GLOBAL SURVEY INTERNATIONAL COMPANY S.A.C.

ESPECIFICACIONES TÉCNICAS

Leica
Geosystems

Leica Viva TS15
Datasheet

Best-in-class Imaging

Optimize your productivity with exact photo documentation of site conditions. With live streaming of the total station view, you always know what the total station sees. Measure all points without returning to the total station.

- **Image Notes** – Capture an image, screenshot or template, sketch on it and link it to any object in the database.
- **Image Assisted Surveying** – Simply tap on the display and the total station will turn and measure the desired target.

Best-in-class One-Person-Surveying

Viva TS15 uses years of experience to optimally combine the world's best total station sensors: angles, distances, drives and the patented PowerSearch target recognition camera.

- **Search** – the unique PowerSearch finds your prism within seconds
- **Lock** – Viva TS15 stays locked onto your prism in the most demanding environments
- **Measure** – PinPoint EDM seamlessly harmonizes with precise angle sensors to complete the measurement process

Leica Viva GNSS Add-on

Add full GNSS functionality to your Viva TS15 whenever you want and combine TPS and GNSS in the most efficient way.

- Use SmartStation for TPS setup without the need of control points, traverses and resections
- Use SmartPole to save time with setup 'On-the-fly' and measure parallel with TPS and GNSS for double productivity

PART OF HEXAGON

- when it has to be **right**

Leica Geosystems

Technical Specifications TS15

Leica Viva TS15	TS15 M	TS15 A	TS15 G	TS15 P	TS15 I
Angle measurement	●	●	●	●	●
Distance measurement to prism	●	●	●	●	●
Distance measurement to any surface (reflectorless)	●	●	●	●	●
Motorized	●	●	●	●	●
Automatic Target Aiming	–	●	●	●	●
PowerSearch (PS)	–	–	–	●	●
Overview Camera	–	–	–	–	●
RS232, USB and SD card interface	●	●	●	●	●
Bluetooth	●	●	●	●	●
Internal Flash Memory (1GB)	●	●	●	●	●
Hotshoe interface for radiohandle	●	●	●	●	●
Guide Light (EGL)	●	●	–	●	●
Laser Guide	–	–	●	–	–
SmartStation/SmartPole GS15 GNSS receiver	○	○	○	○	○
SmartStation/SmartPole GS14 GNSS receiver	○	○	○	○	○
SmartStation/SmartPole GS12 GNSS receiver	○	○	○	○	○
Radio field controller CS10/CS15	○	○	○	○	○

● = Standard   ○ = Optional   – = Not available

Angular Measurement

Accuracy Hz, V [1]	1'' (0.3 mgon), 2'' (0.6 mgon), 3'' (1 mgon), 5'' (1.5 mgon)
Display resolution	0.1'' (0.1 mgon)
Method	absolute, continuous, diametrical
Compensation	Quadruple axis compensation
Compensator setting accuracy	0.5'' (0.2 mgon), 0.5'' (0.2 mgon), 1.0'' (0.3 mgon), 1.5'' (0.5 mgon)

Distance Measurement

Distance Measurement (Prism)

Range [2]	
Round prism (GPR1)	3500 m (12000 ft)
3 Round prisms (GPR1)	5400 m (17700 ft)
360° prism (GRZ4, GRZ122)	2000 m (7000 ft)
360° mini prism (GRZ101)	1000 m (3300 ft)
Mini prism (GMP101)	2000 m (7000 ft)
Reflective tape (60 mm x 60 mm)	250 m (800 ft)

Accuracy [3,4] / Measurement Time	
Standard	1 mm + 1.5 ppm / typ. 2.4 s
Fast	2 mm + 1.5 ppm / typ. 0.8 s
Continuous	3 mm + 1.5 ppm / typ. <0.15 s

Distance Measurement (Any Surface)

Range [6]	
PinPoint R30 / R400 / R1000	30 m (98 ft) / 400 m (1310 ft) / 1000 m (3280 ft)

Accuracy [3,7] / Measurement Time	
PinPoint R30 / R400 / R1000	2 mm + 2 ppm / typ. 3 s

Distance Measurement (Long-range)

Long-range [2,4]	>10000 m (>32800 ft)

Accuracy [3,6] / Measurement Time	
Long-range	5 mm + 2 ppm / typ. 2.5 s

General

Display resolution	0.1 mm
Shortest measurable distance	1.5 m
Method	System analyzer based on phase shift measurement (coaxial, visible red laser)
Laser dot size (Non-Prism)	At 30 m: 7 mm x 10 mm, at 50 m: 8 mm x 20 mm

General

Operating system & Processor

Operating System	Windows CE 6.0
Processor	Freescale i.MX31 533 MHz ARM Core

Telescope

Magnification	30 x
Free objective aperture	40 mm
Field of view	1° 30' (1.66 gon) / 2.7 m at 100 m
Focusing range	1.7 m to infinity

Keyboard and Display

Display	640 x 480 pixel (VGA) color TFT with LED backlight and touch screen
Keyboard	36 keys (12 function keys, 12 alphanumeric keys), illumination
Position	face I standard / face II optional

Memory, Ports & Communication

Internal memory / Memory devices	1 GB (nonvolatile NAND Flash) / SD card, USB stick
Interfaces	RS232, *Bluetooth*® Wireless-Technology, USB mini AB OTG

Operation

Sensitivity of Circular level	6' / 2 mm
Centering accuracy of Laser plummet	1.5 mm at 1.5 m
Number of drives	1 horizontal / 1 vertical

