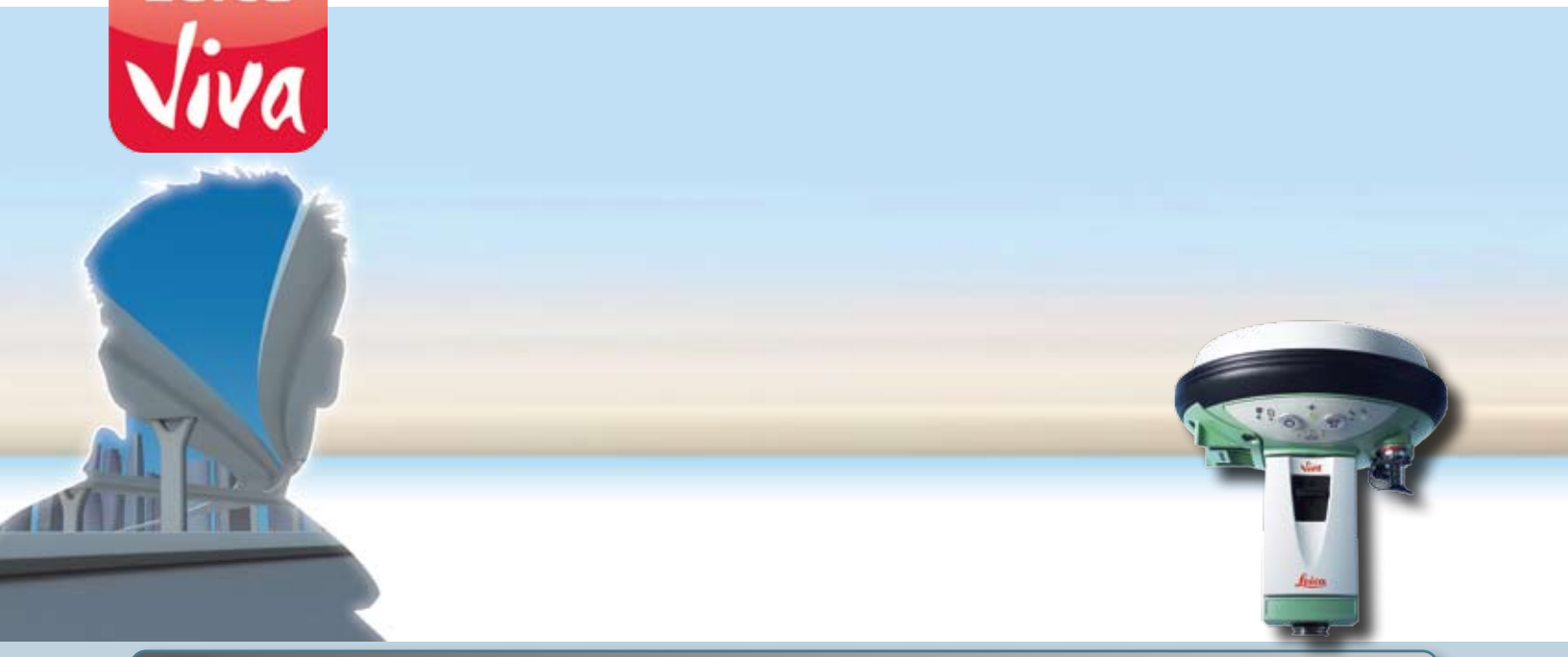
Leica Viva GNSS GS15 receiver

Datasheet



Proven GNSS technology

Built on years of knowledge and experience, the Leica GS15 delivers the hallmarks of Leica GNSS – reliability and accuracy.

- SmartCheck – RTK data-processing to guarantee correct results
- SmartTrack – advanced four constellation tracking of all GNSS satellites today and tomorrow
- SmartRTK – delivers consistent results in all networks

Work as you want to

The Leica GS15 is designed to suit any surveying task.

