

TOTAL STATION **5600**



**THE POWER OF ONE.**

**One surveyor.**

**One system.**

**One company.**

**THE POWER OF ONE.**

*capabili*

CONTROL

TOPO

DR - REFLECTORLESS

**A**s a 21st-century surveyor, you face challenges undreamed of before. In a single day, you might be called upon to bring in a first-order control point, then stake out a section of road grade, and



finish up with a quick “as-built” audit on another site. More than ever that means moving mountains of data. You must translate complex CAD designs, work with conflicting datums and coordinate systems, generate sophisticated topo maps, and integrate measurements from a variety of instruments. That’s tough enough in an office environment, but you know where the real work is done: In slushy snow, desert sun, and dusty construction sites.

That’s why at Trimble we’ve been working toward a single goal: Giving you, the surveying professional, the capability to handle anything that comes your way. We can simplify your job by providing a single system so versatile it can handle virtually every facet of surveying, from concept to completion. Run by a multi-tasking controller that speaks to office computers and both GPS and conventional field instruments with no translation or interfacing issues, in a format that’s so easy to use apprentices will be as productive as old pros. All supported by the same innovative spirit that brought you the first EDM, the first robotic total station, and the first real-time kinematic GPS system.

With the 5600 Total Station series we’ve achieved our goal. One system. One surveyor. One partner to turn to for support: Trimble, the number one supplier of complete surveying solutions.

## GIS & AS-BUILT





**DOUBLE YOUR PROFIT.**

*produc*

**[SERVO]** —————→  
**INCREASE PRODUCTIVITY 30%.**

**[AUTOLOCK]** —————→  
**UPGRADE TO AUTOLOCK AND YOU  
ADD ANOTHER 20% PRODUCTIVITY.**

**To be competitive these days, you need to work fast and work smart—every step of the way.** If you want to be profitable, you can't waste time fiddling with finicky instruments or manually juggling complex data translations.

Getting the job done fast while still producing accurate, high-quality results is critical for you and your clients. The

Trimble 5600 Total Station series gives you access to the best, most-productive measuring methods available—ideal for a wide range of applications.

Each Trimble 5600 Total Station is an advanced surveying system for today's surveyor. With its innovative technology, each instrument allows you and your survey crews to survey faster, easier, and better than ever before.



**FAST.** Equipped with a 4-speed servo, the 5600 series instruments allow for fast, smooth, accurate aiming.

Servo technology enables automated measuring processes. To measure a set of angles for example, simply aim the instrument at each point just once. You can then let the instrument repeat the measurements automatically. As many times as needed.

And as your job requirements grow, so can your 5600 series instrument. The servo system provides the base for upgrades to Autolock and robotic surveying.



**EFFICIENT.** To further increase productivity, upgrade your 5600 series instrument to Autolock™—a semi-robotic measuring method where measuring and recording occur at the total station. With Autolock, the instrument seeks out the RMT (active remote positioning target), locks to it, and follows as the target is moved from point to point. Autolock looks only for the RMT, so there is never a problem that measurements are taken to other reflective objects.

Autolock technology eliminates the need for time-consuming, error-prone focusing and allows you to work effectively even in poor- and low-visibility environments. Using Autolock, it is now possible to survey and stakeout as quickly as the rodman can move—getting the job done quickly and accurately.

# tivity

## [ROBOTIC]

**UPGRADE TO ROBOTIC AND YOU INCREASE PRODUCTIVITY ANOTHER 30%.**



**ONE-PERSON SURVEYING.** For true one-person surveying, robotic operation enables you to now survey and stakeout on your own from the prism—further increasing your productivity and reducing your labor and travel costs.

Robotic is ideal for both survey and stakeout work. When surveying in robotic mode, simply take the control unit with you to the prism to record measurements and collect other data. For stakeout, use the control unit to navigate to the point. Robotic operation ensures higher data quality, because you are taking the measurements at the point being measured, where errors can be quickly identified and corrected.

The 5600 series Robotic option uses a radio to communicate between the total station and the prism. The control unit gives you complete remote control of the instrument and its functions.

## [DIRECT REFLEX]

**INNOVATIVE DIRECT REFLEX DR200+ EDM MEASUREMENT SYSTEM.**



**INNOVATIVE.** The innovative Direct Reflex (DR) EDM option is ideal for surveying where the target is difficult, impossible or dangerous to reach. It opens up a world of new applications—building elevation surveys, tunnel profiling, measuring to objects on private land, and safe positioning of points in active traffic on roads and railways.

The DR measurement system is equipped with purpose-built software tools that automate and control the measurement of complex points. Surface and line intersection, plane intersection, and automated scanning are tools that will help you get the job done.

Using the DR200+ you can measure to white objects up to 600 meters away and to Kodak Grey up to 200 meters away. (Kodak Grey is the international standard to determine the range of reflectorless total stations.) And the range when using a single prism is 5.5 kilometers.

The DR200+ helps you survey faster and more safely than ever before.

## [INTEGRATED SURVEYING™]

**COMBINE THE 5600 WITH A GPS SYSTEM AND HAVE THE BEST OF BOTH WORLDS.**



**SYNERGY.** The 5600 Total Station series is the ideal complement to the Trimble GPS Total Station® 5700, providing a means of filling in detail that cannot be acquired using GPS alone. A two-person crew can work independently or together, with the technology that suits the job to attain the highest possible productivity.

The two are seamlessly linked using our universal controller, the TSCe. You can instantly switch between RTK and total station measurements. All the combined data can be processed and analyzed within the Trimble office software environment.

**ONE INSTRUMENT. MANY CONFIGURATIONS.**

*flexi*

#### FULLY UPGRADABLE

Protect your investment. With Servo as standard, you have the option of either conventional or DR measurements. And for faster, more productive surveying, each 5600 Total Station series is fully upgradable to Autolock and Robotic technology.

#### GEODIMETER TECHNOLOGY

Tried, tested, and proven Geodimeter® EDM. Using DR reflectorless technology, your survey crews can measure up to 600 meters without a prism and to 5500 meters with a single prism.

#### ACTIVE TARGET TECHNOLOGY

Reduce operator fatigue and increase productivity. The unique active target tracking gives 100% reliable target acquisition.

#### TRACKLIGHT™—LINE OF SIGHT INDICATOR

Improve productivity. A highly visible red, white, and green light allows your crews to stake out faster than ever.

