

# ÜBERBLICK

Das [Spectra Focus 35 Totalstation](#) ist eine motorisierte Totalstation, die eine hohe Geschwindigkeit, Genauigkeit und Präzision bei der Messung bietet. Das Roboterinstrument FOCUS 35 verlagert die Kraft des Beobachters vom Instrument zum Lotstab und verbessert so die Effizienz. Die Beobachtungsgeschwindigkeit und präzise Positionierung der FOCUS 35 Roboter-Totalstation wird durch die patentierte StepDrive™-Bewegungstechnologie gewährleistet, die die horizontale und vertikale Bewegung der Motoren steuert und herkömmliche Bewegungssperren überflüssig macht. Das FOCUS 35 verfügt über einen Tracking-Sensor, der die LockNGo™ FastTrack-Tracking-Technologie verwendet, die es dem Instrument ermöglicht, das Prisma ständig zu fixieren.

Das FOCUS 35 ist mit einer Genauigkeit von 1", 2", 3" oder 5" erhältlich und wird von der Feldsoftware Spectra Geospatial Survey Pro™ über eine integrierte Windows CE-Touchscreen-Oberfläche gesteuert. Der FOCUS 35 ist auch für die externe Steuerung durch Ranger™-, Nomad™- oder T41®-Datenerfassungsgeräte ausgelegt, auf denen die Feldsoftware Survey Pro, Layout Pro oder FAST Survey auf dem Ranger oder Nomad ausgeführt wird. Alternativ können Sie Ihren eigenen Controller mitbringen und sich über Bluetooth oder die SPDL Radio Bridge mit dem FOCUS 35 verbinden.

Der FOCUS 35 ist in drei Modellen erhältlich:

- Roboter
- LockNGo
- Empfang

Alle Modelle verfügen über ein motorisiertes Antriebssystem am Instrument und einen Tracking-Sensor zur Verfolgung von Lotstab und Prisma.

Model	StepDrive-Bewegung	LockNGo-Tracking	Kabellose Kommunikation	Onboard-Bildschirm	Batteriesystem
<b>ROBOTISCH</b>			2,4-GHz-Funk, Bluetooth mit kurzer Reichweite		Single
<b>Empfang</b>			2,4-GHz-Funk	N / A	Dual
<b>LockNGo</b>			Langstrecken-Bluetooth		Single

Um den Kontakt zwischen dem FOCUS 35-Instrument und dem entfernten Beobachter mit Lotstab und Prisma aufrechtzuerhalten, muss die Roboterlösung eine Kommunikationsverbindung enthalten. Der FOCUS 35 Robotic und Empfang verwendet ein integriertes 2,4-GHz-Funkmodem, ebenso wie der Datensammler Ranger 7. Das 2,4-GHz-Funkmodem sorgt für eine störungsfreie Roboter-Datenkommunikation.

Sobald Ihre Roboterkommunikation hergestellt ist, können Sie alle Funktionen des FOCUS 35 vom Lotstab aus steuern, während Sie sich durch die Baustelle bewegen und Messungen vornehmen. Dies ermöglicht es einem einzelnen Vermesser, hochgenaue Absteckungen oder topografische Vermessungen selbst durchzuführen. Von hochrangigen Kontrollvermessungen

bis hin zur topografischen Datenerfassung oder schnellen Bauabsteckung können Sie sich auf einen FOCUS 35 verlassen, selbst unter rauen Außenbedingungen.

Der FOCUS 35 und Survey Pro bieten Ihnen Weltklasse-Lösungen für jede Vermessungsanwendung. Ein Beispiel für diese Funktionen ist eine einzigartige Roboter-Softwaretechnologie, die verwendet werden kann, wenn der FOCUS 35 mit einem kostengünstigen GNSS-Empfänger und der Survey Pro-Software verbunden wird. Diese Kombination von Technologien ermöglicht es dem Benutzer, die Spectra Geospatial GeoLock™-Technologie voll auszunutzen, um das Ziel festzuhalten.

