

**PERFORMANCE SPECIFICATIONS**

**Measurements**

Angle measurement	
Accuracy (Standard deviation based on DIN 18723)	
1.5" model	1.5" (0.5 mgons)
3" model	3" (1.0 mgons)
5" model	5" (1.5 mgons)
Angle reading – Horizontal & vertical (least count)	
Standard measurement	1" (0.1 mgon)
Tracking	2" (0.5 mgon)
Automatic level compensator	
Dual-axis compensator (working range)	±6' (±100 mgon)
Distance measurement	
Accuracy (standard deviation)	
Prism	
Standard measurement	±(3 mm + 3 ppm) ±(0.01 ft + 3 ppm)
Tracking	±(10 mm + 3 ppm) ±(0.032 ft + 3 ppm)
Reflective foil	
Standard measurement	±(3 mm + 3 ppm) ±(0.01 ft + 3 ppm)
Tracking	±(10 mm + 3 ppm) ±(0.032 ft + 3 ppm)
Reflectorless mode 5–200 m (16.4 ft–656 ft)	
Standard measurement	±(3 mm + 3 ppm) ±(0.01 ft + 3 ppm)
Tracking	±(10 mm + 3 ppm) ±(0.032 ft + 3 ppm)
>200 m (656 ft)	±(5 mm + 3 ppm) ±(0.016 ft + 3 ppm)
Shortest possible range	
To prism	2 m (6.56 ft)
Reflectorless	2 m (6.56 ft)
Reflective foil	2 m (6.56 ft)
Measuring time	
Prism mode	
Standard measurement vs. Tracking	3 s vs. 0.4 s
Reflectorless mode	
Standard measurement vs. Tracking	3–7 s vs. 0.4 s
Range using prism*	
1 prism	2,500 m (8,200 ft)
1 prism Long Range	5,500 m (18,040 ft) (max. range)
3 prisms	3,500 m (11,480 ft)
3 prisms Long Range	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	800 m (2,624 ft)
Reflective foil 60 mm	360 m (1,181 ft)
Reflective foil 60 mm Long Range	1,600 m (5,248 ft)
Range Reflectorless 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)

**GENERAL SPECIFICATIONS**

Light source	Pulsed laserdiode 870 nm, Laser class 1
Beam divergence	
Horizontal	0.4 mrad (4 cm/100 m) (0.13 ft/328 ft)
Vertical	0.8 mrad (8 cm/100 m) (0.26 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	3-pin
Optical plummet	Optical plummet in tribrach
Magnification	2.4×
Focusing range	0.5 m (1.6 ft) to infinity
Telescope	
Magnification	26×
Trunnion axis height	205 mm (8.1 in)
Aperture	40 mm (1.57 in)
Field of view at 100 m (328 ft)	2.6 m (8.5 ft)
Focusing range	1.7 m (5.58 ft) to infinity
Illuminated crosshair	Variable (15 steps)
Operating temperature	–20 °C to +50 °C (–4 °F to +122 °F)
Power Supply	
Internal battery	Rechargeable NiMH battery 12 V, 1.8 Ah
	Operating time approx. 3 hours (Servo only)
External battery	External rechargeable NiMH batteries 12 V, 3.8–11.4 Ah
	Operating time approx. 11 hours Autolock, 9 hours Robotic (11.4 Ah)
Weight	
Instrument with FOCUS CU	6.4 kg (14.1 lb)
Instrument for Robotic Surveying	7.5 kg (16.5 lb)
Tribrach	0.7 kg (1.5 lb)
Internal battery	0.4 kg (0.9 lb)

**AUTOLOCK AND ROBOTIC SURVEYING**

Range	
Robotic*	Up to 1,200 m (3,937 ft) depending on type of RMT
Autolock*	Up to 2,200 m (7,218 ft) depending on type of RMT
Tracker pointing precision at 200 m (656 ft)	
(standard deviation)	< 2 mm (0.007 ft)
Angle reading (least count)	
Standard measurement	1" (0.1 mgon)
Tracking	2" (0.5 mgon)
Search time (typical)***	2–10 s
Search area	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.  
 \*\* Kodak Gray Card, Catalog number E1527795.  
 \*\*\* Dependent on selected search window.

**SPECTRA PRECISION**

Spectra Precision has long been an established brand delivering quality products to the construction market. 2005 marks the launch of a new suite of Spectra Precision survey products.

With the specific needs of the conventional surveying market in mind, the Spectra Precision brand offers a complete product portfolio including, Global Positioning Systems (GPS), optical total stations, and data collection hardware, as well as field and office software.

