USM Go
A flexible Flaw Detector that can be a Thickness Gauge

The new ultrasonic Go platform from GE’s Inspection Technologies business combines a thickness gauge and a flaw detector in one single lightweight instrument. With fast field software upgradeability, start with a USM Go and add DMS Go flaw detector capabilities as your inspections demand, or buy both initially.

The choice is yours!

See other side of the brochure for more information about the DMS Go.
USM Go  
Setting New Standards in Flaw Detection Instrumentation

Portability
- Small size, lightweight, robust, dust- and waterproof construction allow the instrument to be easily operated in confined spaces, areas of difficult access, and in harsh environments.
- Can be operated with one hand, leaving other hand free for other tasks, such as maintaining probe in optimum position or holding on to ladders.
- Light enough to be carried throughout a whole day’s shift.
- Battery provides up to 6 hours operation. Can be recharged on- or off-board.
- Several accessories to improve mobility are available: wrist strap, shoulder harness, belt holster.

Easy-to-Read Screen
- A display screen that is the same size as those in other GE flaw detectors, even though the instrument is much smaller than other instruments in the range.
- An 800 x 480 pixel display, which is better resolution than a standard DVD.
- A screen with an optimized aspect ratio to ensure highly defined echo separation.
- A screen that can be easily viewed, whether hand-held or desk-mounted.
- A screen that has been ergonomically sized to help reduce eyestrain.
- An integrated stand allows the user to optimize the viewing angle, when the instrument is desk- or bench-mounted.
- AutoGate Threshold for faster measurement with optimum accuracy.
- A-scan freeze mode function (for gate A and B) facilitates working in difficult ergonomic conditions.
- Display measurement indicators show both amplitude and distance to reduce risk of error.

Ease of Use
- Pressure-sensitive joystick imported and adapted from the successful range of remote visual inspection and ultrasonic equipment offered by GE.
- All controls within fingertip reach. User can dedicate function keys according to preference.
- A “Flip” function allows the instrument to be used equally well by left-handed and right-handed people.
- A standard USB connection to allow data to be downloaded from the flaw detector for further analysis or storage.
- The instrument’s 2 GB memory can be easily exchanged by SD cards up to 16 GB.
- Reports are produced in jpeg format so there is no need for special reading software.
- Printable summary list of all parameters.
- Easy directory management on SD cards.
- Built-in menu customization tool allows to adapt the menu structure to two levels of users.
- Yearly calibration reminder for efficient quality management.
- Smart notes function increases reporting efficiency.

Ergonomically Designed with the User in Mind
The USM Go ultrasonic portable flaw detector has been ergonomically designed to provide an instrument that is light, small and easy to use in the harshest of inspection environments. Its ergonomic features include:
Increasing Productivity

The USM Go features intuitive operation so there is virtually no time-consuming, learning curve.

You are productive from the moment you pick it up!

There is no need to refer to the manual, as clear instructions are provided as you go along. Navigation is simplified using the proven graphical user interface (GUI) and the innovative joystick, allowing one-handed operation for fast and accurate adjustment.

Other features allowing increased productivity are:

- A robust molded rubber casing to withstand the harshest environments and significantly reduce downtime. The instrument is dust- and water-proof to IP67 and is tested to withstand shock and vibration.
- A simple on-board data logger to collect and save thickness measurements or eventually attach the corresponding A-scan image.
- Backwall Echo Attenuator (BEA) helps to find very small defects improving detectability.
- Automatic Gate Threshold for the 2 gates ensuring accurate measurements made under the same conditions.
- Video recording up to 8 minutes allows live reporting.

High UT Performance

- State-of-the-art electronics, including digital amplification, for a wide range of application benefits.
- A wide Pulse Repetition Frequency range allows use at low PRF to inspect forged parts without any "ghost" echoes and to inspect welds at high PRF when fast and regular scanning movement is required.
- Optional square wave pulser for more demanding applications.
  - Precise Time of Flight indication in µs.
  - TrueDGS compatible.

Versatile and Upgradeable

Customized versions of the USM Go are also available, specially adapted to meet specific inspection codes or applications. For example, an optional square wave pulser can be supplied for applications involving the inspection of highly attenuative material. The versions shown in the table are currently available. For more detailed information, please contact your local GE representative or visit www.ge-mcs.com.

