

GE Phasor XS Portable Phased Array Ultrasonic

The GE Phasor XS brings the proven advantages of Phased Array technology to a new – and accessible – level. This portable and rugged device combines the value of Phased Array with a code-compliant conventional UT flaw detector. It is simple to use, easy to learn and specially designed with practical, relevant features.

When used in Phased Array mode, the operator can electronically control multiple beams from one probe. The precise beam control including angle, focus and size, results in improved probability of detection (POD) and sizing. With one scan from one contact location, greater area is covered and comprehensive data can be viewed in real time on a full color sector display. When compared to conventional Ultrasonic inspection, the productivity and cost savings from the Phasor XS are easily measured.



GE imagination at work



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Productivity gains

When the inspection requires a different angle with conventional ultrasonic testing, the operator must change his probe and re-visualize the integration of the new information. A different time base and sensitivity level is represented. Although this is not a problem for the skilled operator, it takes time. Through the power of Phasor XS, these inefficiencies are drastically minimized.

Real time color imaging from the Phasor XS supplies an integrated cross-sectional visualization of the part originating from multiple angles. A single A-Scan can also be selected for display in combination with the image. With a single probe, you can achieve more than ever before – and in less time!

Overall, the Phasor XS provides:

- Improved area coverage, faster results
- More information from one scan of the part
- Better recorded result from the generation of an image
- One probe replicates the capabilities of many conventional UT probes and wedges
- Time and cost savings from reduced hours evaluating indications with multiple angles

Measurable time savings!

Some weld inspections require a complete scan with three separate angles. Using the Phasor XS can result in a time savings of two thirds!

Test quality improvements

Defect orientation is a prediction made in the development of a test procedure and an inspection angle is chosen based on this prediction. Beam spread is chosen purposely broad to account for some level of error in the prediction, so essentially it is a compromise.

With the Phasor XS, electronic control of the beam allows test procedures to be developed that will yield higher Probability of Detection (POD), in the same inspection time, by allowing the choice of an ideal beam over the full inspection area. The quality of the scan is improved and the Phasor XS' full-color, real time sector display with selectable A-Scan supplies the standard accepted method for instant and reliable sizing.

Simple change over

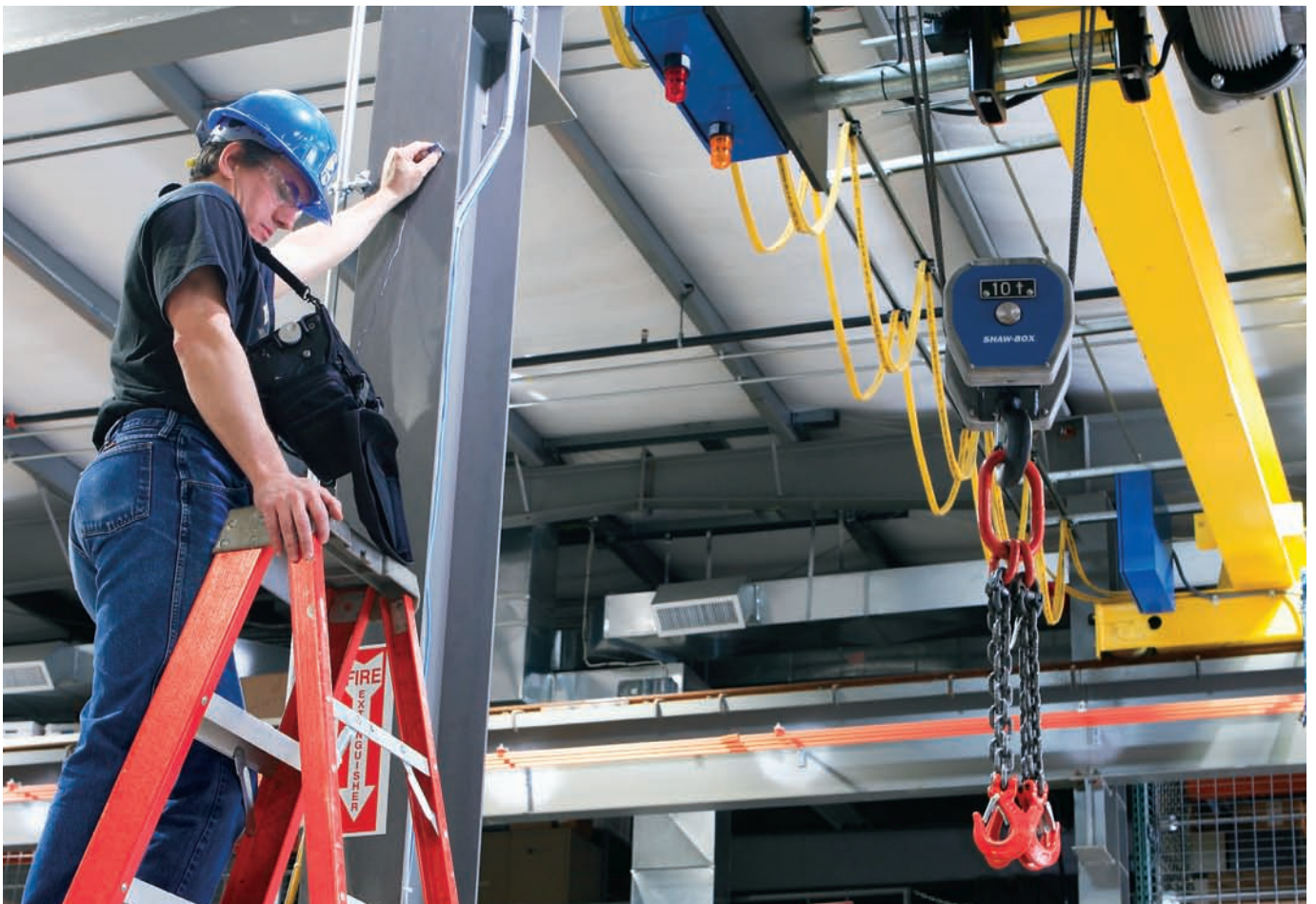
Building Phased Array capabilities into a successful proven operating platform ensures the transition to Phased Array inspection will be cost effective. Phasor XS' simple menu driven operation of basic Phased Array controls puts the technology within reach of the Level II field inspector. Data is easily interpreted and the cost of training is minimal.

