coax cable can be used on either antenna) to extend the length of the coax cable in situations where the signal strength is weak and the antenna must be mounted at a higher elevation, or the product is located inside a metal building, or enclosure, and the antenna must be mounted external in order to receive a suitable cellular signal.

6 ft length - Part # S-CBL-CX-S6TWS

10 ft length - Part # S-CBL-CX-S10TWS

30 ft length - Part # S-CBL-CX-S30TWS

50 ft length - Part # S-CBL-CX-S50TWS

When these cables are connected to the end of an Omnisite antenna cable, they MUST be weather-proofed at the point where the two cables screw together using the supplied weatherproofing tape. Start wrapping the weatherproof tape from the BOTTOM FIRST, moving upward, across the connectors, so the water runs over the overlapping tape like water flowing over shingles on a roof. Ensure water CANNOT penetrate wrap.

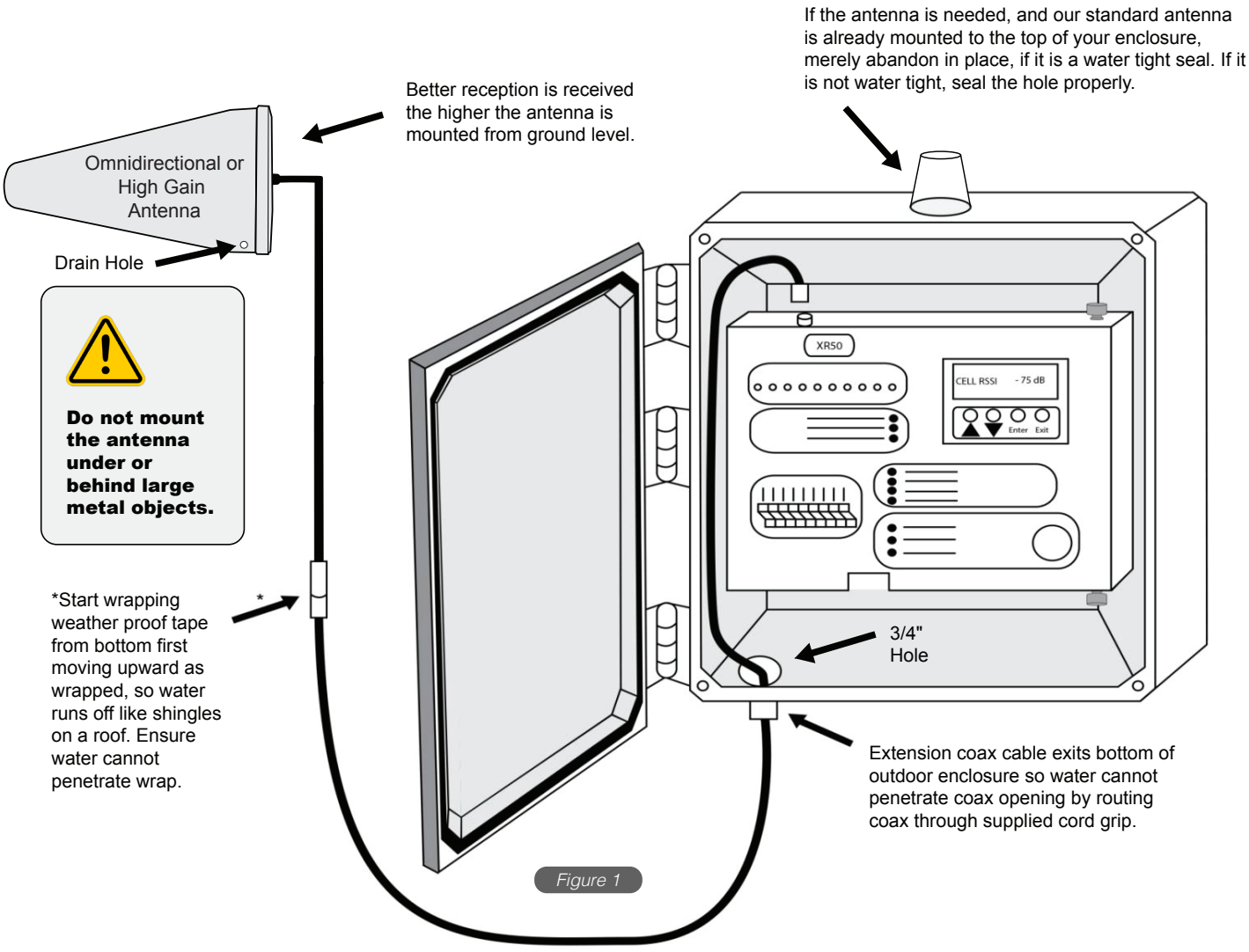


Figure 1

Installing the Antenna

Step 1: Determine a Suitable Mounting Location

For a good installation, the higher the better. A 10’ mast is usually sufficient, but every location is different. You may need an extension cable if you must raise it higher. The antenna should be mounted above any other structure such as a control panel or a roof line and should have a 3’ minimum clear radius around it. Ensure that the selected mounting location can be safely accessed with the equipment that you have available.

The clamp assembly allows fitting to masts between 1 to 2 in. diameter.