All the NEW features of the USM Go are accessible to existing USM Go customers.

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### USM Go Options

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NEW

NEW

NEW
The USM Go has been designed to provide flaw detection capability in inspection situations throughout the industrial and process spectrum, from aerospace to power generation and from the automotive sector to the oil and gas industry.

These include:

**Weld Inspection:**
- Trigonometric projections
- AWS
- DAC
- DGS

**Inspection of Composites:**
- RF Display
- 2 gates with B-start triggered with echo in gate A
- TCG correction with high slope 120 dB/µs
- Reflector depth indicated in layer

**Inspection of Forgings and Castings:**
- Manual PRF adjustment
- Phantom echo indicator
- DGS
- **NEW** Backwall Echo Attenuator (BEA)

**Inspection of rails:**
- High PRF (up to 2000 Hz)
- Lightweight: 850 g (1.87 lb)
- Small size and ergonomics

**For more demanding applications:**
- Narrow band filters
- Low noise digital amplifier
- Optional square wave pulser
- TCG correction with high slope 120 dB/µs
- **NEW** Backwall Echo Attenuator (BEA)
USM Go - Technical Specifications

**LCD Display**
- **Active Area**: W x H: 108 mm x 64.8 mm (4.25" x 2.55")
- **Screen Diagonal**: 5.0"
- **Pixel Resolution W x H**: 800 x 480 pixels

**Connectors**
- **Probe Connectors**: Two LEMO-00
- **UT Output Connector**: SAP output, alarm
- **USB Interface**: Micro USB connector
- **SD Card Connector**: Full size SD card slot to accommodate standard SD cards

**Pulser - All pulser measurements taken according to EN12668 specifications**
- **Pulser Mode**: Simulated spike standard, uni-polar square wave optional
- **Pulser Voltage (SQ Model)**: 120 V to 300 V with 10 V steps
- **Pulser Width (SQ Model)**: 30 ns to 500 ns with 20 ns steps
- **Pulser Amplitude (Spike Mode)**: Low: 120 V, High: 300 V
- **Damping**: 50 or 1000 Ohms
- **PRF**: Automatically optimized between 15 Hz to 2000 Hz; 3 automatic adjustment modes: AutoLow, AutoMed, AutoHigh - Manual Control of PRF from 15 to 2000 Hz

**Receiver**
- **Range**: 14016 mm at steel longitudinal wave (557")
- **Digital Gain**: Dynamic range of 110 db, with 0.2 dB step
- **Analog Bandwidth**: 0.2 MHz - 20 MHz
- **Filters**: Broad band Narrow band filters 1: 2, 2.25, 4.5, 10, 13, 15 MHz

**Gate**
- **Independent Gates**: 2 Gates (A and B), Gate B can support triggering by Gate A
- **Rectification**: Full Wave (FW), Positive (POS), RF, Negative (NEG)
- **Measurement**: Peak, Flank, JFlank
- **Measurement units**: TOF in, mm, µs, %, dB

**Memory**
- **Capacity**: 2 GB SD card. Up to 16 GB memory cards can be used
- **Report**: Jpeg and BMP reports

**Data Logger**
- **Option**: for thickness or A-scan recording, compatible with UltraMATE

**Environmental**

| Battery | 6 hours battery life
|---------|---------------------|
| On board charging | No on board charging
| Off board charging with optional adaptor | No off board charging
| Proportional battery gauge indicating remaining operation time | No proportional battery gauge
| Automatic energy server mode (Auto Off) allows saving battery life by putting the instrument in sleep mode automatically when not in use | No automatic energy server mode
| Charger | “Universal” AC [100-240 V, 50-60 Hz]
| Meets CCC, CE, UL, CSA and PSE requirements | No CCC, CE, UL, CSA and PSE requirements

| Size | 175 mm x 111 mm x 50 mm (6.8" x 4.3" x 1.9")
| Weight | 865 g (1.87 lb) with the battery
| Languages | Bulgarian, Chinese, Czech, Dutch, English, French, German, Hungarian, Italian, Japanese, Portuguese, Polish, Russian and Spanish

