STONEX

S900+

Paolo Centanni

GNSS/TS/SW Manager

Main Features

S900+ – Main features

Long-lasting and accurate receiver

Stonex S900+ is equipped with a high-performance GNSS board with 1408 channels and can support multiple satellite constellations: GPS, GLONASS, BEIDOU, GALILEO, QZSS.

Through the 4G GSM modem, a fast Internet connection is guaranteed for receiving correction data and carry out precise and accurate surveys. In the incredibly compact design, Bluetooth and Wi-Fi modules allow for always reliable data flow to the controller, while the integrated UHF TX/RX radio makes the S900+ the perfect system for a GNSS Base + Rover.

The S900+ is also equipped with optional IMU technology. Quick initialization, tilt up to 60° and corrected coordinates of a point with a single click.

S900+ – UM980 GNSS Board

- Unicorecomm
- UM980 Chip
- 1408 channels
- Full GNSS
- Anti-jamming technology
- Dual processor
- Low power consumption

unicorecomm 和芯星通

S900+– GSM EG25-G

The new S900+ has integrated the new modem GSM, Worldwide LTE, UMTS/HSPA+ and GSM/GPRS/EDGE. Multi-constellation GNSS receiver is available for applications requiring fast and accurate fixes in any environment.

EG25-G is backward-compatible with existing EDGE and GSM/GPRS networks, ensuring that it can be connected even in remote areas without 4G or 3G coverage.

S900+– Radio TRM121

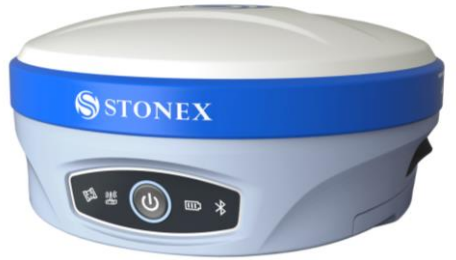
S900+ has integrated UHF, dual-frequency 410-470MHz - 902.4-928MHz (dual-frequency optional). The needs of each country are supported.

General Performance		
Frequency Range	Fixed frequency：410~470MHz	
	Hopping frequency：410~470MHz and 902.4~928MHz	
Working mode	Half-duplex	
Band width	Fixed frequency：12.5KHz，25KHz	
	Hopping frequency：280KHz	
Modulation Scheme	Hopping Frequency: GMSK	
	Fixed Frequency: GMSK,4FSK	
Transmitter		
RF output power	High power(1.0W)	30±0.3dBm@DC 3.3V
Modem		
Rate	Fixed frequency: 9600bp,19200bps	
	Hopping Frequency：115200bps	
Modulation	GMSK	

IMU Technology

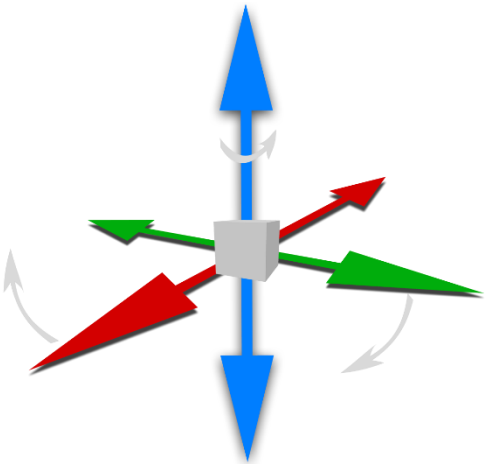
S900+ – IMU

S900+ GNSS receiver has the IMU System, that allows tilted measurements (TILT). Thanks to the 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.



What do Inertial Sensors Measure?

