



## *Ideal for*

- *FirstNet/First Responders*
- *Transportation/Fleet*
- *Remote Video Monitoring*
- *Mobile Broadband*

## ***Belgian Shepherd PRO Series***



- *4X4 MIMO LTE*
- *4X4 MIMO WIFI*
- *GPS*
- *IP67 RATED*

## *Features*

- *5G*
- *CAT 18*
- *600 MHz - 6 GHz\**
- *HIGH EFFICIENCY*
- *HIGH PERFORMANCE*

*\*See inside for details*



## Product Description

The Belgian Shepherd Series antennas are high-performance, 5G, CAT18 (600 MHz - 6GHz) antennas, available with 4X4 MIMO LTE, 4X4 MIMO WIFI, and GPS. The Belgian Shepherd Series antennas are perfect for mobile and fixed wireless applications.

The Belgian Shepherd Series are rugged, high-performance, IP67 rated antennas.

**Patent pending.**



## Frequency Ranges

### LTE Frequency Range

617 - 894 MHz  
1695 - 2700 MHz  
3300 - 3800 MHz  
5150 - 5925 MHz

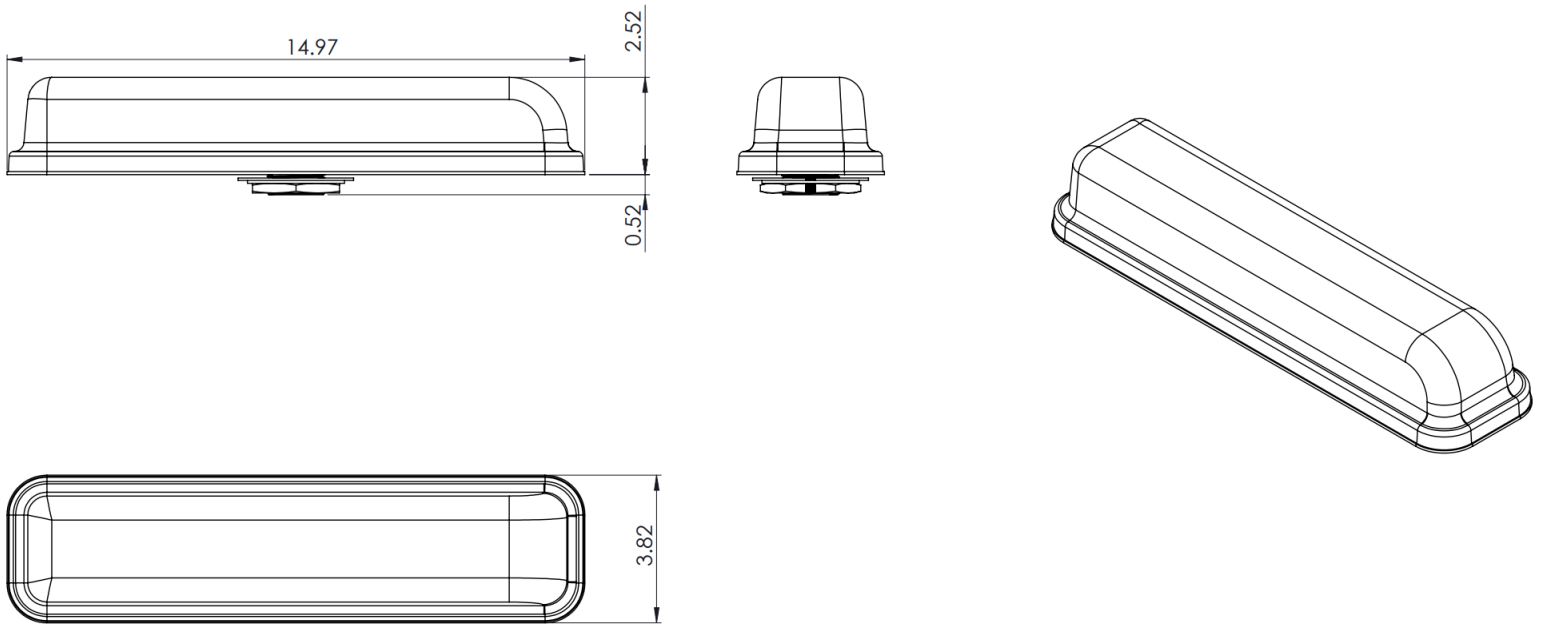
### WiFi Frequency Range

2400 - 2483.5 MHz  
4900 - 5900 MHz

## LTE Bands (US Carriers)

|                       |                                                        |
|-----------------------|--------------------------------------------------------|
| AT&T                  | 2, 4, 5, 14, 17, 29, 30, 48, 66                        |
| Verizon               | 2, 4, 5, 13, 48, 66                                    |
| T-Mobile              | 2, 4, 12, 48, 66, 71                                   |
|                       |                                                        |
| <b>Mechanical</b>     |                                                        |
| Dimensions            | 2.44 inch height x 3.75 inch width x 14.90 inch length |
| Mounting Hole         | Single 1.5 inch                                        |
| <b>Environmental</b>  |                                                        |
| Operating Temperature | -40°C to 85°C                                          |
| Ingress Protection    | IP67 waterproof                                        |

## Product Dimensions



## Electrical Specifications

| ID                         | Port          | Parameters        | Units | Typ. |
|----------------------------|---------------|-------------------|-------|------|
| <b>Radiated Efficiency</b> | LTE -1,2,3,4  | 617-894 MHz       | %     | 70   |
|                            | LTE -1,2,3,4  | 1710 - 2700 MHz   |       | 80   |
|                            | LTE -1,2,3,4  | 3400 - 4000 MHz   |       | 60   |
|                            | LTE -1,2,3,4  | 5150 - 5925 MHz   |       | 50   |
|                            | GPS           | 1575.42 MHz       |       | 80   |
|                            | WiFi -1,2,3,4 | 2400 - 2483.5 MHz |       | 70   |
|                            | WiFi -1,2,3,4 | 4900 - 5900 MHz   |       | 70   |
| <b>Peak Gain</b>           | LTE -1,2,3,4  | 617-894 MHz       | dBi   | 5    |
|                            | LTE -1,2,3,4  | 1710 - 2700 MHz   |       | 7    |
|                            | LTE -1,2,3,4  | 3400 - 4000 MHz   |       | 7    |
|                            | LTE -1,2,3,4  | 5150 - 5925 MHz   |       | 5    |
|                            | GPS           | 1575.42 MHz       |       | 6    |
|                            | WiFi -1,2,3,4 | 2400 - 2483.5 MHz |       | 7    |
|                            | WiFi -1,2,3,4 | 4900 - 5900 MHz   |       | 8    |
