

Industry news and developments | GPS | Galileo | GLONASS

» PROFESSIONAL OEM

## Trimble Launches Two New Positioning Products

Trimble has introduced two new positioning products. The Ashtech MB-One GNSS module delivers highly accurate GNSS-based heading plus pitch or roll in an advanced industry standard form-factor for system integrators, the company said. The Trimble AP15 is the latest member of the AP series of OEM GNSS-inertial board sets.

**The MB-One's embedded Z-Blade GNSS technology** uses all available GNSS signals equally, without any constellation preference, to deliver fast and stable solutions. The MB-One is designed to add precise positioning and heading in a wide variety of applications such as unmanned, agriculture, marine, and military systems.

The MB-One features an enhanced dual-core GNSS engine with 240 channels capable of tracking a large range of GNSS systems including GPS, GLONASS, Galileo, and BeiDou. It uses over-the-air satellite corrections using L-Band hardware to achieve decimeter-level accuracy. The module is capable of receiving and decoding precise point positioning (PPP) to output

a highly accurate position solution that removes the need for a local base station.

Users can leverage the module's Ethernet capability and easy-to-use web browser interface to quickly and cost-effectively develop their products and solutions, according to Trimble.

**The AP15 GNSS-Inertial System** is an embedded GNSS-inertial OEM board set plus inertial measurement unit (IMU) in a compact form factor. It is the first product to take advantage of Applanix SmartCal, a new software compensation technology that allows Trimble to achieve exceptional performance from IMUs manufactured specifically for mobile-mapping applications.

GNSS functionality is provided by a Trimble GNSS module, a dual-antenna, 440-channel, multi-frequency survey-grade GNSS receiver that supports a wide range of satellite signals, including GPS L1/L2/L2C/L5 and GLONASS L1/L2 signals. The module also supports SBAS corrections, including WAAS, EGNOS, MSAS, and OmniStar VBS, HP and XP/G2 corrections.



▲ THE MB-ONE.



▲ THE AP15 GNSS board set with IMU.

» SIMULATION

## IFEN, WORK Microwave Offer BeiDou-2 Support

The NavX-NCS GNSS multi-frequency simulator now supports China's BeiDou-2 navigation satellite system. BeiDou support is a key enhancement in software update V.1.9 for the NavX-NCS GNSS multi-frequency simulator product line, by IFEN and WORK Microwave.

Leveraging new features and functionalities, users have the flexibility to support a wide range of constellations, frequencies, and channels for research and development of GNSS safety and professional applications, as well as system integration and production testing of mass-market applications, such as automotive satellite navigation, mobile-phone applications, chipsets, and handheld personal navigation devices, the companies said.

By enabling real-time simulation of second-generation BeiDou satellite signals, also referred to as BeiDou-2, NavX-NCS expands a user's GNSS signal capability beyond GPS, Galileo, GLONASS, and SBAS constellations.

A powerful new multi-user functionality enables the simulation of up to four different users, or one user with up to four antennas, in different locations simultaneously, IFEN said. Possible use scenarios include simulating a static user such as a reference station at the same time as a roving user, or simulating multiple docking maneuvers on an oil rig.

Also, the simulators now include new 6DOF functionality that makes it possible to simulate six degrees of freedom (three dimensions of space plus yaw, pitch, and roll), which allows more true-to-life simulations of ships, airplanes, and cars. A new monitoring widget makes it easier to monitor the current state of simulation.

Optimized to perform advanced lever arm calculations, the NavX-NCS GNSS simulators ensure accurate navigation for users, the companies said. The simulators are available in Professional and Essential versions, both now optionally export license-free (LF).

# BUSINESS BRIEFS

## New Dual-Frequency Antennas

Tallysman Wireless, Inc., has added the dual-frequency TW3800 series to its high-quality precision line of antenna products. The antennas feature a circular stacked patch antenna for improved axial ratio, yet are small and light, and have the extended bandwidth required for L1/L2 GPS and G1/G2 GLONASS, the company said. The operating voltage range is from +2.5 to 16 VDC. The antennas have temperature-compensated LNAs and operate from -40° to +85° C to provide reliable performance in most environments.

## Inertial System Launched

SBG Systems has added a new inertial system to its Ekinox Series. With an integrated dual-antenna GPS + GLONASS receiver, the Ekinox-D is a ready-to-use survey-grade inertial navigation system, SBG Systems said. GNSS data and inertial information are fused by an Extended Kalman Filter (EKF) to improve data integrity. This computation allows the system to achieve 0.05° roll, pitch, and true heading; 5-cm heave; and 2-cm RTK GNSS position.



