



## GEKKO

Portable Ultrasonic Flaw Detector for Phased Array, TFM, TOFD and Conventional Probes

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# GEKKO KEY FACTS

## Ruggedized, easy to operate

IP66 classification, shock resistance according to MIL-STD-810G and a touchscreen that can also be operated with gloves make the GEKKO a robust helper in the field. The intuitive operator guidance permits to concentrate on the essentials - the testing task.

## Evaluation made easy

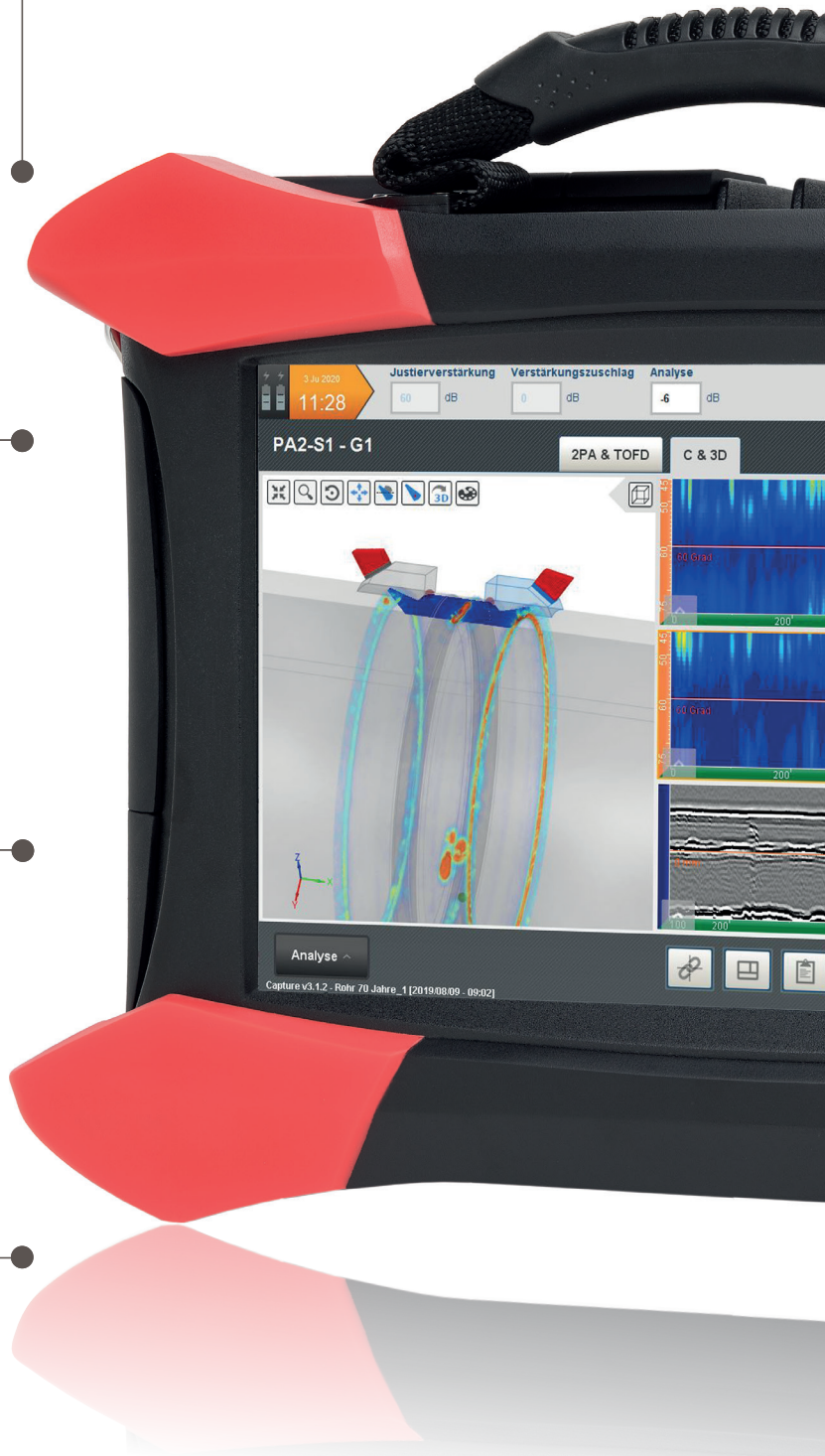
Extensive on-board analysis tools (auto-sizing, data merging, 3D display, generation of defect tables and test reports) enable fast and reliable evaluation of the test data on site.

