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.
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
- 46.1 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

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.