

HOW TO INTEGRATE EMBEDDED HELIX ANTENNA WITH UAVS OR OTHERS

Advice on Embedded Helix Antenna Radome Design

Radome Material

- Radome Material: PC/ABS/PC+ABS/FRP
- Dielectric Constant: 2-4
- Dielectric Loss: < 0.005

Radome Structure

- Thickness: 1-1.5mm.
- Distance between Antenna and Housing: >1mm
- Radome Shape: Symmetrical structure

Advice on Housed Antenna Installation

01

There should be no metal obstacles above the GNSS antenna PCB.

02

The GNSS antenna should be at least 10cm away from other communication antennas

03

If there is metal ground under the antenna, symmetrically shaped metal ground is preferred

Custom Antenna Tuning Service

During the customer product design phase, Harxon offers custom tuning services to optimize the performance of the helix antennas for any OEM installation environment.

HOW TO MATCH ANTENNA AND BOARD



Frequency

u-blox F9P:
L1/B1/G1/E1 and L2/B2/G2/E5b

Unicore UM980:
four-system, full-frequency coverage



Power Supply

Most Harxon antennas:
3.3 V-12 V DC.

Exceeding range may cause failure



LNA Gain

Unicore boards require 16 - 36 dBi.

Exceeding range may cause failure

Harxon
a *BDStar* company

HIGH-PRECISION HELIX ANTENNA FOR UNMANNED SYSTEMS



Founded in 2008, Harxon Corporation is a subsidiary of BDStar, the first listed company in China 's satellite navigation industry. Harxon focuses on the R&D, production and sales of GNSS antennas, vehicle antennas, wireless data radios and smart antennas. Harxon is able to provide customized products and positioning solutions for global customers in various industries.

HARXON CORPORATION

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2025
Revised in May.

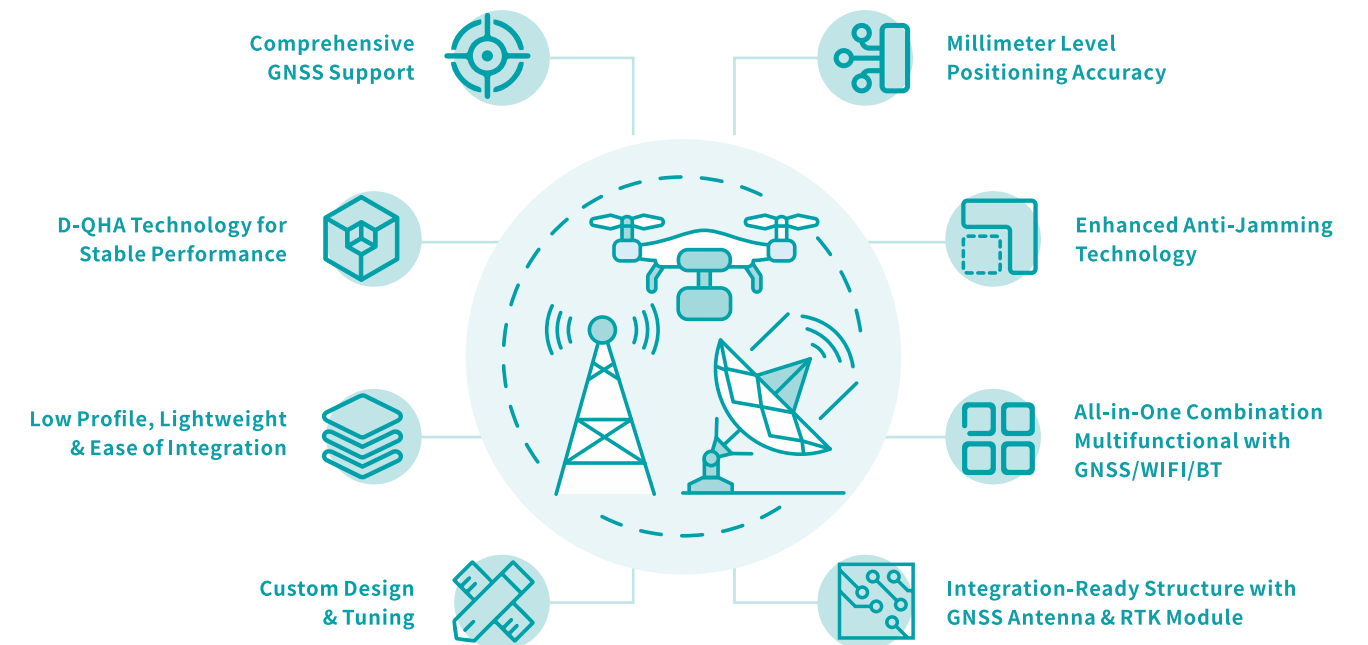
UAV/DRONE ANTENNA



Lightweight and high precision matter in unmanned systems. Harxon offers a comprehensive range of high-performance UAV/drone antennas tailored to the needs of this field. The range includes ultra-lightweight helix antennas, integrated smart antennas with RTK modules, and robust anti-jamming solutions.