#### FOUR-SPEED SERVO

For smooth, fast, accurate, and automatic aiming.

#### DETACHABLE CONTROL UNITS

Flexibility to select the right interface. A variety of user interfaces and control units can be used with the 5600 series, allowing you to select the interface that best suits your organization, work, and special applications.



# bility

TOTAL STATION **5600**



Geodimeter  
Control Unit

Zeiss Elta® / Open  
System Control Unit



TSCe™  
Controller



Geodat®Win  
Control Unit

## Flexibility is built in.

At Trimble our goal is to design and build surveying tools that give you the flexibility to meet all your challenges today and tomorrow. Tools that simplify your complex tasks. Tools that are intuitive, easy to use, and meet your requirements—whatever the situation.

Advanced technology, upgrade options, and a selection of user interfaces from the Trimble Toolbox to best suit your work give you the versatility you need for highly productive operations. And you can be sure you have made a sound investment—upgrade options can adapt your instrument to your changing needs as your work challenges change.

At Trimble we know that the real key to productive survey and stakeout work is in the software—the user interface. That's why we offer you the flexibility to select from a variety of interfaces available in the Trimble Toolbox. You can work with the tool that is most familiar and best suited to your operations—whether that be graphical or text-based, an on-board control unit or a separate controller.

Additionally, you can use the same interfaces with our other surveying instruments. Simply take the control unit or controller with you as you change from working with your 5600 Total Station series instrument to the GPS Total Station 5700.

The Total Station 5600 series can be operated with your preferred data collection or field computation system—Geodimeter, Zeiss Elta and Trimble. Or you can take advantage of our Open System DOS control unit to run your favorite software—TDS, SMI and more—directly on board.

## LIGHTWEIGHT RMT TARGET

360° active target and mini-prism for 350 m range in robotic surveying, enabling you to complete the big jobs faster than ever before.



## SUPER-LIGHT TELESCOPIC POLE

Carbon fiber telescopic rod with a built-in power supply. And for perfect balance the center of gravity is at the handgrip.



# A SYSTEM YOU CAN RELY ON.

Reliability, productivity, and simple operation are the three cornerstones of the Trimble Total Station 5600 series. And through the integration and evolution of field-proven Geodimeter technology, it is the most reliable Total Station for your work today.

With the 5600 series, you have the flexibility to select the right technology for your work—4 speed servo, active target technology and search mechanism, long range direct reflex, and upgradability to Autolock and Robotic.

The Trimble 5600 series has the patented and proven search system that ensures surveying quality. This means you can be absolutely sure that the instrument locks onto and measures the right target, the RMT reflector. The instrument only senses the coded signal emitted by the infrared (IR) diode on the RMT.

Each instrument is a single, powerful tool ideal for handling all your measurement operations from initial concepts to final completion.

Using the Trimble 5600 series, you can depend on getting performance and results. From the big jobs to the small ones, from the arctic to the humid tropics, the instrument is designed and built to work where you want to work.



The DR200+ measurement technique is based upon the pulsed measurement principle—this means the time taken for a very short light pulse to travel to the target and back is measured. What makes the Trimble technique unique is the way in which we determine the shape of the pulse before computing the transmit time. In this way, the influence of noise can be greatly reduced. That's why the range of our DR200+ EDM is so long without degradation of its accuracy.

#### Typical ranges for DR 200+



Dark rock  
150 m



Wood  
200 m



Concrete  
300 m

Active Target—emits coded control signal that is detected by the instrument





## 5600 FEATURES

### MODELS

The Trimble 5600 series consists of four total station models. Each model differs from the others only in its accuracy, as follows:

Model:	Accuracy
Trimble Total Station 5601	1"/0.3 mgon
Trimble Total Station 5602	2"/0.5 mgon
Trimble Total Station 5603	3"/1.0 mgon
Trimble Total Station 5605	5"/1.5 mgon

### ACCURACY

Distance measurement typically  $\pm(2 \text{ mm} + 2 \text{ ppm})$   
 $\pm(0.007 \text{ ft} + 2 \text{ ppm})$  M.S.E.  
 (Direct Reflex  $\pm(3 \text{ mm} + 3 \text{ ppm})$  (0.01 ft + 3 ppm))

### RANGE

1200 to 2500 meters (0.7 miles to 1.6 miles) to one prism depending on instrument version.  
 Direct Reflex: 200 meters (656 ft) to Kodak Gray (typically 600 meters (1968 ft) to a white object and 5500 meters (3.4 miles) to a single prism).

### MEASURING TIME

Standard measurement 3.5 sec.  
 Fast standard 1.3 sec.  
 Fast tracking 0.4 sec.

### ELECTRICAL

Light source: Infrared GaAs diode.  
 (Direct Reflex: IR laser diode, 850 nm)  
 Batteries: Rechargeable NiMH  
 Power consumption 0.5 - 1.0 A depending on use of servo, tracker, radio, and type of measurement mode.

### MECHANICAL AND ENVIRONMENTAL

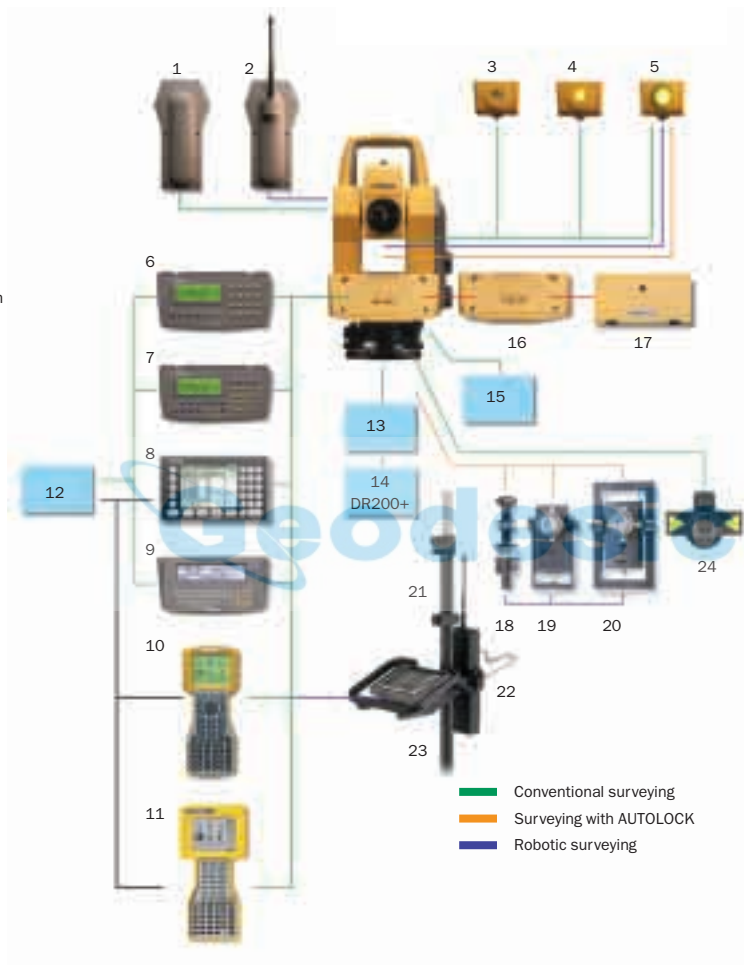
Aiming: 4-speed servo drive. Endless fine adjustment.  
 Leveling: 2-axis level in the LC display.  
 Telescope: Coaxial with 26X magnification (30X optional). Field of view 2.6 meters at 100 meters (8.6 ft at 330 ft). Illuminated crosshair (15 steps).  
 Operating temperature: -20°C to +50°C (-5°F to +122°F)

