» AUTONOMOUS NAVIGATION

NovAtel Launches OEM617D, FlexPak-S SAASM Enclosure

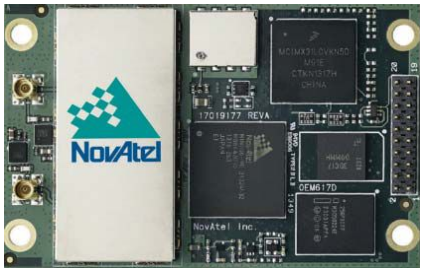
NovAtel, Inc., released new products at May's AUVSI Unmanned Systems show, which took place in Orlando, Florida.

The OEM617D receiver is a compact, dual-antenna, dual-frequency, single-card receiver with NovAtel's ALIGN heading functionality and RT-2 Real Time Kinematic (RTK) GNSS positioning technology, in dynamic and static environments. It offers dual-frequency operation with GPS, GLONASS, and BeiDou signals maximizing GNSS availability globally. It also tracks Galileo, SBAS, and QZSS.

It is designed for rotary-wing aircraft, marine, autonomous ground vehicle, and other applications requiring precise position and heading accuracy.

NovAtel's advanced firmware and correction capabilities enhance the positioning performance of the OEM617D receiver, the company said. Firmware is field upgradable and scalable, depending on application needs. It also offers GLIDE for decimeter-level pass-to-pass accuracy and RAIM for increased GNSS pseudorange integrity.

FlexPak-S for Defense. NovAtel also launched the FlexPak-S GNSS SAASM enclosure. It contains a NovAtel dual-frequency OEM625S receiver card integrated with L-3's XFACTOR Selective Availability Anti-Spoofing Module (SAASM) onboard. The FlexPak-S is security-approved by the GPS Directorate for operational use.



▲ **OEM617D** receiver.

When keyed by authorized defense integrators, the FlexPak-S provides centimeter-level RTK Precise Positioning Service (PPS) solution by taking the raw measurements from the XFACTOR SAASM and applying them to NovAtel's Advanced RTK algorithms. The FlexPak-S can be handled as unclassified when keyed.

In the Standard Positioning Service (SPS) fallback mode, the FlexPak-S continues to provide centimeter-level accuracy by utilizing NovAtel's dual-frequency civil GNSS positioning engine. The fallback mode is configurable for GPS or GPS+GLONASS. Adding GLONASS tracking increases position performance in obstructed sky conditions, which is a benefit for unmanned ground vehicles.

FlexPak-S was developed for size-constrained environments, so it's compact and lightweight — important considerations for UAV and robotics applications. The rugged enclosure has been engineered for reliability in harsh environments with an IP67 water-resistant housing and operation in a wide temperature range.

FlexPak-S also allows for integration with standardized hardware connections and NovAtel's software commands. The SAASM position is provided via a dedicated communication port, as well as through NovAtel's software command protocol. FlexPak-S uses the same form factor as the FlexPak6 design.

▲ **FLEXPAK-S** GNSS SAASM enclosure.

Applanix, American Aerospace Partner on Mapping for UAVs

Applanix Corp. and American Aerospace Advisors, Inc. (AAAI), have agreed on an OEM supply agreement that will incorporate Applanix direct georeferencing technology into AAAI's unmanned aerial platforms. The collaboration creates a commercially available professional-grade mapping UAV system for civilian applications such as pipeline monitoring, power line surveys and emergency-response mapping.

The availability of the system follows a series of successful test flights of AAAI's RS-16 Unmanned Aircraft System equipped with Applanix' DMS-UAV aerial photogrammetry payload with commercially available inertial technology. Joint teams from Applanix and AAAI planned and flew a sequence of missions to evaluate the capabilities, including the ability to provide highly accurate, directly georeferenced and orthorectified aerial imagery without the need for ground control points or aerial triangulation calculations.

The system — consisting of the airframe, its avionics, mobile ground control station, telemetry systems and the digital mapping payload — performed according to expectations and successfully produced high-quality imagery.

» GPS/INERTIAL NAVIGATION

VectorNav Launches Dual-Antenna GPS-Aided Inertial Nav System

VectorNav Technologies has introduced its VN-300 dual-antenna GPS-aided inertial navigation system (GPS/INS). A follow-on product to the VN-100 IMU/AHRS and VN-200 GPS/INS, the miniature, high-performance VN-300 enables a wider range of applications through the incorporation of GPS compassing techniques.

The VN-300 can be used in a wide variety of industrial and military applications, and is suitable for size, weight, power, and cost (SWAP-C)-constrained applications such as unmanned vehicle systems; antenna, camera and platform stabilization; heavy machinery monitoring; robotics; and primary or secondary flight navigation, among others.

