

# SSL889XF



## 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 (Screws)



SSL889XF-2 (Mounting Ring)

Recommended  
Ground plane  
(**Not** Provided)



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](http://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
<b>GNSS</b>			
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)		-	-
<b>Satellite Communications</b>			
Iridium		-	-
Globalstar		-	-
<b>Phase Centre</b>			
PC Variation		-	
Phase Centre Offset		-	

## Mechanicals

<b>Mechanical Size</b>	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)
<b>Weight</b>	SSL889XF-1: 45 g SSL889XF-2: 68 g SSL889XF-3: 49 g
<b>Radome</b>	EXL-9330
<b>Mount</b>	Configuration 1 and 2: Screw Configuration 3: Adhesive Tape
<b>Available Connectors</b>	MCX Female

## Environmental

<b>Operating Temperature</b>	-45 °C to +85 °C
<b>Storage Temperature</b>	-55 °C to +95 °C
<b>Vibration</b>	4h - X, Y, Z - 3G
<b>Shock</b>	Z: 50g/11ms - X,Y: 30G/11ms
<b>IP Rating</b>	IP67
<b>Compliance</b>	IPC-A-610, FCC, RED / CE Mark, RoHS, REACH

## Warranty:

<b>Parts and Labour</b>	3-year standard warranty
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## 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 Bandwidth		Out of Band Rejection
<b>Lower Band</b>	1189 - 1255 MHz	> 65 dB @ < 1100 MHz > 72 dB @ < 1000 MHz > 67 dB @ > 1325 MHz
<b>L-Band - Correction Services</b>	N/A	> 55 dB @ < 1500 MHz > 45 dB @ < 1536 MHz > 70 dB @ > 1621 MHz
<b>Upper Band</b>	1559 - 1606 MHz	

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

## Mechanical Diagram

