

## S850+ GNSS Receiver

Compact GNSS  
Receiver

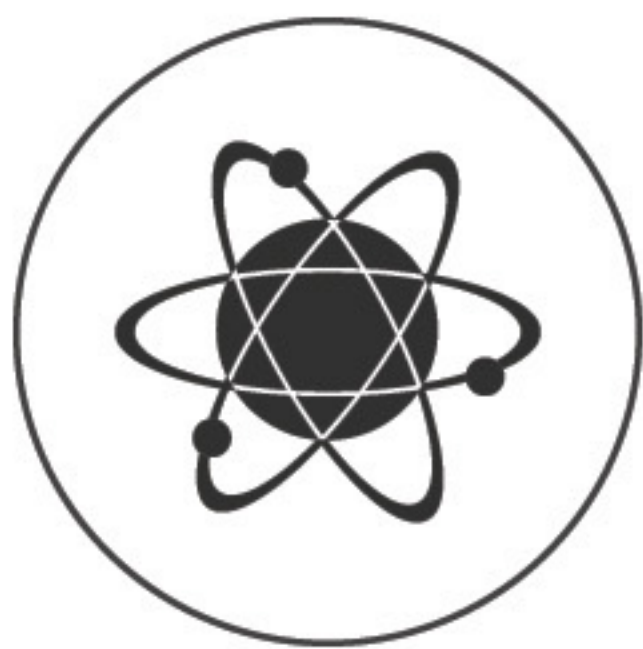


# S850+ Compact GNSS System

Equipped with an advanced 1408-channel GNSS board and capable of supporting various satellite constellations, including GPS, GLONASS, BEIDOU, GALILEO, QZSS and IRNSS.

The Stonex S850+ GNSS receiver is the ideal solution for any surveying work in the field. The receiver's advanced design gives the S850+ excellent signal tracking and interference resistance capabilities. The advantages of portability and speed of operation make the S850+ GNSS receiver particularly suitable for field work in areas with complex terrain.

Stonex S850+ is equipped with all the necessary connections, has built-in Bluetooth and internal Wi-Fi capabilities; has a built-in UHF radio and 4G GSM modem compatible worldwide. Stonex S850+ also integrates the IMU system that enables inclined measurement (TILT) up to 60° : quick initialization, fast and accurate surveying.



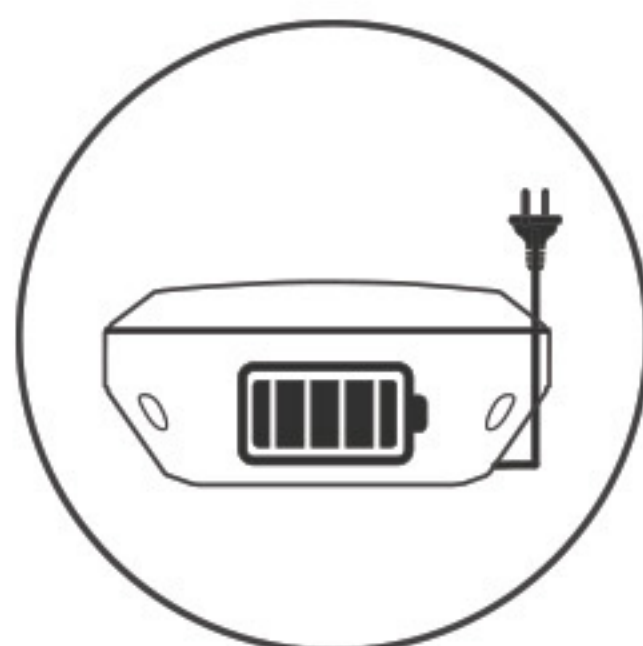
## MULTIPLE CONSTELLATIONS

Stonex S850+ with its 1408 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 S850+ is available the IMU technology. Fast initialization, up to 60° inclination.



## HIGH BATTERY CAPACITY AND USB TYPE-C

Stonex S850+ is delivered with a large capacity lithium battery and Type-C connector to recharge it easily.



