VCS6000XF

CALIAN
Confidence. Engineered.

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 Technologes:

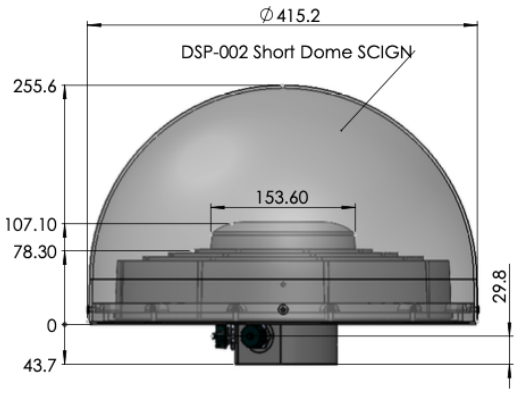
• **AIM+** industry-leading advanced anti-jamming, anti-spoofing interference monitoring & mitigation technology that can suppress the widest variety of interferers, from simple continuous narrowband signals to the most complex wideband and pulsed jammers.

• **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 Sprectrum + L-Band Calian VeraChoke Antenna.

Key Advanced Technologes:

• Patented Antenna Element with LNA eXtended Filtering (XF)

• Extremely low axial ratio from zenith to horizon, all azimuths, all GNSS bands

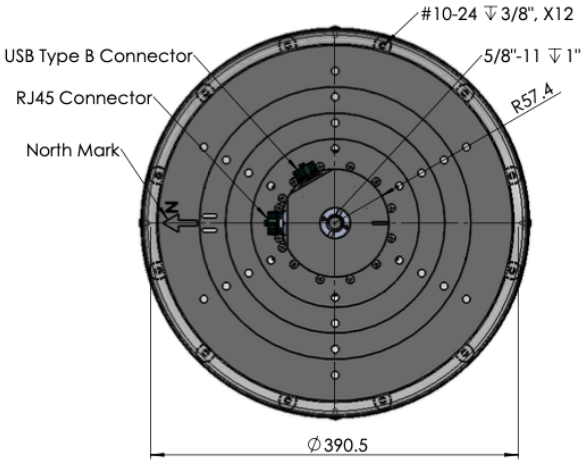
• Precise Phase Center Offset (PCO) and 0.5mm Phase Center Variation (PCV)

• 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, 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)
- Optional choke ring hemispherical Radome

VCS6000XF
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Specifications

Antenna

Architecture	Full-band, VeraChoke, Ceramic Filtering
Axial Ratio	L1: < 0.2 dB, Full-Band: <0.3dB
Receiver Frequencies	**GPS:** L1C/A, L1PY, L2C, L2P, L5 **Galileo:** E1, E5a, E5b, E5 AltBoc, E6 **Beidou:** B1I, B1C, B2a, B2b, B2I, B3 **GLONASS:** L1CA, L2CA, L2P, L3 CDMA **QZSS:** L1C/A, L1 C/B, L2C, L5 **Navic:** L5
SBAS	Egnos, WAAS, GA+GAN, MSAS, SDCM
Channels	448-channel Septentrio MOSAIC-X5
OSNMA	Support

GNSS+ Technologies

AIM+	industry leading anti-jamming, anti-spoofing interference monitoring and mitigation technology
IONO+	advanced scintillation mitigation
APME+	a posterioro mutipath estimator for code and phase multipath mitigation
RAIM+	receiver autonomous integrity monitoring

Interface

USB	USB 2.0, Type B, IP67
Ethernet	10/100 Mbps, POE Class 0, RJ45, IP67

Protocol

Supported	**SBF:** Septentrio Binary Format **NMEA 0183:** v2.3, v3.03, v4.0 **RINEX:** v2.x, v3.x **RTCM:** v2.x, v3.x (MSM included) **CMR:** v2.0 (out/in) CMR+ (in only)
Update Rate	100 Hz (Maximum)

Mechanical

Dimensions	378 mm dia. x 150.8 mm h.
Weight	5.4 Kg
Mounting Method	5/8" x 11 TPI (female)
Cable Length	20M included (30M/40M available)
Optional SCIGN Radome	415.2mm dia. x 255.6 mm h. (Sold Sep.)

Electrical

Voltages	5V USB, 48V POE (Class 0)
Current	< 2 Watts, Measured @ 5VDC USB supply

Environmental

Operating Temperature	-40℃ to +85℃
Storage Temperature	-40℃ to +85℃
Weatherproof	IP67
Shock	3-axis 50G, 11ms (Mil-Std-810)
Vibration	3-axis, 4-hours (Mil-Std-810)
Compliance	FCC, RED/CE Mark, RoHS, Reach

Receiver Tracking Sensitivity

Tracking Threshold	20 dB-Hz
Acquisition Threshold	33 dB-Hz

Receiver Acquisition

Cold start	< 45 sec
Warm Start	< 20 sec
Reacquisition	1 sec

Static Posistion Accuracy

Antenna Element	
Phase Center Variation	< 1.0mm
Receiver	
Horizontal	3mm 2-Sigma (95%)
Vertical	8mm 2-Sigma (95%)

Ordering Information:

33-VCS6000XF-**59**-**zz**-PC0

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

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

PC0 = Default Factory Configuration (Inquire regarding factory custom configurations)

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**

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