

**SOKKIA**

**FX Series**  
FUNCTIONAL X-ELLENCe STATION

# Totally Functional

- Windows® CE is Ready in a Lightweight, Compact Body
- MAGNET™ Field On-Board Application Software
- RED-tech Technology Reflectorless EDM
- Long-range *Bluetooth*® Technology
- Advanced Angle Measurement System
- Long-lasting Battery
- Waterproof, Rugged, and Operator Friendly



Exclusive  
TSshield  
technology built-in

**World's First**  
integrated support service

# High Performance in a Compact Size.

**World's First**  
integrated support service

## TSshield™

Every FX total station is equipped with a telematics-based multifunction communications module providing the ultimate security and maintenance capabilities for your investment.

If an activated instrument is lost or stolen, you can send a coded signal to the instrument and disable it – Your total station is secure anywhere in the world!

And, in the same module, you have daily connectivity to cloud-based Sokkia servers that can inform you of available software updates and firmware enhancements.

\* For more detail of TSshield, please refer to the TSshield's leaflet.



## Windows® CE is Ready in a Lightweight, Compact Body

- Windows® CE 6.0 provides a comfortable operating environment.
- Completely new on-board application MAGNET™ Field is installed as a standard feature.

## MAGNET™

- **Cloud-based Solutions for Precise Positioning\***  
MAGNET™ is a software family that uses the "cloud" to seamlessly connect data in the field and office. Real-time connections. When you need it. Where you need it. For data exchange, communications, asset tracking and more.

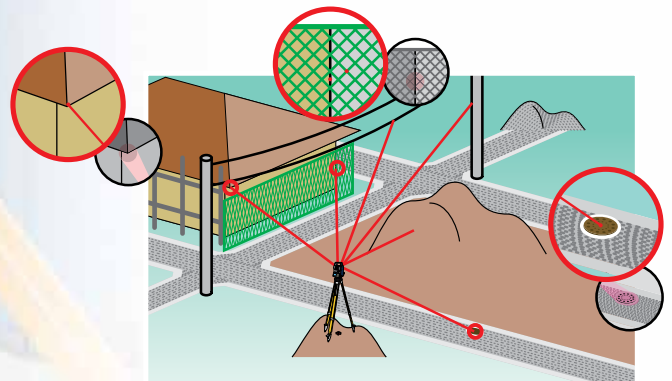
\* Available when using an optional controller.

- **MAGNET™ Field**  
Data collection, stakeout, roads, and coordinate geometry.



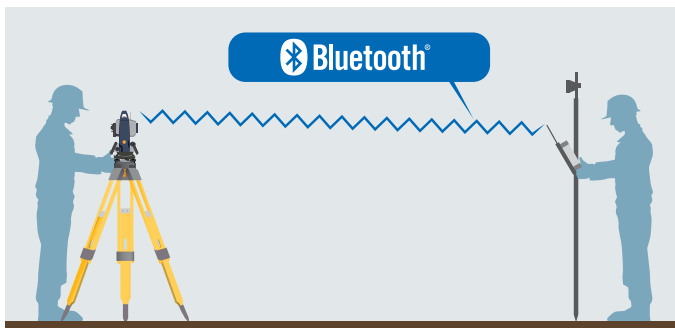
## RED-tech Technology Reflectorless EDM

- Fast distance measurement of 0.9s regardless of object.
- Sokkia traditional pinpoint precision in reflectorless distance measurement.
- Reflectorless operation from 30cm to 500m.
- Coaxial EDM beam and laser-pointer provide fast and accurate aiming.
- Ensures accuracy even with reflective sheets.



The ultra-narrow EDM beam can precisely measure walls, corners, manholes on the road surface, even chain-link fences and tree branches.

## Long-Range *Bluetooth*<sup>®</sup> Technology\*

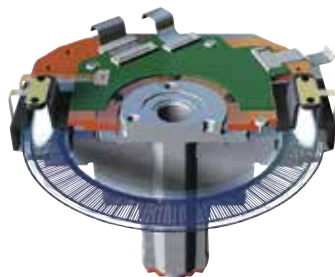


- The FX series of total stations features *Bluetooth*<sup>®</sup> Class 1 wireless technology for reliable data communications.
- All FX data is instantly available at the *Bluetooth*<sup>®</sup>-equipped controller.

\* Offered as an option in some areas.

