



TIM-4A

Low-Cost GPS Receiver Module ANTARIS® 4 Positioning Engine

Preliminary Data

Overview

The TIM-4A is a low-cost GPS module featuring the new u-blox 16-channel ANTARIS 4 technology that provides high receiver performance at low power consumption levels. The ANTARIS 4 GPS engine offers excellent navigation performance in the most challenging metropolitan areas.



25.4 x 25.4 x 3 mm

It shares the 25.4 x 25.4 x 3 mm industry standard form factor with its predecessors, the TIM-LA and the TIM-LC. Its 35% reduction in power consumption means extended battery life for portable, handheld consumer devices. Finally, its small form factor and SMT pads are designed for fully automatic assembly processes with standard pick-and-place equipment and reflow soldering, enabling cost-efficient, high-volume production.

New with ANTARIS 4

- 34 mA supply current (Power reduction by more than 35% compared to predecessor modules)
- Significantly lower battery backup current
- RoHS compliant (lead-free)

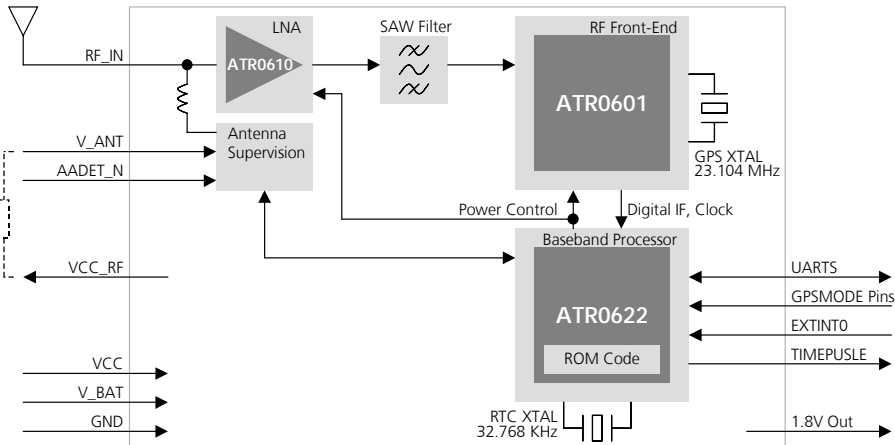
Key Features

- 16 channel ANTARIS 4 positioning engine
- 4 Hz position update rate
- Assisted GPS (MS-Assisted, MS-Based)
- DGPS and full SBAS (WAAS, EGNOS) support
- FixNOW™ power saving mode
- 5 Boot time configuration pins
- Supports passive and active antennas
- Antenna short and open circuit detection and protection
- Operating temperature range: -40 to 85°C

*your position
is our focus*



Block Diagram



Receiver Performance Data

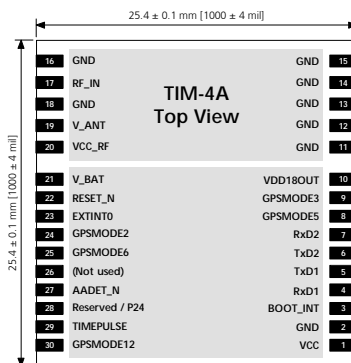
Receiver Type	16 channel, L1 frequency, C/A code	
Max. Update Rate	4 Hz	
Accuracy	Position	2.5 m CEP
	DGPS / SBAS	2.0 m CEP ¹
Start-up Times	Hot start	<3.5 sec
	Warm start	33 sec
	Cold start	34 sec
	Aided start	5 sec
	Reacquisition	< 1 s
Sensitivity	Acquisition	-140 dBm
	Tracking	-150 dBm
Timing Accuracy	RMS	50 ns
	99%	<100 ns
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

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

Serial Ports	2 UARTs
Digital I/O	Configurable time pulse EXTINT0 input for time mark / counter (optional)
Serial and I/O Voltages	3 V levels, 5 V tolerant inputs
Configuration	5 GPSMODE Pins to choose from different boot time configurations
Protocols	NMEA, UBX binary, RTCM Supports protocol mixing over same serial port

Support Products

AEK-4P	An easy-to-use kit to get familiarized with the ANTARIS 4 positioning technology, to evaluate functionality and to visualize GPS performance.
ANTARIS 4 GPS Evaluation Kit	

Electrical Data

Power Supply	2.7 – 3.3 V
Power Consumption	typ. 35 mA @ 3.0 V typ. 34 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 AADET_N input and little external circuitry

Ordering Information

TIM-4A-0-000-0	TIM-4A – Low-Cost GPS Receiver Module
	<u>Delivery Packing</u> 0 = Single samples 1 = Tape on reel (100 pieces)

Parts of this product are patent protected.

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