- Built-in exchangeable communication devices for field base stations and RTK rovers with removable SIM cards
- Fully scalable sensor allows you to buy only what you need today and upgrade with additional functionality as you need it
- Integrated web server to configure the logging of Leica or RINEX raw data and measure with one button press in the field

Rugged

The Leica GS15 is built for the most demanding environments.

- IP67 protection against dust and immersion to 1 m
- Built for extreme temperatures of -40° C to +65° C
- Integrated intenna technology to avoid breaking, losing or forgetting antenna

- when it has to be **right**

Leica Geosystems

Technical Specifications

Leica GS15 GNSS receiver	Leica GS15 Single Frequency	Leica GS15 Basic	Leica GS15 Limited	Leica GS15 Performance	Leica GS15 Professional
Supported GNSS Systems					
GPS L2	○	●	●	●	●
GPS L5	○	○	○	○	●
GLONASS	○	○	○	○	●
Galileo	○	○	○	○	●
RTK performance					
DGPS / RTCM	○	○	●	●	●
RTK up to 5 km	○	○	●	●	●
RTK unlimited	○	○	○	●	●
Network RTK	○	○	○	●	●
Leica Lite RTK	○	○	○	○	●
Position update & data recording					
5 Hz positioning	●	○	●	●	●
20 Hz positioning	○	○	○	●	●
Raw data logging	●	○	●	●	●
RINEX logging	○	○	○	○	●
NMEA out	○	○	○	○	●
Additional features					
RTK Reference Station functionality	○	○	○	●	●

● = Standard ○ = Optional

GNSS Performance	GNSS technology	Leica patented SmartTrack+ technology: • Advanced measurement engine • Jamming resistant measurements • High precision pulse aperture multipath correlator for pseudorange measurements • Excellent low elevation tracking • Very low noise GNSS carrier phase measurements with < 0.5 mm precision • Minimum acquisition time
	No. of channels	120 channels
	Max. simultaneous tracked satellites	Up to 60 Satellites simultaneously on two frequencies
	Satellite signals tracking	• GPS: L1, L2, L2C, L5 • GLONASS: L1, L2 • Galileo (Test): GIOVE-A, GIOVE-B • Galileo: E1, E5a, E5b, Alt-BOC • Compass[1] • SBAS: WAAS, EGNOS, GAGAN, MSAS
	GNSS measurements	Fully independent code and phase measurements of all frequencies • GPS: carrier phase full wave length, Code (C/A, P, C Code) • GLONASS: carrier phase full wave length, Code (C/A, P narrow Code) • Galileo: carrier phase full wave length, Code
	Reacquisition time	< 1 sec
Measurement Performance & Accuracy	**Accuracy (rms) Code differential with DGPS / RTCM[2]**	
	DGPS / RTCM	Typically 25 cm (rms)
	Accuracy (rms) with Real-Time (RTK)[2]	
	Standard of compliance	Compliance with ISO17123-8
	Rapid static (phase) Static mode after initialization	Horizontal: 5 mm + 0.5 ppm (rms) Vertical: 10 mm + 0.5 ppm (rms)
	Kinematic (phase) Moving mode after initialization	Horizontal: 10 mm + 1 ppm (rms) Vertical: 20 mm + 1 ppm (rms)
	Accuracy (rms) with Post Processing[2]	
	Static (phase) with long observations	Horizontal: 3 mm + 0.5 ppm (rms) Vertical: 6 mm + 0.5 ppm (rms)
	Static and rapid static (phase)	Horizontal: 5 mm + 0.5 ppm (rms) Vertical: 10 mm + 0.5 ppm (rms)
	Kinematic (phase)	Horizontal: 10 mm + 1 ppm (rms) Vertical: 20 mm + 1 ppm (rms)
	On the Fly (OTF) Initialization	
	RTK technology	Leica SmartCheck+ technology
	Reliability of OTF initialization	Better than 99,99%
	Time for initalization	Typically 8 sec[3]
	OTF range	up to 50 km[3]
	Network RTK	
	NetWork technology	Leica SmartRTK technology
	Supported RTK network solutions	VRS, FKP, iMAX
	Supported RTK network standards	MAC (Master Auxiliary Concept) approved by RTCM SC 104

[1] The Compass signal is not finalized, although, test signals have been tracked in a test environment. As changes in the signal structure may still occur, Leica Geosystems cannot guarantee full Compass compatibility.

