

Technology Advancement Group®, Inc.

PPS GPS-S

SURVEYING SET, SATELLITE SIGNALS

**PROGRAM OF RECORD
MULTI-GNSS SURVEY SYSTEM**

**THAT MEETS
COMMERCIAL STANDARDS**

**USING A
SAASM RECEIVER**

**WITH
ASSURED PNT**



AN/GSN-16



MANUFACTURED
IN THE USA

TAG's Precise Positioning Service (PPS) Global Positioning System-Survey (GPS-S) solution has been specifically designed to address the stringent requirements of military survey missions including geodetic, construction, airfield, and field artillery survey. PPS GPS-S provides precise GPS positioning accuracy with a military-grade GPS receiver to provide jamming and Emerging Threat (ET) protection. The GPS receiver is supplemented with data from foreign Global Navigation Satellite System (GNSS) constellations to increase accuracy, integrity, and service availability. PPS GPS-S gives the military surveyor the tools they need to complete their missions with minimum time-on-station even in the face of GPS signal Emerging Threat (ET), attempted jamming, or Electronic Warfare (EW).



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Achieve Your Survey Mission Using Fully Protected Military GPS Signals Supplemented by Civilian GNSS Signals:

- **Enjoy the benefits of industry-standard survey capabilities while operating in military environments.**
- **Don't let the threat of Emerging Threat (ET) and jamming interrupt your mission.**
- **No need to be exposed at the same location because you had to go back to complete the job.**
- **PPS GPS-S operates exactly the same whether keyed or unkeyed.**

At the core of the PPS GPS-S system is TAG's GNSS Controller, the TC-301 TAG Commander® rugged tablet. The TC-301 integrates both military GPS and civilian GNSS receivers, advanced Real-Time Kinematic (RTK) signal processing technology, a miniature military grade wireless radio, and an Intel® embedded low power multi-core processor, housed inside a rugged military grade tablet with a 7" daylight readable touchscreen display and dual hot-swappable long-life batteries.

The high-precision, military GPS receiver provides GPS signal assurance and security with enhanced noise and signal rejection capabilities. The advanced integrated radio provides RTK corrections for centimeter level real-time positioning accuracy and robotic control of compatible Total Stations. In stationary mode and utilizing post-processing software, PPS GPS-S delivers millimeter-level accuracy. PPS GPS-S features Carlson® SurvPC Mil, a powerful commercial survey software for RTK survey systems and Total Stations. SurvPC Mil is built around Carlson's world renowned SurvCE platform and has been customized to meet the needs of the military surveyor.

Precision Survey System Highlights

- Highly Accurate Antenna Phase-Center Stability
- Enhanced Carrier-Phase Measurement Accuracy
- Centimeter-Level Accuracy, Millimeter-Level with Post-Processing
- Base Station Survey Tripod with Plumb Bob and Height of Instrument (HI) Rod
- Tribrach with Optical Plummet
- Carbon Fiber 2-Meter Rover Pole with Cable Management and Bi-Pod
- Quick Release Mounting Hardware for Rugged Tablet and Rover Pole
- Controller User-Selectable to Perform as either Base Station or Rover
- In-Field Wireless Transmission of RTK Corrections
- Designed, Built and Tested to Survive Harsh Military Environments
- Optimized for Size, Weight, and Power Balanced with Functionality
- Robotic Radio Control of Compatible Total Stations
- Hydrographic Survey with Compatible Depth Finders

Survey Software Highlights

- World-Wide Industry Standard Field Survey Software Tailored to Military Environments
- Highly Intuitive Graphical User Interface
- Full CAD Functionality in the Field in Real-Time
- Collect Points in the Graphics Mode:
 - Plots Points as they are Stored in the Field and Line Work is Produced in Real-Time
 - Ensures Data Integrity Eliminating Return Trips



- Stake to Points, Lines, Arcs, Surfaces, or Any Offset Thereof in Real-Time
- Strong GIS Features for Accurate Data Capture
- Field-to-Finish: No Need to Spend Extra Hours in the Office to Make Drawings
- Quick and Easy Volume Calculation and Ability to Generate Points from Polylines
- Full Suite of Coordinate Geometry Functions
- Feature-Rich Road Creation and Staking Capabilities
- Export Data in JXL File Format for Import into TBC and other post processing packages.

GNSS Controller

- TC-301 TAG Commander® Rugged Tablet
- MIL-STD-810 and MIL-STD-461 Designed and Tested
- Military GPS and Civilian GNSS Receivers Fully Integrated into Tablet
- Unclassified-When-Keyed Operation
- Black Key Capable, for Over-The-Air-Rekeying (OTAR), when Available from GPS Satellites
- Programmable UHF Spread Spectrum Radio
- Intel® Low Power Multi-Core Processor, 1.6GHZ/2GB, 32G SSD Storage
- 7" Touchscreen Display Optimized for Sunlight Readability
- Sealed Chassis with Military Grade Push-Pull Connectors
- Dual Hot-Swappable Batteries for Extended Mission Time

