STONEX

S990A GNSS Receiver

High Performance with Atlas® and IMU

suite cube

S990A

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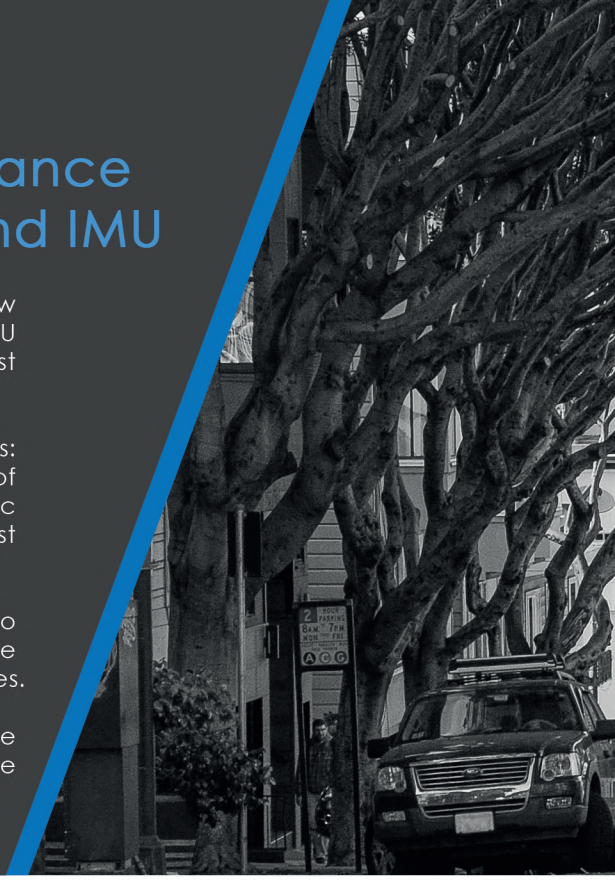

Stonex S990A is a 800 Channels GNSS receiver characterized by a new feature that enhance the performances of field surveys. The new IMU System allows tilted measurement (TILT) up to 60°: quick initialization, fast and precise survey.

S990A Receiver is equipped with all important connectivity capabilities: Bluetooth, Wi-Fi, UHF radio and 4G modem. The internal battery of 10.200mAh allows to work for 9 hours and can be recharged via a type-c connector. The color touch display and the WebUI are an easy and fast way to have the complete control of the receiver.

Thanks to aRTK function and Atlas® correction service, Stonex S990A is also able to work in particularly difficult areas. Atlas® delivers world wide centimeter level correction data through L-band communication satellites.

1PPS can be applied to scenarios that require precise synchronization time to ensure that multiple facilities work together or that use the same parameters for system integration based on precise time.

MULTI CONSTELLATION

Stonex S990A 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 S990A is available the IMU technology. Fast initialization, up to 60° inclination.

DOUBLE FREQUENCY RADIO

S990A has integrated UHF double frequency radio, 410-470MHz and 902.4-928MHz. The needs of each country are supported.

4G MODEM

S990A has an internal 4G modem that operates with all world signals, a fast internet connection is guaranteed.

COLOR TOUCH DISPLAY

RGB

S990A comes with a convenient color touch display for easy management of the most important functions.

STONEX SURVEYING SYSTEMS

S990A

IMU Technology

S990A 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 S990A 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 S990A 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

SureFix Robust RTK Positioning

SureFix is the new processor that runs in combination with GNSS engine to provide high fidelity RTK quality information. The SureFix processor takes several inputs and determines the quality of the RTK solution in the form of "quality indicators". The indicators are then combined with RTK data and provide the user with high fidelity information about the quality of the RTK solution.

Atlas® correction service & aRTK atlas

S990A is a Stonex GNSS Receiver capable to automatically select the best combination of GNSS signals with the possibility to receive Atlas® RTK 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.
Atlas® is a subscription for S990A aimed to achieve 3 different levels of accuracy depending on precision type that you need:
- BASIC, 50cm 95% (30cm RMS)*
- H30, 30cm 95% (15cm RMS)*
- H10, 8cm 95% (H: up to 3cm RMS / V: up to 5cm RMS)*

* accuracy also depends on environmental factors

Atlas® allows you to have centimeter-level measurements all over the world, perfect when working in difficult areas. aRTK is an innovative feature available in Stonex S990A GNSS receiver that continue generating precise positions up to 20 minutes in case the receiver loses the land based RTK correction source.

S990A TECHNICAL FEATURES

RECEIVER

Signal Tracking	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	10 Hz (optional 20-50Hz)[5]
Signal Reacquisition	< 1 s
RTK Signal Initialization[4]	2 to 4 seconds
Hot Start	Typically < 15 s
Initialization Reliability	> 99.9 %
Internal Memory	32 GB
Tilt sensor	E-Bubble IMU

POSITIONING[1]

STATIC SURVEYING	
High Precision Static Horizontal	2.5 mm + 0.1 ppm RMS
High Precision Static Vertical	3.5 mm + 0.4 ppm RMS
Static and Fast Static Horizontal	3 mm + 0.5 ppm RMS
Static and Fast Static Vertical	5 mm + 0.5 ppm RMS
CODE DIFFERENTIAL POSITIONING	
Horizontal	0.25 m + 1 ppm RMS
Vertical	0.50 m + 1 ppm RMS
SBAS POSITIONING[2]	
Accuracy	0.60 m RMS
REAL TIME KINEMATIC (< 30 Km) – NETWORK RTK[3]	
Fixed RTK Horizontal	5 mm + 0.5 ppm RMS
Fixed RTK Vertical	10 mm + 0.5 ppm RMS

INTEGRATED GNSS ANTENNA

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

INTERNAL RADIO (optional)[5]

Type	Tx – Rx (1 watt)
Frequency Range	410 - 470 MHz 902.4 – 928 MHz
Channel Spacing	12.5 KHz / 25 KHz
Range	3-4 Km in urban environment Up to 10 Km with optimal conditions[4]

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

COMMUNICATION

I/O Connectors	5 pins Lemo, connect the external power supply and external radio Type-C, for receiver power supply and data transfer 1PPS port
Bluetooth	2.1 + EDR, V4.1
Wi-Fi	802.11 b/g/n
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, 3.0, 3.2 CMR, CMR+, DGPS
Navigation outputs	NMEA 0183

POWER SUPPLY

Battery	Internal rechargeable 7.2 V – 10.200 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	φ 151 mm x 94.5 mm
Weight	1.40 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
MIL-STD	MIL-STD-810H
Shock Resistance	Designed to endure to a 2 m pole drop on concrete floor with no damage
Vibration	Vibration resistant

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

1. 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.
2. Depends on SBAS system performance.
3. Network RTK precision depends on the network performances and are referenced to the closest physical base station.
4. Varies with the operating environment and with electromagnetic pollution.
5. Optional, it can be activated via activation code.

STONEX AUTHORIZED DEALER

STANDARD MIL-STD 810H

STONEX®
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