

M300UW

Underwater Laser Scanner

For underwater measurements and the production of 3-D CAD models



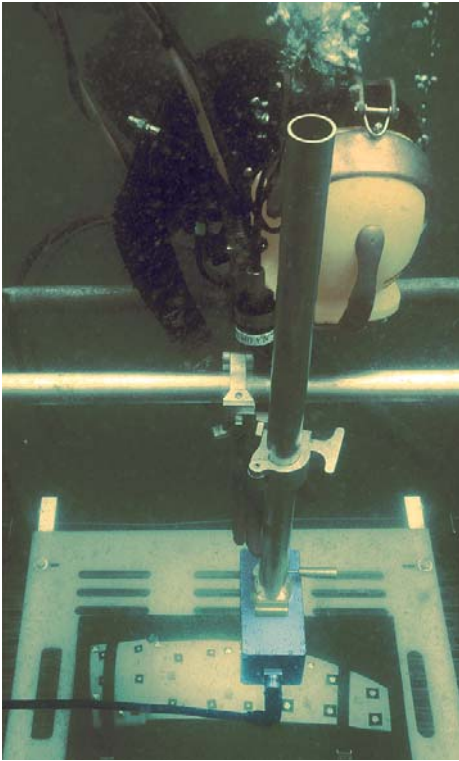
NEWTON



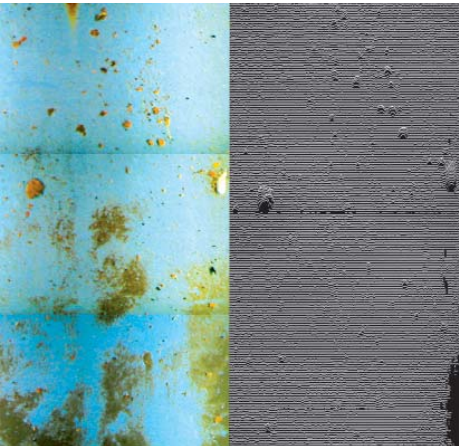
光技術をサポートする
株式会社オプトサイエンス
<http://www.optoscience.com>

東京本社 〒160-0014 東京都新宿区内藤町1番地 内藤町ビルディング
TEL: 03 (3356) 1064 FAX: 03 (3356) 3466 E-mail: info@optoscience.com
大阪支店 〒532-0011 大阪市淀川区西中島7-7-2 新大阪ビル西館
TEL: 06 (6305) 2064 FAX: 06 (6305) 1030 E-mail: osk@optoscience.com
名古屋営業所 〒450-0002 名古屋市中村区名駅2-37-21 東海ソフトビル
TEL: 052 (569) 6064 FAX: 052 (569) 8064 E-mail: ngo@optoscience.com

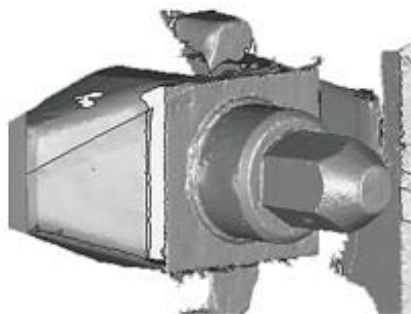
Measurable CAD Models from Underwater Scans



Underwater dimensional measurements



Underwater surface measurements



Submerged scanned bolt assembly

The M300UW, a laser scanning system developed and manufactured by Newton Labs is specifically designed to operate underwater with an effective scanning distance of between 1.5 feet (0.46 m) and 10 feet (3 m) from the target surface. The scanner output is a point cloud so detailed, that when utilized with industry standard three-dimensional software, a fully measurable CAD model can be generated. The M300UW provides precise dimensioning of features, cracks, welds, rust, pitting and other deformities.