| <b>Return Loss (50 Ω)</b>  | LTE -1,2,3,4  | 617-894 MHz       | dB    | 8    |
|                            | LTE -1,2,3,4  | 1710 - 2700 MHz   |       | 10   |
|                            | LTE -1,2,3,4  | 3400 - 4000 MHz   |       | 7    |
|                            | LTE -1,2,3,4  | 5150 - 5925 MHz   |       | 5    |
|                            | GPS           | 1575.42 MHz       |       | 12   |
|                            | WiFi -1,2,3,4 | 2400 - 2483.5 MHz |       | 10   |
|                            | WiFi -1,2,3,4 | 4900 - 5900 MHz   |       | 8    |
| <b>Isolation</b>           | LTE -1,2,3,4  | 617-894 MHz       | dB    | 7.5  |
|                            | LTE -1,2,3,4  | 1710 - 2700 MHz   |       | 18   |
|                            | LTE -1,2,3,4  | 3400 - 4000 MHz   |       | 20   |
|                            | LTE -1,2,3,4  | 5150 - 5925 MHz   |       | 20   |
|                            | WiFi -1,2,3,4 | 2400 - 2483.5 MHz |       | 17   |
|                            | WiFi -1,2,3,4 | 4900 - 5900 MHz   |       | 18   |

## *Electrical Specifications*

*(Continued)*

|                                                                                                                                                                                                                              |                  |       |                  |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|-------|------------------|
| <b>Polarization</b>                                                                                                                                                                                                          | LTE<br>WiFi      |       | Linear<br>RHCP   |
| <b>Max Input Power</b>                                                                                                                                                                                                       | LTE, WiFi        | Watts | 5                |
| <b>GNSS Preamp Gain</b>                                                                                                                                                                                                      | GPS              | dB    | 28               |
| <b>GNSS Preamp Voltage</b>                                                                                                                                                                                                   | GPS              | V     | 2.2 to 5.0       |
| <b>RF Connector</b>                                                                                                                                                                                                          | LTE, GPS<br>WiFi |       | SMA(M)<br>RP-SMA |
| <b>RF Cable Type</b>                                                                                                                                                                                                         | LTE, WiFi<br>GPS |       | LSR200<br>LSR100 |
| <b>Notes:</b> <ol style="list-style-type: none"> <li>1. Electrical specifications based on antenna with a 2 ft. x 2 ft. external ground plane.</li> <li>2. Isolation and return loss does not include cable loss.</li> </ol> |                  |       |                  |