Layout Pro™, Software und FOCUS 35 bieten zusammen den Komfort, Ihren Baustellenplan zu transportieren, zu verwalten, zu bearbeiten und zu gestalten. Diese Kombination ist ein entscheidendes Werkzeug im Bereich Baulayout und wurde entwickelt, um den Layoutprozess produktiver, genauer und zuverlässiger zu machen. Verwenden Sie beispielsweise Layout Pro, um das Layout der Hauptpunkte zu steuern, Zeichenfolgenbemaßungen auf dem Druck hinzuzufügen sowie Diagonalen und Winkel zu berechnen.

Die Roboterlösung FOCUS 35 lässt sich am besten als „Einfach leistungsstärker“ beschreiben. Verpackt in einem modernen, schlanken und optimierten Design, ist es einfach zu bedienen, erschwinglich und robust. FOCUS 35-Totalstationen wurden entwickelt, um alle Ihre Vermessungsanforderungen zu erfüllen.

### **Zubehörteil**

Die FOCUS SPDL 2.4 Radio Bridge ist ein robustes, leichtes, kundenspezifisches Zubehör, das entwickelt wurde, um die Kommunikation zwischen Roboter-Totalstationen und Bluetooth-fähigen Mobilgeräten zu ermöglichen.

**SPECTRA**<sup>®</sup>  
GEOSPATIAL

# FOCUS 35



**PRODUCTIVE, RELIABLE AND AFFORDABLE  
ROBOTIC TOTAL STATIONS**

# FEATURING WORLD CLASS SPECTRA GEOSPATIAL FIELD SOFTWARE

Get to know the powerful Spectra Geospatial® FOCUS® 35 Series Total Stations. This fully robotic motorized solution provides improved speed, accuracy and precision in measurement. A robotic instrument moves the power of the observer from the instrument to the range pole improving the quality of your work.



The FOCUS 35 solution is best described as **Simply More Powerful. Packaged in a modern, sleek, and streamlined design, it is easy-to-use, affordable, and tough.**

## ALL ROBOTIC INSTRUMENTS INCLUDE:

- Motorized drive system at the instrument
- A tracking sensor to track the range pole and prism
- A communication connection between the instrument and range pole and prism

## FEATURES:

- Available in 1", 2", 3" and 5" angle accuracies
- Long range, reflectorless distance measurement
- Available RX models with extended operation dual battery system
- Survey Pro™ software on-board (available models)
- GeoLock™ GNSS-assist technology



FOCUS 35 + Ranger 7

## STEPDRIVE

The speed of observation and precise positioning of the FOCUS 35 robotic total station is provided by patented StepDrive™ technology. StepDrive controls the horizontal and vertical motion of the motors, so there is no need for traditional motion locks. Using the motorized drives it is possible to precisely turn to, and repeat angle measurements. This results in quick and reliable measurements which substantially increases your staking productivity.

## LOCKNGO

All FOCUS 35 models include a tracking sensor that uses LockNGo technology enabling the instrument to constantly lock onto the prism. The benefit of LockNGo technology is the ability to follow the prism at all times and reduces downtime from not having to re-point the instrument on every observation. Additionally, LockNGo is compatible with most standard passive prisms, making the FOCUS 35 an ideal solution for anyone that wants to continue using accessories they already own.

## COMMUNICATION LINK

To maintain contact between the FOCUS 35 instrument and the remote observer with the range pole and prism, the robotic solution must include a communication link. The Robotic and RX FOCUS 35 models use an integrated 2.4 GHz radio modem as does the Spectra Geospatial Ranger™ 7 data collector. The 2.4 GHz radio modems provide interference-free long range robotic data communications. Once your robotic communications have been established you can control all the functions of the FOCUS 35 from the range pole (up to 800m away) as you move through the job site making measurements. Alternatively, the LockNGo model provides Class 1 long range Bluetooth for similar functionality up to 200m away™. This makes it possible for a single surveyor to perform high accuracy stakeout, layout or topographic surveys by themselves. From high-order control surveys to topographic data collection or fast-paced construction layout, you can rely on a FOCUS 35, even in harsh outdoor conditions.