## Indoor Location to Dominate

With more than 1 billion new smartphones forecast to use indoor location technologies in 2018, there are significant opportunities, according to a report by ABI Research. ABI has forecast that by

2014, hybrid solutions will have surpassed standalone indoor-location technologies on smartphones, with Wi-Fi and sensor fusion hybrid solutions reaching 900 million units in 2018.

## Network Software Upgraded

Topcon Positioning Group announces new reference station network software, TopNET+ v10, bringing new features and functionality to the TopNET+ reference station software suite.

The software is a scalable solution supporting everything from a single CORS station to multiple CORS sites covering a large geographical area. Users of a TopNET+ reference network get GNSS RTK correction data generated using information from all reference stations in a network. This feature allows regional use of RTK while providing data that is specific for each local rover, Topcon said.

## GPS Source Approval for GLI-FLO

GPS Source's GLI-FLO has been granted security approval by the Global Positioning Systems Directorate, which gives GPS Source the opportunity to supply military end-users and prime contractors with a DAGR Distributed Device (D3) that meets the mandate for reliability and security, GPS Source said.

# Panasonic VIC100 Series

## GPS Precision Timing Antennas

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Secure Performance by attenuating noise and interference near GPS L1 frequency through triple (and enhanced quad) filtering designs

Durable and Reliable in severe environments

RoHS Compliant

<http://www.panasonic.com/gps>

» AVIATION & MARINE

## Septentrio's GNSS Heading Receiver Integrates with Tethered Aerostat

Raven Aerostar, a manufacturer of lighter-than-air platforms, has successfully integrated Septentrio's AsteRx2eH, a single-board dual-antenna GPS/GLONASS heading receiver, into its tethered aerostat systems.



Raven Aerostar recently completed a maritime persistent surveillance solution demonstration, deploying a TIF-25K aerostat system aboard the high-speed vessel SWIFT (HSV-2), during

which the AsteRx2eH performed remarkably, according to the companies. Integrating the single-board AsteRx2eH dual-antenna receiver to replace a solution based on two separate GNSS receivers allowed Raven Aerostar to achieve a reliable and accurate heading solution while also decreasing deployment time and total cost of GNSS sensors.

» SECURITY & SURVEILLANCE

## Chronos Releases Handheld GPS Jamming Detector

U.K. firm Chronos Technology has released the CTL3520 handheld GPS Jamming Detector and Locator System. Aimed specifically at detecting GPS jammers hidden in vehicles, the unit can pinpoint even the weakest jammer and identify the vehicle in which the jammer is hidden, even in a busy multi-storey car park, Chronos said. Other applications include detecting vehicles with jammers at ports, fleet depots, airport car parks, and taxi ranks.



The CTL3520 device was tested by representatives of law enforcement and security agencies in screened rooms at the MIRA test facility in Warwickshire and successfully identified hidden jammers both in vehicles and people's pockets.

The CTL3520 was developed from research undertaken by the University of Bath and is a significant commercial outcome of the Sentinel research project, which was partly funded by the Technology Strategy Board.

**Positioning**

**Precision**

**rakon**

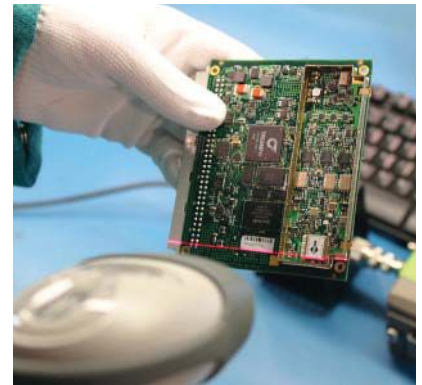
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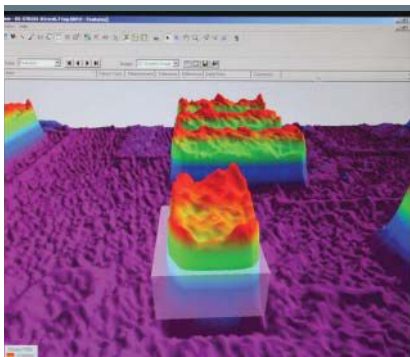


▲ FOUR SMT LINES continuously assemble, inspect, and test printed circuit boards.

