

Trimble RTS771

Total Station

The Power to Excel

Delivering major workflow innovations for both typical surveying and specialized applications, you now have the power to redefine your performance potential.

Video-Assisted Control

Trimble VISION™ gives you the power to see everything the instrument sees without a trip back to the tripod. Direct your survey with live video images on the controller. Now you are free to capture measurements, to prism or reflectorless surfaces, with point and click efficiency.

Visual Verification

The on-board camera integrates surveyed data with the live scene image, so you can verify the work that you've done before leaving the job. Calibrated photo documentation provides customers with deliverables they know they can trust.

Unsurpassed Total Station Technology

Trimble MagDrive™ Servo Technology provides for exceptional speed and accuracy with smooth, silent operation.

Trimble SurePoint™ Technology ensures accurate measurements by automatically correcting for unwanted movement due to wind, sinkage, and other factors.

Trimble MultiTrack™ technology locks on and tracks passive prisms for control measurements and active targets for dynamic measurement, stakeout and grade control.

Specialized Engineering Applications

For precision-build applications, you need a measurement solution with optimal speed, accuracy and reliability. Combine the Trimble DR HP Precision EDM with Trimble VISION and you have the flexibility to tackle the most demanding projects.

- Visually mark points, at greater range, with the Class 2 Laser Pointer.
- Automatic Servo Focus sets the optical focus for quick manual aiming when monitoring points in DR mode.
- Silent, frictionless movement ensures unobtrusive operation in urban or residential settings.



| EDM | SERVO CONTROL | ANGLE ACCURACY | HARDWARE OPTIONS |
|-------|-------------------|----------------|------------------|
| DR HP | Robotic, Autolock | 1" | Trimble VISION |

Key Features

- Trimble VISION video-assisted robotic measurement
- Visual verification with data overlay and photo documentation
- MagDrive technology for maximum speed and efficiency
- MultiTrack technology offers the choice between passive and active tracking



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Performance

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|--|------------------------------------|
| Angle measurement accuracy (standard deviation based on ISO17123-3) | 1" (0.3 mgon) |
| Angle display (least count) | 0.1" (0.01 mgon) |
| Distance measurement | |
| Accuracy (RMSE) | |
| Prism mode | |
| Standard | 2 mm + 2 ppm (0.003 ft + 1 ppm) |
| Standard deviation according to ISO17123-4 | 0.8 mm + 1 ppm (0.0026 ft + 1 ppm) |
| Tracking | 5 mm + 2 ppm (0.016 ft + 2 ppm) |
| DR mode | |
| Standard measurement | 3 mm + 2 ppm (0.01 ft + 2 ppm) |
| Tracking | 10 mm + 2 ppm (0.032 ft + 2 ppm) |
| Measuring time | |
| Prism mode | |
| Standard | 3 s |
| Tracking | 0.4 s |
| Averaged observations | 3 s per measurement |
| DR mode | |
| Standard | 3–15 s |
| Tracking | 0.4 s |
| Range (under standard clear conditions ^{1,2}) | |
| Prism mode | |
| 1 prism | 3,000 m (9,800 ft) |
| 1 prism Long Range mode | 5,000 m (16,400 ft) |
| 3 prism Long Range mode | 7,000 m (23,000 ft) |
| Shortest range | 1.5 m (4.9 ft) |
| DR mode | |

| | Good (Good visibility, low ambient light) | Normal (Normal visibility, moderate sunlight, some heat shimmer) | Difficult (Haze, object in direct sunlight, turbulence) |
|---|---|---|--|
| White card (90% reflective) ³ | >150 m (492 ft) | 150 m (492 ft) | 70 m (229 ft) |
| Gray card (18% reflective) ³ | >120 m (394 ft) | 120 m (394 ft) | 50 m (164 ft) |

Shortest range.....1.5 m (4.9 ft)

