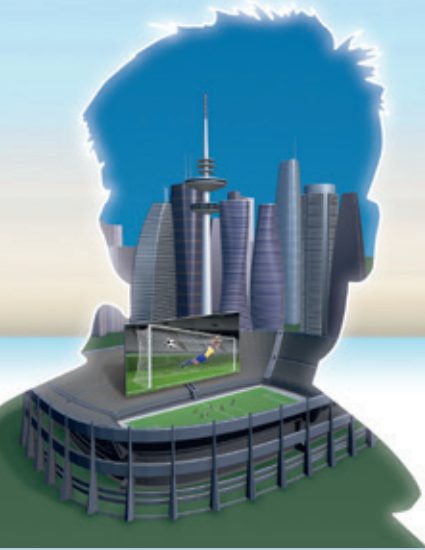


Leica Viva TS15 Datasheet



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




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, V¹		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)				
	Range²				
	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)				
	Range⁶				
	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	
Accuracy¹ / 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.



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



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