

SPECIFICATIONS

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GLS-2200				
Type	Short	Middle	Long	
<b>Distance<sup>*1</sup></b>				
Detail (90% reflectivity)	100m	100m	100m	
High Speed (90% reflectivity)	130m	210m	210m	
Low Power (90% reflectivity)	130m	210m	210m	
Standard (90% reflectivity)	-	350m	500m	
Close Scan (9% reflectivity)	40m	40m	40m	
<b>Scanning Module</b>				
Scan mode <sup>*2</sup>	Detail	High Speed	Low Power	Standard
Scan data rate (Maximum points per second)	120,000	120,000	48,000	60,000
Laser Class	Class 3R		Class 1	
Laser	1064nm			
<b>Scanning Density (Resolving Power)</b>				
Spot Size(FWHM)	$\phi \leq 4\text{mm}$ 1 to 20m	$\phi \leq 11\text{mm}$ 1 to 150m		
Point Increment	Minimum 3.1mm (At 10m)			
Maximum Point Number	V:15,202 Pt/Line (270°) H:20,268 Pt/Line (360°)			
Field of View	V:270° H:360°			
Angle Accuracy	H: 6" / V: 6"			
Distance Accuracy	3.1mm (σ) At 1 to 90m	3.1 mm (σ) At 1 to 110m	3.7mm (σ) At 1 to 110m	3.1mm (σ) At 1 to 150m
Surface Accuracy	1.0mm (σ) <sup>*3</sup> At 1 to 90m		At 1 to 150m	
<b>Height Measurement</b>				
Measuring Range	0.3 to 2.0m			
Measuring Accuracy	3.0mm (Req. Special Target)			
<b>Camera</b>				
Field Angle	Wide : Diagonal 170° Tele. : 8.9°(V) x 11.9°(H)			
Number of pixels	Both Wide & Tele, 5megapixels			
HDR	Yes			
<b>Tilt Sensor</b>				
Type	Liquid 2-axis tilt-sensor			
Compensation Range	±6'			
<b>Display Unit</b>				
Type	TFT-LCD 3.5 VGA with touch-panel			
<b>Others</b>				
Laser Plummet	Spot Size $\phi 1\text{mm}$ (1m) / $\phi 4\text{mm}$ (1.5m)			
Imaging Plummet	Magnification range 1m			
<b>Interface</b>				
Card Slot	SD card (SDHC Class 6 or more)			
<b>Power Supply</b>				
Internal Battery	BDC72			
Capacity	5240mAh / 1pce x 4pcs			
Nominal Voltage	7.4V / 1pce x pcs			
Working Duration	2.5 hours (4pcs continuous scanning)			
<b>Appearance</b>				
Dimension	228(D)×293 (W)×390 (H) mm(With handle & Base)			
Inst height	226mm (From top of base to center of Miller)			
Weight	10kg (Include Base and Battery)			
<b>Condition</b>				
Operating Temperature	-5 to +45°C			
Storage Temperature	-20 to +60°C			
Water & Dust Resistance	IP54 (JIS C0920, IEC 60529)			

\*1: It will be different depending on the condition. \*2: Specification of Close Scan mode is listed inside the catalog. \*3: When the smoothing function is used for MAGNET Collage Ver.2.3 or later.

Post-processing software for Topcon's mass data solutions



# GLS-2200 Series

CAPTURE REALITY

## 3D Laser Scanner



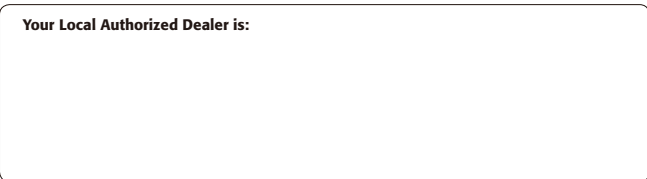
**Standard Components**

- GLS-2200
- Battery (BDC72) 4 pieces
- Battery Charger (CDC77) 2 pieces
- Charging Cable (EDC113) 2 pieces
- Carrying case
- Silica gel
- Cloth wipe
- SD card
- SD card case
- Tool kit
- Target sheet
- Centering target
- Instruction manual
- Warranty card