Spectra Precision surveying equipment is an economical choice that utilizes established technology for optimal efficiency. With convenience and reliability as the foundation of the Spectra Precision brand, it is an ideal choice for value. The Spectra Precision brand is backed with strong technical support that surveyors would expect from a quality name in surveying.

Designed to meet the needs of surveyors around the world, Spectra Precision delivers maximum precision, reliability and affordability.

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**FAST • RELIABLE • ACCURATE**

A range of servo-driven reflectorless total stations that allow you to:

- Choose from Servo, Autolock or Robotic solutions
- Surpass the performance of any mechanical product
- Measure objects with or without a prism
- Increase your staking efficiency



## FOCUS® 10 TOTAL STATIONS

### FOCUS ON EFFICIENCY

As a surveyor, you never know what kind of job tomorrow will bring ... be ready for anything with the Spectra Precision® FOCUS® 10 Total Station. Spectra Precision's FOCUS product line consists of optical total stations featuring exceptional speed, accuracy and reliability.

If you're like most surveyors, you're interested in your efficiency and quickly establishing full control over the survey site. The servomotors that drive the FOCUS 10 Total Station provide a higher level of reliability, quality and control – allowing you to complete projects faster. Compare the performance to any mechanical product and it's clear that the FOCUS 10 is capable of enhancing your efficiency.

From high-order control surveys to fast-paced construction stakeout or topographic data collection, you can rely on the FOCUS 10, even in harsh outdoor conditions. Easy to use, affordable and tough, a FOCUS 10 Total Station is the solution you've been looking for.

### ANGLE MEASUREMENT ACCURACY

The FOCUS 10 Total Station offers three angle accuracies to suit a variety of applications. Choose from:

- 1.5" for the highest precision angular measurement requirements.
- 3" for high-angular precision suitable for most land survey applications
- 5" for the ultimate topographical survey solution

### REFLECTORLESS TECHNOLOGY

Increase your reach and improve safety for your survey crews. The FOCUS 10 comes standard with long-range, reflectorless technology, allowing you to measure remote objects without a prism. The FOCUS 10 enables you to reach greater than 600 m (1,970 ft) to a 90% reflective Kodak Gray Card and 200 m (656 ft) to a 18% reflective Kodak Gray Card. FOCUS 10 uses an eye-safe Laser Class 1 for optimal user operation.



### SERVOMOTOR-DRIVEN FOR SPEED

Not only are four-speed FOCUS 10 servomotors easy to use, they also provide increased productivity over mechanical staking and layout solutions. FOCUS 10's built-in servomotors control both horizontal and vertical motion. You control the servomotors with adjustment screws—simply turn the motion screws to activate the servomotor gears for fast, smooth and sensitive angle results. With no need for traditional motion locks, the slow motion tangents are endless. The adjustment screws are ergonomically designed so you can align the instrument with just a slight circular movement of the finger.

### SERVO

Do you want to increase your fieldwork efficiency? Servo-driven instruments out perform mechanical total stations in survey precision and speed.

### AUTOLOCK

Choose an Autolock instrument and focus on the information being displayed. Autolock tracking technology eliminates the need to look through the telescope and no fine adjustments are needed to pin point the prism.

### ROBOTIC

By adding a wireless communication between the rod and the instrument, it is possible to drive and manage measurements completely at the rod. Optical surveys can now be performed with only one operator, firmly placing the power at the place of measurement into the hands of the robotic operator.

### HIGH-PRECISION PRISM MEASUREMENTS

Regardless of the model chosen, the FOCUS 10 allows measurements to a single prism up to 5,500 m (18,040 ft) with an accuracy of  $\pm(3 \text{ mm} + 3 \text{ ppm})$ . The accuracy of the FOCUS 10 assures the integrity of measurements taken with all instruments. By including sensor tracking and noise filtering technology, the FOCUS 10 allows the operator to be absolutely certain that the signal is coming back from the reflector—not some other reflective object.

### FASTER TARGET MEASUREMENTS

Save time when measuring multiple faces to targets—after the first set of measurements, the instrument can be automatically turned to face two to measure the targets again, allowing you to make the fine adjustments before measuring.

### EFFICIENT STAKEOUT CAPABILITIES

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.

### TOP TOOLS FOR DATA COLLECTION

The FOCUS 10 functions are made even more powerful teamed with the rugged Spectra Precision Recon® Data Collector and unique field software. Specifically designed for tough surveying environments; it's extremely robust, exceeding military specifications for drop, vibration, immersion, and operating temperatures.

