

SPECIFICATIONS

Model	GM-101	GM-102	GM-103	GM-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				
Minimum Display	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"
Dual-axis compensator / Collimation compensation	Dual-axis liquid tilt sensor, working range: ±6' On/Off (selectable)			
Distance measurement				
Laser output ¹	Reflectorless mode : Class 3R / Prism/sheet mode : Class 1			
Measuring range (under average conditions ²)	Reflectorless ³ Reflective sheet ^{4,5,6}	0.3 to 800m (2,620ft.) / Under good conditions ⁴ : 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.)		
	Mini prism One prism	1.3 to 500m (4.3 to 1,640ft.) 1.3 to 5,000m (4.3 to 16,400ft.) / Under good conditions ⁴ : 6,000m (19,680ft.) Fine : 0.0001m (0.001ft. / 1/16in.) / 0.001m (0.005ft. / 1/8in.) (selectable) Coarse : 0.001m (0.005ft. / 1/8in.) / 0.01m (0.02ft. / 1/2in.) (selectable) Tracking / Road : 0.01m (0.02ft. / 1/2in.)		
Minimum Display				
Accuracy ² (ISO 17123-4:2001) (D=measuring distance in mm)	Reflectorless ³ Reflective sheet ^{4,5,6}	(2 + 2ppm x D) mm ⁸ (2 + 2ppm x D) mm		
Measuring time ^{4,9}	Prism ⁷	(1.5 + 2ppm x D) mm		
	Fine	0.9s (initial 1.5s)		
	Coarse	0.6s (initial 1.3s)		
	Tracking	0.4s (initial 1.3s)		
OS, Interface and Data management				
Operating system	Linux			
Display / Keyboard	Graphic LCD, 192 x 80 dots, backlight, contrast adjustment / Alphanumeric keyboard / 28 keys with backlight			
Control panel location	On both faces			
Trigger key	Yes (right side)			
Data storage	Internal memory Plug-in memory device	Approx. 50,000 points USB flash memory (max. 32GB)		
Interface	Bluetooth modem (option) ¹⁰	Serial RS-232C, USB2.0 (Type A for USB flash memory) Bluetooth Class 1.5, Operating range: up to 10m ¹¹		
General				
Guide light ¹²	Green LED (524nm) and Red LED (626nm), Operating range: 1.3 to 150m (4.3 to 490ft.)			
Laser-pointer ¹²	Coaxial red laser using EDM beam			
Levels	Graphic Circular level (on tribrach)	6' (Inner Circle) 10' / 2mm		
Plummet	Optical Laser (option)	Magnification: 3x, Minimum focus: 0.5m (19.7in.) from tribrach bottom Red laser diode (635nm±10nm), Beam accuracy: ≤1.0mm@1.3m, Class 2 laser product		
Dust and water protection / Operating temperature	IP66 (IEC 60529:2001) / -20 to +60°C (-4 to +140°F)			
Size with handle	183(W)x 181(D)x 348(H)mm			
Instrument height	192.5mm from tribrach mounting surface			
Weight with battery & tribrach	Approx. 5.3kg (11.7lb)			
Power supply				
Battery	Li-ion rechargeable battery BDC70			
Operating time (20°C) ¹³	BDC70: Approx. 28hours ¹⁴			
Application program				
On board	<ul style="list-style-type: none"> •REM Measurement •3D Coordinate Measurement •Resection •Stake Out •Topography Observation •Offset Measurement •Missing Line Measurement •Surface Area Calculation •Route Surveying •Point to Line 			

*1 IEC60825-1:Ed.3.0:2014/ FDA CDRH 21CFR Part1040.10 AND1040.11 *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 Good conditions: No haze, visibility about 40km (25miles), overcast, no scintillation. *5 When the measuring beam's incidence angle is within 30° in relation to the reflective sheet target. *6 Measuring range in temperatures of 50 to 60°C (122 to 140°F): 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.) *7 Face the prism toward the instrument during the measurement with the distance at 10 m or less.
*8 Measuring range: 0.3 to 200m *9 Fastest time under good conditions, no compensation. EDM ALC at appropriate setting, slope distance. *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 Figures will change depending on the operating environment including temperatures and observation conditions. *14 In use of ECO mode. Fine single measurement every 30sec.