## FOCUS 35 AND SURVEY PRO

The FOCUS 35 and Survey Pro provide you with world class solutions for any surveying application. An example of these features includes a unique robotic software technology that can be used when associating the FOCUS 35 with a low-cost GNSS receiver and Survey Pro software. This combination of technologies allows the user to take full advantage of the Spectra Geospatial GeoLock™ technology to keep locked on target.

## THE SPECTRA GEOSPATIAL GEOLock TECHNOLOGY

Offered in Survey Pro this technique allows a robotic total station to perform an aided search for an optical target using an initial GNSS position. The remote instrument can then be directed towards the robotic roving operator using the GPS position and a subsequent search is quickly performed to re-acquire the target at the robotic rover. This technique greatly reduces wasted time, improving your field work efficiency.

## FOCUS 35 AND LAYOUT PRO

Layout Pro™ software and the FOCUS 35 together offer the convenience of carrying, managing, editing, and laying out your job site blueprint. This combination is a critical tool in the field of construction layout and is designed to make the layout process more productive, accurate and reliable. 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 35 RX

The FOCUS 35 RX models offer 12 hour extended operation through a unique dual battery system, eliminating any need to stop and change battery during a full day's work.

MODEL	FEATURES				
	StepDrive motion	LockNGo tracking	Wireless Communication	Onboard Screen	Battery System
ROBOTIC	✓	✓	2.4GHz radio, Short Range Bluetooth	✓	Single
RX	✓	✓	2.4GHz radio	N/A	Dual
LockNGo	✓	✓	Long Range Bluetooth	✓	Single

**PERFORMANCE**

**Angle measurement**

**Accuracy<sup>1,2</sup>**

- 1": (0.3 mgon)
- 2": (0.6 mgon)
- 3": (1.0 mgon)
- 5": (1.5 mgon)

**Angle reading (least count display)**

- Standard: 1" (0.3 mgon)
- 1" model: 0.5" (0.15 mgon)
- Tracking: 2" (0.5 mgon)

**Distance measurement<sup>3</sup>**

**Accuracy to Prism<sup>4</sup>**

- Standard: 2 mm + 2 ppm (0.007 ft + 2 ppm)
- 1" model: 1 mm + 2 ppm (0.003 ft + 2 ppm)
- Tracking: 5 mm + 2 ppm (0.016 ft + 2 ppm)

**Accuracy Reflectorless mode**

- Standard < 300 m (984 ft): 3 mm + 2 ppm (0.01 ft + 2 ppm)
- Standard > 300 m (984 ft): 5 mm + 2 ppm (0.016 ft + 2 ppm)
- Tracking: 10 mm + 2 ppm (0.033 ft + 2 ppm)

**Measuring time**

- Prism standard: 2.4 sec.
- Prism tracking: 0.5 sec.
- Reflectorless standard: 3-15 sec.
- Reflectorless tracking: 0.7 sec.

**Range Prism mode**

- 1 prism: 4,000 m (13,123 ft)
- 3 prisms: 7,000 m (22,966 ft)
- Foil Reflector 60 mm: 300 m (984 ft)

**Range Reflectorless Mode**

	Good <sup>6</sup>	Normal <sup>7</sup>	Difficult <sup>8</sup>
KGC <sup>5</sup> (18%)	400 m (1,312 ft)	350 m (1,148 ft)	300 m (984 ft)
KGC (90%)	800 m (2,625 ft)	600 m (1,969 ft)	400 m (1,312 ft)
Foil Reflector	1,000 m (3,280 ft)	1,000 m (3,280 ft)	800 m (2,625 ft)

- Shortest possible range: 1.5 m (4.9 ft)

**Automatic level compensator**

- Type: Dual-axis
- Accuracy: 0.5" (0.15 mgon)
- Working range: ± 5.5" (± 100 mgon)

**EDM SPECIFICATIONS**

**EDM laser and principle**

- Light source: Laser Diode 660 nm
- Principle: Phase Shift

**EDM Beam divergence**

- Horizontal: 4 cm/100 m (0.13 ft/328 ft)
- Vertical: 3 cm/100 m (0.10 ft/328 ft)
- Atmospheric correction: -150 ppm to 160 ppm continuously

**CERTIFICATION**

- Class B Part 15 FCC certification, CE Mark approval, C-Tick.
- Laser safety: IEC 60825-1 am2:2007
- Prism Mode: Class 1
- Reflectorless/Laser Pointer: Class 3R laser
- Bluetooth type approvals are country specific

**ROBOTIC SPECIFICATIONS**

**Robotic operation<sup>9</sup>**

- Maximum robotic range: 300 m to 800 m (984 ft to 2,625 ft)
- Point precision at 200 m (656 ft): <2 mm (0.007 ft)
- Maximum search distance: 300 m to 800 m (984 ft to 2,625 ft)
- Search time (typical): 2-10 sec.

