



# GM-50 SERIES

REFLECTORLESS TOTAL STATIONS





## Reflectorless Total Stations

- Fast and accurate new EDM
- Bluetooth® communications (optional)
- Advanced angle accuracy
- Long battery life – 14 hours
- Rugged, waterproof design with IP66 rating
- 500 m long-range reflectorless measurement
- 50,000 point internal memory

### Topcon GM-50 Series total stations – advanced design with superior technology

The GM-50 Series was designed from the ground up to deliver the very latest technological advantages, all in a small, sleek design – you'll appreciate the advantages from the very first measurement.

Featuring a class leading EDM unit, the GM-50 is able to measure up to 4,000 m to standard prisms, and can measure in reflectorless mode up to 500 m at an incredible 2 mm + 2 ppm accuracy.

Measurements are captured faster than ever, and with a beam width of 13 mm (at 30 m), the bright red laser dot pinpoints features with ease.

### Versatile, Economical Solution

The GM-50 Series is smaller, lighter, with increased storage capacity. Offered at an even more cost-efficient option than previous models, it provides your customers the perfect tool for entry-level site layout and surveying.

### Bluetooth® Communication

With integrated Bluetooth® capability and internal antenna, the sleek design enables you to deliver measurements cable-free to your data controller.



### Tested for toughness

We perform the tough environmental tests to ensure long-term operation even under the rough site environments. GM Series total stations are thoroughly inspected with dust-proof and water-proof test chambers. In addition, the various tests against vibration, drop, temperature, and humidity were successfully passed to achieve the best environmental spec. 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 GM Series product quality.





Angle Measurement	
Min. Resolution/ Accuracy	2"/5"
Min. Display	1"/5" (0.0002 / 0.001 gon, 0.005 / 0.02 mil)
Dual-axis compensator /	Dual-axis liquid tilt sensor, working range: $\pm 6'$
Collimation compensation	On/Off (selectable)
Distance Measurement	
Prism EDM Range	4,000 m
Prism EDM Accuracy	2 mm + 2 ppm
Non-Prism Range	500 m
Non-Prism Accuracy	3 mm + 5 ppm (0.3 - 500 m)
Measuring Time	Fine: 0.9 sec Rapid: 0.6 sec Tracking: 0.4 sec
Communications	
Bluetooth Class 1.5, Operating range: up to 10m	
USB flash memory (max. 32GB)	
Serial RS-232C, USB2.0 (Type A for USB flash memory)	
General	
Display	Graphic LCD, 192 x 80 dots, backlight : on/off (Selectable) / Alphanumeric keyboard / 28 keys with backlight
Battery Operation	Up to 14 hours
Dust/Water Rating	IP66
Wireless Connection	Bluetooth® Class 1
Operating Temp	-20°C to 60°C*



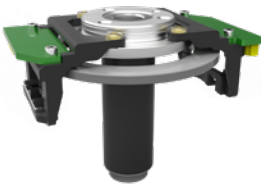
### Ultra-powerful, advanced EDM

- 500 m non-prism range
- 4,000 m prism range
- Coaxial red laser pointer
- Pinpoint, precise beamspot



### Easy access USB 2.0 memory

- Up to 32GB storage
- Environmentally protected
- Compatible with industry standard thumb drives



### Advanced angle encoder system

- 2" or 5" angle accuracy
- Incorporates exclusive IACS  
(Independent Angle Calibration System)  
on 2" and 5" models



### Rugged, waterproof design

- Waterproof/dustproof IP66 design  
handles the toughest environments
- Magnesium-alloy housing providing  
stable angle accuracy
- Graphic display and alphanumeric key  
board (standard)



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

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## Manual Total Stations

- Advanced security and maintenance with TSshield™
- Fast and powerful EDM
- Advanced angle accuracy
- Long battery life – 28 hours (Eco mode)
- Rugged, waterproof design

### Topcon GM-100 total stations – advanced design with superior technology

The GM-100 series was designed from the ground up to deliver the very latest technological advantages, all in a small, sleek design – you'll appreciate the advantages from the very first measurement.

Featuring a best-in-class EDM unit, the GM-100 is able to measure up to 6,000 m 1.5 mm + 2 ppm to standard prisms, and up to 1,000 m at an incredible 2 mm + 2 ppm accuracy in reflectorless mode.

Measurements are captured faster than ever, and with a beam width of 13 mm (over 30 m), the bright red laser dot pinpoints features with ease.

