Trimble 5503 DR Total Station Series

Direct Reflex servo-driven, highly productive measuring system

Key Features and Benefits

- **DR Standard EDM providing reflectorless measurements up to 70 m**
- **Coaxial laser pointer**
- **Four-speed servo to increase productivity**
- **Comprehensive Geodimeter CU software**
- **Seamless data flow**

The Trimble 5503 Direct Reflex (DR) servo-driven Total Station gives you access to highly productive methods for every measuring situation. Built on Trimble technology established in the highly successful 5600 series the 5503 is a totally reliable and productive solution for all of your conventional total station applications.

With advanced servo operation the 5503 will increase your general productivity by 30% over mechanical instruments and an even more dramatic improvement in stakeout work.

The Trimble 5503 is a reliable servo-driven DR total station for all jobs that require extra productivity

Servo gives you a 30% productivity increase

Unlike conventional, mechanical total stations, the 5503 total station has built-in servomotors controlling horizontal and vertical motion.

To turn the instrument, the adjustment screws are used to control the servomotors—the faster the movement, the faster the servomotor works, and vice versa. The servo-driven system also eliminates the need for traditional motion locks and the slow motion tangents are endless.

The adjustment screws on the 5503 are large and ergonomically designed, so that the instrument can be aligned by a slight circular movement of the finger.

The advanced features provided by the 5503 Servo system all combine to deliver a huge increase in your productivity. Time is saved when measuring a series of targets—after the first set of measurements has been made the instrument automatically turns to face two to measure the targets again. You only need to make the fine adjustments before measuring.

To speed up stakeout applications, the servomotors turn the instrument to line with a single key press—the instrument can be positioned horizontally, vertically or both. The servomotors can also be used to save time extending a line—a single keystroke will turn the instrument 180 degrees horizontally.

DR Standard

The 5503 DR Standard EDM opens up a new world of measurement applications. Objects that were previously difficult or impossible to measure with a prism can now be measured with a minimum of effort. Visible property boundaries and corners can be measured without gaining land access. Overhead cables, tunnels, bridges, quarry faces, stockpiles, buildings, and elevations can all be measured quickly, easily and safely.

The 5503 DR enables you to measure up to 70 m (230 ft) to a 90% reflective Kodak Gray Card and 5,000 m (16,400 ft) with an accuracy of ±(2 mm + 2 ppm) to a single prism. The 5503 DR also incorporates a coaxial laser pointer which is eye safe, even when observed through the telescope.

Integrated Surveying

The 5503 includes the Geodimeter® CU loaded with the full suite of Geodimeter software* and enough memory for 10,000 points, giving you full control over the way you work.

The Geodimeter CU also makes the 5503 fully interoperable with Trimble's other field systems and provides seamless data flow between the field and office, ensuring the integrity of your data.

You can rely on Trimble's field-proven equipment to increase your productivity and streamline your field operations.

** All programs except 3D Roadline*

Trimble

Trimble 5503 DR Standard Total Station

PERFORMANCE SPECIFICATIONS

ANGLE MEASUREMENT	
Accuracy (Standard deviation based on DIN 18723)	
5503	3″ (1.0 mgon)
Angle reading (least count)	
Horizontal & vertical	
Standard measurement	1″ (0.1 mgon)
Fast Standard	1″ (0.1 mgon)
Tracking	2″ (0.5 mgon)
Arithmetic mean value (D-bar)	
Horizontal & vertical angle	1″ (0.1 mgon)
Automatic level compensator	Dual-axis compensator ±6′ (±100 mgon)
DISTANCE MEASUREMENT	
Accuracy (standard deviation)	
Prism	
Standard measurement	±(2 mm + 2 ppm) ±(0.007 ft + 2 ppm)
Fast Standard	±(3 mm + 2 ppm) ±(0.01 ft + 2 ppm)
Tracking	±(5 mm + 2 ppm) ±(0.016 ft + 2 ppm)
Arithmetic mean value (D-bar)	±(2 mm + 2 ppm) +-(0.007 ft + 2 ppm)
Reflective foil	
Standard measurement	±(3 mm + 2 ppm) ±(0.01 ft + 2 ppm)
Fast Standard	±(3 mm + 2 ppm) ±(0.01 ft + 2 ppm)
Tracking	±(5 mm + 2 ppm) ±(0.016 ft + 2 ppm)
Arithmetic mean value (D-bar)	±(3 mm + 2 ppm) +-(0.01 ft + 2 ppm)
Direct Reflex mode	
Standard measurement	±(3 mm + 2 ppm) ±(0.01 ft + 2 ppm)
Fast Standard	±(5 mm + 2 ppm) ±(0.016 ft + 2 ppm)
Tracking	±(10 mm + 2 ppm) ±(0.032 ft + 2 ppm)
Arithmetic mean value (D-bar)	±(3 mm + 2 ppm) ±(0.01 ft + 2 ppm)
Shortest possible range	
To prism	1.5 m (4.9 ft)
Direct Reflex	1.5 m (4.9 ft)
Reflective foil	2.5 m (8.2 ft)
Measuring time	
Prism mode	
Standard measurement	2 s
Fast Standard	1.8 s
Tracking	0.5 s
Arithmetic mean value (D-bar)	3.5 s per measurement. Repeats until stopped manually (or after 99 measurements).
Measuring time (Continued)	
Direct Reflex mode	
Standard measurement	3 s up to 30 m (98.4 ft) +1 s/10 m (32.8 ft)
Fast Standard	2 s up to 30 m (98.4 ft) +1 s/10 m (32.8 ft)
Tracking	0.8 s up to 3 m (98.4 ft) +1 s/10 m (32.8 ft)
Arithmetic mean value (D-bar)	3.5 s per measurement. Repeats until stopped manually (or after 99 measurements).
Range (under standard clear conditions*)	
Range using prism	
1 prism	3,000 m (9,840 ft)
1 prism Long Range mode	
(for measurements >1000 m only)	5,000 m (16,400 ft)
3 prisms	5,000 m (16,400 ft)
3 prisms Long Range mode	
(for measurements >1000 m only)	7,500 m (24,600 ft)
Range using reflective foil	
Reflective foil 20 mm	100 m (328 ft)
Reflective foil 20 mm	
Long Range mode	200 m (656 ft)
Reflective foil 60 mm	250 m (820 ft)
Reflective foil 60 mm	
Long Range mode	800 m (2,625 ft)
Range Direct Reflex measurement (typically)	
Kodak Gray Card (18% reflective)**	50 m (164 ft)
Kodak Gray Card (90% reflective)**	70 m (230 ft)
Concrete	40–50 m (131–164 ft)
Wood construction	40–60 m (131–197 ft)
Metal construction	40–60 m (131–197 ft)
Light rock	40–50 m (131–164 ft)
Dark rock	30–40 m (98–131 ft)