- Gyroscope measures angular velocity
- Accelerometer measures linear acceleration
- Magnetometer measures magnetic field strength

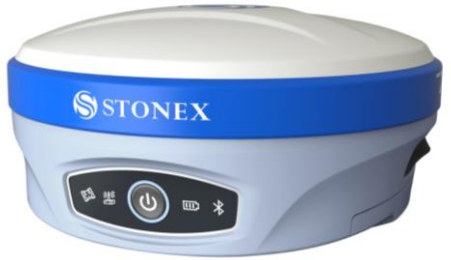
Accelerometer + **3 Axis Gyroscope**

S900+ – IMU

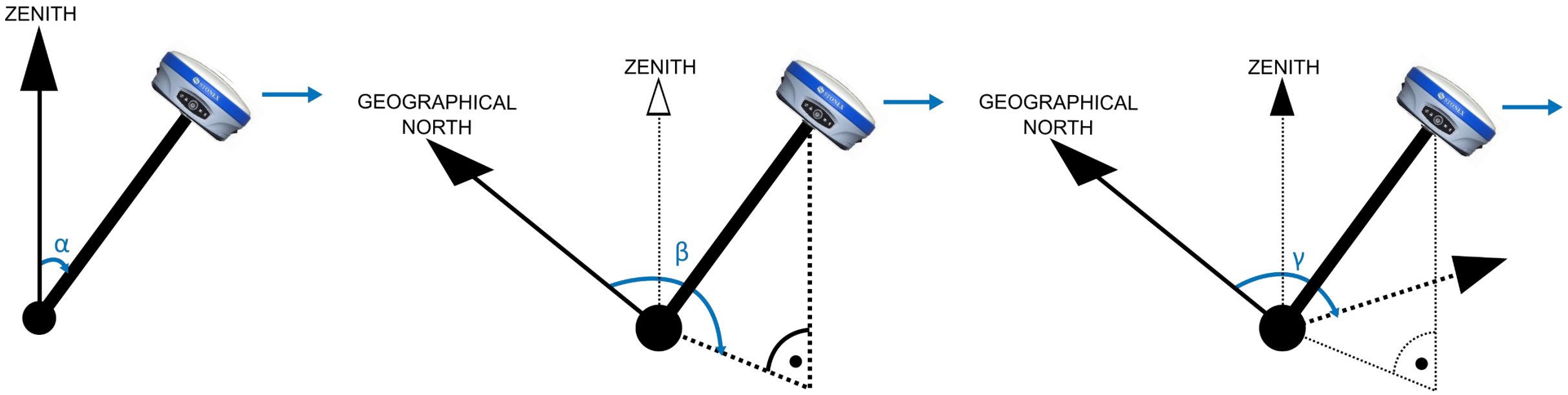
What are the performances of the S900+ with IMU?

- Fast initialization
- Up to 60° inclination
- 2 cm accuracy @ 30°
- 5 cm accuracy @ 60°
- Fast and precise survey
- Without the problem of electromagnetic disturbances

Stonex S900+ with IMU system makes reliable every measurement, both during the survey and the stake out works, and makes extremely faster the acquisition of points: up to 40% of the field work time can be saved!



Determination of Pole Attitude



Tilt + **Direction of the tilt** + **Sensor's Heading**

S900+ – HAS (High Accuracy Service)

- Galileo High Accuracy PPP Service (HAS)
- Global and free of charge
- All satellites transmit correction
- Uses both satellite link (E6 signal) and terrestrial link (Internet) to transmit corrections on Galileo and GPS
- Initial service: global with <20 cm Horizontal and <40 cm Vertical
- Convergence time ≤300s
- Full service: in Europe convergence time ≤ 100s
- Currently the service is in the testing phase
- Full service is planned for 2024
- https://www.gsc-europa.eu/galileo/services/galileo-high-accuracy-service-has

	Service Level 1 (SL1)	Service Level 2 (SL2)
Coverage	Global	European Coverage Area (ECA)
Corrections	Orbit, clock, biases (code and phase)	Orbit, clock, biases (code and phase) + atmospheric corrections
Horizontal Accuracy (95%)	<20cm	<20cm
Vertical Accuracy (95%)	<40cm	<40cm
Converge Time	<300s	<100s
Availability	99%	99%
User HelpDesk	24/7	24/7

