GEOKON | TRUSTED MEASUREMENTS®

Product Tutorial

Installing GeoNet Networks

Topics Covered in this Tutorial

- Initial Set Up
- Powering the Network
- Network Considerations
- Connecting Sensors to Nodes
- Final Steps

Initial Setup

Getting Started

- Begin with the Network Supervisor and one Node
- The Node and Supervisor should be in close proximity during setup

Attach the Antennae

Complete the following with the Supervisor and the Node:

1. Remove the rubber cap from the antenna mount
2. Position the antenna on the mount
3. Thread the antenna onto the mount by rotating the antenna clockwise until finger tight

Remove the Covers

1. Using a Phillips head screwdriver, loosen the cover screws by turning them counterclockwise
2. Remove the covers from both units

Install the Batteries

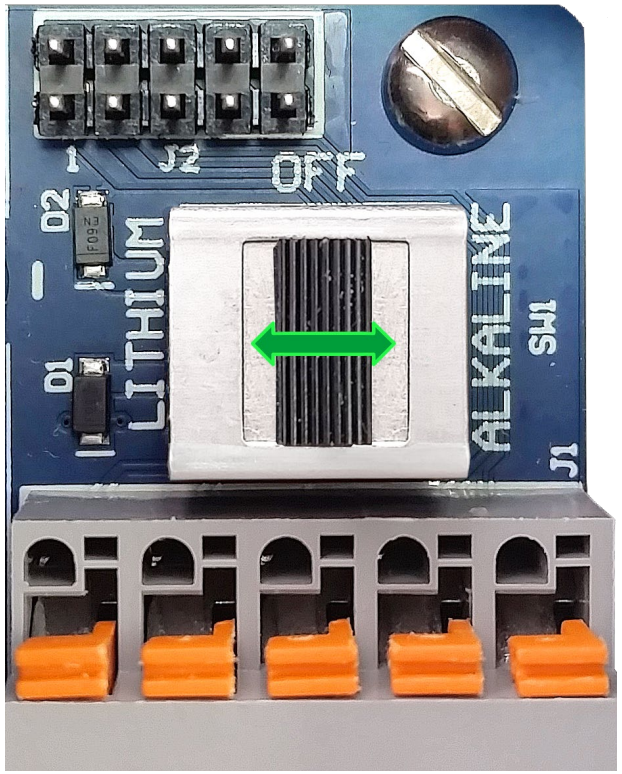
Complete the following with the Supervisor and the Node:

1. Align the positive (+) side of the D cell batteries with the left side of the battery holder
2. Push the batteries straight down into the holder

Powering the Network

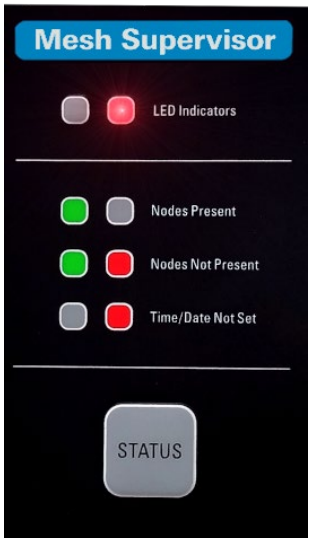
Power the Devices

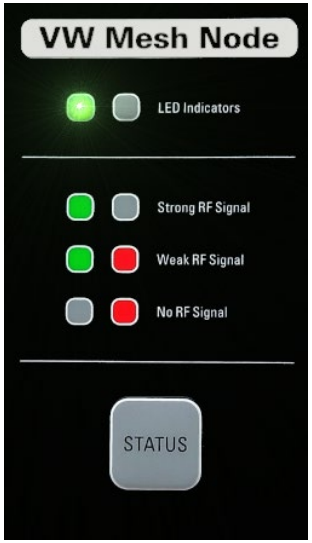
1. Power the Supervisor first, by moving the battery selector switch to ALKALINE or LITHIUM, depending on the type of batteries installed (The green LED on the side of the unit will flash twice, indicating it has power)
2. Power the Node in the same manner as the Supervisor



Joining the Network

- The Node will connect to the Supervisor within 20 seconds
- The red LED on the Supervisor and the green LED on the Node will begin to flash simultaneously
- The Network Supervisor and one Node is the minimal working Network size





