

LEA-4H PRELIMINARY

SuperSense™ GPS Receiver Module

ANTARIS® 4 Positioning Engine

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.

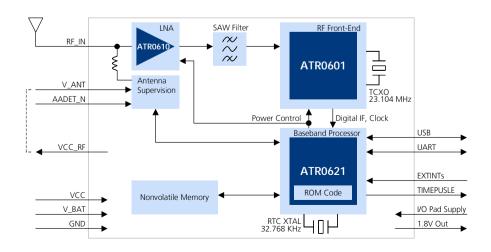
Block Diagram

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 Altitude 18,000 m

Limits Velocity 515 m/s

One of the limits may be exceeded but not both.

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)

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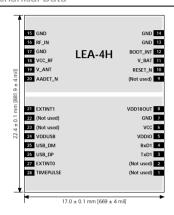
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Mechanical Data



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

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.

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 uA

Antenna Power External or Internal VCC_RF

Antenna Supervision Integrated short-circuit detection and antenna shutdown, open circuit detection is supported with AADET_N input and little external circuitry

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.

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