

Mentor UT

The power of ultrasonic phased array inspection meets everyday use.



Reimagine ultrasonic testing

Pressure is higher than ever to lower operating costs and improve productivity, amidst stringent regulations and rapidly advancing technology that is ever more complex and expensive. For NDT inspectors, delivering the most effective and reliable inspections to help customers meet those demands means overcoming the challenges of increasingly complex testing procedures, an increasing number of instrument parameters to understand, and the growing loss of domain expertise.

Despite the accuracy and versatility of Ultrasonic Phased Array Testing (PAUT), the design of PAUT equipment currently available on the market can increase the cost of these inspections while decreasing the efficiency and consistency. Complicated inspection processes require extensive inspector training, while instruments designed to gather a wealth of data for a range of use-cases can lead to inconsistency among procedures.

But what if performing high-quality and efficient UT inspections was as easy as using a smartphone? With Mentor UT from Baker Hughes, it is.



Consistency you can customize.

Mentor UT offers a new kind of inspection experience by combining outstanding UT performance, customizable workflow applications and user interfaces, and intuitive hardware with embedded expertise—making inspections more accessible and efficient.



Mentor create

This desktop software allows you to customize or create inspection “apps” for your unique testing procedures, industry applications, and experience levels. These can be as detailed or generic as you see fit.

User-defined menus can walk technicians through every step of any inspection—from probe selection and calibration, to reporting—ensuring consistency across your inspections, every time, from every inspector. And with the flexibility to load multiple workflows on one device, you can guarantee easy access to the right apps for any inspection.



Mentor PC

Utilize all the tools available on Mentor UT, right on your PC. With Mentor PC, you can conveniently upload and analyze your inspection data on your computer without having to purchase or learn another specialized software package.

With Mentor PC Live, you can harness the processing power of your PC to drive the Mentor UT remotely with the scan data saved directly to your local network. Visit inspectionworks.com to download the software at no cost.



Power meets performance

Mentor UT was developed with the quality and precision you expect from Waygate Technologies. And it's now more powerful than ever.

Field-ready right out of the box

Take the guesswork out of inspection setup with probe kits and inspection apps already installed on your device. Reference guides are also immediately accessible during field inspections with pictures, videos, training documents, and detailed inspection procedures.



Remote calibration-capable

Save time and resources. Every Mentor UT is InspectionWorks enabled. This makes it the first UT device to easily allow wireless connectivity and live streaming. Now, you can get expert advice or a second opinion for tough inspection calls when you need it: in real time.



High-performance design

With 20 kHz pulse repetition frequency (PRF), Mentor UT combines a 32:32 phased array flaw detector (upgradable to 32:128) with a conventional UT channel to instantly switch between phased array and conventional inspections as needed.



Rugged durability

Mentor UT stands up to tough environments with its IP65 durability rating. It's extensively tested for water and dust resistance, extreme heat and humidity, cold, vibration, shocks, and drops.



Intuitive operation

With a glove-friendly, daylight-readable touchscreen, data collection, archiving and reporting are simplified with the ability to store A-scan data, as well as post-inspection analyses, right on the device.

Compatibility to meet your needs.

Ultrasonic Testing is not one-size-fits-all. Mentor UT adapts to fit your needs. It is the only unit on the market that allows you to choose your probe connector, and was designed with three connector options. You can easily pair the instrument with our rugged, field-proven line of probes and a variety of aftermarket scanners and robotic systems to meet a range of inspection needs, and maximize your investment.



For a low cost, lightweight option, connect directly to your Mentor UT device. A good choice for dedicated applications.



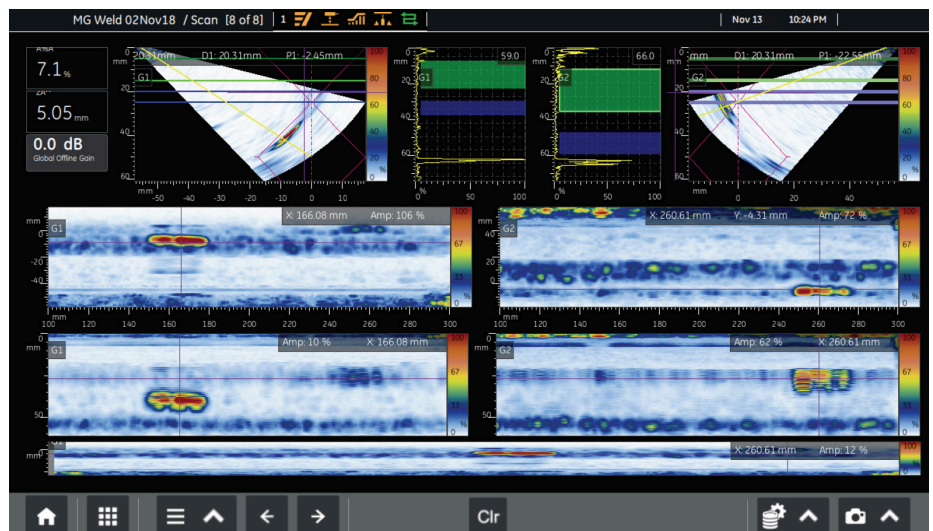
For maximum flexibility, Mentor UT can be configured with an industry standard Tyco or Ipex PA probe connector.



For maximum functionality, attach the MUX module and gain 32:128 capability, an additional hot swappable battery, and standard Tyco connector.