- The Node will not collect data until the Network time has been set using the Agent software program (Refer to the Agent software tutorial or the Agent instruction manual for more information)

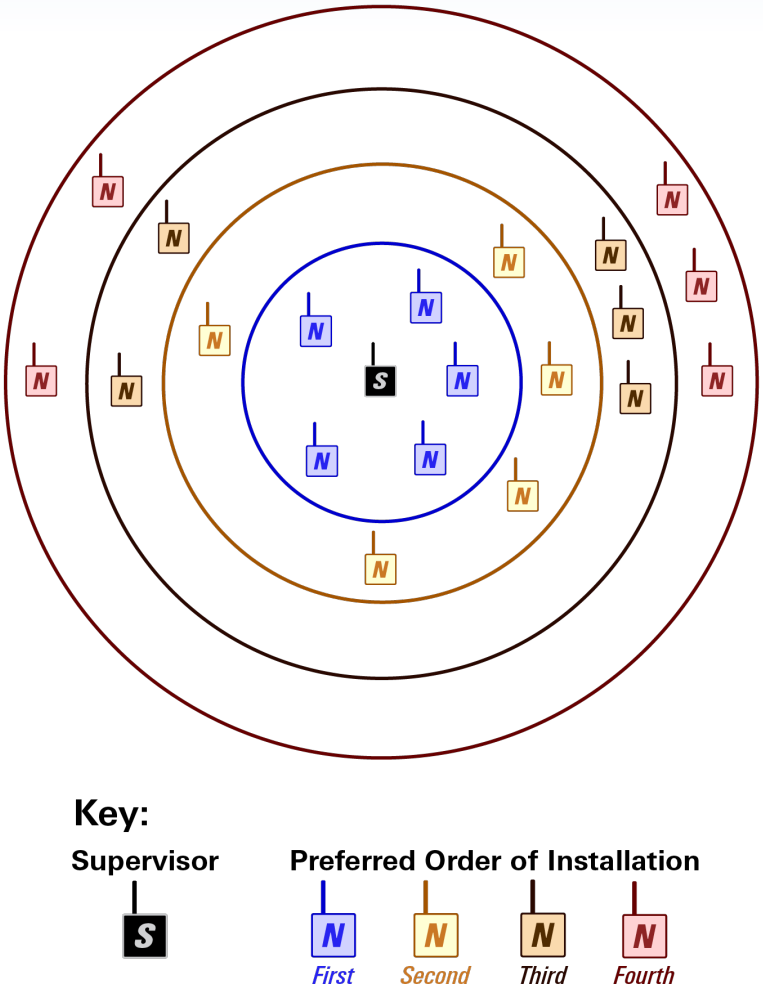
Adding More Nodes

- Additional Nodes can be added to the Network for the next 60 minutes, while the Supervisor is in “deployment mode”
- If a Node does not join the Network within 20 seconds of power up, it is out of range, on the wrong channel, or the Supervisor has left deployment mode
- The amount of time the Supervisor will stay in deployment mode can be changed using the Agent software program

