

# Smart-Reach AC Base

## Antenna Connection Guide

### ⚠ WARNING: Professional Installation Required

Before installing or using the Smart-Reach AC Base and antennas, consult with a certified, professional installer trained in RF installation and knowledgeable in local regulations including building and wiring codes, safety, channel, power, outdoor/indoor restrictions, and license requirements.

It is the responsibility of the end user to ensure that installation and use complies with local safety and radio regulations.

**Ensure you review and adhere to all cabling and installation requirements included in this Guide.**



### Package Contents (typical)

The contents of a typical installation package are shown below (actual contents of your installation package may vary):

- Smart-Reach AC Base (032-1025), including:
  - Mounting accessories
  - Ethernet connector accessories
  - Ground cable connection accessories
  - Access Point Installation Guide
- Antenna(s) and cable(s) as ordered
- Antenna Connection Guide (this document)

### Model Number and Antenna ID

Use the following table and images to identify the connector on the Smart-Reach AC Base to connect each antenna cable.

For example, consider model # **SRB1AC101010**:

| Model #          | Antenna ID                   |          |              |              |              |              |              |              |   |
|------------------|------------------------------|----------|--------------|--------------|--------------|--------------|--------------|--------------|---|
|                  | SRB                          | 1        | AC           | 1            | 0            | 1            | 0            | 1            | 0 |
| Smart Reach Base | 1=single radio, 2=dual radio | 802.11ac | Connector #1 | Connector #2 | Connector #3 | Connector #4 | Connector #5 | Connector #6 |   |
| Description      |                              |          |              |              |              |              |              |              |   |

### Antenna IDs

|   |                                       |
|---|---------------------------------------|
| 0 | Custom/no antenna                     |
| 1 | 2.4 GHz 5dBi Omni                     |
| 2 | 5.8 GHz 7dBi Omni                     |
| 3 | 2.4 GHz 6dBi Omni                     |
| 4 | 5 GHz Grid (Back Haul)                |
| 6 | 2.4 GHz Mini Panel                    |
| 9 | Dual band 2.4/5GHz Mini Panel Antenna |

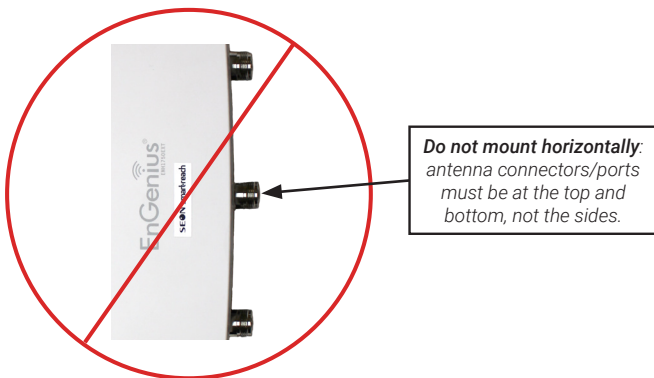
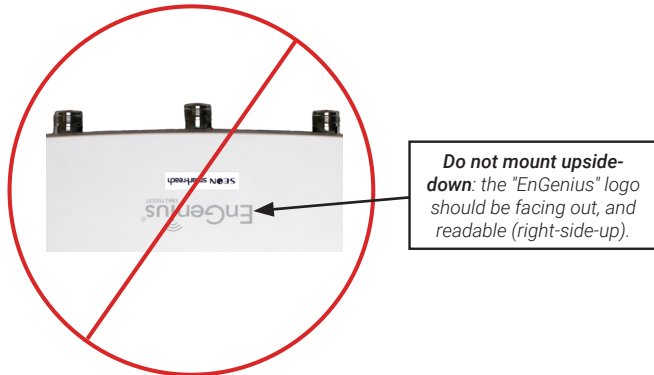
Continuing with the example **SRB1AC101010**:

- **1** (following "SRB") indicates a single radio
- **1** (in 3 places under "Antenna ID") means 3 x 2.4GHz 5dBi Omni antennas, attached to connectors #1, #3, and #5

## Smart-Reach AC Base Installation

Follow the procedures in the included *Quick Installation Guide* and the supplied installation accessories to secure the Smart-Reach AC Base access point to the location identified by Safe Fleet engineering professional services.

### Access Point Mounting Requirements



- Ensure power, LAN, and antenna status lights are visible from the selected mounting location.



### Connecting the Ethernet cable

#### ⓘ Ethernet Cabling Requirements

- Use minimum Category 5e cable (outdoor-rated), and ensure the RJ45 connector does not have a boot, or it will not fit into the LAN port.
- Ensure connectors are crimped onto the Ethernet cable. T568A wiring color code is preferred.
- POE Ethernet cable runs (from AP to POE injector) cannot exceed 300 feet (100 meters).
- **Always test the cable with an Ethernet cable tester before connecting to equipment.**

1. Remove the weatherproofing cap from the access point's **LAN 1 port (PoE Input)**.
2. Remove the weatherproofing insert from the port and discard the center rubber plug.
3. Slide the weatherproofing cap over the cable (threaded side facing the connector).
4. Wrap the weatherproofing insert around the cable. Ensure the larger side of the insert (with the tabs) faces the weatherproofing cap, as shown in the following image:



5. Plug the RJ45 connector into the **LAN 1 port (PoE Input)**.
  6. Push the weatherproofing insert into the port.
  7. Thread the weatherproofing cap onto the port connector.
- As an extra layer of security, it is best practice to encase the whole cap/cable assembly in rubber splicing or weatherproofing tape.

**Ensure the ground cable is properly connected.**

## Antenna Installation

Ensure each antenna and its cabling is installed using the installation instructions provided with the antenna.

Note that a lightning arrestor is integrated at each antenna port.

