

## S590 GNSS Receiver

GIS & RTK Applications



# S590

## GIS & RTK Applications

The S590 is a versatile GNSS receiver featuring a multi-constellation system that supports GPS, GLONASS, BeiDou, Galileo, QZSS, and IRNSS, with advanced PPP correction services available. It delivers centimeter-level accuracy through sophisticated technology that records raw data for post-processing, ensuring precision in demanding applications.

Equipped with cutting-edge IMU technology, the S590 allows for rapid initialization and accurate measurements at inclinations of up to 60 degrees. Connectivity is enhanced with multiple data transmission options, including Wi-Fi, Bluetooth, and external radio. Designed for durability, the S590 boasts an IP67 rating, making it resilient against dust and water exposure, ideal for harsh working environments.



### MULTI-CONSTELLATION SYSTEM & PPP

The S590 features a multi-constellation system that includes GPS, GLONASS, BeiDou, Galileo, QZSS, and IRNSS. PPP correction services available (HAS and B2b).



### HIGH PRECISION

Centimeter-level accuracy with advanced technology that allows for the recording of raw data for post-processing.



### IMU TECHNOLOGY

The S590 is equipped with cutting-edge IMU technology, enabling rapid initialization and accurate measurements even at inclinations of up to 60 degrees.



### DATA TRANSMISSION

S590 stays connected with versatile data transmission options including Wi-Fi, Bluetooth, and external radio.



### RUGGED RTK

Built to endure, the S590 carries an IP67 rating, ensuring it can withstand harsh conditions such as dust and water exposure.





## ROVER RTK WITH RADIO

The S590 is engineered as an RTK rover capable of receiving differential corrections from a network. Additionally, with the Stonex SR02 external radio, it can obtain RTK corrections from a base station that transmits data via UHF radio modem within the 410-470 MHz frequency range. The SR02 radio captures corrections from the base station and relays them to the S590 through Bluetooth using Cube-a technology.

## SOLUTION FOR DRONE

The S590 can be used as a base station for drones, significantly enhancing the accuracy and reliability of aerial operations. The base station provides correction data to the drone (rover), enabling centimeter-level precision through Real-Time Kinematic (RTK) positioning.

This functionality can be easily activated through the web user interface. The S590 can also be used to measure GCPs to improve the accuracy of the survey framing.



## SEAMLESS INTEGRATION WITH SOFTWARE

The S590, thanks to the Cube-connector, a free app for Android devices, can work with popular GIS platforms, enabling users to utilize a wide range of applications for data collection and analysis. With the internal web interface or through the Cube-connector, the receiver can be configured and prepared to receive RTK differential corrections, making it ready to connect to any software for surveying or GIS.



# S590 TECHNICAL FEATURES

## RECEIVER

Satellite signals tracked	GPS: L1 C/A, L1C, L2P, L2C, L5
	GLONASS: L1, L2, L3
	BEIDOU: B1I, B2I, B3I, B1C, B2a, B2b
	GALILEO: E1, E5a, E5b, E6
	QZSS: L1, L2, L5
	IRNSS: L5
	SBAS
PPP	B2b PPP, HAS
Channels	1408
Position Rate	10Hz
Signal Reacquisition	< 1 s
RTK Signal Initialization	< 5 s
Hot Start	Typically < 15 s
Initialization Reliability	> 99.9 %
Tilt Sensor	IMU $\pm 60^\circ$

## POSITIONING<sup>1</sup>

RTK Network <sup>2</sup>	< 2 cm + 1 ppm RMS
RTK Radio	< 2 cm + 1 ppm RMS
Post-processing	1 cm + 1 ppm RMS
PPP Accuracy	< 20 cm
SBAS accuracy <sup>3</sup>	< 60 cm

## INTEGRATED GNSS ANTENNA

Multi-constellation GNSS antenna
----------------------------------

## HARDWARE

Processor	ARM Cortex-A7
Memory	8 GB
Operating System	Linux

## EXTERNAL RADIO (optional)

Model	SR02
Type	Tx - Rx - Transceiver (2 watt)
Frequency Range	410 - 470 MHz
Channel Spacing	12.5 KHz / 25 KHz
Maximum Range <sup>4</sup>	3-4 Km in urban environment Up to 10 Km with optimal conditions

## COMMUNICATION

I/O Connectors	TYPE-C connector support USB 2.0
Bluetooth	5.0
Wi-Fi	IEEE 802.11a/b/g/n/ac
Web UI	To upgrade the software, manage the status and settings, and download data. Smartphone, tablet, or other electronic device with Wi-Fi capability can be used.
Real time protocols	RTCM 3.x

## POWER SUPPLY

Battery	3.85V/6120mAh (non-removeable)
Input	DC 5V-2A
Working Time	Up to 15 hours
Charge Time	Typically 4 hours

## PHYSICAL SPECIFICATION

Dimensions	139 mm x 81 mm x 31 mm
Weight	330 g
Operating Temperature	-30°C to 65°C (-22°F to 149°F)
Storage Temperature	-40°C to 80°C (-40°F to 176°F)
Waterproof/Dustproof	IP67
Shock Resistance	Designed to endure a 1.2 m free drop on concrete floor with no damage

## STANDARD ACCESSORIES

Power adapter, USB cable, Belt case, Pole mount
---

## OPTIONAL ACCESSORIES

Carbon fiber pole, Telescopic pole, Soft bag
--

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. Network RTK precision depends on the network performances and are referenced to the closest physical base station.
3. It depends on the SBAS system's performance.
4. Varies with the operating environment and with electromagnetic pollution.

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

STONEX AUTHORIZED DEALER

**STONEX®**

Viale dell'Industria 53 - 20037 Paderno Dugnano (MI) - Italy  
Phone +39 02 78619201  
www.stonex.it | info@stonex.it