Standard Features

An on board data set memory is combined with removable storage via an SD card for documentation and setup storage. This ensures your operators will be working with consistent setups to get brilliant results that you can see later on the screen or computer.

The unique Sector Freeze mode allows review and storage of all the A-Scans behind the image. Select your beam of interest from all of the shots for separate display and improve your sizing with focal and angle control.

- Combined Phased Array and code compliant Conventional UT flaw detector
- Truly portable Phased Array – less than 4 kg (7 lbs)
- Electronically controlled and selectable beam angles, focus and size
- Simultaneous inspection with multiple beams from a single location
- Full color, real time sector display with a selectable ASCAN
- Fullscreen Bscan plus Display reverse and flip
- Rugged packaging to withstand heavy onsite use
- Snap shot image storage of sector images and ASCANS
- Dialog probes 16/64
- Delay law calculator
- Push button control for operation in a bag
- Simple operating scheme
- Image transfer via SD card



Technical Specifications

Display Size Resolution	6.5" VGA (640*480 pixel) color TFT, 60Hz refresh rate
Battery Type	Custom Li-Ion battery pack (3S6P configuration)
Battery Life	4 hours minimum
Battery Charging	External charger that connects directly to the battery pack
External Power Supply	Universal input (85 – 265V / 50 – 60 Hz)
Units of Measure	inch and mm
SD Card Memory	Sealed compartment

	Conventional Channel	Phased Array Channels
Number of Cycles Focal laws	1	128 (max)
Pulse repetition Frequency	15 to 2000Hz	15 to 7680Hz
Pulser Type	Spike	Bipolar Squarewave
Pulser Voltage	300V (max)	+/-25V to +/-75V
Pulser Energy	Low, High	n/a
Pulser Rise Time	<15ns	Not Specified
Damping	50, 500 and 1000	n/a
Dual Mode	Off and On	n/a
Receiver Input Capacitance	<50pF	
Maximum Input Voltage	40Vp-p	
Bandwidth/ Amplifier bandpass	0.3 to 15MHz(-3dB points)	0.5 to 10MHz
Direct Documentation format	JPEG	JPEG
Probe Connections	00 Lemo/ BNC Adaptor Supplied	Custom Supplied
Physical Probe	n/a	1 to 64
Virtual Probe	n/a	1 to 16
Number of Cycles	1	1 to 128
Pulser Width (1/2 cycle)	n/a	40 to 500ns
Pulser Delay	n/a	0 to 10,24us
Receiver Delay	n/a	0 to 10,24us
Receiver Input Resistance	1000ohm (dual mode)	220ohm
Analog Gain	0 to 110.0dB	0 to 40.0dB
Digital Gain	n/a	0 to 50.0dB
Frequency Select	2.25MHz, 5MHz, LP and HP	2.25MHz, 5MHz, LP and HP
Rectification	PosHW, NegHW and Fullwave	PosHW, NegHW and Fullwave
Measurement Resolution	5nsec	5nsec
Displayed Readings	A%A, A%B, SA/, SA^, SB/, SB^	A%A, A%B, SA/, SA^, SB/, SB^
VGA output	Yes	Yes
SD Card Memory	Yes	Yes
RS 232 interface	Yes	Yes
Auto Timebase Calibration	Yes	No
Reject	0 to 80%	0 to 80%
TCG	16 points (max) - 6dB/usec	16 pints (max) - 6dB/usec
Sound Velocity	.0393 - .5905"/us(1000 - 15000m/s)	.0393 - .5905"/us(1000 - 15000m/s)
Range	5m @ steel shear velocity	1m @ steel shear velocity
Weight	7.5lbs (with batteries)	7.5lbs (with batteries)
Size	11.1"W x 6.75"H x 6.25"D (282 x 171 x 159mm)	11.1"W x 6.75"H x 6.25"D (282 x 171 x 159mm)
Display Delay	2.5m @ steel shear velocity	1m @ steel shear velocity
Gates	A, B	A, B, JF
Gate Threshold	5% to 95%	5% to 95%
Gate Start	[0.1mm to 2m]	0.1mm to 1m
Gate Width	[0.1mm to 2m]	0.1mm to 1m
Gate Modes	Off, Pos, Neg[Off, Coincidence, Anticoincidence]	
TOF Modes	Flank, Peak	Flank, Peak
Scan type	n/a	Linear or Sector
Data visualization refresh rate	60Hz	60Hz
Available views	Ascan	Ascan only, Image only, Ascan + Image
Dialog Languages	English, Spanish, German, French, Chinese, Japanese	English, Spanish, German, French, Chinese, Japanese

