SSL889XF

TALLYSMAN®
A CALIAN® COMPANY

SSL889XF Extended-Filter Housed Dual-Band GNSS Low-Profile Antenna

Frequency Coverage: GPS/QZSS-L1/L2, GLONASS-G1/G2/G3, Galileo-E1/E5b, BeiDou-B1/B2b

Overview

The SSL889XF employs Tallysman's unique Accutenna technology providing dual band GPS L1/L2, GLONASS G1/G2/G3, Galileo E1/E5b, and BeiDou B1/B2b coverage and is especially designed for precision dual frequency positioning where light weight is important.

The SSL889XF features a precision tuned, circular dual feed, stacked patch element. The signals from the two orthogonal feeds are combined in a hybrid combiner, amplified in a wide-band LNA, then band-split for narrow XF filtering in each band and further amplified prior to recombination at the output.

The radio frequency spectrum has become more congested as new LTE bands are activated and their signals or harmonic frequencies [e.g. 800MHz x 2 = 1600MHz (GLONASS-G1)] can affect GNSS antennas and receivers. In North America, planned Ligado signals at 1525 - 1536 MHz can especially impact GNSS antennas. New LTE signals in Europe [Band 32 (1452 - 1496 MHz)] and Japan [Bands 11 and 21 (1476 – 1511 MHz)] have also been observed to interfere with GNSS signals. In addition, Inmarsat satellite communication (uplink: 1626.5 - 1660.5 MHz) can also affect GNSS signals. Tallysman's XF antennas have been designed to mitigate out-of-band signals and prevent GNSS antenna saturation. Tallysman's custom XF filtering mitigates all existing signals and new Ligado and LTE signals, enabling the antennas and attached GNSS receivers to perform optimally.

The SSL889XF antenna is available in three mechanical configurations. Configuration 1,2 and 3 as shown.

SSL889XF-1 (Through Hole)

Recommended Ground plane (**Not** Provided)

SSL889XF-2 (Mounting Ring)

SSL889XF-3 (Adhesive Tape)

Applications

- Autonomous unmanned aerial vehicles (UAVs)
- Precision GNSS positioning
- Precision land survey positioning
- Mission-critical GNSS timing
- Marine and avionics systems

Features

- Very low noise preamp (2.5 dB)
- Axial ratio (< 2.0 dB typ.)
- Tight phase centre variation
- High-gain LNA (28 dB typ.)
- Low current (25 mA typ)
- ESD circuit protection (15 kV)
- Invariant performance from 2.5 to 16 VDC
- IP67, REACH, and RoHS compliant

Benefits

- Lightweight (45 g)
- Excellent RH circular polarized signal reception
- Great multipath rejection
- Increased system accuracy
- Excellent signal-to-noise ratio
- Industrial temperature range

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**

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Antenna (Measured with 100 mm ground plane)

Technology Dual-feed Stacked RHCP ceramic patch

		Gain dBic typ. at Zenith	Axial Ratio dB at Zenith
GNSS			
GPS / QZSS	L1	4	≤ 2
	L2	4	≤ 2
	L5	-	-
GLONASS	G1	4	≤ 2
	G2	3	≤ 2
	G3	1	≤ 2
Galileo	E1	4	≤ 2
	E5A	-	-
	E5B	1	≤ 2
	E6	-	-
BeiDou	B1	4	≤ 2
	B2a	3.7	≤ 2
	B2b	-	-
	B3	-	-
IRNSS / NavIC	L5	-	-
QZSS	L6	-	-
L-Band Services (1525 MHz - 1559 MHZ)		-	-
Satellite Communications			
Iridium		-	-
Globalstar		-	-
Phase Centre			
PC Variation		-	
Phase Centre Offset		-	

Mechanicals

Mechanical Size	SSL889XF-1: 61 mm (dia) x 20.3 mm (h) SSL889XF-2: 100 mm (dia)x20.3mm(h) SSL889XF-3: 48.06 (dia)x20.3(h)
Weight	SSL889XF-1: 45 g SSL889XF-2: 68 g SSL889XF-3: 49 g
Radome	EXL-9330
Mount	Configuration 1 and 2: Screw Configuration 3: Adhesive Tape
Available Connectors	MCX Female

Environmental

Operating Temperature	-45 °C to +85 °C
Storage Temperature	-55 °C to +95 °C
Vibration	TBD
Shock	TBD
Salt Fog	TBD
IP Rating	IP67
Compliance	IPC-A-610, FCC, RED / CE Mark, RoHS, REACH

Warranty:

Parts and Labour 3-year standard warranty

Ordering Information

Part Number: 33-SSL889XF-x . Where x=Configuration 1,2 or 3

Low Noise Amplifier (LNA) - Measured at 3V and 25°C

Frequency Bandwith		Out of Band Rejection
Lower Band	1189 - 1255 MHz	> 65 dB @ < 1100 MHz > 72 dB @ < 1000 MHz > 67 dB @ > 1325 MHz
L-Band - Correction Services	N/A	> 55 dB @ < 1500 MHz > 45 dB @ < 1536 MHz > 70 dB @ > 1621 MHz
Upper Band	1559 - 1606 MHz	

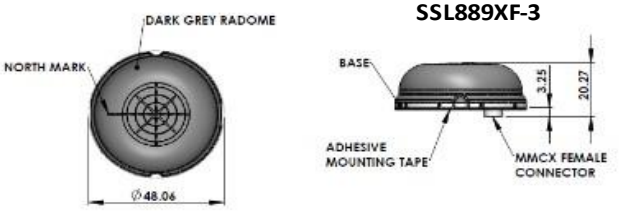
Architecture	Pre-filter → LNA stage 1 → filter → LNA stage 2
Gain	28 dB typ
Noise Figure	2.5 dB typ. @ 25 °C
VSWR	< 1.5:1 typ. | 1.8:1 max.
Supply Voltage Range	2.5 to 16 VDC nominal, up to 50mV p-p ripple
Supply Current	25 mA typ. @ 25 °C
ESD Circuit Protection	15 kV air discharge.
P 1dB Output	10dBm

Mechanical Diagram

SSL889XF-1

SSL889XF-2

SSL889XF-3



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Revision: 20230406

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Calian:

33-SSL889XF-1