

S850A^{New} GNSS Receiver

GNSS Receiver with
Atlas[®] and IMU



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Equipped with an advanced 800 channels GNSS board and capable of supporting multiple satellite constellations, including GPS, GLONASS, BEIDOU, GALILEO, QZSS and IRNSS. Stonex S850A GNSS receiver is an ideal solution for any surveying field work. S850A has also L-Band correction.

The advanced receiver design gives to the S850A an excellent signal tracking ability and interference resistant capacity. Advantages of portability and speed of operation make S850A GNSS receiver particularly suitable for fieldwork in areas of complex terrain.

Stonex S850A is equipped with all the necessary connections, has integrated Bluetooth and internal Wi-Fi functionality; has a built-in dual frequency UHF radio, 410-470 MHz and 902.4-928 MHz and the worldwide compatible 4G GSM modem.

Stonex S850A integrates also the new IMU System that allows tilted measurement (TILT) up to 60°: quick initialization, fast and precise survey.



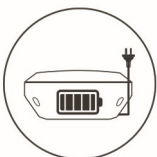
MULTI CONSTELLATION

Stonex S850A with its 800 channels, provides an excellent on board real time navigation solution with high accuracy. All GNSS signals (GPS, GLONASS, BEIDOU, GALILEO, QZSS and IRNSS) are included, no additional cost.



IMU TECHNOLOGY

On S850A is available the IMU technology. Fast initialization, up to 60° inclination.



HIGH BATTERY CAPACITY AND TYPE-C

Stonex S850A is delivered with a large capacity lithium battery and Type-C connector to recharge it easily.



RADIO AND GSM

S850A has integrated UHF double frequency radio, 410-470MHz and 902.4-928MHz. Through the 4G GSM modem a fast internet connection is guaranteed.



RUGGED RTK

With IP67 Certification Stonex S850A will ensure operations in various kinds of extremely tough environments.





S850A^{New} IMU Technology

S850A GNSS receiver has the new IMU System that allows tilted measurement (TILT). Thanks to the new IMU technology, the edges of the houses, the difficult and inaccessible points are no longer a problem.

What is an Inertial Measurement Unit (IMU)?

An Inertial Measurement Unit (IMU) is a self-contained system that measures linear and angular motion usually with a triad of gyroscopes and accelerometers. Stonex S850A with IMU system makes reliable every measurement, both survey and the stake out jobs, and makes extremely faster the acquisition of points: up to 40% of the field work time can be saved!

What are the performances of the S850A with IMU?

- No problem of electromagnetic disturbances
- Fast initialization
- Up to 60° inclination
- 2 cm accuracy 30°
- 5 cm accuracy 60°
- Fast and precise survey

Atlas® Correction Service & aRTK atlas

S850A is a new Stonex GNSS Receiver capable to automatically select the best combination of GNSS signals with the possibility to receive Atlas® RTK by L-band. ATLAS is an exclusive PPP technology that provides real-time, centimeter-level positions. PPP (Precise Point Positioning) is a positioning technique that removes or models GNSS system errors to provide a high level of position accuracy from a single receiver.

A PPP solution depends on GNSS satellite clock and orbit corrections, generated from a network of global reference stations. Once the corrections are calculated, they are delivered to the end user via satellite through L-Band signal.

Atlas® is a subscription for S850A aimed to achieve 3 different levels of accuracy depending on precision type that you need: Atlas® provides a precise centimeter-level positioning around the world, perfect when working in difficult areas.

Main features

- No RTK base station or RTK network required
- Correction data is continuously transmitted by satellite L-Band, delivering global coverage
- Bridging RTK outages for uninterrupted accurate positioning
- Autonomous remote position within centimeter accuracy
- Retain position accuracy during RTK data stream losses
- Keep position accuracy as long as needed

BASIC	50 cm 95% (30 cm RMS)
H30	30 cm 95% (15 cm RMS)
H10	8 cm 95% (4 cm RMS)

