

# Topcon GT-600V

Fast, accurate and versatile layout



Built for job site mobility, the flagship GT series Ultrasonic robotic total station gives you accurate and productive workflows for highly demanding building construction applications. Precisely lay out or survey more points in less time and improve quality and consistency. Easy-to-use digital processes with repeatable accurate results mean less rework and better quality control.

- » Precise positioning with single-person operation
- » High-speed advanced Ultrasonic motors
- » Easy-to-use with MAGNET® Field, MAGNET® Field Layout or Topcon Digital Layout software
- » Seamless integration into BIM workflows
- » Available in 3 or 5 second accuracy levels
- » Three-year instrument and five-year motor warranty
- » Ultra-rugged IP65 dust and water resistance

## Telescope

Length	142 mm
Aperture	EDM: 38 mm
Magnification	30x
Image	Erect
Resolving power	2.5"
Field of view	1°30'
Minimum focus	1.3 m (4.3 ft.)
Reticle illumination	5 brightness levels

## Angle Measurement

Horizontal and vertical circles type	Rotary absolute encoder
Detecting	2 sides
Angle Units	Degree/Gon/Mil (selectable)

## Angle Accuracy (ISO 17123-3 : 2001)

GT-603V	3" (0.0010 gon/0.015 mil)
GT-605V	5" (0.0015 gon/0.025 mil)
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	1"
Range of compensation	± 6' (0.1111 gon)
Automatic compensator	On (V and H/V) / Off (selectable)
Tilt offset	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 Part1040.10 and 1040.11 (Complies with FDA performance standards for laser products except for deviations pursuant to Laser Notice No.56, dated May 8, 2019.))	

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## Measuring Range

Prism-2 X 1 <sup>2</sup>	1.3 to 2,000 m (6,561 ft.)
360° Prism ATP1/ATP1S	1.3 to 1,000 m (3,280 ft.)
Prism-5	1.3 to 500 m (1,640 ft.)
Reflective sheet RS90N-K <sup>3</sup>	1.3 to 500 m (1,640 ft.)
Reflective sheet RS50N-K <sup>3</sup>	1.3 to 300 m (980 ft.)
Reflective sheet RS10N-K <sup>3</sup>	1.3 to 100 m (320 ft.)
Reflectorless (White) <sup>2</sup>	0.3 to 800 m (2,624 ft.)

(Using the following reflective prism/reflective sheet target during normal atmospheric conditions<sup>1</sup>)

## Minimum Display

Fine/Rapid measurement	0.0001 m (0.001 ft./ 1/16 inch) or 0.001 m (0.005 ft./ 1/8 inch)
Tracking measurement	0.001 m (0.005 ft./ 1/8 inch) or 0.01 m (0.1 ft./ 1/2 inch)
Distance unit	m/ft./US ft./inch (selectable)

## Distance Accuracy

Circular or 360° Prism ATP1	Fine: 2 mm (0.006 ft.) + 2 ppm Rapid: 5 mm (0.016 ft.) + 2 ppm
Reflective sheet <sup>3</sup>	Fine: 2 mm (0.006 ft.) + 2 ppm Rapid: 5 mm (0.016 ft.) + 2 ppm
Reflectorless (White) <sup>4</sup>	Fine: 2 mm (0.006 ft.) + 2 ppm (0.3 to 200 m) 5 mm (0.016 ft.) + 10 ppm (200 to 350 m) 10 mm (0.032 ft.) + 10 ppm (350 to 1000 m) Rapid: 6 mm (0.020 ft.) + 2 ppm (0.3 to 200 m) 8 mm (0.026 ft.) + 10 ppm (200 to 350 m) 15 mm (0.049 ft.) + 10 ppm (350 to 1000 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)/ -31 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)

\*1: Slight haze, visibility about 20 km, sunny periods, weak scintillation.

\*2: No haze, visibility about 40 km, overcast, no scintillation.

\*3: Figures when the laser beam strikes within 30° of the reflective sheet target.

\*4: Figures when using Kodak Gray Card White side (reflection factor 90%) and brightness level is less than 5,000 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)	150 degrees per second
Max auto tracking speed	18 degrees per second

## Ultratrac™ Tracking Range

Prism-2	1.3 to 800 m (2,624 ft.)
360 degree prism (ATP1)	2 to 600 m (1,960 ft.)

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## Auto Pointing Accuracy

Standing still at 100 m or less	1.2 mm or better
Standing still greater than 100 m	0.3 mm (0.001 ft.) + 9 ppm

## Guide Light

Light source	LED (red 626 nm/green 524 nm)
Visible distance	1.3 to 150 m
Visible angle	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)
Visible angle	Asynchronous serial RS232C compatible USB Revision 2.0 (FS) Host (Type A) Client (Type mini-B)

## Longlink™ 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)
Authentication	Yes/No (selectable)

## WI-FI

Communication distance	10 m
Access method	Infrastructure mode/ad hoc mode
Frequency range	2,412 to 2,472 MHz (1 to 11ch)
Transmission specification	IEEE802.11b/g/n

## Power Supply

Power source	Rechargeable Li-ion battery BDC72
	BDC72: approx. 4 hours BT-73Q (external optional) approx. 6.5 hours
Working duration at 20°C	<i>Fine single measurement = every 30 seconds after worked 180 degrees and locking on prism</i>
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

## Battery (BDC72)

Nominal voltage	7.2 V
Capacity	5,986 mAh
Dimensions (w x d x h)	40 x 70 x 40 mm
Weight	approx. 220 g
Charging time at 25°C	approx. 8 hours for two batteries using CDC77 charger

## Charger (CDC77)

Voltage	AC100 to 240 V
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	approx. 250 g

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## Operating System

Windows Compact 7

## Display

Color touchscreen 4.3 inch Transmissive TFT VWGA color LCD

Backlight LED 9 brightness levels

Touch panel resistance sensitive analog type

## Sensitivity Of Levels

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"

## Optical Plummet

Image	Erect
Magnification	3X
Minimum focus	0.5 m

## Environmental

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
Size with handle (w x d x h)	212 x 172 x 355 mm
Weight (with handle/battery)	5.8 kg

## Certifications And Standards

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

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