



FOCUS[®] 6+ Series Total Stations

Datasheet



Simply Reliable

Key Features

- 2" and 5" angle accuracies
- Intuitive onboard field software
- 50,000 point storage
- Reflectorless measurement up to 500m (1,640 ft)
- Hot swappable batteries
- Laser pointer
- Bluetooth
- USB port for convenient data transfer
- Optional laser plummet

FOCUS[®] 6+ Series

The Spectra Precision FOCUS 6+ Total Station offers clear-to-view quality optics, smart design and intuitive, easy to learn and use onboard software. The field software features simple data and file management, Quick Codes for easy one-button data collection of point features and a complete set of powerful CoGo functions.

The FOCUS 6+ instruments are compact, lightweight and built tough to use on any work site in all dust, dirt and weather conditions. The fast, long range EDM measures in both prism and reflectorless modes with both being available at the same time and initiated with a single key press.

All FOCUS 6+ models support Bluetooth communications to external devices such as data collectors and have a USB port for portable data transfer via USB stick. Additionally, all models come standard with coaxial laser pointers and a traditional optical plummet - which can be upgraded to a laser plummet.

FOCUS 6+ Technical Specifications

Distance Measurement

- Range with specified prisms (Good conditions¹) with reflector sheet 5 cm x 5 cm (2 in x 2 in)
 - 2"**
 - 1.5 m to 270 m (4.9 ft to 886 ft)
 - 5"**
 - 1.5 m to 300 m (4.9 ft to 984 ft)
- With single prism 6.25 cm (2.5 in)
 - 2"**
 - 1.5 m to 3,000 m (4.9 ft to 9,843 ft)
 - 5"**
 - 1.5 m to 5,000 m (4.9 ft to 16,404 ft)
- Range Reflectorless mode²

2"	Good ¹	Normal ⁴	Difficult ⁵
KGC ³ (18%)	350 m (1,148 ft)	250 m (800 ft)	200 m (656 ft)
KGC (90%)	500 m (1,640 ft)	400 m (1,312 ft)	250 m (820 ft)

5"	Good	Normal	Difficult
KGC (18%)	280 m (920 ft)	250 m (800 ft)	200 m (656 ft)
KGC (90%)	500 m (1,640 ft)	500 m (1,640 ft)	300 m (984 ft)
- Shortest possible range: 1.5m (4.9 ft)
- Accuracy⁶ (Precise mode) ISO 17123-4
 - Prism: $\pm(2+2 \text{ ppm} \times D)$ mm
 - Reflectorless: $\pm(3+2 \text{ ppm} \times D)$ mm
- Measuring interval⁷

Prism mode	Precise mode	Normal mode
2"	1.6 sec	0.8 sec
5"	1.5 sec	0.8 sec

Reflectorless mode	Precise mode	Normal mode
2"	2.1 sec	1.2 sec
5" ⁸	1.8 sec	1.0 sec
Least count	1 mm (0.002 ft)	10 mm (0.02 ft)

Angle Measurement

DIN 18723 accuracy horizontal/vertical:

- 2" (0.6 mgon) for FOCUS 6+ 2"
- 5" (1.5 mgon) for FOCUS 6+ 5"
- Reading system: Absolute encoder
- Circle diameter: 62 mm (2.4 in)
- Horizontal/Vertical angle
 - 2": Diametrical/Diametrical
 - 5": Diametrical/Single

Minimum increment

- Degree: 1/5/10"
- Gon: 0.2/1/2 mgon
- MIL6400: 0.005/0.02/0.05 mil

Telescope

- Tube length: 125 mm (4.9 in)
- Image: Erect
- Magnification: 30x (18x/36x with optional eyepieces)
- 2" Effective diameter of objective: 40 mm (1.6 in)
- 2" EDM diameter: 45 mm (1.8 in)
- 5" Effective diameter of objective: 45 mm (1.8 in)
- 5" EDM diameter: 50 mm (2.0 in)
- Field of view: 1°20'
- Resolving power: 3"
- Minimum focusing distance: 1.5 m (4.9 ft)
- Laser Pointer: Coaxial Red Light

