

# Underwater Laser Scanner



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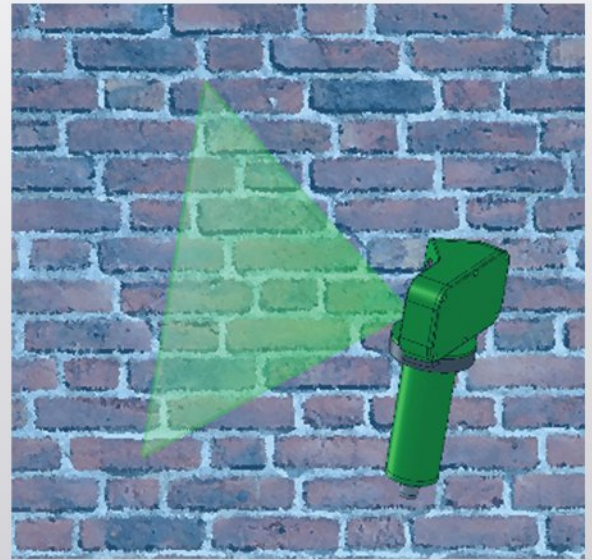
**ULS-100**  
"Details Matter"

**2G Robotics Inc.**  
Advanced Mobile Robotic Systems

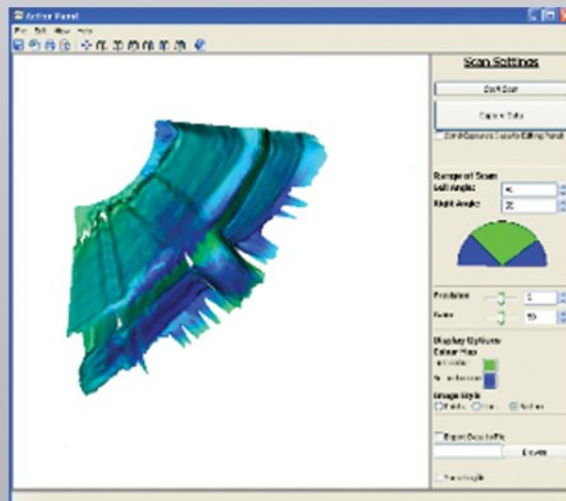


Designed for use independently or in conjunction with an AUV or ROV, the ULS-100 is capable of detecting very fine dimensional variances of underwater surfaces including cracks and pits. This system can provide dimensional information about underwater environments not previously available with traditional sonar and video.

The scanner works by emitting a laser line onto the target surface and the reflected light is detected by the sensor. Circuitry built into the ULS-100 processes the return signal to measure the distance at hundreds of points along the line, creating a 2dimensional profile. An internal motor rotates the laser and sensor in unison to obtain adjacent profile lines. Specialized compression



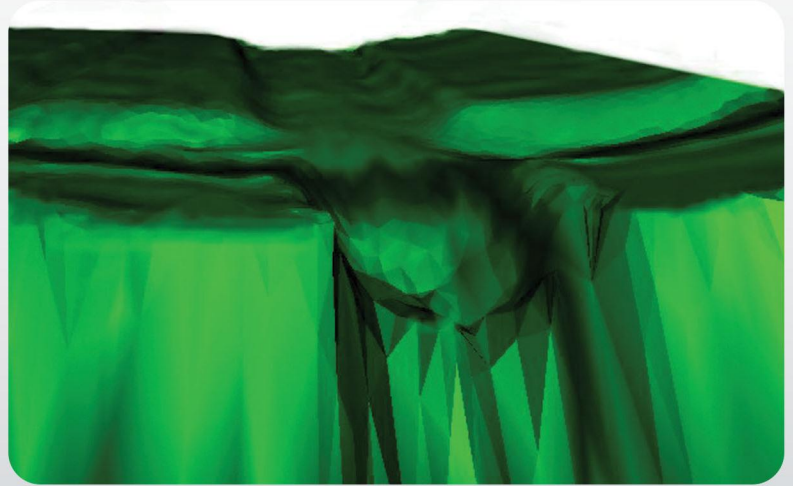
algorithms transmit these measurements through a low bandwidth RS-232 channel to a PC on the surface.



