

Key Features

A07-RTK

- L1 GNSS multi-constellation receiver.
- Real Time Kinematic (RTK) firmware for accurate positioning.
- Base and rover functionality.
- Integrated GPRS modem and GSM antenna.
- Integrated Bluetooth module with antenna.
- Integrated processor for data management.
- Ntrip server and client functionality.
- Integrated Li-Ion battery.
- Integrated microSD card.
- Compact design, low power consumption.
- Configuration software.

AGIS Software

- Professional GIS field software running on Android platform.
- Connection and data transmission via Bluetooth.
- Compatible with Android-based smartphones and tablets.
- Support of ESRI shapefile format.
- Import of existing GIS data and editing in the field.
- Quality control of real-time GNSS position input.
- Support of taking georeferenced photos.
- Navigation to existing features.

System Description

The Alberding A07-RTK is a powerful and cost-effective GNSS hardware designed for sub-decimetre accurate real-time positioning and wireless data transfer. Together with the Alberding AGIS mapping software it provides a complete solution to surveying and GIS professionals for high accuracy field data collection. The A07-RTK sensor consists of a multi-constellation L1 RTK GNSS receiver, a GPRS modem, a Bluetooth module, an integrated processor and additional sensors. Depending on the application, the A07-RTK is available with different external GNSS antennas. The power supply of the entire system is provided by a built-in Li-Ion battery.

High Accuracy at Low Cost

The small-sized single frequency multi-GNSS receiver provides high accuracy at an affordable price. RTCM 3.x corrections are received from a local RTK base station or a GNSS network through the Ntrip protocol. Once the A07-RTK initialized, it can transmit accurate position information to an external device via the Bluetooth interface. There is no need for an expensive field controller, you can simply use your existing Android smartphone or tablet PC with the AGIS mapping software.

Professional Mapping Solution with AGIS

Alberding AGIS is a full-featured GIS field software that comes with an intuitive interface and wide-ranging GIS functionalities. It stores position data in ESRI shapefiles as points, polylines or polygons. Additional information (e.g. area, length and GNSS quality information) is stored in attribute tables. With the help of the AGIS software existing points can be quickly detected and recovered.



RTK positioning

The low-cost, single frequency A07-RTK receiver offers sub-decimetre level positioning accuracy in real time. Ntrip-based corrections are received from an RTK base station or a regional RTK network through the integrated GPRS modem. Position information is delivered to an external device (e.g. tablet or smartphone) through wireless Bluetooth connection. This lightweight GNSS sensor is ideal for a wide range of applications requiring highly accurate position data, including surveying, mapping, mining, gas pipelines, electric utilities, asset management, and much more.



GIS field data collection

Accurate position is transmitted by the A07-RTK receiver to a smartphone or tablet via Bluetooth. Alberding AGIS is a professional mapping software that can be installed on any Android-based devices. It allows for fast and efficient field data capture, maintenance and analysis. The software supports ESRI shapefiles and can import and display existing GIS data for editing in the field. Alberding AGIS supports centimetre-grade RTK receivers and provides real-time GNSS quality control. Using the integrated camera of the Android device users can take georeferenced photos. The AGIS software together with the A07-RTK receiver deliver highly accurate geographic information required by precision agriculture, forestry, disaster management, utilities, wastewater management and other applications.



Technical Specifications

Tracking

GNSS signals tracked:	
GPS	L1 C/A code and carrier
GLONASS	L1OF code and carrier
BeiDou	B1I code and carrier
Number of channels:	72
Update rates:	RTK up to 8 Hz ¹ Carrier phase data up to 10 Hz

Accuracy (CEP)

Autonomous:	2.5 m
RTK ^{2,3} :	0.025 m + 1 ppm

Convergence Time

RTK ² :	2 min
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Time to First Fix

Cold start:	26 s
Aided start:	2 s
Reacquisition:	1 s

Data and Memory

Data storage:	Removable microSD card
Real-time data output:	NMEA 0183, UBX binary, RTCM version 3.x
Real-time data input:	RTCM version 3.x

Communications

Bluetooth 2.1 + EDR:	Class 2, range: ~30 m, SPP protocol, Apple iAP
Cellular ⁴ :	Quad band GSM/GPRS (850/900/1800/1900 MHz), class 10 with Ntrip support
USB-mini:	USB v2.0, virtual serial port
Serial ⁵ :	RS-232 Sub-DB9

¹Limited to 5 Hz for multi-GNSS RTK

²Depends on baseline length, number of satellites in view, satellite geometry, GNSS antenna, multipath environment and atmospheric conditions

³ppm limited to baselines up to 10 km

⁴External GSM antenna, optional

⁵Optional

⁶IP67 with additional housing

⁷Varies with temperature and wireless data rate

⁸AC-DC 5V USB charger 1A

Physical

Dimensions (LxWxH):	12.0 cm x 7.5 cm x 2.7 cm (4.72" x 2.95" x 1.06")
Weight:	190 g (0.42 lb) with internal battery
Status indicators (LEDs):	Power, GPRS, Bluetooth, GNSS status
Buttons:	Power button
Antenna connector:	SMA female

Environmental

Operating temperature:	-20 °C to +55 °C (-4 °F to +131 °F)
Humidity:	up to 80%
Ingress protection ⁶ :	IP40
Enclosure material:	ABS plastic (UL 94 HB)

Electrical

External power input:	5 V DC (USB-mini)
Rechargeable Li-Ion battery:	3.7 V, 1.25 Ah with LED status indicator
Power consumption ⁷ :	1.3 W in real-time output mode
Operating times:	3:40 h (1 Hz output rate)
Recharge power consumption:	5 W
Full recharge time ⁸ :	max. 2 h with LED status indicator
Protections:	Short-circuit Overcurrent charge and discharge Overvoltage charge (overcharge) Undervoltage charge (over-discharge) Temperature

Optional Accessories

1. AC-DC power supply 100-240 V USB-charger
2. USB cable 2.0, A-plug to mini-USB 1.5 m
3. Tallysman 33-3400-00-00-3000 GNSS antenna
4. navXperience 3G+C GNSS antenna
5. External battery

Specifications subject to change without notice. © October 2016, Alberding GmbH
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