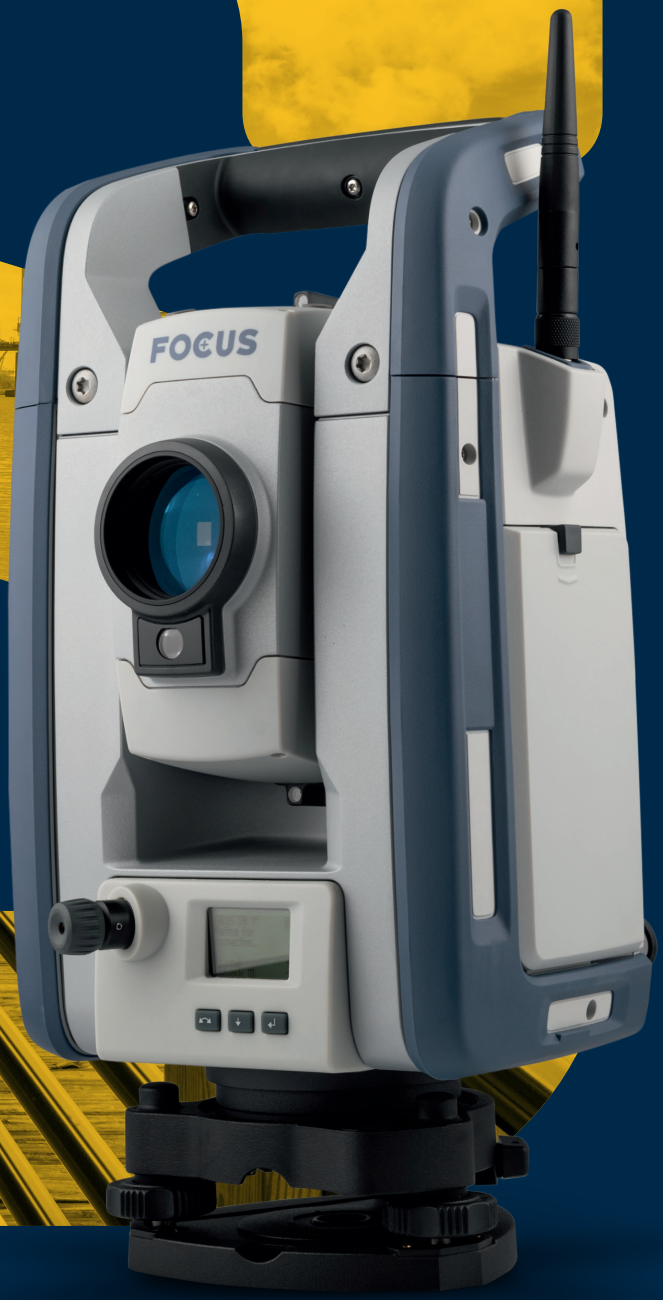
SPECTRA®
GEOSPATIAL

FOCUS 50



spectrageospatial.com

FOCUS 50
FOR EVERY WAY YOU WORK

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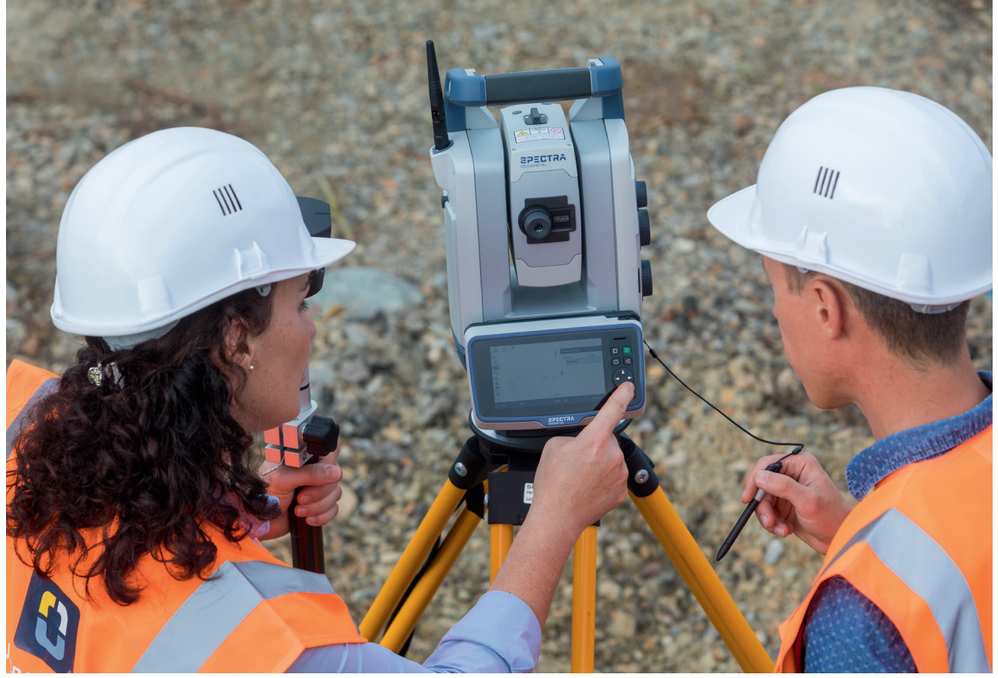
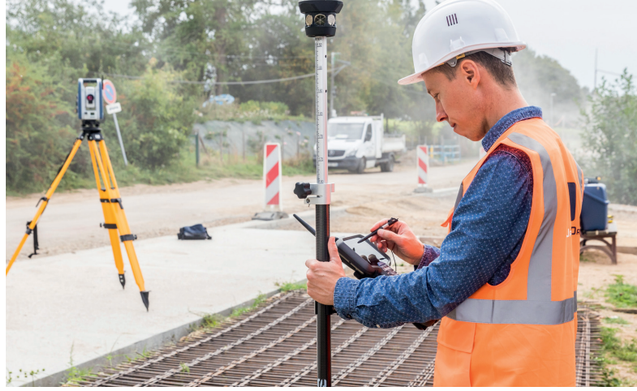
The Spectra Geospatial® FOCUS® 50 is a robotic total station you can customize to fit your needs. Available in three models, with your choice of accuracy, the FOCUS 50 features the smoothness of MagDrive™, the stability of SurePoint™, and it is compatible with the latest Spectra Geospatial Origin software. The incredibly versatile instrument can be used with the Ranger 5, the Ranger 7, or a tablet. Easy-to-use, affordable and tough, the FOCUS 50 delivers high performance and versatility to tackle a variety of challenging and everyday surveying tasks.

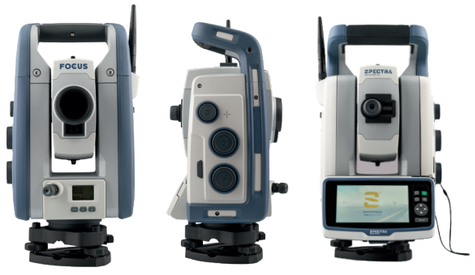




The FOCUS 50 solution is best described as Simply More Powerful. Packaged in a modern, sleek, and streamlined design, it is easy-to-use, affordable, and tough.

FEATURES:

- Quick and precise measurements
- FOCUS 50 and Origin software are designed together to be easy to learn
- Optional onboard FOCUS Data Collector
- Silent MagDrive technology
- Available in 3 models: Autolock, Short Range Robotic, and Long Range Robotic
- Each model is available in 1", 2", 3", or 5" angle accuracies
- Tracklight on all models
- PIN code security feature
- Supported by Global Spectra Geospatial Service
- 2 year recommended preventive maintenance interval



MagDrive

The total station horizontal and vertical angle movements are controlled electromagnetically through patented MagDrive technology. This drive system moves silently while it precisely and reliably turns-to, and repeats angle measurements. Manual aiming is intuitive with this MagDrive system, including endless fine adjustment.

SurePoint

No matter how diligent you are about tripod quality, your setup, and what surface you set up on, sometimes the tripod moves a little while you are working — SurePoint technology eliminates the angular measurement errors associated with this, in real time.

The FOCUS 50 total station uses the compensator information to constantly correct for any pointing error and trunnion axis error. With SurePoint, your horizontal and vertical angles will always be correct.

Autolock™

Move around your jobsite effortlessly while Autolock technology automatically tracks and locks onto prisms. This reduces errors related to manual aiming, and also reduces down time by not having to re-point the instrument for every observation. Additionally, Autolock is compatible with most passive prisms, so you don't need to buy new accessories to take advantage of this capability.