Edm Specifications

| | |
|----------------------------------|---|
| Light source | Laser diode 660 nm; Laser class 1 in Prism mode; Laser class 2 in DR mode |
| Laser pointer coaxial (standard) | Laser class 2 |
| Beam divergence Prism mode | |
| Horizontal | 4 cm/100 m (0.13 ft/328 ft) |
| Vertical | 4 cm/100 m (0.13 ft/328 ft) |
| Beam divergence DR mode | |
| Horizontal | 2 cm/50 m (0.066 ft/164 ft) |
| Vertical | 2 cm/50 m (0.066 ft/164 ft) |
| Atmospheric correction | –130 ppm to 160 ppm continuously |



- Standard clear: No haze. Overcast or moderate sunlight with very light heat shimmer.
- Range and accuracy depend on atmospheric conditions, size of prisms and background radiation.
- Kodak Gray Card, Catalog number E1527795.
- The capacity in –20 °C (–5 °F) is 75% of the capacity at +20 °C (68 °F).
- Dependent on selected size of search window.

Specifications subject to change without notice.

General Specifications

| | |
|---|--|
| Leveling | |
| Circular level in tribrach | 8' / 2 mm (8' / 0.007 ft) |
| Automatic level compensator | |
| Type | Centered dual-axis |
| Accuracy | 0.5" (0.15 mgon) |
| Range | ±5.4' (±100 mgon) |
| Servo system | MagDrive servo technology, integrated servo/angle sensor; electromagnetic direct drive |
| Rotation speed | 115 degrees/s (128 gon/s) |
| Rotation time Face 1 to Face 2 | 2.6 s |
| Positioning speed 180 degrees (200 gon) | 2.6 s |
| Clamps and slow motions | Servo-driven, endless fine adjustment |
| Centering | |
| Centering system | Trimble 3-pin |
| Optical plummet | Built-in optical plummet |
| Magnification/shortest focusing distance | 2.3×/0.5 m to infinity (1.6 ft to infinity) |
| Telescope | |
| Magnification | 30× |
| 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) |
| Shortest focusing distance | 1.5 m (4.92 ft) to infinity |
| Illuminated crosshair | Variable (10 steps) |
| Autofocus | Standard |
| Tracklight built in | Not available in all models |
| Operating temperature | –20° C to +50° C (–4° F to +122° F) |
| Dust and water proofing | IP55 |
| Humidity | 100% condensing |
| Power supply | |
| Internal battery | Rechargeable Li-Ion battery 10.8V, 6.5Ah, 70Wh |
| Operating time ⁴ | |
| One internal battery | Approx. 6.5 hours |
| Three internal batteries in multi-battery adapter | Approx. 18 hours |
| Robotic holder with one internal battery | 13.5 hours |
| Operating time with video robotic ⁴ | |
| One battery | 5.5 hours |
| Three batteries in multi-battery adapter | 17 hours |
| Weight | |
| Instrument (Servo/Autolock ⁵) | 5.15 kg (11.35 lb) |
| Instrument (Robotic) | 5.25 kg (11.57 lb) |
| Trimble CU controller | 0.4 kg (0.88 lb) |
| Tribrach | 0.7 kg (1.54 lb) |
| Internal battery | 0.35 kg (0.77 lb) |
| Trunnion axis height | 196 mm (7.71 in) |
| Communication | USB, Serial |
| Security | Dual-layer password protection |

Robotic Surveying

| | |
|---|----------------------------|
| Autolock and Robotic range ² | |
| Passive prisms | 500–700 m (1,640–2,297 ft) |
| Trimble MultiTrack Target | 800 m (2,625 ft) |
| Autolock pointing precision at 200 m (656 ft) (standard deviation) ² | |
| Passive prisms | <2 mm (0.007 ft) |
| Trimble MultiTrack™ Target | <2 mm (0.007 ft) |
| Shortest search distance | 0.2 m (.65 ft) |
| Search time (typical) ⁵ | 2–10 s |

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