

KIT COMPONENTS



Standard package components

- ES main unit • Battery (BDC70)
- Battery charger (CDC68) • Power Cable
- Lens cap • Lens hood • Tool pouch • Screwdriver
- Lens brush • Adjusting pin x 2 • Cleaning cloth
- Operation manual • USB memory key
- Laser caution sign-board • Carrying case
- Carrying strap

*1 IEC60825-1:Ed.2.0:2007/ FDA CDRH 21 CFR Part 1040.10 and 11
 *2 Average conditions: Slight haze, visibility about 20km (12 miles), sunny periods, weak scintillation.
 *3 With Kodak Gray Card White Side (90% reflective). When brightness on measured surface is 50,000 lx or less.
 Reflectance 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 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.)
 *6 Good conditions: No haze, visibility about 40km (25 miles), overcast, no scintillation.
 *7 Measuring range: 0.3 to 200m
 *8 Typical, under good conditions. Reflectance 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.
 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.

SPECIFICATIONS

Model	ES-101	ES-102	ES-103	ES-105
Telescope				
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			
Angle measurement				
Display resolution	1" / 5"			
Accuracy (ISO 17123-3:2001)	0.5" / 1" (0.0001 / 0.0002gon, 0.002 / 0.005mil)	1" / 5" (0.0002 / 0.001gon, 0.005 / 0.02mil)		
Dual-axis compensator / Collimation compensation	1"	2"	3"	5"
Distance measurement				
Laser output **	Reflectorless mode: Class 3R / Prism/sheet mode: Class 1			
Measuring range (under average conditions *)	Reflectorless ** Reflective sheet ** **	0.3 to 500m (1.0 to 1,640ft.) 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	1.3 to 500m (1,640ft.)		
	One prism	1.3 to 4,000m (4.3 to 13,120ft.) / Under good conditions **: 1.3 to 5,000m (16,400ft.)		
	Three prisms	to 5,000m (16,400ft.) / Under good conditions **: to 6,000m (19,680ft.)		
Display resolution	Fine/Rapid: 0.001m / 0.01ft. / 1/8in. Tracking: 0.01m / 0.1ft. / 1/2in.			
Accuracy ** (ISO 17123-4:2001) (D=measuring distance in mm)	Reflectorless ** Reflective sheet ** AP/CP prism	(3 + 2ppm x D) mm ** (3 + 2ppm x D) mm (2 + 2ppm x D) mm		
Measuring time **	Fine: 0.9s (initial 1.7s), Rapid: 0.7s (initial 1.4s), Tracking: 0.3s (initial 1.4s)			
Interface and Data management				
Display / Keyboard	Graphic LCD, 192 x 80 dots, backlight, contrast adjustment / Alphanumeric keyboard / 25 keys with backlight			
Control panel location **	On both faces			
Trigger key	On right instrument support			
Data storage	Internal memory	Approx. 10,000 points		
	Plug-in memory device	USB flash memory (max. 8GB)		
Interface	Serial RS-232C, USB2.0 (Type A, for USB flash memory)			
Bluetooth modem (Factory Option) **	Bluetooth Class 1, Ver.2.1+EDR, Operating range: up to 300m (980ft.) **			
General				
Laser pointer **	Coaxial red laser using EDM beam			
Guide light **	Green LED (524nm) and Red LED (626nm), Operating range: 1.3 to 150m (4.3 to 490ft.)			
Levels	Graphic	6' (inner circle)		
	Circular level	10' / 2mm		
Optical plummet	Magnification: 3x, Minimum focus: 0.3m (1.18in.) from tribrach bottom			
Laser plummet (option)	Red laser diode (655nm±10nm), Beam accuracy: ≤ 1.0mm@1.3m, Class 2 laser product			
Dust and water protection	IP66 (IEC 60526:2001)			
Operating temperature **	-20 to +50°C (-4 to +122°F)			
Size with handle **	Control panel on both faces: W191 x D181 x H548mm (W75 x D71 x H13.7in.) Control panel on one face: W191 x D174 x H548mm (W75 x D6.9 x H13.7in.)			
Weight with handle and battery	Approx. 5.6kg (12.3 lb.)			
Power supply				
Battery	BDC70 detachable battery	Li-ion rechargeable battery		
Operating time (20°C)	BDC70	Approx. 36 hours (single distance measurement every 30 seconds)		
	External battery (option)	BT-73Q: approx. 89 hours (single distance measurement every 30 seconds)		

