ASTRONAUTICS

C-MAN - Computerized Maritime Navigation System

Turn Key system solution for shipboard integrated navigation and inertial data distribution. Data computation and data distribution to all shipboard sub-systems of all directions motion sensing, attitude and position. Interface to command & control, weapons, electro optical directors, radar antennas and other ship’s inertial data users. High accuracy, high reliability inertial sensor with embedded GPS, accurate positioning.

System Redundancy

- Designed for full RLG INS/GPS sensors redundancy architecture.
- Multiple outputs of synchro and/or digital signals to support full system redundancy.

Flexibility and Modularity

- Modular architecture allowing the use of any combination of sensors (INS/GPS, EM/Doppler Log, Echo sounder, Meteorological sensors, etc.)
- From basic low cost small vessels single sensor system, to high-end large surface vessels and advanced Extended Performance (EP) lowest drift submarines applications.
- Multiple outputs – supporting modern digital format sub-systems as well as analog/synchro shipboard systems.

Advanced Processing utilizing Kalman filters optimized for naval navigation data, incorporates accurate compensation and data filtering taking into account latency and utilizing unique prediction algorithm considering the characteristics of naval vessels.
C-MAN System Characteristics

Navigation data generation & distribution

The following navigation data items are generated and distributed by the C-MAN:

- Heading
- Attitude (roll, pitch)
- Heading, roll, & pitch rates
- Position (latitude, longitude)
- Ship’s velocity (relative to sea bottom) and speed (relative to water mass)
- Accelerations
- Water depth
- Wind speed and direction (Absolute and Relative)
- Barometric pressure
- Relative humidity
- Air temperature
ATACS - Automated Tactical Artillery Control System

Astronautics ATACS

- Recognizing the severe operational restrictions placed on modern artillery by traditional survey and deployment methods, Astronautics has developed the Automated Tactical Artillery Control System (ATACS) to provide a highly adaptive solution for Mortars, Multiple-Launch Rocket System (MLRS), Self-Propelled guns and Towed guns.
- The ATACS enables autonomous gun Navigation and Pointing and provides ballistic computation capabilities to enhance weapon operation.
- The system’s ability to perform rapid changes of position, as well as its high responsiveness, enables the crew to Shoot and Scoot and thus gains the force-multiplier advantage which is essential to the modern battlefield.

The ATACS consists of the following elements:

- Vehicle Reference Unit (VRU)- Kearfott’s MILNAV®, KN-4053, three-axis Monolithic Ring Laser Gyro (MRLG), (embedded GPS – optional)
- Commander’s Control and Display Unit & Tactical Computer (CDU&TC)
- Gunner’s Display Unit (GDU)
- Muzzle Velocity Radar (MVR)
- Vehicle Motion Sensor (VMS)
MAIN COMPONENTS DESCRIPTION

• **Vehicle Reference Unit (VRU)**
  The VRU is a fully integrated inertial navigation unit with an optional GPS receiver which may either be embedded or external PLGR/DAGR. The VRU is installed on the elevating mass of the gun/mortar/MLRS and provides a continuous high precision output of position and attitude of the weapon.

• **Commander’s Control and Display Unit & Tactical Computer (CDU&TC)**
  The CDU&TC unit is provided for use by the gun’s Commander or by the gunner, in case the system doesn’t include GDU.
  The CDU&TC includes a powerful processor, which provides overall control, management and fire control computation within the system.
  The CDU&TC includes a sunlight readable display and performs all system level management and processing tasks within the ATACS.
Command, Control, Communication and Computer Intelligence (C4I) system tailored for artillery forces.
1) The ABMS commands & controls operational artillery plans and orders amongst the various artillery command posts down to the gun level.
2) The system is based on proven technology utilized in:
   • Gun Navigation & Pointing System (NAPOS)
   • Battery & Battalion Fire Direction Center (FDC)
   • Forward Observer System (FOS)
   • Battalion & Brigade Fire Support Elements (FSE)

ABMS- main features:

- Saves weapon systems, training & ammunition costs
- Delivers accurate & devastating fire - at the right place & right time
- Significant combat multiplier
- Simplifies & improves battlefield situation awareness
- Shortens time for effective target engagement Prevents friendly fire accidents
Armour Fighting Vehicle (AFV) Main Computer System (AMCS)

The AFV Main Computer System (AMCS) is an advanced, MIL-STD, modern and robust computer. It manages all of the electro/mechanical systems in the AFV/Tank and will increase combat efficiency, improve crew coordination, platform team-work with friendly forces and vehicle survivability.

**Block diagram - AFV - Flexible and open architecture system**

**Capabilities**
- Improved efficiency
- Improved lethality
- Improved survivability
- Optimized decision making
- Improved capability to handle situations

How do we achieve this capability?
- Modern C4I system
- Learning system
- Digital map
- Digital network – connection to various command and control networks

**Systems overview:**
Will manage all internal and external communication systems including:
- Battle management
- Sub systems operation and monitoring
- System resources
- Information distribution
- Prioritization

**MAGIC Unique Capabilities:**
- Mechanical enclosure enables versatility for all platforms.
- Powerful Quad Core i7 processor
- Open architecture - flexible and scalable with third party cards.
- Nonstandard interfaces : Mil-STD-1553, ARINC-429 I/O,
- Ruggedized EMI and Environmental design for versatile platforms.