PNU / UPNU - with Commercial GPS Receiver

Position and Navigation Unit / Universal Position and Navigation Unit

emcore®

A New Era in Navigation

High-Precision Pointing and Position Location System

EMCORE's Position & Navigation Unit (PNU) and Universal Position and Navigation Unit (UPNU) continue their record of excellence in providing the Multiple Launch Rocket System (MLRS) and High-Mobility Artillery Rocket System (HIMARS) programs with the highest performance, reliability, quality, pointing and position location system capability. Equipped with more than 30 years of direct experience in aiming and navigating these launchers, EMCORE is under contract to deliver the Universal Position / Navigation Unit (UPNU) on HIMARS.

The Improved Fire Control System (IFCS) PNU / Universal Fire Control System (UFCS) UPNU family represents a true state-of-the-art system approach. Its design features permit ready adaptation and/or optimization to any current or future weapon system or sensor requiring precision pointing and positioning. The PNU / UPNU family was conceived and designed to provide significant growth capability in performance and functionality, assuring its ability to meet the U.S. Army's future needs.

The PNU / UPNU and its variants point the way for the future direction of the land navigation systems. Utilizing advanced sensors, electronics, software and aiding (GPS and odometer), the PNU / UPNU family delivers precisely what the Army of tomorrow needs — a system designed to remain operationally effective and affordable to support well into the future.

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

Applications

- Multiple Launch Rocket System (MLRS)
- High-Mobility Artillery Rocket System (HIMARS)
- Pointing and Position Location

Key Performance Features

- High-Performance RLG-34 Ring Laser Gyros
- Common Architecture and Components (Paladin, PIM, Firefinder, IPADS)
- Standard Positioning Service (SPS) GPS Receiver
- Embedded 12-channel Selective Availability Anti-Spoofing Module (SAASM)
- Impervious to Jamming (inertial mode)
- Combat-Proven
- Embedded Built-In Test (BIT)
- High Reliability MTBF, Low Mean Time to Repair (MTTR)
- No Periodic Calibration Required

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Specifications

Performance	
Pointing Accuracy	0.3 + 0.25 secant (latitude) mil Probable Error (PE)
Initialization Time	
Static Align	5 minutes
Accelerated Align	2 minutes
Dynamic Align	Determined by GPS
Roll/Elevation Accuracy	0.17 mil PE, 0.25 mil RMS
Position Accuracy	
GPS-Aided	Determined by GPS No Zero Velocity Updates (ZUPTs) necessary
Odometer-Aided	10 m HCEP, 10 m VPE For ≤ 40 km x cosine (latitude) Distance Traveled (DT) with 10 minute ZUPTs 0.05% x DT x secant (latitude) m HCEP, 0.05% x DT x secant (latitude) m VPE for > 40 km x cosine (latitude) DT with 10 minute ZUPTs 10 m HCEP, 10 m VPE for ≤ 6.7 km DT with no ZUPTs 0.15% x DT m HCEP, 0.15% x DT m VPE for > 6.7 km distance traveled with no ZUPTs

Characteristics	
Weight	74 lb., 34 kg
Dimensions	24.2 in. L x 10.51 in. W x 11.06 in. H 61.5 cm x 26.7 cm x 28.1 cm
Power	90 W, 16 to 36 VDC
Temperature Range Operating	-32 °C to +60 °C
Temperature Range Non-Operating	-34 °C to +71 °C
Shock	100 g (damped sine)
Environmental	- EMI / EMC-compliant (MIL-STD-461E / 464A) - MIL-STD-810F-compliant - MIL-STD-1275D power input
Interfaces	- RS-232 - Two Odometer/Vehicle Motion Sensor (VMS) pulse inputs - Two GPS RF outputs (for Weapons / Rockets / Missiles) - 10 / 100 Base-T Ethernet data port - Vehicle Motion Sensor (VMS) - GPS Antenna RF Input

More than 1,500 PNUs / UPNUs Fielded and Forward Deployed

Dimensions/Scale

11.06"

10.51"

24.2"

Notes

This information has been released into the public domain in accordance with the International Traffic in Arms Regulation (ITAR) 22 CFR 120.11(a)(6).

emcore®

ISO**9001** CERTIFIED

AS 9100 REGISTERED

MADE IN USA

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