[2] Measurement precision and accuracy in position and accuracy in height are dependent upon various factors including number of satellites, geometry, observation time, ephemeris accuracy, ionospheric conditions, multipath etc. Figures quoted assume normal to favorable conditions.Times required are dependent upon various factors including number of satellites, geometry, ionospheric conditions, multipath etc. GPS and GLONASS can increase performance and accuracy by up to 30% relative to GPS only. A full Galileo and GPS L5 constellation will further increase measurement performance and accuracy.

[3] Might vary due to atmospheric conditions, signal multipath, obstructions, signal geometry and number of tracked signals.

[4] Might vary with temperatures, age of battery, transmit power of data link device.

Leica GS15 GNSS receiver

Hardware	**Weight & Dimensions**	
	Weight (GS15)	1.34 kg
	Weight	3.30 kg standard RTK rover including slot RTK device, controller, batteries pole and bracket
	Dimension (GS15) (diameter x height)	196 mm x 198 mm
	Environmental specifications	
	Temperature, operating	-40° C to +65° C, compliance with ISO9022-10-08, ISO9022-11-special, MIL STD 810F – 502.4-II, MIL STD 810F – 501.4-II
	Temperature, storage	-40° C to +80° C, compliance with ISO9022-10-08, ISO9022-11-special, MIL STD 810F – 502.4-II, MIL STD 810F – 501.4-II
	Humidity	100%, compliance with ISO9022-13-06, ISO9022-12-04 and MIL STD 810F – 507.4-I
	Proof against: water, sand and dust	IP67 according IEC60529 and MIL STD 810F – 506.4-I, MIL STD 810F – 510.4-I and MIL STD 810F – 512.4-I Protected against blowing rain and dust Protected against temporary submersion into water (max. depth 1 m)
	Vibration	Withstands strong vibration during operating, compliance with ISO9022-36-08 and MIL STD 810F – 514.5-Cat.24
	Drops	Withstands 1.0 m drop onto hard surfaces
	Functional shock	40 g / 15 to 23 msec, compliance with MIL STD 810F – 516.5-I No loss of lock to satellite signal when used on a pole set-up and submitted to pole bumps up to 150 mm
	Topple over	Withstands topple over from a 2 m survey pole onto hard surfaces
	Power & Electrical	
	Supply voltage	Nominal 12 V DC Range 10.5 – 28 V DC
	Power consumption	Typically: 3.2 W, 270 mA
	Internal power supply	Recharge & removable LI-Ion battery, 2.6 Ah / 7.4 V, 2 batteries fit into receiver
	Internal power supply, operation time	• 10.00 h receiving RTK data with standard radio[4] • 9.00 h transmitting RTK data with standard radio[4] • 7.50 h RTK via GSM/GPRS connection[4] using 2 internal batteries
	External power supply	Rechargeable external NiMh battery 9 Ah / 12 V
	Certifications	Compliance to: FCC, CE Local approvals (as IC Canada, C-Tick Australia, Japan, China)
Memory & Data Recording	**Memory**	
	Memory medium	Removable SD Card: 1 GB
	Data capacity	1 GB is typically sufficient for about GPS & GLONASS (8+4 satellites) 280 days raw data logging at 15 s rate
	Data recording	
	Type of data	Onboard recording of: • Leica GNSS raw data • RINEX data
	Recording rate	Up to 20 Hz
User Interface	Buttons	• ON / OFF button • Function button
	Button functionality	Function button: • Easy switch between Rover / Base mode • Easy "Here" positioning functionality
	Led status indicator	*Bluetooth*®, position, RTK status, data logging, detailed power status
	Additional user interface	Additional web interface functionality provides full status indicator and configuration options
Communications	Communication ports	1 x serial RS232 Lemo 1 x USB / RS232 Lemo 1 x UART serial & USB (for removable internal RTK devices) 1 x *Bluetooth*® port, *Bluetooth*® v2.00+ EDR, class 2
	No. of simultaneous data links	• Up to 3 data links can be attached and used simultaneously • 2 real-time output interfaces via independent ports, providing identical or different RTK/RTCM formats
	Built in data links	
	Radio modems	• Fully integrated, fully sealed receive / transmit radios • User exchangeable device • SATEL, Pacific Crest and others • 390 – 470 MHz bandwidth • Transmit power: 0.5 – 1.0 W
	UHF antenna options	• Fully integrated UHF antenna • External UHF antenna connector (Type QN)
	3G GSM / UMTS(HSDPA) phone modem	• Fully integrated, fully sealed phone modem • User exchangeable device • User exchangeable SIM card • Tri-Band UMTS / HSDPA: 850 / 1900 / 2100 MHz • Quad-Band GSM / GPRS: 850 / 900 / 1800 / 1900 MHz
	CDMA phone modem	• Fully integrated, fully sealed CDMA phone modem • User exchangeable device • Dual-Band CDMA 1XRTT (800 / 1900 MHz)
	GSM / UMTS / CDMA antenna options	• Integrated GSM / UMTS / CDMA antenna • External GSM / UMTS / CDMA antenna connector (Type QN)
	External data links	
	Radio modems	Support of any suitable UHF / VHF radio
	GSM / UMTS / CDMA phone modems	Support of any suitable GSM / GPRS / UMTS / CDMA modem
	Landline phone modems	Support of any suitable Landline phone modem
	Communication protocols	
	Real-Time data formats for data transmission and reception	Leica proprietary formats (Leica, Leica 4G) CMR, CMR+
	Real-Time data formats according RTCM standard for data transmission and reception	RTCM 2.1, RTCM 2.3, RTCM 3.0, RTCM 3.1
	NMEA output	NMEA 0183 V 2.20 and Leica proprietary