Coax cable reduces the signal strength the longer it is, so you should keep the length to a minimum. Add extra cable only as needed. Do not kink the cable or wrap it around other object. Excess coax should be coiled up in an 8” loop and secured with zip ties. Do not over tighten zip ties.

The high gain antenna should be pointed towards the strongest network cell tower.
Fully tighten the mounting hardware, ensuring the antenna direction is correct.

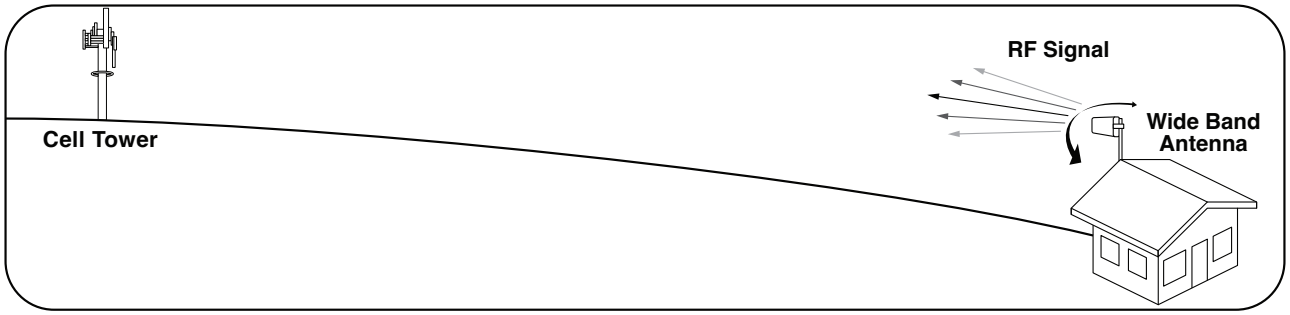


Figure 2

Step 2: Mounting the Antenna Externally

The antenna is supplied with weatherproof mounting hardware for mast mounting and the enclosure should be fitted with the cable entry at the bottom.

1. **Mount the Antenna**

   The high gain antenna needs to be mounted so the weep hole is on the bottom. Leave the hole uncovered.

2. **Secure the antenna in place and waterproof the exposed connections**

   Fully tighten the mounting hardware. If an extension cable is used and the RF Connector is exposed, the joint should be waterproofed with the provided weatherproof tape. Start wrapping the weatherproof tape from the BOTTOM FIRST, moving upward as wrapped, so the water runs off like shingles on a roof. Ensure water CANNOT penetrate wrap.

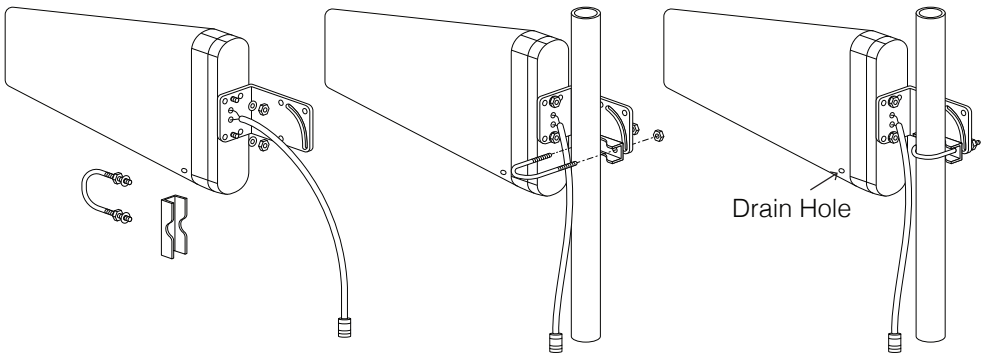


Figure 3

Step 3: Connecting the Coax Cable to the OmniSite XR50 or Crystal Ball Product

Follow the steps closely below to correctly connect the Coax Cable from the Antenna to the OmniSite Unit. Please reference page 4 for a visual diagram. Make sure the unit is powered off.