### COMMUNICATIONS

Data input/output: RS-232 two-way communication.  
 Radio: Range approx. 1600 meters (1 mile).  
 Output 100mW to 500mW (differs from country to country depending on local legislation).

### Overview of upgrades and options

1. Standard side cover
2. Radio side cover
3. Internal battery
4. Tracklight
5. Tracker
6. Geodimeter Control Unit, numeric
7. Geodimeter Control Unit, alphanumeric
8. GeodatWin Control Unit
9. Zeiss Elta / Open System Control Unit
10. TSC1 Controller
11. TSCe Controller
12. Field software
13. Range 2 500 m, 1 prism
14. DR200+
15. Accuracy 0.3 mgon 1"
16. Panel attachment
17. Card memory
18. RMT Mini
19. RMT Long Range
20. RMT/TS
21. Telescopic range pole
22. External radio
23. Holder for keyboard unit and external radio
24. Large tiltable reflector



**Many options—no compromises.** Choice usually also means leaving things out. This is not the case when you choose the Trimble 5600 series. Whichever version you choose, the simplest or the most advanced, you keep all your options open for the future. You always have the option to upgrade and allow the surveying system to grow with the task.

All you have to do is decide the level you need for your current surveying requirements. Do you need the highest possible surveying capability immediately or does a servo-driven Total Station suffice? With the Trimble 5600 series, you get what you need today without compromising your future.

# INTEGRATED SURVEYING

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**Total Station. Total solution.** When you invest in a Trimble 5600 Total Station series, you get more than just an advanced survey instrument—much more. Because a 5600 series instrument is really a complete surveying solution. A servo-driven total station, which, through modular upgrades, can become an Autolock or robotic total station. With DR200+ technology built in, the instrument is capable of measuring to any object up to 600 m away—without a prism!

All Trimble products are supported with powerful field and office software, which integrate seamlessly with the instrumentation. All are designed by Trimble and linked together through the Trimble Toolbox environment, which is rapidly



becoming the world standard for high-performance surveying.

**Seamless data flow.** In the Trimble Toolbox environment, a single controller handles all of your instruments from mechanical and robotic total stations to

RTK GPS receivers, even instruments from other manufacturers. All with seamless “plug and play” simplicity. You can change instrument types on the fly—the survey controller automatically combines and correlates the different measurements into a single, unified dataset.

Back in the office, the control unit interfaces directly to Trimble Geomatics Office™ software—a single comprehensive program for all your data processing needs. No matter how your clients want their data delivered, the software is ready to automatically translate your field data into more than 50 design, CAD, GIS, and survey formats. There’s even a Trimble Link™ module that lets you directly move your field data into the AutoDesk AutoCAD Land Development Desktop



**Top left:** See your survey data in real time, as you survey it!

**Top right:** Simple 3D arrows get you to the point when staking out with robotic, servo, and conventional total stations.



**Take continuous alignments** to the field and view your position on the road in real time.



**MANY TYPES OF INSTRUMENTS**

# reability

design package for analysis. Or, for in-house design work, use the Terramodel® software, Trimble's advanced design application for complete concept-to-completion integration. When your clients are ready to give their construction designs back to you for stakeout, the translation is just as seamless. Our new RoadLink™ Wizard automates the process for more than 30 road design software formats.

**Field efficiency.** The tight integration of the Trimble 5600 series will radically boost your productivity in the field. The combination of robotic and DR200+ measurement techniques creates the ultimate measuring machine, making it easy for a single surveyor to go anywhere and carry out any job previously carried out by an entire crew.

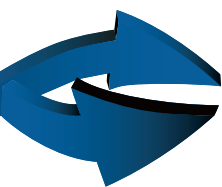


You can upload your entire continuous 3-dimensional design to the survey controller, which allows you to put the pole down anywhere on site and instantly see the station, offset, cut or fill. Even if someone parks a bulldozer in your path, you can work right around it. And if you