# Ordering

## Standard Antennas

| Configurations | Part Number     | Description                                        |
|----------------|-----------------|----------------------------------------------------|
| 4:1            | PRO4BS4L15BS    | 4 LTE, 15ft cable, Black, Short Bolt               |
| 5:1            | PRO5BS4LG15BS   | 4 LTE, 1 GPS, 15ft cable, Black, Short Bolt        |
| 9:1            | PRO9BS4L4WG15BS | 4LTE, 4 WiFi, 1 GPS, 15ft cable, Black, Short Bolt |

## Non-Standard Antennas

| Configurations | Part Number      | Description                                               |
|----------------|------------------|-----------------------------------------------------------|
| 4:1            | PRO4BS4L01BS     | 4 LTE, 1ft cable, Black, Short Bolt                       |
|                | PRO4BS4L01BS-NF  | 4 LTE, 1ft cable, Black, Short Bolt, N type Female        |
|                | PRO4BS4L01BS-NM  | 4 LTE, 1ft cable, Black, Short Bolt, N type Male          |
|                | PRO4BS4L01B      | 4 LTE, 1ft cable, Black                                   |
|                | PRO4BS4L01B-NF   | 4 LTE, 1ft cable, Black, N type Female                    |
|                | PRO4BS4L01B-NM   | 4 LTE, 1ft cable, Black, N type Male                      |
|                | PRO4BS4L01WS     | 4 LTE, 1ft cable, White, Short Bolt                       |
|                | PRO4BS4L01WS-NF  | 4 LTE, 1ft cable, White, Short Bolt, N type Female        |
|                | PRO4BS4L01WS-NM  | 4 LTE, 1ft cable, White, Short Bolt, N type Male          |
|                | PRO4BS4L01W      | 4 LTE, 1ft cable, White                                   |
|                | PRO4BS4L01W-NF   | 4 LTE, 1ft cable, White, N type Female                    |
|                | PRO4BS4L01W-NM   | 4 LTE, 1ft cable, White, N type Male                      |
|                | PRO4BS4L15B      | 4 LTE, 15ft cable, Black                                  |
|                | PRO4BS4L15WS     | 4 LTE, 15ft cable, White, Short Bolt                      |
|                | PRO4BS4L15W      | 4 LTE, 15ft cable, White                                  |
| 5:1            | PRO5BS4LG01BS    | 4 LTE, 1 GPS, 1ft cable, Black, Short Bolt                |
|                | PRO5BS4LG01BS-NF | 4 LTE, 1 GPS, 1ft cable, Black, Short Bolt, N type Female |
|                | PRO5BS4LG01BS-NM | 4 LTE, 1 GPS, 1ft cable, Black, Short Bolt, N type Male   |
|                | PRO5BS4LG01B     | 4 LTE, 1 GPS, 1ft cable, Black                            |
|                | PRO5BS4LG01B-NF  | 4 LTE, 1 GPS, 1ft cable, Black, N type Female             |
|                | PRO5BS4LG01B-NM  | 4 LTE, 1 GPS, 1ft cable, Black, N type Male               |
|                | PRO5BS4LG01WS    | 4 LTE, 1 GPS, 1ft cable, White, Short Bolt                |
|                | PRO5BS4LG01WS-NF | 4 LTE, 1 GPS, 1ft cable, White, Short Bolt, N type Female |
|                | PRO5BS4LG01WS-NM | 4 LTE, 1 GPS, 1ft cable, White, Short Bolt, N type Male   |
|                | PRO5BS4LG01W     | 4 LTE, 1 GPS, 1ft cable, White                            |
|                | PRO5BS4LG01W-NF  | 4 LTE, 1 GPS, 1ft cable, White, N type Female             |
|                | PRO5BS4LG01W-NM  | 4 LTE, 1 GPS, 1ft cable, White, N type Male               |
|                | PRO5BS4LG15B     | 4 LTE, 1 GPS, 15ft cable, Black                           |
|                | PRO5BS4LG15WS    | 4 LTE, 1 GPS, 15ft cable, White, Short Bolt               |
|                | PRO5BS4LG15W     | 4 LTE, 1 GPS, 15ft cable, White                           |