PAIRS PERFECTLY WITH YOUR PREFERRED FIELD SOFTWARE

The FOCUS 50 total station is designed to be easy to learn, and pairs perfectly with the suite of Spectra Geospatial Field Software options, including Origin, Layout Pro, and Survey Pro.

Spectra Geospatial Origin software offers an extensive range of features, including one-tap easy-to-use feature coding, powerful COGO computing, map layer manager, and map-centric workflows for measuring and stakeout.

Combine the FOCUS 50 with Layout Pro to simplify construction layout. Layout Pro lets you edit and manage your job site blueprint, and utilize the FOCUS 50 for laying out the site more productively and accurately. For example, use Layout Pro to guide the layout of the major points, add string dimensions on the print, as well as calculate diagonals and angles.

FOCUS 50 MODELS AND COMMUNICATIONS

The FOCUS 50 total station comes in three models: Autolock, Short Range Robotic, and Long Range Robotic. The difference between these models is the method of communication.

The Autolock Model can use the FOCUS Data Collector to work onboard, or a cabled connection to communicate with other data collectors. This is perfect for someone who prefers to always be behind the instrument, for example if you always work in a two-person crew.

The Short Range Robotic model uses Class 1 Bluetooth to communicate with data collectors. This is a great solution for someone that wants to work robotically on smaller sites.

The Long Range Robotic Model utilizes our proprietary 2.4 GHz radio to communicate with data collectors, it is ideal if you are looking for the maximum robotic range and maximum reliability. The FOCUS Data Collector can clip onto this model, or can be used in the robotic holder which also utilizes our 2.4 GHz radio. This model also includes short-range Bluetooth.

	AUTOLOCK	SHORT RANGE ROBOTIC	LONG RANGE ROBOTIC
CABLED CONNECTION			
Ranger 5 *, Ranger 7, ST100	✔	✔	✔
ONBOARD			
FOCUS Data Collector	✔	✔	✔
WIRELESS			
FOCUS Data Collector	N/A	N/A	✔ with Robotic Holder
MobileMapper® 60	N/A	✔ Controller Bluetooth	N/A
Ranger 5, Ranger 7	N/A	✔ Controller Bluetooth	✔ EM120 module on controller
ST100	N/A	✔ Controller Bluetooth	✔ ST10 (Radio model)
3rd party	N/A	✔ Controller Bluetooth	✔ SPDL radio paired with controller

*Requires USB A-to-C Adapter

SPECTRA GEOSPATIAL

FOCUS 50

PERFORMANCE

Angle measurement
- Sensor type: Absolute encoder with diametrical reading
- Accuracy[1]: 1" (0.3 mgon)
  2" (0.6 mgon), 3" (0.9 mgon), or 5" (1.5 mgon)
- Angle Display (least count): 0.1" (0.01 mgon)
- Automatic level compensator
  - Type: Centered dual-axis
  - Accuracy: 0.5" (0.15 mgon)
  - Range: ± 5.4' (±100 mgon)

Distance measurement
- Accuracy (ISO)
  - Prism mode
    - Standard mode[2]: 1 mm + 2 ppm (0.003 ft + 2 ppm)
- Accuracy (RMSE)
  - Prism mode
    - Standard mode: 2 mm + 2 ppm (0.0065 ft + 2 ppm)
    - Tracking mode: 4 mm + 2 ppm (0.013 ft + 2 ppm)
  - DR mode
    - Standard mode: 2 mm + 2 ppm (0.0065 ft + 2 ppm)
    - Tracking mode: 4 mm + 2 ppm (0.013 ft + 2 ppm)
    - Extended Range: 10 mm + 2 ppm (0.033 ft + 2 ppm)

Measuring time
- Prism mode
  - Standard mode: 1.2 sec
  - Tracking mode: 0.4 sec
- DR mode
  - Standard mode: 1–5 sec
  - Tracking mode: 0.4 sec

Measurement Range
- Prism mode (under standard clear conditions[3,4])
  - 1 prism: 2500 m (8202 ft)
  - 1 prism Long Range mode: 5500 m (18,044 ft) (max. range)
  - Shortest range: 0.2 m (0.65 ft)
- DR mode

