

# Leica Viva TPS Datasheet



## Best-in-class Electronic Distance Measurement (EDM)

With PinPoint EDM, Viva TPS delivers the optimal balance of range, accuracy, reliability, beam visibility, laser dot size and measurement time.

- 1 mm + 1.5 ppm to prism
- 2 mm + 2 ppm to any surface
- 1000 m range without a prism



## Best-in-class One-Person-Surveying

Viva TPS 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 TPS 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 TPS 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

- when it has to be **right**

**Leica**  
Geosystems

# Technical Specifications TPS1200+

Leica Viva TPS	TC	TCR	TCRM	TCA	TCP	TCRA	TCRP
Angle measurement	●	●	●	●	●	●	●
Distance measurement (Prism)	●	●	●	●	●	●	●
Distance measurement (Non-Prism)		●	●			●	●
Motorized			●	●	●	●	●
Automatic Target Recognition (ATR)				●	●	●	●
PowerSearch (PS)					●	●	●
Guide Light (EGL)	○	○	○	●	●	●	●
Remote Control Unit / RadioHandle	○	○	○	○	○	○	○
GUS74 Laser Guide				○		○	
SmartStation (GS15, GS09)	○	○	○	○	○	○	○
● = Standard      ○ = Optional							
<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 (GR24, 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>3,4</sup> / Measurement Time</b>						
	Standard						
	1 mm + 1.5 ppm						
	Fast						
	3 mm + 1.5 ppm						
	Tracking						
	3 mm + 1.5 ppm						
	Averaging						
	1 mm + 1.5 ppm						
	Typical Measurement Time <sup>5</sup>						
	0.8 s						
	<b>Distance Measurement (Non-Prism)</b>						
	<b>Range<sup>6</sup></b>						
	PinPoint R400						
	400 m (1310 ft)						
	PinPoint R1000						
	1000 m (3280 ft)						
	<b>Accuracy<sup>3,7</sup> / Measurement Time</b>						
	PinPoint 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>3,8</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>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						
	1/4 VGA (320*240 pixels), graphic LCD, color, illumination, touch screen						
	Keyboard						
	34 keys (12 function keys, 12 alphanumeric keys), illumination						
	Position						
	face I standard / face II optional						
	<b>Data storage</b>						
	Internal memory / Memory card						
	64 MB (optional) / CompactFlash cards (256 MB)						
	Number of data records						
	1750 / MB						
	Interface						
	RS232, Bluetooth® Wireless-Technology (optional)						
	<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 h / 4.4 Ah						
	<b>Weight and Dimensions</b>						
	Weight of Total Station / Battery GEB221 / Tribrach GEB121						
	4.8 - 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						
	IP54 / 95%, non-condensing						
<b>Guide Light (EGL)</b>	Working Range						
	5 - 150 m						
	Positioning accuracy						
	5 cm at 100 m						

## Leica Viva One-Person-Surveying

<b>Motorization</b>	Rotation speed	45° (50 gon) / s
<b>Automatic Target Recognition (ATR)</b>	<b>Range</b>	<b>ATR Mode</b>
	Round prism (GPR1)	1000 m (3300 ft)
	360° prism (GR24, GRZ122)	800 m (2600 ft)
	360° mini prism (GRZ101)	350 m (1150 ft)
	Mini prism (GMP101)	500 m (1600 ft)
	Reflective tape (60 mm x 60 mm)	55 m (175 ft)
	Shortest distance to 360° prism	1.5 m
	<b>Lock Mode</b>	800 m (2600 ft)
		600 m (2000 ft)
		300 m (1000 ft)
		400 m (1300 ft)
		-
		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 <sup>8</sup> (GR24, 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 SmartStation

<b>GNSS Add-on</b>	<b>Position accuracy<sup>9,10</sup></b>	Horizontal: 10 mm + 1 ppm, Vertical: 20 mm + 1 ppm
	<b>RTK Initialization</b>	
	Reliability / Time of initialization	>99.99% / Typically 8 s, with 5 or more satellites on L1 and L2
	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: 120 GS09: 120
	Dimensions (diameter x height)	GS15: 196 mm x 198 mm GS09: 186 mm x 89 mm
	Weight	GS15: 0.6 kg GS09: 0.12 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 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 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.

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.**



**Total Quality Management – our commitment to total customer satisfaction.**

**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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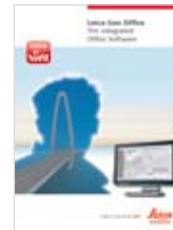
**Leica Viva**  
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