

Eddyfi Technologies
Beyond current

Technical
Specifications

FLOORMAPX

MFL array tank bottom scanner

Floormap®X is the latest multi-technology MFL Array tank bottom solution offering an unmatched probability of detection – including in the critical zone – and can address thick plates and coatings brilliantly. Thanks to patented STARS technology, it provides top/bottom corrosion discrimination. Blazing fast, it can be used in either full floor mapping or Freescan™ mode. FloormapX increases your efficiency when inspecting tank bottoms like no other system.

BENEFITS

- **Maximum coverage**, including critical zone
- **High-resolution** for increased Probability of Detection
- **Multi-technology** for top and bottom defect discrimination
- **Flexible scanning**, one scanner with three scan modes
- **Inspect thicker plates** up to 20mm (3/4in) thick
- **Unmatched reporting**, comprehensive and on-the-spot
- **10% reporting thresholds**, increase inspection intervals
- **EEMUA 159 and API 653** compliance

FloormapX delivers unparalleled improvements to tank bottom inspection for maximum coverage and efficiency.



MULTI-TECHNOLOGY ARRAY SOLUTION

MFL Array: 64 channel, 128 multi-orientated MFL sensors, configuration. It produces a highest resolution imaging and market leading Probability of Detection (PoD). On its own, MFL cannot differentiate if the corrosion is top side or bottom side of the tank bottom.

STARS: The patented technology enabling the FloormapX to differentiate between the top side and bottom side corrosion and report them separately. STARS also generates detailed top surface image profiles, even in the presence of coating, thus contribute to vital tank integrity information.

MORE POWER FOR THICKER PLATES AND OPTIMAL PROBABILITY OF DETECTION

The advanced bridge design, inclusive of the most powerful rare-earth magnets, injects up to 30% more magnetic flux into the inspection surface compared to previous models. This, combined with an exceptional signal-to-noise ratio, allows the FloormapX to detect smaller defects and for the first time inspect tank bottoms up to 20mm (3/4in) thick with a high sensitivity. The magnets can also be controlled and set to an 'off' condition for easier, safer handling, cleaning, and transportation.

MAXIMUM COVERAGE, CRITICAL ZONE INCLUDED

Precision active steering facilitates the inspection of the critical zone to within 12mm (1/2in) of the shell wall ensuring the FloormapX maximizes coverage in the most important areas. Its reduced profile and the ability to tilt the handle also allows for increased coverage under pipework, allowing for a more comprehensive inspection.



Figure 2: FloormapX annular mapping.