## Non-Standard Antennas

(Continued)

| Configurations | Part Number          | Description                                                        |
|----------------|----------------------|--------------------------------------------------------------------|
| 6:1            | PRO6BS4L2U01B        | 4 LTE, 2 Universal, 1ft cable, Black                               |
|                | PRO6BS4L2U01BS       | 4 LTE, 2 Universal, 1ft cable, Black, Short Bolt                   |
|                | PRO6BS4L2U15B        | 4 LTE, 2 Universal, 15ft cable, Black                              |
|                | PRO6BS4L2U15BS       | 4 LTE, 2 Universal, 15ft cable, Black, Short Bolt                  |
| 7:1            | PRO7BS4L2WG01BS      | 4 LTE, 2 WiFi, 1 GPS, 1ft cable, Black, Short Bolt                 |
|                | PRO7BS4L2WG01BS-NF   | 4 LTE, 2 WiFi, 1 GPS, 1ft cable, Black, Short Bolt, N type Female  |
|                | PRO7BS4L2WG01BS-NM   | 4 LTE, 2 WiFi, 1 GPS, 1ft cable, Black, Short Bolt, N type Male    |
|                | PRO7BS4L2WG01B       | 4 LTE, 2 WiFi, 1 GPS, 1ft cable, Black                             |
|                | PRO7BS4L2WG01B-NF    | 4 LTE, 2 WiFi, 1 GPS, 1ft cable, Black, N type Female              |
|                | PRO7BS4L2WG01B-NM    | 4 LTE, 2 WiFi, 1 GPS, 1ft cable, Black, N type Male                |
|                | PRO7BS4L2WG01WS      | 4 LTE, 2 WiFi, 1 GPS, 1ft cable, White, Short Bolt                 |
|                | PRO7BS4L2WG01WS-NF   | 4 LTE, 2 WiFi, 1 GPS, 1ft cable, White, Short Bolt, N type Female  |
|                | PRO7BS4L2WG01WS-NM   | 4 LTE, 2 WiFi, 1 GPS, 1ft cable, White, Short Bolt, N type Male    |
|                | PRO7BS4L2WG01W       | 4 LTE, 2 WiFi, 1 GPS, 1ft cable, White                             |
|                | PRO7BS4L2WG01W-NF    | 4 LTE, 2 WiFi, 1 GPS, 1ft cable, White, N type Female              |
|                | PRO7BS4L2WG01W-NM    | 4 LTE, 2 WiFi, 1 GPS, 1ft cable, White, N type Male                |
|                | PRO7BS4L2WG15BS      | 4 LTE, 2 WiFi, 1 GPS, 15ft cable, Black, Short Bolt                |
|                | PRO7BS4L2WG15B       | 4 LTE, 2 WiFi, 1 GPS, 15ft cable, Black                            |
|                | PRO7BS4L2WG15WS      | 4 LTE, 2 WiFi, 1 GPS, 15ft cable, White, Short Bolt                |
|                | PRO7BS4L2WG15W       | 4 LTE, 2 WiFi, 1 GPS, 15ft cable, White                            |
| 9:1            | PRO9BS4L4WG01BS      | 4 LTE, 4 WiFi, 1 GPS, 1ft cable, Black, Short Bolt                 |
|                | PRO9BS4L4WG01BS-NF   | 4 LTE, 4 WiFi, 1 GPS, 1ft cable, Black, Short Bolt, N type Female  |
|                | PRO9BS4L4WG01BS-NM   | 4 LTE, 4 WiFi, 1 GPS, 1ft cable, Black, Short Bolt, N type Male    |
|                | PRO9BS4L4WG01B       | 4 LTE, 4 WiFi, 1 GPS, 1ft cable, Black                             |
|                | PRO9BS4L4WG01B-NF    | 4 LTE, 4 WiFi, 1 GPS, 1ft cable, Black, N type Female              |
|                | PRO9BS4L4WG01B-NM    | 4 LTE, 4 WiFi, 1 GPS, 1ft cable, Black, N type Male                |
|                | PRO9BS4L4WG01WS      | 4 LTE, 4 WiFi, 1 GPS, 1ft cable, White, Short Bolt                 |
|                | PRO9BS4L4WG01WS-NF   | 4 LTE, 4 WiFi, 1 GPS, 1ft cable, White, Short Bolt, N type Female  |
|                | PRO9BS4L4WG01WS-NM   | 4 LTE, 4 WiFi, 1 GPS, 1ft cable, White, Short Bolt, N type Male    |
|                | PRO9BS4L4WG01W       | 4 LTE, 4 WiFi, 1 GPS, 1ft cable, White                             |
|                | PRO9BS4L4WG01W-NF    | 4 LTE, 4 WiFi, 1 GPS, 1ft cable, White, N type Female              |
|                | PRO9BS4L4WG01W-NM    | 4 LTE, 4 WiFi, 1 GPS, 1ft cable, White, N type Male                |
|                | PRO9BS4L4WG15B       | 4 LTE, 4 WiFi, 1 GPS, 15ft cable, Black                            |
|                | PRO9BS4L4WG15WS      | 4 LTE, 4 WiFi, 1 GPS, 15ft cable, White, Short Bolt                |
|                | PRO9BS4L4WG15W       | 4 LTE, 4 WiFi, 1 GPS, 15ft cable, White                            |
|                | PRO9BS4L2U2WG01BS    | 4 LTE, 2 Universal, 2 WiFi, 1 GPS, 1ft cable, Black, Short Bolt    |
|                | PRO9BS4L2U2WG01BS-NF | 4 LTE, 2 U, 2 WiFi, 1 GPS, 1ft cable, Black, Short Bolt, N type F  |
|                | PRO9BS4L2U2WG01BS-NM | 4 LTE, 2 U, 2 WiFi, 1 GPS, 1ft cable, Black, Short Bolt, N type M  |
|                | PRO9BS4L2U2WG01B     | 4 LTE, 2 Universal, 2 WiFi, 1 GPS, 1ft cable, Black                |
|                | PRO9BS4L2U2WG01B-NF  | 4 LTE, 2 Universal, 2 WiFi, 1 GPS, 1ft cable, Black, N type Female |

