

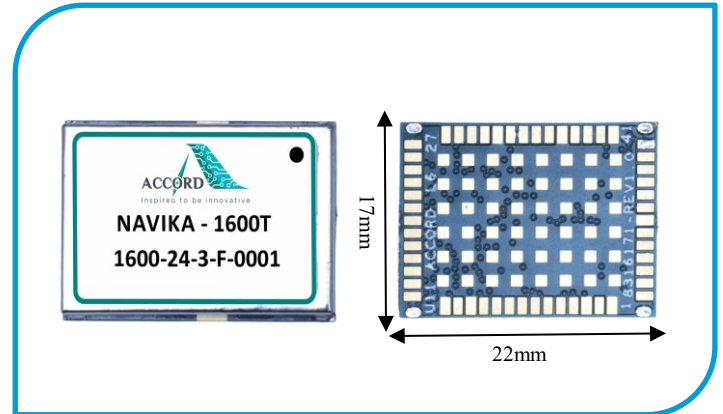
NAVIKA-1600T

Multi Band High-precision GNSS Timing Module



KEY FEATURES:

- 17mm x 22mm module form-factor
- Processes signals from multiple constellations across L1 and L5 frequency bands
- Supports 116 channels
- Fast Time-To-First Fix
- All-in-view positioning
- Precise 1PPS output with configurable pulse characteristics
- Standard 10MHz Frequency output.
- Holdover: Better than 10 ppb over 24 hours
- Single 3.3V input supply
- Multipath mitigation
- Timing Integrity - TRAIM
- Anti-Jamming & Anti- Spoofing
- Edge castellations for easy assembly



APPLICATIONS:




- Financial Trading
- Synchronization of power grid
- Internet Infrastructure
- Cellular systems
- Railway Networks



PRODUCT DESCRIPTION:

The Navika-1600T is a compact and high-performance solution designed for precise time and frequency synchronization across various satellite constellations, including GPS, GLONASS, GALILEO, BEIDOU (L1 band), and NavIC (L5 band). Its small 17 mm x 22 mm form-factor facilitates easy integration into space-constrained designs. Featuring a dedicated timing block, the module delivers exceptionally accurate time outputs and synchronized frequency signals aligned to the 1PPS edge with sub-2.5 nanosecond precision, crucial for applications needing stable 10 MHz references or precise 1PPS pulses.

Performance metrics include a hot start time-to-first-fix (TTFF) of 1-2 seconds, a robust -165 dBm tracking sensitivity, and sub-1.5 meter position accuracy. These qualities cater to critical timing and demanding GNSS receiver needs, ensuring reliability in various environments.

The Navika-1600T supports industry-standard interfaces (UART, I2C, SPI) for seamless communication with external devices. It includes advanced signal protection features like robust spoofing detection for unauthorized signals and alerts for high-power jamming threats. Additionally, it mitigates LTE B13 signal effects, enhancing operational reliability. Combined with TRAIM technology, the module maintains integrity in time and frequency outputs, meeting stringent reliability standards across synchronization applications.   

❖ SPECIFICATIONS FOR NAVIKA-1600T

▪ Performance Characteristics

Receiver	L1 - GPS/GALILEO/SBAS/GLONASS/BeiDou L5 - NavIC 64 tracking, 52 acquisition channels
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▪ Sensitivity

Acquisition	-146 dBm (Cold start)
Reacquisition	-153 dBm
Tracking	-165 dBm

▪ Time to First Fix

Hot Start (with valid ephemeris, almanac, position and time estimate)	1-2 sec (typical) switch OFF/ON cycle less than 1 hour
Warm Start (with almanac, position and time estimate)	30 sec (typical)
Cold Start (without almanac, time, or position)	30 sec (typical)

▪ Accuracy

Position (Horizontal, combined)	1.5 m (CEP50 @ -130dBm, with SBAS)
Velocity	0.1 m/sec (RMS)

▪ Security Features

Anti Jamming & Anti Spoofing	Supported
Multipath Mitigation	Supported

▪ Navigation Solution

PVT	2D/3D position, velocity, and time (WGS84)
Position Update Rate	1 Hz
Altitude	18,000 meters

▪ Time and Frequency

1PPS Accuracy	< 5ns Absolute Timing Mode
Time Pulse Jitter	< 5ns
Frequency output	Programmable from 10Hz to 10MHz
Pulse Width	5ms (default)
Pulse Edge	Rising (configurable)
Pulse Delay	0ns (adjustable between -999 to +999ns)
Holdover	Better Than 10 ppb over 24 Hours

▪ PC/Host Communication

Interface	UART
Baud Rate	Adjustable: 4800 – 230400bps Default: 115200
Message Formats	NMEA0183 Ver. 4.11, ACCORD Proprietary ASCII

▪ Environmental Characteristics

Operational Temperature Range (Ambient)	-40°C to +85°C
Storage Temperature Range	-40°C to +85°C
Humidity	95% non-condensing, +30°C to 60°C

▪ Electrical Characteristics

Total Current Consumption	70mA @ 3.3V (acquisition + tracking)
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▪ Output Messages

NMEA	GGA/GNS, GSA, RMC, GLL, GSV, VTG, ZDA
ASCII	Version, PPS Configuration, Antenna Status

▪ Input Messages

ASCII	NMEA message control and configuration, Elevation mask, DOP settings, Factory reset, 1PPS configuration
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