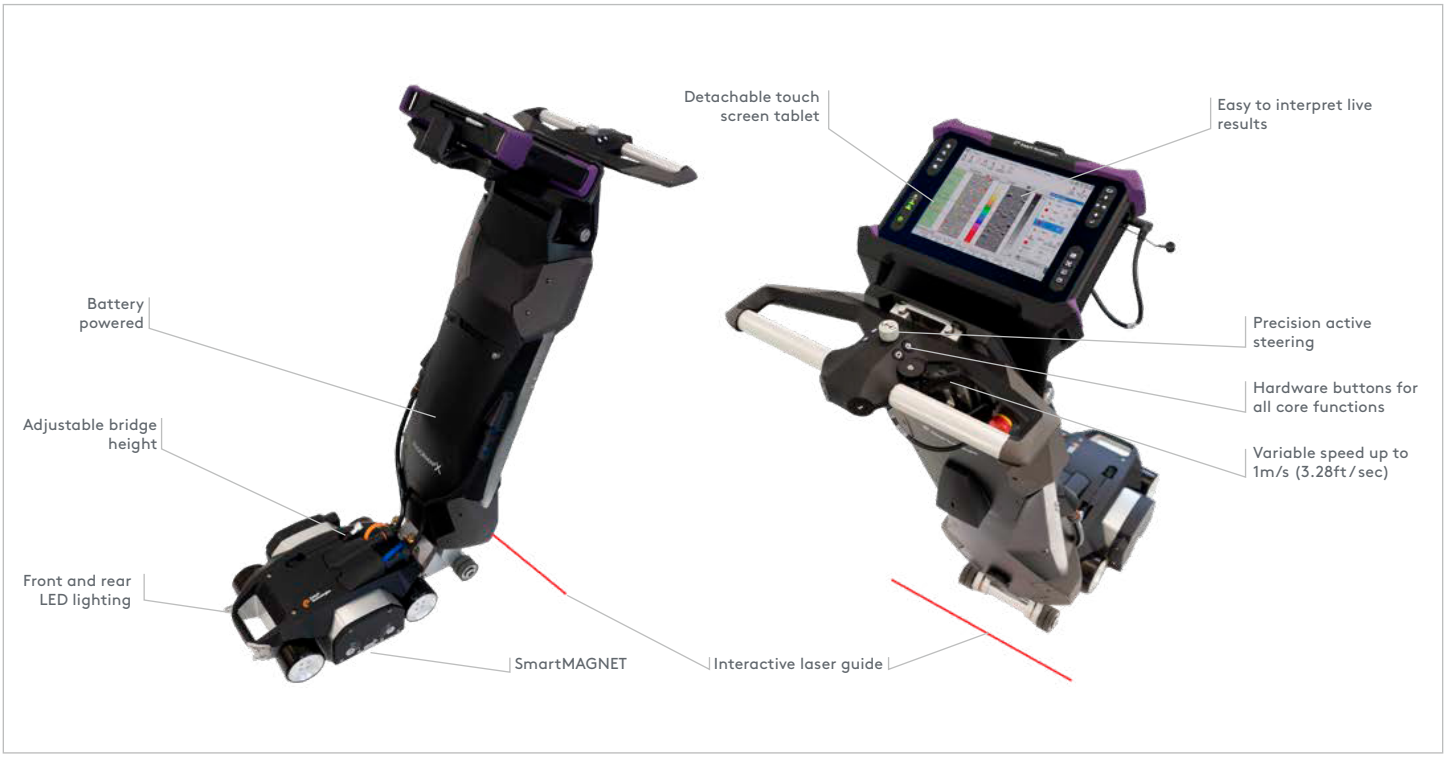


Figure 1: Annotated breakdown of FloormapX showing its key features.

FEATURES

Precision active steering: For fast, high-quality curved scans in the critical zone and elsewhere. It drastically reduces dead zones by placing sensors where they are needed most: within 12mm of the tank shell. Comes with the capability to return to straight-line driving at the simple push of a button.

Interactive laser guide: Marking the floor while you map is now fast and easy, thanks to laser-assisted defect location. The laser line is simulated live in the C-scan, allowing to correlate the physical location of tank floor defects with C-scan indications.

SmartMAGNET™: Variable automated magnetic flux strength for optimized inspection performance depending on plate thickness. Besides, literally turn off powerful rare earth permanent magnets for easier placement during critical zone inspection, storage and shipping, and safer handling.

Adjustable bridge height: Reach maximum sensitivity where conditions allow, and easily raise the bridge to scan even in the most challenging conditions, such as undulated plates, repair plates and lap welds or when surface preparation is not ideal.

Onboard powerful lighting: Front dimmable, focalized LEDs, with diffusing lens and rear LEDs. Based on chip-on-board technology providing high and uniform intensity, inline with API recommendations for visual inspection, to perfectly highlight product-side pitting and scan obstacles.

Easy-break™: Optimized design for intuitive and ergonomic breaking of the magnets by operators.



Figure 3: FloormapX MFL tank bottom inspection.

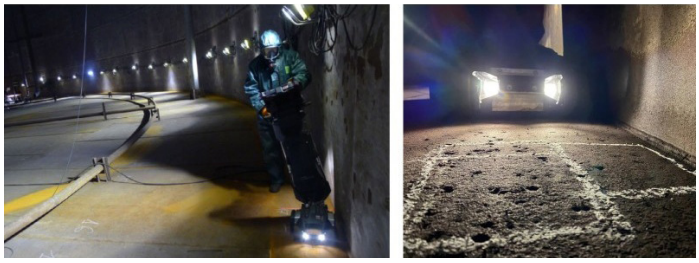


Figure 4: Tank floor inspection using FloormapX.

FULL FLOOR MAPPING OR FREESCAN™ MODE: THE CHOICE IS YOURS

The FloormapX supports multiple scan modes and the capacity to map the annular plate, including the critical zone. Customizable reporting options to suit EEMUA 159 and API653 recommendations.

INSPECTION FLEXIBILITY WITH 3 SCANNING MODES

Mapping: A comprehensive inspection with full auditable data sets. Interrogate inspection data while in the tank or use the dedicated PC-based SIMS PRO™ analysis and reporting software. During a scan, the operator can see the live data for both top and bottom defects.

Freescan: A simple, fast detection mode, leveraging all of the underlying technology for the best possible result. A quick way to locate corrosion. Scan in any orientation, with no need to measure plates.

Pause on defect: A new feature built into both mapping and Freescan modes. Allows the scanner to pause during a scan for defect mark-up or prove-up. Continue the scan without missing a step; the data will be seamless.



Figure 5: Tank floor inspection using FloormapX.

SOFTWARE

SIMS GO - DATA ACQUISITION

An intuitive software designed to increase workflow efficiency and produce accurate and comprehensive tank inspection data.

With a streamlined interface and operation, operators can select pre-planned workflows or create their own for both mapping and manual modes.

A first for the Floormap are real-time live scan displays during acquisition. An operator can see live MFL Array and STARS C-scan images. This feature combines seamlessly with an ability to pause the scan and use the laser-assisted defect location feature for rapid and precise defect location and identification: prove-up times have never been so fast. Once proven, the operator can update the automated and editable indication list leading to a paperless reporting strategy.