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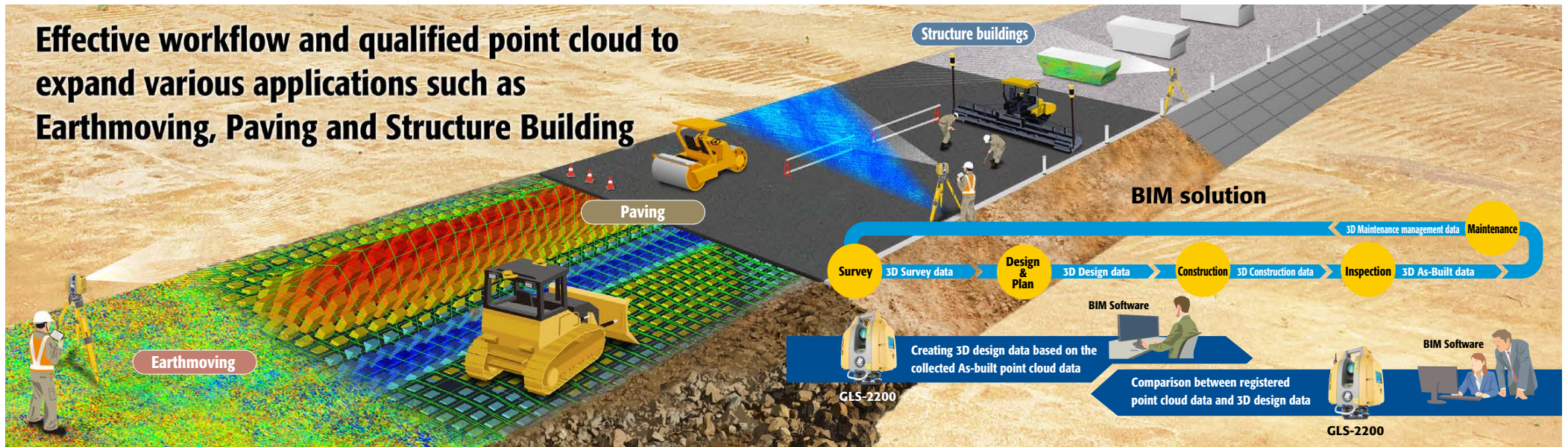
**Your Local Authorized Dealer is:**



**Best fit for ICT construction, expanding various applications**  
 Precise 3D point cloud data maintains accuracy

- Resection, occupation/back-sight on-board program
- 360° prism, long-range target scan
- Surface accuracy 1mm (σ)
- HDR image capture creates clear point cloud data
- Remote control
- Japanese quality

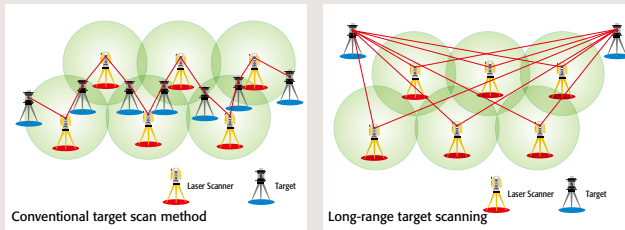
# Effective workflow and qualified point cloud to expand various applications such as Earthmoving, Paving and Structure Building



## Effective workflow with verified point cloud data

### Long-range target scan

200m range for the resection or traverse methods greatly reduces the need to change the target positions, even on large sites.



### 360°prism compliant

Scan targets from anywhere without changing the direction of the target scan.

## Improved point cloud data quality

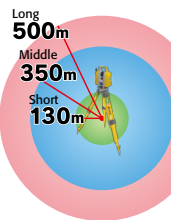
### Surface accuracy 1mm\*( $\sigma$ )

Road mode is a fit for ICT paving construction, as-builts and QA/QC for BIM.

\* Standard deviation (1 $\sigma$ ) 1mm. Processed with MAGNET Collage.

### HDR image capture creates clear point cloud data

Normal images of 3D point cloud data tend to have washed-out whites and unrecognizable dark spaces. The colorized 3D point cloud data creates HDR images with more natural and realistic colors.



### Three modules are available for measuring different ranges

The product measures distances ranging from short, interior measurement of a facility to as-built civil engineering projects and other large structures.



### Occ/Backsight, and Resection program on board

Survey method registration can be done at the site with the program on board, so you can save the working time at the software side.



### Easy and intuitive on-board control software

With the on-board control software, the scanning can be simply started with one-touch of button. Together with color graphical display, scanning operation can be intuitively proceeded.



### WLAN Connectivity for connecting to an Android Tablet \*

WLAN capability enables users to remotely control their Android tablets. All activity in the tablet is relayed to the scanner.  
\* Offered as an option in some areas.



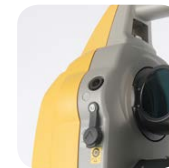
### Supports eight measurement modes

GLS-2200 provides a wide range of measuring modes to accommodate different job site demands to achieve accurate measurement and increase productivity regardless of site conditions.



### Road mode

The road mode can scan even dark-colored surfaces such as paved asphalt and ICT paving construction.



### Dual cameras

Dual coaxial 5MP cameras capture both high-speed 170° wide angle and 8.9° narrow images.