### A world's first – TSshield

Topcon is proud to offer another world's first technology in all GM-100 total stations – TSshield. Every instrument is equipped with a telematics-based multi-function communications module providing the ultimate security and maintenance capabilities for your investment.

If the activated instrument is lost or stolen, send a coded signal to the instrument and disable it – the total station is secure anywhere in the world.

In the same module, you have daily connectivity to cloud-based Topcon servers that can inform you of available software updates and firmware enhancements.



### Onboard TopBasic Program

Run onboard basic layout and topo programs with the GM series. Store up to 50,000 points. Use the convenient USB transfer method to move data on and off the instrument.





**Angle Measurement**

Min. Resolution/Accuracy

GM-101	0.5"/1"
GM-102	1"/2"
GM-103	1"/3"
GM-105	1"/5"

IACS Standard on 1" and 2" models

Compensation Dual-axis compensator

**Distance Measurement**

Prism EDM Range 6,000 m

Prism EDM Accuracy 1.5 mm + 2 ppm

Non-Prism Range 1,000 m

Non-Prism Accuracy 2 mm + 2 ppm (0.3 - 200 m)

Measuring Time  
Fine: 0.9 sec  
Rapid: 0.6 sec  
Tracking: 0.4 sec**Communications**LongLink™ is not supported  
Bluetooth® Class 1.5/10 m

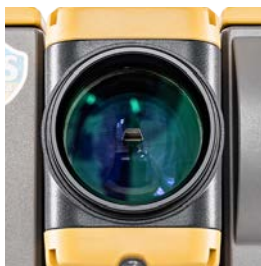
USB 2.0 Slot (Host)

RS-232C Serial

**General**Display Single Backlit LCD  
(Dual display optional)

Battery Operation Up to 28 hours

Dust/Water Rating IP66

Wireless Bluetooth® Class 1.5  
ConnectionOperating Temp -20°C to 60°C\*  
\* Special Arctic version  
available (-35 to 50°C)\* Laser  
plummet standard.\* Optional optical  
plummet available in  
some global locations.**Ultra-powerful, advanced EDM**

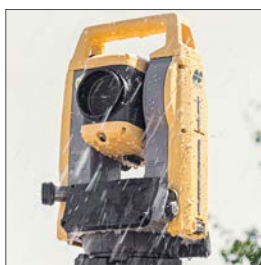
- 1,000 m non-prism range
- 6,000 m prism range

**Easy access USB 2.0 memory**

- Up to 32GB storage
- Environmentally protected
- Compatible with industry standard thumb drives

**Advanced angle encoder system**

- "Best-in-class" 1" angle accuracy
- Incorporates exclusive IACS (Independent Angle Calibration System) on 1" and 2" models

**Rugged, waterproof design**

- Waterproof/dustproof IP66 design handles the toughest environments
- Magnesium-alloy housing providing stable angle accuracy
- Graphic display and alphanumeric key board (standard)



