

HCS885EXF



HCS885EXF Embedded Smart GNSS Helical Antenna for Precise Heading

Overview

The HCS885EXF is a multi-band (L1/L5), multi-constellation integrated GNSS receiver/antenna with RTK corrections and PointPerfect® PPP-RTK augmentation compatibility. The HCS885EXF is capable of providing sub 1 meter accuracy stand alone, sub 6 cm accuracy with PPP-RTK corrections and sub 1 cm with RTK corrections. It is capable of moving base RTK Precise Heading, and can act as either base or rover. It is based on the Calian HC885SXF antenna, making it light-weight and very suited for unmanned aerial vehicle (UAV) applications that require precise location and precise heading.

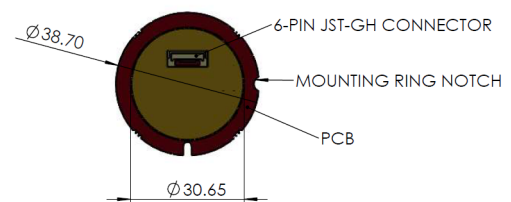
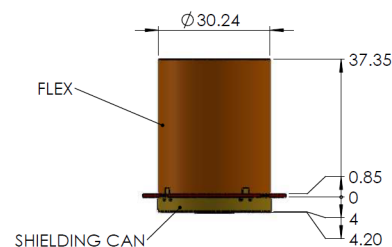
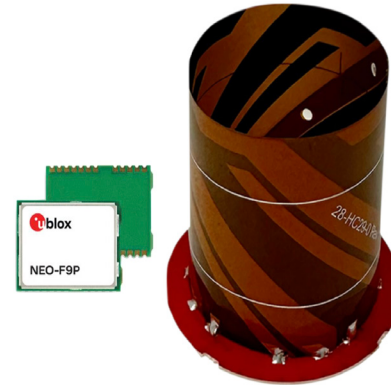
Interference Resilience

The HCS885EXF incorporates a latest generation multi-band (L1/L5) GNSS receiver IMU with a Tallysman precision tuned multi-band (L1/L5) helical antenna that provides excellent axial ratios and operates without the requirement for a ground plane. The state of the art GNSS receiver supports concurrent tracking of all four major constellations (GPS, BeiDou, Galileo and GLONASS) in multiple frequency bands. The concurrent multi-band (L1/L5) access to all four satellite constellations improves the receiver's convergence capability to deliver a quick, precise and reliable position solution.

The multi-band architecture is the most effective method for the removal of ionospheric error, and the L5 band provides superior interference and multipath performance vs. L2. The HCS885EXF employs Tallysman eXtended Filter (XF) technology which mitigates near-band and out-of-band interference such as LTE signals and their harmonics, enabling operation in the most challenging deployments.

PPP-RTK, RTK and Precise Heading

The HCS885EXF supports PointPerfect PPP-RTK augmentation, over network connections, and RTK base/rover capability, with moving base RTK Precised Heading, particularly useful for UAV and robotic applications. The HCS885EXF can be configured as a multi-receiver base/rover pair. Combining fast survey-in of the base unit with moving base RTK enhances the location accuracy as well as the heading accuracy. HCS885EXF mounts fluxh with three threaded inserts for secure attachment and provides a rubber O-ring around the outer edge for seal. Control, corrections and position output are delivered via a 6 pin JST receptacle connector inset into the base.