### Dual-axis-tilt compensation secures the right registration

The dual-axis-tilt compensation ( $\chi/\psi$ ) is identical to that available on total stations. The scan data can be accurately registered using the MAGNET Collage post-processing software.

## Supporting Various Registration Methods

The GLS-2200 can execute field work similar to that of total stations by supporting various registration methods.

	Traverse	Resection	Tie Point	Shape Matching	Manual Registration	Station Set
Target Setting	Necessary (1 point)	Necessary (More than 2 points)	Necessary (many)	Unnecessary	Unnecessary	Combined Registration
Localization	Possible	Possible	Possible	Not Possible	Not Possible	
Working Time	Quick	Quick	Long*	Quick	Quick	
Registration Accuracy	High	High	Standard	Low	Low	

\* Multiple target scanning is necessary

**Traverse Method** Simple High accuracy

Highly accurate merging makes the GLS-2200 effective for measuring long-distances and complex objects.

**Resection** Simple High accuracy

Good for construction site. Set up station freely.

### Maximum range at reflectivity

Reflectivity	9%	18%	90%
<b>Short</b>	<b>40m</b> (Detail)	<b>90m</b> (High Speed / Low Power)	<b>130m</b> (High Speed / Low Power)
<b>Middle</b>	<b>40m</b> (Detail)	<b>150m</b> (Standard)	<b>350m</b> (Standard)
<b>Long</b>	<b>40m</b> (Detail)	<b>210m</b> (Standard)	<b>500m</b> (Standard)

**Tie-point Method** High accuracy

Effective for accurate and secure merging of multiple scanned data.

**Cloud to Cloud** Simple

Effective for quick measurement.

**Manual Registration** Simple

You can move point cloud effectively.

**Station Set** Certain

You can combine registered point clouds to register all station set.

## MAGNET Collage seamlessly connects 3D solution to the site.

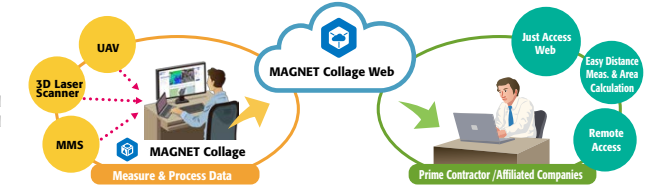
The MAGNET Collage 3D mass-data software supports processing, editing, exporting and integration of point-cloud data to rapidly create 3D models.

**MAGNET Collage generates and integrates 3D mass data from multiple sensors in a single platform.**

### 3D Mass Data Viewer (Optional)

#### Collage Web

MAGNET Collage Web enables users to access point-cloud mass data online to view slices, measure distances and calculate areas.



## Allied Office software

### CLEAREDGE<sup>3D</sup>

Faster, More Accurate 3D Modeling



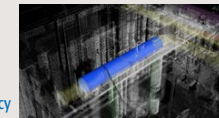
Automatically Extract BIM Model Elements from Point Cloud Data



Construction Verification Software



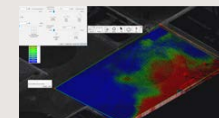
Automatically Compare Point Clouds vs BIM Model and Visualize Installation Accuracy



Floor Flatness and Levelness Analysis Software

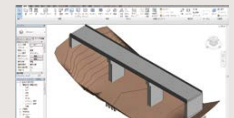
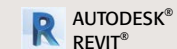


Efficiently Analyze Floor Flatness and Levelness Using Point Cloud Data



### AUTODESK

The AEC Collection provides designers, engineers, and contractors a set of BIM and CAD tools that support projects from early-stage design through to construction.



- Begin modeling in 3D with accuracy and precision.
- Automatically update floor plans, elevations, and sections as your model develops.
- Let Revit handle routine and repetitive tasks with automation so you can focus on higher-value work.



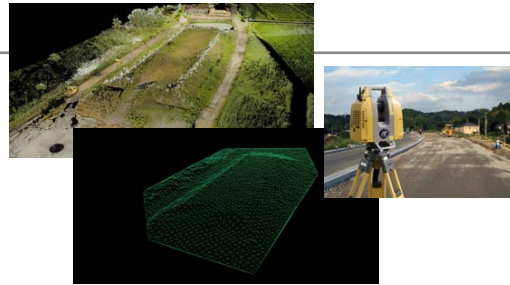
- Combine design and construction data into a single model.
- Identify and resolve clash and interference problems before construction.
- Aggregate data from multiple trades to better control outcomes.