## Non-Standard Antennas

(Continued)

| Configurations | Part Number          | Description                                                                        |
|----------------|----------------------|------------------------------------------------------------------------------------|
| 9:1            | PRO9BS4L2U2WG01B-NM  | 4 LTE, 2 Universal, 2 WiFi, 1 GPS, 1ft cable, Black, N type Male                   |
|                | PRO9BS4L2U2WG01WS    | 4 LTE, 2 Universal, 2 WiFi, 1 GPS, 1ft cable, White, Short Bolt                    |
|                | PRO9BS4L2U2WG01WS-NF | 4 LTE, 2 Universal, 2 WiFi, 1 GPS, 1ft cable, White, Short Bolt, N type Female     |
|                | PRO9BS4L2U2WG01WS-NM | 4 LTE, 2 Universal, 2 WiFi, 1 GPS, 1ft cable, White, Short Bolt, N type Male       |
|                | PRO9BS4L2U2WG01W     | 4 LTE, 2 Universal, 2 WiFi, 1 GPS, 1ft cable, White                                |
|                | PRO9BS4L2U2WG01W-NF  | 4 LTE, 2 Universal, 2 WiFi, 1 GPS, 1ft cable, White, N type Female                 |
|                | PRO9BS4L2U2WG01W-NM  | 4 LTE, 2 Universal, 2 WiFi, 1 GPS, 1ft cable, White, N type Male                   |
|                | PRO9BS4L2U2WG15BS    | 4 LTE, 2 Universal, 2 WiFi, 1 GPS, 15ft cable, Black, Short Bolt                   |
|                | PRO9BS4L2U2WG15B     | 4 LTE, 2 Universal, 2 WiFi, 1 GPS, 15ft cable Black                                |
|                | PRO9BS4L2U2WG15WS    | 4 LTE, 2 Universal, 2 WiFi, 1 GPS, 15ft cable, White, Short Bolt                   |
|                | PRO9BS4L2U2WG15W     | 4 LTE, 2 Universal, 2 WiFi, 1 GPS, 15ft cable, White                               |
| 10:1           | P10BS4L2U2WGB01BS    | 4 LTE, 2 Universal, 2 WiFi, 1 GPS, BT, 1ft cable, Black, Short Bolt                |
|                | P10BS4L2U2WGB01BS-NF | 4 LTE, 2 Universal, 2 WiFi, 1 GPS, BT, 1ft cable, Black, Short Bolt, N type Female |
|                | P10BS4L2U2WGB01BS-NM | 4 LTE, 2 Universal, 2 WiFi, 1 GPS, BT, 1ft cable, Black, Short Bolt, N type Male   |
|                | P10BS4L2U2WGB01B     | 4 LTE, 2 Universal, 2 WiFi, 1 GPS, BT, 1ft cable, Black                            |
|                | P10BS4L2U2WGB01B-NF  | 4 LTE, 2 Universal, 2 WiFi, 1 GPS, BT, 1ft cable, Black, N type Female             |
|                | P10BS4L2U2WGB01B-NM  | 4 LTE, 2 Universal, 2 WiFi, 1 GPS, BT, 1ft cable, Black, N type Male               |
|                | P10BS4L2U2WGB01WS    | 4 LTE, 2 Universal, 2 WiFi, 1 GPS, BT, 1ft cable, White, Short Bolt                |
|                | P10BS4L2U2WGB01WS-NF | 4 LTE, 2 Universal, 2 WiFi, 1 GPS, BT, 1ft cable, White, Short Bolt, N type Female |
|                | P10BS4L2U2WGB01WS-NM | 4 LTE, 2 Universal, 2 WiFi, 1 GPS, BT, 1ft cable, White, Short Bolt, N type Male   |
|                | P10BS4L2U2WGB01W     | 4 LTE, 2 Universal, 2 WiFi, 1 GPS, BT, 1ft cable, White                            |
|                | P10BS4L2U2WGB01W-NF  | 4 LTE, 2 Universal, 2 WiFi, 1 GPS, BT, 1ft cable, White, N type Female             |
|                | P10BS4L2U2WGB01W-NM  | 4 LTE, 2 Universal, 2 WiFi, 1 GPS, BT, 1ft cable, White, N type Male               |
|                | P10BS4L2U2WGB15BS    | 4 LTE, 2 Universal, 2 WiFi, 1 GPS, BT, 15ft cable, Black, Short Bolt               |
|                | P10BS4L2U2WGB15B     | 4 LTE, 2 Universal, 2 WiFi, 1 GPS, BT, 15ft cable, Black                           |
|                | P10BS4L2U2WGB15WS    | 4 LTE, 2 Universal, 2 WiFi, 1 GPS, BT, 15ft cable, White, Short Bolt               |
|                | P10BS4L2U2WGB15W     | 4 LTE, 2 Universal, 2 WiFi, 1 GPS, BT, 15ft cable, White                           |

