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FX Series

Advanced Total Station

SOLUTION READY

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Great performance in a compact size

Take charge of job sites with world-class accuracy, the FX is ready for whatever you need to accomplish. This professional-grade advanced total station provides an on-board data collection interface, long-range communication, and an incredibly powerful EDM.

Like all of our solutions, you can customize it to meet your needs and create your own workflows.

- Lightweight, compact body
- RED-tech technology reflectorless EDM
- Long-range Bluetooth® technology
- Advanced angle measurement system
- Long-lasting battery
- Waterproof, rugged, and user-friendly

Precise positioning

The FX series features our best-in-class absolute encoders that provide long-term reliability in any job site condition. Dual-axis compensator ensures stable measurements even when set up on uneven terrain. And our traditional motion clamp and tangent screw are employed to ensure stable angle measurement.

The FX-101 and FX-102 models feature groundbreaking IACS (Independent Angle Calibration System) technology for extremely reliable angle measurement.

On-board control

Increase your productivity with the Windows on-board operating system and touchscreen computer. The large, bright screen provides enough resolution to view points, lines, and icons so you can see and react quicker. And you can move your projects along faster by being able to do point collection, description entry, and on-screen calculations right on the instrument.

Long-range flexibility

For stakeout and other tasks where being at the prism pole with a field controller is critical, the FX series features Bluetooth® Class 1 wireless technology. All FX data is instantly available on your Bluetooth® equipped controller.

Get more out of your day

With one battery providing more than 20 hours of power, you'll be able to get through even the longest day in the field. The FX series uses the same high-capacity battery as MDTS and GNSS.

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 the activated instrument is lost or stolen, you can send a coded signal to the instrument and disable it, from anywhere in the world.

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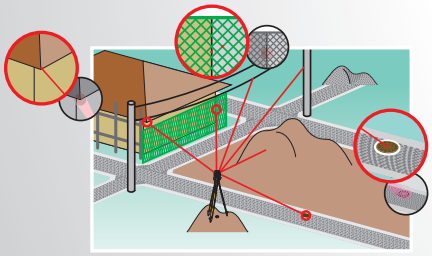
RED-tech technology reflectorless EDM

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



Job site ready

- Waterproof / dustproof IP65 rating design handles the toughest environments
- Metal chassis and heavy-duty handle
- Standard usage temperature range of -20 to 50°C

Specifications

MODEL		FX-101	FX-102	FX-103	FX-105
Telescope					
Magnification / Resolving power		30x / 2.5"			
Length		171 mm			
Objective aperture		45 mm (48 mm for EDM)			
Image		Erect			
Field of view		1°30' (26 m/1,000 m)			
Minimum focus		1.3 m			
Reticle illumination		5 brightness levels			
Angle Measurement					
Display Resolution		0.5" / 1"	1" / 5"		
Accuracy (ISO 17123-3:2001)		1"	2"	3"	5"
Dual-axis compensator / Collimation compensation		Dual-axis liquid tilt sensor, working range: ±6' (±111 mgon) / Collimation compensation available			
Distance Measurement					
Laser output*1		Reflectorless mode: Class 3R / Prism / sheet mode: Class 1			
Measuring range (under average conditions*2)	Reflectorless*3	Reflectorless*3 0.3 to 500 m			
	Reflective sheet*4/*5	RS90N-K: 1.3 to 500 m, RS50N-K: 1.3 to 300 m, RS10N-K: 1.3 to 100 m			
	Mini prisms	CP01: 1.3 to 2,500 m, OR1PA: 1.3 to 500 m			
	One AP prism	1.3 to 4,000 m/ Under good conditions*6: 5,000 m			
	Three AP prisms	to 5,000 m / Under good conditions*6: to 6,000 m			
Display Resolution		Fine/Rapid: 0.001 m / 0.01 ft. / 1/8 in. Tracking: 0.01 m / 0.1 ft. / 1/2 in.			
Accuracy*2 (ISO 17123-4:2001) (D=measuring distance in mm)	Reflectorless*3	(3 + 2 ppm x D) mm*7			
	Reflective sheet*4	(3 + 2 ppm x D) mm			
	AP/CP prism	(2 + 2 ppm x D) mm			
Measuring time*8		Fine: 0.9s (initial 1.7 s), Rapid: 0.7 s (initial 1.4 s), Tracking: 0.3 s (initial 1.4 s)			
OS, Interface and Data management					
Operating System / Application		Microsoft Windows® CE 6.0 / MAGNET® Field			
Display / Keyboard		3.5 in., Semi-transmissive TFT QVGA color LCD with LED backlight, Touch screen, Automatic brightness control / 26 keys with backlight			
Control panel location*9		Dual Display (Face 2 is only touch screen display)			Single with control panel
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, USB 2.0 (Type A / mini B)			
Bluetooth® modem (optional)*10		Bluetooth® Class 1, Ver.2.1+EDR, Operating range: up to 300 m*11			
General					
Laser-pointer*12		Coaxial red laser using EDM beam			
Guide light*12		Green LED (524 nm) and Red LED (626 nm), Operating range: 1.3 to 150 m*2			
Levels	Graphic	6' (Inner Circle)			
	Circular level	10' / 2 mm			
Optical plummet		Magnification: 3x, Minimum focus: 0.3 m from tribrach bottom			
Laser plummet (optional)		Red laser diode (635 nm ±10 nm), Beam accuracy: ≤1.0 mm at 1.3 m, Class 2 laser product			
Dust/Water Rating		IP65 (IEC 60529:2001)			
Operating Temperature*13		-20 to +50°C			
Size with handle*9 (w x d x h)		Control panel on both faces: 191 x 190 x 348 mm Control panel on one face: 191 x 174 x 348 mm			
Weight with battery and tribrach		Approx. 5.7 kg			

*1 IEC60825-1:Ed.2.0:2007 / FDA CDRH 21 CFR Part 1040.10 and 11 *2 Average conditions: Slight haze, visibility about 20 km (12 miles), sunny periods, weak scintillation. *3 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. *4 When the measuring beam's incidence angle is within 30° in relation to the reflective sheet target. *5 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 300 m (4.3 to 980 ft.), RS50N-K: 1.3 to 180 m (4.3 to 590ft.), RS10N-K: 1.3 to 60 m (4.3 to 190 ft.) *6 Good conditions: No haze, visibility about 40 km (25 mi.), overcast, no scintillation. *7 Measuring range:0.3 to 200m *8 Typical, under good conditions. Reflectorless measurement time may vary according to measuring objects, observation situations and environmental conditions. *9 Control panel location may vary depending on region or model. *10 Usage approval of Bluetooth® wireless technology varies according to country. Please consult your local office or representative in advance. *11 No obstacles, few vehicles or sources of radio emissions/ interference in the near vicinity of the instrument, no rain. *12 The laser-pointer and the guide light do not work simultaneously. *13 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. *14 For FX-101, FX-102 and Low Temperature models.

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