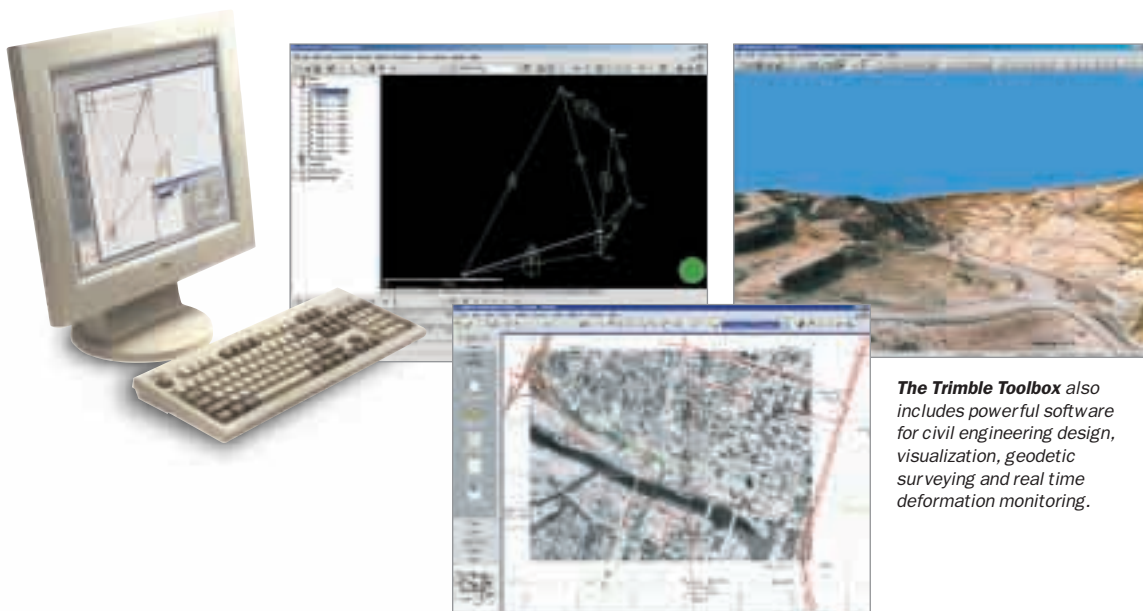
find it more productive, you can add a Trimble GPS Total Station system and continue surveying by yourself without any interruption.

For large sites, add a Trimble GPS system to rapidly cover open areas and positions not readily accessed with the total station, and continue surveying by yourself with no interruption.

Integration, interoperability, and seamless compatibility. It all adds up to the power of one—one surveyor, one system, one company. Trimble.



**50 TYPES  
OF DATA**



**The Trimble Toolbox** also includes powerful software for civil engineering design, visualization, geodetic surveying and real time deformation monitoring.

**Process GPS and Conventional survey data** with Trimble Geomatics Office and link to more than 50 types of survey, GIS, CAD & design data.

**TRIMBLE.**  
**THE WORLD LEADER IN INTEGRATED SURVEY SOLUTIONS**

In the 20th century, Geodimeter, Trimble, and Zeiss revolutionized the world of surveying—with the first automatic level, the first EDM, the first Robotic Total Station, the first commercial GPS receiver, and the first Real-Time Kinematic surveying system.

Now in the 21st century, the new combined force of Trimble is bringing that same pioneering spirit to bear on practical solutions for the new challenges that will face the surveyor in the new millennium. We're closing the gap between field and office with integrated products that offer real-time data management, real-time data exchange, and real-time quality control — from Concept to Completion.

The new Trimble Toolbox offers the most comprehensive survey toolset in the world. With sales and support facilities around the globe, all interconnected with advanced global communications technology, we're ready to provide expert support anywhere your work takes you, 24 hours a day.

Welcome to the 21st century.



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## Key Features and Benefits

- 3 Direct Reflex options available
- Upgradable to Autolock and robotic surveying
- 4-speed servo
- Active search system
- Seamless data flow
- Choice of user interfaces
- Platform for automation

# Trimble 5600 DR Total Station Series

*Direct Reflex servo-driven, highly productive measuring system, upgradable to Autolock and Robotic surveying*

The Trimble 5600 Direct Reflex (DR) Total Station series gives you access to the best and most productive measuring methods available for every measuring situation.

DR capability opens up a new world of measurement applications. Objects that were previously difficult or impossible to be measured can now be measured as easily as those measured with a prism. 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 and easily as well as safely in active or live traffic.

## Three DR measurement systems available

### DR Standard

The DR Standard option on the 5600 series allows you to measure up to 70 m (230 ft) to a 90% reflective Kodak Gray Card and 50 m (164 ft) to a 18% reflective Kodak Gray Card. The range using a single prism is 5,000 m (16,400 ft) with an accuracy of  $\pm(2 \text{ mm} + 2 \text{ ppm})$ .

The DR Standard option incorporates a distinct visible coaxial laser spot, for accurate pointing. The laser pointer is eye safe, even when observed through the telescope. The DR Standard EDM is based on the phase shift method: an optical transmitter transmits a modulated light beam to the target. The optical receiver receives the returning light that is reflected from the target. The DR Standard measures the phase difference between the transmitted and received signal and calculates the distance.



*The Trimble 5600 DR series provides you with the ultimate surveying system, capable of any type of work in various applications.*

The high precision measurements, the distinct laser spot and the narrow beam of the DR Standard make it an ideal tool for all types of interior measurements and short-range precision engineering tasks.

### DR 200+

The long-range DR 200+ option for the 5600 series allows you to measure up to 600 m (1,970 ft) to a 90% reflective Kodak Gray Card and 200 m (656 ft) to a 18% reflective Kodak Gray Card. That's 3.3 times further than standard reflectorless total stations. And the range using a single prism is 5,500 m (18,040 ft) with an accuracy of  $\pm(3 \text{ mm} + 3 \text{ ppm})$ .

### DR 300+

The DR 300+\* EDM provides superior long-range measurement capability—measuring 300 m (984 ft) to an 18% reflective Kodak Gray Card. The range using a single prism is 5,500 m (18,040 ft) with an accuracy of  $\pm(3 \text{ mm} + 3 \text{ ppm})$ .

An optional Laser Pointer is available for both the DR 200+ and the DR 300+ options.

The long-range DR options (DR 200+ and DR 300+) use the “time-of-flight” measurement technique that is based on the pulse measurement principle. The 5600 instrument measures the time for a very short transmitted pulse to travel to the target and back.

Furthermore, the DR 200+ and DR 300+ options use a unique patented method of taking the average of many pulses and determining the shape of the pulse before the transmit time is calculated. In this way the influence of noise can be reduced to a large extent and both range and accuracy can be increased considerably.

The range and accuracy specification make the DR 200+ option ideal for every day outdoor surveying tasks, and the DR 300+ ideal for when you need extra range.

\* The DR 300+ EDM is only available for the Trimble 5602 Total Station

## Increase your productivity with Servo, Autolock, and Robotic options

### Servo gives you a 30% productivity increase

The 5600-series is equipped with 4-speed servo operation that gives variable speed, faster, smoother and more accurate aiming. Servo combined with DR provides a platform for measurement automation and for further upgrade to increased productivity.