Network Considerations

Network Considerations

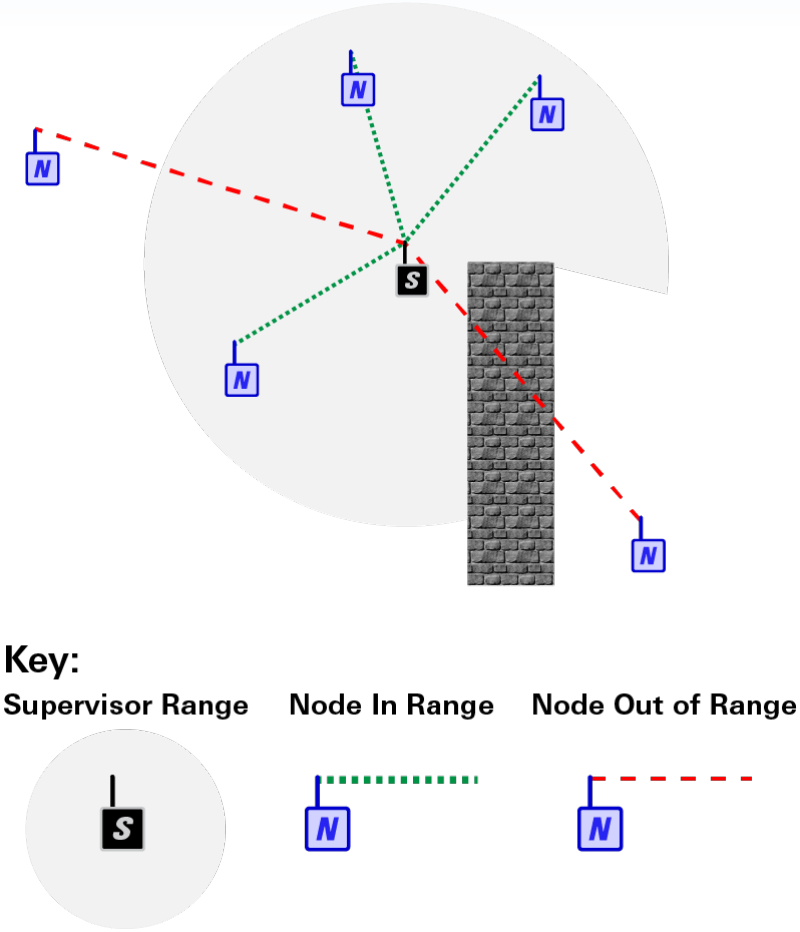
- Nodes collect data from sensors and forward the data to the Supervisor
- When installing Nodes, start with those closest to the Supervisor and work outwards
- Place the Supervisor in the center of the Network wherever possible



Network Considerations (Continued)

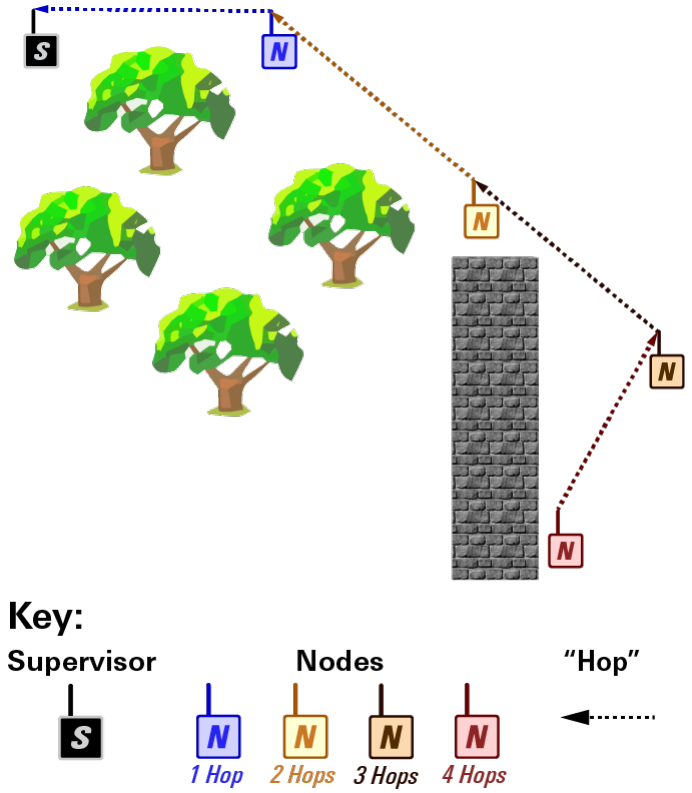
- GeoNet devices can only communicate with other devices that are within range of their radio signal
- Radio ranges vary by model and can be affected by the radio environment and obstructions

(See the GeoNet instruction manual for complete radio specifications)