	Good[6]	Normal[7]	Difficult[8]
White card (90% reflective)[5]	1,300 m (4,265 ft)	1,300 m (4,265 ft)	1,200 m (3,937 ft)
Gray card (18% reflective)[5]	600 m (1,969 ft)	600 m (1,969 ft)	550 m (1,804 ft)

  - Reflective foil 60 x 60 mm. 1200 m (3937 ft)
  - Shortest range: 1 m (3.28 ft)
- DR Extended Range Mode
  - White Card (90% reflective)[5]: 2200 m (7218 ft)

EDM SPECIFICATIONS
- Light source. Pulsed laserdiode 905 nm
- Beam divergence
  - Horizontal: 4 cm/100 m (0.13 ft/328 ft)
  - Vertical: 8 cm/100 m (0.26 ft/328 ft)

SYSTEM SPECIFICATIONS

Laser class
- EDM: Laser class 1
- Laser pointer coaxial (standard): Laser class 2
- Overall product laser class: Laser class 2

Leveling
- Circular level in tribrach: 8'/2 mm (8'/0.007 ft)
- Electronic 2-axis level in the LC-display with a resolution of 0.3" (0.1 mgon)

Servo system
- MagDrive™ servo technology, integrated servo/angle sensor electromagnetic direct drive
  - Rotation speed: 90 degrees/sec (100 gon/sec)
  - Rotation time Face 1 to Face 2: 3.2 sec
  - Positioning time 180 degrees (200 gon): 3.7 sec
  - Clamps and slow motions: Servo-driven, endless fine adjustment

Centering
- Optical plummet: Built-in optical plummet
- Optical plummet magnification: 2.3×
- Shortest focusing distance: 0.5 m–infinity (1.6 ft–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)–infinity
- Illuminated crosshair: Variable (10 steps)

Power supply
- Rechargeable Li-Ion battery: 10.8 V, 6.5 Ah
- Operating time[9]
  - One internal battery: up to 7.5 hours
  - Three batteries in multi-battery adapter and one internal: up to 30 hours

Weight and Dimensions
- Instrument (Autolock™): 5.4 kg (11.35 lb)
- Instrument (Short Range Robotic): 5.4 kg (11.35 lb)
- Instrument (Long Range Robotic): 5.5 kg (11.57 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
- Autolock™ Model: USB
- Short Range Robotic Model: USB, Long Range Bluetooth®[10]
- Long Range Robotic Model: USB, Short Range Bluetooth[10], Long Range Radio (internal/external 2.4 GHz frequency-hopping, spread spectrum)

Other
- Operating temperature: –20 °C to +50 °C (–4 °F to +122 °F)
- Storage temperature: –40 °C to +70 °C (–40 °F to +158 °F)
- Tracklight: Standard in all models
- Dust and water proofing: IP65
- Humidity: 100% Condensing
- Security: Dual-layer password protection

AUTOLOCK™ TRACKING TECHNOLOGY
- Autolock™ prism-tracking technology: Standard on all models
- Range[4]: 700 m (2,297 ft)
- Pointing precision at 200 m (656 ft) (Standard deviation)[3]: <2 mm (0.007 ft)
- Shortest search distance: 0.2 m (0.65 ft)
- Search time (typical)[11]: 2–10 sec

GPS SEARCH/GEOLOCK
- Solution acquisition time[12]: 15–30 sec
- Target re-acquisition time: <3 sec

1. Standard deviation according to ISO17123-3.
2. Standard deviation according to ISO17123-4.
3. Standard clear: No haze. Overcast or moderate sunlight with very light heat shimmer.
4. Range and accuracy depend on atmospheric conditions, size of prisms and background radiation.
5. Kodak Gray Card, Catalog number E1527795.
6. Good conditions (good visibility, overcast, twilight, underground, low ambient light)
7. Normal conditions (normal visibility, object in the shadow, moderate ambient light).
8. Difficult conditions (haze, object in direct sunlight, high ambient light).
9. The capacity in –20 °C (–5 °F) is 75% of the capacity at +20 °C (68 °F).
10. Bluetooth type approvals are country specific. Contact your local Spectra Geospatial Authorized Distribution Partner for more information.
11. Dependent on selected size of search window.
12. Solution acquisition time is dependent upon solution geometry and GPS position quality.

CE

Bluetooth®

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Please visit spectrageospatial.com for the latest product information and to locate your nearest distributor. Specifications and descriptions are subject to change without notice.