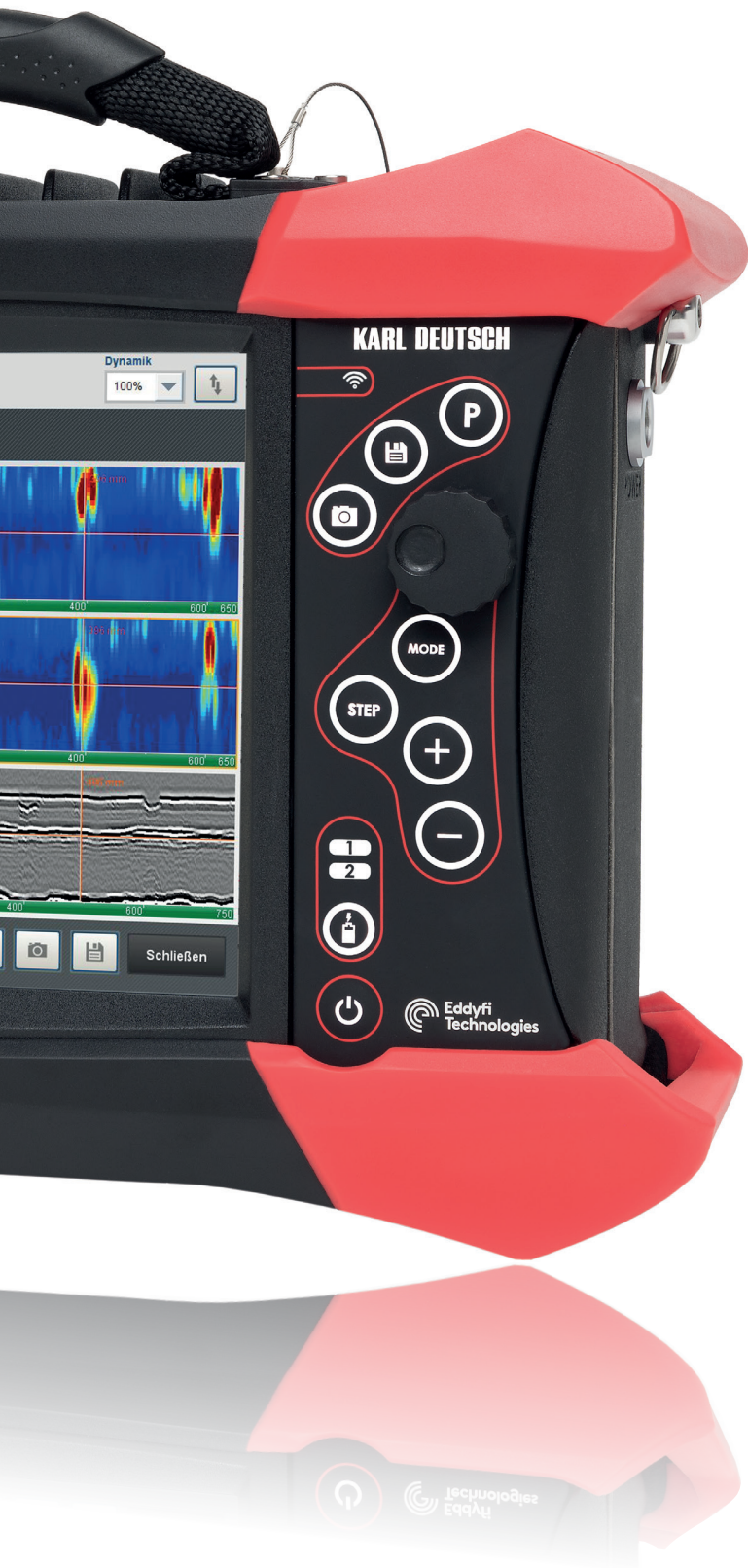
## The right thing for every task

A total of 8 hardware configurations (32 or 64 parallel channels, 64 or 128 channels controllable, with or without TFM) allow everyone to find the right unit for their individual requirements.