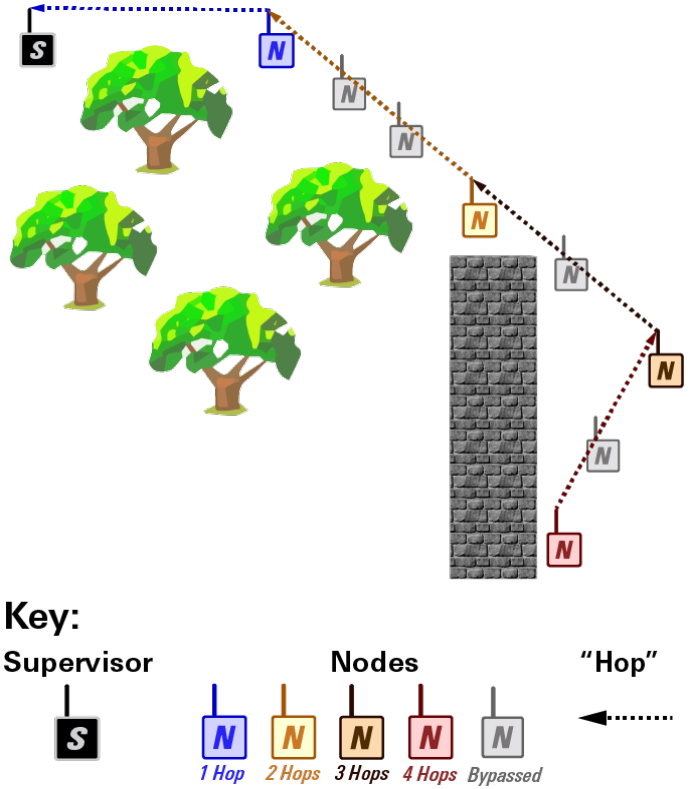
Network Considerations (Continued)

- Nodes can communicate with the Supervisor over greater distances and work around obstacles by using other Nodes as repeaters
- Each transmission from Node to Node or Node to Supervisor is known as a "Hop"
- Up to four Hops can be made between a Node and the Supervisor



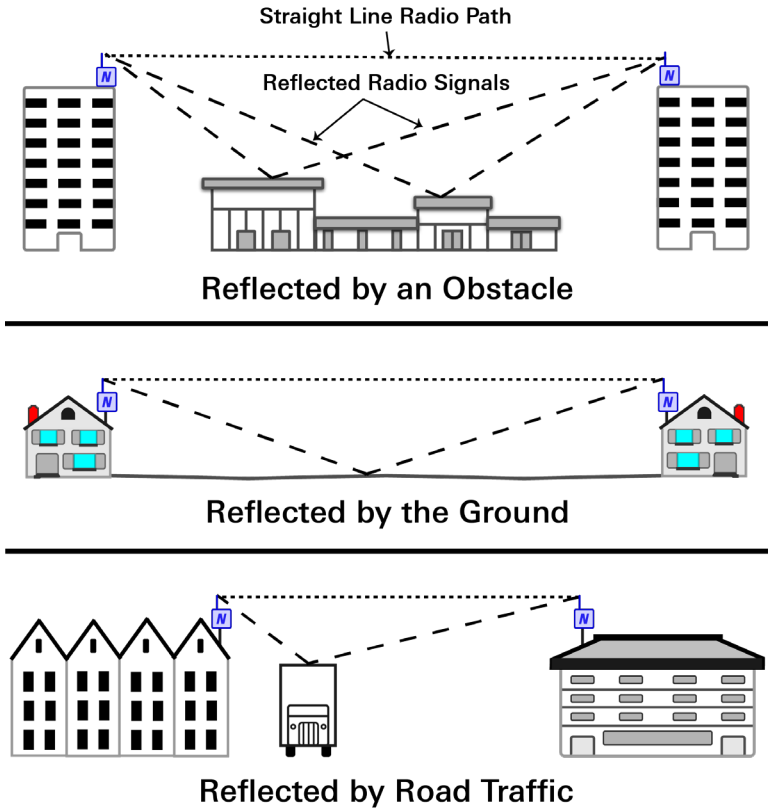
Network Considerations (Continued)

- GeoNet automatically minimizes the number of hops each Node uses by bypassing Nodes which are not needed as repeaters



Network Considerations (Continued)

- Obstructions between, around, or near GeoNet devices can cause reflections of the radio signal
- Reflected radio signals can cause GeoNet devices to malfunction
- For optimum performance, create as much space as possible between the straight line radio path and any obstructions (especially metallic objects)



