

ОБЗОР

[тахеометр спектр фокус 35](#) представляет собой моторизованный тахеометр, обеспечивающий высокую скорость, точность и точность измерений.

Роботизированный инструмент FOCUS 35 переносит силу наблюдателя с инструмента на веху, повышая эффективность. Скорость наблюдения и точное позиционирование роботизированного тахеометра FOCUS 35 обеспечивается запатентованной технологией движения StepDrive™, которая управляет горизонтальным и вертикальным движением двигателей, устраняя необходимость в традиционных блокировках движения. FOCUS 35 оснащен датчиком слежения, в котором используется технология слежения LockNGo™ FastTrack, позволяющая прибору постоянно фиксироваться на призме. Модели FOCUS 35 RX с увеличенным сроком службы отличаются лучшим на рынке временем автономной работы.

FOCUS 35 доступен с точностью 1", 2", 3" или 5" и управляется полевым программным обеспечением Spectra Geospatial Survey Pro™ с использованием встроенного сенсорного интерфейса Windows CE. FOCUS 35 также предназначен для внешнего управления сборщиками данных Ranger™, Nomad™ или T41®, работающими с полевым программным обеспечением Survey Pro, Layout Pro или FAST Survey на Ranger или Nomad. Кроме того, вы можете взять с собой собственный контроллер и подключиться к FOCUS 35 с помощью Bluetooth или радиомоста SPDL.

FOCUS 35 доступен в трех моделях:

- Роботизированный
- LockNGo
- RX

Все модели включают в себя систему моторизованного привода на приборе и датчик слежения для отслеживания вехи диапазона и призмы.

Модель	Шаговое движение	Отслеживание LockNGo	Беспроводная связь	Бортовой экран	Батарейная система
РОБОТИЗАЦИЯ			Радио 2,4 ГГц, Bluetooth ближнего действия		Одинокий
RX			Радио 2,4 ГГц	Н/Д	Двойной
LockNGo			Bluetooth дальнего радиуса действия		Одинокий

Для поддержания контакта между прибором FOCUS 35 и удаленным наблюдателем с вехой и призмой роботизированное решение должно включать канал связи. FOCUS 35

Robotic и RX используют встроенный радиомодем 2,4 ГГц, как и сборщик данных Ranger 7. Радиомодем 2,4 ГГц обеспечивает роботизированную передачу данных без помех.

После того, как ваша роботизированная связь будет установлена, вы сможете управлять всеми функциями FOCUS 35 с вешки, перемещаясь по рабочей площадке и производя измерения. Это позволяет одному геодезисту самостоятельно выполнять высокоточную разбивку или топографическую съемку. Вы можете положиться на FOCUS 35, будь то контрольная съемка высокого уровня, сбор топографических данных или быстрая разбивка строительных объектов, даже в суровых внешних условиях.

FOCUS 35 и Survey Pro предоставляют вам решения мирового класса для любых геодезических задач. Примером этих функций является уникальная роботизированная программная технология, которую можно использовать при связывании FOCUS 35 с недорогим приемником GNSS и программным обеспечением Survey Pro. Эта комбинация технологий позволяет пользователю в полной мере воспользоваться преимуществами Spectra Geospatial GeoLock™, технологии удержания цели.

Layout Pro™, программное обеспечение и FOCUS 35 вместе обеспечивают удобство ношения, управления, редактирования и компоновки чертежа рабочей площадки. Эта комбинация является важным инструментом в области строительной компоновки и предназначена для того, чтобы сделать процесс компоновки более продуктивным, точным и надежным. Например, используйте Layout Pro, чтобы ориентироваться в расположении основных точек, добавлять размеры строк на отпечатке, а также вычислять диагонали и углы.

Роботизированное решение FOCUS 35 лучше всего можно описать как «Просто более мощное». Обладая современным, гладким и обтекаемым дизайном, он прост в использовании, доступен по цене и надежен. Тахеометры FOCUS 35 предназначены для удовлетворения всех ваших потребностей в геодезии.

Аксессуары

Радиомост FOCUS SPDL 2.4 — это прочный легкий специальный аксессуар, предназначенный для обеспечения связи между роботизированными тахеометрами и мобильными устройствами с поддержкой Bluetooth.

SPECTRA[®]
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^{1,2}

- 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 measurement³

Accuracy to Prism⁴

- 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 ⁶	Normal ⁷	Difficult ⁸
KGC ⁵ (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 operation⁹

- 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 GeoLock¹⁰

- 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[®]
- RX Model
 - Internal/external: 2.4 GHz, frequency hopping, spread spectrum
 - Class 1 Long Range Bluetooth[®]
- LockNGo Model
 - Class 1 Long Range Bluetooth[®]

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 supply⁹

- 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)
- Tribrach: 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.

