VSM6328L

TALLYSMAN®
A CALIAN® COMPANY

VSM6328L Mini Embedded VeroStar™ Triple-band GNSS Precision Antenna + L-band

Frequency Coverage: GPS/QZSS-L1/L2/L5, GLONASS-G1/G2/G3, Galileo-E1/E5a/E5b, BeiDou-B1/B2/B2a, NavIC-L5 + L-band correction services

The patent-pending VSM6328L antenna employs Tallysman's unique VeroStar™ technology, providing high gain over the GPS/QZSS-L1/L2/L5, GLONASS-G1/G2/G3, Galileo-E1/E5a/E5b, BeiDou-B1/B2/B2a, and NavIC-L5 frequency bands, including the satellite-based augmentation system (SBAS) available in the region of operation [WAAS (North America), EGNOS (Europe), MSAS (Japan), or GAGAN (India)], as well as L-band correction services.

The light and compact embedded VeroStar™ VSM6328L is designed and crafted for high-accuracy positioning while being robust and reliable.

With an exceptionally low roll-off from zenith to the horizon, the VeroStar™ antenna provides the best-in-class tracking of GNSS and L-band correction signals from low elevation angles. In addition, the optimized axial ratio at all elevation angles results in excellent multipath rejection, thus enabling accurate and precise code and phase tracking of GNSS and L-band correction signals.

A wide-band spherical antenna element enables the VeroStar™ to deliver a ±2 mm phase centre variation (PCV), making it ideal for high-precision applications, such as autonomous vehicle navigation (land, sea, and air), smart survey devices, and maritime positioning.

The VeroStar™ antenna features a robust pre-filter and high-IP3 LNA architecture, minimizing de-sensing from high-level out-of-band signals, including 700 MHz LTE, while still providing a noise figure of only 1.8 dB.

The embedded VeroStar™ antenna has passed shock and vibration tests to ensure it can survive the rigours of day-to-day field use.

90 mm ground plane shown

Applications

- High-precision GNSS systems
- All embedded precision applications, such as:
  - Autonomous vehicle navigation (land, sea, air)
  - Deformation monitoring stations
  - Land survey rover
  - Marine navigation
  - RTK/PPP systems
  - Reference networks

Features

- Tight phase centre ariation (± 2 mm typ.)
- Low axial ratios from zenith to horizon
- Low roll-off from zenith to the horizon
- Superior low-elevation L-band correction reception
- High G/T at low elevation angles
- Invariant performance from 3.0 to 16 VDC
- Low current (50 mA)
- Low noise figure (1.8 dB)
- Light, compact, and robust design
- REACH, and RoHS compliant

Benefits

- Consistent performance across all frequency bands
- Excellent GNSS tracking from low elevation angles
- Extreme accuracy and precision
- Excellent multipath rejection

About Tallysman: With global headquarters and manufacturing in Ottawa, Canada, Tallysman is a leading manufacturer of high-precision antennas and components for Global Navigation Satellite System (GNSS) applications. Tallysman's 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.tallysman.com**

Revision: 1.0

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Antenna

Technology GNSS triple-band crossed dipoles

		Gain		Axial Ratio
		dBic typ. at Zenith		dB at Zenith
GNSS		**90 mm**	**106 mm**	
GPS / QZSS	**L1**	3.5	4.0	< 1.0
	L2	4.0	4.5	< 1.0
	L5	3.5	4.0	< 1.0
GLONASS	**G1**	3.5	4.0	< 1.0
	G2	4.0	4.5	< 1.0
	G3	4.0	4.5	< 1.0
Galileo	**E1**	3.5	4.0	< 1.0
	E5a	3.5	4.0	< 1.0
	E5b	4.0	4.5	< 1.0
	E6	-	-	-
BeiDou	**B1**	3.5	4.0	< 1.0
	B2	4.0	4.5	< 1.0
	B2a	3.5	4.0	< 1.0
	B3	-	-	< 1.0
IRNSS / NavIC	**L5**	3.5	4.0	< 1.0
QZSS	**L6**	-	-	-
L-band correction services		3.8	4.3	< 1.0
Satellite Communications				
Iridium		-		-
Globalstar		-		-