S900+ – PPP-B2b

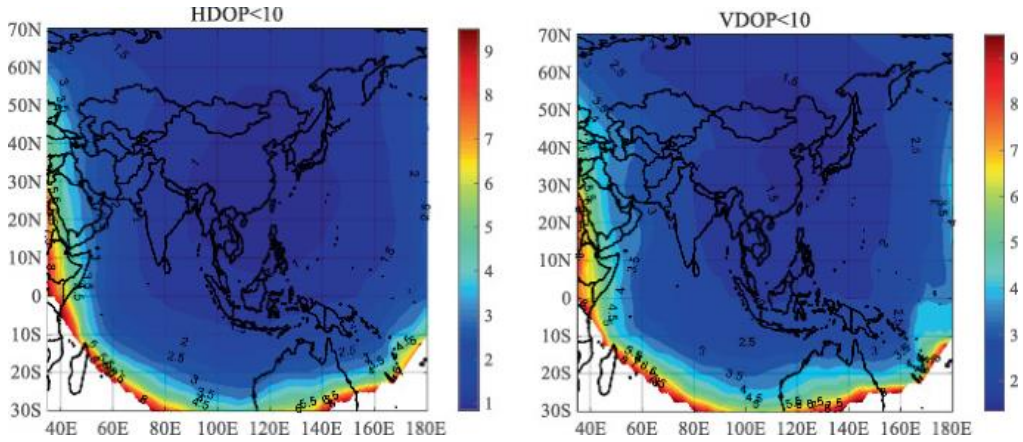
PPP-B2b service of China's BDS is a satellite-based service.

The observations from the densified ground tracking network are collected and sent to the ground operation control center, where the precise satellite orbits and clock offsets of BDS and GPS constellations are calculated, and then uplinked to the three GEO satellites.

Then the GEO satellites broadcast them through B2b signals to the users in China and surrounding areas.

The PPP-B2b signal can provide a stable PPP service for users in the Asia-Pacific region with decimeter to centimeter-level orbit corrections and meter-level clock corrections.

http://www.beidou.gov.cn/xt/gfxz/201912/P020191227331847498839.pdf



Technical Specification

S900+ - Technical Specification

Receiver	
Board	UM980
Channels	1408
Tracking	GPS: L1 C/A, L1C*, L2P, L2C, L5 Glonass: L1, L2 BeiDou: B1I, B2I, B3I, B1C, B2a, B2b* Galileo: E1, E5a, E5b, E6* QZSS: L1, L2, L5 SBAS
PPP	B2b PPP*, HAS*
Update Rate	20Hz
Operating System	Linux
Memory	8 GB

*Available with future Firmware update

S900+ - Technical Specification

Positioning	
High Precision Static Survey	H 2.5 mm + 0.1 ppm RMS V 3.5 mm + 0.4 ppm RMS
RTK (< 30 Km)	H 5 mm + 0.5 ppm RMS V 10 mm + 0.5 ppm RMS
Code differential	0.40 m RMS
SBAS Accuracy	0.60 m RMS

S900+ - Technical Specification

Power Supply	
Batteries (2)	Rechargeable 7.2 V – 3.400 mAh
Voltage	9 to 28 V DC external power input with over-voltage protection (5 pins Lemo)
Working Time	Up to 12 hours
Charge Time	Typically 4 hours

S900+ - Technical Specification

Internal UHF Radio	
Model	TRM101 /TRM121
Type	Tx - Rx
Frequency Range	410 - 470 MHz (902.4 – 928 MHz*)
Channel Spacing	12.5 KHz / 25 KHz
Transmission power	1 watt
Maximum Range	3-4 Km in urban environment Up to 10 Km with optimal conditions