At the heart of Harxon's antenna innovation is its patented D-QHA technology, which delivers both exceptional performance and weight savings. This cutting-edge design ensures reliable signal tracking, high gain, and outstanding low-elevation satellite reception—even in challenging environments. With extremely lightweight form and RTK accuracy available, it's no wonder that Harxon's antenna is a top choice for UAV engineers.

KEY FEATURES



GNSS Only Helix Antenna

- Multi-constellation, multi-signal
- Housed (IP67) or embedded options
- Low profile, lightweight, customizable
- Full band, high gain, precision-tuned

GNSS + WiFi/Bluetooth Helix Antenna

- GNSS Integrated with Bluetooth and Wi-Fi (2.4GHz/5.8GHz)

Smart Antenna with RTK Module

- Harxon precision-tuned GNSS antenna
- Unicore RTK positioning module UM960 & UM980

Anti-Jamming GNSS Antenna

- Superior out-of-band signal rejection
- Strong multipath signal suppression

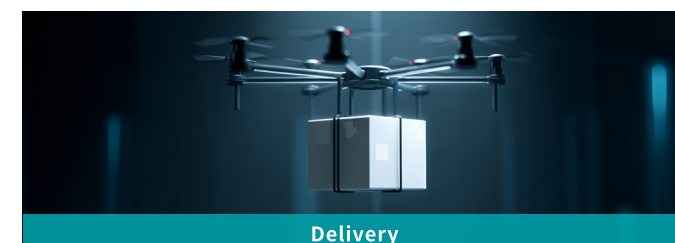
APPLICATION



Surveying



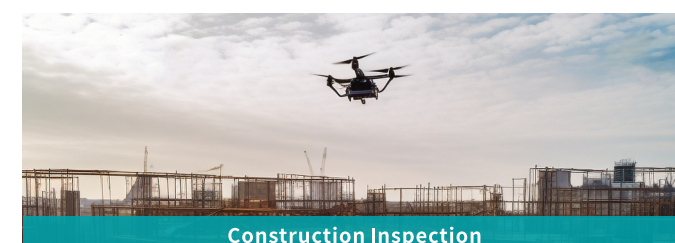
Agriculture



Delivery



Search & Rescue

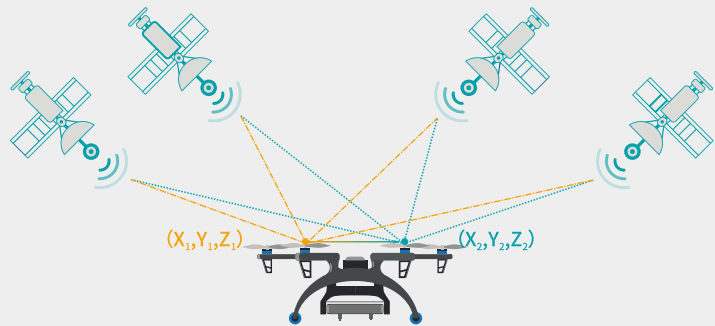


Construction Inspection



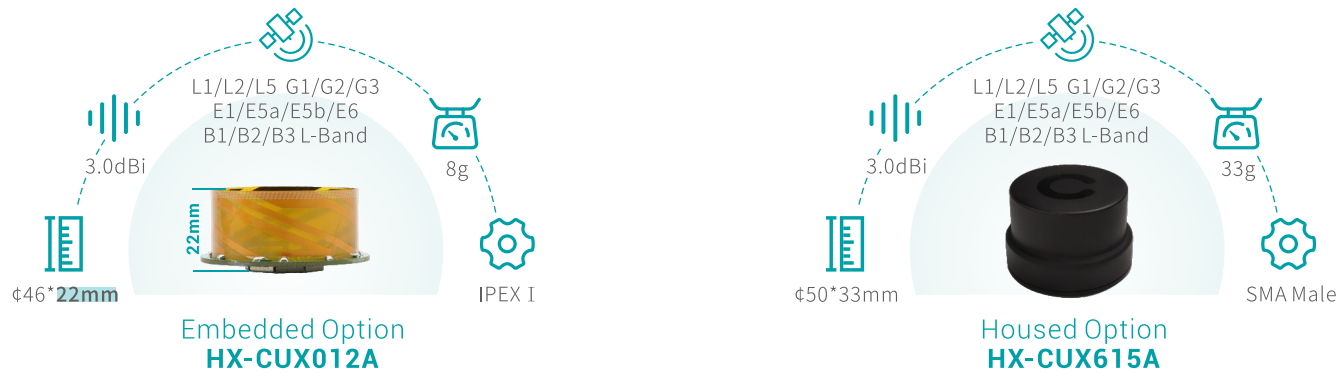
Military

FEATURED PRODUCTS

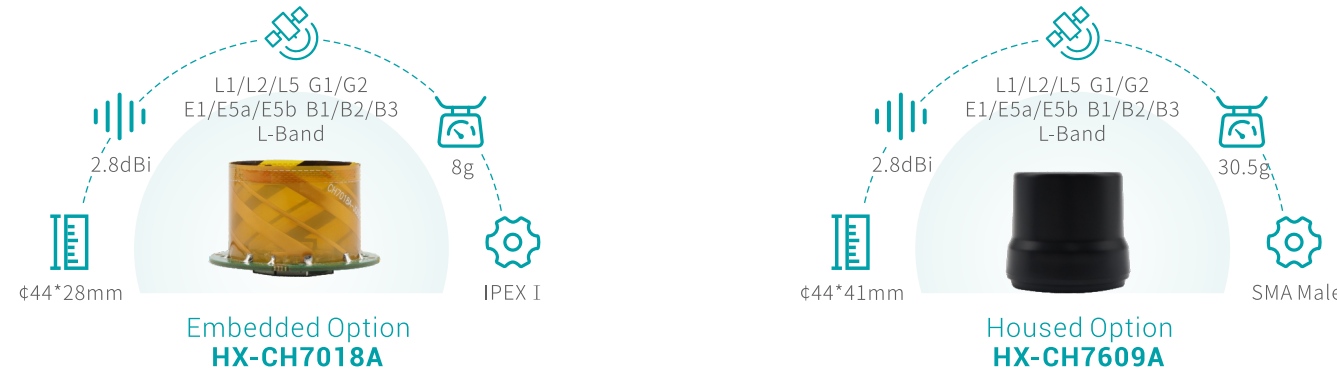


► GNSS Only Helix Antenna

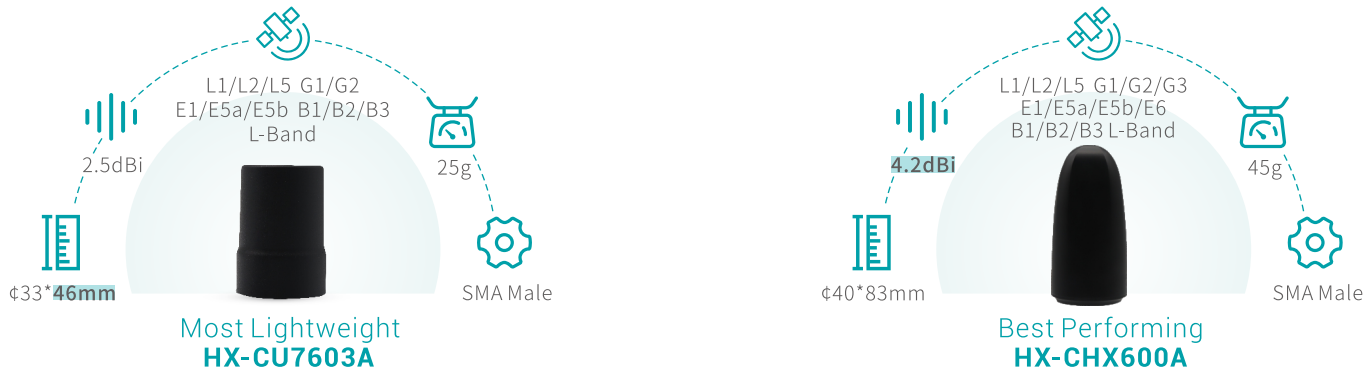
HX-CUX615A is the housed version of the super low profile helix antenna HX-CUX012A. They’ re designed with extremely low profile and lightweight, which reduces the overall weight of applications and meets the strict demands of low profile.



