

DS

Direct aiming Station



**Even In the bush, dim conditions,
crowded traffic or harsh environments,
DS works perfectly with new technologies.**

- New Auto Collimation Xpointing technology
- Compact Design Motor Drive Total Station
- MAGNET™ On-board Software
- Powerful EDM of 1,000m in reflectorless mode
- Exclusive LongLink™ Communications
- TShield™ Advanced Security and Maintenance
- Rugged Water Resistant IP65 design

DS Series Direct aiming Station

Even In the bush, dim conditions, crowded traffic or harsh environments, DS works perfectly with new technologies.



Rough Aiming



Collimation- Measure



Record data



New Auto Collimation "Xpointing Technology" DS series

The Topcon DS unitizes Xpointing technology featuring a new intelligent algorithm that automatically aims to the prisms with precise corrected angle readings.

The Xpointing technology works even in dim or dark conditions where the prism is difficult to be found. Whatever the job requires and wherever operators must go, the DS makes your job done easier and faster while still maintaining accuracy.



New DS XPointing technology supports

DS

Rough Aiming	Collimation - Measure	Record data
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1/2 the step!

Manual TS

Rough Aiming	Focus	Horizontal Motion	Vertical Motion	Measure	Record
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- Easy "TOPO" operation
- Easy "Stake-out" operation
- Mesh Scan Operation
- **More than what human Eyes can do!**
- **Higher Productivity in your job field!**

DS series provides consistent collimation accuracy speed regardless of operators skill levels.



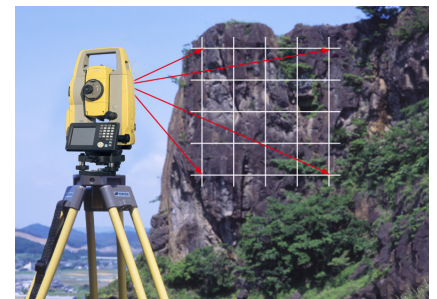
Easy "TOPO" operation

Just "Rough Aim" and "Press Trigger button" to get precise aiming and measurement to prism target.



Easy "Stake-out" operation

Stake-out can be easily done by automatic turning and guide light.



Mesh Scan Operation*

"Simple" & "Easy" Mesh Scan in your field work

*Supported by MAGNET Field on-board

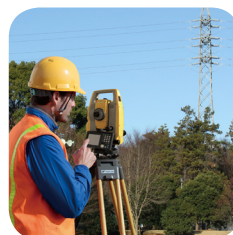


Exclusive LongLink™ Communications

Can be used to establish a wireless linkage with a data terminal at the prism side, up to 300m* distance away. Longlink™ provides the user the ability to code descriptors at the remote prism pole enable more effective data collection, as well as graphical navigations in stakeout work.



*subject to environmental conditions for radio transmission



Fast and Powerful EDM

The 1,000m (3,280ft) reflectorless measurement can be achieved by the smaller beam spot size of the EDM. Measurements can be as fast as 0.9 seconds in the accurate fine mode to most object surfaces over longer distance.

PRIMARY FEATURES

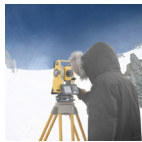


Small and Compact:
Easy to carry and setup.

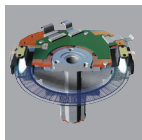
Easy access to USB flash drive port:
An operator can easily import/export data from the office to the field in seconds.



Rugged Water Resistant IP65 design:
Provides protection from dust and driving rain as well as other inclement weather conditions. Operates in temperatures from -20 to +50°C. (C and F needed)



Advanced Angle Accuracy:
Topcon's advanced angle encoder technology with exclusive calibration system provides "Best in Class" angle accuracy, up to 1-second (*for DS101)



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.

Guide Lights Red and Green LED:
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.



Laser pointer (Red Coaxial):
Topcon's red laser pointer is coaxial through the scope making measurements indoors, in limited sunlight or for short distance measurements quickly.



Quick and easy Trigger Key:
This allows the instrument operator to easily and quickly to get a measurement and record.



Star key [★] instantly brings up functions.



26 key keyboard, with 4-way directional arrow key with backlight:
This keyboard system is useful for the jobs from early morning through sundown and perfect for tunneling and mining applications. No other instruments in this class have a backlit keyboard.

MAGNET™



MAGNET Onboard Software

MAGNET is a powerful and intuitive field application software equipped to enable users to collect survey mapping data and perform construction and road layout using the DS total station. Topcon's industry-leading software package is graphical and intuitive.

