

Topcon GM-120

Geodetic Measurement Station



The GM-120 Series combines accurate prism and reflectorless measurement, integrated field applications, long operating time, and durable environmental protection in a practical solution for surveying and construction professionals. The guide light and trigger key support quick and efficient survey and stakeout tasks.

- » Prism measurements up to 6,000 m
- » Reflectorless measurements up to 1,000 m
- » Available in 1", 2", 3" and 5" angle accuracy models*
- » Guide light supports stakeout alignment up to 150 m
- » Trigger key enables one-touch measurement during aiming

Model*	GM-121	GM-122	GM-123	GM-125
Telescope				
Magnification / Resolving power	30x / 2.5"			
Others	Length : 171 mm (6.7 in.), Objective aperture : 45 mm (1.8 in.) (48 mm (1.9 in.) for EDM), Image: Erect, Field of view: 1°30' (26 m/1,000 m), Minimum focus: 1.3 m (4.3 ft.), Reticle illumination: 5 brightness levels			
Angle measurement				
Minimum display	1" (0.0002 gon/ 0.005 mil) / 0.5" (0.0001 gon/ 0.002 mil)	1" (0.0002 gon/0.005 mil) / 5" (0.0010 gon/0.02 mil)		
Accuracy (ISO 17123-3:2001)	1"	2"	3"	5"
Detecting	2 sides			
Dual-axis compensator	Dual-axis liquid tilt sensor, working range: ±6'			
Collimation compensation	On/Off (selectable)			

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Model*		GM-121	GM-122	GM-123	GM-125
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 1000 m (3,280 ft.)			
	Reflective sheet ^{4 5}	RS90N-K: 1.3 to 500 m (4.3 to 1,640 ft.), RS50N-K: 1.3 to 300 m (4.3 to 980 ft.), RS10N-K: 1.3 to 100 m (4.3 to 320 ft.)			
	Mini pole prism Prism-5	1.3 to 500 m (4.3 to 1,640 ft.)			
	Standard prism Prism-2	1.3 to 5,000 m (4.3 to 16,400 ft.)			
Minimum display		Fine / Rapid : 0.0001 m (0.001 ft. / 1/16 in.) / 0.001 m (0.005 ft. / 1/8 in.) (selectable) Tracking / Road : 0.001 m (0.005 ft. / 1/8 in.) / 0.01 m (0.02 ft. / 1/2 in.) (selectable)			
Accuracy ² (ISO 17123- 4:2001) (D=measuring distance in mm)	Reflectorless ³	(2 + 2 ppm x D) mm ⁶			
	Reflective sheet ^{4 5 7}	(2 + 2 ppm x D) mm			
	Prism ⁸	(1.5 + 2 ppm x D) mm			
Measuring time ⁹	Fine	0.9s (initial 1.5s)			
	Rapid	0.6 s (initial 1.3 s)			
	Tracking	0.4 s (initial 1.3 s)			
OS, Interface and Data management					
Operating system		Linux			
Display / Keyboard		Graphic LCD, 192 x 80 dots, backlight : on/off (Selectable) / Alphanumeric keyboard / 28 keys with backlight			
Operation panel		On one side or on both sides, depending on the model and sales region			
Data storage	Internal memory	Approx. 99,999 points			
	External memory	USB flash memory (up to 64 GB)			
Interface		Serial RS-232C, USB2.0 (Type A for USB flash memory)			
	Bluetooth modem (option) ¹⁰	Bluetooth Class 1.5, Operating range: up to 10 m ¹¹			

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General					
Laser-pointer		Coaxial red laser using EDM beam			
Guide Light	Light source	LED (red 626 nm / green 524 nm)			
	Visible distance	1.3 to 150 m			
Levels	Graphic	6' (Inner Circle)			
	Circular level (on tribrach)	10' / 2 mm			
Plummet ¹²	Optical	Magnification: 3x, Minimum focus: 0.5 m (19.7 in.) from tribrach bottom			
	Laser	Red laser diode (635 nm ±10 nm), Beam accuracy: ≤1.0 mm @ 1.3 m, Class 2 laser product			
Dust and water protection / Operating temperature		IP66 (IEC 60529:2001) / -20 to +60 °C (-4 to +140 °F)			
Size with single display and handle		200 x 176 x 348 mm (W x D x H)			
Size with dual display and handle		200 x 181 x 348 mm (W x D x H)			
Instrument height		192.5mm from tribrach mounting surface			
Weight with single display, battery and tribrach		5.1 kg (11.3 lb)			
Weight with dual display, battery and tribrach		5.3 kg (11.7 lb)			
Power supply					
Battery		Li-ion rechargeable battery BDC72			
Operating time (20 °C) ¹³		Approx. 28 hours ¹⁴			

* Available models depend on the sales region

¹ IEC60825-1:Ed.3.0:2014/ FDA CDRH 21CFR Part1040.10 AND1040.11

² Average conditions: Slight haze, visibility about 20 km (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 50 to 60 °C (122 to 140 °F): RS90N-K: 1.3 to 300m (4.3 to 980 ft.), RS50N-K: 1.3 to 180 m (4.3 to 590 ft.), RS10N-K: 1.3 to 60 m (4.3 to 190 ft.)

⁶ Measuring range: 0.3 to 200 m

⁷ Figures when the laser beam strikes within 30° of the reflective sheet RS10N-K. When using other reflective sheet targets, face them directly toward the instrument and measure in both Faces 1 and 2 (direct and reverse).

⁸ Face the prism toward the instrument during the measurement with the distance at 10 m or less.

⁹ Good conditions: No haze, visibility about 40 km (25 miles), overcast, no scintillation.

¹⁰ Presence of Bluetooth modem depends on model and region. 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 Plummet type depends on model and region

¹³ Figures will change depending on the operating environment including temperatures and observation conditions.

¹⁴ In use of EDM eco mode.