* On request when ordering

S900+ - Technical Specification

Internal GSM 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

S900+ - Technical Specification

Physical Specification	
Weight	1.19 Kg
Dimensions	Ø 157 mm x 76 mm
Operating Temperature	-30°C to 65°C (-22°F to 149°F)
Storage Temperature	-40°C to 80°C (-40°F to 176°F)
Protection Class	IP67
Drop	Designed to endure to a 2 m drop on concrete floor with no damage
Vibration	Vibration resistant

S900+ - Panel definition

Power key		Switch on/off the receiver; Short press to broadcast current operation mode and status.
Indicators	Power indicator	Green: power in 30%-100% Flashing green: power in 10%-30% Flashing red: power < 10% with warning beep
	Satellite indicator	Off: no satellite tracked Flashing red: satellites tracked but not positioned Flashing green: satellites positioned but not fixed Green: position fixed Flashing green and red alternately: GNSS board abnormal
	Datalink indicator	Green: datalink setting succeed Flashing green: data in normal transmission Flashing blue: in static mode, flashing blue according to static sampling interval
	Bluetooth indicator	On: Bluetooth has connected Off: No connection

S900+ - Connector definition

No.	Name	Definition
1	TNC connector	Connects antenna for internal radio
2	5PIN Lemo	Connects external power and radio
3	7PIN Lemo	Connects PC or handheld device, USB+serial port

Marketing

S900+ - Product pictures

S900+ -Brochure

S900+ TECHNICAL FEATURES

RECEIVER	
Satellite signals tracked	GPS: L1 C/A, L1C[1], L2P, L2C, L5 GLONASS: L1, L2 BEIDOU: B1I, B2I, B3I, B1C, B2a, B2b[1] GALILEO: E1, E5a, E5b, E6[1] QZSS: L1, L2, L5 SBAS
PPP	B2b PPP[1], HAS[2]
Channels	1408
Position Rate	20Hz
Signal Reacquisition	< 1 s
RTK Signal Initialization[4]	2 to 4 seconds
Hot Start	Typically < 15 s
Initialization Reliability	> 99.9 %
Internal Memory	8 GB
Micro SD Card	Expansion slot up to 32 GB
Tilt sensor	IMU (optional)[5]

POSITIONING[4]	
STATIC GNSS 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	
Accuracy	0.40 m RMS
SBAS POSITIONING[3]	
Accuracy	0.60 m RMS
REAL TIME KINEMATIC (< 30 Km) – NETWORK RTK[4]	
Fixed RTK Horizontal	5 mm + 0.5 ppm RMS
Fixed RTK Vertical	10 mm + 0.5 ppm RMS

INTEGRATED GNSS ANTENNA
High accuracy multi-constellation antenna, zero phase center, with internal multipath suppressive board

INTERNAL RADIO (optional)[3]	
Type	Tx – Rx
Frequency Range	410 - 470 MHz 902.4 – 928 MHz[7]
Channel Spacing	12.5 KHz / 25 KHz
Range	3-4 Km in urban environment Up to 10 Km with optimal conditions[3]

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	7-pin Lemo and 5-pin Lemo interfaces. Multifunction cable with USB interface for PC connection
Bluetooth	2.1 + EDR, V5.0
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 3.x
Navigation outputs	NMEA 0183

POWER SUPPLY	
Battery	2 rechargeable and replaceable 7.2 V ⎓ 3.400 mAh Intelligent lithium batteries
Voltage	9 to 28 V DC external power input with over-voltage protection (5-pin Lemo)
Working Time	Up to 12 hours (2 batteries hot swap)
Charge Time	Typically 4 hours

PHYSICAL SPECIFICATION	
Dimensions	Ø 157 mm x 76 mm
Weight	1.19 Kg (with one battery) 1.30 Kg (with two batteries)
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

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

If you are looking for a "Made in Italy" instrument with a 2 years warranty, you can purchase the Italian version of our S900+ GNSS Receiver.

