

 **STONEX**

# **\$10** **GNSS RECEIVER**



**The New Generation  
Smart and Open  
GNSS Receiver**

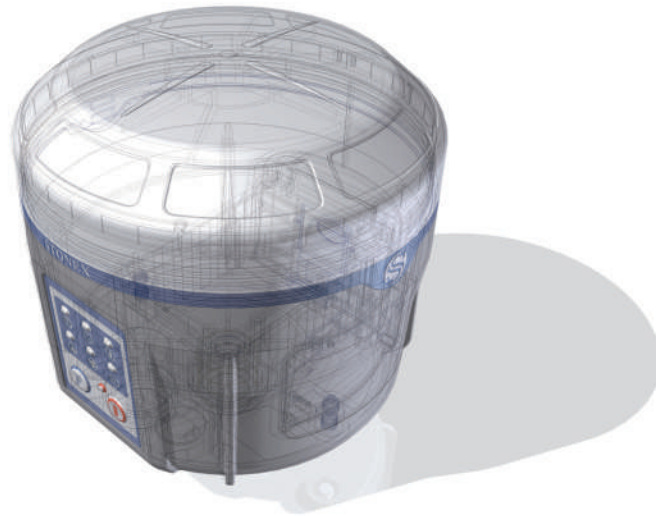


# S10 GNSS RECEIVER

## INTRODUCTION

### STONEX S10: The Smart GNSS Receiver

STONEX S10, the most advanced integrated GNSS Receiver ever appeared on the geomatic scene, leads to a new generation of smart and open GPS, where the User has the ability to install customized applications directly on the receiver. The advanced features of STONEX S10, such as automatic leveling with electronic bubble, make surveying much faster and accurate.



#### EASY MEASURES



It's very easy to measure corners or edges of walls. Internal sensors can correct the coordinates of the points collected according to the tilt angle and tilt direction.

#### EASY CONFIGURATION



Connect your mobile phone to the receiver Wi-Fi to change settings and monitor the receiver status using a standard web browser.

#### QUICK START



By a quick press, users can easily insert and remove S10 from the range pole.





## INNOVATIVE DESIGN

The main structure of S10 is built with magnesium alloy material, making it strong, smart, light and eye-catching. The reason why Stonex has preferred magnesium among other materials is because its incredible advantages, including but not limiting to light weight, natural strength, shock absorption capability and excellent electromagnetic shielding performance.

## INTERNAL STRUCTURE

The sophisticated internal structure design guarantees a compact housing: GNSS antenna, GPS board, power board, RX/TX radio, smart battery, 3.5G module, BT module and Wi-Fi module all take place in a well organized space, optimizing performances and power consumption.

## AIS

Auxiliary Inertial System. This system greatly improves the surveying efficiency and facilitates the positioning of some special sites, such as corners, pipelines, edges of walls, etc. With the excellent performance of the sensors, Stonex S10 can help users to reach the best RTK positioning.

## Tilt Centering

The tilt compensator installed inside can automatically correct the coordinates of the points collected in accordance with the tilt angle and tilt direction of the range pole. In this way, it is not necessary to center it precisely.

## Electronic Bubble

When high precision is requested or when there is strong magnetic-field interference, users can choose to turn off the tilt centering and activate the electronic bubble installed inside. The receiver can automatically record the positioning data when the electronic bubble detects the correct level, with no action required by the operator.

# S10

## GNSS RECEIVER

### KEY FEATURES



## 3.5G WIRELESS DATA TRANSMISSION

High-speed mobile data connection capability ensures rapid transfer of differential data in different formats (CMR, CMR+, RTCM2.x, RTCM3.x) with reliable Internet connection and very low latency.

## WebUI CONTROL

To initialize, manage, monitor the settings of the receiver and to download data using portable or fixed PC, smart phone or tablet with Wi-Fi capability.

## SMART AND OPEN

Stonex S10 is based on CORTEX-A8 platform with on board LINUX smart system combined with an excellent networking system. With the provision of a special SDK package it is possible to develop and install special applications that run inside S10 ecosystem, enabling an unlimited range of advanced applications.

## Cloud Service

This function enables the realization of real-time remote control, remote upgrade, remote smart check and real-time position monitoring to rovers via network.

## Triple data safe-guard

Positioning data is saved on the controller, on receivers as well as on the cloud storage, which ensures 100% data safety with no worry to lose any valuable data tracked.

## INTELLIGENT BATTERY

Stonex S10 is delivered with two high capacity smart batteries. The power level can be checked from the controller and directly from a simple led bar on the battery by the simple press of a button.

## QUICK RELEASE BUTTON

Making it more convenient to use, users can easily remove S10 from range pole by a quick press, greatly improving the work efficiency.

## INDUSTRIAL LEVEL PROTECTION

With IP67 Certification, Stonex S10 will ensure operations in various kinds of extremely tough environments.