Incorporating the latest MEMS sensor technology, the VN-300 combines 3-axis accelerometers, 3-axis gyros, 3-axis magnetometers, a barometric pressure sensor, two GPS receivers, and a low-power microprocessor in a rugged aluminum enclosure about the size of a matchbox. When in motion, the VN-300 couples the position and velocity measurements from the onboard GPS receivers with measurements from onboard inertial sensors to provide position, velocity, and attitude estimates of higher accuracies and with better dynamic performance than a standalone GPS receiver or Attitude Heading Reference System (AHRS).

Sparton Offers GPS-Assisted Inertial Navigation System

Sparton Navigation and Exploration has introduced GAINS-10, a GPS/ GNSS Assisted Inertial Navigation System.

GAINS-10 provides accurate inertial navigation in the presence of mechanical shock, transient platform vibrations and extreme magnetic interference. It features high-speed, synchronous sampling of all inertial systems combined with high rate coning and sculling compensation and is fully calibrated across temperature.

The GAINS-10 delivers precise performance in complex environments, according to the company, and provides flexible integration options and platform customization.

» EVENTS

CERGAL 2014
July 8–9, Dresden, Germany; www.dgon-cergal.org

The International Symposium on Certification of GNSS Systems & Service covers qualification and certification of mission- and safety-critical applications in the successful operational rollout of satellite navigation systems.

Spirent Federal 2014 GNSS Technical Meeting
July 15–16, Salt Lake City, Utah
www.spirentfederal.com/GPS/Meeting/Default.asp

The meeting features hands-on training led by Spirent engineers on state-of-the-art GNSS simulation equipment. FOUO sessions will be held on July 16 for U.S. citizens only.

FOSS4G Europe Conference
July 15–17, Bremen, Germany; www.foss4g-e.org

The FOSS4G (Free and Open Source for Geospatial) Europe Conference, Europe's largest event on free geospatial and location-based software, will be held at Jacobs University. Also at this conference, the winners of the NASA World Wind Europa Challenge will present their innovative apps to the public. More than 500 delegates are expected.

European Space Agency (ESA) International Summer School
July 21–31, Ostrava, Czech Republic
www.congrexprojects.com/2014-events/14m34/introduction

The ESA Summer School, held on the campus of the Technical University, provides attendees with a comprehensive overview of satellite navigation: various GNSS, signals, processing of the observations in a receiver, and determining the PNT solution.

Lab work will give attendees hands-on experience, and lectures on intellectual property rights, patents, and business aspects will be provided.

ITS America World Congress
September 7–11, Detroit; www.itsa.org

The global World Congress on Intelligent Transport Systems in Detroit, Michigan, is expected to attract more than 10,000 industry, government and research leaders from the United States, Europe, and Asia, and will showcase the latest ITS applications from around the world.

Intergeo 2014
October 7–9, Berlin, Germany; www.intergeo.de

The 2014 Intergeo Conference and Trade Fair for Geodesy, Geoinformation and Land Management will take place at Messe Berlin. With more than 16,000 visitors from 80 countries, it is a key platform for industry dialogue, covering surveying, geoinformation, remote sensing, and photogrammetry.

» SURVEY

Leica Geosystems Offers CC55 Controller

Leica Geosystems now offers the Leica iCON CC55 controller, a versatile and rugged PDA with a 3.5-inch color display, as part of its iCON construction portfolio. The handheld controls Leica iCON sensors, runs the iCONstruct field software, and has a QuadraClear sunlight readable display and a fast 1-GHz processor.

The smaller Leica iCON CC55 handheld controller and the seven-inch Tablet PC Leica iCON CC65/66 field controller are both fully integrated into Leica Geosystems' iCON portfolio. The handheld runs the Leica iCON build or site software to display and connect measured points for as-built data capturing or to lay out points and construction lines directly from the digital construction plan. It provides flexible options for data communication and data storage.

The Leica iCON CC55 can be used to control the Leica iCON robot total stations, enabling one-person operation, saving time and increasing productivity for construction layout tasks and as-built checks, the company said.

The optional Long-Range Bluetooth allows communication with the iCON robot 50 at distances of more than 350 m/1150 feet. The iCON CC55 can be used as a data logger with the Leica Builder manual total station. Together with the Leica iCON gps 60 SmartAntenna, the iCON CC55 creates a compact and light-weight GPS rover system, the company said.

» LOCATION-BASED SERVICES

DeCarta Search Engine Expands to 120 Countries

deCarta, Inc., an independent location-based services (LBS) platform company, has expanded coverage of its advanced local search technology, the L2 Geospatial Search Engine, to 120 countries including Europe, North America, and most major countries around the world.

L2 is a high-performance, scalable local search engine with single-line input to enable a more intuitive user interface, the company said. deCarta sources and indexes premium map and POI (points of interest) content but also enables customers to index and control their own content using the L2 Index tools.

deCarta's L2 can be used as a pure geocoder for address search, for POI search, or simultaneously as a combination of the two mixed in a single line search query, with the additional ability to tune this behavior at runtime. This gives developers flexibility and creativity in producing mobile and desktop applications. The new expanded country coverage now enables deCarta customers to offer truly global services.

