

OPTECH TLS-M3

Laser Scanner

LONG RANGE LASER SCANNER FOR MARINE, MONITORING AND MOBILE APPLICATIONS

Part of the OEM product family from Teledyne Optech, the TLS-M3 packages the range, scan efficiency and survey grade data that Optech is known for, into a robust IP56 rated system to provide the ultimate laser scanner for marine, monitoring and mobile applications. The TLS-M3 also introduces integrated heating and cooling systems to operate in a wider -20 C to +50 C temperature range. This makes the TLS-M3 a great choice for applications which require longer installations such as marine survey and long-term monitoring installations in mines, dams and geologically active areas.

Use TLS-M3 for permanent monitoring applications, marine and land mobile projects for high quality scans through a solid API software package that allows complete unit control, real time data streaming, data processing and system diagnostics feedback for the best results in data quality and scan efficiency. The TLS-M3 can be operated through a variety of OEM and third party software packages tailored to specific applications.

KEY FEATURES

- IP56 rated
- Three operating modes (500kHz, 200kHz, 50kHz) to balance range and point density
- Internal Hot swappable batteries
- External powering options
- Tilt compensator
- Internal heat system
- Ext. camera capability
- Marine workflows

APPLICATIONS

Marine Mobile Mapping

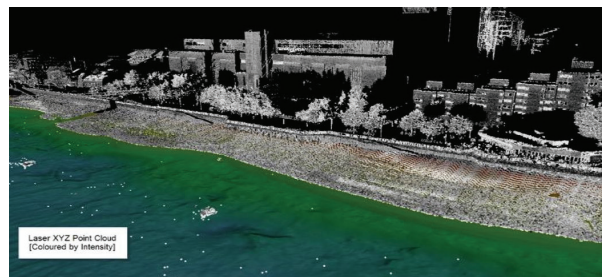
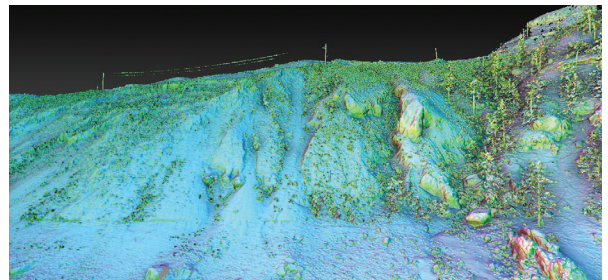
- Coastal survey
- Structure survey
- Port and harbour survey
- Wreck surveying

Land Mobile Mapping

- Asset management
- As-Built/As-Is survey
- Clash detections survey

Real time Monitoring

- Slope monitoring
- Volume computations
- Deformation monitoring



Courtesy of BGC Engineering

Courtesy of MMT

SYSTEM SPECIFICATIONS

LASER	
Range measurement principle	Pulsed
Wavelength	1550 nm (near infrared)
Laser safety classification ²	1
Sample collection rate ⁴	Up to 2 MHz
Intensity recording	12 bits
Minimum range	1.5 m
Number of returns recorded	Up to 4 (first 2 and last 2)
Laser repetition rate	50 kHz / 200 kHz / 500 kHz
Max. range capacity @ 90% reflectivity ¹	≥ 2000 m / 750 m / 250 m
Max. range capacity @ 20% reflectivity	976 m / 400 m / 125 m
SCANNING RESOLUTION	
Angular measurement resolution	up to 12 urad
Max. sample density [point to point spacing]	2 mm @ 100 m
ACCURACY AND REPEATABILITY	
Range accuracy (1 sigma)	5 mm @ 100 m
Range resolution ³	2 mm
Precision, single shot (1 sigma)	4 mm @ 100 m
Angular accuracy	80 µrad
SCANNING CHARACTERISTICS	
Max. field of view (vertical)	120° (-45 to +70°)
Max. field of view (horizontal)	360°
Min. angular step size (vertical)	12 µrad
Min. angular step size (horizontal)	20 µrad
Mobile scan mode	Profile, ROI
ADDITIONAL SENSORS AND FEATURES	
Dual-axis inclinometer (accuracy)	Up to 0.01°
External GNSS support	Yes, incl. antenna mount
Internal heat system	Yes
Pause while scanning	Yes
Multiple scan area selection	Yes, multiple ROIs
Mobile operation	Yes
SYSTEM PERIPHERALS	
Data storage capacity	250 GB internal SSD
COMMUNICATIONS / DATA TRANSFER	
Serial port	Yes
Ethernet port	Yes
Communications/data transfer	100 Mbps Ethernet, USB

IMAGING SYSTEM	
External camera DSLR	Yes with auto trigger
White-balancing DSLR	Yes
Export format of ext. camera	JPEG, NEF
POWER	
Power supply input voltage	9 to 32-V DC
Battery type	Internal, hot swappable Li-Ion batteries
Battery power	2.5 hours
Power consumption	90 W
OPERATION CHARACTERISTICS	
Operating temperature (min)	-20°C (-4°F)
Operating temperature (max)	+50°C (122°F)
Storage temperature	-40°C to +80°C (-40°F to +176°F)
PHYSICAL CHARACTERISTICS	
Height	341 mm (13.4")
Width	210 mm (8.2")
Total weight	11.9 kg (26.2 lbs.)
SOFTWARE PLATFORMS	
Post processing software	Windows
Realtime API library	Windows, Linux

- ¹ Max range tested on flat targets, larger than the laser beam diameter, perpendicular angle of incidence and STD Clear visibility (23 km).
- ² Complies with 21 CFR 1040.10 and 1040.11 except for deviations pursuant to Laser Notice No. 50, dated June 24, 2007.
- ³ Minimum distance that the TLS-M3 is able to separate two range measurements on objects in a similar bearing.
- ⁴ With the sensor capturing up to 4 returns, at up to 500 kHz pulse repetition frequency.



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