## RADIO (Optional)

An activation code can enable the integrated UHF on S850+, whose range can be up to 10km under optimal conditions.



## RUGGED RTK

With IP67 certification Stonex S850+ will ensure operations in various kinds of extremely tough environments.





## S850<sup>+</sup> IMU Technology

The S850<sup>+</sup> GNSS receiver is equipped with an IMU system that enables inclined measurement (TILT). Thanks to IMU technology, house edges, difficult and inaccessible spots are no longer a problem.

### What is an Inertial Measurement Unit (IMU)?

An inertial measurement unit (IMU) is an autonomous system that measures linear and angular motion usually with a triad of gyroscopes and accelerometers. The Stonex S850<sup>+</sup> system with IMU makes every measurement reliable, whether in surveying or staking work, and makes point acquisition extremely faster - you can save up to 40 percent of your fieldwork time!

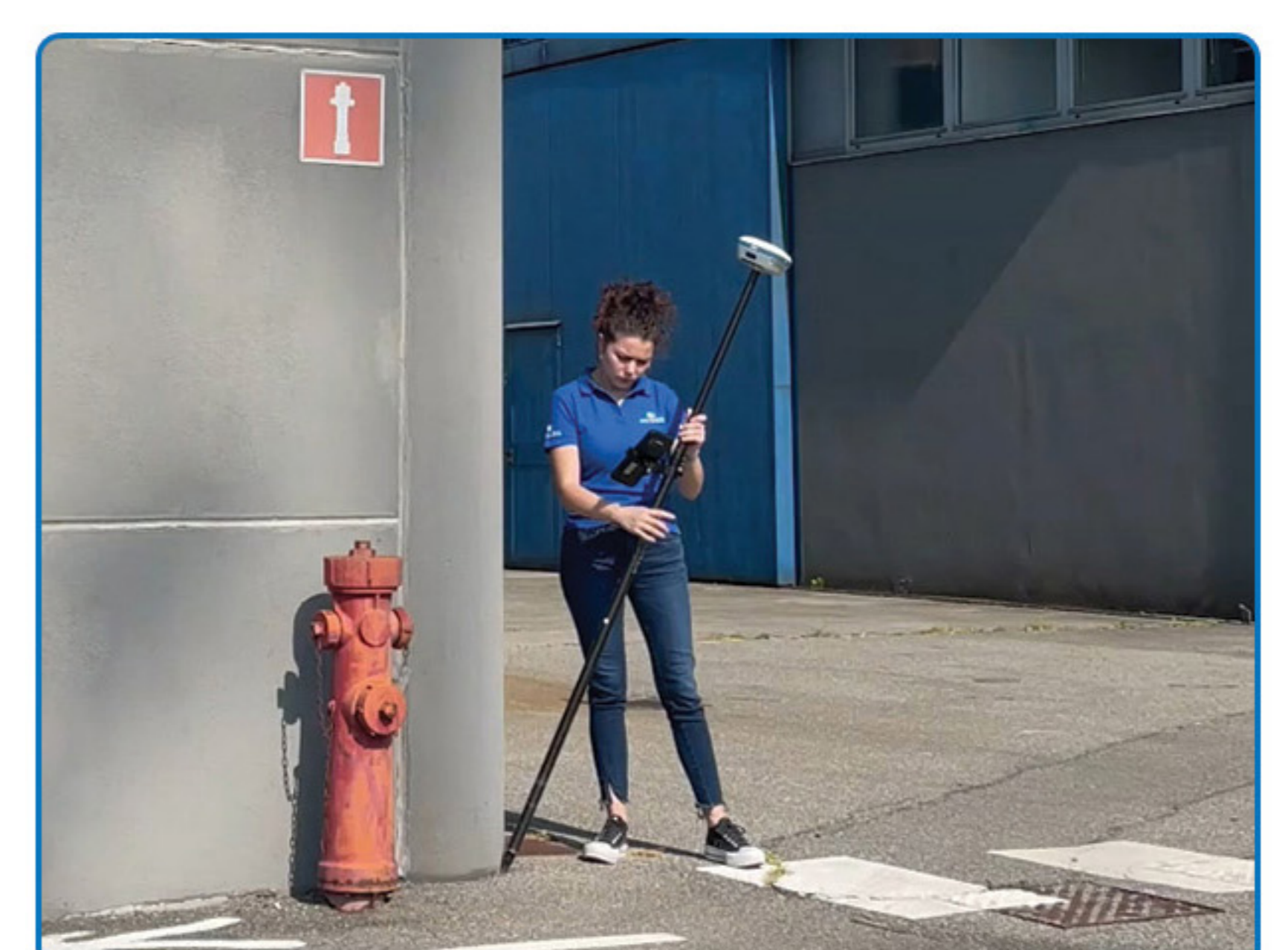
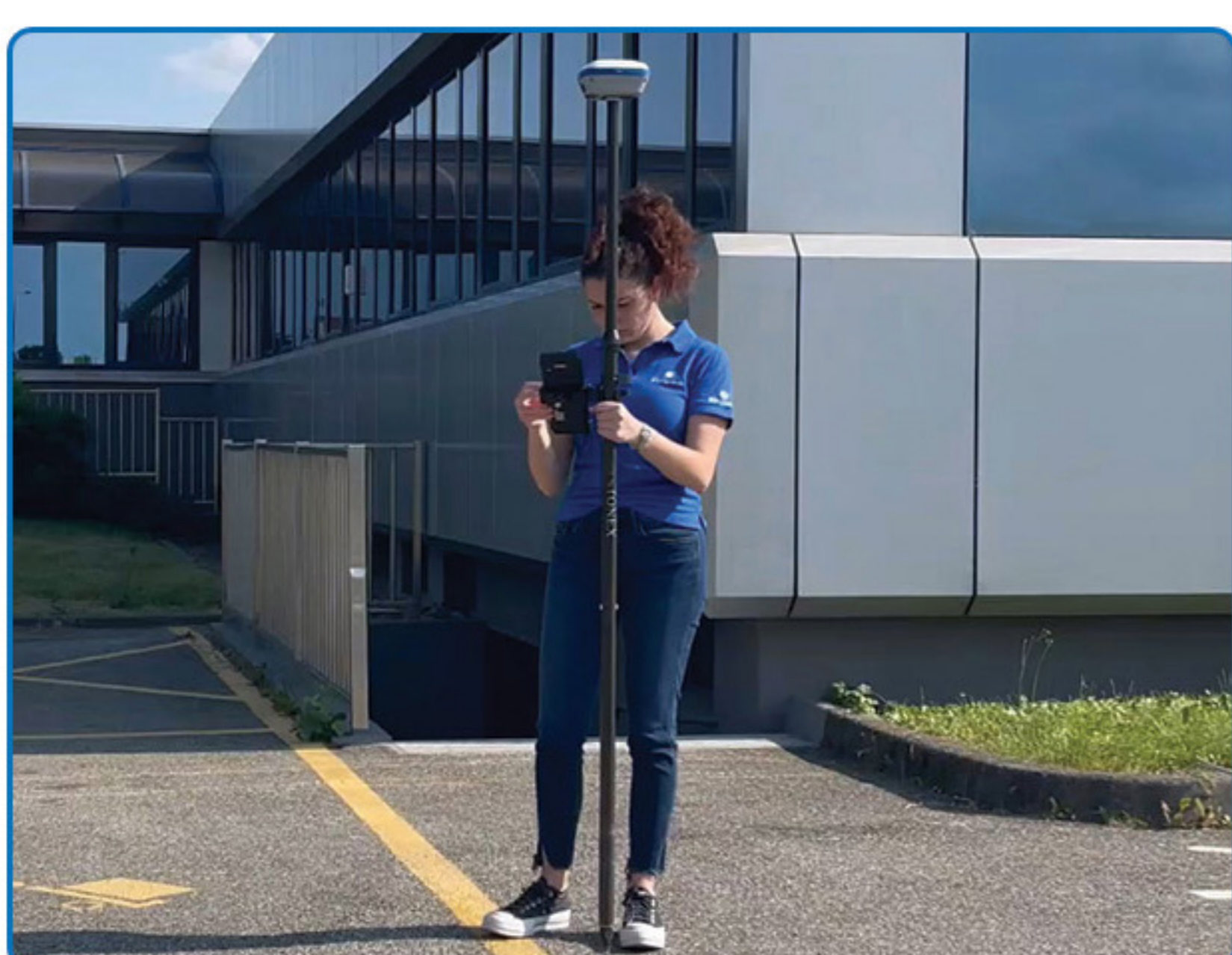
### What are the performances of the S850<sup>+</sup> with IMU?