### Notes:

*N type connector is recommended for outdoor usage due to it being waterproof. N type is also best used for cable runs longer than 25ft due to it being a stronger connection.*

*SMA connectors have a max torque of 3-5 inch lbs.*

## Hardware Accessories

| Accessory                                              | Part Number |
|--------------------------------------------------------|-------------|
| Pole-mount bracket (makes antenna a fixed application) | PTA0149H    |
| Magnetic boot mount- black                             | PTA0329     |
| Star Washer                                            | PTA0257     |

## Part Number Key

**Part number example of a 9:1 Belgian Shepherd antenna,  
black: PRO9BS4L2U2WG15B**

| Description                                                                                       | Abbreviation | Part Number         |
|---------------------------------------------------------------------------------------------------|--------------|---------------------|
| All PRO Series                                                                                    | PRO          | PRO                 |
| Number of antennas in housing/configuration                                                       | 10:1         | PRO9                |
| Antenna abbreviation for Belgian Shepherd                                                         | BS           | PRO9BS              |
| Number of LTE Elements                                                                            | # L          | PRO9BS4L            |
| Number of UL Elements                                                                             | # U          | PRO9BS4L2U          |
| Number of WiFi Elements                                                                           | #W           | PRO9BS4L2U2W        |
| Number of GPS Elements (usually only 1 GPS per antenna, therefore we simply list G and no number) | G            | PRO9BS4L2U2WG       |
| Cable length measured in feet: 01 = 1', 15 = 15'                                                  | 01, 15, etc, | PRO9BS4L2U2WG15     |
| Radome Color - B for Black, W for White                                                           | B or W       | PRO9BS4L2U2WG15B    |
| 1.25" bolt is standard, leave blank. Add S for short bolt., 0.6"                                  | S            | PRO9BS4L2U2WG15B    |
| If SMA connector, simply leave blank                                                              |              | PRO9BS4L2U2WG15B    |
| N type female connector                                                                           | NF           | PRO9BS4L2U2WG15B-NF |
| N type male connector                                                                             | NM           | PRO9BS4L2U2WG15B-NM |

Custom connectors are available. Please contact us for more information.



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