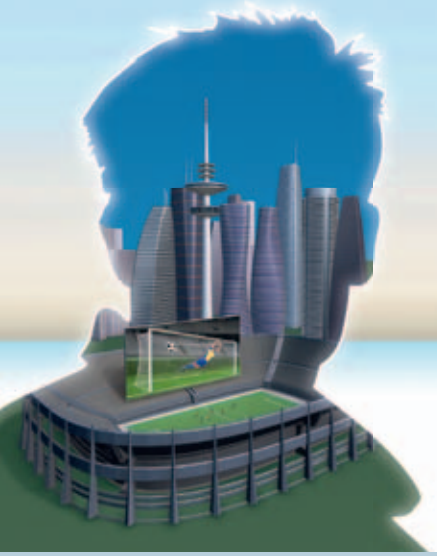
# Leica Viva TS15
## Datasheet



### 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

- 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) | – | – | – | ● | ● |
| Wide-Angle Camera | – | – | – | – | ● |
| RS232, USB and SD card interface | ● | ● | ● | ● | ● |
| Bluetooth | ● | ● | ● | ● | ● |
| Internal Flash Memory (1GB) | ● | ● | ● | ● | ● |
| Hotshoe interface for RH15 | ● | ● | ● | ● | ● |
| Guide Light (EGL) | ● | ● | – | ● | ● |
| Laser Guide | – | – | ● | – | – |
| SmartStation/SmartPole GS15 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 | 3 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 GEB121 | 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) | 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 |
| | **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

| | | |
|---|---|---|
| **Wide-angle 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 GS12 / GS15** | **Position accuracy[9,10]** | Horizontal: 10 mm + 1 ppm, Vertical: 20 mm + 1 ppm |
| | **RTK Initialization** | |
| | 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 |
| | **GNSS Antenna** | |
| | Number of channels | GS15: 120<br>GS12: 120 |
| | Dimensions (diameter x height) | GS15: 196 mm x 198 mm<br>GS12: 186 mm x 89 mm |
| | Weight | GS15: 1.34 kg<br>GS12: 1.05 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.

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.**

**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**
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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