Standard Package Components

- Main unit • Battery (BDC70) • Battery charger (CDC68A) • Power Cable • Lens cap • Lens hood • Tool pouch • Precision Screwdriver • Lens brush
- Hexagonal wrench (1.3 mm/2.5 mm)×2 • Cleaning cloth • Quick Manual • CD-ROM (Operation manual) • Laser caution sign-board • Carrying case • Carrying strap



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Geodetic Measurement Station



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- Construction and Survey Application Software On Board
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- Reliable Large Volume Internal Memory
- Long-Hour Battery Operation
- Strong Environmental Specification against Tough Sites

Construction and Survey Application Software On Board Reliable All-Round Total Station



Construction

Cross-Sectional Survey

By using the MLM (Missing Line Measurement) program, the height difference between points can be calculated for leveling. Also, you can save time on reflectorless mode to measure a number of points of variation in a large area.

Stake Out

The Guide Light function will navigate the prism operator to move to the stake out line quickly so that stake out operation can be done effectively.

Elevation Stake

Staking out with 3D coordinates, eliminates the need to set up TS on the straight line for all elevation stakes.

Boundary and Cadastral Survey

By using the Area function, you can calculate the area easily. Also, you can determine the center point of a column such as an electric pole, which cannot be directly measured by using offset calculation.

Coordinate Measurement

With coordinate measurement, you can manage 3D coordinate data so that various calculations such as Road, Layout and more can be determined. 3D coordinate data management can improve the productivity drastically.

Topographic Survey

The trigger key, or measuring distance key, helps you perform topography quickly while continuously viewing through the telescope. Also, the long distance measuring C range reduces the number of the instrument changes for more efficient working time.

Survey

Improve Topography and Stake Out with features to achieve faster and more efficient workflows



Newly Designed High-End Class EDM

Especially effective in surveying control points that require high-accuracy, and in cross sectional surveying in large areas with reflectorless measurement mode.

All Features are at Top Class

	Accuracy	Measuring Range
Prism-Mode	1.5mm+2ppm	6,000m*
Reflectorless	2.0mm+2ppm	1,000m*

* Good atmospheric condition

Distance Measurement Accuracy (Prism Mode)

GM Accuracy **1.5mm+2ppm**
Previous Model **2.0mm+2ppm**

Measuring Range(Reflectorless Mode)

GM Distance **1,000m**
Previous Model **500m**

Reliable Large Volume Memory

Internal memory has 50,000 points to record. USB memory can be used up to 32GB.



IoT Support System - Connect the Site and the Office

TSshield IoT Support System

- Remotely update the firmware via the internet.
- Improves asset management by checking TS operating time.
- Remote Lock secures the instrument from theft.
- Monitor TS health status to enable quick reaction against any functionality issues.

*This service may not be available in some areas.

Superior Basic Feature will Expand Your Application

Strong Environmental Spec

The IP66 rating ensures durability for most any rough job site temperatures and conditions.

Long-life Battery

One battery (BDC70) lasts up to 28 hours, or about four days of normal operation time.

Bright Illumination Key for Nighttime Work

Key buttons are illuminated to minimize mistakes.

Topcon Provides Japan Quality Products



Topcon performs tough environmental tests to ensure long-term operation even under rough site environment.

GM Series total stations are thoroughly inspected with dust-proof and water-proof test chambers. In addition, various tests against vibration, drop, temperature, and humidity were successfully passed to achieve the best environmental spec.



Also, the measuring distance accuracy test on base line and the instrument leveling and angle accuracy test and adjustment by collimator system ensure your satisfaction on the GM Series product quality.