### Upgrade to Autolock and the productivity increase is 50%

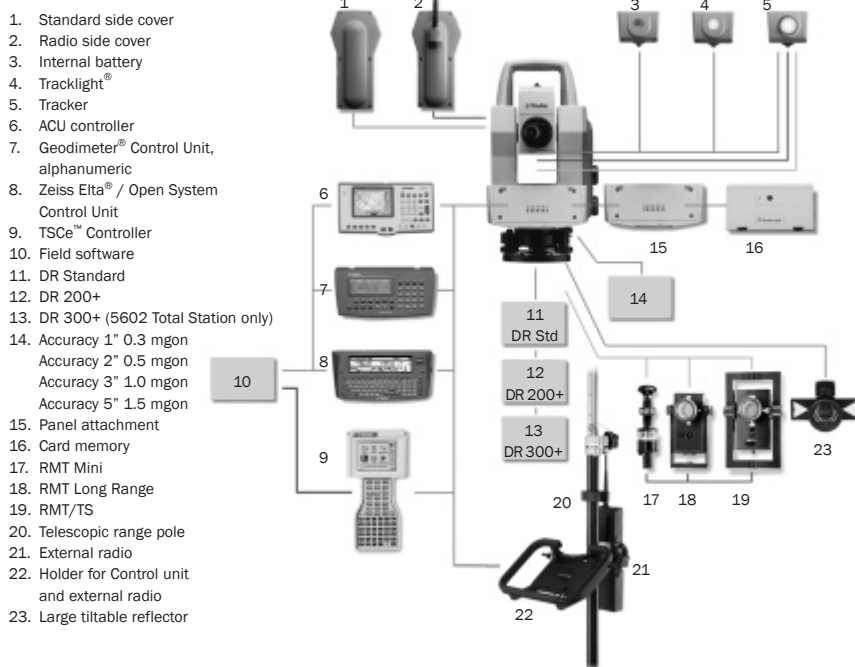
Autolock® technology enables semi-robotic operation, with measuring and recording taking place at the total station. The 5600 seeks out the target (Active Remote Measuring Target), locks to it and tracks it during movement between points.

Automatic sets of angle measurements and robotic lite operation—just to mention a few features—are possible with Trimble 5600 upgraded to Autolock. No fine adjustment needed, no focusing, no problems working in the dark (the instrument will locate and track the target in any situation), and no work-related strain injuries or fatigue will be incurred from constant turning and pointing of the total station. In most cases the Autolock feature makes it possible to stake out or gather survey data as fast as the rodman can move. Unique active targets guarantee that the right target is located 100% of the time.

### Upgrade to Robotic and the productivity increase is 80%

Robotic operation offers the same advantages as Autolock—in addition, it allows you to move efficiency during stakeout and/or work with one less person. Robotic measuring offers more than increased productivity and reduced personnel costs. It also gives higher quality measurements as all the control initiation and registration takes place at the measuring point, where any errors or discrepancies are quickly identified.

### Overview of upgrades and options



### Combine Robotic with Direct Reflex and increase productivity even more

By combining the two methods you have the ultimate one-person operating system. It will also mean increased flexibility to tackle new applications and measure points that were previously difficult or impossible to measure. Imagine that all vertical objects within range are measured from behind the instrument. Then simply move over to Robotic mode and measure the rest of the points. This saves a lot of time and increases crew productivity.

### Truly Integrated Surveying

There are situations where measuring with GPS is more productive or practical than using a conventional total station, and vice versa.

Trimble Integrated Surveying™ solutions offer you the best of both worlds. Simply move the ACU or TSce controller from one system to the other, in a matter of seconds you can continue with your survey. The software environment is identical and the data flow seamless.

# Trimble 5600 DR Standard Total Station Series

## PERFORMANCE SPECIFICATIONS

### ANGLE MEASUREMENT

#### Accuracy (Standard deviation based on DIN 18732)

5601	1" (0.3 mgon)
5602	2" (0.5 mgon)
5603	3" (1.0 mgon)
5605	5" (1.5 mgon)

#### Angle reading (least count)

<b>Horizontal &amp; vertical</b>	
Standard measurement	1" (0.1 mgon)
Fast Standard	1" (0.1 mgon)
Tracking	2" (0.5 mgon)

#### Arithmetic mean value (D-bar)

5601	
Horizontal angle	0.1" (0.01 mgon)
Vertical angle	1" (0.1 mgon)
5602-5605	
Horizontal & vertical angle	1" (0.1 mgon)

Automatic level compensator	Dual-axis compensator $\pm 6'$ ( $\pm 100$ mgon)
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### DISTANCE MEASUREMENT

#### Accuracy (standard deviation)

<b>Prism</b>	
Standard measurement	$\pm(2 \text{ mm} + 2 \text{ ppm}) \pm(0.007 \text{ ft} + 2 \text{ ppm})$
Fast Standard	$\pm(3 \text{ mm} + 2 \text{ ppm}) \pm(0.01 \text{ ft} + 2 \text{ ppm})$
Tracking	$\pm(5 \text{ mm} + 2 \text{ ppm}) \pm(0.016 \text{ ft} + 2 \text{ ppm})$
Arithmetic mean value (D-bar)	$\pm(2 \text{ mm} + 2 \text{ ppm}) \pm(0.007 \text{ ft} + 2 \text{ ppm})$

#### Reflective foil

Standard measurement	$\pm(3 \text{ mm} + 2 \text{ ppm}) \pm(0.01 \text{ ft} + 2 \text{ ppm})$
Fast Standard	$\pm(3 \text{ mm} + 2 \text{ ppm}) \pm(0.01 \text{ ft} + 2 \text{ ppm})$
Tracking	$\pm(5 \text{ mm} + 2 \text{ ppm}) \pm(0.016 \text{ ft} + 2 \text{ ppm})$
Arithmetic mean value (D-bar)	$\pm(3 \text{ mm} + 2 \text{ ppm}) \pm(0.01 \text{ ft} + 2 \text{ ppm})$

#### Direct Reflex mode

Standard measurement	$\pm(3 \text{ mm} + 2 \text{ ppm}) \pm(0.01 \text{ ft} + 2 \text{ ppm})$
Fast Standard	$\pm(5 \text{ mm} + 2 \text{ ppm}) \pm(0.016 \text{ ft} + 2 \text{ ppm})$
Tracking	$\pm(10 \text{ mm} + 2 \text{ ppm}) \pm(0.032 \text{ ft} + 2 \text{ ppm})$
Arithmetic mean value (D-bar)	$\pm(3 \text{ mm} + 2 \text{ ppm}) \pm(0.01 \text{ ft} + 2 \text{ ppm})$