**GNSS Search GeoLock<sup>10</sup>**

- GNSS Search GeoLock™: 360° (400 gon)
- Range: Full robotic operation range

**COMMUNICATIONS**

**External foot connector**

- USB cable connection
- External power supply

**Wireless Communication**

- Robotic Model
  - Internal/external: 2.4 GHz, frequency hopping, spread spectrum
  - Class 2 Short Range Bluetooth<sup>®</sup>
- RX Model
  - Internal/external: 2.4 GHz, frequency hopping, spread spectrum
- LockNGo Model
  - Class 1 Long Range Bluetooth<sup>®</sup>

**GENERAL SPECIFICATIONS**

**Coarse leveling**

- Electronic coarse leveling range: ±3° (±3.3 gon)
- Circular level in tribrach: 8/2 mm (8/0.007 ft)

**Drives**

- Drive system: Spectra Geospatial StepDrive™ system
- Rotation speed maximum: 90°/sec (100 gon/sec)
- Rotation time Face 1 to Face 2: 3.7 sec.
- Positioning speed 180° (200 gon): 3.5 sec.
- Clamps and slow motions: StepDrive driven, endless fine adjustment

**Centering**

- Centering system: 3-pin
- Plummet: Built-in optical plummet
- Magnification: 2.4 x
- Focusing distance: 0.5 m to ∞ (1.6 ft to ∞)

**Telescope**

- Magnification: 31x
- Aperture: 50 mm (1.96 in)
- Field of view: 1°30'
- Focusing distance: 1.5 m to ∞ (4.9 ft to ∞)
- Illuminated crosshair: Standard
- Tracklight built-in: Standard
- Trunnion axis height: 196 mm (7.71 in)

**Environmental**

- Operating temperature: -20 °C to +50 °C (-4 °F to +122 °F)
- Dust and water proofing: IP55

**Power supply<sup>9</sup>**

- Internal battery: Li-Ion, 10.8V / 6.5Ah
- Operating time with one internal battery: Approx. 6 hours
- Models with two internal batteries: Approx. 12 hours

**Weight**

- Instrument: 5.0 kg (11.0 lb)
- Tribach: 0.7 kg (1.54 lb)
- Internal battery: 0.3 kg (0.66 lb)

**DATA COLLECTION**

**Control units fixed on alidade**

**Face 1 (models with onboard data collection)**

- Display: 3.5" TFT color touch-screen, 640x480 pixels, backlight
- Keyboard: Alphanumeric keypad
- Memory (data storage): 512 MB RAM, 4 GB Flash
- Field application software: Survey Pro and Layout Pro

**Face 2**

- Display: 6 lines, monochrome, 96x49 pixels, backlight
- Keyboard: 4 keys
- Instrument software functions: Change Face, Radio and Instrument Settings, Measurement Value Display, Leveling

- 1 RX models are not available in 1" accuracy.
- 2 Standard deviation based on ISO 17123-3
- 3 Standard deviation based on ISO 17123-4
- 4 Standard clear: No haze, overcast or moderate sunlight with very light heat shimmer. Range and accuracy are dependent on atmospheric conditions, size of prism and background radiation.
- 5 Kodak Gray Card, Catalog number E152795.
- 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 RX models have two internal batteries.
- 10 GeoLock is available inside of Survey Pro field software when used onboard a data collector.
- 11 Bluetooth range varies based on environmental conditions such as physical obstructions or interference from other nearby devices. Range also varies based on the transmitter strength and receiver sensitivity of both the controller and the FOCUS 35 total station.

