



## Robotic Total Station

As a robotic total station and one-man surveying solution, the system features a waterproof design, TSshield™ advanced security, LongLink™ communications, and RC-5 with a quick lock function. The GT series can be paired with a FC-5000 tablet computer or FC-500 to provide full cloud connectivity.

- UltraSonic Direct Drive motors – fastest robotic total station in the world.
- 30% smaller and lighter than any Topcon robotic instrument with more functionality
- TSshield™ global service
- Advanced UltraTrac technology
- Three-year instrument and five-year motor warranty
- Available in two models: GT-500 and GT-1000

Telescope	
Length	142 mm
Aperture	EDM: 38 mm
Magnification	30x
Image	Erect
Resolving power	GT-1001/1002/1003/1005: 2.5"
Field of view	1°30'
Minimum focus	1.3 m (4.3 ft.)
Focusing screw	1 speed
Reticle illumination	5 brightness levels
Angle measurement	
Horizontal and vertical circles type	Rotary absolute encoder detecting 2 sides
Angle units	Degree/Gon/Mil (selectable)
Minimum display	
GT-1001/1002/502	0.5" (0.0001 gon/0.002 mil)
	1" (0.0002 gon/0.005 mil) (selectable)
GT-1003/503/505	1" (0.0002 gon/0.005 mil)
	5" (0.0010 gon/0.02 mil) (selectable)
Angle accuracy	
GT-1001	1" (0.0003 gon/0.005 mil)
GT-502	2" (0.0006 gon/0.008 mil)
GT-1003/GT-503	3" (0.0010 gon/0.015 mil)
GT-505	5" (0.0015 gon/0.025 mil)
	(ISO 17123-3 : 2001)
Measuring time for angle	0.5 sec or less
Collimation compensation	On/Off (selectable)
Measuring mode	Horizontal angle: Right/Left (selectable) Vertical angle: Zenith/Horizontal/Horizontal ± 90° / % (selectable)
Tilt angle compensation	
Type	Liquid 2-axis tilt sensor
Minimum display	Agrees with minimum displayed measurement angle
Correction unit	1 second
Minimum resolution	1 second
Range of compensation	± 6" (± 0.1111 gon)
Automatic compensator	On (V and H/V) / Off (selectable)
Compensation constant	Can be changed
Distance measurement	
Measuring method	Coaxial phase shift measuring system
Signal source	Red laser diode 690 nm Class 3R
(IEC60825-1 Ed. 3.0:2014/ FDA CDRH 21CFR Part 1040.10 and 1040.11 (Complies with FDA performance standards for laser products except for deviations pursuant to Laser Notice No.50, dated June 24, 2007.)) (When the prism or reflective sheet is selected in Config mode as target, the output is equivalent to Class 1)	
Measuring range	
Reflective sheet RS90N-K <sup>4</sup>	1.3 to 500 m (1,640 ft.)
Reflective sheet RS50N-K <sup>4</sup>	1.3 to 350 m (1,148 ft.)
Reflective sheet RS10N-K <sup>4</sup>	1.3 to 100 m (320 ft.)
Prism-2 X 1	GT-1000: 1.3 to 5,000 m (16,400 ft.) GT-500: 1.3 to 4,500 m (14,760 ft.)
Prism-5	1.3 to 500 m (1,640 ft.)
GT-500 reflectorless (White) <sup>5</sup>	0.3 to 800 m (2,624 ft.)
GT-1000 reflectorless (White 500lx)	800 to 1,000 m (2,624 ft. to 3,280 ft.)
(Using the following reflective prism/reflective sheet target during normal atmospheric conditions <sup>1)/2</sup> is good atmospheric conditions)	