#### 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).

#### 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 30 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)

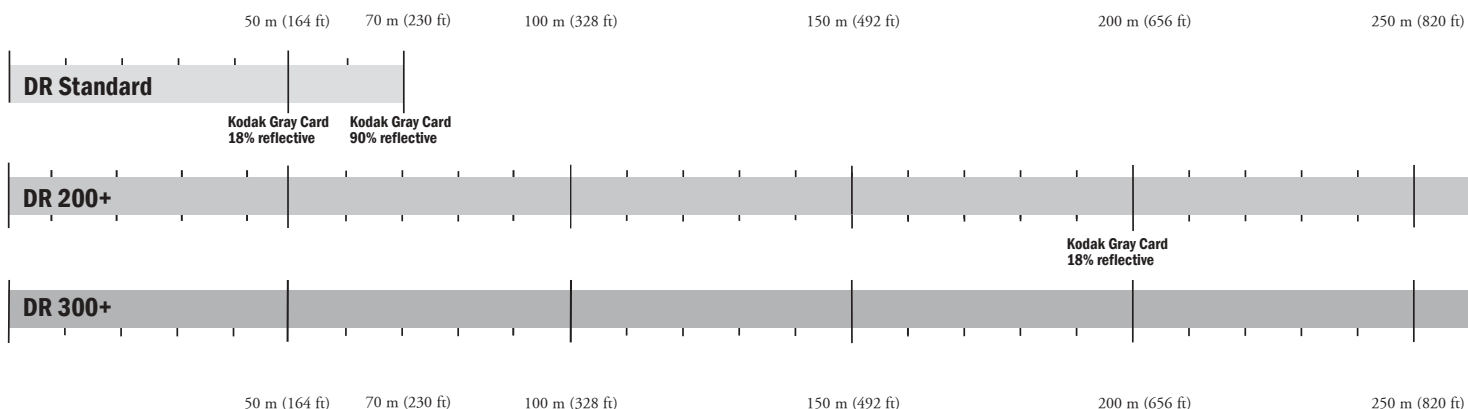
### Range Direct Reflex measurement (typically)

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

### Direct Reflex Range



# Trimble 5600 DR 200+ Total Station Series

## PERFORMANCE SPECIFICATIONS

### ANGLE MEASUREMENT

#### Accuracy (Standard deviation based on DIN 18732)

5601	1" (0.3 mgon)
5602	2" (0.5 mgon)
5603	3" (1.0 mgon)
5605	5" (1.5 mgon)

#### Angle reading (least count)

<b>Horizontal &amp; vertical</b>	
Standard measurement	1" (0.1 mgon)
Fast Standard	1" (0.1 mgon)
Tracking	2" (0.5 mgon)

#### Arithmetic mean value (D-bar)

5601	
Horizontal angle	0.1" (0.01 mgon)
Vertical angle	1" (0.1 mgon)
5602-5605	
Horizontal & vertical angle	1" (0.1 mgon)

Automatic level compensator	Dual-axis compensator $\pm 6'$ ( $\pm 100$ mgon)
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### DISTANCE MEASUREMENT

#### Accuracy (standard deviation)

<b>Prism</b>	
Standard measurement	$\pm(3 \text{ mm} + 3 \text{ ppm}) \pm(0.01 \text{ ft} + 3 \text{ ppm})$
Fast Standard	$\pm(8 \text{ mm} + 3 \text{ ppm}) \pm(0.025 \text{ ft} + 3 \text{ ppm})$
Tracking	$\pm(10 \text{ mm} + 3 \text{ ppm}) \pm(0.032 \text{ ft} + 3 \text{ ppm})$
Arithmetic mean value (D-bar)	$\pm(3 \text{ mm} + 3 \text{ ppm}) \pm(0.01 \text{ ft} + 3 \text{ ppm})$

#### Reflective foil

Standard measurement	$\pm(3 \text{ mm} + 3 \text{ ppm}) \pm(0.01 \text{ ft} + 3 \text{ ppm})$
Fast Standard	$\pm(8 \text{ mm} + 3 \text{ ppm}) \pm(0.025 \text{ ft} + 3 \text{ ppm})$
Tracking	$\pm(10 \text{ mm} + 3 \text{ ppm}) \pm(0.032 \text{ ft} + 3 \text{ ppm})$
Arithmetic mean value (D-bar)	$\pm(3 \text{ mm} + 3 \text{ ppm}) \pm(0.01 \text{ ft} + 3 \text{ ppm})$

#### Direct Reflex mode

<b>5-200 m (16.4 ft-656 ft)</b>	
Standard measurement	$\pm(3 \text{ mm} + 3 \text{ ppm}) \pm(0.01 \text{ ft} + 3 \text{ ppm})$
Fast Standard	$\pm(8 \text{ mm} + 3 \text{ ppm}) \pm(0.025 \text{ ft} + 3 \text{ ppm})$
Tracking	$\pm(10 \text{ mm} + 3 \text{ ppm}) \pm(0.032 \text{ ft} + 3 \text{ ppm})$
Arithmetic mean value (D-bar)	$\pm(3 \text{ mm} + 3 \text{ ppm}) \pm(0.01 \text{ ft} + 3 \text{ ppm})$
<b>&gt; 200 m (656 ft)</b>	$\pm(5 \text{ mm} + 3 \text{ ppm}) \pm(0.016 \text{ ft} + 3 \text{ ppm})$

#### Shortest possible range

To prism	2 m (6.56 ft)
Direct Reflex	2 m (6.56 ft)
Reflective foil	2 m (6.56 ft)

### Measuring time

#### Prism mode

Standard measurement	3 s
Fast Standard	3 s
Tracking	0.4 s
Arithmetic mean value (D-bar)	3.5 s per measurement. Repeats until stopped manually (or after 99 measurements).