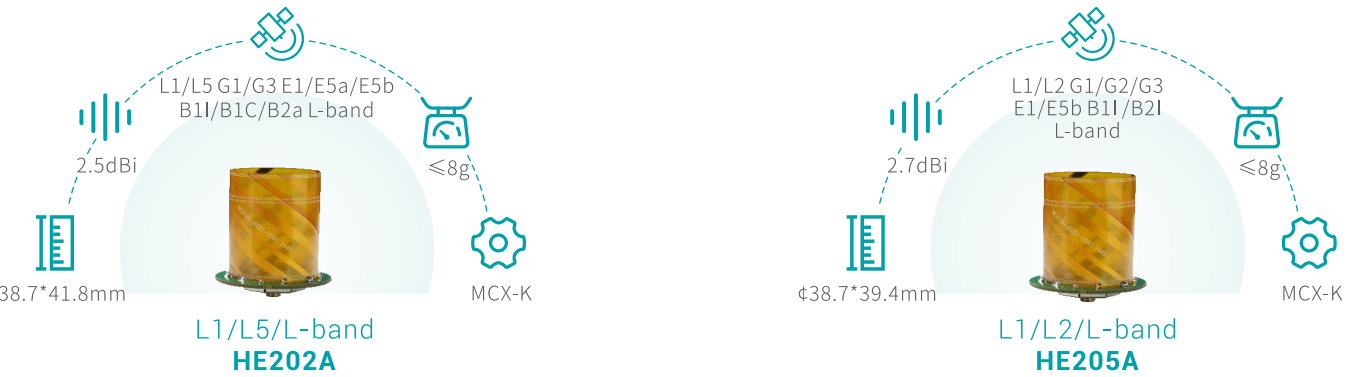
HX-CH7609A is a high performance GNSS antenna designed for high precision positioning service and offers superior satellite signal tracking. It is smaller in size, lighter in weight, and meets customizable requirements.



Harxon now offers an even broader selection of helix antennas tailored to diverse needs for frequency bands, positioning accuracy, size, and weight.

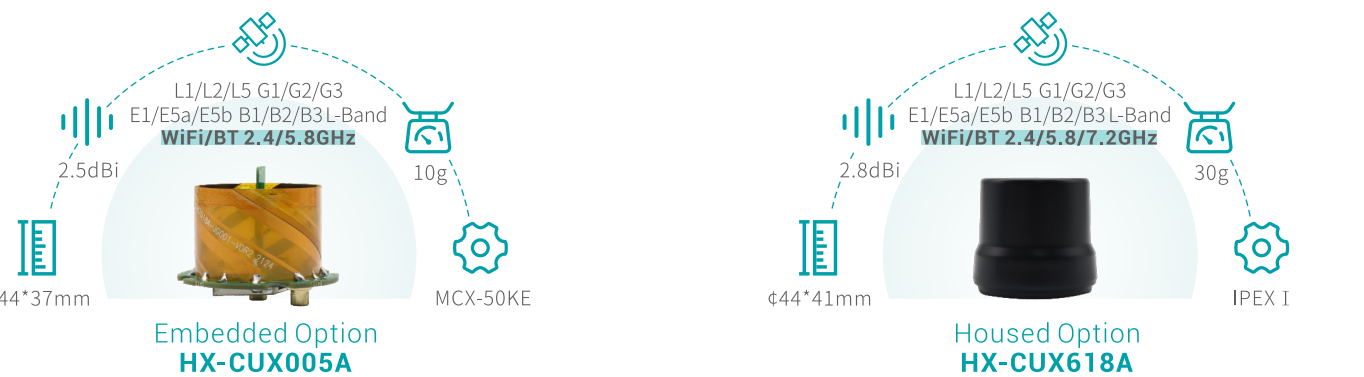


Harxon also offers dual-band helix antennas tuned for optimal performance on L1/L2 and L1/L5 bands. Users can choose the configuration that best suits their application needs, ensuring flexible and reliable high-precision positioning.



► GNSS + WiFi/Bluetooth Helix Antenna

HX-CUX618A is the housed version of HX-CUX005A. They are designed with the integration of GNSS antenna and Bluetooth/WiFi antenna, enabling communication and navigation without mutual interference. The WiFi antenna supports WiFi2.4/5.8GHz and WiFi6 for faster data transmission.