## Advanced Angle Measurement System

- FX features Sokkia's original absolute encoders that provide long-term reliability in any job site condition. Dual-axis compensator ensures stable measurements even when setup on uneven terrain.
- Sokkia's traditional motion clamp and tangent screw are employed to ensure stable angle measurement.
- FX-101 and FX-102 feature groundbreaking IACS (Independent Angle Calibration System) technology for extremely reliable angle measurement.



## Long Lasting Battery Life

- Uses the same high capacity battery as MDTS and GNSS.
- One battery provides 20 hours of power.



## Waterproof, Rugged, and Operator Friendly

- IP65 dustproof / waterproof rating.
- Metal chassis and heavy duty handle.
- Standard usage temperature range -20 to +50°C. Low temperature models can be used as low as -30°C<sup>\*2</sup> and high temperature models up to +60°C.<sup>\*2</sup>
- New STAR key instantly brings up functions.
- Trigger key lets you take a series of measurements without taking your eye off the telescope.
- Control panel consists of 10-key pad with color LCD touch screen display.<sup>\*2</sup>
- USB type A / mini B as well as serial ports.



- Green / Red telescope guide light enhances work efficiency in a range up to 150m.



- Optional laser plummet with five brightness levels is equipped for quick instrument setting in all lighting conditions.<sup>\*3</sup>

\* 1) Low and High temperature models available as options.

\* 2) Face 2 is only touch screen display. Control panel location may vary depending on region or model.

\* 3) Offered as an option in some areas.

Model	FX-101	FX-102	FX-103	FX-105
<b>Telescope</b>				
Magnification / Resolving power	30x / 2.5"			
Others	Length: 171mm (6.7in.), Objective aperture: 45mm (1.8in.) (48mm (1.9in.) for EDM), Image: Erect, Field of view: 1°30' (26m/1,000m), Minimum focus: 1.3m (4.3ft.), Reticle illumination: 5 brightness levels			
<b>Angle Measurement</b>				
Display Resolution	0.5" / 1" (0.0001 / 0.0002gon, 0.002 / 0.005mil)	1" / 5" (0.0002 / 0.001gon, 0.005 / 0.02mil)		
Accuracy (ISO 17123-3:2001)	1"	2"	3"	5"
IACS (Independent Angle Calibration System)	Provided			
Dual-axis compensator / Collimation compensation	Dual-axis liquid tilt sensor, working range: ±6' (±111mgon) / Collimation compensation available			
<b>Distance Measurement</b>				
Laser output <sup>1</sup>	Reflectorless mode: Class 3R / Prism / sheet mode: Class 1			
Measuring range (under average conditions <sup>2</sup> )	Reflectorless <sup>3</sup>	0.3 to 500m (1.0 to 1,640ft.)		
	Reflective sheet <sup>4/5</sup>	RS90N-K: 1.3 to 500m (4.3 to 1,640ft.), RS50N-K: 1.3 to 300m (4.3 to 980ft.), RS10N-K: 1.3 to 100m (4.3 to 320ft.)		
	Mini prisms	CP01: 1.3 to 2,500m (8,200ft.), OR1PA: 1.3 to 500m (1,640ft.)		
	One AP prism	1.3 to 4,000m (4.3 to 13,120ft.) / Under good conditions <sup>6</sup> : 5,000m (16,400ft.)		
	Three AP prisms	to 5,000m (16,400ft.) / Under good conditions <sup>6</sup> : to 6,000m (19,680ft.)		
Display Resolution	Fine/Rapid: 0.001m / 0.01ft. / 1/8in. Tracking: 0.01m / 0.1ft. / 1/2in.			
Accuracy <sup>2</sup> (ISO 17123-4:2001) (D=measuring distance in mm)	Reflectorless <sup>3</sup>	(3 + 2ppm x D) mm <sup>7</sup>		
	Reflective sheet <sup>4</sup>	(3 + 2ppm x D) mm		
	AP/CP prism	(2 + 2ppm x D) mm		
Measuring time <sup>8</sup>	Fine: 0.9s (initial 1.7s), Rapid: 0.7s (initial 1.4s), Tracking: 0.3s (initial 1.4s)			
<b>OS, Interface and Data management</b>				
Operating system / Application	Microsoft Windows® CE 6.0 / MAGNET™ Field			
Display / Keyboard	3.5inch, Semi-transmissive TFT QVGA color LCD with LED backlight, Touch screen, Automatic brightness control / 26 keys with backlight			
Control panel location <sup>9</sup>	Dual Display (Face 2 is only touch screen display)			Single Display with Control Panel
Trigger key	On right instrument support			
Data storage	Internal memory	500MB internal memory (includes memory for program files)		
	Plug-in memory device	USB flash memory (max. 8GB)		
Interface	Serial RS-232C, USB2.0 (Type A / mini B)			
Bluetooth® modem (optional) <sup>10</sup>	Bluetooth® Class 1, Ver.2.1+EDR, Operating range: up to 300m (980ft.) <sup>11</sup>			
<b>General</b>				
Laser pointer <sup>12</sup>	Coaxial red laser using EDM beam			
Guide light <sup>12</sup>	Green LED (524nm) and Red LED (626nm), Operating range: 1.3 to 150m (4.3 to 490ft.) <sup>12</sup>			
Levels	Graphic	6' (Inner Circle)		
	Circular level	10' / 2mm		
Optical plummet	Magnification: 3x, Minimum focus: 0.3m (11.8in.) from tribrach bottom			
Laser plummet (optional)	Red laser diode (635nm±10nm), Beam accuracy: ≤1.0mm@1.3m, Class 2 laser product			
Dust and water protection	IP65 (IEC 60529:2001)			
Operating temperature <sup>13</sup>	-4 to +122°F (-20 to +50°C)			
Size with handle <sup>9</sup>	Control panel on both faces: W7.5 x D7.5 x H13.7in. (W191 x D190 x H348mm) Control panel on one face: W7.5 x D6.9 x H13.7in. (W191 x D174 x H348mm)			
Weight with battery & tribrach	Approx. 12.6 lb. (5.7kg)			
<b>Power supply</b>				
Battery (BDC70)	Detachable battery	Li-ion rechargeable battery		
Operating time (20°C)	BDC70	Approx. 20 hours (single distance measurement every 30 seconds)		
	External battery <sup>14</sup> (Optional)	BDC60: approx. 24 hours, BDC61: approx. 49 hours (single distance measurement every 30 seconds)		