Other			
Axial Ratio at 10°	5.0 dB max.	**Efficiency**	> 70%
Phase Centre Variation	± 2 mm typ. (no azi.)	**G/T @10°C (L-band c.s.)**	≥ -25.4 dB/K

Mechanicals

Mechanical Size	90 mm or 106 mm (dia.) x 32.4 mm (h.)
Weight	58g (90 mm) | 69 g (106 mm)
Available Connectors	MCX female
Radome / Enclosure	-
Mount	8x M2 screws

Environmental

Operating Temperature	-45 °C to +85 °C
Storage Temperature	-55 °C to +95 °C
Mechanical Vibration	MIL-STD-810E - Test method 514.5
Shock and Drop	MIL-STD-810G - Test method 516.6
Salt Fog	-
Low Pressure - Altitude	-
IP Rating (housing)	-
Compliance	IPC-A-610, FCC Part 15, RED / CE Mark, RoHS, REACH

Warranty:

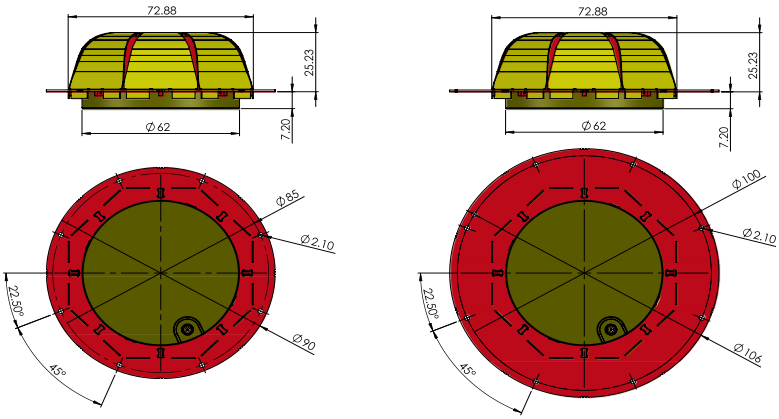
Parts and Labour	1-year standard warranty

Low Noise Amplifier (LNA) - Measured at 3.0 VDC and 25°C

Frequency Bandwith		Out-of-Band Rejection
Lower Band	**1160 - 1255 MHz**	≥ 80 dB @ ≤ 500 MHz ≥ 60 dB @ ≤ 900 MHz ≥ 55 dB @ ≤ 1120 MHz ≥ 14 dB @ ≥ 1290 MHz ≥ 41 dB @ ≥ 1310 MHz ≥ 58 dB @ ≥ 1350 MHz ≥ 65 dB @ ≥ 1390 MHz
L-band corrections services	**1539 - 1559 MHz**	
Upper Band	**1559 - 1606 MHz**	≥ 70 dB @ ≤ 1450 MHz ≥ 52 dB @ ≤ 1480 MHz ≥ 35 dB @ ≤ 1500 MHz ≥ 60 dB @ ≥ 1650 MHz ≥ 74 dB @ ≥ 1700 MHz

Architecture	Pre-filter → LNA stage 1 → filter → LNA stage 2
Gain	28 dB min.
Noise Figure	1.8 dB typ. @ 25 °C
VSWR	< 1.5:1 typ. | 1.8:1 max.
Supply Voltage Range	3.0 to 16 VDC nominal
Supply Current	50 mA typ.
ESD Circuit Protection	15 kV air discharge
P 1dB Output	+ 6.0 dBm
Group Delay Variation	< 10 ns

Mechanical Diagram



***Two ground plane diameters are available: 90 mm and 106 mm.**

Ordering Information

Part Number **33-VSM6328L-xxx**

where xxx = ground plane diameter: 090 = 90 mm | 106 = 106 mm

Please refer to our **Ordering Guide** to review available radomes and connectors at:
https://www.tallysman.com/resource/tallysman-ordering-guide/