Minimum display	
Fine/Rapid measurement	0.001 m (0.01 ft. / 1/8 inch)
Tracking measurement	0.01 m (0.1 ft. / 1/2 inch)
Maximum slope prism/ reflective sheet	12,000 m
Distance display	Reflectorless: 1,200 m Prism: 9,600 m
Distance unit	m/ft/US ft/inch (selectable)
Distance accuracy	
Using prism 360 ATP1	Fine: $\pm (1 + 2 \text{ ppm} \times D)$ mm Rapid: $\pm (5 + 2 \text{ ppm} \times D)$ mm
Using reflective sheet target <sup>*4</sup>	Fine: $\pm (2 + 2 \text{ ppm} \times D)$ mm Rapid: $\pm (5 + 2 \text{ ppm} \times D)$ mm
Reflectorless (White) <sup>*5</sup>	Fine: $\pm (2 + 2 \text{ ppm} \times D)$ mm (0.3 to 200 m) $\pm (5 + 10 \text{ ppm} \times D)$ mm (over 200 to 350 m) $\pm (10 + 10 \text{ ppm} \times D)$ mm (over 350 to 1,000 m)  Rapid: $\pm (6 + 2 \text{ ppm} \times D)$ mm (0.3 to 200 m) $\pm (8 + 10 \text{ ppm} \times D)$ mm (over 200 to 350 m) $\pm (15 + 10 \text{ ppm} \times D)$ mm (over 350 to 1,000 m)
Measurement mode	Fine measurement (single/repeat/average) Rapid measurement (single/repeat)/Tracking (selectable)
Measuring time	
Fine measurement	1.5 sec + every 0.9 sec.
Rapid measurement	1.3 sec + every 0.6 sec.
Tracking measurement	1.3 sec + every 0.4 sec.
Temperature input range	- 35 to 60°C (in 0.1°C step)/ - 22 to 140°F (in 1°F step)
Pressure input range	500 to 1,400 hPa (in 0.1 hPa step), 375 to 1,050 mm Hg (in 0.1 mm Hg step), 14.8 to 41.3 inch Hg (in 0.01 inch Hg step)
ppm input range	-499 to 499 ppm (in 0.1 ppm step)
Prism constant correction	-99 to 99 mm (in 0.1 mm step) 0 mm fixed for reflectorless measurement
Earth curvature and refraction correction	No/Yes K=0.142 Yes K=0.20 (selectable)
Sea level correction	No/Yes (selectable)
<sup>*1</sup> : Slight haze, visibility about 20 km, sunny periods, weak scintillation.	
<sup>*2</sup> : No haze, visibility about 40 km, overcast, no scintillation.	
<sup>*3</sup> : Figures when the laser beam strikes within 30° of the reflective sheet target.	
<sup>*4</sup> : Figures when using Kodak Gray Card White side (reflection factor 90%) and brightness level is less than 30000 lx (a little cloudy). When performing reflectorless measurement, the possible measurement range and precision will change depending on the target reflection factor, weather conditions and location conditions.	
Rotation	
Max revolving speed (turning)	GT-1000: 180 degrees per second GT-500: 120 degrees per second
Max auto tracking speed	GT-1000: 20 degrees per second GT-500: 18 degrees per second
Auto collimating tracking range	
1 prism (AP01)	GT-1000: 1.3 to 1,000 m GT-500: 1.3 to 800 m
360 degree prism (ATP1)	2 to 600 m
Pin pole prism type 5	1.3 to 600 m
Pin pole prism with OR1PA	1.3 to 500 m
Compact prism CP01	1.3 to 700 m