# GLS-2200 Applications

# GLS-2200

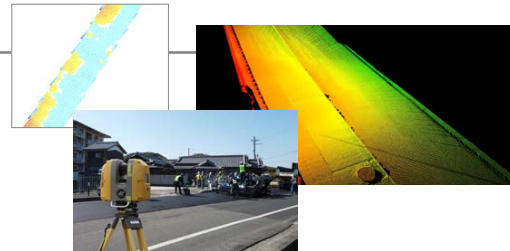
## i-Construction

GLS-2200 meets the needs for i-Construction productivity improvements as promoted by the Japanese Ministry of Land, Infrastructure and Transport (MLIT). Laser scanner and UAV technologies have been leveraged for terrain survey, progress and management of deliverables. This greatly reduces construction time for earthworks, paving, slope shaping and structure-installation works; and simplifies submission of inspection documents.



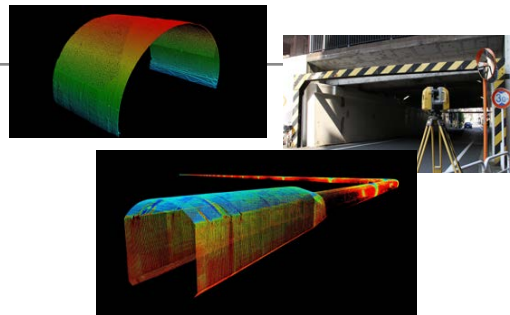
## Road / slope surface measurement

Terrestrial Laser Scanner is very effective for road or slope surface measurement. For road surface measurement, the shape of rut on road can be collected and its data can be used for maintenance management purpose. For slope surface measurement, it is effective for measuring disaster areas as well as monitoring deterioration.



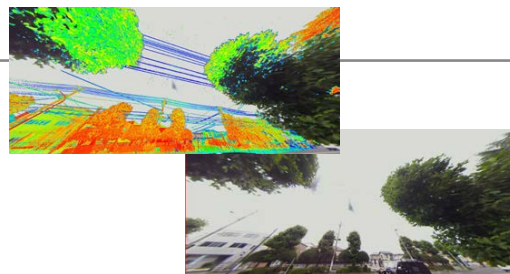
## Tunnel cross-sections

create 3D drawings for complex tunnel curves and intersections. Extract cross-sections as needed. Effortlessly compare design data with existing scanned surfaces.



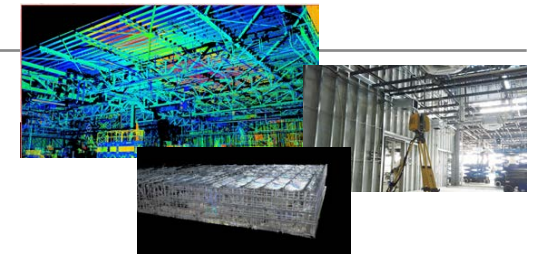
## Infrastructure inspection

Measuring the entire structure in 3D allows the scanned data to be used for checking locations that require redesign, and verifying structural sizes and estimating materials.



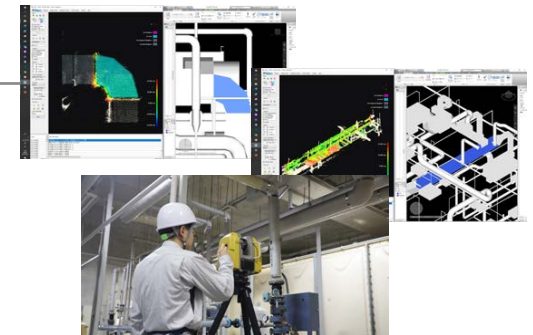
## BIM (Building Information Modeling)

The BIM applications include scanning terrains and checking as-built renovations of outdoor and indoor areas. You can leverage 3D point cloud data to help with designs, and use the completed scan for future maintenance and renovation.



## As-built structural checking facilities

Laser scanning is beneficial for verification of renovations and replacement facilities. Rapid scanning to create accurate point cloud data enables the use of 3D drawings to simulate pipe installations and clash detection.



## Heritage/ and archaeological structures

Laser scanning is invaluable for maintaining and archiving details of historical and archaeological structures that lack any design drawings. The no-contact process enables data to be collected without damaging the structure. Colorized point clouds reproduce the real color of the structure.



## Reference object to be measured

Range Mode	Reference object to be measured
<b>Detail</b>	Prominent objects, archaeological sites, historical building, etc.
<b>High Speed</b>	Accident investigations, disasters areas, short timeframe projects, etc.
<b>Low Power</b>	Heavy pedestrian areas, laser limitation areas, etc.
<b>Standard</b>	Large structure, large residential areas, volume measurements, etc.
<b>Close</b>	Hard-to-measure objects in close proximity with each other.*
<b>Close (High Power)</b>	Objects which cannot easily be measured, even with Close mode.
<b>Road</b>	Existing asphalt or concrete road surface.
<b>Road (High Power)</b>	New asphalt road surface

\* Wet objects, black cables, shiny duct, etc.