

# VCS6000XF



## Smart Choke Ring for High Precision GNSS Base Station Applications

### Overview

The VCS6000 is a full GNSS spectrum antenna with an integrated “All-in-View” GNSS receiver designed for precise base-station applications. The VCS6000XF combines two industry leading technologies into the GNSS industry’s first full-size precision Smart Choke Ring antenna.

### Full Band GNSS Receiver + L-Band from Septentrio

The VCS6000XF offers simultaneous tracking of all visible satellite constellations and signal bands with convenient remote access IP connectivity.

#### Key Advanced Technologies:

- **AIM+** industry-leading advanced anti-jamming, anti-spoofing interference monitoring & mitigation technology that can suppress the widest variety of interferers, from simple continuous narrowband signals to the most complex wideband and pulsed jammers.
- **IONO+** advanced scintillation mitigation provides advanced protection against ionospheric disturbances.
- **APME+** a posteriori multipath estimator for code and phase multipath mitigation, unique in its ability to tackle short-delay multipath to enhance measurement quality.
- **LOCK+** superior tracking robustness under heavy mechanical shocks or vibrations helps guarantee robust tracking of rapid signal dynamics during scintillation events or earthquakes.
- **RAIM+** receiver autonomous integrity monitoring

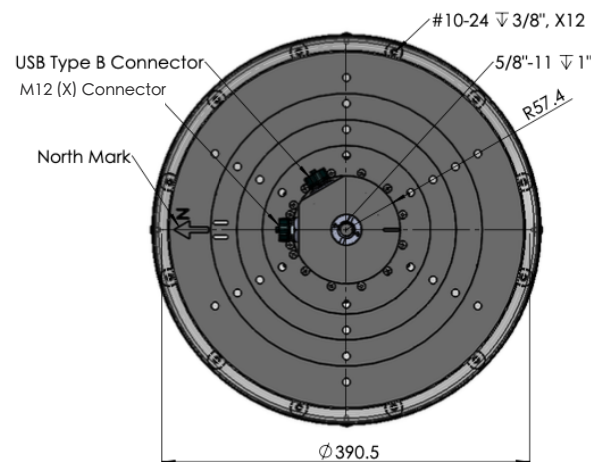
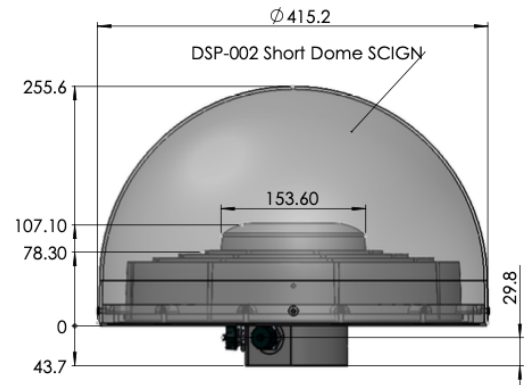
### Calian VeraChoke Geodetic Antenna

The VCS6000XF integrates a High-Precision Full GNSS Spectrum + L-Band Calian VeraChoke Antenna.

#### Key Advanced Technologies:

- Patented Antenna Element with LNA eXtended Filtering (XF)
- Extremely low axial ratio from zenith to horizon, all azimuths, all GNSS bands
- Precise Phase Center Offset (PCO) and 0.5mm Phase Center Variation (PCV)
- 3D choke Ring mitigates multipath.
- Minimizes RTK network biases
- GEO++ calibration

The VCS6000XF is compatible with Septentrio’s RxTools Software suite for monitoring and controlling the GNSS configuration of the SmartChoke.



