

# The ZEB-REVO Solution


**“Go-anywhere” 3D mobile mapping technology. Handheld, lightweight and easy to use scanners that allow you to rapidly build highly accurate 3D models within minutes, while on the move. The complete solution that allows you to start mapping the world around you today.**



**The experts in “go-anywhere”  
3D mobile mapping technology**



[GeoSLAM.com](http://GeoSLAM.com)



**“GeoSLAM’s solutions are changing the way we survey buildings – we can now create building plans 10 times faster than we used to with total stations or traditional survey equipment.”**

**Morten Thoft, COWI, Denmark**



The demand for up to date, accurate 3D models is greater than ever before. Traditionally, creating these models was solely the domain of professional surveyors, but now engineers and geospatial professionals such as facilities managers and architects are all seeking ways to quickly and accurately create 3D models. These professionals all need access to user-friendly technology that is easy to install and use, but is robust and reliable enough to do the job quickly and accurately. For those working in difficult to access spaces where there is no GNSS coverage such as inside buildings, and in caves, mines and forests, the demands on the technology are even greater. And for many, mapping the space is time critical. They need versatile tools that enable them to survey an indoor, underground or difficult to access space and within minutes build a highly accurate 3D model.

### **Introducing our unique, end-to-end-technology - the ZEB-REVO solution:**

- Lightweight, handheld laser scanners which are highly mobile, simple to operate and can be used by anyone. Our versatile technology is adaptable to any environment, especially complex and enclosed spaces, without the need for GNSS. The 100Hz surveying system includes scanner, data logger and accessories and enables you to accurately scan and capture data, while on the move.
- User-friendly desktop software which turns data into real-time 3D information, delivering rapid and accurate results within minutes. With unlimited point cloud processing software and local registration, you can check your survey data instantly on site and export files in a range of industry standard formats.
- Support & maintenance options depending on what your business needs including helpdesk, issue analysis and resolution, product enhancement and release management. You can select from Bronze, Silver & Gold packages.

Data capture with our products is as simple as ‘walk and scan’. Map a 3-storey building in just 30 minutes to an accuracy level of  $\pm 15\text{mm}$  or scan, view and export up to 10,000 m<sup>2</sup> (105,000 sq. ft.) in under 1 hour. Join our customers as they measure building plans 10 times faster than traditional tools, deliver BIM models earlier than expected and experience project cost savings of up to two thirds. And with our solution, customers can expand their range and scope of services by taking on projects that would otherwise have proved too difficult or time consuming using traditional survey techniques.

# GeoSLAM

## ZEB-REVO Solution

Our customers are more profitable, more efficient and more competitive with our 3D mobile mapping solutions. Here are the benefits you can experience by choosing the ZEB-REVO solution:

**“Go-anywhere” 3D mobile mapping** – our versatile technology is adaptable to any environment in all industries, especially complex and enclosed spaces, without the need for GNSS. Flexible mounts and deployment options means the ZEB-REVO can be handheld, drone or robot mounted or even attached to a pole or cable. Weighing only 3.5kg, the handheld device can be used to quickly scan multi-level environments, and with an IP64 rating, it can withstand hazardous and harsh environments.



**Rapid scanning time** – within minutes anyone can be operating the ZEB-REVO, and our intelligent software (which uses the most established and robust SLAM mapping algorithm in the industry) can map a 3-storey building in just 30 minutes to an accuracy level of  $\pm 15\text{mm}$ , or map a 10,000 m<sup>2</sup> (105,000 sq. ft.) depot in under an hour. Walk through your target survey environment to record more than 43,000 measurement pts/sec, and from scan to full 3D BIM model in under an hour!

**Saving you time and money** – you can capture and model complex data up to 10 times faster, enabling you to successfully complete projects in minimum time with little or no disruption at the project site. With proven ability to scan faster than traditional surveys or static terrestrial laser scanning, you can reduce scanning time, in many cases by half. Customers often find that the ZEB-REVO is highly complementary to their existing scanning hardware, as the combination allows indoor handheld scanning to take place at the same time as the outdoor scanning, saving project time and money.