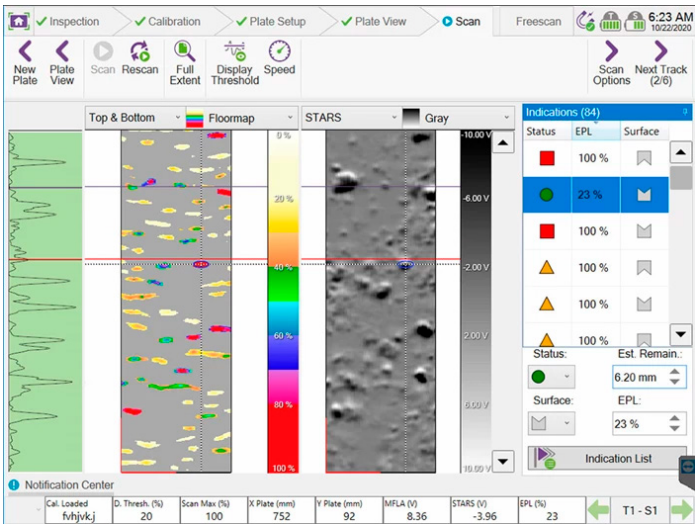


Figure 6: SIMS GO MFL software.

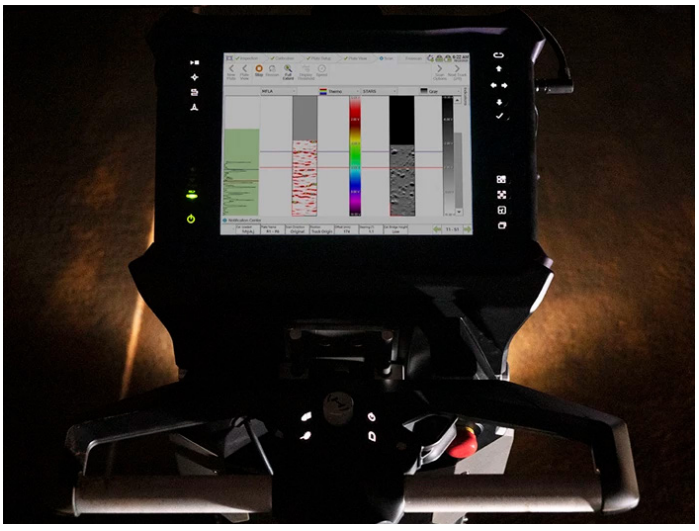


Figure 7: SIMS GO MFL software.

With a minimal software button click approach, operators spend more quality time scanning. An Ergonomic hardware thumb button allows operators to stop a scan, move to the next track, then start a scan without removing their hands from the drive handles or touching the tablet.

Once the inspection is complete, the removable tablet contains all the required data to produce a customizable report in accordance with EEMUA 159 and API 653 recommendations.

SIMS PRO - REPORTING AND MORE

SIMS PRO has been developed with customer feedback and engagement to provide a reporting solution that adheres to the modern inspection demands including those outlined in EEMUA 159 and API 653.

Seamlessly integrating with the FloormapX, SIMS PRO automatically displays the inspection data in an intuitive and immersive manner to provide a clear condition image of the tank bottom which is essential for devising optimal maintenance and repair strategies.

The FloormapX system combines seamlessly with SIMS PRO software suite to deliver detailed, high-quality inspection reports in the shortest possible timeframe.



Figure 8: SIMS PRO FloormapX data analysis and reporting software.

SPECIFICATIONS

FLOORMAP

Principle of operation	Array Magnetic Flux Leakage & Magnetic Field Reluctance (STARS)
Numbers of sensors / channels	256 Hall Effect sensors, 64 channels
Top and bottom discrimination	Yes, using STARS technology
Detection capability	as small as 20%, ø 2mm (ø 0.080in)
Test through coatings	Yes, if non-magnetic
Coating thickness	up to 10mm (0.394in)
Speed	Variable from 500mm / sec to 1m / sec (19.7in / sec to 3.28ft / sec)
Scan width	300mm (12in)
Scan coverage	up to 263 m^2/h (2831 ft^2/h)
Plate thickness range	4-20mm (0.157in to 3/4in)
Positional accuracy	± 0.04% (± 3mm over 8m) (± 3/32in over 26ft)
Method of propulsion	DC motor, anti-static drive wheels / or push pull
Dimensions (W × H × D)	510 × 980.5 × 690mm (20 × 27.1 × 38.7in), shipped in 2 transit case
Operational weight	57.5kg (126lb)
Minimum man-way size	500mm (20in)
Batteries	Supplied with 3 batteries and 1 charger for continuous use
Typical battery operational time	Up to 4 hours
Operating temperature	-10°C to 45°C (-14°F to 113°F)
Storage temperature	-35°C to 60°C (-31°F to 140°F)

The information in this document is accurate as of its publication. Actual products may differ from those presented herein.
© 2024 EddyfiTechnologies, Eddyfi,Floormap, SIMS, and their associated logos are trademarks or registered trademarks of Eddyfi Canada, Inc. in the United States and/or other countries. Eddyfi Technologies reserves the right to change product offerings and specifications without notice.

Eddyfi Technologies
Beyond current