Features

- Improved noise immunity with multi-band u-blox NEO F9P GNSS receiver
- PointPerfect PPP-RTK (networked)
- RTK Base/Rover configurations and Moving Base RTK Precise Heading
- Excellent Right-Hand circular polarized signal reception
- Multi-band GNSS receiver has high resilience to ionospheric errors
- Light-weight precision-tuned helical element; with excellent axial ratios and Calian's Tallysman eXtended Filtering
- 5V operation
- CMOS signalling with RS232 option
- Custom tuning to OEM enclosure
- Surface mount
- 6-pin JST port for Pixhawk framework compatibility

HCS885EXF Smart GNSS Antenna

Specifications

Antenna		Environmental	
Architecture.....	Multi-band (L1/L5), Helical	Operating Temperature.....	-40°C to +85°C
Axial Ratio.....	≤ 0.5 dB at Zenith	Storage Temperature.....	-40°C to +85°C
PCV.....	±3 mm	Weatherproof	IP67
Frequencies.....	GPS/QZSS: L1 C/A, L5; GLO: L10F; GAL: E1-B/C, E5a; BDS: B1I & B2a	Shock.....	Vertical axis 50G, other axis 30G 3 axis sweep – 15 min
SBAS L1 C/A.....	WAAS, EGNOS, MSAS L1Sb, GAGAN	Vibration.....	10-200 Hz log sweep 3G
Channels.....	184-channel u-blox F9 engine	Sensitivity (4 Constellations)	
Anti-jamming	Active Continuous Wave detection	Tracking & Nav	-167 dBm
Interface		Reacquisition	-160 dBm
Pwr, Gnd		Hot starts	-157 dBm
HCS885EXF-29.....	Data, opt. timepulse or TX2/RX2: RS-232	Cold starts	-148 dBm
HCS885EXF-49.....	Data, opt. timepulse or TX2/RX2: CMOS	Acquisition	
Connector	6 Position JST Receptacle Connector, 1.25mm	Cold start	27 sec
Serial Protocol		Aided start	3 sec
Output.....	NMEA 0183, UBX Binary, RTCM v3.3, SPARTN v2.0	Reacquisition	3 sec
Baud Rate.....	Configurable	Position and Velocity Accuracy (4 Constellations)	
Update Rate (PVT)	7 Hz (4); 8 Hz (GPS+GAL+BDS); 18 Hz (GPS+GAL); 20 Hz (GPS+GLO); 11 Hz (GPS+BDS); 25 Hz (GPS)	Horizontal PVT/SBAS/RTK (CEP)	1.5m/ 1.0m/ 0.01+1ppm
Mechanical		Horizontal PPP-RTK (CEP)	<0.1m SPARTN;
Dimensions	38.75 mm dia. x 41.11 mm H	Vertical PVT/SBAS/RTK (R50)	2.0m/ 1.5m/ 0.01m+1ppm
Weight.....	8 g	Vertical PPP-RTK (R50)	<0.20m SPARTN;
Mounting Method	Customer Defined	Typical Convergence.....	<12s RTK; <65s SPARTN;
Cable Length.....	no cable	Velocity accuracy.....	0.05m/s
Electrical		Heading	
Voltages	5 VDC	Dynamic Heading Accuracy	0.3°
Current	TBD	Precise Heading Accuracy	TBD
Ordering Information:		Timing	
33-HCS885XF-29-PC0 (JST 6 pos. receptacle, 1.25mm; Data, opt. Timepulse, TX2,RX2: RS-232; PC0 = NMEA out, no adaptor cable.)		Timing Accuracy.....	
33-HCS885XF-49-PC0 (JST 6 pos. receptacle, 1.25mm; Data, opt. Timepulse, TX2,RX2: CMOS; PC0 = NMEA out, no adaptor cable.)		30 ns RMS	

Ordering Information:

33-HCS885XF-29-PC0 (JST 6 pos. receptacle, 1.25mm; Data, opt. Timepulse, TX2,RX2: RS-232; PC0 = NMEA out, no adaptor cable.)
33-HCS885XF-49-PC0 (JST 6 pos. receptacle, 1.25mm; Data, opt. Timepulse, TX2,RX2: CMOS; PC0 = NMEA out, no adaptor cable.)

33-HCS885EXF-29-PC0 SDK Test Adaptor required for programming
33-HCS885EXF-49-PC0 SDK Test Adaptor required for programming

33-0095-13 (5V RS-232)
33-0095-7 (5V CMOS)

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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