System Components:

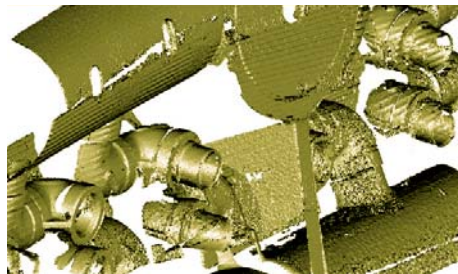
- M300UW hardware components include a control unit, a scanner head and cable.
- Newton Labs Laser Scanning Software
- Components are secured in two, airline-transportable luggage cases.
- Cable lengths up to 320 ft. (97.5 m)

Construction and Materials:

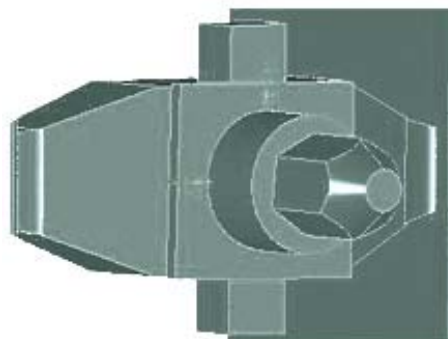
- The 20 lb. (9.1 k) scanner head is machined from 6061T6 aluminum with a hard anodized finish.
- All fasteners and connectors are 316 Stainless Steel.
- Windows are hardened fused silica.
- The head is configured with alternate mounting points on most faces and is waterproof to a depth of 320 ft. (97.5 m).

Scanner Operation:

- The M300UW is able to scan an area nine feet by seven feet (2.80 m by 2.08 m)
- Operators may select from several levels of scan quality via the user interface. The shortest, most coarse scan takes 15 seconds, while the longest and most detailed takes three minutes or more.
- The laser light color is green allowing for highest possible efficiency in underwater transmission. The scanner is filtered to only accept the specific color of green produced by its own light source, greatly reducing any contamination from stray light in the scanning environment.
- The system measures underwater targets to an accuracy of +/-1.0 mils (0.025mm).
- The control console powers and communicates with the scanner through the cable via low voltage DC power and signals, and the camera sends scan results up via Gigabit Ethernet.
- A precision point cloud is developed that can be processed to produce an accurate CAD model (with the use of third-party 3-D software).
- In addition to point cloud data, there is a human-readable video interface on the console which displays the scanned area in real time, enabling on-site analysis.
- An optional, integrated pan-tilt is available that eliminates any cable loops, allowing easy access to tight areas.

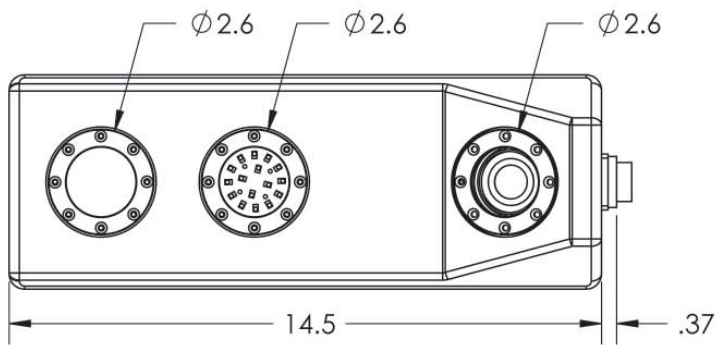
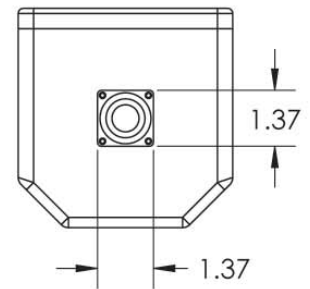
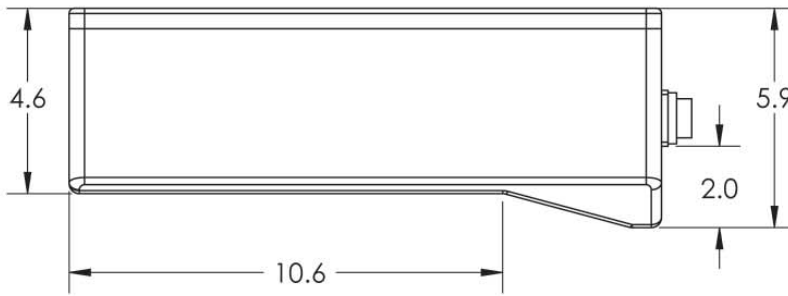
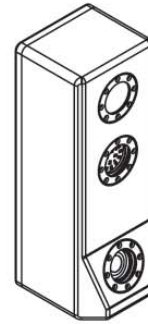
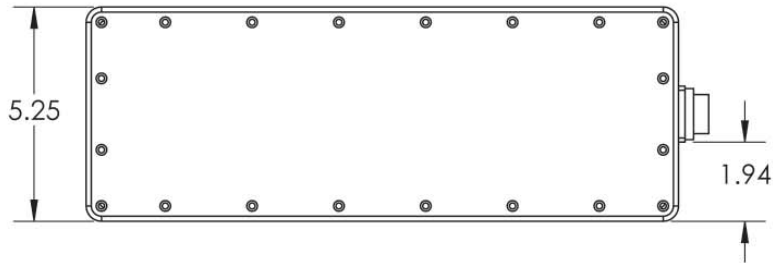