### Standard Accessories

- FX main unit
- Battery (BDC70)
- Battery charger (CDC68)
- Power cable
- Lens cap
- Lens hood
- Tool pouch
- Screwdriver
- Lens brush
- Adjusting pin x2
- Cleaning cloth
- Operation manual
- USB memory stick
- Laser caution sign-board
- Carrying case
- Carrying strap

<sup>1</sup> IEC60825-1:Ed.2.0:2007 / FDA CDRH 21 CFR Part 1040.10 and 11 <sup>2</sup> Average conditions: Slight haze, visibility about 20km (12 miles), sunny periods, weak scintillation. <sup>3</sup> Fine mode. With Kodak Gray Card White Side (90% reflective). When brightness on measured surface is 30,000 lx or less. Reflectorless range/accuracy may vary according to measuring objects, observation situations and environmental conditions. <sup>4</sup> When the measuring beam's incidence angle is within 30° in relation to the reflective sheet target. <sup>5</sup> Measuring range in temperatures of -30 to -20°C (-22 to -4°F) with Low Temperature models and 50 to 60°C (122 to 140°F) with High Temperature models: RS90N-K: 1.3 to 300m (4.3 to 980ft.), RS50N-K: 1.3 to 180m (4.3 to 590ft.), RS10N-K: 1.3 to 60m (4.3 to 190ft.) <sup>6</sup> Good conditions: No haze, visibility about 40km (25 miles), overcast, no scintillation. <sup>7</sup> Measuring range: 0.3 to 200m <sup>8</sup> Typical, under good conditions. Reflectorless measurement time may vary according to measuring objects, observation situations and environmental conditions. <sup>9</sup> Control panel location may vary depending on region or model. <sup>10</sup> Usage approval of Bluetooth wireless technology varies according to country. Please consult your local office or representative in advance. <sup>11</sup> No obstacles, few vehicles or sources of radio emissions/interference in the near vicinity of the instrument, no rain. <sup>12</sup> The laser-pointer and the guide light do not work simultaneously. <sup>13</sup> Low Temperature models: -30 to 50 °C (-22 to 122°F) and High Temperature models: -20 to 60°C (-4 to 140°F. No direct sunlight) are available on built-to-order basis. <sup>14</sup> For FX-101, FX-102 and Low Temperature models.

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**Your local Authorized Dealer is:**

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