S850A^{New} TECHNICAL FEATURES

RECEIVER

Satellite signals tracked	GPS: L1 C/A, L1C, L1P, L2C, L2P, L5 GLONASS: L1 C/A, L1P, L2 C/A, L2P, L3 BEIDOU: B1, B2, B3, ACEBOC GALILEO: E1, E5a, E5b, ALTBOC, E6 QZSS: L1 C/A, L1C, L2C, L5, L6 IRNSS: L5 SBAS: L1, L5
L-Band	Atlas H10 / H30 / Basic (optional) ⁵
Bridging of RTK outages	aRTK - Works up to 20 minutes
Channels	800
Position Rate	10Hz (optional 20Hz) ⁵
Signal Reacquisition	< 1 sec
RTK Signal Initialization	Typically < 10 s
Hot Start	Typically < 15 s
Initialization Reliability	> 99.9 %
Internal Memory	8 GB
Tilt Sensor	IMU and E-Bubble (optional) ⁵

POSITIONING¹

HIGH PRECISION STATIC SURVEYING	
Horizontal	2.5 mm + 1 ppm RMS
Vertical	5.0 mm + 1 ppm RMS
CODE DIFFERENTIAL POSITIONING	
Horizontal	<0.5 m RMS
Vertical	<1.0 m RMS
SBAS POSITIONING	
Horizontal	<0.6 m RMS ²
Vertical	<1.2 m RMS ²
REAL TIME KINEMATIC (< 30 Km) – NETWORK RTK ³	
Fixed RTK Horizontal	8 mm + 1 ppm RMS
Fixed RTK Vertical	15 mm + 1 ppm RMS

INTEGRATED GNSS ANTENNA

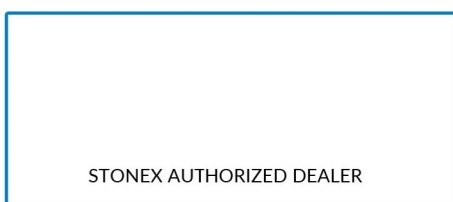
High accuracy four constellation micro-strip antenna, zero phase center, with internal multipath suppressive board

INTERNAL RADIO (optional)⁵

Type	Tx - Rx
Frequency Range	410 - 470 MHz 902.4 - 928 MHz
Channel Spacing	12.5 KHz / 25 KHz
Maximum Range	3-4 Km in urban environment Up to 10 Km with optimal conditions ⁴

- Accuracy and reliability are generally subject to satellite geometry (DOPs), multipath, atmospheric conditions and obstructions. In static mode they are subject even to occupation times: the longer is the Baseline, the longer must be the occupation time.
- Depends on SBAS system performance.
- Network RTK precision depends on the network performances and are referenced to the closest physical base station.
- Varies with the operating environment and with electromagnetic pollution.
- Optional, it can be activated via activation code.

Illustrations, descriptions and technical specifications are not binding and may change



STONEX AUTHORIZED DEALER

INTERNAL MODEM

Band	LTE FDD: B1/B2/B3/B4/B5/B7/B8/B12/ B13/B18/B19/B20/B25/B26/B28 LTE TDD: B38/B39/B40/B41 UMTS: B1/B2/B4/B5/B6/B8/B19 GSM: B2/B3/B5/B8 Nano SIM card
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COMMUNICATION

I/O Connectors	5 pins Lemo, connect the external power supply and external radio Type-C, for receiver power supply and data transfer
Bluetooth	V2.1 + EDR /4.0 LE
Wi-Fi	802.11 b/g
Web UI	To upgrade the software, manage the status and settings, data download, etc. via smartphone, tablet or other electronic device with Wi-Fi capability
Reference outputs	RTCM 2.3, 3.2 CMR, CMR+, ROX
Navigation outputs	NMEA 0183

POWER SUPPLY

Battery	Internal rechargeable 7.2 V - 6.900 mAh
Voltage	9 to 28 V DC external power input with over-voltage protection (5 pins Lemo)
Working Time	Up to 10 hours
Charge Time	Typically 4 hours

PHYSICAL SPECIFICATION

Dimensions	140 mm x 140 mm x 71 mm
Weight	1.10 Kg
Operating Temperature	-40°C to 65°C (-40°F to 149°F)
Storage Temperature	-40°C to 80°C (-40°F to 176°F)
Waterproof/Dustproof	IP67
Shock Resistance	Designed to endure to a 2 m pole drop on concrete floor with no damage
Vibration	Vibration resistant



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