## Precise, sensitive and yet fast

New control and evaluation algorithms allow linear and two-dimensional scans even in TFM applications with inspection speeds that are very close to those of linear or sector scans. In addition, "Plane Wave Imaging" (PWI) makes it possible to achieve high sound intensities at the highest image resolution.





## Stay connected

Data transfer out of or into the unit is simple and easy via external data media (one USB 3.0 and three USB 2.0 ports are provided), LAN and WLAN. A mini display port enables connection to external output media.

## Probe variety

In addition to the classic linear array probes, matrix probes for inspection in several planes, dual linear array probes for near-surface inspections and dual matrix probes, e.g. for austenite inspections, are supported. Of course, all types of conventional probes can be used as well.

## Multitasking

With up to 8 configurable groups, the GEKKO is capable of doing many things simultaneously: Whether several PA probes are connected via a splitter, a single PA probe takes over several tasks in parallel or PA inspections are combined with conventional ultrasound (e.g. TOFD) – maximum flexibility is always given.

## Powered

Two powerful lithium-ion batteries allow up to 6 hours of mains-independent work. It is possible to replace the batteries without switching the unit off, as well as to keep on working during the internal charging process.

# TECHNICAL DATA

Instrument	
Dimensions (width x height x depth)	410 x 284 x 126 [mm] / 16.1 x 11.2 x 5.0 [in]
Weight (with 2 rechargeable batteries)	< 6.9 kg / 15.2 lb
Power supply	15 V / 5.67 A
Batteries (exchangeable during operation)	Lithium-Ion, capacity: 94 Wh (x2), Typical life: up to 6 hours
Display	Resistive touchscreen with 26.4 cm (10.4 in) diagonal, 1024 pix by 768 pix screen resolution
Storage	256 GB SSD, expandable up to 1 TB

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

Environment	
Protection class	IP66
Operating temperature	-10 to 45 [°C] / 14 to 113 [°F]
Storage temperature	-20 to 60 [°C] / -4 to 140 [°F] (w/ batteries) -20 to 70 [°C] / -4 to 158 [°F] (w/o batteries)
Drop-tested	According to MIL-STD-810G

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

Digitizing	
Digitizing and summation for up to 64 channels	16 bit amplitude resolution
Adaptable FIR-filters	Sampling frequency: up to 100 MHz
Real-time averaging: up to 32x	A-scan representation: rectified, RF and envelope
FMC-recording: up to 8,000 A-scans	A-scan range: up to 65,000 points

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

Pulsers	
Phased Array Channels <sup>1</sup>	<ul style="list-style-type: none"> <li>▪ Bipolar square pulse</li> <li>▪ Voltage: 12 to 120 [V] (1 V step)</li> <li>▪ Pulse width: 35 to 1250 [ns]</li> <li>▪ Fall time: &lt; 6 ns</li> </ul>
UT-TOFD Channels <sup>2</sup>	<ul style="list-style-type: none"> <li>▪ Negative square pulse</li> <li>▪ Voltage: 12 to 200 [V] (1 V step)</li> <li>▪ Pulse width: 30 to 1.250 [ns]</li> <li>▪ Fall time: &lt; 5 ns</li> </ul>

Receivers	
Phased Array Channels <sup>1</sup>	<ul style="list-style-type: none"> <li>▪ Input impedance: 50 Ω</li> <li>▪ Frequency range: 0.4 to 20 [MHz]</li> <li>▪ Maximum input signal: 2 Vpp</li> <li>▪ Gain: up to 120 dB (0.1 dB step)</li> </ul>
UT-TOFD Channels <sup>2</sup>	<ul style="list-style-type: none"> <li>▪ Input impedance: 50 Ω</li> <li>▪ Frequency range: 0.6 to 25 [MHz]</li> <li>▪ Maximum input signal: 1.4 Vpp</li> <li>▪ Gain: up to 120 dB (0.1 dB step)</li> </ul>

Data acquisition	
Hardware acquisition gates	A-scan / peak data recording
PRF up to 40 kHz	Data compression up to 32x
Data flow on SSD with up to 180 MB/s	Live data missed information
Live 3D/2D CAD overlay	Data file size: Limited by SSD capacity only

\* TFM optionally available as 32-, 64- and 128-channel versions

\*\* Additional software module

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

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