## Installation Requirements

### IMPORTANT

To avoid common installation problems, ensure you review and adhere to these requirements.

### General Guidelines

- Install antennas a maximum of 10ft above the roof line of the vehicles in the yard.
- Mount antennas in locations that avoid obstructions such as building corners, fences, etc.
- Avoid installing antennas next to metal objects such as metal gutters/downspouts, ductwork, piping, signage, etc.
- Avoid installing antennas behind trees or foliage, or where trees or foliage comes between the antenna and the coverage area.
- Never install antennas behind windows.

### Omni Antennas

- Install Omni antennas above the roof line of the building to avoid obstructing the signal wherever possible.

### Directional Antennas

- When mounting directional antennas on a wall, ensure the metal plate on the back of the antenna is toward the wall, not facing toward the coverage area.

### Mini-Panel Antennas

- When mounting mini-panel antennas on a building (versus directly on an access point), antennas can be no more than 12 inches apart.
- Always use the V-Pol connector on mini-panel antennas with 2 connection options.

### Mounting Materials

- Metal is preferred. If it is necessary to use wood, only pressure treated wood is acceptable.
- Ensure the structure the access point and antenna mount are being attached to is sound.

### Cable Adapters

2.4 GHz 5dBi Omni and 5.8 GHz 7dBi Omni antennas (Antenna IDs 1 and 2) require an adapter between the cable connector and the antenna connector, in order to attach the mounting bracket:



### Adapter Type N Female to Female 1/8" Bulkhead

The longer end of the adapter threads into the antenna connector.

### Weatherproofing

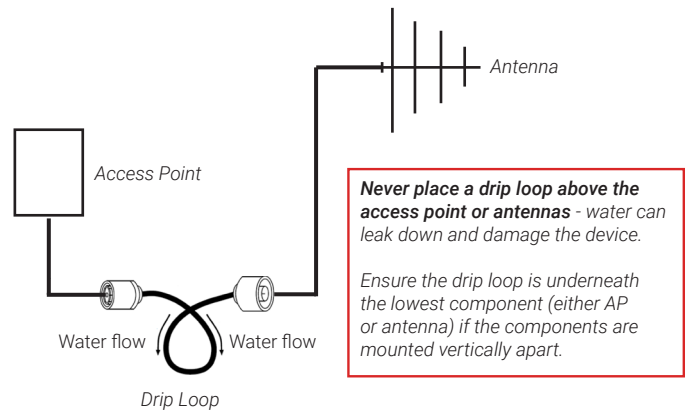
Weatherproof all outdoor connections: apply several layers of rubber splicing or vulcanizing tape over the connection.



Drainage is very important with unpressurized radomes. Ensure the drain hole is on the bottom, and it has not been blocked during installation.

### Drip Loops

Add a small loop to antenna and Ethernet cables to direct rainwater flow away from the connector:






### WARNING: Equipment Damage Risk

**Do not remove the metal sealing caps from any unused connectors.** If the connectors are uncovered, moisture will enter and damage the Smart-Reach AC Base. This will void the Safe Fleet product warranty.

### Antenna Types

Use the following examples to help identify supported antennas as defined in the model number table above:

**TIP: Antenna Documentation**  
 For assembly instructions, refer to the documentation included with the antenna product.

| Number | Antenna Type  |
|--------|---|
| 3      | 2.4 GHz antenna (ideal mounting style)<br>  |
| 4      | 5.8 GHz antenna (ideal mounting style)<br>   |
| 9      | Dual band 2.4/5GHz mini-panel antenna (ideal mounting style)<br><br><i>The metal plate is the back of the mini-panel antenna; aim the plastic housing in the direction of the buses.</i> |

### Antenna Connectors



The image shows a top view of the access point. Connectors labeled 1, 3, and 5 are for 2.4 GHz antennas, while 2, 4, and 6 are 5 GHz,

### Antenna Cable Connections

The model number of the Smart-Reach AC Base you received indicates which antenna cables connect to specific base connectors. The following are connection steps for some common antenna and base configurations:

#### SRB1AC101010

1. Remove caps from antenna connector numbers 1, 3, and 5.
2. Securely attach cable connectors for the three 2.4 GHz Omni antennas to the three connectors.

#### SRB1AC020202 or SRB1AC090909

1. Remove caps from antenna connector numbers 2, 4, and 6.
2. Securely attach cable connectors for the three 5GHz Omni antennas (ID #2) or the three dual band 2.4/5GHz mini-panel antenna (ID #9) to the three connectors.

#### SRB1AC606060

1. Remove caps from antenna connector numbers 1, 3, and 5.
2. Securely attach cable connectors for the three 2.4 GHz Mini Panel antennas to the three connectors.

#### SRB2AC141010

1. Remove caps from antenna connector numbers 1, 2, 3, and 5.
2. Securely attach cable connectors for the three 2.4 GHz antennas to connectors 1, 3, and 5.
3. Securely attach the cable connector for the 5 GHz grid antenna to connector number 2.

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### Service & Support

If a Smart-Reach component is to be returned for service, please contact the Safe Fleet Technical Support team, provide the model and/or serial# of your product, and ask for a **Return Merchandise Authorization (RMA)** number. An **RMA#** allows the support team to better track your product when it comes in for service. Please show the RMA# on the **outside** of the package.

ANY PRODUCT SENT WITHOUT AN RMA# MAY BE REFUSED!

### Documentation

Additional copies of this guide along with other documentation can be found on the Safe Fleet Community (<https://community.safefleet.net>).

### Warranty

For full warranty information, visit:

- [www.seon.com/documents/Seon-Warranty.pdf](http://www.seon.com/documents/Seon-Warranty.pdf)

### Contact Safe Fleet Technical Support

Phone: **1.844.899.7366**

Email: **PTsupport@safefleet.net**