MULTI-GNSS SURVEY SYSTEM



MULTI-GNSS SURVEY SYSTEM

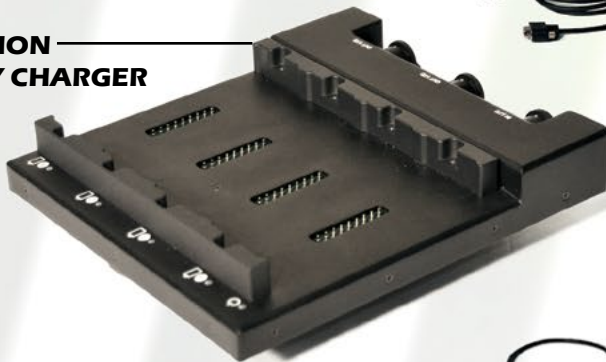
LI-ION BATTERY



RS-232 CABLE



4-BAY LI-ION BATTERY CHARGER



DC/DC CABLE



DC/DC CONVERTER



AC POWER ADAPTER



12V CHARGER



GNSS ANTENNA



ROVER POLE



GNSS CONTROLLER



ROVER BIPOD



MULTI-GNSS CONTROLLER

Type Designation: AN/GSN-16

Item Name: SURVEYING SET, SATELLITE SIGNALS

Dimensions	GNSS Controller: 10.1" W x 7.2" H x 2.3" D
Weight	GNSS Controller: 5.25 lbs. with Batteries
Display	7" Widescreen Display (WSVGA) with Touchscreen Sunlight-Readable, Low-Power Transflective Display
GPS/GNSS	Dual High-Precision Integrated Receivers (GPS and GNSS) GPS L1 / L2 Dual Frequency Tracking GLONASS L1 / L2 Dual Frequency Tracking Upgradeable to Galileo and Other GNSS / SBAS External GNSS Antenna with Highly Accurate Phase-Center Stability Vehicle Antenna Mounts and Extended Length Cables for Remoting GNSS and UHF Antennas
Connectors	15V DC -In Power Port Data Port with IO Hub Cable Providing Dual RS-232, Dual USB, 1PPS (In/Out) Keyfill Audio Connector External TNC Radio Antenna Connector External Reverse Polarity TNC GNSS Antenna Connector
Batteries	2x Internal Hot-Swappable Li-Ion w/Spares 1x External 12V, 21AH Lead Acid w/Carrying Bag
Run Time-Base Station	24 Hours w/External Battery, Continuous with Hot-Swap
Run Time-Rover Station	10 hours with provided Hot-Swappable Batteries
Power Supply	AC/DC Adapter with Power Cord (110-220VAC) DC/DC Converter (11 - 32VDC) for Connection to External Batteries and Other Power Sources Vehicle Adapter and Charger (NATO Plug, and Alligator Clips)
Radio	Adjustable Transmit Power Up-to 1W 10+km Range; Extended Range with Repeater Integrated High Speed, Low Power, Spread Spectrum UHF Radio Operates Multiple Base Stations within a Closed Operating Network Optional 128 / 256 bit AES Encryption

Specifications are subject to change, contact us for more information.

Operating Modes	GNSS Differential: LADGPS, RTK, Static/Rapid Static, and Kinematic GNSS Stand-Alone: Navigation and Point Positioning Total Station: Robotic Radio Control or Direct Connect of Compatible Total Stations within the Closed Network Hydrographic Survey: Depth Finders with NMEA 0183 Output in DBT or DPT Format
Augmentation Message Format	RTCM 194-93/SC104-STD (Send and Receive) CMR+ Available Upon Request
Positioning Performance	FOUO Available on Request
Navigation Waypoints	999+
Coordinate Systems	User Selectable UTM, UPS, MGRS, Lat/Long, USNG
Geodetic Datums	Default WGS 84, User Selectable Any Listed in NIMA TR 8350.2
Geoids	HAE, MSL, Supports the use of Worldwide Geoid Models and Local Geoid Models
Receiver Data Interchange	RINEX 2.10 or 3.0
Auxiliary Equipment Supported	Leveling Sensors, Laser Range Finders, Hydrographic Sensors
LandXML	LandXML, JXL File for Import into TBC, Points, DTM, Graphics, Alignments, Profiles and Sections
File Formats Support	Esri® File Format Support Upgrade Optional ASCII File Import / Export Supported CAD Formats: .dwg, .dxf, .dgn, .shp, .mxd
Reference and Rover Station Accessories	External USB Keyboard w/Trackball, 2.5" External Hard Drive External USB Slot Loading DVD - R/W Drive Transit Cases, Travel Bags, Screen Protector, Stylus System Includes All Components Required to Deploy as a Base Station and Two Rover Receivers
Meets MIL-STD 810G Environmental Specifications	Temperature, Shock, Vibration, Altitude, Humidity, Sand/Dust, Driving Rain, Fungus/Mold, Salt/Fog
Meets MIL-STD 461F EMI/EMC Specifications (Army Ground)	EMI/EMC (CE 102, CS101, CS114, CS115, CS116, RE 102, RE 103, RS103)

Export of Military GPS Receiver is authorized for GPS Memorandum of Understanding countries only. Ask us about an exportable version that is fully ruggedized but without the controlled PPS GPS receiver.



AN/GSN-16

TECHNOLOGY ON THE MOVE™

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