The L2 Search engine is an integral component of deCarta's LBS platform which provides specialized geospatial technologies for maps, routing, navigation, geocoding, local search, and geo-data integration and processing.

BUSINESS BRIEFS

Visual Intelligence Releases Toolkit for UAV Mapping Apps

Visual Intelligence's iOne Software Sensor Tool Kit Architecture (iOne STKA) is available for purchase or licensing by manufacturers of unmanned airborne vehicles who want to deliver an integrated UAV/geospatial imaging solution to customers.

Capturing high-resolution imagery for applications in engineering, construction, urban planning, military missions and other uses is a significant emerging market for UAV manufacturers, and Visual Intelligence's iOne STKA makes it possible to bring high-resolution geospatial sensors to UAVs, the company said. iOne STKA provides the technology foundation to configure a variety of multi-purpose sensors, including miniaturized 2D/3D applications, for the emerging UVS and mobile/handheld markets.

Tracker Integrates u-blox, Cell Tech

Wonder Technology Solutions has launched Trax, a personal tracking device for children and pets. Based on a u-blox GNSS receiver module with integrated antenna and cellular module, the tiny tracker can be located anywhere, anytime via a free Android or iPhone mobile phone app.

Trax provides flexible geofence alerts, and can monitor how fast a teenager is driving. It also works indoors, thanks to a proprietary dead-reckoning algorithm that delivers a position even when satellites are out of sight, with accuracy down to 1.5 meters.

TerraStar Offers Revenue Sharing

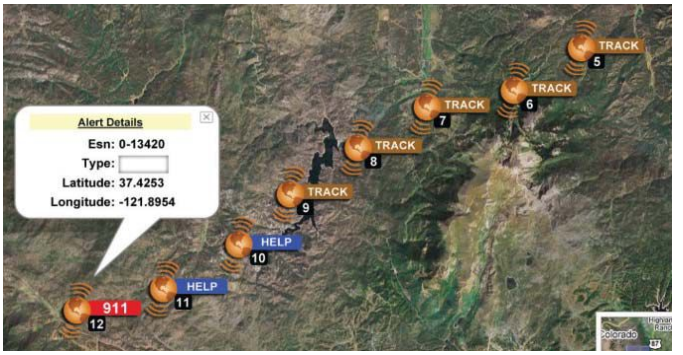
TerraStar is offering GNSS manufacturers revenue sharing opportunities, including the possibility to launch their own precise GNSS augmentation services via endorsed rebranding of TerraStar services as a reseller. According to TerraStar, this will provide an attractive recurring service revenue stream to GNSS manufacturers not previously available in the industry.

TerraStar is a brand name of TerraStar GNSS Ltd., a wholly owned subsidiary of Veripos Ltd. Following the acquisition of its parent company by Hexagon AB in March, it will continue as a neutral and independent provider of satellite-delivered precise positioning augmentation services for land and nearshore markets. It is already well advanced in plans to expand its service offering, the company said.

SPOT Devices Mark 3,000 Rescues

SPOT LLC, a wholly owned subsidiary of Globalstar, Inc., says its SPOT products have been used to initiate 3,000 rescues around the world since the technology's launch in 2007. With more than 200,000 SPOT units in service, that averages to one rescue a day. SPOT delivers affordable and reliable satellite-based connectivity and real-time GPS tracking, completely independent of cellular coverage.

SPOT products allow users to track their assets, use location-based messaging and emergency notification services, and make calls beyond the boundaries of cellular. The 3,000th rescue occurred in the Hayman Fire area of Central Colorado. Two dirt bikers were outside of cell range when an accident occurred.



▲ **SPOT** device tracking.

▲ **CSR/ORIGINGPS** chip for wearables.

FCC 911 Rule Receives Public Safety Support

Many of the nation's leading public safety and public health organizations submitted comments in May in support of a proposed Federal Communications Commission (FCC) rule to help emergency responders more quickly and accurately find 911 callers using wireless phones from indoor locations. More than 300 individuals and organizations filed during the initial comment period with the overwhelming majority supporting the FCC proposal.

Among those supporting the rule were organizations representing 911 professionals, police officers, fire fighters, EMS workers, public safety professionals, older Americans, heart attack and Alzheimer's patients, and the deaf. They were joined by hundreds of individual 911 dispatchers and first responders who submitted personal comments.

CSR, OriginGPS for Wearables

CSR plc and OriginGPS have announced a series of high-performance GNSS modules using CSR's SiRFstarIV and SiRFstarV product lines. The new modules are 70 percent smaller than current solutions, deliver a 30 percent reduction in time to first fix, and are for health and fitness trackers, sports watches, medical devices, wearable action cameras, and digital still cameras.

All modules, including the new 7 x 7 millimeter Multi Spider (ORG4572), integrate the LNA, SAW filter, TCXO, RTC crystal, and RF shield.