### Key Integration Features

- Economical High Precision Reference Station - Geodetic grade, tightest PCV
- Low noise as the RF Signal Chain is tightly coupled with the GNSS receiver
- Ease of deployment with repeatable RF performance unit-to-unit
- Single PoE Ethernet connection at the antenna (M12(X)), no rack space required. Marine-grade. Standard 20m marine-grade ethernet cable
- CAT5e cabling offers lower deployment cabling cost.
- Supports NTRIP (w/ integrated NTRIP Caster)
- Localized USB connection for ease of configuration
- Integrated 32GB storage for local logging
- Industrial grade IP67 enclosure
- Extended cable length (options). M12(X) to RJ45
- Optional choke ring hemispherical Radome

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### Specifications

Antenna		Mechanical	
Architecture.....	Full-band, VeraChoke, Ceramic Filtering	Dimensions.....	378 mm dia. x 150.8 mm h.
Axial Ratio.....	L1: < 0.2 dB, Full-Band: <0.3dB	Weight.....	5.4 Kg
Receiver Frequencies.....	<b>GPS:</b> L1C/A, L1PY, L2C, L2P, L5 <b>Galileo:</b> E1, E5a, E5b, E5 AltBoc, E6 <b>Beidou:</b> B1I, B1C, B2a, B2b, B2I, B3 <b>GLONASS:</b> L1CA, L2CA, L2P, L3 CDMA <b>QZSS:</b> L1C/A, L1 C/B, L2C, L5 <b>Navic:</b> L5	Mounting Method.....	5/8" x 11 TPI (female)
SBAS.....	Egnos, WAAS, GA+GAN, MSAS, SDCM	Cable Length.....	20M included (30M/40M available) M12(X) to RJ45
Channels.....	448-channel Septentrio MOSAIC-X5	Optional SCIGN Radome.....	415.2mm dia. x 255.6 mm h. (Sold Sep.)
OSNMA.....	Support	Electrical	
GNSS+ Technologies		Voltages.....	5V USB, 48V POE (Class 0)
AIM+.....	industry leading anti-jamming, anti-spoofing interference monitoring and mitigation technology	Current.....	< 2 Watts, Measured @ 5VDC USB supply
IONO+.....	advanced scintillation mitigation	Environmental	
APME+.....	a posteriori multipath estimator for code and phase multipath mitigation	Operating Temperature.....	-40°C to +85°C
RAIM+.....	receiver autonomous integrity monitoring	Storage Temperature.....	-40°C to +85°C
Interface		Weatherproof.....	IP67
USB.....	USB 2.0, Type B, IP67	Shock.....	3-axis 50G, 11ms (Mil-Std-810)
Ethernet.....	10/100 Mbps, POE Class 0, M12(X), IP67	Vibration.....	3-axis, 4-hours (Mil-Std-810)
Protocol		Compliance.....	FCC, RED/CE Mark, RoHS, Reach
Supported.....	<b>SBF:</b> Septentrio Binary Format <b>NMEA 0183:</b> v2.3, v3.03, v4.0 <b>RINEX:</b> v2.x, v3.x <b>RTCM:</b> v2.x, v3.x (MSM included) <b>CMR:</b> v2.0 (out/in) CMR+ (in only)	Receiver Tracking Sensitivity	
Update Rate.....	100 Hz (Maximum)	Tracking Threshold.....	20 dB-Hz
		Acquisition Threshold.....	33 dB-Hz
		Receiver Acquisition	
		Cold start.....	< 45 sec
		Warm Start.....	< 20 sec
		Reacquisition.....	1 sec
		Static Position Accuracy	
		Antenna Element	
		Phase Center Variation.....	0.5mm
		Receiver	
		Horizontal.....	3mm 2-Sigma (95%)
		Vertical.....	8mm 2-Sigma (95%)

### Ordering Information:

33-VCS6000XF-59-zz

Radome: Integrated Grey (included), Optional choke ring hemispherical radome available separately

zz = Cable length (20 = 20 meters (included) M12(X) and RJ-45. 30m/40m and other lengths are special order as premium

**About Calian GNSS:** With global headquarters and manufacturing in Ottawa, Canada, Calian GNSS is a leading manufacturer of high-precision antennas and components for Global Navigation Satellite System (GNSS) applications. Calian GNSS' mission is to support the needs of a new generation of positioning systems by delivering unprecedented antenna precision at competitive prices. Learn more at [www.calian.com/GNSS](http://www.calian.com/GNSS)

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