Connecting Sensors to Nodes

Connecting Sensors to Nodes

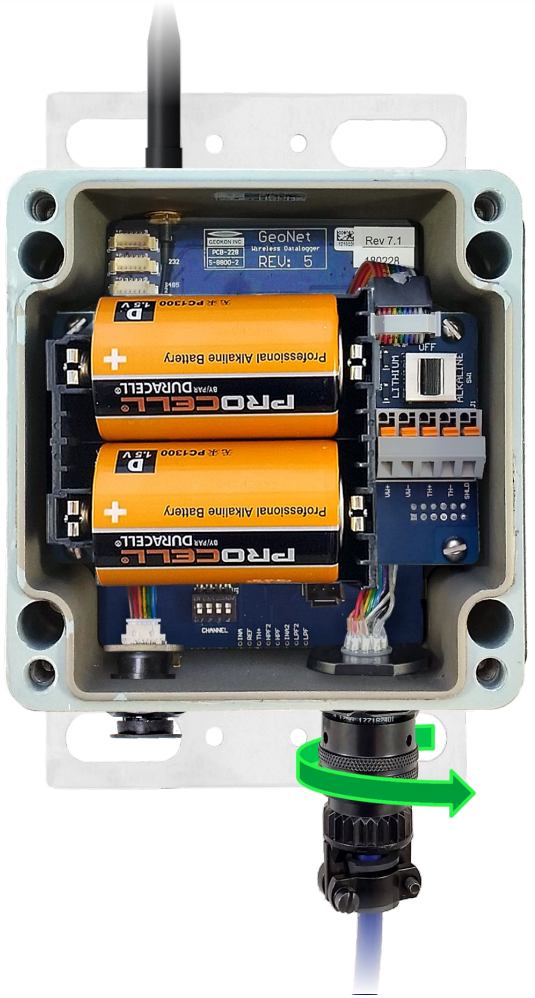
- Depending on the model of the Node, sensors are connected by either a bulkhead connector (**A**) or bare leads (**B**)

A

B

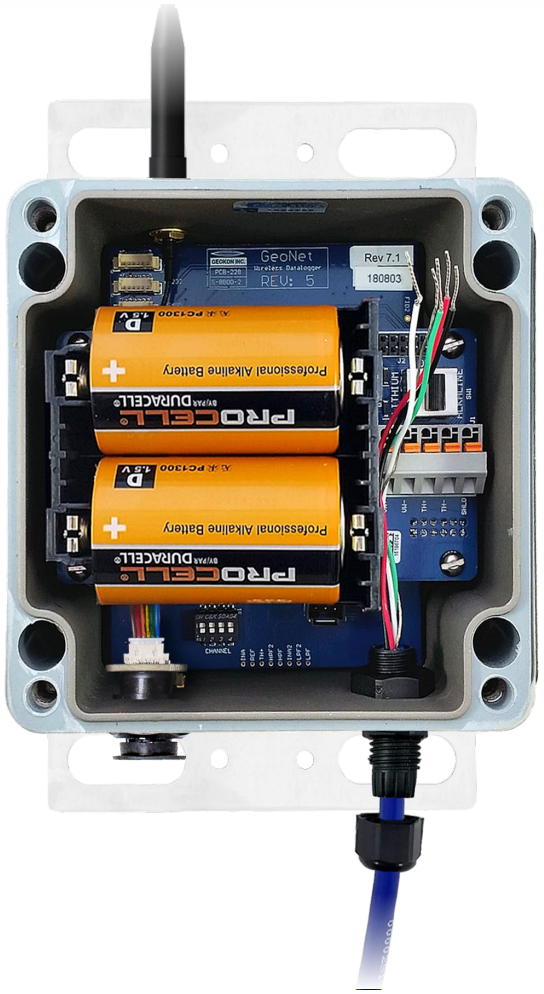
Connecting Sensors to Nodes:
Bulkhead Connectors

1. Remove the cap from the Node connector by rotating it counterclockwise
2. Align the grooves of the sensor connector with the grooves of the Node connector
3. Push the sensor connector into Node connector
4. Twist the outer ring of the sensor connector clockwise until it locks into place



Connecting Sensors to Nodes:
Bare Leads

1. Loosen the cable gland nut and remove white plastic dowel
2. Slide the sensor cable through the cable nut and cable gland