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

STONEX AUTHORIZED DEALER

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www.stonex.it | info@stonex.it

UNI EN ISO 9001:2015 - S900+ - JANUARY 2023 - VERSI - REV 02

STONEX

S900+ GNSS Receiver

Powerful Precision Performance

cube suite

S900+ Powerful Precision Performance

Stonex S900+ is equipped with a high-performance GNSS board with 1408 channels and can support multiple satellite constellations: GPS, GLONASS, BEIDOU, GALILEO and QZSS.

Through the 4G GSM modem, a fast Internet connection is guaranteed for receiving correction data and carry out precise and accurate surveys. In the incredibly compact design, Bluetooth and Wi-Fi modules allow for always reliable data flow to the controller, while the integrated UHF TX/RX radio makes the S900+ the perfect system for a GNSS Base + Rover.

The S900+ is also equipped with optional IMU technology. Quick initialization, tilt up to 60° and corrected coordinates of a point with a single click.

STONEX SURVEYING SYSTEMS

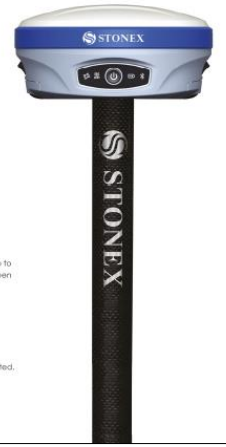
MULTIPLE CONSTELLATIONS
Stonex S900+ with its 1408 channels, provides an excellent on-board real-time navigation solution with high accuracy. All GNSS signals (GPS, GLONASS, BEIDOU, GALILEO and QZSS) are included, no additional cost.

4G MODEM
S900+ has an internal 4G modem that operates with all world signals, a fast internet connection is guaranteed.

IMU (Optional)
IMU technology is available for this model, with quick initialization the operator can take advantage of all the precision and efficiency of this system.

SMART BATTERIES
The dual slot for two smart hot swappable batteries gives you up to 12 hours of battery life. The power level can be checked and seen on the controller or directly on a led bar on the battery.

RADIO (Optional)
S900+ has integrated UHF, double frequency 410-470MHz and 902.4-928MHz on request. The needs of each country are supported.



S900+ IMU Technology

S900+ GNSS receivers have the IMU System that allows tilted measurement (TILT). Thanks to the IMU technology, the difficult and inaccessible points as the edges of the buildings, are no longer a problem.

What are the performances of the S900+ with IMU?
- Fast initialization
- Up to 60° inclination
- 2cm accuracy 30°
- 5cm accuracy 60°
- Fast and precise survey
- No problem of electromagnetic disturbances

Stonex S900+ with IMU system makes every measurement reliable, in both survey and stakeout jobs, and makes the acquisition of points extremely faster: up to 40% of the field work time can be saved!

Why to choose S900+?

If long-lasting in field is what is needed, this GNSS is the right choice. Not only are the batteries extremely capacious but they are also hot-swappable. The batteries available in this model are lithium batteries, and their total charge can be up to 12 hours.
In addition, this GNSS comes to meet professionals in different countries because it provides the option of having a built-it radio with frequencies of your choice.



Configuration

S900+ - Standard Configuration

PRODUCT CODE	DESCRIPTION
B10+150214	**Stonex S900+, GNSS, 1408Ch, 4G, WiFi, BT**
30-350227	PSAA30R-150, Adapter for battery charger CH 04
30-350228	BP 5S, Li-Ion battery 7.4V - 3400 mAh (S9i, S4IIC/H, S40)
30-350235	CH 04, charger for battery BP 5S
30-350059	Multi-port link cable between receiver and PC or controller [USB or 7-pins lemo for PC or controller, 7-pins lemo for receiver]
30-350266	Carrying case for S900 (CC-900)
n/a	SW Cube-link
n/a	Pen Drive set 8Gb with Manual & Video Tutorial

