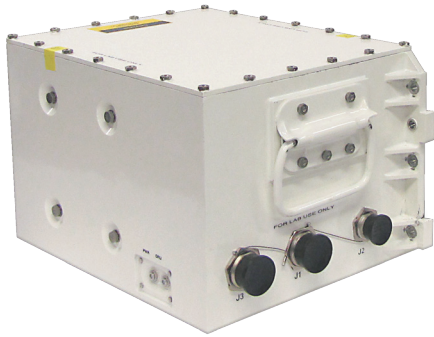


DATASHEET | JULY 2022

Transforming Navigation



Applications

- Currently used on Paladin (M109A6 and M109A7), Firefinder (AN/TPQ-36 and AN/TPQ-37) and Long-Range Air Surveillance Radar (AN/TPS-59)
- Pointing and Position Information for Soldiers
- Direct and Indirect Fires, Counter-fire and Air-Surveillance Radar Operations
- Manned, Unmanned, Rotational Platforms, Wheeled and Tracked Vehicles, Extreme Gunfire Shock, Battlefield and Shipboard Environments

Key Performance Features

- High-Performance RL34 Ring Laser Gyros
- Common Architecture and Components (MLRS, HIMARS, IPADS)
- GPS-aided Using Customer-provided Defense Advanced GPS Receiver (DAGR) or Optional Embedded SAASM
- Impervious to Jamming (inertial mode)
- Resistant to Jamming (GPS-aided mode)
- Combat-Proven Heritage; Fully Qualified/ U.S. Government Tested
- Embedded Built-In Test (BIT)
- High-Reliability MTBF, Low Mean Time to Repair (MTTR)

High-Precision Pointing and Location System

EMCORE's Dynamic Reference Unit Hybrid Replacement (DRU-H-R) continues its record of excellence in providing precision pointing and location to our warfighters. Partnered with the U.S. Army, EMCORE's combat-proven precision product family delivers mission-critical information such as survey, pointing and position to our soldiers for precise, indirect mass fires and counter-fire operations.

The DRU-H-R has growth capacity to add an embedded Selective Availability Anti-Spoofing Module (SAASM) GPS with M-code capability. It can also be configured to function in unmanned, rotational and shipboard environments.

The DRU-H-R is an advanced precision navigation system that provides platform (or weapon) position and attitude data. This unit replaced the DRU-H on Paladin and Firefinder, both playing critical roles in supporting U.S. ground forces in all phases of active combat operations. The EMCORE DRU-H-R design upgraded system performance by using high accuracy, combat proven inertial sensors currently fielded on the Multiple Launch Rocket System (MLRS), High-Mobility Artillery Rocket System (HIMARS), and Improved Position and Azimuth Determining System (IPADS).

The DRU-H-R delivers precisely what the Army of tomorrow needs — a sustainable, affordable system designed to remain operationally effective well into the future.



Use of U.S. DoD visual information does not imply or constitute DoD endorsement.

DRU-H-R

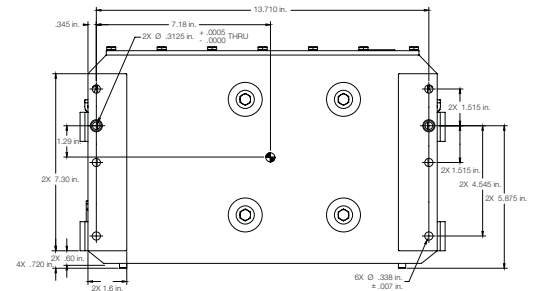
Dynamic Reference Unit-Hybrid Replacement

Transforming Navigation

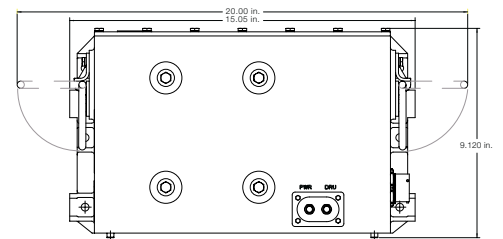
Specifications

Performance	
Azimuth	0.67 mil Probable Error (PE), 0 ° to 65 ° N/S latitude 0.283 secant (latitude) mil PE 65 ° S to 80 ° S & 65 ° N to 80 ° N latitude
Initialization Time	
Static Align	5 - 15 minutes (programmable)
Accelerated Align	1 minute
Dynamic Align	15 minutes
Roll/Elevation Accuracy	0.34 mil PE
Position Accuracy	
GPS-Aided	10 m Horizontal Circular Error Probable (HCEP), 10m Vertical PE (VPE) No Zero Velocity Updates (ZUPTs) necessary
Odometer-Aided	18 m HCEP, ≤ 27 km Distance Traveled (DT) 10 m VPE, ≤ 35 km DT with 10 minute ZUPTs 10 m HCEP for ≤ 4 km DT, and 0.25% x DT m HCEP for DT > 4km 6.7 m VPE for ≤ 10 km DT, and 0.067% x DT m VPE for DT > 10km with 60 minute ZUPTs
Inertial	18 m HCEP, ≤ 27 km DT 10 m VPE, ≤ 35 km DT with 4 minute ZUPTs
Characteristics	
Weight	48.1 lb., 21.82 kg
Dimensions	13.25 in. W x 10.75 in. D x 8.85 in. H 33.7 cm W x 27.3 cm D x 22.5 cm H
Power	90 W, 16 to 36 VDC
Temperature Range Operating	-46 °C to +60 °C
Temperature Range Non-Operating	-46 °C to +71 °C
Shock	1000 g (gun fire)
Environmental	- Initial Nuclear Weapons Effects (INWE) survivability - Nuclear, Biological & Chemical (NBC) survivability - EMI/EMC-compliant (MIL-STD-461E, MIL-STD-464A) - High-g gunfire shock survivability - MIL-STD-810F-compliant - MIL-STD-1275D power input (limited to ±100Vpk spikes)
Interfaces	- Two RS-422 Synchronous (SDLC) Half Duplex serial data ports - Two RS-422 Asynchronous Full Duplex serial data ports - One RS-232 Asynchronous Full Duplex serial data port - One RS-422 Asynchronous Full Duplex GPS serial data port - One 1PPS (one-pulse-per-second) GPS discrete input - One 1 GB Ethernet data port - Two RS-422 Odometer Pulse Inputs (Forward/Reverse) - One 7V Square Wave Speedometer Pulse Input - Four TTL discrete inputs (vehicle configuration identification)
Optional Interfaces	- GPS Antenna RF Input - Cryptographic Key Fill Port

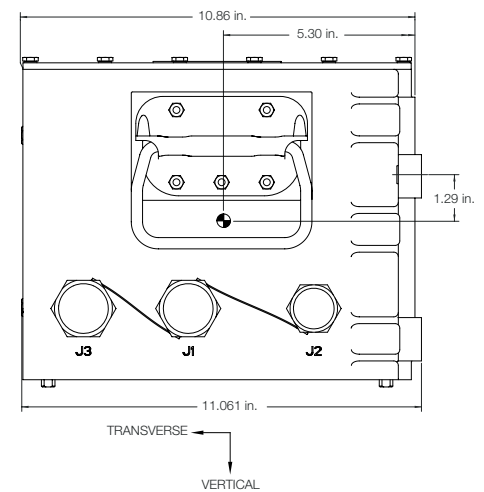
Top View



Side View



Back View



Notes

PUBLIC RELEASE. This item has 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.

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