Connecting Sensors to Nodes:
Bare Leads (Continued)

3. Wire each conductor into the terminal block by pressing down on an orange tab, inserting the bare end of the conductor into the terminal block, and then releasing the tab

Conductors are wired as follows:

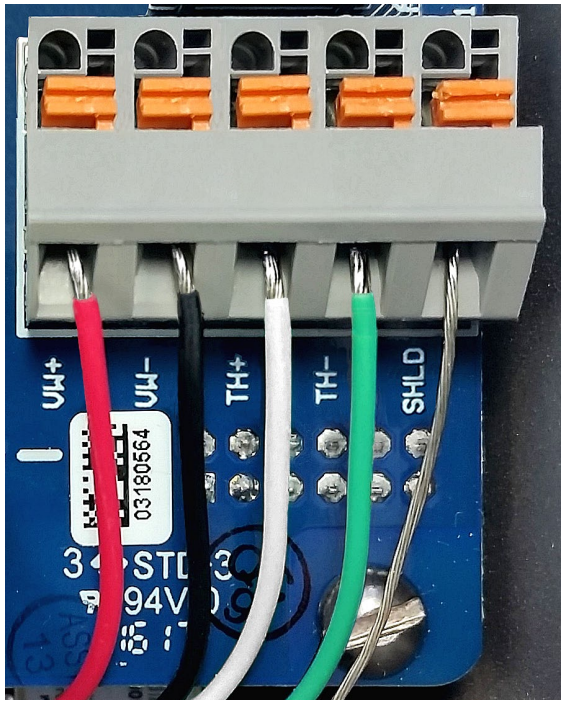
RED = VW+

BLACK = VW–

WHITE = TH+

GREEN = TH–

BARE = SHLD

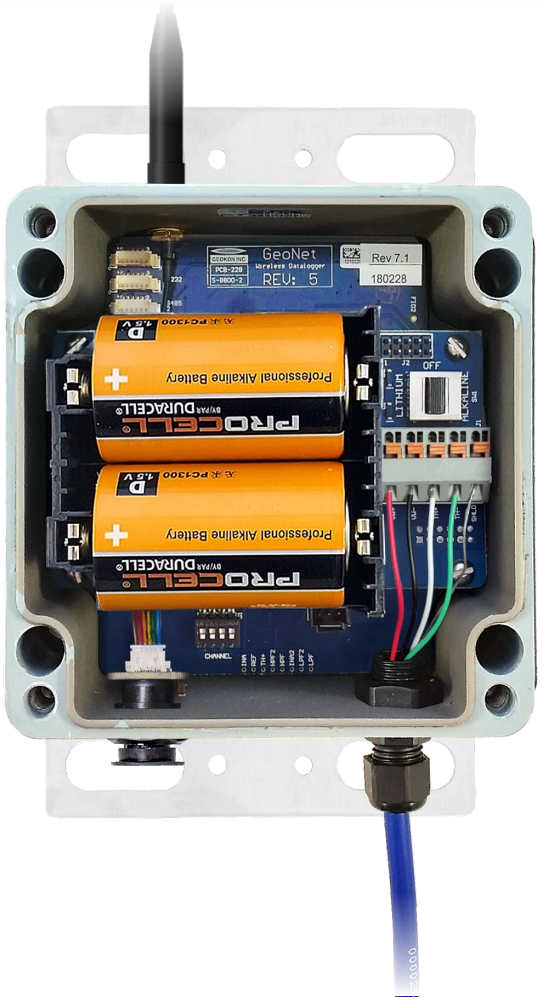


⚠ To prevent the possibility of a short circuit, do not allow bare leads to touch each other during or after wiring

Connecting Sensors to Nodes:
Bare Leads (Continued)