For more information:  
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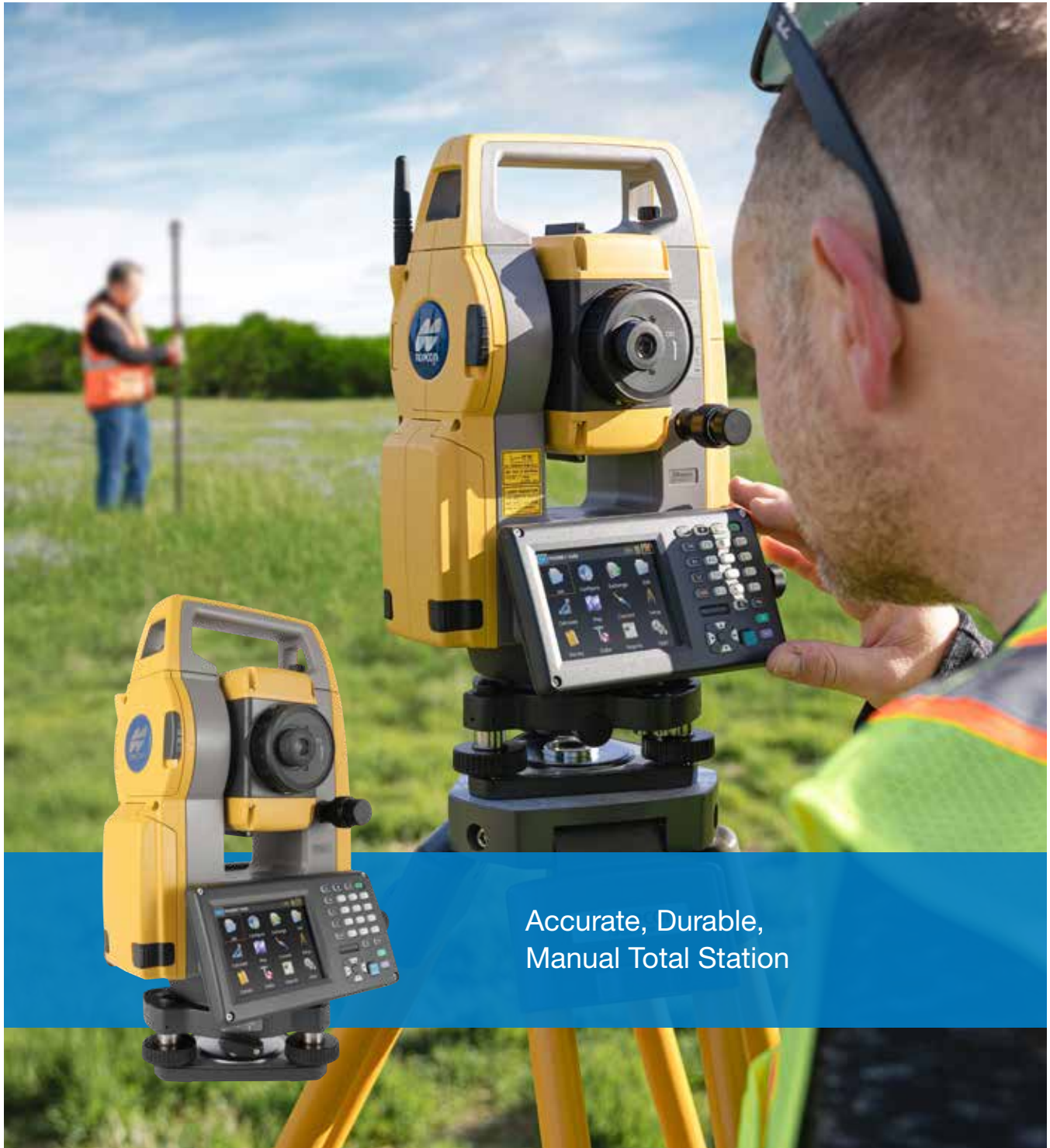
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# Manual Total Station

OS-200 Series



Accurate, Durable,  
Manual Total Station

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# Manual Total Station

## OS-200 Series

### **OS Series total stations – advanced design with superior technology**

The OS is a professional grade compact total station. This advanced design provides an on-board data collection interface, exclusive LongLink™ communication, and an incredibly powerful EDM.

Work directly on the bright, color touchscreen, or with the alpha-numeric keyboard, to achieve higher levels of production with MAGNET® Field on-board software. The OS total station can be used on a wide variety of applications, from building layout to earthwork volumes, and land surveying.

### **On-board Windows touchscreen**

Running on-board software on the Windows® touchscreen computer increases productivity. The screen is large and bright, so the user can see more software functions and intuitively interact with the screen where needed. Software applications become easier to use and there is no need to hold a field controller in one hand while turning the instrument with the other. The OS has precise tangent locks to keep the angle positions accurate even with touchscreen and keyboard interaction.

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### **Fast and accurate surveying and staking**

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### **Intuitive on-board MAGNET Field software**

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### **Color touchscreen display**

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### **Rugged IP65 dust and rain-proof design**

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### **Powerful EDM for rapid, repeatable measurements**

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### **Windows operating system**







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|---|---|
| <ul style="list-style-type: none"> <li>1 300 m range LongLink functionality</li> <li>2 Easy access, environmentally protected USB 2.0 slot (Host + Slave)</li> <li>3 1,000 m non-prism range</li> <li>4 Unique IACS angle encoder system (1" and 2")</li> <li>5 Electronic leveling system</li> </ul> | <ul style="list-style-type: none"> <li>6 Exclusive "STAR-KEY" functionality</li> <li>7 Side-mount, extra long-life battery</li> <li>8 Color LCD touchscreen</li> <li>9 Tangent lock – Securely holds your angle in place</li> </ul> |
|---|---|

### Exclusive LongLink

For stakeout and other operations where being at the prism pole with a field controller is critical, our exclusive LongLink functionality allows you to operate a field controller more than 300 m away from the instrument. LongLink brings you flexibility you've never had before.





