

ES Series

Reflectorless Total Station



Full Specifications

for more information visit
www.topconpositioning.com/es

Model	ES-101	ES-102	ES-103	ES-105	ES-107
Telescope					
Magnification / Resolving power	30x / 2.5"				30x / 3.5"
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	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"	7"
IACS (Independent Angle Calibration System)	Provided		-		
Dual-axis compensator / Collimation compensation	Dual-axis liquid tilt sensor, working range: ±6' (±111mgon) / 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	0.3 to 500m(1.0 to 1,640ft.)			
	Reflective sheet*4/*5	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*6: 5,000m (16,400ft.)			
Three AP prisms	to 5,000m (16,400ft.) / Under good conditions*6: to 6,000m (19,680ft.)				
Display resolution	Fine/Rapid: 0.001m / 0.01ft. / 1/8in. Tracking: 0.01m / 0.1ft. / 1/2in.				
Accuracy*2 (ISO 17123-4:2001)	Reflectorless*3	(3 + 2ppm x D) mm*7			
	Reflective sheet*4	(3 + 2ppm x D) mm			
(D=measuring distance in mm)	AP/CP prism	(2 + 2ppm x D) mm			
Measuring time*8	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*9	On both faces				On one face
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 (option)*10	Bluetooth Class 1, Ver.2.1+EDR, Operating range: up to 300m (980ft.)*11				
General					
Laser-pointer*12	Coaxial red laser using EDM beam				
Guide light*12	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 (11.8in.) from tribrach bottom				
Laser plummet (option)	Red laser diode (635nm±10nm), Beam accuracy: ≤=1.0mm@1.3m, Class 2 laser product				
Dust and water protection	IP66 (IEC 60529:2001)				
Operating temperature*13	-20 to +50°C (-4 to +122°F)				
Size with handle*8	Control panel on both faces: W191 x D181 x H348mm (W7.5 x D7.1 x H13.7in.)				
	Control panel on one face: W191 x D174 x H348mm (W7.5 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)	BDC60: approx. 44 hours, BDC61: approx. 89 hours (single distance measurement every 30 seconds)			

*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 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 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. 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.