The Trimble® S7 Total Station is the ultimate system for efficient surveying, allowing you to adapt to any situation and increasing your productivity in the field. The combination of SureScan, Trimble VISION™, FineLock™ and DR Plus technology, along with many other features, means you’ll be able to collect data faster and more accurately than ever before.

Integrated 3D Scanning
Save time in the field and in the office with Trimble SureScan technology. Now you have the flexibility to perform feature-rich scans every day. Efficiently capture the information you need to create digital terrain models (DTMs), perform volume calculations and make topographic measurements faster than with traditional surveying methods. SureScan technology enables you to collect and process data faster by focusing on collecting the right points, not just more points.

Improved Trimble VISION Technology
Trimble VISION technology gives you the power to direct your survey with live video images on the controller as well as create a wide variety of deliverables from collected imagery. Capture measurements to prisms or reflectorless with point-and-click efficiency via video. Quickly document your site and add notes directly to the pictures in the field to ensure you never miss that critical information. Back in the office, you can use your Trimble VISION data for measurements, or to process 360-degree panoramas and high dynamic range (HDR) images for even clearer deliverables.

Superior Accuracy with Trimble DR Plus
Trimble DR Plus range measurement technology provides extended range of Direct Reflex measurement without a prism. Now you can measure further with fewer instrument set-ups and enhance your scanning performance. Trimble DR Plus, combined with the smooth and silent MagDrive™ servo technology, creates unmatched capability for quick measurements, without compromising on accuracy.

Manage Your Assets
Know where your total stations are 24 hours a day with Trimble L2P technology. See where your equipment is at any given time and get alerts if your instrument leaves a job site or experiences unexpected equipment shock or abuse.

Trimble AllTrak™ software lets you view usage and keep up-to-date on firmware, software and maintenance requirements. With Trimble L2P and AllTrak, you can rest assured knowing your equipment is up-to-date and where it should be.

Powerful Field and Office Software
Choose from a variety of Trimble controllers operating the feature rich, intuitive Trimble Access field software. Streamlined workflows like Roads, Utilities and Pipelines guide crews through common project types, helping to get the job done faster with less distractions. Trimble Access workflows can also be customized to fit your needs.

Back in the office, trust Trimble Business Center to help you check, process and adjust your optical and GNSS data in one software solution.

- Surveying, imaging and 3D scanning in one powerful solution
- Improved Trimble VISION technology for video robotic control, scene documentation and photogrammetric measurements
- Trimble L2P real-time equipment management
- Trimble DR Plus for long range and superior accuracy
- Intuitive Trimble Access Field Software
- Trimble Business Center Office Software for quick data processing
- Seamless integration with the Trimble V10 Imaging Rover and GNSS receivers
**PERFORMANCE**

**Angle measurement**
- Sensor type: Absolute encoder with diametrical reading
- Accuracy (Standard deviation based on DIN 18723): 1" (0.3 mgon), 2" (0.6 mgon), 3" (1.0 mgon), or 5" (1.5 mgon)
- Display (least count): 0.1" (0.01 mgon)
- Automatic level compensator: Centered dual-axis
- Range: ±5.4 (±0.15 mgon)

**Distance measurement**
- Accuracy (ISO):
  - Prism mode: 1 mm + 2 ppm (0.003 ft + 2 ppm)
  - Tracking: 2 mm + 2 ppm (0.0065 ft + 2 ppm)
- Accuracy (RMSE):
  - Prism mode:
    - Standard: 2 mm + 2 ppm (0.0065 ft + 2 ppm)
    - Tracking: 4 mm + 2 ppm (0.013 ft + 2 ppm)
  - DR mode:
    - Standard: 2 mm + 2 ppm (0.0065 ft + 2 ppm)
    - Tracking: 4 mm + 2 ppm (0.013 ft + 2 ppm)
  - Extended range: 10 mm + 2 ppm (0.033 ft + 2 ppm)

**Measuring time**
- Prism mode:
  - Standard: 1.2 sec
  - Tracking: 0.4 sec
- DR mode:
  - Standard: 1–5 sec
  - Tracking: 0.4 sec

