

ALTM GEN 3

Embedded Iridium STL Module for continuously available situational awareness



GPS Independent PNT

LEO-Based Position & Timing for GPS-Denied Environment



Embeddable

Intended for Third-Party Integration



Inertial Measurement

On-Board Inertial Measurement Unit for Enhanced Dynamic Capability

Alternative Location Timing Module (ALTM)

Alternative Location and Timing Module (ALTM) GEN3 is a powerful, small-form factor solution that delivers continuous access to Position, Navigation, and Timing (PNT) information. A low size, weight, and power (SWaP) device, ALTM GEN3 is ideal for dismounted, ground-vehicle, and airborne operations.

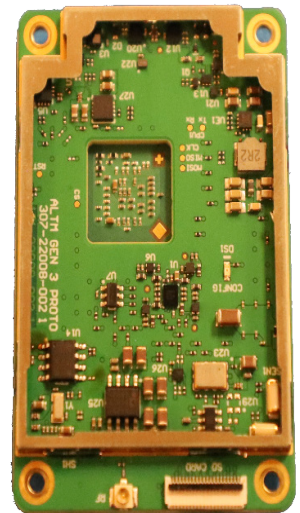
This embedded Iridium STL module utilizes a signal 1000x stronger than GPS, reliably providing accurate timing, location, and data when GPS fails, even indoors and in jammed/spoofed environments. An inertial measurement unit (IMU) and tightly coupled Kalman filter (TCKF) enable enhanced performance in dynamic situations and can be bypassed if not needed.

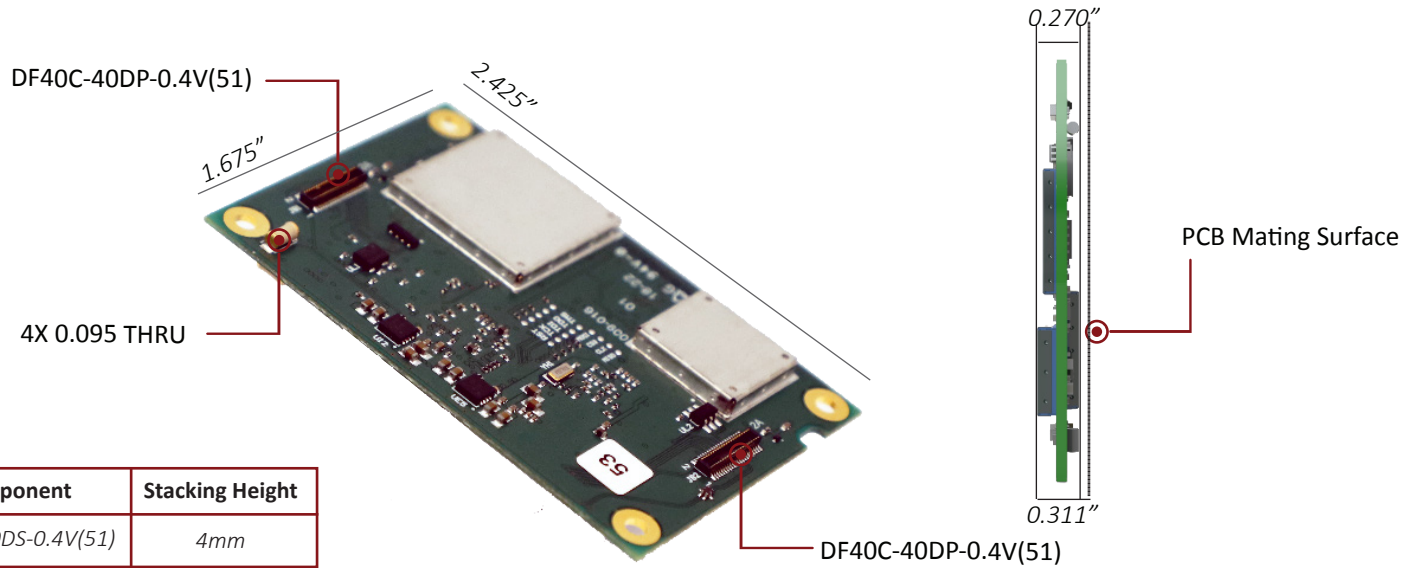
ALTM GEN3 contains a satellite receiver, a UART for serial input of high-accuracy commercial or military GPS, a UART serial port for data I/O, an IMU, and a 1-PPS timing signal output. For easy integration and robust operation, ALTM GEN3 uses one 40-pin Hirose connector with power and digital interfaces for PNT messages.

Key Benefits:

- 1) Typical static position accuracy < 25 m
- 2) Integrated IMU (Inertial Aided PNT) and Kalman filter
- 3) Choice of IS-GPS-153 or NMEA message format
- 4) External GNSS pass-through allows ALTM to be added to existing products with GNSS without an additional UART
- 5) Approximately 1.5W power consumption and < 26 cm² (< 4.0 in²)
- 6) Timing accuracy

ALTM GEN 3





Mating Component	Stacking Height
DF40HC-(4.0)-40DS-0.4V(51)	4mm

Optional development kit includes*:

- ALTM GEN2 mini receiver module
- USB Micro-B data cable (6')
- ALTM development board
- SAF7352-IF, dual Iridium®/GPS antenna
- Onboard uBlox GNSS receiver
- BNC male: MCX male coax cable, RG-316 (19.69")
- AC adapter, wall mount, 90-264VAC
- 20-Hours engineering support

*Receiver sold separately. Complete development kit available upon request.

Device Specifications

Weight:	0.455 oz (12.9 g)
Dimensions:	2.425" x 1.675" x 0.270" (61.6 x 42.5 x 6.86 mm)
Interface connector:	2x Hirose DF40C-40DP-0.4V(51)
Mating connector:	Hirose DF40HC-(4.0)-40DS-0.4V(51)
AltNav RF connector:	U.FL connector receptacle, Male, Surface mount
Mounting:	4x Mounting holes, 0.095" OD
Operating temperature:	-40°F to +185°F (-40°C to +85°C)
Input voltage range:	4.0 - 5.5 VDC
Avg. power:	1.05 ± 0.1W
Avg. current consumption:	210mA @ 5.0 VDC
Recommended antenna:	Passive Iridium Helical
Position accuracy:	
<i>Static position accuracy:</i>	Typically < 25m, with 400 BPM and C/No > 65
<i>Dynamic position accuracy:</i>	Typically < 200m, depending on dynamics of motion, with 400 BPM and C/No > 65
Timing accuracy:	< 300ns RMS
Startup time:	1.05 ± 0.1W
<i>Cold start:</i>	Typical 3 - 5 minutes to < 50m
<i>Hot start:</i>	Typical 2 - 3 minutes to 50m, Initial guess

NAL has implemented 12 messages compliant to the IS-GPS-153 protocol specification. These consist of standard IS-GPS-153 messages and 153 messages providing specific satellite vehicle information.