ASSURED POSITIONING, NAVIGATION, AND TIMING

AC²ES
A-PNT Converged Computer - Embedded & Scalable

AC²ES is the solution to GPS disruption – a capability designed to provide Assured Positioning, Navigation, and Timing (A-PNT) information at all times. Developed with efficiency in mind, AC²ES is embedded in our widely fielded Data Distribution Unit – Expandable (DDUx) II. The DDUx II and military variants are currently fielded on over 150,000 vehicles meaning this capability can be easily implemented without additional space or weight requirements.

Convergence with the DDUx II allows for ease of use as A-PNT is embedded into the Battle Management System (BMS). The vehicle operator can use the BMS's Graphical User Interface (GUI) to view and manage GPS and A-PNT functions on a single screen. In addition, A-PNT distribution to other PNT consumers on the vehicle is supported.

AC²ES is able to provide PNT information by augmenting the standard GPS PNT source. This is achieved through fusing technologies such as:

· Anti-jam technology
· Anti-spoof technology
· M-code receivers
· Image-based terminal
· Inertial measurement units

A fusion engine evaluates and combines PNT inputs from these system components in order to provide a reliable, GPS-denied navigation solution during real world jamming and/ or spoofing attacks. This is hosted in the BMS and can be controlled via its GUI.

LEONARDO DRS

FEATURES

- Utilizes existing space claim - no need for additional space, weight, or safety certifications
- Powerful Intel® Xeon Quad Core processor hosts several softwares including: PNT fusion, vision navigation, A-PNT user interface, spoofing/jamming detection
- A-PNT User Interface: 12" touch-screen display and full-size keyboard
- Reduced training requirement to a single LRU
- TRL 9 cyber-hardened hardware
- Built by the Leonardo DRS Smart Manufacturing Center of Excellence

FUTURE GROWTH

- Easily update software
- Swap out or add new components
- Configurable according to needs and budget.
- All solutions include PNT fusion blending and optimizing all internal PNT options with all available external PNT options

INTERNAL PNT OPTIONS

- M-Code receiver
- Commercial GPS
- LEO receiver
- Internal IMU with compass
- Internal timing holdup option:
  - OCXO (Oven Controlled Oscillator)
  - CSAC (Chip Scale Atomic Clock)

EXTERNAL PNT OPTIONS

- External IMU/INS (various)
- Vehicle odometery (CAN bus)
- Video sensors (see Vision Navigation)

VISION NAVIGATION

- Multiple options depending on sensor configuration
- Multiple vision nav algorithm options optimized for a variety of environments ranging from open desert to congested urban

PNT DISTRIBUTION

- RF distribution – feeds into existing GPS antenna inputs of legacy devices, like DAGR or tactical radios
- VICTORY Ethernet
- Serial: RS232 or RS422

A-PNT Converged Computer - Embedded & Scalable (AC²ES)

EXTERNAL PNT

Inertial Measurement Unit (IMU)

IR Camera

Odometry

Anti-Jam Antenna

CAN Bus

Supports Vision Navigation Today

DDUx with Embedded PNT Fusion

INTERNAL PNT
- MGUE
- Timing Holdup
- IMU
- Spoofing Detection
- Other RF Receiver

PNT DISTRIBUTION

VICTORY Ethernet | RF - Connects to legacy GPS inputs | Serial RS422 or RS232

Radio

DAGR

Cyber Protected

intel inside™

EDGE ASSURED™ By Leonardo DRS

POWERED BY SAFRAN FEDERAL SYSTEMS

Beyond GPS: Configurable A-PNT Solutions For All Warfighters

- *Utilize Existing Footprint*
- *Leverage the Existing Investment*
- *Modular, Scalable, and Upgradable*
- *Converged C2/SA and A-PNT*
- *Extensible fusion of A-PNT capability with tactical computing*

LeonardoDRS.com/A-PNT

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