



# Mentor UT

The power of ultrasonic phased array inspection meets everyday use.



# Reimagine ultrasonic testing

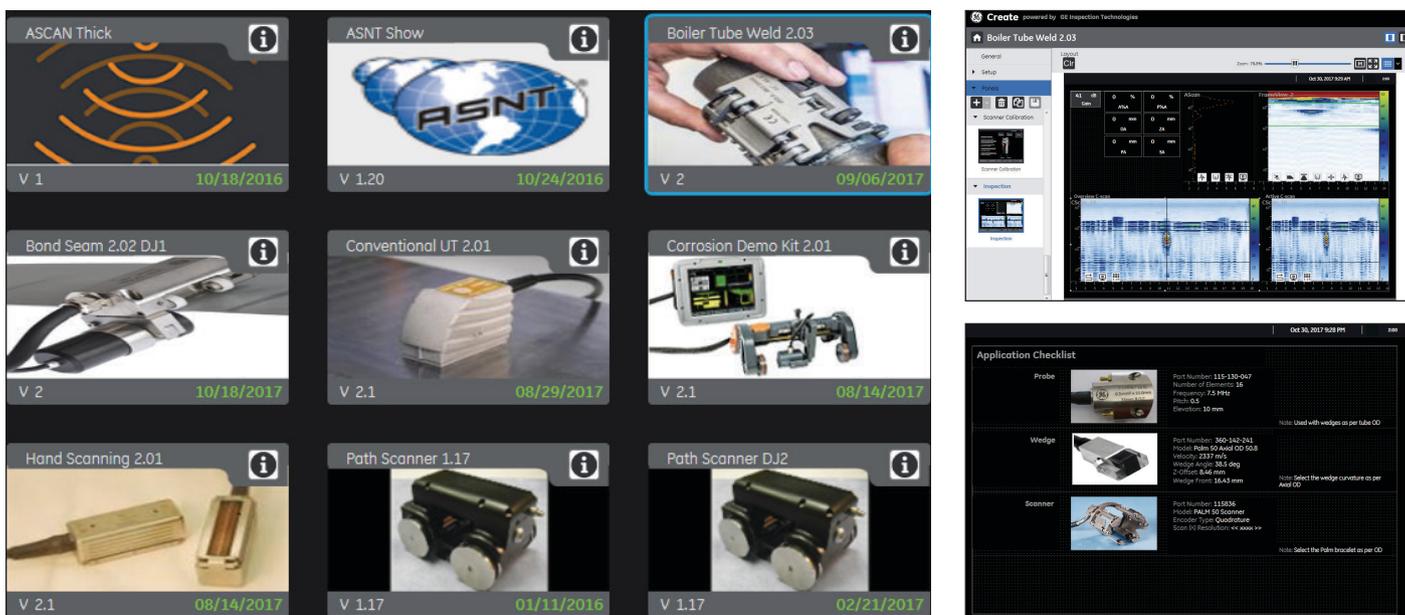
Pressure is higher than ever to lower operating costs and improve productivity, amidst stringent regulations and rapidly advancing technology that is ever more complex and expensive. For NDT inspectors, delivering the most effective and reliable inspections to help customers meet those demands means 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 GE, it is.



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.



Using Mentor Create is as easy as creating a powerpoint presentation, with each screen in the Mentor Create App acting like it's own slide.

Design your own inspection workflows for Mentor UT using GE's desktop software, Mentor Create. Customize inspection "apps" tailored to your unique testing procedures, industry applications and experience levels that can be as detailed or generic as each individual user sees fit.

User defined menus walk technicians through every step of an 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 constant access to the right workflow needed for your inspection.

With Mentor UT, you get more productive, quality inspections.



# Power meets performance

Mentor UT was developed with the quality and precision you expect from GE.

## Field-ready right out of the box

Take the guesswork out of inspection setup with probe kits and inspection apps already installed on your Mentor UT device. Whether you're inspecting composites, welds, bolts, erosion or corrosion, create workflows that run the gamut from simple to extensive using GE-provided on-device apps for basic inspections. Reference guides are also immediately accessible during field inspections with pictures, videos, training documents and detailed inspection procedures.



### Collaborative by design— 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.



### Rugged durability

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



### 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.



### 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.

# Ultrasonic Testing is not one-size-fits-all.

## Maximize your investment with unparalleled compatibility

A fleet of Phased Array Transducers is a significantly larger investment than a fleet of single element transducers. That's why Mentor UT was designed with three connector options. Easily pair the instrument with GE's rugged, field-proven line of probes and a variety of commercially available aftermarket scanners and robotic systems to meet a range of inspection needs.



For a low cost, lightweight option, connect directly to your Mentor UT device



Mentor UT delivers integral standard probe connection. Choose from commonly found Tyco or Ipex options.



MUX with increased capability up to 32:128 available with Tyco or Ipex options.

# 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	-20C to +55 C (-4F to 131F) to MIL-STD-810G Method 501.5 & 502.5, Procedure I
Storage Temperature	-20C to +70C (-4F 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	A-SCAN, C-SCAN, C-SCAN OVERVIEW, E-SCAN, S-SCAN
Probe Selection	Swap between conventional and phased array on same screen
Evaluation	2 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, Auto80, Encoder Cal, Dead Element Check Conventional: 2 Point (Material Velocity and Probe Delay)

# Ultrasonic specifications

Configuration	
<b>Phased Array</b>	
Channels	32
Aperture	1-32 Elements
Max Elements	32
Focal Laws	1024
Scanning	Linear, sectorial, focused
<b>Conventional</b>	
Channels	1
<b>Pulser (Phased Array and Conventional)</b>	
PRF	10 Hz to 20 kHz
Pulse Shape	Bipolar or unipolar square wave
Voltage	20-150 V <sub>pp</sub> , 0 - -75V <sub>op</sub> ; in 5 V steps
Width (auto or manual)	50-3000 nS
Delay Step Increment	10 nS
<b>Receiver and Digitizer (Phased Array and Conventional)</b>	
Gain	0-78 dB (Phased Array), 0-94 dB (Conventional); in 0.2 dB steps
<b>TCG</b>	
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)	8.6" x 8.4" x 4.1"
Weight, w/Battery	6.5 lbs
<b>Power</b>	
Exchangable Battery, hot swap	84 WH Lithium Ion
Power Supply	100 to 240 VAC, 47-63 Hz, 1.9 A; 12VDC
<b>Configurations</b>	
<b>Phased Array</b>	
Channels	32
Aperture	1-32 Elements
Max Elements	128
Focal Laws	1024
Scanning	Linear, sectorial, focused
<b>Conventional</b>	
Channels	1

# With GE, innovation is the standard.

True to form for the world's preeminent Digital Industrial Company, GE's industry-leading Mentor platform of connected NDT portables is designed to enable reliable inspection for all users, regardless of experience level. With outstanding performance and advanced software, the Mentor family of products is ready and able to help your organization improve inspection productivity and equipment reliability.



## **GE Inspection Technologies**

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