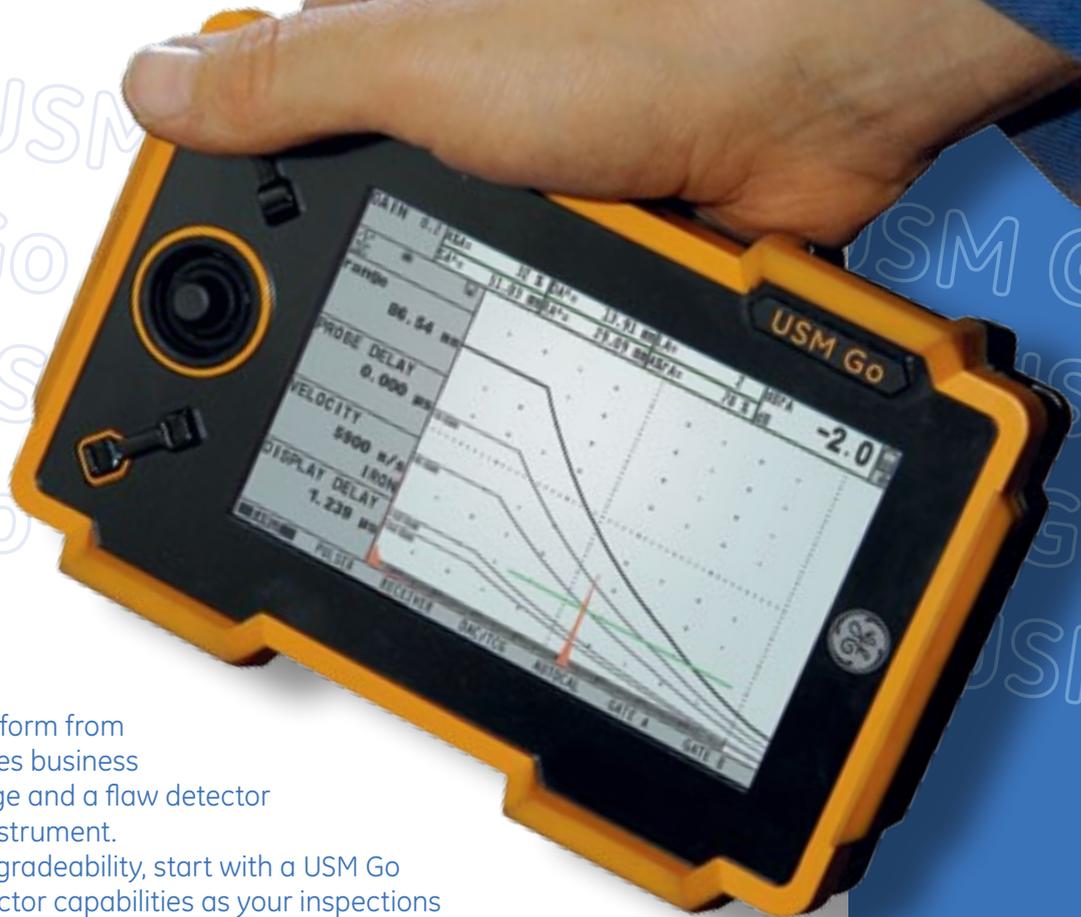


GE  
Measurement & Control Solutions

## USM Go

# A flexible Flaw Detector that can be a Thickness Gauge

Now with New Features



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



### 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:

#### Portability

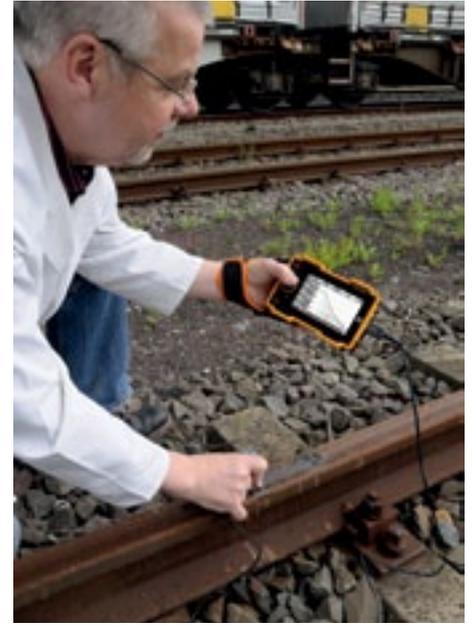
- Small size, lightweight, robust, dust- and waterproof construction allow the instrument to be easily operated in confined spaces, areas of difficult access, and in harsh environments.
- Can be operated with one hand, leaving other hand free for other tasks, such as maintaining probe in optimum position 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.
- NEW** A-scan freeze mode function (for gate A and B) facilitates working in difficult ergonomic conditions.
- NEW** 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.
- NEW** Printable summary list of all parameters.
- NEW** Easy directory management on SD cards.
- NEW** Built-in menu customization tool allows to adapt the menu structure to two levels of users.
- NEW** Yearly calibration reminder for efficient quality management.
- NEW** Smart notes function increases reporting efficiency.



