



Technical
Specifications

TOPAZ32

Portable High-Performance Phased Array UT Instrument

TOPAZ®32 is a 32-channel, high-performance phased array ultrasonic testing (PAUT) device with dual matrix array (DMA) support.

MAXIMIZE YOUR PRODUCTIVITY

TOPAZ32 users can complete the following all from the instrument:

- **Prepare** specimen and weld for inspection and calibrate setup. The visual feedback from the onboard shape editor and advanced focal law calculator allows easy setup creation and optimization.
- **Acquire** data in real-time in a range of views on the multi-touch screen. The calibration process is made easy with a complete calibration tool.
- **Analyze** the data in different views and automatically produce a table of indications. A full set of basic (cursors, readings) and advanced (merge, C-Scan stitching, gate selectors, volumetric contour, thickness thresholding, etc.) analysis tools are available with fully configurable display layouts onboard.
- **Report** in different levels to meet specific requirements. Ready-to-print custom PDF reports including hardware settings, scan plan, and indication information are generated with a single touch.

Optimally designed for oil & gas, power generation, manufacturing, and transportation inspection applications, TOPAZ32 boosts productivity, reduces job times, and can lower the total cost of equipment ownership.



INSPECTION ADVANTAGES

One of the many key advantages of the TOPAZ32 is that 2D matrix array probe support is now included without the need for any external software. This fully integrated and simplified approach can reduce the amount of equipment needed to perform an inspection.

With its rugged construction and airtight magnesium and rubber housing, TOPAZ32 is durable enough to handle inspections in even the harshest conditions. Its lightweight design makes the TOPAZ32 easily portable wherever you need to go.

TOPAZ32 portable 32 channel phased array is available in three versions:

- 32/128P - multi-group
- 32/128PR - multi-group with dual matrix array (DMA) support
- 32/128PR-TR - multi-group, DMA support and time reversal

APPLICATIONS

- Multi-probe PAUT and TOFD on thick carbon steel welds up to 100mm (4in) thick
- Corrosion mapping
- Composite inspections with time reversal
- Stainless steel welds using DMA (Dual Matrix Array) probes
- Friction stir welds

BENEFITS

- Phased array up to 32/128PR
- 2 conventional UT channels
- Multiple probes capability (2xPA + 2xTOFD)
- Up to 1024 focal laws
- 2D matrix array onboard support
- Time reversal option

STREAMLINED WORKFLOW

Advanced processing features and onboard calibration of the TOPAZ32 provide optimized layouts to accommodate phased array sensitivity, wedge delay, Time Corrected Gain (TCG), and velocity for each angle.

TOPAZ32 displays the calibration status for all channels (groups). If the relevant symbol is not green, the related parameter has not been calibrated. Scanning and data acquisition can only commence when all channels are showing as calibrated.

With a wide range of predefined onboard layouts to present data, users can create their own layout to meet specific requirements or personal preferences.

POWERED BY ULTRAVISION SOFTWARE

TOPAZ32 includes this powerful software onboard. Leverage a single software platform across the entire family of Zetec UT products, saving valuable training time and enabling new levels of system synergies. Benefit from powerful features including:

- Embedded advanced focal law calculator with visual feedback
- Onboard volumetric merge and measurement tools
- Interactive help onboard the instrument
- Remote control capabilities

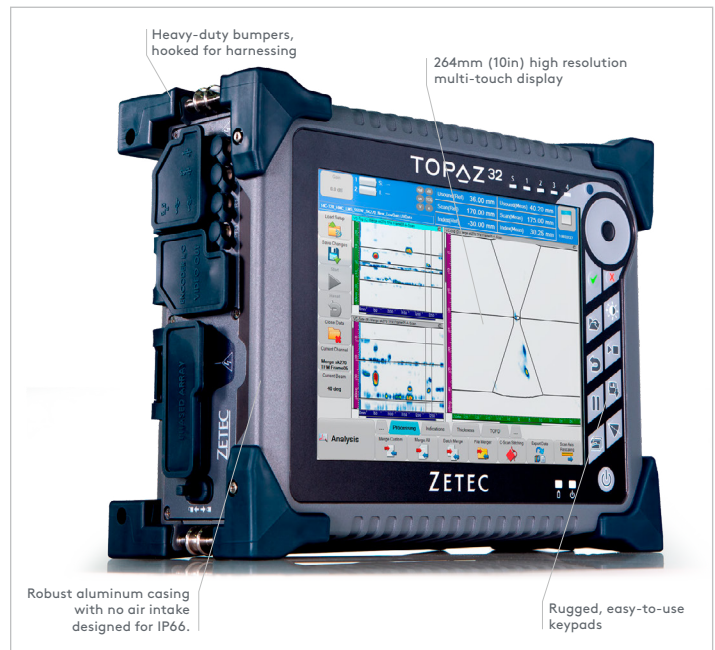


Figure 1: Annotated breakdown of TOPAZ32 showing its key features.

