



L3HARRIS™
FAST. FORWARD.

TRUTRAK®-M TYPE II

M-Code GPS Receiver

APPLICATIONS MODULE (GB-GRAM-M) TYPE II

L3Harris' Type II meets or exceeds the Modernized GPS User Equipment (MGUE) technical requirements document and provides additional capabilities in a smaller, lighter weight and cost-optimized form factor. The Type II standard offer hosts the same M2GRAM and MGUE capability as the GB-GRAM Type I. The Type II offers the warfighter backwards compatibility to the Y-code signal as well as the advantage to use the modernized M-code signal. Tracking either signal delivers assured precise positioning and timing with protection against GPS jamming and spoofing for successful military operation. TruTrak-M Type II is integrated on ground, undersea, low-dynamic airborne and launch / low earth orbit platforms.

CHARACTERISTICS	
Physical	
Size	2.45"L x 1.76"W x 0.392"H
Weight	38 grams
Primary Voltage	3.3V +/-200mV
Auxiliary Voltage	3.3V +/-200mV
Digital Connector	Samtec SFM-*140-L2-S-D-LC
RF Connector	Huber-Shuner 85-MMCX-50-0-1
Environmental	
Temperature (operating)	-40°C to +85°C
TTF (seconds)	
Time Maintenance	2.1 mW
Standby	930 mW
Acquisition	<2 W (average) <6 W (peak)
Tracking (L1 Only mode)	1.3 W
Tracking (L1/L2 mode)	1.6 W
PERFORMANCE	
Measurement Error	
PR	< 2.59 m
DRR	< 0.03 m/s
CP (zero baseline)	< 3 mm
Time (UTC)	< 52 ns
Sensitivity (dBm)	
Cold Start	-140 dBm
Warm Start	-143 dBm
Hot Start	-143 dBm (Y), -140 dBm (M)
Tracking	-152 dBm
TTF (seconds)	
Hot Start	< 10 s
Warm Start	< 15 s
Cold Start	< 60 s
Reacquisition (10s outage)	< 5 s
Reacquisition (15m outage)	< 15 s



KEY FEATURES

- > Tracking C/A, Y-, and M-code signals on L1 and L2 frequencies
- > Backwards compatibility to Type I/II SAASM-based GPS
- > Small (1/2 Type I) form factor size with same connector
- > Direct Y-code and M-code acquisition
- > Unclassified when keyed
- > Anti-jamming and anti-spoofing for assured solutions in adversary threat environments
- > Hot start for either Y-code or M-code
- > Field re-programmable
- > Security certified and approved

INTERFACES

Available I/O

UART	4 (921 KBps)
GPIO	<i>Available as an option</i>
SPI	<i>Available as an option</i>
SDLC / AMRAAM	<i>Available as an option</i>
Time Events	1pps in / 1pps or 10pps out

Communication Ports

RS-232	Up to 230 KBps
Keying	EKMS
80 Pin	GB-GRAM standard

TruTrak®-M Type II

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Prior USG Approval not required.

TruTrak-M Type I information cleared by DOPSR for public release under DOPSR case no. 17-S-1648 on May 10, 2017. Remaining item(s)/Data have been reviewed in accordance with the International Traffic in Arms Regulations (ITAR), 22 CFR part 120.11, and the Export Administration Regulations (EAR), 15 CFR 734(3)(b)(3), and may be released without export restrictions.

L3Harris Technologies is an agile global aerospace and defense technology innovator, delivering end-to-end solutions that meet customers' mission-critical needs. The company provides advanced defense and commercial technologies across air, land, sea, space and cyber domains.



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