S900+ - Standard Configuration Made in Italy

PRODUCT CODE	DESCRIPTION
B10+160214	**Stonex S900+, GNSS, 1408Ch, 4G, WiFi, BT - Made in Italy**
30-350227	PSAA30R-150, Adapter for battery charger CH 04
30-350228	BP 5S, Li-Ion battery 7.4V - 3400 mAh (S9i, S4IIC/H, S40)
30-350235	CH 04, charger for battery BP 5S
30-350059	Multi-port link cable between receiver and PC or controller [USB or 7-pins lemo for PC or controller, 7-pins lemo for receiver]
30-350266	Carrying case for S900 (CC-900)
n/a	SW Cube-link
n/a	Pen Drive set 8Gb with Manual & Video Tutorial

MADE IN ITALY

S900+ - Made in Italy and Dual-frequency Radio

PRODUCT CODE	DESCRIPTION
B10+160216	**Stonex S900+, GNSS, 1408Ch, UHF dual freq, 4G, WiFi, BT – Made in Italy**
30-350227	PSAA30R-150, Adapter for battery charger CH 04
30-350228	BP 5S, Li-Ion battery 7.4V - 3400 mAh (S9i, S4IIC/H, S40)
30-350235	CH 04, charger for battery BP 5S
30-350059	Multi-port link cable between receiver and PC or controller [USB or 7-pins lemo for PC or controller, 7-pins lemo for receiver]
30-350266	Carrying case for S900 (CC-900)
n/a	SW Cube-link
n/a	Pen Drive set 8Gb with Manual & Video Tutorial

S900+ - Options

PRODUCT CODE	DESCRIPTION
40-450221	S900+ IMU firmware activation
40-450220	S900+ UHF firmware activation

Competitors

S900+ - Competitors

GNSS RTK RECEIVER															
Update January 2023		STONEX	Leica Geosystems	GEOMAX	TOPCON	SOKKIA	Trimble	SPECTRA PRECISION	e-survey	CHCNAV	HI-TARGET	SOUTH	KOLIDA	SANDING	RUIDE
															