**Measurement range**
- Prism mode:
  - 1 prism: 2,500 m (8,202 ft)
  - 1 prism Long Range mode: 5,500 m (18,044 ft) (max. range)
- Shortest possible range: 0.2 m (0.65 ft)
- DR mode:
  - White card (90% reflective): 1,300 m (4,265 ft)
  - Gray card (18% reflective): 600 m (1,969 ft)
  - Reflective foil 20 mm: 1,000 m (3,280 ft)
  - Shortest possible range: 1 m (3.28 ft)
  - DR Extended Range Mode: 2,200 m
  - White Card (90% reflective): 1,300 m (4,265 ft)

**Scanning**
- Range:
  - Prism mode: from 1 m up to 250 m (3.28 ft–820 ft)
  - DR mode: up to 15 points/sec
  - Minimum point spacing: 10 mm (0.39 ft)
- Standard deviation: 1.5 mm ±50 m (0.0049 ft ±164 ft)
- Single 3D point accuracy: 10 mm ±190 m (0.032 ft ±620 ft)

**EDM SPECIFICATIONS**
- Light source: Pulsed Laser diode 905 nm
- Beam divergence:
  - Horizontal: 2 cm/50 m (0.06 ft/164 ft)
  - Vertical: 4 cm/50 m (0.13 ft/164 ft)
# SYSTEM SPECIFICATIONS

## Leveling
- Circular level in tribrach: 8'/2 mm (8'/0.007 ft)
- Electronic 2-axis level in the LC-display with a resolution of: 0.3' (0.1 mgon)

## Laser class
- EDM: Laser class 1
- Laser pointer co-axial (standard): Laser class 1
- Overall product laser class: Laser class 2

## Servo system
- MagDrive servo technology: Laser class 1
- Rotation speed: 115 degrees/sec (128 gon/sec)
- Rotation time Face 1 to Face 2: 2.6 sec
- Positioning speed 180 degrees (200 gon): 2.6 sec
- Clamps and slow motions: Servo-driven, endless fine adjustment
- Centering system: Trimble 3-pin
- Optical plummet: Built-in optical plummet
- Magnification focusing distance: 2.3x/0.3 m to infinity (7.6 ft to infinity)

## Telescope
- Magnification: 30x
- Aperture: 40 mm (1.57 in)
- Field of view at 100 m (328 ft): 2.6 m at 100 m (8.5 ft at 328 ft)
- Focusing distance: 15 m (49.2 ft) to infinity
- Illuminated crosshair: User-definable (10 steps)
- Field of view at 100 m (328 ft): 2.6 m at 100 m (8.5 ft at 328 ft)
- Brightness: User-definable
- Image storage: Up to 2048 x 1536 pixels
- Exposure: Spot, HDR, Automatic
- File format: JPEG
- Compression ratio: User-definable
- Video streaming: 5 frames/sec

## Camera
- Chip: Color Digital Image Sensor
- Resolution: 2048 x 1536 pixels
- Field of view: 16.5° x 12.3° (18.3 gon x 13.7 gon)
- Field of view: 3 m to infinity (9.84 ft to infinity)
- Pole-to-pole coverage: 180 degrees
- Autofocus: Standard
- Aperture: 4-step (1x, 2x, 4x, 8x)
- Illuminated crosshair: Variable (10 steps)
- Focal length: 23 mm (0.09 ft)
- Field of view: 23 mm (0.09 ft)
- Depth of field: 3 m to infinity (9.84 ft to infinity)
- Image storage: Up to 2048 x 1536 pixels
- Field of view: 16.5° x 12.3° (18.3 gon x 13.7 gon)
- Exposure: Spot, HDR, Automatic
- Brightness: User-definable
- Compression ratio: User-definable
- Video streaming: 5 frames/sec

## Power supply
- Internal battery: Rechargeable Li-ion battery 11.1 V, 5.0 Ah
- Operating time:
  - One internal battery: Approx. 6.5 hours
  - Three internal batteries in multi-battery adapter: Approx. 20 hours
  - Robotic holder with one internal battery: Approx. 13.5 hours
  - Operating time for video robotic:
    - One battery: 5.5 hours
    - Three batteries in multi-battery adapter: 17 hours