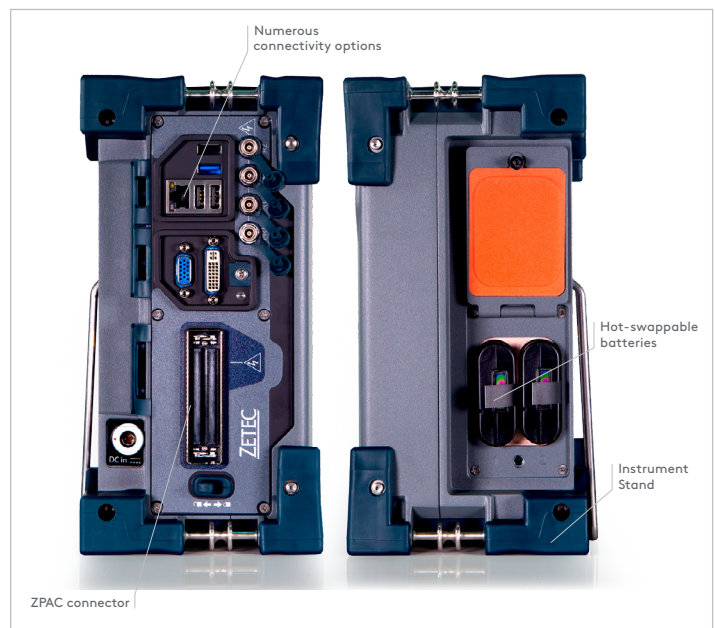


Figure 2: Annotated breakdown of TOPAZ32 showing its key features.

SPECIFICATIONS

INSTRUMENT

| | |
|-------------------------|------------------------------------------------|
| Dimensions (W x H x D) | 26 x 13.2 x 32.6cm (10.3 x 5.2 x 12.8in) |
| Weight with 1 battery | 6.3kg (13.9lb) |
| Multi-touch display | 264mm (10.4in) wide, 1024 x 768 pixels |
| Air intake | No |
| Hot swappable batteries | Yes |
| Storage | 120 GB SSD |
| Data interfaces | Ethernet 1000 Base-T; 1 x USB 3.0; 2 x USB 2.0 |
| Video output | DVI (Digital and Analog) |
| Phased array connector | ZPAC Connector (custom ZIF with latch) |
| Instrument calibration | Compliant with ISO 18563-1 |

PHASED ARRAY

| | |
|------------------------------------|----------------------------------------------------|
| Phased array channels | 32/128 P or 32/128 PR |
| UT channels | 2 P/E or 2 P&C |
| Amplitude resolution | 16 bits |
| Measurement gates | 4 gates + 1 synchronization gate |
| Maximum PRF | 12 kHz |
| Max. pulser voltage (open circuit) | 105V PA UT/215V UT |
| Max. applied voltage (50 ohms) | 75V PA UT/200V UT |
| Bandwidth (-3 dB) | from 0.5 to 18 MHz |
| Rectification | Digital |
| Filtering | Analog/Digital (FIR) |
| Smoothing (video filter) | Digital |
| Self-check | Yes |
| Automated probe detection | Yes (with Zetec probe ID chip) |
| Focal laws | 1024 |
| Maximum number of samples | 8,192 - 16,384 (remote - UltraVision® 3) |
| Maximum data file size | 2 GB onboard - 20 GB (remote using UltraVision® 3) |
| Encoder interfaces | 2 quadrature-type |

ENVIRONMENTAL

| | |
|---------------------------|--------------------------------------------------------------------------|
| IP rating | Designed for IP66 |
| Operating temperature | -10°C to 45°C (14°F to 113°F), with external fan kit: up to 53°C (127°F) |
| Storage temperature range | -40°C to 70°C (-40°F to 158°F) |
| Relative humidity | 80% non-condensing |

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