MODEL		S900+	VIVA GS18 T	Zenith60 LTE-UHF-IMU	HiPer VR	GRX3	R12i	SP85	E500 - U	i83	iRTK4	G7	K7X	T7	Quasar R93i
CHANNELS		1408	555	555	226	226	672	600	1408	1408	800	1598	1760	1598	1598
BOARD		UM980	NOV OEM719	NOV OEM719	TOP Vangard	TOP Vangard	TRI BD982	TRI	UM980	UM980		MK-803		MK-803	MK-803
SATELLITE SIGNALS TRACKED	GPS	L1/L2/L5	L1/L2/L5	L1/L2/L5	L1/L2/L5	L1/L2/L5	L1/L2/L5	L1/L2/L5	L1/L2/L5	L1/L2/L5	L1/L2/L5	L1/L2/L5	L1/L2/L5	L1/L2/L5	L1/L2/L5
	GLONASS	L1/L2	L1/L2/L3	L1/L2/L3	L1/L2/L3	L1/L2/L3	L1/L2/L3	L1/L2/L3	L1/L2	L1/L2	L1/L2/L3	L1/L2/L3	L1/L2/L3	L1/L2/L3	L1/L2/L3
	BEIDOU	B1/B2/B3	B1/B2/B3	B1/B2/B3	B1/B2	B1/B2	B1/B2/B3	B1/B2	B1/B2/B3	B1/B2/B3	B1/B2/B3	B1/B2/B3	B1/B2/B3	B1/B2/B3	B1/B2/B3
	GALILEO	E1/E5A/E5B/E6	E1/E5A/E5B/E6	E1/E5A/E5B/E6	E1/E5A/E5B	E1/E5A/E5B	E1/E5A/E5B/E6	E1/E5A/E5B	E1/E5A/E5B/E6	E1/E5A/E5B/E6	E1/E5A/E5B/E6	E1/E5A/E5B/E6	E1/E5A/E5B/E6	E1/E5A/E5B/E6	E1/E5A/E5B/E6
	QZSS	L1/L2C/L5	L1/L2C/L5	L1/L2C/L5	L1/L2C/L5	L1/L2C/L5	L1/L2C/L5	L1/L2C/L5	L1/L2C/L5	L1/L2C/L5	L1/L2C/L5	L1/L2C/L5	L1/L2C/L5	L1/L2C/L5	L1/L2C/L5
	L-BAND	B2b PPP	TerraStar	TerraStar	SkyBridge	SkyBridge	RTX	RTX	B2b PPP	B2b PPP	HI-RTP	NO	NO	NO	NO
	IRNSS	NO	L5	L5	L5	L5	L5	L5	NO	NO	L5	L5	L5	L5	L5
	SBAS	√	√	√	√	√	√	√	√	√	√	√	√	√	√
ACCURACY	Static H	2.5mm ± 0.1 ppm	3mm ± 0.1 ppm	3mm ± 0.1 ppm	3mm ± 0.4 ppm	3mm ± 0.4 ppm	3mm ± 0.1 ppm	3mm ± 0.1 ppm	3mm ± 1 ppm	2.5mm ± 0.5 ppm	2.5mm ± 0.1 ppm	2.5mm ± 0.1 ppm	3mm ± 0.1 ppm	2.5mm ± 0.5 ppm	2.5mm ± 0.5 ppm
	Static V	3.5mm ± 0.4 ppm	3.5mm ± 0.4 ppm	3.5mm ± 0.4 ppm	5mm ± 0.5 ppm	5mm ± 0.5 ppm	3.5mm ± 0.4 ppm	3.5mm ± 0.4 ppm	5mm ± 1 ppm	5mm ± 0.5 ppm	3.5mm ± 0.4 ppm	3mm ± 0.4 ppm	3.5mm ± 0.4 ppm	5mm ± 0.5 ppm	5mm ± 0.5 ppm
	RTK H	5mm ± 1 ppm	8mm ± 0.5 ppm	8mm ± 1 ppm	5mm ± 0.5 ppm	5mm ± 0.5 ppm	8mm ± 0.5 ppm	8mm ± 0.5 ppm	8mm ± 1 ppm	8mm ± 1 ppm	8mm ± 1 ppm	8mm ± 1 ppm	8mm ± 1 ppm	8mm ± 1 ppm	8mm ± 1 ppm
	RTK V	10mm ± 1 ppm	15mm ± 0.5 ppm	15mm ± 1 ppm	15mm ± 1 ppm	15mm ± 1 ppm	15mm ± 0.5 ppm	15mm ± 0.5 ppm	15mm ± 1 ppm	15mm ± 1 ppm	15mm ± 1 ppm	15mm ± 1 ppm	15mm ± 1 ppm	15mm ± 1 ppm	15mm ± 1 ppm
RATE HZ		20	20	5-20	20	20	20	20	20	10	20	20	20	20	20
MEMORY		8Gb	8Gb	8Gb	8Gb	8Gb	6Gb	4Gb	8Gb	8Gb	8Gb	4Gb	8 Gb	8 Gb	4Gb
BLUETOOTH		√	√	√	√	√	√	√	√	√	√	√	√	√	√
WIFI		√	NO	√	NO	NO	√	√	√	√	√	√	√	√	√
WEB USER INTERFACE		√	NO	√	NO	NO	√	NO	√	√	√	√	√	√	√
OS Linux		√	NO	√	NO	NO	√	NO	√	√	√	√	√	√	√
RADIO INTEGRATED 410 - 470 MHz		√	√	√	√	√	√	√	√	√	√	√	√	√	√
RADIO INTEGRATED 902.4 - 928 MHz		√	NO	NO	NO	NO	NO	NO	√	NO	NO	NO	NO	NO	NO