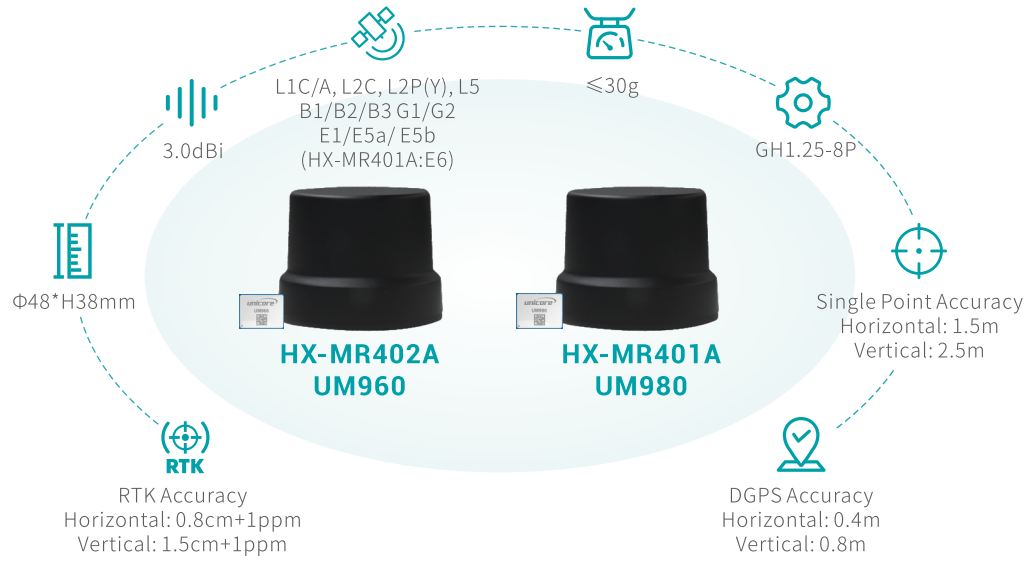
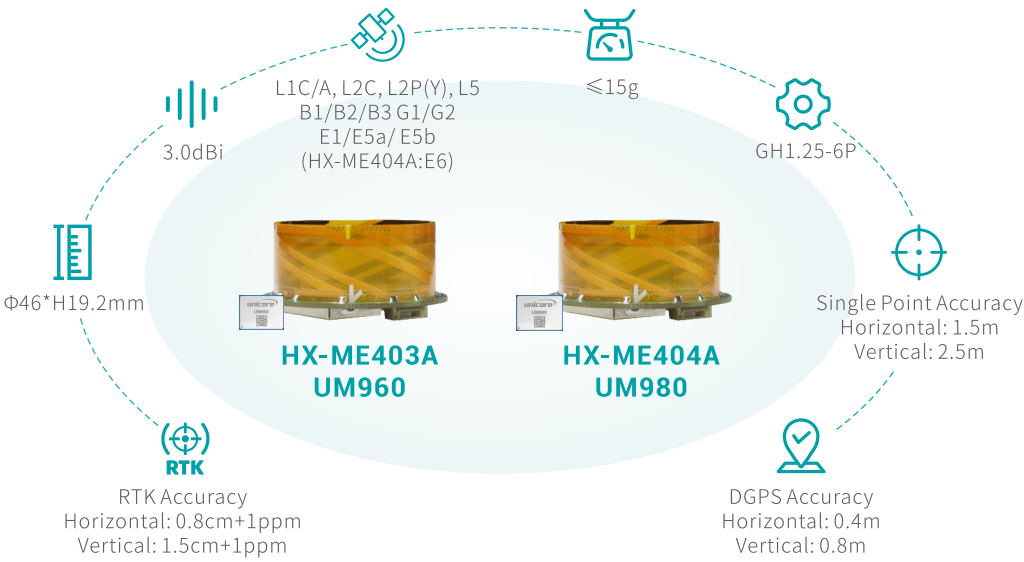


FEATURED PRODUCTS

► Smart Antenna with RTK Module

Harxon smart antennas combine the high-performance and lightweight GNSS antenna with Unicore’s RTK module, delivering precise positioning performance in a compact and integration-ready structure.

The solution significantly simplifies the GNSS part of the hardware architecture, allowing system integrators to focus on their core tech and reducing development costs.



► Anti-Jamming GNSS Antenna

JH001/JH003 are robust helical antenna with high interference immunity. They are designed to mitigate co-frequency signal interference, high-power signal interference, and multiple radio communication system interference, ensuring high-precision positioning in complex electromagnetic environments.