#### Easy access USB 2.0 memory

- Up to 8 GB storage
- Environmentally protected
- Compatible with industry standard thumb drives



#### Ultra-powerful, advanced EDM

- 1,000 m non-prism range
- 6,000 m prism range
- Red/Green guidelight
- Coaxial red laser pointer
- Pinpoint, precise beamspot



#### Advanced angle encoder system

- “Best-in-class” 1” angle accuracy
- Incorporates exclusive IACS on 1” and 2” models (Independent Angle Calibration System)
- Self-calibration
- Proven high accuracy technology



#### EDM trigger key

- Perfect touch location
- Promotes angle stability
- No torque when measuring on-board
- Water/Dust proof
- Easy for gloved hands



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[www.topconpositioning.com/os-series](http://www.topconpositioning.com/os-series)







Standard Package Components

- OS main unit
- Battery (BDC72)
- Battery charger (CDC77)
- Power Cable
- Lens cap
- Lens hood
- Tool pouch
- Precision screwdriver
- Lens brush
- Adjusting pin×2
- Silicon cloth
- Quick manual
- USB flash drive(Manual)
- Laser caution sign-board
- Carrying case
- Carrying strap

SPECIFICATIONS		
	OS-201	OS-202
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		
Display resolution	0.5" / 1" (0.0001 / 0.0002gon, 0.002 / 0.005mil)	
Accuracy (ISO 17123-3:2001)	1"	2"
Dual-axis compensator / Collimation compensation	Dual-axis liquid tilt sensor, working range: ±6' (±111mgon) / Collimation compensation available	
Distance measurement		
Laser output <sup>*1</sup>	Reflectorless mode: Class 3R / Prism/sheet mode: Class 1	
Measuring range (under average conditions <sup>*2</sup> )	Reflectorless <sup>*3</sup>	0.3 to 800m (2,620ft.) / Under good conditions <sup>*5</sup> : 1,000m (3,280ft.)
	Reflective sheet <sup>*4,*5</sup>	RS90N-K: 1.3 ~ 500m, RS50N-K: 1.3 ~ 300m, RS10N-K: 1.3 ~ 100m
	Mini prism	1.3 to 500m (1,640ft.)
Display resolution	One prism	1.3 to 5,000m (4.3 to 16,400ft.) / Under good conditions <sup>*6</sup> : 1.3 to 6,000m (19,680ft.)
	Fine/Rapid measurement	0.0001m(0.001ft. / 1/16in.) / 0.001m (0.005ft. / 1/8in.) (selectable)
	Tracking/Road measurement	0.001m (0.005ft. / 1/8in.) / 0.01m (0.1ft. / 1/2in.) (selectable)
Accuracy <sup>*2</sup> (ISO 17123-4:2001)	Reflectorless <sup>*3</sup>	(2 + 2ppm x D) mm <sup>*7</sup>
	Reflective sheet <sup>*4</sup>	(2 + 2ppm x D) mm
	Prism	(1.5 + 2ppm x D) mm
Measuring time <sup>*8</sup>	Fine: 0.9s (initial 1.5s), Rapid: 0.6s (initial 1.3s), Tracking: 0.4s (initial 1.3s)	
OS, Interface and Data management		
Operating system	Windows Embedded Compact7	
Display / Keyboard	3.5inch, Transmissive TFT QVGA color LCD with LED backlight, Touch screen, Automatic brightness control / 29 keys with backlight	
Control panel location <sup>*9</sup>	On both faces (Face 2 is only touch screen display )	
Trigger key	On right instrument support	
Data storage	Internal memory	1GB internal memory (includes memory for program files)
	Plug-in memory device	USB flash memory
Interface	Serial RS-232C, USB2.0 (Type A / mini B)	
Bluetooth modem (Factory Option) <sup>*9</sup>	Bluetooth Class 1, Operating range: up to 10m <sup>*10</sup>	
General		
Guide light <sup>*11</sup>	Green LED (524nm) and Red LED (626nm), Operating range: 1.3 to 150m (4.3 to 490ft.) <sup>*12</sup>	
Laser-pointer <sup>*11</sup>	Coaxial red laser using EDM beam	
Calendar / clock function	Yes	
Levels	Graphic	6'(inner circle)
	Circular level	10' / 2mm
Optical plummet	Magnification: 3x, Minimum focus: 0.3m (11.8in.) from tribrach bottom	
Laser plummet (option)	Red laser diode (635nm±10nm), Beam accuracy: <=1.0mm@1.3m, Class 2 laser product	
Tribrach	Detachable	
Dust and water protection	IP65 (IEC 60529:2001)	
Operating temperature <sup>*11</sup>	-20 to 60°C (-4 to 140°F)	
Size (with handle)	191(W)x190(D)x348(H)mm	
Instrument height	192.5mm from tribrach mounting surface	
	236mm +5/-3mm from tibrach bottom	
Weight with battery & tribrach	Approx. 5.7kg (12.3 lb.)	
Power supply		
Battery	BDC72	Li-ion rechargeable battery
Operating time (20°C)	BDC72	Approx. 20hours (single distance measurement every 30 seconds)