- No problems with electromagnetic disturbances
- Fast initialization
- Tilt up to 60°
- Accuracy of 2 cm at 30°
- Accuracy of 5 cm at 60°
- Fast and accurate surveying

## Why to choose the S850<sup>+</sup> ?

This instrument is ideal for those who want to have a lightweight and compact instrument. This GNSS weighs only 1.1 Kg and has a dimension of 14 x14 cm. It is mainly chosen by professionals who want a reliable instrument that is a good compromise between quality and price.

The ability to enable additional optional features makes it possible to purchase an instrument with good features that can potentially come close to having features and performance like a top-of-the-line.



# S850+ 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	Up to 20Hz
Signal Reacquisition	< 1 s
RTK Signal Initialization	Typically < 10 s
Hot Start	Typically < 15 s
Initialization Reliability	> 99.9 %
OS	Linux
Internal Memory	8 GB
Tilt Sensor	IMU and E-bubble

## POSITIONING<sup>1</sup>

HIGH PRECISION STATIC SURVEYING	
Horizontal	2.5 mm + 0.5 ppm RMS
Vertical	5.0 mm + 0.5 ppm RMS
CODE DIFFERENTIAL POSITIONING	
Accuracy	0.40 m RMS
SBAS POSITIONING <sup>2</sup>	
Accuracy	0.60 m RMS
REAL TIME KINEMATIC (< 30 Km) - NETWORK RTK <sup>3</sup>	
Fixed RTK Horizontal	8 mm + 1 ppm RMS
Fixed RTK Vertical	15 mm + 1 ppm RMS

## INTEGRATED GNSS ANTENNA

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

## INTERNAL RADIO (optional)<sup>4</sup>

Type	Tx - Rx
Frequency Range	410 - 470 MHz
Channel Spacing	12.5 KHz / 25 KHz
Maximum Range <sup>5</sup>	3-4 Km in urban environment Up to 10 Km with optimal conditions

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. Optional, can be activated via activation code.
5. Varies with the operating environment and with electromagnetic pollution.



If you are looking for an instrument with a 3 years warranty, you can purchase the Italian version of our S850+ GNSS Receiver.

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

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## 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-pin Lemo connects the external power supply and external radio Type-C, for receiver power supply and data transfer
Bluetooth	V2.1 + EDR / V5.0
Wi-Fi	802.11 a/ac/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	RTCM2.3, RTCM3.0, RTCM3.2 MSM, CMR, CMR+, DGPS
Navigation outputs	NMEA 0183

## POWER SUPPLY

Battery	Internal rechargeable 7.2 V - 6900 mAh
Voltage	9 to 28 V DC external power input with over-voltage protection (5-pin Lemo)
Working Time	Up to 10 hours
Charge Time	Typically 4 hours

## PHYSICAL SPECIFICATION

Dimensions	140 mm x 140 mm x 71 mm
Weight	1.1 Kg (with battery)
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 to a 2 m pole drop on hardwood floor with no damage
Vibration	Vibration resistant



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