Power Management

Internal Battery	Lithium Ion
Operating Time	5 – 8 h (GEB221)
Voltage / Capacity	7.4 V / 4.4 Ah

Weight and Dimensions

Weight of Total Station / Battery GEB221 / Tribrach GDF121	4.9 – 5.5 kg / 0.2 kg / 0.8 kg
Height / Width / Length	345 mm / 226 mm / 203 mm

Environmental specifications

Working / Storage temperature range	-20° C to +50° C / -40° C to +70° C
Dust / water (IEC 60529) / Humidity	IP55 / 95%, non-condensing

Guide Light (EGL)

Working Range	5 – 150 m
Positioning accuracy	5 cm at 100 m

Leica Viva One-Person-Surveying

Motorization	Rotation speed	45° (50 gon) / s	

Automatic Target Aiming (ATR)	Range	ATR Mode	Lock Mode
	Round prism (GPR1)	1000 m (3300 ft)	800 m (2600 ft)
	360° prism (GRZ4, GRZ122)	800 m (2600 ft)	600 m (2000 ft)
	360° mini prism (GRZ101)	350 m (1150 ft)	200 m (660 ft)
	Mini prism (GMP101)	500 m (1600 ft)	400 m (1300 ft)
	Reflective tape (60 mm x 60 mm)	45 m (150 ft)	–
	Shortest distance to 360° prism	1.5 m	5 m
	Accuracy[1] / Measurement Time		
	ATR angle accuracy Hz, V	1" (0.3 mgon)	
	Base positioning accuracy	±1 mm	
	Measurement Time for GPR1	3 – 4 s	
	Maximum speed (Lock Mode)		
	Tangential (standard mode)	5 m / s at 20 m, 25 m / s at 100 m	
	Radial (tracking mode)	4 m / s	
	Searching		
	Search time in field of view	Typ. 1.5 s	
	Field of view	1° 30' (1.66 gon)	
	Definable search windows	Yes	
	Method	Digital Image processing	

Power Search (PS)	**Range**		
	Round prism (GPR1)	300 m (1000 ft)	
	360° reflector[8] (GRZ4, GRZ122)	300 m (1000 ft)	
	Mini prism (GMP101)	100 m (330 ft)	
	Shortest distance	1.5 m	
	Searching		
	Typical search time	5 – 10 s	
	Default search area	Hz: 360° (400 gon), V: 36° (40 gon)	
	Definable search windows	Yes	
	Method	Digital Image processing (rotating laser fan)	

Leica Viva Imaging

Overview Camera	Sensor	5 Mpixel CMOS sensor
	Focal Length	21 mm
	Field of view	15.5° x 11.7° (19.4° diagonal)
	Frame rate	20 frames per second
	Focus	2 m (6.5 feet) to infinity
	Image storage	JPEG up to 5 Mpixel (2560 x 1920)
	Zoom	3-step (1x, 2x, 4x)
	Whitebalance	User configurable
	Brightness	User configurable

Leica Viva SmartStation

Add-on GS15/GS14/GS12	Position accuracy[9,10]	Horizontal: 10 mm + 1 ppm, Vertical: 20 mm + 1 ppm	
	RTK Initialization		
	Reliability	>99.99%	
	Time of initialization[11]	GS15/GS14/GS12 4 s, GS08plus 6 s	
	Range	Up to 50 km, assuming reliable data-link is available	
	RTK Data formats for data reception	Leica proprietary formats (Leica, Leica 4G), GPS and GNSS real-time data formats, CMR, CMR+, RTCM v2.1 / 2.2 / 2.3 / 3.x	
	GNSS Antenna		
	Number of channels	GS15/GS14/GS12/GS08plus: 120	
	Dimensions (diameter x height)	GS15: 196 mm x 198 mm	GS14: 190 mm x 90 mm
		GS12: 186 mm x 89 mm	GS08plus: 186 mm x 71 mm
	Weight	GS15: 1.34 kg	GS14: 0.93 kg
		GS12: 1.05 kg	GS08plus: 0.75 kg

[1] Standard deviation ISO 17123-3

[2] Overcast, no haze, visibility about 40 km; no heat shimmer

[3] Standard deviation ISO 17123-4

[4] To Round Prism GPR1

[5] Fast Mode

[6] Object in shade, sky overcast, Kodak Grey Card (90% reflective)

[7] Distance >500 m 4 mm + 2 ppm

[8] Target perfectly aligned to the instrument

[9] Measurement precision, accuracy and reliability are dependent upon various factors including number of satellites, geometry, obstructions, observation time, ephemeris accuracy, ionospheric conditions, multipath etc. Figures quoted assume normal to favorable conditions. Times can also not be quoted exactly. Times required are dependent upon various factors including number of satellites, geometry, ionospheric conditions, multipath etc. The following accuracies, given as root mean square, are based on real-time measurements.

[10] When used within reference station networks the position accuracy is in accordance with the accuracy specifications provided by the reference station network.

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

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

Distance meter (Prism), ATR and PowerSearch:
Laser class 1 in accordance with IEC 60825-1 resp. EN 60825-1

Laser plummet:
Laser class 2 in accordance with IEC 60825-1 resp. EN 60825-1

Distance meter (Non-Prism):
Laser class 3R in accordance with IEC 60825-1 resp. EN 60825-1

Leica Viva
Overview brochure

Leica Viva GNSS
Product brochure

Leica SmartWorx Viva
Product brochure

Leica Viva LGO
Product brochure

Leica Zeno
Product brochure

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