# JAVAD EMS Brings High-Tech Manufacturing Back Home

In 2009, Javad Ashjaee joked with his vice president Gary Walker that if together they could build a manufacturing facility that met his requirements and made him happy, then they would have the formula to meet the most rigorous demands of any original equipment manufacturer in the market. Purchasing a 40,000-square-foot building in San Jose, they constructed a full-service contract electronics manufacturer, JAVAD EMS, that today turns out products for customers in defense, aerospace, communications, networking, industrial, and, yes, even global navigation and positioning.

“Silicon Valley is Back to Build” trumpets a steel-and-glass banner above the reception desk, appealing to U.S. companies that once outsourced production to Asia but are now bringing it all back home.



▲ IN-LINE automated 3D solder-paste inspection.

JAVAD GNSS never sent its own production off-shore in the first place, so it now benefits from other companies’ re-evaluation of their manufacturing strategies. Overseas costs, once attractive but now less so, are the leading factor in the reversing trend. Wage inflation, particularly in China, has augmented quality and safety concerns, misgivings about economic/political issues, and overseas skills shortages for highly technical manufacturing processes. Companies increasingly focus on quality and customer service as differentiators; both are better controlled locally.

JAVAD EMS (JEMS) focuses on low- to medium-volume, high-mix applications for customers seeking prototype-through-volume production from a single source. Its facility houses four continuous-flow surface-mount technology lines with 10 Juki machines that can place more than 2 million components per day. The machines can perform prototype runs or produce quantity, in quality, at high speeds.

JEMS has invested in equipment and manufacturing execution software (MES) to build quality into product from the start. The plant uses 3-D solder-paste inspection after screen printing on every board it produces, whether a five-piece prototype or a multi-thousand-

piece production run. After reflow, all products go through optical inspection and X-ray inspection. The systems are very flexible, allowing for diverse, complex products with quick changeovers.

A comprehensive MES system generates and distributes assembly documentation to the floor in a paperless format. Operators and production staff access documents via touch screens throughout the factory. This provides the capability for seamless transfer of information anywhere on the production floor and, for the customer, traceability through every stage of the process.

Test is also a key component of JEMS’s overall capabilities. The plant supports test for various RF technologies including GPS receivers and antenna, 2-watt, 35-watt, and 100-watt radio modems including narrow band and spread spectrum. Testing is automated through the use of Labview software and GPIB interface. Flying head probe testing and in-circuit testing capability is also supported, as well as complete functional testing of products prior to shipment.

The plant has received ISO9001, ISO13485, and AS9100 certifications. In 2010, JEMS produced 60,000 printed circuit board assemblies, rising to 135,000, and then to 215,000 in 2012.

» EVENTS

**Intergeo 2013**

October 8–10, Essen, Germany  
[www.intergeo.de](http://www.intergeo.de)

With more than 16,000 visitors from 80 countries, Intergeo is a key platform for geodesy, geoinformation and land management dialogue. The 19th Intergeo will look at the significance of changes in economic and political structures.

**Fourth ESA Colloquium on Galileo**

December 4–6, Prague, Czech Republic  
[www.congrexprojects.com/2013-events/13c15/](http://www.congrexprojects.com/2013-events/13c15/)

The fourth International Colloquium on Scientific and Fundamental Aspects of the Galileo Programme will contribute to ESA's implementation and definition of the evolution of the European GNSS. The gathering of major academic players provides a scientific reference for institutional executives and industry, as well as offering a platform for promoting innovative GNSS initiatives at large.

» RESEARCH & DEVELOPMENT

**TerraStar Establishes Base at GRACE Facility**

TerraStar GNSS, a supplier of precision positioning services for land and near-shore applications, has established a base at Nottingham University's GNSS Research and Applications Centre of Excellence (GRACE). TerraStar GNSS will contribute and have access to GRACE's support facilities, including customized incubation units, offices, test equipment, research and development laboratories, and dedicated training suites.

Expected projects include joint research and development of new GNSS-type solutions, in addition to provision of support for continued commercial exploitation of academic research endeavors. TerraStar will provide general geospatial expertise for both land and aerial survey applications with advanced receivers.

**6th European Workshop on GNSS Signals and Signals Processing**

December 5–6, Munich, Germany  
<http://ifen.bauw.unibw.de/gnss-signals-workshop/index.html>

This workshop provides an overview of GNSS signals and related processing techniques.

**ENC-GNSS 2014**

April 14–17, 2014, Rotterdam, Netherlands  
[www.enc-gnss2014.com](http://www.enc-gnss2014.com)

ENC-GNSS 2014 will cover all aspects of positioning, navigation and timing developments and applications. Special sessions will be organized for innovations and their commercialization.

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