Your local Authorized Topcon dealer is:



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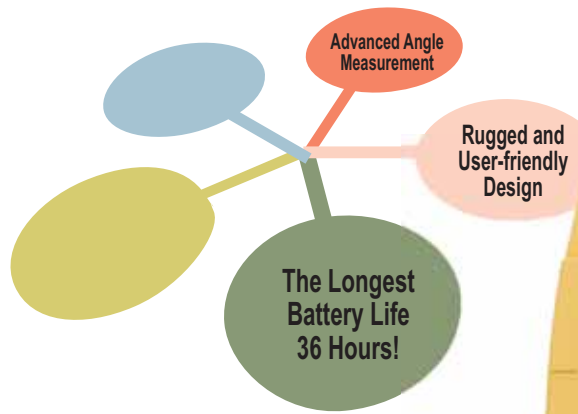


A New Classic

- Fast & Powerful EDM
- LongLink Data Communication
- Advanced Angle Accuracy
- The Longest Battery Life - 36 Hours!
- Rugged and User-friendly Design

*Factory Option

The perfect combination of easy operation and powerful features.



Advanced Angle Measurement

Rugged and User-friendly Design

The Longest Battery Life 36 Hours!

Fast and Powerful EDM

- Fast and accurate pinpointing with phase shift technology.
- Fast distance measurement of 0.9s regardless of object.
- Minimum reflectorless measuring distance – just 30cm.
- Improved collimation with super-bright pointer.
- Smaller EDM beam spot size for minimal distance measuring error.
- Dependable measuring even at shallow incidence angles.
- Ensures accurate reflective sheet distance measurement.



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



LongLink Data Communication*

- Long-distance communications with **Bluetooth®** Class1.
- **Bluetooth** Class1 realizes long-distance and stable connection
- Link between total station and rover-end data collector, both equipped with Bluetooth Class1, facilitates quick surveying only by sighting the object.

* Offered as a factory option.



Advanced Angle Measurement System

- ES features advanced absolute encoders for long-term reliability in all work conditions. Dual-axis compensation ensures accurate leveling even on rough terrain.
- Motion clamp and tangent screw ensure stable angle measurement.
- ES-101 and ES-102 feature angle measuring accuracy of 1" equipped with groundbreaking technology for extremely reliable angle measurement.

The Longest Battery Life—36 Hours!*

- Just one battery last 36 hours. It runs one week in full charge and no longer requires extra batteries.

*As of December, 2011.



7 hours in 5 days for fine single measurement in 30 seconds

Rugged and User-friendly Design

- IP66 dustproof/waterproof performance
- Standard usage temperature range –20° to +50°C. Low temperature models can be used as low as -30°* and High temperature Models up to +60°C.*

* Low and High temperature models available as options.

- USB Type A port for convenient added memory. Use of included USB accessory assures IP66 protection.
- 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 LCD for easy viewing of graphics*.

*Control panel location may vary depending on region or model.



USB Type A port

New control panel

- Green/red Guide Light is built into the telescope as a standard feature, enhancing setting-out work efficiency in a range of 1.3 to 150m.
- Trigger key is ergonomically placed so that measurement can be taken at any time with just the push of a button.
- Built-in laser plummet is equipped for quick instrument setting. 5 brightness levels are ready for optimum visibility.*

*Offered as an option in some areas.