**Protection as per Mil-Std-810F**

| Damp Heat and Humidity (Storage) | 10 cycles, 10 hrs at 60°C (140°F) down to 30°C (86°F), 10 hrs at 30°C (86°F) up to 60°C (140°F), transitions within 2 hrs, 507.4°
| Temperature Shock (Storage) | 3 cycles: 4 hrs at ~20°C (4°F) up to 60°C (140°F), 4 hrs at 60°C (140°F), transitions within 5 minutes, 503.4 Procedure II
| Vibration | 514.5-5, Procedure I, annex C, figure 6, general exposure: 1 hr each axis
| Shock | 6 cycles each axis, 15 g, 11 ms half sine, 516.5 Procedure I

**Loose Cargo (In Shipping Container)**
- **Transit Drop**: 516.5 Procedure IV, 26 drops

**Operating Temperature Range**
- 0°C to 55°C (32 to 131°F)

**Storage Temperature Range**
- -20°C to 60°C (-4°F to 140°F) with battery, 24 hrs

**Dustproof / Waterproof**
- As per IEC 529 specification for IP67 classification

**Compliance**
- **EMC/EMI**: EN 55011
- **EN61000-6-2:2001**:
- **Ultrasound**: EN 12668
- **ASTM E1324**:
- **E317**:
- **ANSI/NCSL Z 540-1-1994**:
- **MIL STD 45662A**:
- **MIL STD 2154**:

**Options**

| Backwall Echo Attenuator | Allows improved defect detectability
| USM Go AWS Option | AWS sizing tool according to AWS D1.1 structural welding code
| USM Go DAC Option | DAC sizing tool 16 points compliant with EN 1712 - EN 1713 - EN 1714
| USM Go Embedded Data Logger Option | Custom linear and grid file creation
| USM Go DGS Option | DGS sizing tool compliant with EN 1712
| USM Go Phantom Indicator Option | Phantom-PRF will help to identify ghost echo due to multiple reflections in low materials
Upgrade your USM Go to the DMS Go Thickness Gauge

The USM Go uses the same operating and navigating platform as the DMS Go portable thickness gauge. By means of a simple software purchase your USM Go can benefit from all the DMS Go functionalities and perform advanced thickness measurements.

This means that NDT personnel now need to carry only one inspection instrument to perform accurate and dependable thickness measurement and flaw detection. A further benefit of this dual modality is a significant reduction in operator training times.

Build your own instrument!

An extensive range of upgrade possibilities is available. Choose any of the DMS Go options and add it to your USM Go package.

For more information contact your local GE representative or visit www.gesensinginspection.com
The new ultrasonic Go platform from GE’s Inspection Technologies business combines a thickness gauge and a flaw detector in one single lightweight instrument. With fast field software upgradeability, start with a DMS Go and add USM Go flaw detector capabilities as your inspections demand, or buy both initially.

The choice is yours!
See other side of the brochure for more information about the USM Go.
The DMS Go from GE’s Inspection Technologies business is a high-end thickness gauge which combines an innovative, easy-to-use user interface, powerful data management and an ability to provide accurate, reliable and comprehensive thickness inspection data. It is ideally suited for a wide range of applications including measuring for corrosion in the oil and gas sector and in power generation.

**Operational Excellence**

The DMS Go has been designed to provide improved reliability, accuracy and reportability of thickness readings in a wide range of applications. Its operational features include:

- High measurement stability and reliability resulting from zero crossing measurement technique.
- Automatic gain control for excellent repeatability and corrosion monitoring.

- Built-in temperature compensation algorithm allows accurate measurement up to 540°C (1000°F).
- Multiple Calibration and Zeroing modes for repeatable accuracy, including:
  - 2-point calibration.
  - 1-point calibration with Manual on-block zeroing.
  - 1-point calibration with Auto-zeroing for every measurement (coupled).
  - 1-point calibration with User-zeroing in the air (uncoupled).

- Multiple measurement modes for every applications including:
  - A-Scan
  - Thickness
  - B-Scan
  - Min / Max
  - Differential
- Support of several standard probes and the capability to support virtually any probe using the custom probe setup feature.
- Ability to operate in harsh environments with IP67 sealing.