Environmental Tests	
	Per Mil-Std-810F
Cold Storage	-20C for 72 hrs, 502.4 Procedure I
Cold Operation	0C for 16 hrs, 502.4 Procedure II
Heat Storage	+70C for 48 hrs, 501.4 Procedure I
Heat Operation	+55C for 16 hrs, 501.4 Procedure II
Damp Heat / Humidity (storage)	10 Cycles: 10hrs at +65C down to +30C, 10 hrs at +30C up to +65C, Transition within 2 hrs, 507.4
Temperature Shock	3 Cycles: 4 hrs at -20C up to +70C, 4 hrs at +70C, Transitions within 5 minutes, 503.4 Procedure II
Vibration	514.5-5 Procedure I, Annex C, Figure 6, General exposure: 1hr each axis
Shock	6 cycles each axis, 15g, 11ms half sine, 516.5 Procedure I
Loose Cargo	514.5 Procedure II
Transit Drop (packaged for shipment)	516.5 Procedure IV, 26 drops
IP54 / IEC529 ... Dust Proof / dripping water proof as per IEC 529 specifications for IP54 classification	

Specifications subject to change without notice.

Environmental Sealing Tests	
IP54 / IEC529 ... Dust Proof / dripping water proof as per IEC 529 specifications for IP54 classification	
Environmental	
op temp	
Low battery indication	
Amplitude variation expected over battery life	
Graticule	
Architectural suppression	
Linearity on timebase	
Pulser, Voltage p to p, rise time, duration, fall time, Reverberation amplitude, frequency spectrum plot	
Amplifier and attenuator	

GE Inspection Technologies. The evolution of NDT.

When it comes to technology-driven, non-destructive testing (NDT) solutions, GE Inspection Technologies has been setting the global standard. Our ultrasonic products epitomize our expertise in pioneering and developing proven technologies that offer real, tangible benefits for industries from aerospace to automotive.



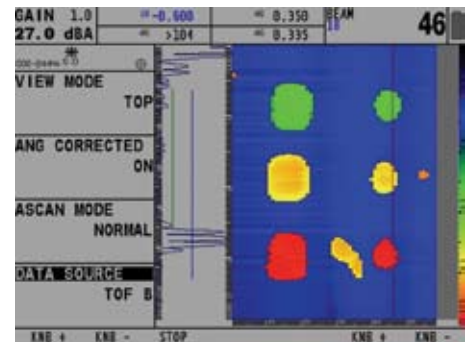
Phasor XS™ Version 2.0

Ultrasonic

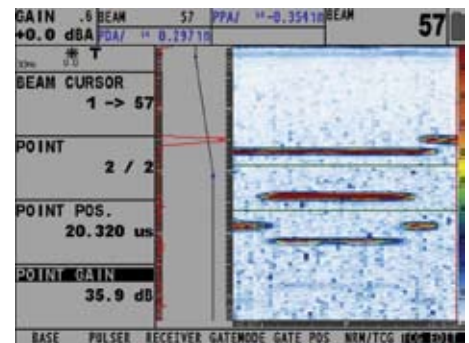
Enhanced Functions and Improved Imaging

Phasor XS Version 2.0 contains the latest upgrades and enhancements to meet ever-changing application demands:

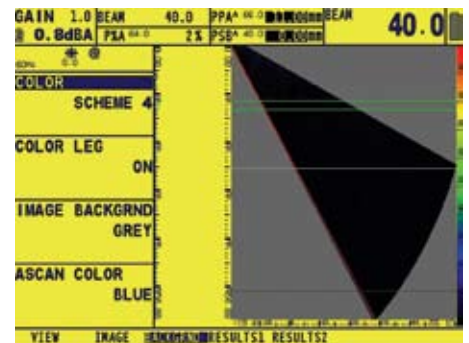
- Unique linear gain control to compensate for natural sensitivity variations for precise DAC/TCG recording.
- Improved time corrected gain for code compliant manual inspections. Precise beam-by-beam, point-by-point amplitude control.
- Primary angle TCG curves for increased reference adjustment on selected A-scan for accurate amplitude flaw sizing.



TOPView



Matrix TCG



Outlined sector scan



TOPVIEW

TOPView is available as an option in Version 2.0. TOPView literally lets the user view the scanned area from the top. It generates this perspective using the gated region in the Sector scan or Linear B-scan. Using TOPView, users can easily and more accurately record indications. TOPView also offers these enhanced features:

- Gate data points simultaneously buffered for Time of Flight and Amplitude from both gates for evaluation in Freeze Analysis mode.
- Dataset file records gate points (A-scans are not part of stored data.)
- Selectable Interface Gate Start mode for varying delay path
- New peak A-scan display

TCG Matrix

TCG Matrix provides linear gain control to compensate for the natural sensitivity variations with increasing angles, aiding in more accurate distance amplitude correction/time corrected gain (DAC/TCG) recording. TCG Matrix also adds more functionality and recording improvements:

- Selectable region of interest during TCG record in sector and B-scan views
- Display and edit DAC curve on all A-scans
- Time points displayed on ASCAN
- "All beam" manual TCG creation
- Floating TCG point marker
- Controlled linear Cycle Gain

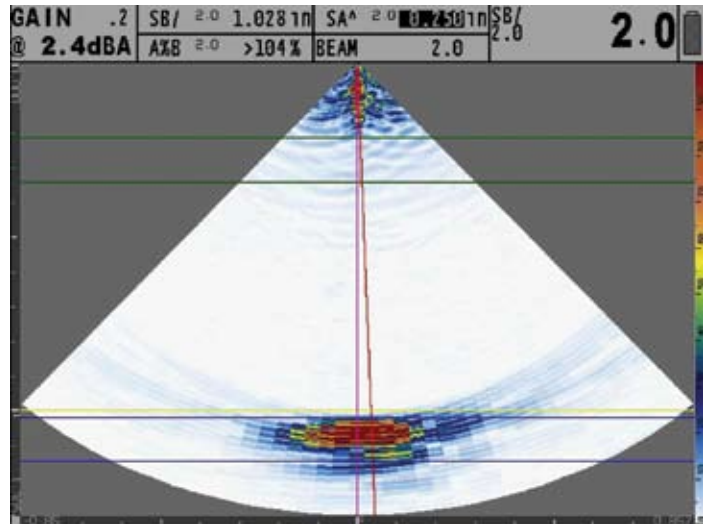
Other Key Features

- Freeze key extended use:
 - Pressing and holding freeze key now activates the actions chosen in the file menu.
 - Allows storage of dataset and all A-scans from front panel with one button.
 - File auto append for Datasets
- Report Header/memo edit after freeze - find the defect, freeze the screen, edit the memo and header, select a menu for the picture before storing.
- Manually controllable pulse repetition frequency (PRF)



Full Sector

Full Sector view enables selection of negative angles in sector view. Ideal for volumetric inspection in castings where flaw orientation is unknown.



Full sector scan

Specifications

Optional TOPView

Timed TOPView	In 64 Beams at 60 Hz setup File size: 3MB
ENCODED TOPView	In 64 Beams 0.5 mm SCAN interval setup File size: 3MB
Data Storage	Thickness and Amplitude from each A and B Gates
Stored DATA Type	Encoder position, loss of interface, saturation and NO DATA
Analysis on Instrument	Cursor selectable display of TOF and Amplitude digital values Data displayed as acquired or complete scan compression
EXTERNAL Image Viewing	Export via JPEG format by SD memory card Rhythm® Viewer - to view Frame images
TOPView image	Selectable DATA source display during acquisition TOFA, TOFB, AMPA, AMPB Selectable DATA source display in FREEZE mode
Interface GATE Function	GATE and Screen tracking when IF gate selected
Color Palette	Selectable 4 individual for Thickness and Amplitude data Additional USER definable custom palette

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GEIT-20052EN (03/08)