Underwater scan of a complex object



Same bolt rendered as a CAD model

NEWTON



UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES:
ANGULAR: ± 3
ONE PLACE DECIMAL: $\pm .030$
TWO PLACE DECIMAL: $\pm .010$
THREE PLACE DECIMAL: $\pm .005$

PROPRIETARY AND CONFIDENTIAL
THE INFORMATION CONTAINED IN THIS DRAWING
IS THE SOLE PROPERTY OF NEWTON RESEARCH
LABS. ANY REPRODUCTION IN PART OR AS A
WHOLE WITHOUT THE WRITTEN PERMISSION OF
NEWTON RESEARCH LABS IS PROHIBITED.

	NAME	DATE
DRAWN	E DWYER	02/03/2011
CHECKED		
APPR.		
PROJECT:	NM-300UW	
DRAWING STATUS:	RELEASED	
COMMENTS:		

NEWTON

441 SW 41st Street (425) 251-9600
Renton, WA 98057 www.newtonlabs.com

**M-300UW
MEASURING HEAD**

SIZE DWG. NO.
A M-300UW
DO NOT SCALE DRAWING SHEET 1 OF 1

Specifications of the M300UW

Size:	Height: 14.5 in. (368.3 mm) Width: 5.25 in. (133.35 mm) Length: 5.9 in. (149.86 mm)		
Weight (in Air)	20 lbs. (9.1 k)		
Weight (in Water)	13 lbs. (5.89 k) (plus cable weight)		
Head Material	Case: Hard Anodized Aluminum Lenses: Fused Silica Fittings & Retainers: 300 Series Stainless Steel		
Cable	Specify at time of order		
Pole Mounted	Optional Stainless Steel Pole Mounting Bracket		
Integrated Pan-Tilt	Optional		
Lighting	Self-Contained LED		
Power: • <i>Head</i> • <i>Control Unit</i>	Powered by the Control Unit 100 to 240 VAC 50 to 60 cycle		
Accuracy: (Related to the field of view and distance from the object to be measured and parameters of the object)			
Depth of Field Distance <i>(Distance to object)</i>	Field of View <i>Height Width</i>		Raw Accuracy <i>(single Point Cloud point)</i>
			Approx. CAD Model Accuracy <i>(After 3rd-party 3-D software processing)</i>
0.46 Meter (1.5 Feet)	0.33M	0.43M	+/-0.125mm (.005")
0.914 Meter (3 Feet)	0.66M	0.86M	+/-0.250mm (.010")
1.8 Meter (6 Feet)	1.32M	1.72M	+/-0.680mm (.027")
2.44 Meter (8 Feet)	1.68M	2.24M	+/-1.27mm (.050")
3.0 Meter (10 Feet)	2.08M	2.80M	+/-1.83mm (.072')
			+/-0.254mm (.010")

Background on Newton Labs

Newton Labs is a privately held manufacturer of machine vision, robotics and optical automation. A spin-out from the Massachusetts Institute of Technology (MIT), the company has for more than 18 years developed and marketed high-performance, computer-driven automation for industrial processes. Newton's products are designed to allow the quality, efficiency and cost effectiveness of computer technology to replace the human element in virtually every industry. Newton Labs has deployed more than 20,000 machine vision, robotic and automation systems worldwide.



For more information about this product, contact:

Newton Labs
lasersales@newtonlabs.com
425-251-9600

NEWTON