GT SERIES
ROBOTIC TOTAL STATION

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) |
| GT-1003/503/505 | 1” (0.0002 gon/0.005 mil) or 5” (0.0010 gon/0.020 mil) (selectable) |

Angle accuracy

| GT-1001 | 1” (0.0003 gon/0.005 mil) |
| GT-502 | 2” (0.0006 gon/0.010 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 |
| (EC002B15-1 Ed. 3.0,2014/ FDA CFR 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 | 1.3 to 500 m (1,640 ft.) |
| Reflective sheet RS50N-K | 1.3 to 350 m (1,148 ft.) |
| Reflective sheet RS10N-K | 1.3 to 100 m (320 ft.) |
| Prism-2 X1 | 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) | 0.3 to 800 m (2,624 ft.) |
| GT-1000 reflectorless | 800 to 1,000 m (2,624 ft. to 3,280 ft.) |
| (White 500lx) | (Using the following reflective prism/reflective sheet target during normal atmospheric conditions* is good atmospheric conditions) |

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*1* *2* *3* *4* *5*
### 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)
- **Reflectors**:
  - **GT-1000**: 12,000 m
  - **GT-500**: 6,000 m

### Distance display
- **GT-1000**: 1,200 m
- **GT-500**: 960 m
- **Distance unit**: m/ft/US ft/Inch (selectable)

### Distance accuracy
- **Using prism 360 ATP1**
  - **Fine**: ± (1 + 2 ppm x D) mm
  - **Rapid**: ± (5 + 2 ppm x D) mm
- **Using reflective sheet target*4**
  - **Fine**: ± (2 + 2 ppm x D) mm
  - **Rapid**: ± (5 + 2 ppm x D) mm
- **Reflectorless (White)*5**
  - **Fine**: ± (2 + 2 ppm x D) mm
  - **Rapid**: ± (6 + 2 ppm x D) mm

### Measurement time
- **Fine measurement**: 1.5 sec + every 0.9 sec.
- **Rapid measurement**: 1.3 sec + every 0.8 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**: K=0.142
- **Yes**: K=0.20 (selectable)

### Sea level correction
- **No**: Yes (selectable)

### 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
- **Visible range**: Right and Left/Upward and Downward: ± 4° (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)
- **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 emissions/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/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
- **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 CDC887)

### Battery (BDC70)
- **Nominal voltage**: 7.2 V
- **Capacity**: 5,240 mAh
- **Dimensions**: 38 x 70 x 40 mm
- **Weight**: approx. 195 g
- **Charging can take more than 2.5 hours when temperatures are either especially high or low.**

### 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
### Charger (CDC68)

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voltage</td>
<td>AC100 to 240 V</td>
</tr>
<tr>
<td>Charging time per battery (at 25°C)</td>
<td>BDC70: approx. 5.5 hours (Charging can take longer than the times stated above when temperatures are either especially high or low.)</td>
</tr>
<tr>
<td>Charging temperature range</td>
<td>0 to 40°C</td>
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<tr>
<td>Storage temperature range</td>
<td>-20 to 65°C</td>
</tr>
<tr>
<td>Size (w x d x h)</td>
<td>94 x 102 x 36 mm</td>
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<tr>
<td>Weight</td>
<td>about 170 g</td>
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</tbody>
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### Operating system

- Windows Compact 7

### Display

- Color touchscreen 4.3 inch TFT 800 x 480 WVGA display
- Backlight LED 9 brightness levels
- Touch panel resistance sensitive analog type

### Operation panel (keyboard)

- 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)

### 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