\*1 IEC60825-1:Ed 2.0:2007 / FDA CDRH 21 CFR Part 1040.10 and 11  
\*2 Average conditions: Slight haze, visibility about 20km (12 miles), sunny periods, weak scintillation.  
\*3 Fine mode. 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 -30 to -20°C (-22 to -4°F) with Low Temperature models and 50 to 60°C (122 to 140°F) with High Temperature models: 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.)  
\*6 Good conditions: No haze, visibility about 40km (25 miles), overcast, no scintillation.  
\*7 Measuring range:0.3 to 200m  
\*8 Typical, under good conditions. Reflectorless measurement time may vary according to measuring objects, observation situations and environmental conditions.  
\*9 Usage approval of Bluetooth wireless technology varies according to country. Please consult your local oce or representative in advance.  
\*10 No obstacles, few vehicles or sources of radio emissions/interference in the near vicinity of the instrument, no rain.  
\*11 The laser-pointer and the guide light do not work simultaneously.  
\*12 Low Temperature models:-30 to 50 °C (-22 to 122°F) is available on built-to-order basis.

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Your Local Authorized Dealer is:

OS-200series  
Onboard Station



For professionals like you

- High performance EDM for rapid, repeatable measurements
- Modern, intuitive onboard MAGNET® Field software
- Convenient EDM trigger key
- Reflectorless laser measurement



# Professional results from basic to advanced applications

Survey

Boundary and Cadastral Survey

Quickly and easily calculate areas with the Area function. Determine the center point for objects such as a columns or electrical poles which cannot be directly measured by using the Offset calculation.

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 range reduces the number of the instrument changes for more efficient working time.

Traverse Adjustment

Adjust and correct closure errors for latitudes, departures, angles and/or elevations directly from the MAGNET Field onboard software.

Construction

Stake Points

A complete solution for every type of layout and stakeout is included in the software. Points, lines, offsets, roads, surfaces, slopes, and real-time roads are all available.

Topographic Survey

Collect points, lines, areas, cross sections, and surfaces including automatic topo point capture. Select Map or Measurement View and even record offset shots all while within Topo Survey.

Road/Cross-Sectional Survey

All the road stakeout information can be seen on one screen as you stake anywhere along the road design in real-time. Be more productive with real-time roads information.

Improve topography and stake out with features to achieve faster and more efficient workflows

Newly Designed High-Performance 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)

OS-200

Accuracy

1.5mm+2ppm

Previous Model

2.0mm+2ppm

Measuring Range(Reflectorless Mode)

OS-200

Distance

1,000m

Previous Model

500m

Total station Line up

Entry Model

GM-100

Onboard Model

OS-200

High-end Model

Automatic collimation / tracking

GT-1200/600

Discover MAGNET Field features and benefits.

- Intuitive user interface
- Advanced roading tool set
- Vast library of Import / Export file formats
- Calculate, contour, and compare surfaces
- Surface staking with automatic Digital Terrain Model creation
- Colorized cut and fill indicators, as well as volume calculations
- Direct connectivity to your private Company Account for easy data exchange and quick chat
- Microsoft Bing Maps® for real-time images behind your points, lines, and imported design files

Guide Light System

Anybody can move to Stake Out Line easily. Green and Red colored lights will show you the direction to move.

Move to right on Green light

Layout line

Move to left on Red light

Target Key & Screw System

By using tangent screws for sighting, you can measure a distance with a single-button click. Work efficiently and increases productivity for sighting task such as Stake Out, Topography, and Elevation Stakes.