**Easy-to-Read Screen**

- A large display screen, which can be adjusted to provide optimum visibility in varying ambient light conditions.
- An 800x480 pixel display, which is better resolution than a standard DVD.
- A screen which has been ergonomically sized to help reduce eye strain.
- Choice of thickness view, which can be either large A-scan with smaller digits or large digits with smaller A-Scan.
Ease of Use

- Pressure-sensitive joystick imported and adapted from the successful range of remote visual inspection and ultrasonic equipment offered by GE.
- Can be operated with one hand, leaving other hand free for critical tasks, such as maintaining probe in optimum position or holding on to ladders.
- One hand menu directed calibration process.
- All controls within fingertip reach.
- A “Flip” function allows the instrument to be used equally well by left-handed and right-handed operators.

Portability

- Small size, lightweight, robust dust and waterproof construction allow the instrument to be easily operated in confined spaces, areas of difficult access, and in harsh environments.
- Light enough to be carried throughout a whole day’s shift.
- Battery provides up to 10 hours operation. Can be recharged on- or off-board.
- Several accessories to improve mobility are available: wrist strap, shoulder harness, belt holster.

High Capacity Data Recorder and Compatibility with Powerful Data Management Systems

The DMS Go offers powerful data recording and data management capability to meet the most demanding of thickness gauging and corrosion inspections. Important features include:

- Powerful on-board data recorder has capacity of hundreds of thousands readings and permits the storage of A-scan, B-scan and MicroGRID attachments to thickness readings.
- Data can be organized using pre-set (linear, grid, boiler), custom (custom linear, custom grid) or advanced (3D and 4D in UltraMATE) files structures.
- Data transfer is via industry standard removable SD card up to 16 GB.
- A USB port is included to allow instrument to PC connection if preferred – no driver needed, works with all versions of Windows.
- Export in different file formats [xls, html, dat, csv, pdf..] to allow easy integration with user data management softwares and user quality control systems.
- Compatible with UltraMATE and UltraMATE lite data management programs to allow for comprehensive analysis and documentation of data.
- The data recorder files can be interfaced with other 3rd party software programs using a GE software development kit, supplied on CD.

Best-in-Class Ergonomics

The DMS Go portable thickness gauge is lightweight, versatile and easy to use in the harshest of inspection environments. Its ergonomic features include:

DMS Go Options

<table>
<thead>
<tr>
<th>Feature</th>
<th>DMS Go Base</th>
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<th>DMS Go DR</th>
<th>DMS Go Advanced</th>
</tr>
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<tbody>
<tr>
<td>The Instrument + Zero Block</td>
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<td>1 Battery</td>
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<tr>
<td>Battery Charger</td>
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<tr>
<td>Mobility Kit: Handstrap + SD Card + Transportation Case</td>
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<tr>
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<tr>
<td>USM Go Flaw Detector Features</td>
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</table>
The DMS Go high-end thickness gauge is suited for thickness measurement in a wide variety of applications and especially for corrosion measurement/monitoring, even at high temperatures and on coated parts.

Typical applications include:

- Inspection for corrosion in tubes, vessels and tanks in the oil and gas sectors.
- Inspection of complex geometry tubes in refineries and power generation plants.
- Thickness measurement of austenitic materials.
- Measurement of remaining wall thickness through thick paint coatings.
- Measurement of high attenuation cast components in foundries.
- Maintenance checks in the aerospace sector.
- Monitoring of power generation boiler’s efficiency by measuring Oxide Scale in boiler tube with special probe OSS-10.
- Optional applications software includes:
  + TopCOAT technology to allow measurement of coating as well as metal thickness.
  + Auto-V measurement mode to enable thickness to be measured on components with unknown sound velocities without the need for a calibration block.

The great variety of applications is made possible by the large selection of probes available for the DMS Go including high temperature versions.
## DMS Go - Technical Specifications

### Display
- NVGA Color LCD with adjustable LED Backlight
- **Active Area**
  - W: 108 mm (4.25")
  - H: 64.8 mm (2.55")
- **Screen Diagonal**: 5.0"
- **Pixel Resolution**: W x H: 800 x 480 pixels

### Environment
- **Languages**: English, German, French, Spanish, Chinese and Japanese
- **Size**: 175 mm x 111 mm x 50 mm (6.8" x 4.3" x 1.9")
- **Weight**: 870g (1.9 lb) with the battery and stand including zero block

