CR8894SXF+

CALIAN
Confidence. Engineered.

Anti-Jam Four Element Controlled Reception Pattern Antenna (CRPA)

Frequency Coverage: GPS L1, L2 | GALILEO E1, E5b | BEIDOU B1, B2b | GLONASS G2, G3

Calian's CR8894SXF+ GNSS Controlled Reception Pattern Antenna (CRPA) can mitigate/null one (1) interference or jamming signals in both the lower (1189 - 1254 MHz) and upper (1559 - 1591 MHz) GNSS bands for a total of two (2) nulls. The CR8894SXF+ is a 4-element CRPA designed for dual-band Global Navigation Satellite System (GNSS) signal reception. It supports GPS L1/L2, Galileo E1/E5b, GLONASS G2/G3, and BeiDou B1/B2b signal bands. The wide bandwidth antenna elements also support GPS M-Codes on both L1 and L2.

Interference or jamming can saturate a standard GNSS antenna's Low Noise Amplifier (LNA), making it unusable. Calian's CR8894SXF+ uses two interference-mitigating technologies: eXtended Filtering+ (XF+) and Controlled Reception Pattern Antenna. XF+ features > 80 dB of out-of-band rejection from 400 MHz to 3000 MHz and separates the LNA's upper and lower signal amplification channels, if one channel is jammed the other remains usable. CRPA technology creates radiation pattern nulls in the direction of the interference/jammer, preventing LNA saturation and ensuring a usable GNSS signal. The output is a standard RF signal with the interference removed and a signal that is compatible with all Commercial Off The Shelf (COTS) GNSS receivers.

The CR8894SXF+ uses Tallysman Accutenna® technology and a low-power analog interference detection and mitigation methodology. It integrates the antenna, null-forming, and interference mitigation technology into a compact, lightweight surface-mount enclosure. Two serial interfaces are provided: one supports RS232, the other RS422. These interfaces output NMEA messages that contain jamming detection, mitigation status, jammer band, and direction relative to the antenna, enhancing situational awareness.

The lightweight, waterproof (IP69K) rugged enclosure withstands harsh conditions, including military, drone, and vehicle applications. The CR8894SXF+ CRPA is surface-mounted using four screws. A standard RF connector (SMA or TNC) and serial interface connectors are centrally located, properly sealed to prevent water ingression.

A future version of CR8894SXF+ antenna will support three (3) nulls per band.

Trust Calian to provide a clean RF signal in a noisy RF world.

Applications

- Critical Timing
- Navigation in contested environs
- Critical Infrastructure GNSS (airports, etc.)
- Law enforcement and public safety

Features

- Dual band GNSS signal support
- Supports eXtended Filtering+ (XF+) providing sharp out-of-band signal rejection
- Up to 20-40 dB null depth
- Serial interface provides state information and estimated jammer direction
- IP69K water proof housing

Benefits

- Compatible with standard GNSS receivers
- Very low power consumption (140 mA)
- Small, lightweight, and low-profile form factor makes it ideal for many uses
- Supports situational awareness, indicates CRPA state: jamming observed/mitigated, frequency, and direction

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

Contact us:
info.gnss@calian.com
T: +1 613 591-3131

Revision: 202506

Anti-Jam Four Element Controlled Reception Pattern Antenna (CRPA)

Frequency Coverage: GPS L1, L2 | GALILEO E1, E5b | BEIDOU B1, B2b | GLONASS G2, G3

Antenna

Technology	Quad-element dual-feed stacked patch CRPA

		Coverage Map
GNSS		
GPS / QZSS	L1	✓
	L2	✓
	L5	-
GLONASS	G1	-
	G2	✓
	G3	✓
Galileo	E1	✓
	E5A	-
	E5B	✓
	E6	-
BeiDou	B1	✓
	B2b	✓
	B2a	-
	B3	-
IRNSS / NavIC	L5	-
QZSS	L6	-
L-Band Services (1525 MHz - 1559 MHz)		-
Satellite Communications		
Iridium		-
Globalstar		-

Other			
Elements	4	Serial Interface	RS232, RS422
Nulls (per band)	1	Null Depth	20 - 40 dB

Mechanicals

Size	137 mm (L, W) x 48.8 mm (H)
Weight	535 g
Radome	Radome: Thermoplastic, Base: Aluminum
Mount	M5 Screw Through Holes x4
Available Connectors	SMA or TNC Female

Environmental

Operating Temperature	-40 °C to +85 °C
Storage Temperature	-55 °C to +95 °C
Vibration	TBD
Shock	TBD
Salt Fog	TBD
IP Rating	IP69K
Compliance	IPC-A-610, FCC, RED / CE Mark, RoHS, REACH

Warranty

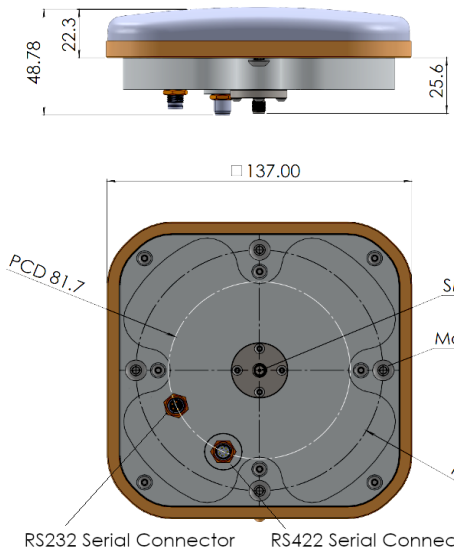
Parts and Labour	3-year standard warranty

Low Noise Amplifier (LNA) - Measured at 5V and 25°C

Frequency Bandwidth		Out of Band Rejection
Lower Band	1189 - 1254 MHz	> 65 dB @ < 1100 MHz > 72 dB @ < 1000 MHz > 67 dB @ > 1325 MHz
L-Band Corr.	-	
Upper Band	1559 - 1591 MHz	> 55 dB @ < 1500 MHz > 45 dB @ < 1536 MHz > 70 dB @ > 1621 MHz

Architecture	eXtended Filtering+ (XF+)
Gain	28 dB or 37 dB typ.
Noise Figure	3.0 dB typ.
VSWR	< 1.5:1 typ., 1.8:1 max.
Supply Voltage Range	5 to 16 VDC nominal, up to 50mV p-p ripple
Supply Current	140 mA max.
ESD Circuit Protection	15 kV air discharge
P 1dB Output	10 dBm typ.
Power Input	Over RF or Serial port

Mechanical Diagram - Units in 'mm'



Ordering Information

Part Number **33-CR8894SXF+-XX-YY-W-1**

Where XX = gain, 28 dB or 37 dB
YY = female connector: 01 = TNC or 07 = SMA
W = 1 for static, 2 for kinematic

Please refer to our **Ordering Guide** to review available radomes and connectors at:
https://at.calian.com/gnss/information-support/part-number-ordering-guide/

Revision: 202506