M2M GEKKO

High-Resolution PAUT & TFM Flaw Detector
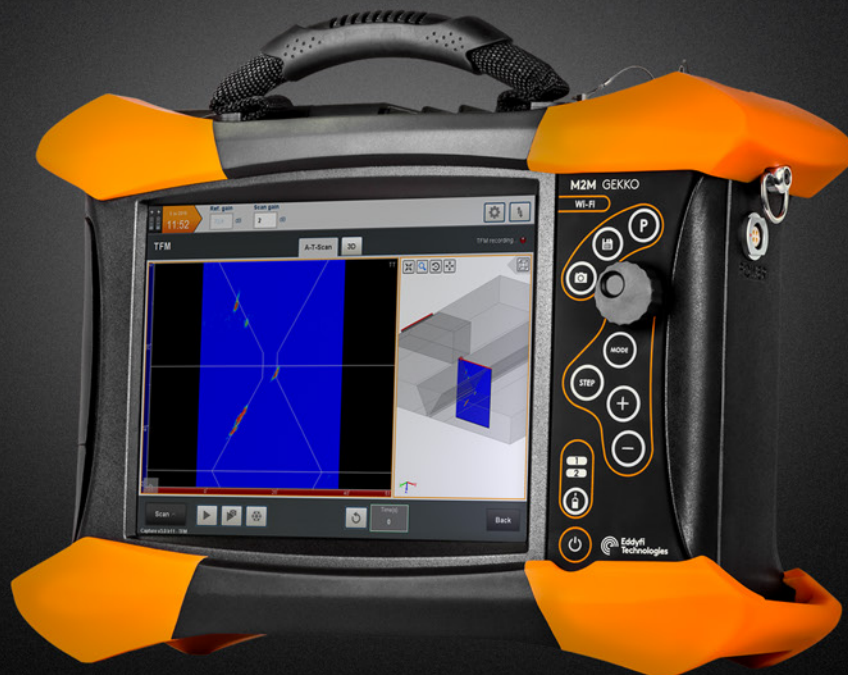
BE THE BEST INSPECTOR
YOU CAN BE

Eddyfi Technologies

DESIGNED FOR THE FIELD

M2M Gekko®, the #1 phased-array ultrasound (PAUT) unit with Total Focusing Method (TFM), has been upgraded based on inspectors feedback. Offering both conventional UT, TOFD and advanced PAUT, Gekko is the most versatile unit adapted to field conditions.

A Complete PAUT Portable Unit

M2M Gekko includes all basics and advanced UT features in a reinforced compact casing designed for field use. It natively comes with conventional UT, TOFD and all beam-forming phased-array UT techniques for single-beam and multi-group inspection and its 3-encoded axis capabilities make the Gekko ready for any challenging inspection. This rugged PAUT unit also offers real-time TFM/FMC (full matrix capture) and Adaptive TFM techniques.

Bumpers and connectors are designed for robustness and accessories versatility. The bright resistive touch screen allows outdoor use in rough conditions. Powered by 2 hot-swappable batteries, Gekko now reaches up to 6 hours of autonomy and becomes the ultimate reference in its product range.

No Compromise On Performance

The innovative electronics offers up to 128 channels, great signal quality and TFM resolution for improved detection and confidence. It now reaches a high scan speed and productivity. The connectivity solutions—dongle-activated WIFI, USB 3.0 connector and Gigabit Ethernet output—allow to speed up data transfer and to remotely control your inspection in challenging conditions (TeamViewer licence included). Moreover, the 256 GB SSD makes the operator's work very comfortable with unlimited data file size, thus saving time in the field.

LEMO connectors for I/O and encoder

Phased-array IPEX connector

P/R UT connectors (×4)

USB 3.0 (×1) + USB 2.0 (×3)

Video output

Ethernet connector

Tailored configurations from 32:128PR to 64:128PR

Reinforced unit designed for IP66

Scroll wheel

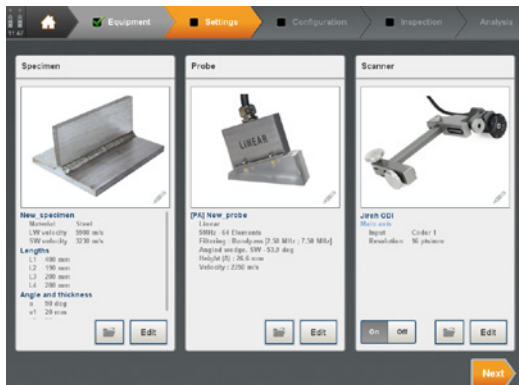Bright resistive touchscreen

Long-lasting batteries

REINVENTING HIGH-DEFINITION PORTABLE UT

Pioneering real-time TFM since 2013, M2M Gekko innovation keeps being driven by market applications. Used in accredited training centers and ready for TFM standards, it benefits from advanced algorithms through a streamlined software user interface (Capture™). Simply powerful, Gekko brings the latest technology at your fingertips.