Image showing merged indoor and outdoor datasets

### Core Industries

Surveying

Engineering

Forestry

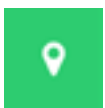
Facilities & Asset Management

Mining

**“With the ZEB-REVO scanner you can easily walk a 10,000-square foot building with a second floor in about 15 minutes, process the data collected in about the same time, export to Autodesk ReCap and into Autodesk Revit and/or Autodesk AutoCAD in less than an hours’ time.”**

**Eric Fines, Duncan-Parnell, USA**

## How it Works



### Map

With a 360° vertical field and 30m range, simply move through your environment whilst capturing more than 43,000 measurement points a second. Automatic SLAM (Simultaneous Localisation And Mapping) processing software aligns the data without the need for external control to produce a highly accurate 3D point cloud and synchronised imagery of the area surveyed. If needed, a full set of user definable parameters are also available to optimise the results for different types of environments.



### View

Once mapped, the synchronised imagery and point cloud data acquired can be viewed in GeoSLAM Hub software in both 2D and 3D.

For larger projects, multiple datasets can also be merged. Enterprise-wide viewing tools allow the data to be shared throughout an organisation enabling more accurate feature identification and measurement in 3rd party software.



### Export

Results are available in all major industry standard formats and users can select from a variety of export options and configurations to enable greater integration with 3rd party post processing software.

# Local Processing Power



With just a laptop and a dongle, ZEB-REVO data can be seamlessly downloaded, processed and viewed within minutes of capture – wherever you are. GeoSLAM Hub software, based upon our industry-leading SLAM algorithm, is used to automatically register data captured from the ZEB-REVO to produce fully-aligned 3D point clouds. As SLAM requires no GNSS input the software can be used to dynamically process mapping data from both indoor and outdoor environments, whilst on the move. Accurate ground referencing can be achieved either by scanning known survey points or by integration with existing georeferenced point clouds.

## GeoSLAM Hub software has the following advantages:

- **Value** Unlimited point cloud processing
- **Simplicity** Simple 'drag and drop' automatic registration
- **Convenience** Instant point cloud creation lets you check your survey before you leave the site
- **Security** Local high-speed processing means no need to upload your data online.

## Added Extras

You can purchase additional accessories as required, such as the ZEB-CAM, a bolt-on video camera that adds contextual imagery to your scan data. It integrates seamlessly with the ZEB-REVO scanner and allows visual images to be viewed alongside the 3D data in the Viewer. Optical flow technology allows accurate synchronisation of acquired imagery and point cloud data, making feature extraction simpler than ever.

Included as standard with the ZEB-REVO solution are the following items:

main 1.5m cable, USB data cable, 8GB memory stick, 12v battery charger and backpack.

## Other optional add-ons include:

- heavy duty transport case
- mounting plate
- backpack frame
- cradle (for vertical deployment)
- extendable pole
- spherical targets.



# There

## When You Need Us

GeoSLAM is committed to offering world class global support and service. We want our customers to avoid downtime and get the best from their solution. We have therefore designed our support packages to give you full peace of mind and the ability to fix your maintenance costs upfront to avoid unplanned expenditure. By joining our premium support customers, you don't only maintain your current solution but also have your say, through our beta program, in our future solutions to help us maintain our position as the market leader in SLAM mobile mapping.

All new ZEB-REVO solutions are sold with either bronze, silver, or gold support and maintenance for the first 12 months. You can purchase extended support packages for longer than 12 months at point of purchase or support contracts can be renewed or upgraded annually. We offer a 12-month warranty as standard, with extended warranty plans available. We also offer a range of training options from onsite product training to online remote training, all carried out by our team of experts.

Item		Bronze	Silver	Gold
<b>Hardware</b>	Option to extend warranty at point of purchase	●	●	●
	Transferable ownership	●	●	●
	Option to extend warranty at end of current warranty period		●	●
	Annual hardware clean, service, and calibration		●	●
	Firmware updates		●	●
	Free loan equipment during service and repair (subject to availability)			●
<b>Software</b>	Online dataset flagging and processing support (48 hours turnaround)	●		
	Online dataset flagging and processing support (24 hours turnaround)		●	
	Online dataset flagging and processing support (12 hours turnaround)			●
	Direct GeoSLAM technical support (Mon to Friday 9am to 5pm UK time)	●		
	Direct GeoSLAM technical support (Mon to Friday 7am to 7pm UK time)		●	
	Direct GeoSLAM technical support (24/7)			●
	Minor Software updates	●	●	●
	Major Software updates		●	●
	Free annual tailored web-ex training session			●
	Access to GeoSLAM BETA testing program			●