1. Drill a ¾" inch hole at the bottom of the enclosure.
2. Insert the threaded short end of the cord grip through the hole at the bottom of the enclosure.
3. Attach the nut on top of the cord grip to secure the cord grip to the enclosure.
4. Run the coax cable through the cord grip bushing nut.
5. Push the cable through the cord grip into the enclosure. Do not overtighten cord grip.
6. Smoothly route the cable around the Unit and attach the cable to the radio connector finger tight only. **DO NOT USE A TOOL TO TIGHTEN. DO NOT KINK THE COAX CABLE. ONLY MAKE SWEEPING BENDS.**

Step 4: Navigating to the Signal Strength Display for a Final Signal Strength Check

Having a good cellular reception is very important to the communication reliability. Viewing this reception (RSSI) in your Unit can easily be done by following the steps below.

1. Power on unit. Make sure the LCD Screen on your Unit is at the Main Menu. If not, please keep pressing the "Exit" button until you get back to Main Menu screen.
2. Press the "Enter" button to enter the Menu system.
3. Press the "Down Arrow" until you can select "Diagnostics" and press the "Enter" button on RTU Status.
4. Press the "Down Arrow" until you see "Cell RSSI" with a visible signal strength in dBi.

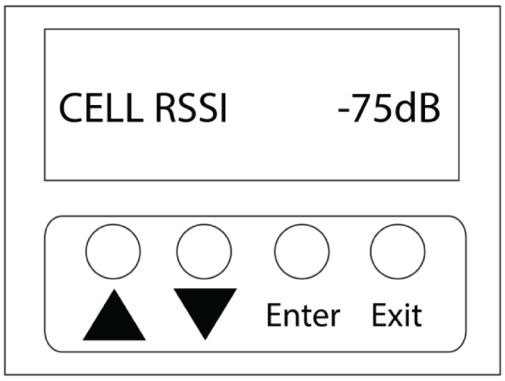


Figure 4

Step 5: Setting the Direction of the High Gain Antenna

You will need to know if your unit has a Verizon or AT&T radio so you can point it toward the correct tower. If you do not know which service your OmniSite product is set for, you may contact customer support for this information. If you don't know where the tower is, you can use an app like CellMapper or Network cell info Lite.

Ensure that your device is connected to the network and displaying the signal strength indicator on the display. There are often multiple cell towers in an area and your unit may try to talk to any one of them and you won't know which one. The best thing to do is point the antenna in the general direction of the most obvious tower and watch the signal strength for 2 minutes. Record that number and then rotate the direction of the antenna by 45 degrees and then watch the signal strength again. Keep doing this until you complete a full circle. Choose the direction that gives you the best signal strength.

Note: Signal strength indication is displayed value in dB (e.g. -80) the higher the number, the better the signal (i.e.-71 is a stronger signal than -83). The product will work with any signal stronger than -99dB, but in the -80's or better is ideal.

Important Safety Information

RF Safety Note – Ensure the antenna is mounted in such a way that no person is likely to be within a distance of 3' from the front of the antenna during use. Electrical Caution – Parts of this antenna are an electrical conductor. Contact with power lines can result in death or serious injury. The antenna and supporting mast must not be close to any power lines during installation, use, or removal.

OmniSite is in the historic L.W. OTT Furniture company building in Indianapolis, Indiana. The building has housed, many different businesses over the years. L.W. OTT was the first furniture manufacturer in Indianapolis who shipped their patented leather sofa around the world. We have blended old world with new to make this our OmniSite home.

NEED HELP?

We're here to help! Call Omnisite technical support at 317-885-6330 and select the technical support option. Alternately, email support@omnisite.com. Our technicians are available M-F, 8am-5pm EST.

OmniSite