Powered by Capture

- Fully embedded PAUT software for all techniques—from application design to inspection and reporting
- Streamlined intuitive user interface limiting training time and reducing operator errors
- Complete probe and scanner database embedded
- Fast setup creation, thanks to smart 3-click calibration wizards
- International standards & code compliant
- Evolutive platform continuously updated by inspectors' feedback

Innovation Driven by Market Applications

- Multi-group weld inspection procedures fully covered
- HTHA and hydrogen damages inspection with TFM
- Thick welds and CRA/stainless steel weld inspection enhanced with 128-element aperture
- Corrosion mapping of large areas (up to 5 × 5 m [16.4 × 16.4 ft.] / 1 mm [0.04 in] step)
- Complex geometry dedicated solution for nozzle and fillet welds (Y and T joints)

Streamlined workflow powered by Capture

In-field inspection using M2M Gekko
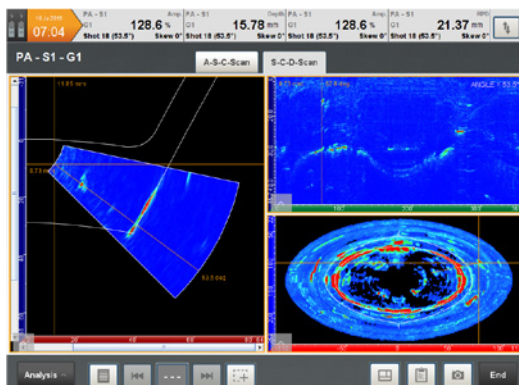
Nozzle inspection using 3-axis scanner

OFFERING UNIQUE SOLUTIONS

- Complete toolbox for TFM including TCG calibration
- High resolution TFM imaging up to 128 elements
- 3-axis nozzle inspection with live overlay display
- 3-axis paintbrush for composite and corrosion mapping
- Live display of fillet weld inspection
- Real-time Adaptive TFM (ATFM) for inspection of wavy surfaces

SPECIFICATIONS

INSTRUMENT

Dimensions (W × H × D)		400,5 x 273 x 131,5mm (15.7 × 10.7 × 5.1 in)
Weight (with 1 × battery)		6.4 kg (14.1 lb)
Power Supply		15 V, 5.67 A
Batteries (hot-swap capabilities)	Type	Li-ion, 94 Wh capacity (×2)
	Typical Life	Up to 6 hours
Display		• 26.4 cm (10.4 in) resistive touchscreen • 1024 × 768 px screen resolution

CONNECTIVITY

Fast Gigabit Ethernet, WIFI connection with USB dongle	
Micro display port (×1)	USB 3.0 (×1), USB 2.0 (×3)
IPEX PA connector (×1)	LEMO 00 UT connectors (4P/R)
3-axis encoder input	I/O 12 TTL (5 V/24 V), 6 open collectors

ENVIRONMENT

IP Rating		Designed for IP66
Operating Temperature		-10–45°C (14–113°F)
Storage Temperature Range	w/ batteries	-20–60°C (-4–140°F)
	w/o batteries	-20–70°C (-4–158°F)
Drop-tested		According to MIL-STD-810G

PHASED-ARRAY

PAUT channel configurations: 32:128PR, 64:64PR or 64:128PR	Linear, sectorial, compound scanning & CIVA-laws import
Active aperture up to 64 elements	CIVA-fueled phased-array calculator
Linear, matrix, Dual linear & Dual matrix arrays	True-depth, constant sound-path & projection focusing modes
Up to 8 beam sets | Up to 2,048 focal laws	On-board focal law calculator on plates, pipes, fillet welds, nozzles

DIGITIZER

Digitizing and summation on 64 channels max.	16 bits amplitude resolution
Adjustable FIR filters	Sampling frequency up to 100 MHz
Real-time averaging up to 32×	Rectified, RF, envelope A-Scan processing
FMC A-Scan range up to 8k samples	A-scan range up to 65k samples

FMC/TFM*

Real-time TFM up to 128 elements 256 kpi	Image resolution above 4 Mpi in post-processing
Refresh rate up to 110 Hz at 65 kpi	Direct, indirect and converted modes
Real-time Adaptive TFM (ATFM)**	FMC recording
All calibration wizards available	8 manual resolution levels, 1 auto resolution setup

PULSERS

Phased Array Channels[1]	• Bipolar square pulse • Voltage from 24 V to 120 V (1 V step) • Pulse Width from 35 ns to 1250 ns • Fall time < 6 ns
UT-TOFD Channels[2]	• Negative square pulse • Voltage from 12 V to 200 V (1 V step) • Pulse Width from 30 ns to 1250 ns (1 ns step) • Fall time < 5 ns

RECEIVERS

Phased Array Channels[1]	• Input impedance 50 Ω • Frequency Range 0.4 MHz to 20 MHz • Max. input signal 2 Vpp • Gain up to 120 dB (0.1 dB step)
UT-TOFD Channels[2]	• Input impedance 50 Ω • Frequency Range 0.6 MHz to 25 MHz • Max. input signal 1.4 Vpp • Gain up to 120 dB (0.1 dB step)

ACQUISITION

Hardware acquisition gates	A-Scan/Peak data recording
PRF up to 40 kHz	Data compression up to 32×
Data flow on SSD up to 180 MB/s	Live data missed information
Live 3D/overlay display	Data file size: Limited by SSD capacity

1. Standard: EN ISO 18563-1 for phased array channels.
2. Standard: EN ISO 12668-1 for conventional channels.

* TFM on Gekko exists in 32, 64 and 128-channel options
** Additional software module

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