## Built on years of knowledge and experience

The Leica GS15 delivers the hallmarks of Leica GNSS – reliability and accuracy.

- **Leica SmartCheck** – RTK data-processing to guarantee correct results
- **Leica SmartTrack** – advanced four constellation tracking of all GNSS satellites today and tomorrow
- **Leica xRTK** – delivers more positions in difficult environments.

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## Proven GNSS technology

<table>
<thead>
<tr>
<th>Feature</th>
<th>Details</th>
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<tr>
<td>Leica SmartCheck</td>
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## Work as you want to

The Leica GS15 is designed to suit any surveying task.

<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>Built-in exchangeable communication devices</td>
<td>For field base stations and RTK rovers with removable SIM cards</td>
</tr>
<tr>
<td>Fully scalable sensor</td>
<td>Allows you to buy only what you need today and upgrade with additional functionality as you need it</td>
</tr>
<tr>
<td>Integrated web server</td>
<td>To configure the logging of Leica or RINEX raw data and measure with one button press in the field</td>
</tr>
</tbody>
</table>

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## IP68 Rugged

The Leica GS15 is built for the most demanding environments.

<table>
<thead>
<tr>
<th>Feature</th>
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</tr>
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<tbody>
<tr>
<td>IP68 protection against dust and continuous immersion</td>
<td></td>
</tr>
<tr>
<td>Built for extreme temperatures of -40°C to +65°C</td>
<td></td>
</tr>
<tr>
<td>Integrated antenna technology to avoid breaking, losing or forgetting antenna</td>
<td></td>
</tr>
</tbody>
</table>

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- when it has to be **right**
## Technical Specifications

<table>
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<tr>
<th>Leica GS15 GNSS receiver</th>
<th>Leica GS15 Single Frequency</th>
<th>Leica GS15 Performance</th>
<th>Leica GS15 Professional</th>
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<tbody>
<tr>
<td><strong>Supported GNSS Systems</strong></td>
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<tr>
<td>GPS L2</td>
<td>○</td>
<td>○</td>
<td>○</td>
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<tr>
<td>GPS L5</td>
<td>○</td>
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<td>○</td>
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<tr>
<td>GLONASS</td>
<td>○</td>
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<td>○</td>
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<tr>
<td>Galileo</td>
<td>○</td>
<td>○</td>
<td>○</td>
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<tr>
<td>BeiDou</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td><strong>RTK performance</strong></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>DGPS / RTCM</td>
<td>○</td>
<td>○</td>
<td>○</td>
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<tr>
<td>RTK up to 5 km</td>
<td>○</td>
<td>○</td>
<td>○</td>
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<tr>
<td>RTK unlimited</td>
<td>○</td>
<td>○</td>
<td>○</td>
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<tr>
<td>Network RTK</td>
<td>○</td>
<td>○</td>
<td>○</td>
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<tr>
<td>Leica Lite RTK</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td><strong>Position update &amp; data recording</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 Hz positioning</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>2D Hz positioning</td>
<td>○</td>
<td>○</td>
<td>○</td>
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<tr>
<td>Raw data logging</td>
<td>●</td>
<td>●</td>
<td>●</td>
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<tr>
<td>NMEA out</td>
<td>○</td>
<td>○</td>
<td>○</td>
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<tr>
<td><strong>Additional features</strong></td>
<td></td>
<td></td>
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<tr>
<td>RTK Reference Station functionality</td>
<td></td>
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</tbody>
</table>

### GNSS Performance

| GNSS technology | Leica patented SmartTrack technology:  
• Advanced measurement engine  
• Jamming resistant measurements  
• High precision pulse aperture multipath correlator for pseudorange measurements  
• Excellent low elevation tracking  
• Very low noise GNSS carrier phase measurements with <0.5 mm precision  
• Minimum acquisition time  
No. of channels | 120 channels  
Max. simultaneous tracked satellites | Up to 60 Satellites simultaneously on two frequencies  
Satellite signals tracking | • GPS: L1, L2, L2C, L5  
• GLONASS: L1, L2  
• Galileo (Test): GIOVE-A, GIOVE-B  
• Galileo: E1, E5a, E5b, RT-BOC  
• BeiDou: B1, B2  
• SBAS: WAAS, EGNOS, GAGAN, MSAS, QZSS  
GNSS measurements | Fully independent code and phase measurements of all frequencies  
• GPS: carrier phase full wave length, Code (C/A, P, C Code)  
• GLONASS: carrier phase full wave length, Code (C/A, P narrow Code)  
• Galileo: carrier phase full wave length, Code  
• BeiDou: carrier phase full wave length, Code  
Reacquisition time | < 1 sec  

### Measurement Performance & Accuracy

| DGPS / RTCM | Typically 25 cm (rms)  
| Accuracy (rms) Code differential with DGPS / RTCM |  
| Standard of compliance | Compliance with ISO17123-8  
| Single Baseline (<30 km) | Horizontal: 8 mm + 1 ppm (rms)  
| Vertical: 15 mm + 1 ppm (rms)  
| Network RTK | Horizontal: 8 mm + 0.5 ppm (rms)  
| Vertical: 15 mm + 0.5 ppm (rms)  
| Accuracy (rms) with Post-Processing |  
| Static (phase) with long observations | Horizontal: 3 mm + 0.1 ppm (rms)  
| Vertical: 3.5 mm + 0.4 ppm (rms)  
| Static and rapid static (phase) | Horizontal: 3 mm + 0.5 ppm (rms)  
| Vertical: 5 mm + 0.5 ppm (rms)  
| Kinematic (phase) | Horizontal: 8 mm + 1 ppm (rms)  
| Vertical: 15 mm + 1 ppm (rms)  
| On-the-Fly (OTF) Initialization |  
| RTK technology | Leica SmartCheck technology  
| Reliability of OTF initialization | Better than 99.99%  
| Time for initialization | Typically 4 sec  
| Network RTK | up to 70 km²  