MultiGroup capability

With the MultiGroup functionality, you can apply up to 8 unique set-ups per scan. These can be applied between 1 and 4 connected arrays, for up to 128 elements.



General specifications

Physical	
Dimensions (W x H x D)	295 mm x 230 mm x 60 mm (12" x 9.4" x 2.4")
Weight, w/Battery	2.9 kg (6.5 lbs)

Display	
Size	264 mm (10.4") diagonal
Resolution	1024 x 768 pixels
Mode	Indoor and outdoor specific color modes
Viewing angle	± 85° all directions

Touch screen (Multi-touch)	
Gloved operation	Yes
Surface	Chemically strengthened glass, scratch resistant, chemical resistant, optically bonded to display

Data storage	
Solid state hard drive	128 GB
USB storage	USB 2.0 w included module
Data capture	Full ASCAN capture for every CSCAN point, all settings. Recall on instrument with full analysis capability
Data files	memd files, CSV files
Settings files	All instrument settings plus position in workflow
Screen capture	JPG Format
Report	PDF Format

Connectivity	
Wi-Fi	802.11 b, g, n
Connectors	USB 2.0, Ethernet, HDMI
Remote collaboration	Local Network and Internet-Enabled via InspectionWorks Connect
Inspectionworks	Enabled

I/O	
Axes	2 digital quadrature encoders for X-Y axes
Audible	Tone, 2.7 kHz

Power	
Internal battery	63 WH Lithium Ion
External battery	84 WH Lithium Ion
Power supply	100 to 240 VAC, 47-63 Hz, 1.9 A; 12VDC
Battery life	3 hrs internal, 6 hrs with external battery under typical operating conditions
Compliance	Meets IATA air transport regulations with one contained installed battery and one packed external battery

Environmental	
Operating temperature	-21C to +55 C (-6F to 131F) to MIL-STD-810G Method 501.5 & 502.5, Procedure I
Storage temperature	-21C to +70C (-6F to 158F) to MIL-STD-810G Method 501.5 & 502.5, Procedure II
Ingress protection	Tested to IP65
Shock	4' Transit Drop to MIL-STD-810G method 516.6, Procedure V

Data visualization	
User interface	Customizable with Mentor Create software
Zoom	Any data view may be expanded to full screen with gesture
Instructional material	Rich Text, JPG, PNG, BMP, PDF or Video (MP4)
Views	Phased Array: ASCAN, ESCAN, SSCAN, BSCAN, CSCAN, CSCAN OVERVIEW, AMPLITUDE MAP, DEPTH MAP TOFD: ASCAN, OVERVIEW TOFD Conventional: ASCAN, CSCAN, CSCAN OVERVIEW, BSCAN
Probe selection	Swap between conventional and phased array on same screen
Evaluation	3 Gates, one can be used as interface echo gate
Measurements	Amplitudes, Depth, Distance, % Wall Loss, Thinnest Point, X and Y Positions
Calibrations	Phased Array: TCG, Material Velocity, Probe Delay, Sensitivity, Encoder Cal, Dead Element Check TOFD: PCS, Sensitivity, Encoder Cal Conventional: 2 Point (Material Velocity and Probe Delay), DAC/TCG; DGS; AWS D1.1

Ultrasonic specifications

Configuration	
Phased array	
Channels	32
Aperture	1–32 Elements
Max elements	32
Focal laws	1024
Scanning	Linear, sectorial, focused
Conventional	
Channels	1
Pulser (phased array and conventional)	
PRF	10 Hz to 20 kHz
Pulse shape	Bipolar or unipolar square wave
Voltage	20–150 V _{pp} , 0 – -75V _{op} ; in 5 V steps
Width (auto or manual)	50–3000 nS
Delay step increment	10 nS
Receiver and digitizer (phased array and conventional)	
Gain	0–78 dB (Phased Array), 0–94 dB (Conventional); in 0.2 dB steps
TCG	
Number of Points	Up to 16
Slope	50 dB/μS
Rectification	Pos HW, Neg HW, Full, RF
Bandwidth	0.5 MHz to 15 MHz
Digitizing Rate	62.5 MHz, up-sampled to 500 MHz
Delay Step Increment	2.5 nS
Acquisition Range	50 nS to 150 μS
ASCAN Compression Points	512, 1024, 2048, 4096

MUX module specifications

Physical	
Dimensions (W x H x D)	218 mm x 213 mm x 104 mm (8.6" x 8.4" x 4.1")
Weight, w/Battery	3.0 kg (6.5 lbs)
Power	
Exchangable battery, hot swap	84 WH Lithium Ion
Power supply	100 to 240 VAC, 47–63 Hz, 1.9 A; 12VDC
Configurations	
Phased Array	
Channels	32
Aperture	1–32 Elements
Max elements	128
Focal laws	1024
Scanning	Linear, sectorial, focused
Conventional	
Channels	1

Mentor UT and MUX Module complies to standard EN ISO 18563-1 for Phased Array Channels and EN ISO 12668-1 for Conventional Channels.

With Waygate Technologies, inspection starts here.

Waygate's industry-leading Mentor portables are designed to enable the most reliable inspections, regardless of experience level. With outstanding performance and advanced software, these connected NDT portable devices can help you improve inspection productivity, asset reliability, and confidence.

Waygate Technologies,
a Baker Hughes business

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