## Weight and dimensions
- Instrument: 5.5 kg (11.57 lb)
- Trimble CU controller: 0.4 kg (0.88 lb)
- Tribrach: 0.7 kg (1.57 lb)
- Internal battery: 0.35 kg (0.77 lb)
- T runnion axis height: 3.56 mm (0.14 in)
- Weight: 0.35 kg (0.77 lb)
- Trimmon axis height: 196 mm (7.71 in)

## Other
- Operating temperature: −20 °C to +50 °C (−4 °F to +122 °F)
- Storage temperature: −40 °C to +70 °C (−40 °F to +158 °F)
- Dust and water proofing: IP65
- Communication: 2.4 GHz, USB, Serial, Bluetooth
- Security: Dual-layer password protection, L2P11

---

**Trimble S7 TOTAL STATION**
## AUTOLOCK AND ROBOTIC SURVEYING

<table>
<thead>
<tr>
<th>Description</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Autolock and Robotic Range</td>
<td></td>
</tr>
<tr>
<td>Passive prisms</td>
<td>500–700 m (1,640–2,297 ft)</td>
</tr>
<tr>
<td>Trimble MultiTrack Target</td>
<td>800 m (2,625 ft)</td>
</tr>
<tr>
<td>Trimble ActiveTrack 360 Target</td>
<td>500 m (1,640 ft)</td>
</tr>
<tr>
<td>Autolock pointing precision at 200 m (656 ft) (Standard deviation)</td>
<td></td>
</tr>
<tr>
<td>Passive prisms</td>
<td>&lt;2 mm (0.007 ft)</td>
</tr>
<tr>
<td>Trimble MultiTrack Target</td>
<td>&lt;2 mm (0.007 ft)</td>
</tr>
<tr>
<td>Trimble ActiveTrack 360 Target</td>
<td>&lt;2 mm (0.007 ft)</td>
</tr>
<tr>
<td>Shortest search distance</td>
<td>0.2 m (0.65 ft)</td>
</tr>
<tr>
<td>Type of radio internal/external</td>
<td>2.4 GHz frequency-hopping, spread-spectrum radios</td>
</tr>
<tr>
<td>Search time (typical)</td>
<td>2–10 sec</td>
</tr>
</tbody>
</table>

## FINELOCK

<table>
<thead>
<tr>
<th>Description</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pointing precision at 300 m (980 ft) (standard deviation)</td>
<td></td>
</tr>
<tr>
<td>Range to passive prisms (min–max)</td>
<td>20 m–700 m (64 ft–2,297 ft)</td>
</tr>
<tr>
<td>Minimum spacing between prisms at 200 m (656 ft)</td>
<td>0.8 m (2.625 ft)</td>
</tr>
</tbody>
</table>

## GPS SEARCH/GEOLOCK

<table>
<thead>
<tr>
<th>Description</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>GPS Search/GeoLock</td>
<td>360 degrees (400 gon) or defined horizontal and vertical search window</td>
</tr>
<tr>
<td>Solution acquisition time</td>
<td>15–30 sec</td>
</tr>
<tr>
<td>Target re-acquisition time</td>
<td>&lt;3 sec</td>
</tr>
<tr>
<td>Range</td>
<td>Autolock &amp; Robotic range limits</td>
</tr>
</tbody>
</table>

Specifications subject to change without notice.

© 2015–2019 Trimble Inc. All rights reserved. Trimble, the Globe & Triangle logo, and Autolock are trademarks of Trimble Inc., registered in the United States and in other countries. Access, AllTrak, FineLock, MagDrive, MultiTrack, SurePoint, and VISION are trademarks of Trimble Inc. The Bluetooth word mark and logos are owned by the Bluetooth SIG, Inc. and any use of such marks by Trimble Inc. is under license. All other trademarks are the property of their respective owners. PN 022516-154G (06/19)

Contact your local Trimble Authorized Distribution Partner for more information.