#### Direct Reflex mode

Standard measurement	3-7 s
Fast Standard	3-7 s
Tracking	0.4 s
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	2,500 m (8,200 ft)
1 prism Long Range mode	5,500 m (18,040 ft) (max. range)
3 prisms	3,500 m (11,480 ft)
3 prisms Long Range mode	5,500 m (18,040 ft) (max. range)

#### Range using reflective foil

Reflective foil 20 mm	180 m (590 ft)
Reflective foil 20 mm Long Range mode	800 m (2,624 ft)
Reflective foil 60 mm	360 m (1,181 ft)
Reflective foil 60 mm Long Range mode	1,600 m (5,248 ft)

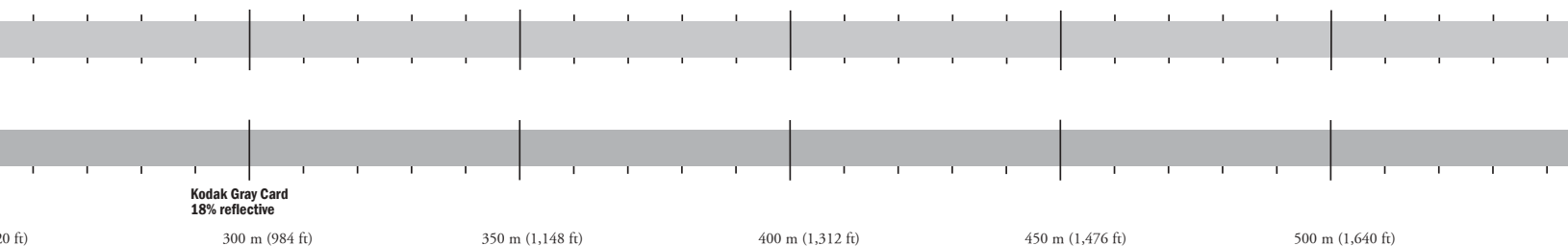
### Range Direct Reflex measurement (typically)

Kodak Gray Card (18% reflective)**	>200 m (656 ft)
Kodak Gray Card (90% reflective)**	>600 m (1,968 ft)
Concrete	200-300 m (656-984 ft)
Wood construction	150-300 m (492-984 ft)
Metal construction	150-200 m (492-656 ft)
Light rock	150-250 m (492-820 ft)
Dark rock	100-150 m (328-492 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

200 m (656 ft)      300 m (984 ft)      350 m (1,148 ft)      400 m (1,312 ft)      450 m (1,476 ft)      500 m (1,640 ft)





# Trimble 5600 DR 300+ Total Station Series

## PERFORMANCE SPECIFICATIONS

### ANGLE MEASUREMENT

#### Accuracy (Standard deviation based on DIN 18732)

5602 2" (0.5 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  $\pm 6'$  ( $\pm 100$  mgon)

### DISTANCE MEASUREMENT

#### Accuracy (standard deviation)

##### Prism

Standard measurement  $\pm(3 \text{ mm} + 3 \text{ ppm}) \pm(0.01 \text{ ft} + 3 \text{ ppm})$   
Fast Standard  $\pm(8 \text{ mm} + 3 \text{ ppm}) \pm(0.025 \text{ ft} + 3 \text{ ppm})$   
Tracking  $\pm(10 \text{ mm} + 3 \text{ ppm}) \pm(0.032 \text{ ft} + 3 \text{ ppm})$   
Arithmetic mean value (D-bar)  $\pm(3 \text{ mm} + 3 \text{ ppm}) \pm(0.01 \text{ ft} + 3 \text{ ppm})$

##### Reflective foil

Standard measurement  $\pm(3 \text{ mm} + 3 \text{ ppm}) \pm(0.01 \text{ ft} + 3 \text{ ppm})$   
Fast Standard  $\pm(8 \text{ mm} + 3 \text{ ppm}) \pm(0.025 \text{ ft} + 3 \text{ ppm})$   
Tracking  $\pm(10 \text{ mm} + 3 \text{ ppm}) \pm(0.032 \text{ ft} + 3 \text{ ppm})$   
Arithmetic mean value (D-bar)  $\pm(3 \text{ mm} + 3 \text{ ppm}) \pm(0.01 \text{ ft} + 3 \text{ ppm})$

##### Direct Reflex mode

##### 5-300 m (16.4 ft-984 ft)

Standard measurement  $\pm(3 \text{ mm} + 3 \text{ ppm}) \pm(0.01 \text{ ft} + 3 \text{ ppm})$   
Fast Standard  $\pm(8 \text{ mm} + 3 \text{ ppm}) \pm(0.025 \text{ ft} + 3 \text{ ppm})$   
Tracking  $\pm(10 \text{ mm} + 3 \text{ ppm}) \pm(0.032 \text{ ft} + 3 \text{ ppm})$   
Arithmetic mean value (D-bar)  $\pm(3 \text{ mm} + 3 \text{ ppm}) \pm(0.01 \text{ ft} + 3 \text{ ppm})$   
> 300 m (984 ft)  $\pm(5 \text{ mm} + 3 \text{ ppm}) \pm(0.016 \text{ ft} + 3 \text{ ppm})$

#### Shortest possible range

To prism 2 m (6.56 ft)  
Direct Reflex 2 m (6.56 ft)  
Reflective foil 2 m (6.56 ft)

#### Measuring time

##### Prism mode

Standard measurement 3 s  
Fast Standard 3 s  
Tracking 0.4 s  
Arithmetic mean value (D-bar) 3.5 s per measurement.  
Repeats until stopped manually (or after 99 measurements).

##### Direct Reflex mode

Standard measurement 3-7 s  
Fast Standard 3-7 s  
Tracking 0.4 s  
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 2,500 m (8,200 ft)  
1 prism Long Range mode 5,500 m (18,040 ft) (max. range)  
3 prisms 3,500 m (11,480 ft)  
3 prisms Long Range mode 5,500 m (18,040 ft) (max. range)

##### Range using reflective foil

Reflective foil 20 mm 180 m (590 ft)  
Reflective foil 20 mm Long Range mode 1,200 m (3,937 ft)  
Reflective foil 60 mm 360 m (1,181 ft)  
Reflective foil 60 mm Long Range mode 2,400 m (7,874 ft)