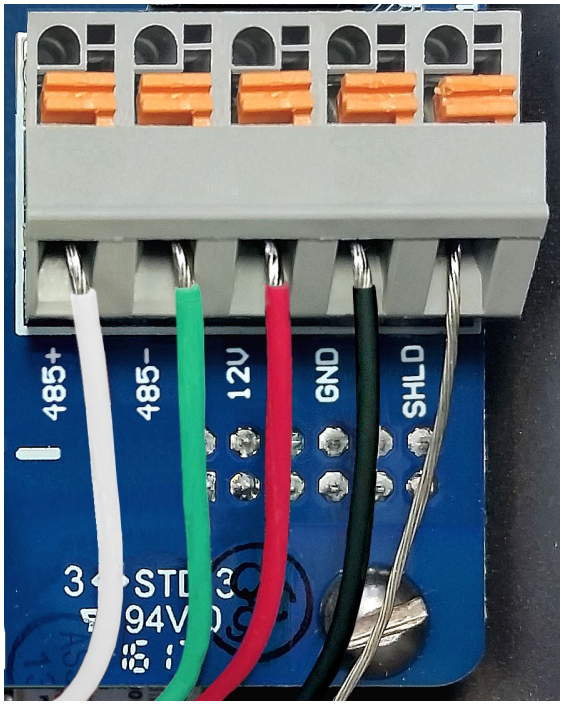
4. Gently pull on each conductor to make sure it is secure
5. Tighten the cable gland nut until it firmly grips the outer jacket of the cable
6. Gently pull on the sensor cable to make sure it is held in place by the cable gland

⚠ Cable gland nut must be properly tightened to prevent water entry (Do not over-tighten, which may strip the plastic threads)



Connecting Sensors to Addressable Sensor Nodes

- Addressable sensors with bare leads are wired as follows:
  WHITE = 485+
  GREEN = 485–
  RED = 12V
  BLACK = GND
  BARE = SHLD
- Addressable sensors that have a bulkhead connector attached are connected in the same manner as previously discussed



Final Steps

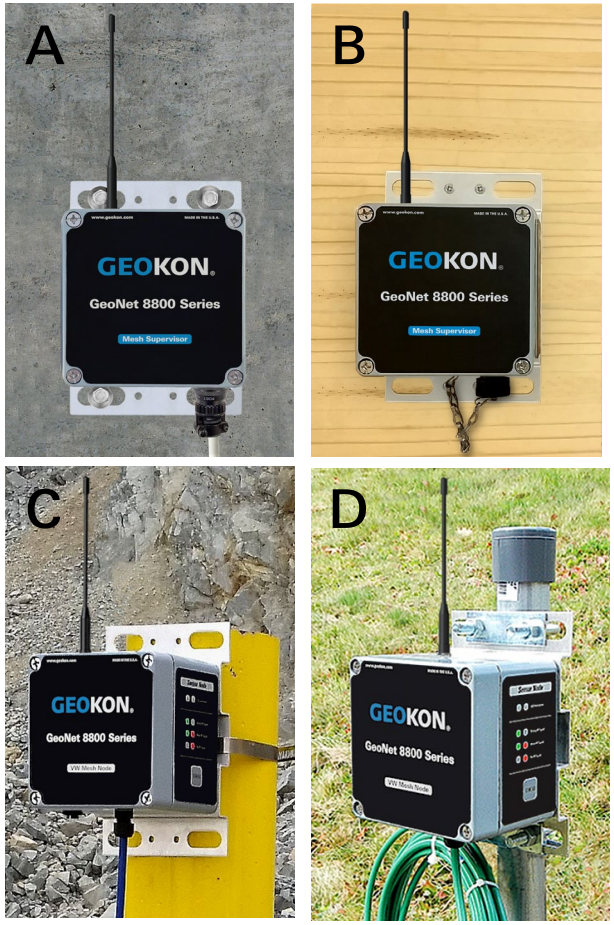
Completing the Installation

Complete the following with the Supervisor and the Node:

1. Place the supplied desiccant packs inside the enclosure
2. Make sure the cover gasket and the mating ridge on the enclosure are clean, and that the gasket is properly seated inside the groove
3. Place the cover on the unit
4. Tighten cover screws slowly, working in a diagonal pattern to ensure that the cover closes evenly