GSM INTEGRATED		4G	4G	4G	4G	4G	4G	3G	4G	4G	4G	4G	4G	4G	4G
DISPLAY INTEGRATED		NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
NFC		NO	NO	NO	NO	NO	NO	NO	NO	√	√	√	√	√	√
IMU		√	√	√	√	√	√	NO	√	√	√	√	√	√	√
MAX TILT OPERATION		±60°	±30°	±60°	±15°	±15°	±30°	NO	±60°	±60°	±60°	±60°	±60°	±60°	±60°
PORT FOR EXTERNAL ANTENNA		NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
1PPS		NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
BATTERY CHANGE		√	√	√	NO	NO	√	√	NO	NO	NO	NO	√	NO	NO
BATTERY CAPACITY (mAh)		3400	2800	3400			3700	2800	6800	9600	6800	6800	3400	6800	6800
OPERATING TIME (HOURS) STD BATTERY		12	6	11	10	10	6	10	12	16	10	12	10	12	12
NR. BATTERY		2	1	2	1	1	1	2	1	1	1	1	1	1	1
HOT SWAP		√	NO	√	NO	NO	NO	√	NO	NO	NO	NO	√	NO	NO
MATERIAL		Magnesium		Magnesium	Magnesium	Magnesium	Magnesium	Plastic	Magnesium	Magnesium	Magnesium	Magnesium	Magnesium	Magnesium	Magnesium
Dimensions (mm)		157 x 76	173 x 173 x 109	167 x 75	150 x 150 x 100	150 x 150 x 100	119 x 136	222 x 195 x 75	148 x 75	152 x 78	156 x 77	135 x 135 x 85	156 x 78	135 x 135 x 85	135 x 135 x 85
WEIGHT		1190g	1200g	1200g	1150g	1150g	1120g	1117g	1000g	1150g	1200g	970g	1300g	970g	970g
IP		67	66/68	68	67	67	67	67	67	67	68	67	68	67	68
MIL		NO	√	√	NO	NO	√	NO	NO	NO	NO	√	NO	√	√
OPERATING TEMPERATURE		- 40° + 65°	- 40° + 65°	- 40° + 65°	- 40° + 65°	- 40° + 65°	- 40° + 65°	- 40° + 65°	- 30° + 65°	- 40° + 65°	- 30° + 70°	- 30° + 65°	- 30° + 70°	- 45° + 70°	- 45° + 75°
CONTROLLER	Win Mobile	NO	C520	NO	NO	SHC-500	NO	Ranger 3	NO	NO	NO	NO	NO	NO	NO
	Win 10	SRT10W	C535	NO	FC-6000 FT-100	SHC-6000	TSC7 T7 T10	Ranger 7 ST10	NO	NO	NO	NO	HR842	NO	NO
	Android	UT12P UT32/570 SHSA	NO	ZenlusX Zenlus800	NO	NO	NO	T41	UT12P UT32 P8II	HCE600 LT700	IHand55	H6 H8	H6	H6	H6
SOFTWARE	Win Mobile	NO	Captivate	NO	Magnet	GeoPro Field	NO	Survey Pro Fast Survey	FieldGenius SurvCE	NO	NO	NO	NO	NO	NO
	Win 10	FieldGenius	Captivate	NO	Magnet	GeoPro Field	ACCESS	Survey Pro	FieldGenius SurvCE	NO	NO	NO	NO	NO	NO
	Android	Cube-a FieldGenius	NO	X-PAD	NO	GeoPro Field	NO	Survey Mobile	SurPad	LandStar8	Hi-Survey Road	SurvX	SurvX K Survey	Smart RTK	SurvX
SOFTWARE POST PROCESSING		Cube-manager-p	LGO	X-PAD Fusion	Magnet Tools	Magnet Office	TBC	SPSO	GEOSolution	CGO2	HBC	SGO	GEO	SGO	Geo Office
PRESENTATION		2023	2017	2021	2018	2019	2018	2019	2020	2022	2020	2022	2022	2022	2022

Legend	
	Competitor is worst
	Competitor is better

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