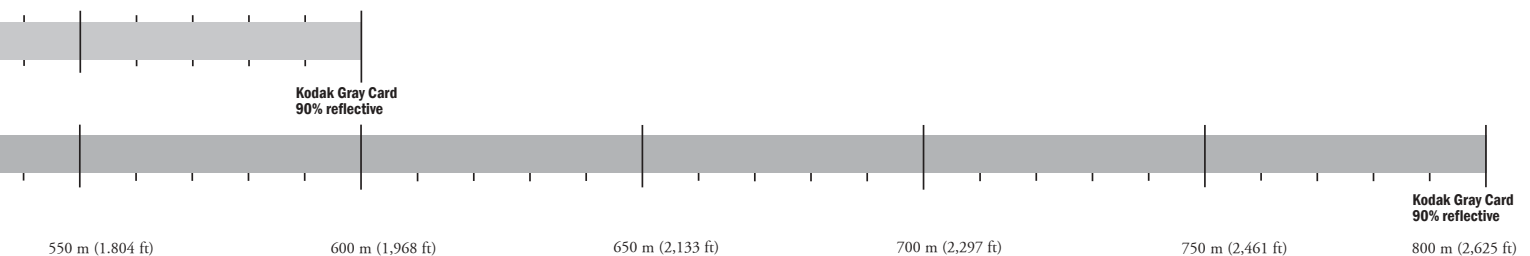
#### Range Direct Reflex measurement (typically)

Kodak Gray Card  
(18% reflective)\*\* >300 m (984 ft)  
Kodak Gray Card  
(90% reflective)\*\* >800 m (2,625 ft)  
Concrete 300-400 m (984-1,312 ft)  
Wood construction 200-400 m (656-1,312 ft)  
Metal construction 200-250 m (656-820 ft)  
Light rock 200-300 m (656-984 ft)  
Dark rock 150-200 m (492-656 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

550 m (1,804 ft) 600 m (1,968 ft) 650 m (2,133 ft) 700 m (2,297 ft) 750 m (2,461 ft) 800 m (2,625 ft)



## SPECIFICATION FOR ROBOTIC SURVEYING

<b>Range</b>	
<b>Robotic*</b>	Up to 1,200 m (3,937 ft) depending on type of RMT
<b>Autolock*</b>	Up to 2,200 m (7,218 ft) depending on type of RMT
<b>Shortest search distance</b>	2 m (6.5 ft)
<b>Tracker pointing precision at 200 m (656 ft) (standard deviation)</b>	<2 mm (0.007 ft)
<b>Angle reading (least count)</b>	
<b>Standard measurement</b>	1" (0.1 mgon)
<b>Fast Standard</b>	1" (0.1 mgon)
<b>Tracking</b>	2" (0.5 mgon)
<b>Arithmetic mean value (D-bar)</b>	1" (0.1 mgon)

### Measuring time DR Standard, DR 200+, and DR 300+

<b>Standard measurement</b>	5–8 s
<b>Fast Standard</b>	5–8 s
<b>Tracking</b>	0.4 s
<b>Arithmetic mean value (D-bar)</b>	3.5 s per measurement. Repeats until stopped manually (or after 99 measurements).
<b>Search time (typical)**</b>	2–10 s
<b>Search area</b>	360 degrees (400 gon) or defined horizontal & vertical search window

\* Standard clear: No haze, overcast or moderate sunlight with very light heat shimmer.

Range and accuracy are dependent on atmospheric conditions and background radiation.

\*\* Dependent on selected search window.

## GENERAL SPECIFICATIONS

### TRIMBLE 5600 DR 200+ AND DR 300+

<b>Light source</b>	Pulsed laser diode 870 nm
	Laser class 1
<b>Laser pointer eccentric*</b>	Laser class 2
<b>Beam divergence</b>	
<b>Horizontal</b>	0.4 mrad (4 cm/100 m) (0.13 ft/328 ft)
<b>Vertical</b>	0.8 mrad (8 cm/100 m) (0.26 ft/328 ft)

### TRIMBLE 5600 DR STANDARD

<b>Light source</b>	Laser diode 660 nm
	Laser class 1 in Prism mode
	Laser class 2 Direct Reflex
	Laser class 2
<b>Laser pointer coaxial (Standard)</b>	
<b>Beam divergence DR-mode</b>	
<b>Horizontal</b>	0.4 mrad (2 cm/50 m) (0.066 ft/164 ft)
<b>Vertical</b>	0.8 mrad (4 cm/50 m) (0.13 ft/164 ft)
<b>Beam divergence Prism mode:</b>	
<b>Horizontal</b>	1.4 mrad (14 cm/100 m) (0.46 ft/328 ft)
<b>Vertical</b>	2 mrad (20 cm/100 m) (0.65 ft/328 ft)

### GENERAL

<b>Atmospheric correction</b>	–60 to 195 ppm continuously
<b>Leveling</b>	
<b>Circular level in tribrach</b>	8/12 mm (8"/0.007 ft)
<b>Electronic 2-axis level in the LC-display with a resolution of</b>	6" (2 mgon)
<b>Clamps and slow motions</b>	Servo-drive. Endless fine adjustment
<b>Centering</b>	
<b>Centering system</b>	Trimble 3-pin.
<b>Optical plummet</b>	Optical plummet in tribrach
<b>Magnification</b>	2.4x
<b>Shortest focusing distance</b>	0.5 m (1.6 ft) to infinity

### Telescope

<b>Magnification</b>	26x (30x Optional)
<b>Aperture</b>	40 mm (1.57 in.)
<b>Field of view at 100 m (328 ft)</b>	2.6 m (8.5 ft)
<b>Shortest focusing distance</b>	1.7 m (5.58 ft) to infinity
<b>Illuminated crosshair</b>	Variable (15 steps)
<b>Tracklight</b>	Optional (Servo only)
	Standard (Autolock and Robotic)
<b>Operating temperature</b>	–20°C to +50°C (–5°F to +122°F)

### Power Supply

<b>Internal battery</b>	Rechargeable NiMH battery 12 V, 1.8 Ah
	Operating time approx. 3 h (Servo only)
<b>External battery</b>	External rechargeable NiMH batteries 12 V, 3.8–11.4 Ah.
	Operating time approx. 11 h Autolock, 9 h Robotic (11.4 Ah)

### Weight

<b>Instrument with ACU controller</b>	6.7 kg (14.7 lbs.)
<b>Instrument with Geodimeter Control Unit</b>	6.4 kg (14.1 lbs.)
<b>Tribrach</b>	0.7 kg (1.5 lbs.)
<b>Internal battery</b>	0.4 kg (0.9 lbs.)
<b>Instrument for Robotic surveying (incl. Tracker, and built in radio)</b>	7.5 kg (16.5 lbs.)
<b>Trunnion axis height</b>	205 mm (8.1 in.)

\* Provided as standard on the 5602 Total Station with DR 300+.

Optional on all other instruments.

## 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>



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