



LEA-4H

SuperSense™ GPS Receiver Module ANTARIS® 4 Positioning Engine

PRELIMINARY

Overview

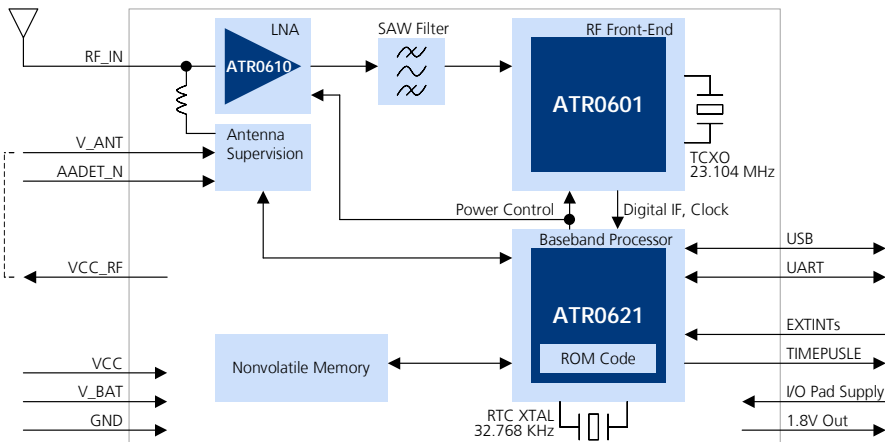
The LEA-4H module combines high sensitivity, exceptionally low power consumption and a USB port in a small module measuring just 17 x 22 mm. The -158 dBm tracking sensitivity extends positioning coverage into places where GPS was not possible before, and enables solutions using smaller or covert antennas.



17 x 22.4 x 3 mm

Its small form factor and SMT pads allow for fully automatic assembly processes with standard pick-and-place equipment and reflow soldering, enabling cost-efficient, high-volume production. The combination of these features makes this module suitable for a broad spectrum of GPS products whose key requirements include high sensitivity, low power consumption and small size.

Block Diagram



New with ANTARIS 4

- 38mA supply current (Power reduction by more than 35% compared to predecessor modules)
- USB connectivity
- Same functionality in 40% smaller footprint
- Significantly lower battery backup current
- Configurable I/O and UART voltage levels
- RoHS compliant (lead-free)

Key Features

- SuperSense Indoor GPS
- 16 channel ANTARIS 4 positioning engine
- 1 Hz position update rate
- Assisted GPS (MS-Assisted, MS-Based)
- DGPS and full SBAS (WAAS, EGNOS) support
- FixNOW™ power saving mode
- Supports passive and active antennas
- Antenna short and open circuit detection and protection
- Operating temperature range: -40 to 85°C
- Optional Features:
 - Output of raw tracking data, max. 10 Hz
 - 2-channel precision time mark / counter

*your position
is our focus*



Receiver Performance Data

Receiver Type	16 channel, L1 frequency, C/A code
Max. Update Rate	1 Hz
Accuracy	Position 2.5 m CEP DGPS / SBAS 2.0 m CEP ¹
Start-up Times ²	Hot start <3.5 sec Warm start 33 sec Cold start 34 sec Aided start 5 sec Reacquisition < 1 s
Sensitivity	Tracking -158 dBm Acquisition & Reacquisition: -148 dBm Cold starts: -142 dBm
Timing Accuracy	RMS 50 ns 99% <100 ns
Raw Tracking Data (Optional)	Carrier Phase Code Phase Doppler Measurements
Operational Limits	Altitude 18,000 m Velocity 515 m/s One of the limits may be exceeded but not both.

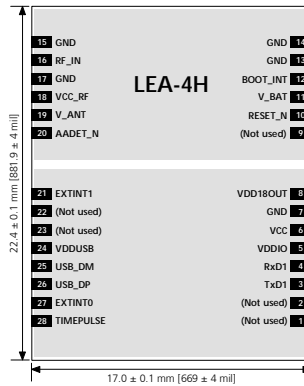
¹ Depends on accuracy of correction data provided by the DGPS or SBAS service

² Measured with good visibility and -125 dBm signal strength

Environmental Data

Operating Temp.	-40°C to 85°C
Storage Temp.	-40°C to 125°C
Vibration	5 Hz to 500 Hz, 5g (IEC 68-2-6)
Shock	Half sine 30g / 11ms (DIN 40046-7)

Mechanical Data



Interfaces

USB	V1.1 (V2.0 compatible)
Serial Ports	1 UART
Digital I/O	Configurable time pulse 2 EXTINTs inputs for time mark / counter (optional)
Serial and I/O Voltages	Configurable output levels between 1.65 and 3.6V 5V tolerant inputs
Protocols	NMEA, UBX binary, RTCM Supports protocol mixing over same serial port

Electrical Data

Power Supply	2.7 – 3.3 V
Power Consumption	typ. 39 mA @ 3.0 V typ. 38 mA @ 2.7 V Sleep mode: typ. 80 µA
Backup Power	1.5 V – 3.6 V, typ. 5 µA
Antenna Power	External or Internal VCC_RF
Antenna Supervision	Integrated short-circuit detection and antenna shutdown, open circuit detection is supported with AADDET_N input and little external circuitry

Support Products

ANTARIS 4 SuperSense EvalKit	An easy-to-use kit to get familiar with the SuperSense technology on ANTARIS 4 platforms, to evaluate functionality and to visualize GPS performance.
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Ordering Information

LEA-4H-0-000-0	LEA-4H – SuperSense™ GPS Receiver Module
	Delivery Packing 0 = Single samples 1 = Tape on reel (100 pieces)

Parts of this product are patent protected.