Tilt Sensor

- Type: Dual-axis
- Method: Liquid-electric detection
- Compensation range: $\pm 3.5'$

Communications

- Communication ports:
 - 1 x serial (RS-232C)
 - 1 USB
- Wireless communications:
 - integrated Bluetooth

Power

Internal Li-ion battery (x2)

- Output voltage: 3.8 V DC

Operating time⁹

- 2"**
 - approx. 19 hours (continuous distance/angle measurement)
 - approx. 57 hours (distance/angle measurement every 30 seconds)
 - approx. 62 hours (continuous angle measurement)
- 5"**
 - approx. 10 hours (continuous distance/angle measurement)
 - approx. 26 hours (distance/angle measurement every 30 seconds)
 - approx. 31 hours (continuous angle measurement)

Charging time

- Full charge: 4 hours

General Specifications

Level vials

- Sensitivity of Circular level vial: 10/2 mm

Optical plummet

- Image: Erect
- Magnification: 3x
- Field of view: 5°
- Focusing range: 0.5 m (1.6 ft) to ∞
- Display face 1: backlit, graphic LCD (128x64 pixel)

- Display face 2 (2" only): backlit, graphic LCD (128x64 pixel)
- Laser plummet (optional): 4 levels
- Point memory: 50,000 records
- Dimensions (W x D x H): 149 mm x 145 mm x 306 mm (5.8 in x 5.7 in x 12.0 in)

Weight (approx.)

- 2" Main unit (without battery): 3.8 kg (8.4 lb)
- 5" Main unit (without battery): 3.7 kg (8.1 lb)
- Battery: 0.1 kg (0.2 lb)
- Carrying case: 2.3 kg (5.1 lb)

Environmental

- Operating temperature range: -20 °C to +50 °C (-4 °F to +122 °F)
- FOCUS 6W+: -30 °C to +50 °C (-22 °F to +122 °F)
- Storage temperature range: -25 °C to +60 °C (-13 °F to +140 °F)
- FOCUS 6W+: -30 °C to +60 °C (-22 °F to +140 °F)

Atmospheric correction

- Temperature range: -40 °C to +60 °C (-40 °F to +140 °F)
- Barometric pressure: 400 mmHg to 999 mmHg/533 hPa to 1,332 hPa/15.8 inHg to 39.3 inHg
- Dust and water protection: IP66

Certification

- Class B Part 15 FCC certification, CE Mark approval.
- C-Tick.
- Laser safety IEC60825-1 Ed. 2.0 : 2007
- 2" Reflectorless / Laser Pointer: Class 3R laser
- 2" Prism mode: Class 1 laser
- 5" Reflectorless : Class 1 laser
- 5" Laser Pointer: Class 2 laser
- Laser Plummet (optional): Class 2 laser
- Bluetooth type approvals are country specific.

- (1) Good conditions (good visibility, overcast, twilight, underground, low ambient light).
- (2) Measuring distance may vary depending on targets and measuring conditions.
- (3) Kodak Gray Card, Catalog number E1527795
- (4) Normal conditions (normal visibility, object in the shadow, moderate ambient light).
- (5) Difficult conditions (haze, object in direct sunlight, high ambient light).
- (6) $\pm(3+3 \text{ ppm} \times D)$ mm -20 °C to -10 °C, +40 °C to +50 °C (-4 °F to +14 °F, +104 °F to +122 °F)
- (7) Measuring time may vary depending on measuring distance and conditions. For the initial measurement, it may take a few more seconds.
- (8) Measured to KGC 90% at 20 m (65 ft)
- (9) Battery life specification at 25 °C (77 °F). Operation time may be shorter in low temperatures or if the battery is not new.

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