### Temperature Shock (Storage)
- 3 cycles: 4 hrs at –20°C (-4°F) up to 60°C (140°F), 4 hrs at 60°C (140°F), Transitions within 5 minutes
- MIL-STD-810E Method 503.4, Procedure II

### Vibration
- MIL-STD-810E Method 514.5, Procedure I, Annex C, Figure 6, General Exposure: 1 hr each Axis

### Shock
- 6 cycles each Axis, 15 g, 11 ms Half Sine, MIL-STD-810E Method 516.5, Procedure I

### Loose Cargo (In Shipping Container)
- MIL-STD-810E Method 514.5, Procedure II

### Transit Drop (Packaged for Shipment)
- MIL-STD-810E Method 516.5, Procedure IV, 26 drops

### Operating Temperature Range
- 0°C to 55°C (32 to 131°F)
- Storage Temperature Range: -20°C to 60°C (-4°C to 140°F) with battery, 24 hrs

### Dustproof / Waterproof
- As per IEC 529 Specification for IP67 Classification

### Compliance
- EMC/EMI: EN 55011 & EN 61000-6-2:2001
- Ultrasound: EN 15317, EN12668, ASTM-E1324, ASTM-E317

### I/O Connectors
- Transducer: Dual lemo-00 (Coax)
- Mini USB
- Power IN and TTL Alarm OUT

### Power Supply
- **Battery Type**: Li-ion battery
- **Operating Time**: Min 8 hours in typical DMS Go continuous operation
- **On Board Charging**
- **Off Board Charging with Optional Adaptor**
- **Proportional Battery Gauge Indicating Remaining Operation Time**
- **Charger**
  - "Universal" AC (100-240 V, 50-60 Hz) meets CCC, CE, UL, CSA and PSE requirements

### Measuring Range
- 0.40 mm to 650 mm (0.010" to 25.00") in steel, in standard operation, depending on the probe, material and surface

### Digital Display Resolution
- 0.01 mm or 0.1 mm (0.001" or 0.01") selectable over the entire measuring range

### Material Velocity Range
- 250 to 16,000 m/s (0.0098" to 0.6299")/us

### Units
- Selectable: Millimeter or Inch

### Measurement Techniques
- All measurements using Zero Crossing technique single element IP to 1st echo / single element multi echo / dual-element IP to 1st echo / dual element multi echo

### DMS Go TC Only
- TopCoat (Patent# 6,035,717) and Auto-V

### Measurement Display Modes
- Temperature Corrected Thickness
- Thickness and large A-Scan
- B-Scan
- MIN / MAX Capture
- Differential
- Calibration
  - One-point, Two-point
  - Auto or Manual On-block and Off-block Zero
  - Automatic V-path Correction

### Update Rate
- 32 Hz in MIN/MAX-capture Mode and B-Scan Display Mode
- 4 Hz or 8 Hz or 16 Hz (Selectable) in Standard Mode

### Receiver
- 110 dB Dynamic Range
- Automatic gain control with manual (set by user), High, Low and Auto Gain Limit

### Pulser
- Square Wave, Pulse width and -voltage (120 V or 250 V) automatically matched to probe

### Memory
- 2 GB SD Card included. Up to 16 GB memory cards can be used
- Data export as PDF, XML, CSV, DAT, Jpeg screen copy

### Data Recorder
- 100,000 readings per file. Multiple files can be stored on SD card up to card capacity

### File Formats
- 6 File Formats with OR Option [3 with Base Instrument]

### Application Software
- **UltraMATE Lite**
  - Simple data management program for transferring measurement data files to a PC, including integration of the data into Windows programs
- **UltraMATE**
  - Extensive data management program for displaying and printing measurement data as graphics, for managing test data, for entering comments on files
- **Software Development Kit**
  - Available for integration into other software applications
Upgrade your DMS Go to the USM Go Flaw Detector

The DMS Go uses the same operating platform as the USM Go portable flaw detector. By means of a simple software purchase your DMS Go can benefit from all the USM Go functionalities and perform advanced flaw detections.

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Build your own instrument!

An extensive range of upgrade possibilities is available. Choose any of the USM Go options and add it to your DMS Go package.

For more information contact your local GE representative or visit www.gesensinginspection.com