Trimble RTS771 Robotic Total Station

High Precision Positioning

For your most demanding projects, this 1" instrument raises the bar in high-accuracy positioning for general contractors.

- **Video-Assisted Control**
  Trimble VISION™ gives you the power to see everything the instrument sees without a trip back to the tripod. Direct your layout with live video images on the Trimble Field Tablet. Now you are free to capture measurements, to prism or reflectorless surfaces, with point and click efficiency.
- **Visual Verification**
  To provide an accurate documentation of the design and field image that is displayed within the Trimble Field Link software, job data including points and linework are overlaid on the camera image.

ADVANCED 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.

BUILT FOR CONSTRUCTION

For construction 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.

- 1" angle accuracy for high-precision positioning applications.
- Automatic Servo Focus sets the optical focus for quick manual aiming when laying out points in DR mode.
- Combine with Trimble Field Link software running on the Trimble Field Tablet to optimize your accuracy and productivity.

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

GENERAL SPECIFICATIONS

PERFORMANCE

Angle measurement accuracy (standard deviation based on DIN 18723) . . . . . 1″ (0.3 mgon)
Angle display (least count) . . . . . 0.1″ (0.01 mgon)
Distance measurement

Typical Accuracy	50 m (164 ft)	100 m (328 ft)	200 m (656 ft)	300 m (984 ft)
Prism mode				
Standard	2 mm (5/64")	2 mm (5/64")	3 mm (1/8")	4 mm (5/32")
Tracking	5 mm (13/64")	5 mm (13/64")	6 mm (15/64")	6 mm (15/64")
DR mode				
Standard	3 mm (1/8")	3 mm (1/8")	4 mm (5/32")	5 mm (13/64")
Tracking	10 mm (25/64")	10 mm (25/64")	11 mm (7/16")	11 mm (7/16")

Measuring time
- Prism mode
  - Standard . . . . . 2.5 s
  - Tracking . . . . . 0.4 s
  - Averaged observations . . . . . 2.5 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)
  - 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 . . . . . Laserdiode 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

CAMERA

Chip . . . . . Color Digital Image Sensor
Resolution . . . . . 2048 x 1536 pixels
Focal length . . . . . 23 mm
Depth of field . . . . . 3 m to infinity
Field of view . . . . . 15.5 deg x 12.3 deg
Digital zoom 4-step (1x, 2x, 4x, 8x)
Video streaming . . . . . 5 frames/sec

1 Standard clear: No haze. Overcast or moderate sunlight with very light heat shimmer.
2 Range and accuracy depend on atmospheric conditions, size of prisms and background radiation.
3 Kodak Gray Card, Catalog number E1527795.
4 The capacity in –20 °C (–5 °F) is 75% of the capacity at +20 °C (68 °F).
5 Bluetooth type approvals are country specific. Contact your local Trimble Authorized Distribution Partner for more information.
6 Dependent on selected size of search window.

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 speed180 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
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 11.1 V, 5.0 Ah
- 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®) . . . . . 5.15 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, Bluetooth®[5]
Security . . . . . Dual-layer password protection

ROBOTIC RANGE

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)[6] . . . . . 2–10 s

Specifications subject to change without notice.

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