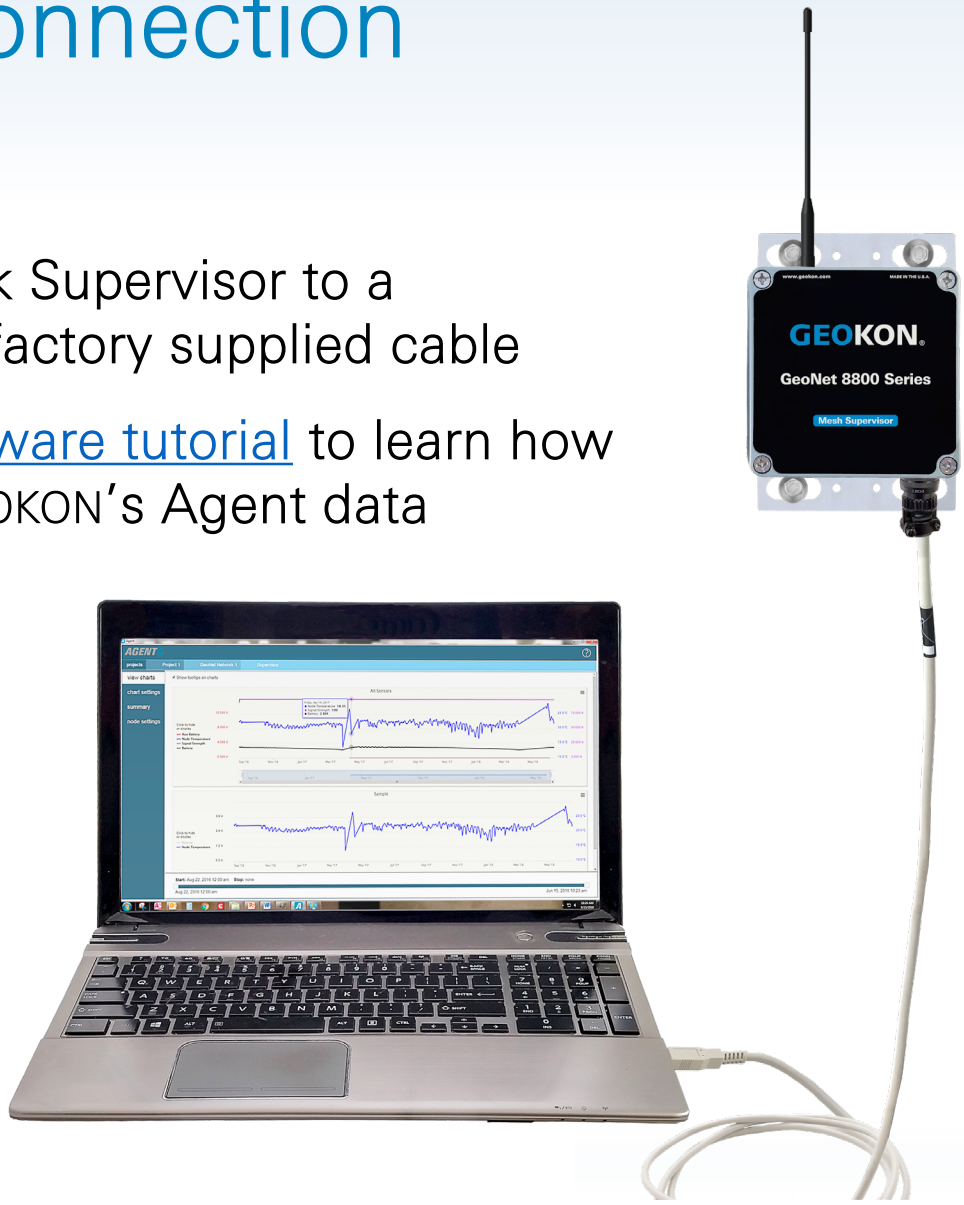
Mounting

- The mounting bracket makes it easy to attach GeoNet devices to a wall, using bolts (**A**) or screws (**B**), or onto a pole, using a Hose Clamp (**C**), or U-bolts (**D**) (Mounting hardware not included)
- Devices should be mounted vertically, with the antenna pointing up



Computer Connection

1. Connect the Network Supervisor to a computer using the factory supplied cable
2. Read the Agent Software tutorial to learn how to install and use GEOKON's Agent data collection software



For more information…

- Consult the GeoNet and Agent instruction manuals.
- Instruction manuals are available for download at: www.geokon.com/Manuals
- Please visit www.geokon.com/Tutorials for more tutorials