



DATASHEET | JULY 2022

Transforming Navigation



### Applications

#### Artillery Survey to Mark:

- Survey Control Point (SCP) Position; Used to Initialize Weapon Systems
- Orienting Line (OL) Position and Azimuth; Used to Initialize and Align Artillery Assets

### Key Performance Features

- High-Precision Common Survey Enables Efficient Mass Fires
- Impervious to Jamming (inertial mode)
- Embedded Selective Availability Anti-Spoofing Module (SAASM) GPS Option
- Navigation Aids (compass rose and digital maps)
- In-Vehicle and Offset Survey
- Combat-Proven
- Embedded Built-In Test (BIT)
- High-Reliability MTBF, Low Mean Time to Repair (MTTR)
- No Periodic Calibration Required

### Inertial Surveying System

#### When You Need Precision, You Need IPADS

EMCORE's Improved Position and Azimuth Determining System (IPADS-I) is an inertial surveying system developed to meet today's demanding international military survey needs. Survey operations functionality, navigational accuracy, transportability, survivability and affordability requirements drove the system design.

EMCORE's IPADS-I (International) provides significant enhancements for today's Army and Marine Corps survey teams. IPADS offers a proven, reliable, lightweight, off-the-shelf solution developed around four main components.

- Compact Position/Navigation Unit (CPNU)
- Control and Display Unit (CDU)
- Battery and Charger Unit (BCU)
- Porro Prism Assembly (PPA)

All components are housed in a robust frame that allows for easy component access and stability, while facilitating a ready two-person live transfer between vehicles.



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

# IPADS-I

Improved Position and Azimuth Determining System - International

Transforming Navigation

## Specifications

Performance	
<b>Inertial Accuracy</b>	
Orienting Line Azimuth	0.6 mil PE (Probable Error), 0° to 65 N/S latitude
Horizontal	7 m CEP (Circular Error Probable)
Vertical	3 m PE 5-min. ZUPT (Zero Velocity Update) Within 63.9 km x cosine (latitude)
<b>GPS-Aided Accuracy (option)</b>	
Orienting Line Azimuth	0.6 mil PE (Probable Error), 0° to 65 N/S latitude
Horizontal	4 m CEP
Vertical	2 m PE No ZUPT necessary
<b>Initialization Time</b>	
Static Align	10 min. 0° to 65° N/S latitude
Hot Start Align	5 min., 0° to 65° N/S latitude
Moving Base Align	15 min (GPS Option)
<b>Characteristics</b>	
Weight	137 lb., 62 kg (Standard configuration) 68 lb., 31 kg (Optional configuration using DRU-H-R, smaller/lighter CDU, and Li-Ion Batteries)
Dimensions	24.75 in. L x 15.75 in. W x 16.125 in. H (Standard configuration) 62.87 cm L x 40.01 cm W x 40.96 cm H 16.9 in. L x 8.9 in. W x 10.8 in. H (Optional configuration using DRU-H-R, smaller/lighter CDU, and Li-Ion Batteries) 43.0 cm L x 22.5 cm W x 27.5 cm H
Power Steady-State Voltage Options	5.36 A @ 28 VDC (150 W) 9 to 36 VDC or 85 to 270 VAC
Interfaces	- One 10/100-BaseT Ethernet (Reprogramming port) - One optional/unused RS-232 port - One optional/unused RS-422 port - Six optional/unused USB 2.0 ports
Optional Interfaces	<b>For GPS Option:</b> - GPS Antenna RF Input - Cryptographic key fill data port - One RS-422 Asynchronous data port for external Defense Advanced GPS Receiver (DAGR)
Environments	- Nuclear, Biological & Chemical (NBC) survivability - EMI/EMC-compliant (MIL-STD-461E/464A) - MIL-STD-810F-compliant - MIL-STD-1275D power input

### Compact Position/Navigation Unit (CPNU)

The CPNU, a three-axis strap-down inertial navigation system of ring laser gyros and high-grade accelerometers, is the core component of IPADS. It is the compact version of our proven navigation system used on the Multiple Launch Rocket System (MLRS) and High-Mobility Artillery Rocket System (HIMARS) programs.

An embedded SAASM GPS receiver is available as an option in the CPNU (IPADS-G).

### Control And Display Unit (CDU)

The CDU is a ruggedized tablet computer featuring an Intel Dual Core i7 @ 1.7 GHz, Windows® 10, 16 GB Main RAM, Two 480 GB Solid-State Drives (SSD), and a 10.4- inch XGA touch-screen color display.

### Porro Prism Assembly (PPA)

The PPA in conjunction with customer-supplied Theodolite, provides 24-meter offset survey capability. This allows surveying locations that are inaccessible by vehicle. Offset distance may be extended using optional accessories such as a handheld laser rangefinder mounted on existing manual Theodolite or using automated total stations.

### Battery And Charger Unit (BCU)

The BCU uses a standard military NSN 6130-01-493-6643 Sealed Lead Acid (SLA) battery. The BCU is based on the ABPAC.DC/BT-TR-1 Transceiver Power Unit (TPU) that is currently fielded by the U.S. military. The unit allows for worldwide input of 9 to 36 VDC / 85 to 270 VAC, 47 to 440 Hz single-phase power inputs and provides power and charge status indicators.

### 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)(7).

### For More Information

+1 866.234.4976 | [navigation-sales@emcore.com](mailto:navigation-sales@emcore.com) | [emcore.com/nav](http://emcore.com/nav)

### EMCORE Corporation

2015 Chestnut Street  
Alhambra, CA 91803 USA

**P** +1 626.293.3700

**F** +1 626.293.3429

**emcore**®

**ISO9001**  
CERTIFIED