2G Robotics Scan Viewer software is a CAD package specifically designed for interfacing with the laser scanner. Using this specialized CAD package the operator can collect measurement data and regenerate the scanned surface. Accurate measurements of this generated surface can be taken immediately. To generate a complete

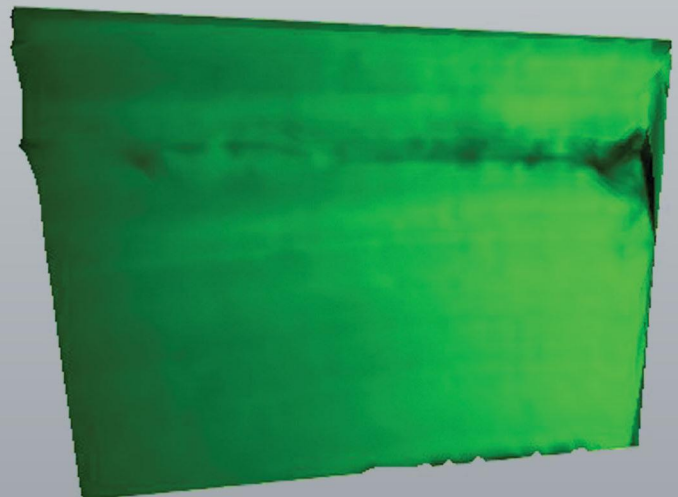
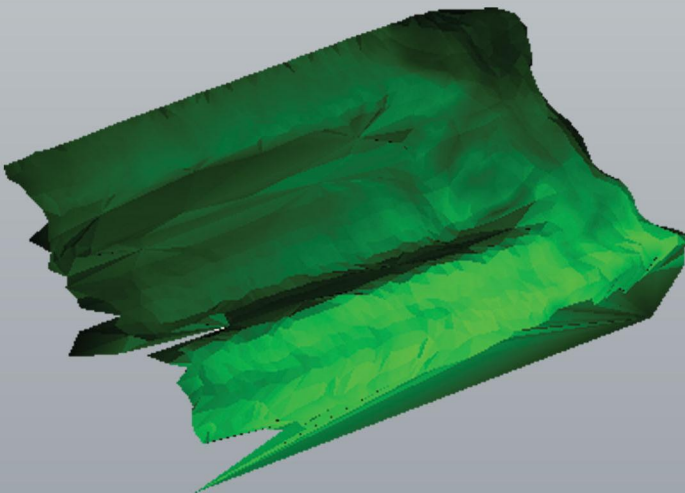
model of an object or a large surface, multiple scans may be captured and merged to generate a single large representation of the underwater environment. Scan Viewer has the capability to export the captured surface for further work in other CAD packages. Raw point cloud data can also be exported for further analysis.

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## See things change over time.

The ULS-100 has a fine enough resolution that it is capable of measuring small dimensional changes over time. By performing multiple scans of a specific feature over time the rate of change of this feature can be quantitatively specified. This can include defects such as cracks, joints, spalling or debris accumulation.



## ULS-100 Technical Specifications and Features

### CAD Software

Rotate, Zoom  
Clip Planes  
Merge Multiple Scans  
Measure Distances Between Points  
Export To Other CAD Packages As .stl  
Export Data Points As .csv

### Scan Specifications

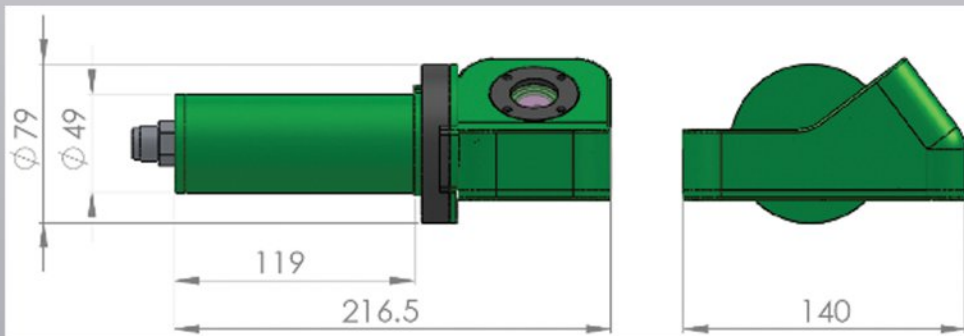
Adjustable Step Size (0.0563° minimum step)  
Adjustable Sensor Gain  
Adjustable Scan Sector ( +90/-90 limits)\*  
Range (3m max)

### Mechanical

Weight In Air: 1.5 Kg  
Weight In Water: 1.0 Kg  
Depth Rating: 350m

### Electrical

Power 12VDC @ 1A max  
Telemetry RS-232



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