APS-3

Precision Satellite Surveying
with Wireless Communications

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Features

- Single, rugged housing with all components for field survey and stake out
- State of the Art 48-channel AsteRx2 receiver with GPS and GLONASS
- Integrated satellite antenna for optimized satellite tracking
- Base or Rover configuration for standard equipment use
- Internal GSM Modem for connection to Real Time Networks
- Internal UHF or Spread Spectrum Radios for RTK ready units
- Easily Removable SD Card for raw Data Logging
- Bluetooth on-board for a cable free controller
- Allegro CX controller with Carlson SurvCE for efficient field survey
- Optional External Radio for greater transmission range
- Two Hot Swap Li-Ion batteries for continuous operation
- External Battery or Power Supply via cable for long sessions
- Open interface protocols for user interface with a desired controller

The ALTUS Positioning Systems APS-3 is a high precision satellite receiver and communications unit specifically designed for the Surveying market. Integrated with state-of-the-art technology, the APS-3 provides surveyors high productivity, performance and flexibility.

A rugged, lightweight single housing, mounted on a pole or tripod, the wireless APS-3 receiver works seamlessly with Carlson SurvCE, recognized as the most powerful and easy-to-use field data collection software on the market. Complete with a "Ready To Go" equipment package, customer service and support, spare parts and training.

State of the Art Receiver The APS-3 uses the AsteRx2 GNSS engine from Septentrio which measures both GPS and GLONASS constellations for robust and accurate satellite positioning. The advanced receiver technology includes Receiver Autonomous Integrity Monitoring, Multipath Estimation, and a standard output rate up to 10 Hz. The APS-3 combination of a GNSS receiver with a matched internal antenna provides an integrated product with optimal performance that is ready for use at turn-on.

Base or Rover Configuration With the internal radio designed into each APS-3, any unit may be configured as a local base station to transmit corrections for RTK surveys without any change in hardware. For extended transmission range, external radios may be interfaced through a serial port.

Multiple Communication Choices Surveyors have a choice of communications options that are all integrated into the single rugged housing. These communications options include: a GSM/GPRS modem for connecting to Real Time Reference Station Networks, a choice of either digital Spread Spectrum (900 MHz) or digital UHF (450-470 MHz) radios for local data transmissions, or the option to use an external radio through a serial port.

Hot Swap Batteries with Fuel Gauges The APS-3 houses two batteries that may be hot swapped for continuous operation. The efficient APS-3 provides a full day's operation from the two internal rechargeable Li-Ion batteries (7.2V, 5000mAh). Re-charging is done within a few hours with the included charger. All ALTUS batteries integrate fuel gauge technology to display current battery status. The unit may also be powered from an external ALTUS battery for extended operation.

Easily Removable SD Card for Data Logging For ultra portability and data management, the APS-3 logs raw data onto a removable SD card that is accessed easily through a convenient door. With the APS-3, getting data to the PC for post processing is simply a matter of inserting the SD card into the office PC, eliminating the need for cable downloads and additional software.

Bluetooth Controller—No Cables Integrated Bluetooth provides cable free operation for use with a pole mounted data collection system with the ease of use and portability required for survey/GIS applications. Real time records are also logged on the controller and the user can do wireless transfer to a PC easily.

Open Architecture Altus believes in Open Architecture and the advantages that this brings to the market including the ability for users to "plug and play" and swap equipment when required, to create easy upgrade paths, and not to be "locked in" to any one supplier on the market. Due to our Architecture Philosophy, all our data interface protocols are publicly available and we are pleased to work with any suppliers to help them interface with the APS-3.

GNSS Specifications

The APS-3 features the AsteRx2 GPS/GLONASS dual frequency receiver from Septentrio, the latest entrant to the high precision positioning market. The AsteRx2 engine includes RAIM and provides outstanding performance for Survey and GIS applications.

Position accuracy [1,2,3,8]

	HORIZONTAL	VERTICAL
Standalone	1.1 m	1.9 m
SBAS	0.7 m	1.2 m
DGPS	0.35 m	0.65 m

RTK performance [1,7]

Horizontal accuracy[3]	1 cm + 1ppm
Vertical accuracy[3]	2 cm + 2ppm
Average time to fix[4]	7 sec
Availability[4]	> 99.8 %

Ports

Lemo 5-pin, serial port for Handheld PC
Lemo 8-pin, serial port for external radio/modem
Lemo 4-pin for external power

Power

Internal Battery (2)	Li-Ion, 5000mAh, 7.2 V
Current drain	1.0 to 1.5 A nominal 2.75 A peak.

Weight

<2 kg

Dimensions

178 mm Dia. x 89.7 mm High

Environmental Specifications

Operating Temperature	-20°C to +65°C
Storage temperature	-40°C to +75°C
Shock/Drop	2m

Velocity Accuracy [1,2,3]

	HORIZONTAL	VERTICAL
Standalone	2 cm/sec	4 cm/sec

Maximum Output rate

10 Hz

Latency

<20 msec

Time to first fix

Cold start[5]		< 45 sec
Warm start[6]	*after power-on*	< 20 sec
Re-acquisition		< 1.5 sec

ROHS	Compliant
Waterproofing	IPX67
Certification	CE FCC Class B Part 15

Accessories

- Allegro CX field computer with SurvCE software
- Li-Ion rechargeable battery pack
- Battery Charger
- 1 GB SD Card
- SIM card
- Bipod
- Spread Spectrum or UHF radio antenna
- External power cables
- External radio/modem cable

1. 1 Hz measurement rate
2. Performance depends on environmental conditions
3. 1 sigma level
4. Baseline < 20 km
5. No information available (no almanacs, no approximate position)
6. Almanacs and approximate position known, no ephemeris known
7. Fixed ambiguities
8. Smoothed

ALTUS Positioning Systems is dedicated to providing customers with first class positioning system products and freedom of choice. We have carefully designed high-quality products to meet the needs of today's surveyors based on the experience of many years involved in instrument design and construction. Our Engineers have been involved in Survey products since the beginning of the Satellite Surveying Era. We are committed to ease of use, a low cost of ownership and flexibility to accommodate different working environments. Our close partners are carefully chosen and are as committed to these values as we are.

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