## 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.
- NEW** Backwall Echo Attenuator (BEA) helps to find very small defects improving detectability.
- NEW** Automatic Gate Threshold for the 2 gates ensuring accurate measurements made under the same conditions.
- NEW** Video recording upto 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.

**NEW** Precise Time of Flight indication in  $\mu$ s.

**NEW** 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](http://www.ge-mcs.com).

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

USM Go Options	USM Go Base	USM Go AWS	USM Go DAC AWS	USM Go Advanced
The Instrument	•	•	•	•
1 Battery	•	•	•	•
Battery Charger	•	•	•	•
Power Cable	•	•	•	•
Transportation Case	•	•	•	•
Brief Instruction Card	•	•	•	•
Operating Manual on CD	•	•	•	•
Manufacturer Certificate	•	•	•	•
Hand Strap	•	•	•	•
AWS	option	•	•	•
DAC / TCG	option	option	•	•
DGS	option	option	option	•
Phantom PRF	option	option	option	•
Square Wave Pulser	option	option	option	•
DMS Go Thickness Gauge Features	option	option	option	option
Backwall Echo Attenuator (BEA)	option	option	option	option

## A Wide Range of Applications



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 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

### Inspection of Composites:

- RF Display
- 2 gates with B-start triggered with echo in gate A
- TCG correction with high slope 120 dB/ $\mu$ s
- Reflector depth indicated in layer

### For more demanding applications:

- Narrow band filters
- Low noise digital amplifier
- Optional square wave pulser
- TCG correction with high slope 120 dB/ $\mu$ s
- NEW** Backwall Echo Attenuator (BEA)

# USM Go - Technical Specifications



Water-, dust- and shockproof

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 Mode)	120 V to 300 V with 10 V steps
Pulser Width (SQ Mode)	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, $\mu$ s Amplitude % 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	
	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	
Size	175 mm x 111 mm x 50 mm (6.8" x 4.3" x 1.9")	
Weight	845 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), transition 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)	514.5 Procedure II	
Transit Drop (Packaged for Shipment)	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 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
TCG: 110 dB/ $\mu$ s slope		
USM Go DGS Option	DGS sizing tool compliant with EN 1712 <b>NEW</b> Including new <i>trueDGS</i> technology	
USM Go Embedded Data Logger Option	Custom linear and grid file creation	
USM Go Square Wave Pulser Option	Allows pulser parameters fine tuning	
	Voltage adjustment from 120 V to 300 V per 10 V steps	
	Pulse width adjustment from 30 ns to 500 ns per 10 ns steps	
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](http://www.gesensinginspection.com)

# DMS Go

## A flexible Thickness Gauge that can be a Flaw Detector



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.



## DMS Go – The Way Forward in Thickness Measurement Instrumentation



Views to suite everyone: large A-Scan, Data Recorder, thickness, B-Scan.

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 Performance Thickness Measurement

- 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.



## 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

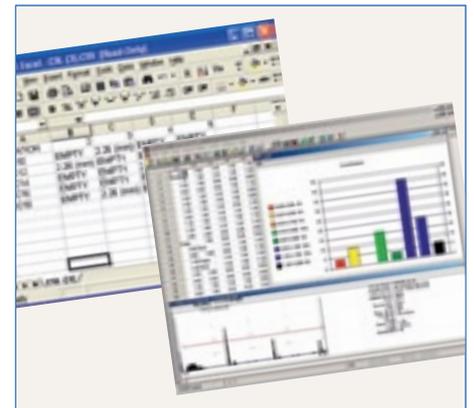
The DMS Go portable thickness gauge is lightweight, versatile and easy to use in the harshest of inspection environments. Its ergonomic features include:

### 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.



CSV File / Excel

UltraMATE



Support of large selection of probes

DMS Go Options	DMS Go Base	DMS Go TC	DMS Go DR	DMS Go Advanced
The Instrument + Zero Block	•	•	•	•
1 Battery	•	•	•	•
Battery Charger	•	•	•	•
Mobility Kit: Handstrap + SD Card + Transportation Case	•	•	•	•
TopCoat & Auto-V	option	•	option	•
Advanced Data Recorder	option	option	•	•
UltraMATE Lite	option	option	•	•
Chest Harness	option	option	•	•
USM Go Flaw Detector Features	option	option	option	option

## A Wide Range of Applications



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



Water-, dust- and shockproof

Display	
WVGA 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 to 140 °F) with battery, 24 hrs
Dustproof / Waterproof	As per IEC 529 Specification for IP67 Classification
Hazardous Atmosphere Operation	As defined by MIL-STD-810E, Method 511.3, Procedure 1
Compliance	
EMC/EMI	EN 55011 & EN61000-6-2:2001
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"/μs)	
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 DR Option (3 with Base Instrument)	
Attachments	
Insertion of 2x2 to 9x9 MicroGrid per Measuring Point	
1 to 16 user-definable comments for each file format with up to 16 alphanumeric characters per measuring point	
A-Scan	
B-Scan	
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.

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 USM Go options and add it to your DMS Go package.

For more information contact your local GE representative or visit [www.gesensinginspection.com](http://www.gesensinginspection.com)