

High Precision GNSS Vehicle Antenna HX-VR402A

Harxon
a *BDSStar* company

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 $\Phi 69 \times 23.5\text{mm}$. 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

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GNSS PERFORMANCE

Signal Received	
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	
Nominal Impedance	50Ω
Polarization	RHCP
Axial Ratio	<3dB
Azimuth Coverage	360°
Output VSWR	<2.0
Peak Gain	4.0dBi
Phase Center Variation	±2mm

LOW NOISE AMPLIFIER

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

ENVIRONMENTAL

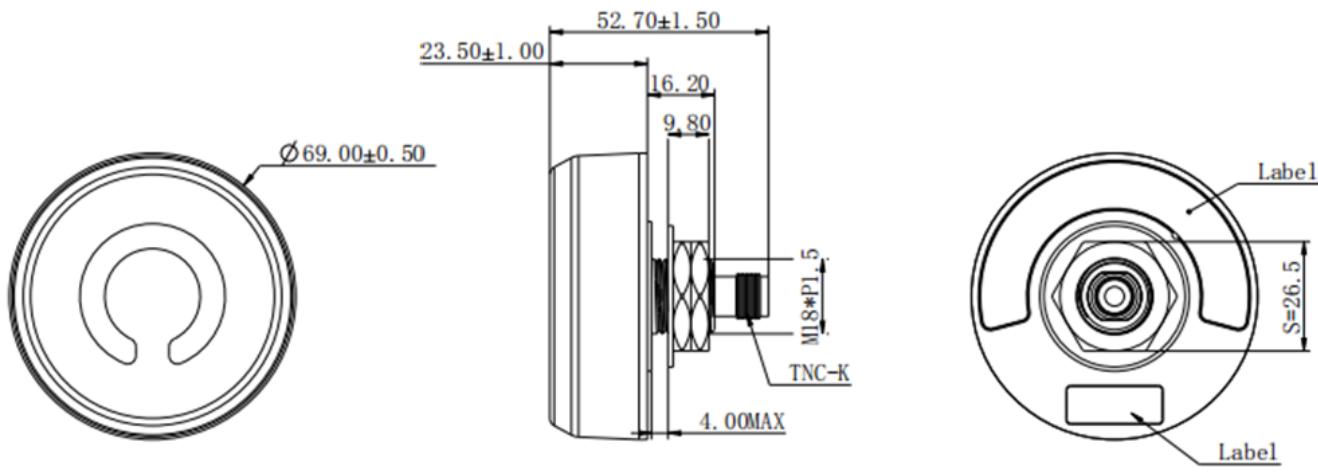
Operating Temperature	-40°C to +85°C
Storage Temperature	-55°C to +85°C
Humidity	95% non-condensing
Vibration	MIL-STD-810D Method 514.3-1
Shocking	MIL-STD-810G Method 516.6
Salt Spray Test	96H
EMC (RF Input Static)	
Connected: 8KV, Air: 15KV, 10 times	
Protection Rating	IP69K IP67
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MECHANICAL

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

Version 1 Specifications subject to change without notice.
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Structure& Phase Center Drawing (mm)



TOP VIEW

SIDE VIEW

BOTTOM VIEW

Undeclared Tolerance:±0.3mm