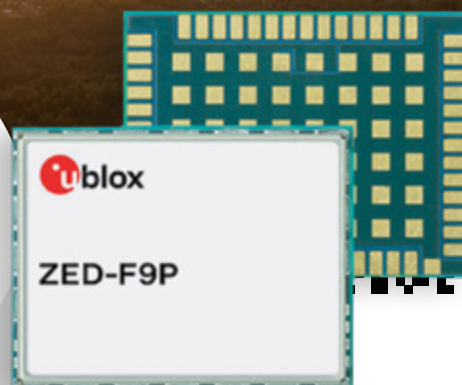
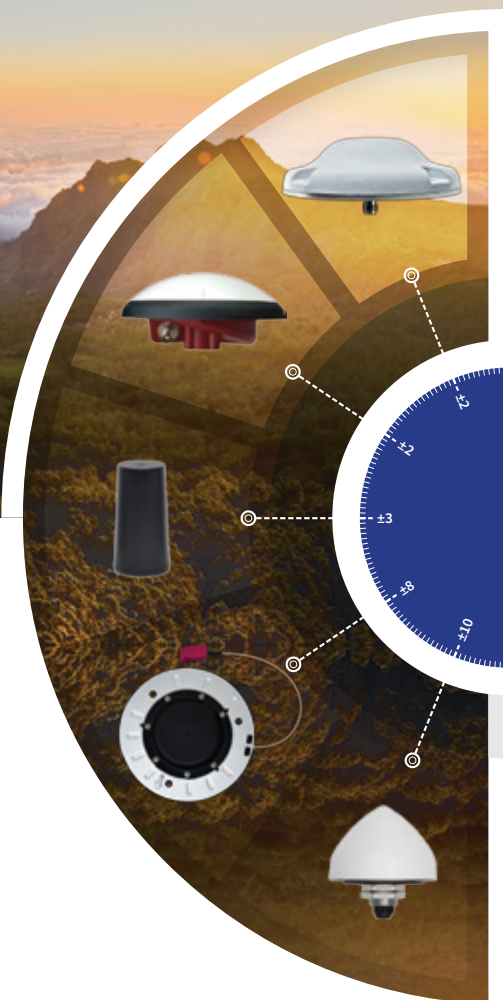




# GNSS Antennas Built for ublox



Multi-constellation Precise  
Single / Dual / Triple / Full-Band,  
L-Band, OEM and Housed Antennas.  
Supports u-blox PointPerfect.

What is your application?  
**We can help!**

With Accutenna®, Helical,  
VeroStar™, VeraPhase®, and  
VeraChoke® Technologies








# Solutions for high-precision GNSS applications



## Paving the way for a data-driven economy

|                              |   |   |                |                             |
|------------------------------|---|---|----------------|-----------------------------|
| <p>UAV</p>                   | <p>Precise automated trajectories, fast convergence, accurate geo-tagging</p> | <p>PointPerfect<br/>GNSS<br/>Augmentation<br/>Service</p> | <p>ZED-F9P</p> | <p>HC872XF,<br/>HC882XF</p> |
| <p>Precision Agriculture</p> | <p>Precise guidance, fast convergence for seeding and herbicides</p>          |   | <p>ZED-F9R</p> | <p>VSS6337L</p>             |
| <p>Automotive</p>            | <p>Navigation for AD/ADAS</p>   |   | <p>ZED-F9K</p> | <p>TWA928LXF</p>            |
| <p>Heavy Machinery</p>       | <p>Machine control, construction and mining environments</p>                  |   | <p>ZED-F9R</p> | <p>VSS6337L</p>             |
| <p>Service Robots</p>        | <p>Robotic lawnmower<br/>Unmanned service delivery</p>                        |   | <p>ZED-F9R</p> | <p>TWA928LXF</p>            |
| <p>Specialty Vehicles</p>    | <p>Shared micro mobility that meets locality regulations</p>                  |   | <p>ZED-F9R</p> | <p>TWA928LXF</p>            |