** Standard clear: No haze. overcast or moderate sunlight with very light heat shimmer. Range and accuracy are dependent on atmospheric conditions and background radiation*

*** Kodak Gray Card, Catalog number E1527795*

GENERAL SPECIFICATIONS

Light source	Laserdiode 660 nm Laser class 1 in Prism mode Laser class 2 Direct Reflex
Laser pointer coaxial (Standard)	Laser class 2
Beam divergence DR-mode	
Horizontal	0.4 mrad (2 cm/50 m) (0.066 ft/164 ft)
Vertical	0.8 mrad (4 cm/50 m) (0.13 ft/164 ft)
Beam divergence Prism mode	
Horizontal	1.4 mrad (14 cm/100 m (0.46 ft/328 ft)
Vertical	2 mrad (20 cm/100 m (0.65 ft/328 ft)
Atmospheric correction	–60 to 195 ppm continuously
Leveling	
Circular level in tribrach	8′/2 mm (8′/0.007 ft)
Electronic 2-axis level in the LC-display with a resolution of	6″ (2 mgon)
Clamps and slow motions	Servo-drive. Endless fine adjustment
Centering	
Centering system	Trimble 3-pin.
Optical plummet	Optical plummet in tribrach
Magnification	2.4x
Shortest focusing distance	0.5 m (1.6 ft) to infinity
Telescope	
Magnification	26x (30x Optional)
Aperture	40 mm (1.57 in.)
Field of view at 100 m (328 ft)	2.6 m (8.5 ft)
Shortest focusing distance	1.7 m (5.58 ft) to infinity
Illuminated crosshair	Variable (15 steps)
Tracklight	Optional
Operating temperature	–20°C to +50°C (–5°F to +122°F)
Power Supply	
Internal battery	Rechargeable NiMH battery 12 V, 1.8 Ah Operating time approx. 3 h
External battery	External rechargable NiMH batteries 12 V, 3.8–11.4 Ah.
Weight	
Instrument with Geodimeter Control Unit	6.4 kg (14.1 lbs.)
Tribrach	0.7 kg (1.5 lbs.)
Internal battery	0.4 kg (0.9 lbs.)
Trunnion axis height	205 mm (8.1 in.)

ORDERING INFORMATION

For further information please contact your nearest Trimble Authorized Distributor or Trimble Office. You may also visit our website at http://www.trimble.com

Trimble

NORTH AMERICA
Trimble Geomatics and Engineering Division
5475 Kellenburger Road
Dayton, Ohio 45424-1099,
U.S.A.
800-538-7800 (Toll Free)
+1-937-233-8921 Phone
+1-937-233-9441 Fax
www.trimble.com

EUROPE
Trimble GmbH
Am Prime Parc 11,
65479 Raunheim,
GERMANY
+49-6142-21000 Phone
+49-6142-2100-550 Fax

ASIA-PACIFIC
Trimble Navigation Australia Pty Limited
Level 1/123 Gotha Street,
Fortitude Valley, QLD 4006,
AUSTRALIA
+61-7-3216-0044 Phone
+61-7-3216-0088 Fax

YOUR LOCAL TRIMBLE OFFICE OR REPRESENTATIVE