**The ZEB-REVO solution, sold via a global network of over 70 distributors in 50 countries, across 6 continents.**

**System Features**

<b>Maximum Range</b>	30m*
<b>Data Acquisition Rate</b>	43,200 points/sec
<b>Resolution</b>	0.625° horizontal, 1.8° vertical
<b>Angular FOV</b>	270° x 360°
<b>Supply Voltage</b>	12VDC ± 10%
<b>Supply Current</b>	Max 1.5A, normal 1.0A
<b>Power Consumption</b>	Less than 20W
<b>Operating Temperature</b>	0° to +50°
<b>Operating Humidity</b>	<85% RH
<b>Mounting Operation</b>	Removable handle provided, can also be pole or vehicle mounted

*\*Maximum range to Kodak white card indoors (90% reflectivity)  
Outdoors range may be reduced to 15-20m depending on environmental conditions*

**Processing Software**

- Specify multiple output formats enabling easy export to 3rd party software
- Integrated 2D and 3D viewer for data visualisation and review
- Ability to align and merge multiple GeoSLAM datasets
- Automatically synchronise imagery data captured by ZEB-CAM
- Refine data with multiple processing options including process in reverse, end early and place recognition
- Access to GeoSLAM cloud for online support and dataset flagging

**Data**

<b>Data Storage Capacity</b>	55GB
<b>Raw data file size</b>	~10MB for every 1 min scanning
<b>Processed data file size</b>	~8MB for every 1 min scanning
<b>Default output file format</b>	Multiple formats including .LAS, .PLY and .e57.
<b>Compatibility</b>	GeoSLAM data is compatible with all major CAD software packages

**Accuracy**

<b>Relative Accuracy</b>	1 – 3cm
<b>Absolute Position Accuracy</b>	3 – 30cm (10 mins scanning, 1 loop)

**Sensor**

<b>Laser Safety Class</b>	Class I Eye Safe
<b>Laser Wavelength</b>	905nm
<b>Scanner Line Speed</b>	100Hz
<b>Scanner Resolution</b>	0.625° horizontal
<b>Rotation Speed</b>	0.5Hz

## Battery

Battery Type	Lithium Polymer (LiPo)
Capacity	8Ah +/- 5%
Nominal Voltage	12V
Battery Life	4 hours (continuous use)
Charge Time	8 – 12 hours
Battery Lifespan	300+ cycles
Chargers Supplied	UK, USA, EU & AUS
Weight	600g

## Casing

IP Rating	IP64 (dust-tight, splashproof)
Cable Connectors	LEMO multi pin
Weight (scanner)	1.0kg
Weight (total system)	4.1kg
Dimensions (scanner)	86 x 113 x 287mm
Dimensions (backpack)	220 x 180 x 470mm

## ZEB-CAM Accessory

Camera Type	GoPro Session	Logging Medium	Internal SD card
Mode	Video	Power Supply	Internal Battery
Video Resolution	1440p	Battery Life	2 hours continuous use
Frames per Second	30	Image Syncing	Optical flow using integrated inertial sensor
Image Resolution	1920 x 1440	Connection	1.5m cable with multi pin LEMO connector
Field of View	Ultrawide (~120°x 90°)	Software	Requires GeoSLAM Desktop V3 or later



**“Using the ZEB-REVO around 200 rooms were scanned, amounting to 12,000m<sup>2</sup>. Across 5 days, 12 individual rapid ZEB-REVO scans were completed each taking around half an hour. The entire project was completed in around half of the total time that would have been required using static equipment”.**

**Peter Maxwell, Midland Survey Ltd, UK**



# Get in Touch

## **GeoSLAM**

Innovation House  
Mere Way  
Ruddington Fields Business Park  
Ruddington  
Nottinghamshire  
NG11 6JS

**+44 (0) 1949 831 814**  
**[info@geoslam.com](mailto:info@geoslam.com)**  
**[@GeoSLAMLtd](https://www.instagram.com/GeoSLAMLtd)**



[GeoSLAM.com](http://GeoSLAM.com)