## u-blox GNSS Receiver to Calian Antenna Matrix

| Compatible Calian Antennas  |                                | u-blox Receiver Model  |   |           |                             |
|---|--------------------------------|--|---|-----------|-----------------------------|
|   |                                | ZED-F9H, ZED-F9K,<br>ZED-F9P, ZED-F9R,<br>ZED-F9T<br><br>Supports PointPerfect | NEO-M8, MAX-M8,<br>CAN-M8, LEA-M8S, LEA-M8F,<br>LEA-M8F, NEO/LEA-M8T,<br>NEO-M8L, NEO-8Q, NEO-M8P,<br>NEO-M9N, NEO-M8Q-01A, MAX-8 | UBX-M9140 | ZOE-M8, ZOE-M8B,<br>MIA-M10 |
| Antenna   | Mount                          |  |   |           |                             |
|    | Through-hole                   | TW3872XF, TW3882,<br>TW3972XF  | TW3742/TW3752, TW3742AJ, TW3712,  |           |                             |
|    | Magnet/Screw/<br>Adhesive Tape | TW7872, TW7972/XF,<br>TW8889   |   |           |                             |
|    |                                |  | TW2920, TW2712, TW2643A   |           |                             |
|   |                                |  | TW4722  |           |                             |
|  | Screw                          | HC872XF/SXF, HC882XF   | HC771   |           |                             |
|  | 5/8" Bolt                      | VSP6337L   |   |           |                             |
|  | Surface                        | VSS6337L   |   |           |                             |
|  | Embedded                       | TW3867XF, TW3882E,<br>TW3887   | TW2708  |           |                             |
|  |                                | SSL889XF, TW1889,<br>TW1829  | TW1722  |           |                             |
|  |                                | TWA928LXF (Automotive<br>Grade (AEC))  |   |           |                             |
|  |                                | HC882EXF, HC872EXF   | HC771E  |           |                             |
|  |                                | VSE6328L   |   |           |                             |

## Installation & Filtering

### Custom Tuning Services and Installation Guides

Custom embedded installations can detune (shift the frequency) the antenna. To optimize antenna performance and assist customers, Calian provides an Embedded Antenna Installation Guide that identifies best practices and highlights potential pitfalls. Even if best practices are followed, detuning can still occur in a custom antenna installation. To ensure that the embedded antenna installation provides optimum performance, Calian offers customers a custom tuning service. If this optional service is selected, then all subsequently purchased antennas will be custom-tuned to the specific enclosure.

### eXtended Filtering (XF)

The radio frequency spectrum has become more congested as new LTE bands are activated and their signals or harmonic frequencies [e.g.  $800\text{MHz} \times 2 = 1600\text{MHz}$  (GLONASS - G1)] can affect GNSS antennas and receivers.

In North America, planned Ligado signals at 1526–1536 MHz can especially impact GNSS antennas that support space-based L-band (1539 – 1559 MHz) correction services such as u-blox PointPerfect. New LTE signals in Europe [Band 32 (1452 - 1496 MHz)] and Japan [Bands 11 and 21 (1476 - 1511 MHz)] have also been observed to interfere with GNSS signals. In addition, Inmarsat satellite communication (uplink: 1626.5 - 1660.5 MHz) can also affect GNSS signals. The new Calian XF antennas have been designed to mitigate out-of-band signals and prevent GNSS antenna saturation. Calian's custom XF filtering mitigates all existing signals and new Ligado and LTE signals, enabling the antennas and attached GNSS receivers to perform optimally.

## Explore GNSS Precision with Calian

Calian provides an affordable line of high performance, precision GNSS antennas focused on supporting a broad range of satellite-based positioning, navigation, and data applications. In addition to the VeroStar® family of antennas, here is a list of additional GNSS technologies from the Calian Precision Portfolio.



#### Accutenna® Technology

Outperforms single-feed patch antennas, providing superior multi-path signal rejection thereby providing un-matched precision for its size and price.

[Calian.com/gnss/accutenna](https://calian.com/gnss/accutenna)



#### Helical Technology

Designed for applications that require high performance and versatility, with an absolute minimum of weight, such as Unmanned Aerial Vehicles.

[Calian.com/gnss/helical](https://calian.com/gnss/helical)



#### VeroStar™ Pole Mount

Designed for high-precision (2mm PCV) land survey rover applications. Full- and triple-band models are available.

[Calian.com/gnss/vero](https://calian.com/gnss/vero)



#### VeroStar™ Surface Mount

Designed for machine-control applications. The surface mount VeroStar has best-in-class low-elevation angle tracking, making it capable of receiving L-Band corrections in challenging environments.

[Calian.com/gnss/vero](https://calian.com/gnss/vero)

### About Calian

We keep the world moving forward. Calian® helps people communicate, innovate, learn and lead safe and healthy lives. Every day, our employees live our values of customer commitment, integrity, innovation and teamwork to engineer reliable solutions that solve complex problems. That's Confidence. Engineered. A stable and growing 40-year company, we are headquartered in Ottawa with offices and projects spanning North American, European and international markets. Visit [calian.com](https://calian.com) to learn about innovative healthcare, communications, learning and cybersecurity solutions.

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