KIT COMPONENTS

Standard package components

- DS main unit
- Battery (BDC70) ×2
- Battery charger (CDC68)
- Lens cap
- Lens hood
- Tool pouch
- Screwdriver
- Lens brush
- Adjusting pin×2
- Cleaning cloth
- Operation manual
- USB memory key
- Carrying case
- Carrying strap



SPECIFICATIONS

Model	DS-101AC	DS-103AC	DS-105AC
Telescope			
Magnification / Resolving power	30x / 2.5"		
Length: 168mm (6.6in.), Objective aperture: 45mm (1.8in.) (50mm (2.0in.) 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 resolutions	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"	3"	5"
Dual-axis compensator / Collimation compensation: Dual-axis liquid tilt sensor, working range: ±6' / Collimation compensation available			
Distance measurement			
Laser output**	Reflectorless mode: Class 3R / Prism/sheet mode: Class 1		
Measuring range (under average conditions ²)	Reflectorless ³ Reflective sheet ⁴ Mini prisms One prism Three prism	0.3 to 800m (2,620ft) / Under good conditions ⁵ : to 1,000m (3,280ft.) 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.) 1.3 to 500m (1,640ft.) 1.3 to 5,000m (4.3 to 16,400ft) / Under good conditions ⁵ : 6,000m (16,680ft.) to 8,000m (26,240ft.) / Under good conditions ⁵ : to 10,000m (32,800ft.)	
Display resolution	Fine: 0.0001 / 0.001m (0.001 / 0.01ft., 1/16 / 1/8in.) / Rapid: 0.001m / 0.01ft. / 1/8in. Tracking: 0.01m / 0.1ft. / 1/2in.		
Accuracy ² (ISO 17123-4:2001) (D=measuring distance in mm)	Reflectorless ³ Reflective sheet ⁴ AP/CP prism	(2 + 2ppm x D) mm ⁶ (2 + 2ppm x D) mm (1.5 + 2ppm x D) mm	
Measuring time ⁷	Fine: 0.9s (initial 1.5s), Rapid: 0.6s (initial 1.3s), Tracking: 0.3s (initial 1.3s)		
Motor drive system			
Type	DC Servo motor		
Max Rotation speed	70°/sec		
Auto-Collimating			
Working range ²	One prism ⁸ Reflective sheet ⁹ 360° prism ¹⁰ Mini prisms ¹¹	1.3 to 1,000m 5 to 50m 2 to 600m 1.3 to 600m	
OS, Interface and Data management			
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 ¹²	On both faces (Face 2 is only touch screen display) / On one faces		
Trigger key	On right instrument support		
Data storage	Internal memory Plug-in memory device	500MB internal memory USB flash memory (max. 8GB)	
Interface	Serial RS-232C, USB2.0 (Type A / miniB)		
Bluetooth modem (option) ¹³	Bluetooth Class 1, Ver.2.1+EDR, Operating range: up to 300m (980ft.) ¹⁴		
General			
Laser-pointer ¹⁵	Coaxial red laser using EDM beam		
Guide light ¹⁵	Green LED (524nm) and Red LED (626nm), Operating range: 1.3 to 150m (4.3 to 490ft.)		
Levels	Graphic Circular level	6' (Inner Circle) 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	IP65 (IEC 60529:2001)		
Operating temperature	-20 to +50°C (-4 to +122°F)		
Size with handle ¹⁶	Control panel on both faces: W207 (W) X 190 (D) X 372 (H) mm (W8.1 x D7.5 x H14.6in.)	Control panel on one face: W207 (W) X 174 (D) X 372 (H) mm (W8.1 x D6.8 x H14.6in.)	
Weight with battery & tribrach	Approx. 6.1kg (13.4lb.)		
Power supply			
Battery	BDC70 detachable battery	Li-ion rechargeable battery	
Operating time (20°C)	BDC70 External battery (option)	Approx.5hours (Fine distance measurement (single) using Auto-Collimating, repeated every 30 seconds) BT-73Q: approx. 14.5hours (Fine distance measurement (single) using Auto-Collimating, repeated 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 Good conditions: No haze, visibility about 40km (25 miles), overcast, no scintillation. *6 Measuring range:0.3 to 200m *7 Typical, under good conditions. Reflectorless measurement time may vary according to measuring objects, observation situations and environmental conditions. *8 Prism-2 *9 When using a reflective sheet for Auto-Collimating, the size of sheet (10 to 90 mm) must be selected to correspond to the distance being measured. Use smaller reflective sheets for shorter distances. Figures when the Auto-Collimating beam strikes within 15° of the reflective sheet target. *10 ATPI(S) prism *11 Prism-5 *12 Control panel location may vary depending on region or model. *13 Usage approval of Bluetooth wireless technology varies according to country. Please consult your local office or representative in advance. *14 No obstacles, few vehicles or sources of radio emissions/interference in the near vicinity of the instrument, no rain. *15 The laser-pointer and the guide light do not work simultaneously.

TSshield™ Advanced Security and Maintenance

Every instrument has a telematics card installed that constantly communicate to the Topcon servers. In reviewing information daily, Topcon can then determine if the total station has any error codes, what firmware version is installed, as well as the total station location. From this information Topcon can send a message to the total station and advise the operator if a newer version is available.



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