#### RECEIVER

Channels	220
Satellite Tracked	GPS: Simultaneous L1 C/A, L2C, L2E, L5
	GLONASS: Simultaneous L1 C/A, L1P, L2 C/A, L2P, L3
	SBAS: Simultaneous L1 C/A, L5
	GALILEO Simultaneous E1, E5A, E5B (reserved)
	BeiDou 2 / COMPASS: B1, B2
Position Rate	Up to 50 Hz
Signal Reacquisition	< 1 sec
RTK Signal Initialization	Typically < 10 s
Hot Start	Typically < 15 s
Initialization Reliability	> 99.9 %
Internal Memory	4 GB (Over 45 days of raw static data storage with recording sample every 1 second)
Micro SD Card	Expansion slot with 4 GB internal memory (32 GB optional)

#### POSITIONING<sup>1</sup>

HIGH PRECISION STATIC SURVEYING (Long Time Observations)	
Horizontal	2.5 mm + 0.3 ppm RMS
Vertical	5 mm + 0.5 ppm RMS
CODE DIFFERENTIAL POSITIONING	
Horizontal	0.25 m + 1 ppm RMS
Vertical	0.45 m + 1 ppm RMS
SBAS POSITIONING (Typical)	
Horizontal	0.5 m RMS <sup>2</sup>
Vertical	0.85 m RMS <sup>2</sup>
REAL TIME KINEMATIC (< 30Km) – NETWORK SURVEYING <sup>3</sup>	
Fixed RTK Horizontal	8 mm + 0.8 ppm RMS
Fixed RTK Vertical	15 mm + 1 ppm RMS
INCLINED POSITIONING (2M POLE)	
10° inclination	20 mm RMS
20° inclination	30 mm RMS
30° inclination	50 mm RMS

#### COMMUNICATION

Connectors I/O	7-pins Lemo and 5-pins Lemo interfaces. Multifunction cable with USB interface for PC connection
Bluetooth device	2,4 Ghz class II
Wi-Fi	IEEE 802.11 b/g/n
Web UI	To upgrade the software, manage the status and settings, data download, etc. via smart phone, tablet or other internet enabled electronic device
Reference outputs	CMR, CMR+, sCMRx, RTCM2.1, RTCM2.3, RTCM3.0, RTCM3.1
Navigation outputs	ASCII (NMEA-0183) GSV, AVR, RMC, HDT, VGK, VHD, ROT, GSK, GSA, ZDA, VTG, GST, PJT, PJK, BPQ, GLL, GRS, GBS

#### INTEGRATED GNSS ANTENNA

High accuracy four constellation micro-strip antenna with internal multipath suppression board
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Illustrations, descriptions and technical specifications are not binding and may change

#### INTERNAL RADIO

Frequency Range	403 - 473 MHz
Channel Spacing	12.5 KHz / 25 KHz
Emitting Power	0.5/1/2 W
Maximum Range	3-4 Km in urban environment, 5-6 Km with optimal conditions <sup>4</sup>
Protocol	Transparent EOT/EOC/FST, SATEL, South, TRIMTALK II/Ile, TRIMMARK 3, TRIMTALK 450S

#### WIRELESS MODULE

Band	GSM/GPRS/EDGE: 850/900/1800/1900 MHz WCDMA/HSDPA: 850/1900/2100 MHz
Output Power	GSM850, EGSM900: 33 dBm(2W) GSM1800, PCS1900: 30 dBm(1W) WCDMA: 24 dBm

#### POWER SUPPLY

Battery	Rechargeable and replaceable 11.1 V – 3400 mAh -37.74 Wh intelligent lithium battery
Voltage	9 to 22 V DC external power input with over-voltage protection (5 pins Lemo)
Working Time in Static Mode (GPS+GLONASS)	12 hours
Working Time in GSM RTK with Cable Connection (GPS+GLONASS)	6.5 hours
Working Time in Wireless Network RTK with Bluetooth Connection (GPS+GLONASS)	4 hours
Charge Time (2 batteries)	Typically 7 hours
Power Consumption	< 6 W
Remaining Time Battery Light Blinking	1 hour

#### PHYSICAL SPECIFICATION

Weight	1.37 Kg (with internal battery, radio standard UHF antenna)
Operating Temperature	-30°C to 65°C (-22°F to 149°F)
Storage Temperature	-40°C to 85°C (-40°F to 185°F)
Operating Temperature with UHF Radio	-30°C to 50°C
Waterproof/Dustproof	IP67. Protected from temporary immersion to depth of 1 meter and from 100% humidity
Shock Resistance	Designed to endure to a 2 m pole drop on concrete floor with no damage Designed to endure to a 1 m free drop on hardwood floor with no damage
Vibration	Vibration resistant
Winter Grade Option	Operating at -40°C (-40°F)

<sup>1</sup>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.

<sup>2</sup>Depends on SBAS system performance.

<sup>3</sup>Network RTK precisions depends on the network performances and are referenced to the closest physical base station.

<sup>4</sup>Varies with the operating environment and with electromagnetic pollution.