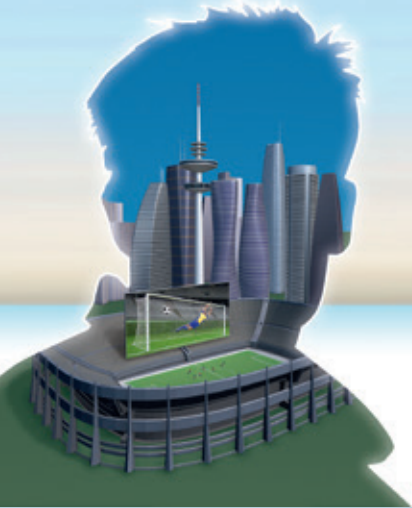


# Leica Viva TS15 Datasheet



## 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		
<b>Angular Measurement</b>	Accuracy Hz, V <sup>1</sup>		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)		
<b>Distance Measurement</b>	<b>Distance Measurement (Prism)</b>				
	<b>Range<sup>2</sup></b>				
	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)		
	<b>Accuracy<sup>2,4</sup> / Measurement Time</b>				
	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		
	<b>Distance Measurement (Any Surface)</b>				
	<b>Range<sup>6</sup></b>				
	PinPoint R30 / R400 / R1000		30 m (98 ft) / 400 m (1310 ft) / 1000 m (3280 ft)		
	<b>Accuracy<sup>2,7</sup> / Measurement Time</b>				
	PinPoint R30 / R400 / R1000		2 mm + 2 ppm / typ. 3 s		
	<b>Distance Measurement (Long-range)</b>				
	Long-range <sup>2,4</sup>		>10000 m (>32800 ft)		
	<b>Accuracy<sup>2,6</sup> / Measurement Time</b>				
	Long-range		5 mm + 2 ppm / typ. 2.5 s		
	<b>General</b>				
	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		
<b>General</b>	<b>Operating system &amp; Processor</b>				
	Operating System		Windows CE 6.0		
	Processor		Freescale i.MX31 533 MHz ARM Core		
	<b>Telescope</b>				
	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		
	<b>Keyboard and Display</b>				
	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		
	<b>Memory, Ports &amp; Communication</b>				
	Internal memory / Memory devices		1 GB (nonvolatile NAND Flash) / SD card, USB stick		
	Interfaces		RS232, Bluetooth® Wireless-Technology, USB mini AB OTG		
	<b>Operation</b>				
	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		
	<b>Power Management</b>				
	Internal Battery		Lithium Ion		
	Operating Time		5 - 8 h (GEB221)		
	Voltage / Capacity		7.4 V / 4.4 Ah		
	<b>Weight and Dimensions</b>				
	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		
	<b>Environmental specifications</b>				
	Working / Storage temperature range		-20° C to +50° C / -40° C to +70° C		
	Dust / water (IEC 60529) / Humidity		IP55 / 95%, non-condensing		
	Working Range		5 - 150 m		
<b>Guide Light (EGL)</b>					
	Positioning accuracy		5 cm at 100 m		


## Leica Viva One-Person-Surveying



<b>Motorization</b> 	Rotation speed	45° (50 gon) / s		
	<b>Automatic Target Aiming (ATR)</b> 	<b>Range</b>	<b>ATR Mode</b>	<b>Lock Mode</b>
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)	300 m (1000 ft)	
Mini prism (GMP101)		500 m (1600 ft)	400 m (1300 ft)	
Reflective tape (60 mm x 60 mm)		55 m (175 ft)	-	
Shortest distance to 360° prism		1.5 m	5 m	
<b>Accuracy<sup>1</sup> / Measurement Time</b>				
ATR angle accuracy Hz, V		1" (0.3 mgon)		
Base positioning accuracy		±1 mm		
Measurement Time for GPR1		3 - 4 s		
<b>Maximum speed (Lock Mode)</b>				
Tangential (standard mode)		5 m / s at 20 m, 25 m / s at 100 m		
Radial (tracking mode)		4 m / s		
<b>Searching</b>				
Search time in field of view		Typ. 1.5 s		
Field of view		1° 30' (1.66 gon)		
Definable search windows		Yes		
<b>Method</b>	Digital Image processing			
<b>Power Search (PS)</b> 	<b>Range</b>			
	Round prism (GPR1)	300 m (1000 ft)		
	360° reflector* (GRZ4, GRZ122)	300 m (1000 ft)		
	Mini prism (GMP101)	100 m (330 ft)		
	Shortest distance	1.5 m		
	<b>Searching</b>			
	Typical search time	5 - 10 s		
	Default search area	Hz: 360° (400 gon), V: 36° (40 gon)		
	Definable search windows	Yes		
	<b>Method</b>	Digital Image processing (rotating laser fan)		


## Leica Viva Imaging



<b>Wide-angle Camera</b> 	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



<b>Add-on GS15/GS14/GS12</b> 	<b>Position accuracy<sup>2,10</sup></b>	Horizontal: 10 mm + 1 ppm, Vertical: 20 mm + 1 ppm		
	<b>RTK Initialization</b>			
	Reliability	>99.99%		
	Time of initialization <sup>11</sup>	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		
	<b>GNSS Antenna</b>			
	Number of channels	GS15/GS14/GS12/GS08plus: 120		
	Dimensions (diameter x height)	GS15: 196 mm x 198 mm GS12: 186 mm x 89 mm	GS14: 190 mm x 90 mm GS08plus: 186 mm x 71 mm	
	Weight	GS15: 1.34 kg GS12: 1.05 kg	GS14: 0.93 kg GS08plus: 0.75 kg	

<sup>1</sup> Standard deviation ISO 17123-3

<sup>2</sup> Overcast, no haze, visibility about 40 km; no heat shimmer

<sup>3</sup> Standard deviation ISO 17123-4

<sup>4</sup> To Round Prism GPR1

<sup>5</sup> Fast Mode

<sup>6</sup> Object in shade, sky overcast, Kodak Grey Card (90% reflective)

<sup>7</sup> Distance >500 m 4 mm + 2 ppm

<sup>8</sup> Target perfectly aligned to the instrument

<sup>9</sup> 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.

<sup>10</sup> When used within reference station networks the position accuracy is in accordance with the accuracy specifications provided by the reference station network.

<sup>11</sup> 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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Overview brochure



**Leica Viva GNSS**  
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