Collimating accuracy	
Standing still at 100 m or less	1.2 mm or better
Standing still greater than 100 m	(0.3 + 9 ppm x D) mm
Guide light	
Light source	LED (red 626 nm/green 524 nm)
Distance	1.3 to 150 m <sup>1</sup>
Visible range	Right and Left/Upward and Downward: $\pm 4^\circ$ (7 m/100 m)
Resolving power at center area (width)	4' (about 0.12 m/100 m)
Brightness	3 levels (bright/normal/dim)
Memory and Data	
Internal memory	1GB
External memory	USB flash memory (up to 32GB)
Data transfer	Data input/output asynchronous serial RS232C compatible USB USB Revision 2.0 (FS) Host (Type A) Client (Type miniB)
Bluetooth® wireless technology	
Transmission method	FHSS
Modulation	GFSK (Gaussian-filtered frequency shift keying)
Frequency band	2.402 to 2.48 GHz
Bluetooth® profile	SPP, DUN
Power class	Class 1
Range	600 m (No obstacles, few vehicles or sources of radio omissions/interference in the near vicinity of the instrument, no rain, while in communication with RC-5A)
Authentication	Yes/No (selectable)
WLAN	
Communication distance	10 m
Access method	Infrastructure mode/ad hoc mode
Frequency range	2,412 to 2,472 MHz (1 to 11ch)
Transmission specification	IEEE802.11g/b/n
Telematics systems	
Cellular	2G/3G
GNSS	GPS L1 for positioning
User SIM	mini SIM(2FF) (25 x 15 x 0.76 mm) * Do not use SIM card converter/adaptor
Power supply	
Power source	Rechargeable Li-ion battery BDC70
Working duration at 20°C	BDC70: approx. 4 hours BT73Q (external optional) approx. 6.5 hours
Fine single measurement = every 30 seconds after worked 180 degrees and locking on prism	
Battery state indicator	4 levels
Auto power-off	5 levels (5/10/15/30 min/Not set) (selectable)
External power source	6.7 to 12 V
Charging time at 25°C	approx. 5.5 hours (using CDC68) <sup>*7</sup>
Battery (BDC70)	
Nominal voltage	7.2 V
Capacity	5,240 mAh
Dimensions (w x d x h)	38 x 70 x 40 mm
Weight	approx. 195 g
<sup>*7</sup> : Charging can take more than 2.5 hours when temperatures are either especially high or low.	

<b>Charger (CDC68)</b>	
Voltage	AC100 to 240 V
Charging time per battery (at 25°C)	BDC70: approx. 5.5 hours (Charging can take longer than the times stated above when temperatures are either especially high or low.)
Charging temperature range	0 to 40°C
Storage temperature range	-20 to 65°C
Size (w x d x h)	94 x 102 x 36 mm
Weight	about 170 g
<b>Operating system</b>	
Windows Compact 7	
<b>Display</b>	
Color touchscreen 4.3 inch TFT 800 x 480 WVGA display	
Backlight LED 9 brightness levels	
Touch panel resistance sensitive analog type	
<b>Operation panel (keyboard)</b>	
Keys	24 keys (soft function, operations, power on, light) with illuminator and trigger key
Auto power-off	5 levels (selectable)
Laser sighting function	Provided On/Off (selectable)
<b>Sensitivity of levels</b>	
Circular level	10'/2 mm on tribrach 8'/2 mm on main unit (optional)
Electronic circular levels	Graphic display range: 6' (inner circle) Digital display range: ± 6' 30"

<b>Optical plummet</b>	
Image	Erect
Magnification	3x
Minimum focus	0.5 m
<b>Environmental</b>	
Operating temperature	Standard models: -20 to 50°C (-4 to 122°F) (no condensation)
Storage temperature	-30 to 60°C (-22 to 140°F) (no condensation)
Dust/Water rating	IP65 (IEC 60529: 2001)
Instrument height	192 mm from tribrach mounting surface 236 mm from tribrach bottom
Size with handle (w x d x h)	212 x 172 x 355 mm
Weight (with handle/battery)	5.8 kg
<b>Certifications and Standards</b>	
USA FCC Class A	
Europe R&TTE-Class1	
Europe EMC-ClassB	
Canada ICES –ClassA	
Australia C-Tick N 13813	
Europe WEEE Directive	
Europe Battery Directive	
California Proposition 65	
California Perchlorate Material CR	
TELEC	



For more information:  
[topconpositioning.com/gt-series](http://topconpositioning.com/gt-series)

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