Whether you want to stake-out an object on a construction site or you need accurate measurements of a tunnel or a bridge; whether you want to determine the area of a parcel of land or need the position of a power pole or to capture objects for as-built maps – you need reliable and precise data.

Leica Viva combines a wide range of innovative products designed to meet the daily challenges for all positioning tasks. The simple yet powerful and versatile Leica Viva hardware and software innovations are redefining state-of-the-art technology to deliver maximum performance and productivity. Leica Viva gives you the inspiration to make your ambitious visions come true.

When it has to be right.

Swiss Technology
by Leica Geosystems

TQM
ISO 9001 / ISO 14001

Total Quality Management – our commitment to total customer satisfaction.

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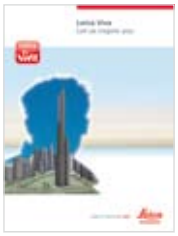
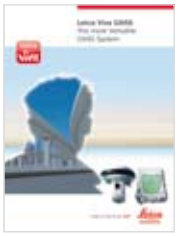
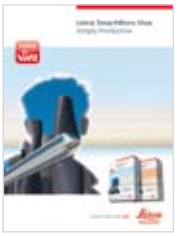


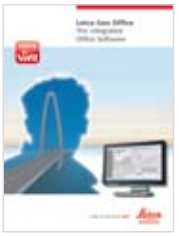
Leica Viva
Overview brochure



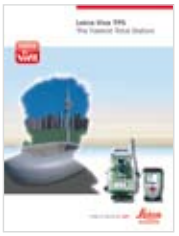
Leica Viva GNSS
Product brochure



Leica SmartWorx Viva
Product brochure



Leica Viva LGO
Product brochure



Leica Viva TPS
Product brochure

Leica Geosystems AG
Heerbrugg, Switzerland

www.leica-geosystems.com

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