1. 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 required are dependent upon various factors including number of satellites, geometry, ionospheric conditions, multipath etc. GPS and GLONASS can increase performance and accuracy by up to 30% relative to GPS only. A full Galileo and GPS L5 constellation will further increase measurement performance and accuracy.
2. Might vary due to atmospheric conditions, signal multipath, obstructions, signal geometry and number of tracked signals.
3. Might vary with temperatures, age of battery, transmit power of data link device.
Leica GS15 GNSS receiver

### Hardware

#### Weight & Dimensions

<table>
<thead>
<tr>
<th>Weight (GS15)</th>
<th>1.34 kg</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight</td>
<td>3.30 kg standard RTK rover including slot RTK device, controller, batteries pole and bracket</td>
</tr>
<tr>
<td>Dimension (GS15) (diameter x height)</td>
<td>196 mm x 198 mm</td>
</tr>
</tbody>
</table>

#### Environmental specifications

- **Temperature, operating**
  - –40° C to +65° C, compliance with ISO9022-10-08, ISO9022-11-special, MIL STD 810F – 502.4-II
- **Temperature, storage**
  - –40° C to +80° C, compliance with ISO9022-10-08, ISO9022-11-special, MIL STD 810F – 502.4-II
- **Humidity**
  - 100%, compliance with ISO9022-13-06, ISO9022-12-04 and MIL STD 810F – 507.4-I
- **Proof against: water, sand and dust**
  - IP68 according to IEC60529 and MIL STD 810F – 506.4-I, MIL STD 810F – 510.4-I and MIL STD 810F – 512.4-I
  - Protected against blowing rain and dust
  - Protected against temporary submersion into water (max. depth: 1.4 m)
- **Vibration**
  - Withstands strong vibration during operating, compliance with ISO9022-36-08 and MIL STD 810F – 514.5-Cat.24
- **Drops**
  - Withstands 1.0 m drop onto hard surfaces
- **Functional shock**
  - 40 g / 15 to 23 msec, compliance with MIL STD 810F – 516.5-I
- **Topple over**
  - Withstands topple over from a 2 m survey pole onto hard surfaces

#### Power & Electrical

- **Supply voltage**
  - Nominal 12 V DC
  - Range 10.5 – 28 V DC
- **Power consumption**
  - Typically: 3.2 W, 270 mA
  - Internal power supply
    - Rechargeable external Li-Ion battery, 2.6 Ah / 7.4 V, 2 batteries fit into receiver
- **External power supply**
  - Rechargeable external NiMh battery 9 Ah / 12 V

#### Certifications

- Compliance to: FCC, CE
- Local approvals (as IC Canada, C-Tick Australia, Japan, China)

### Memory & Data Recording

- **Memory medium**
  - Removable SD Card: 1 GB
- **Data capacity**
  - 1 GB is typically sufficient for about GPS & GLONASS (8+4 satellites)
  - 280 days raw data logging at 15 s rate

#### Data recording

- **Type of data**
  - Onboard recording of:
    - Leica GNSS raw data
    - RINEX data
- **Recording rate**
  - Up to 20 Hz

#### User Interface

- **Buttons**
  - ON / OFF button
  - Function button
- **Button functionality**
  - Easy switch between Rover / Base mode
  - Easy “Here” positioning functionality
- **Led status indicator**
  - Bluetooth®, position, RTK status, data logging, detailed power status

#### Communications

- **Communication ports**
  - 1 x serial RS232 Lemo
  - 1 x USB / RS232 Lemo
  - 1 x UART serial & USB (for removable internal RTK devices)
  - 1 x Bluetooth® port, Bluetooth® v2.00+ EDR, class 2
  - Support of any suitable UHF / VHF radio
- **Built in data links**
  - Radio modems
    - Fully integrated, fully sealed receive / transmit radios
    - User exchangeable device
    - SATEL, Pacific Crest and others
    - 390 – 470 MHz bandwidth
    - Transmit power: 0.5 – 1.0 W
  - UHF antenna options
    - Fully integrated UHF antenna
    - External UHF antenna connector (Type ON)
- **CDMA phone modem**
  - Fully integrated, fully sealed CDMA phone modem
  - User exchangeable device
  - Dual-Band CDMA 1XRTT (800 / 1900 MHz)
- **External data links**
  - Radio modems
    - Support of any suitable UHF / VHF radio
  - CDMA / UMTS / CDMA phone modem options
    - Integrated CDMA / UMTS / CDMA antenna
    - External CDMA / UMTS / CDMA antenna connector (Type ON)
  - Communication protocols
    - Real-Time data formats for data transmission and reception
      - Leica proprietary formats (Leica, Leica 4G)
      - CMR, CMR+}
    - Real-Time data formats according RTCM standard for data transmission and reception
      - RTCM 2.1, RTCM 2.3, RTCM 3.0, RTCM 3.1
    - NMEA output
      - NMEA 0183 V 4.00 and Leica proprietary
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.