

# High Precision GNSS Vehicle Antenna HX-VR402A



HX-VR402A is a multi-constellation full-band external vehicle antenna that supports GPS, GLONASS, BDS, and GALILEO, meeting the multi-system compatibility requirements. It features high performance, compact size, high reliability, and screws mounting. This antenna is widely used in applications such as unmanned vehicles, autonomous driving, drones, and precision agriculture.



## TRACK IN CHALLENGING ENVIRONMENTS

The ability to receive low elevation signals with high gain and wide beam width makes HX-VR402A an excellent choice for tracking visible satellites under challenging conditions, providing positioning solutions with precision and reliable data. It can be widely used in GNSS applications where high precision is needed, such as obstructed environment of tree lines or construction.

## STRONG ANTI-INTERFERENCE CAPACITY

The antenna is equipped with robust pre-filtered LNA which guarantees excellent out-of-band interference rejection performance and restrains unwanted electromagnetic interference, thus providing stable GNSS signal tracking from all elevation angles even in challenging environments.

## COMPACT FORM FACTOR AND RUGGEDIZED HOUSING

HX-VR402A features a compact design with dimensions of only  $\Phi 69 \times 23.5$ mm. Its robust and reliable structure, combined with a patented waterproof and breathable design, ensures long lifespan with IP69K protection. This guarantees long-term protection against dust, UV radiation, and water, making it ideal for use in harsh environments.

## HIGH PHASE CENTER STABILITY

HX-VR402A features a multi-point feeding design to achieve greater phase center stability. It effectively improves measurement accuracy and provides better positioning solutions.

## KEY FEATURES

- Comprehensive GNSS support: GPS, BDS, GLONASS, Galileo, QZSS, IRNSS, SBAS and L-Band
- Stable phase center guarantees millimeter-level positioning accuracy
- Improved signal filtering and excellent multipath rejection
- Ruggedized housing with IP69K rating protection
- Standard TNC-female connector for easy integration

# High Precision GNSS Vehicle Antenna

## HX-VR402A



### GNSS PERFORMANCE

<b>Signal Received</b>	
GPS	L1/L2/L5
BDS	B1I/B2I/B3I/B1C/B2a/B2b
GLONASS	L1/L2/L3
GALILEO	E1/E5a/E5b/E6
QZSS	L1/L2/L5/L6
IRNSS	L5
SBAS	L1/L5
L-Band	
<b>Nominal Impedance</b>	50Ω
<b>Polarization</b>	RHCP
<b>Axial Ratio</b>	≤3dB
<b>Azimuth Coverage</b>	360°
<b>Output VSWR</b>	≤2.0
<b>Peak Gain</b>	4.0dBi
<b>Phase Center Variation</b>	±2mm

### LOW NOISE AMPLIFIER

<b>LNA Gain</b>	37±2dB
<b>Noise Figure</b>	≤2dB
<b>Output VSWR</b>	≤2.0
<b>Passband Ripple</b>	±2dB
<b>Operation Voltage</b>	+3.3~+12VDC
<b>Operation Current</b>	≤45mA
<b>Differential Propagation Delay</b>	≤5ns

### MECHANICAL

<b>Dimensions</b>	Φ69×23.5mm
<b>Connector</b>	TNC-K
<b>Weight</b>	≤260g
<b>Mounting</b>	M18 Screws Mount

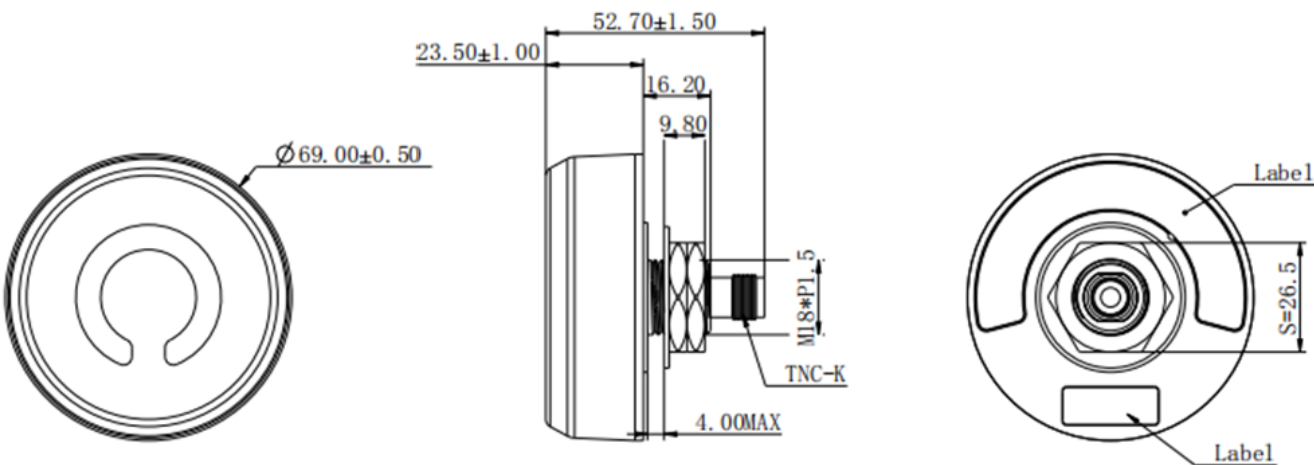
### ENVIRONMENTAL

<b>Operating Temperature</b>	-40°C to +85°C
<b>Storage Temperature</b>	-55°C to +85°C
<b>Humidity</b>	95% non-condensing
<b>Vibration</b>	MIL-STD-810D Method 514.3-1
<b>Shocking</b>	MIL-STD-810G Method 516.6
<b>Salt Spray Test</b>	96H
<b>EMC (RF Input Static)</b>	
Connected: 8KV, Air: 15KV, 10 times	
<b>Protection Rating</b>	IP69K IP67

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### Structure& Phase Center Drawing (mm)



TOP VIEW

SIDE VIEW

BOTTOM VIEW

Undeclared Tolerance: ±0.3mm