

— MIZ[®]-21C —

The Most Advanced Handheld With Surface Array Capability

TRULY AFFORDABLE EDDY CURRENT



Truly Affordable Eddy Current

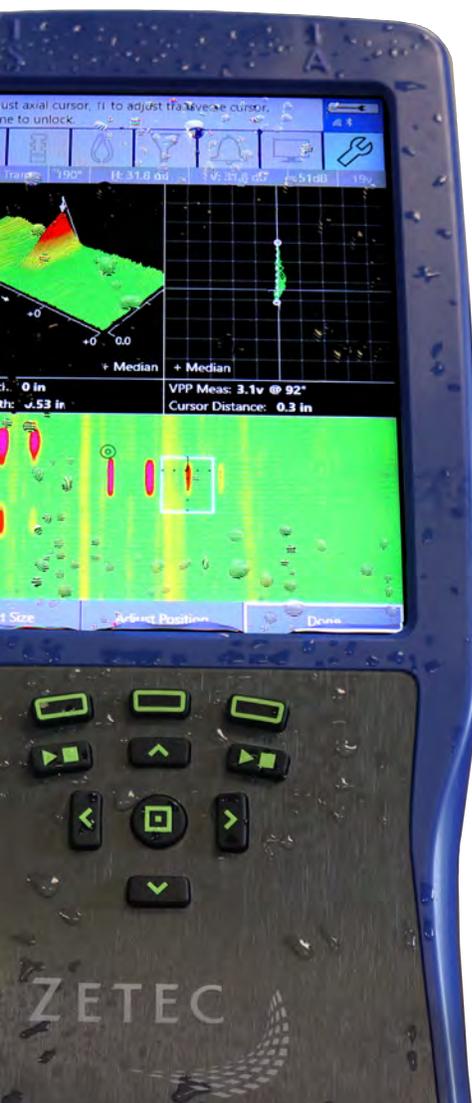
Introducing MIZ[®]-21C, the most advanced handheld instrument with surface array capabilities. The truly affordable MIZ-21C is ideal for aerospace, oil & gas, manufacturing and power generation applications. Its ergonomic design, long battery life and intuitive touchscreen enable users to inspect more areas faster than ever without fatigue. The MIZ-21C is compatible with a wide range of probes and scanners and comes in three models to meet your unique inspection needs and budget.

Designed for a Wide Range of Applications.

MIZ-21C delivers an inspection advantage across numerous inspection applications including:

Detecting Cracks Near Fastener Holes. Pencil probes are ideal for detecting small cracks in close proximity to fastener holes. The inspector uses a known crack or notch standard to set up the MIZ-21C signal display. Then, while scanning the test piece, the inspector can estimate the depth and length of surface cracks by comparing the phase and amplitude of the generated eddy current signal to the standard's signal.

Sealed & Rugged



Multi-Layer Corrosion Inspection. Identifying corrosion is one of the most critical and complex aspects of airframe inspections. Changes in skin thickness as well as varying multi-layer structures usually make it difficult to recognize signals. The MIZ-21C has the power to penetrate thick sections. Exceptional signal-to-noise ratio helps inspectors distinguish even a small loss of material. Dual-frequency with mixing nearly eliminates the unwanted signals caused by varying air gaps between layers that can "mask" the signal of interest.

Conductivity and Coating Thickness Measurement. Use digital conductivity measurements (resistivity) to characterize/sort materials. Directly measure the conductivity of metals and alloys, such as aluminum structures, using dedicated conductivity probes that have a broad operating frequency range. Or measure a nonconductive coating such as paint. The MIZ-21C offers a wide measurement range for both conductivity and thickness.

Save Time & Money.

MIZ-21C is a fast, highly portable and cost-effective replacement for Liquid Penetrant Testing (PT) and Magnetic Particle Testing (MT) inspections. The surface array option can reduce inspection time by up to 95% versus pencil probes. MIZ-21C's intuitive touchscreen and simple, yet powerful embedded software gets users inspecting in no time, offering quick set-up and hassle-free operation.

Inspect More Areas.

The MIZ-21C is designed for user comfort. It can be held for twice as long as other Eddy Current portable devices. The small form factor enables users to inspect hard-to-reach areas and components that other instruments can't. MIZ-21C brings the power of surface array to places it has never been before.

Improve Flaw Detection.

MIZ-21C features an industry-leading signal quality providing up to 25% better flaw detection capability. When coupled with surface array, users can be confident that MIZ-21C will deliver the most thorough inspection in its class.



Smart Features

MIZ-21C is Packed With Features for an Inspection Advantage.

- **Surface Array in a Handheld.** Cost-effective, highly portable solution that delivers significant advantages over Liquid Penetrant Testing (PT) and Magnetic Particle Testing (MT).
- **Increase Uptime, Wherever You Go.** Features up to a ten-hour battery life so users can operate the unit for an entire shift without recharging. Replaceable batteries support 24 hour operation.
- **Ergonomic Design.** Small, lightweight and comfortable to handle in tight spaces. MIZ-21C minimizes arm fatigue common with other portable instruments.
- **Intuitive Touchscreen.** Quickly rotate, zoom and pan using the two finger capacitive display. The onscreen keyboard further increases user efficiency.
- **Universal Symbol Buttons & Multi-Language Software.** One model for worldwide use and deployment. Universal symbol buttons handle all functions and are ideal for gloved inspections.
- **Flexible Connectivity.** Interface and transfer files through USB, Wi-Fi, and Bluetooth technology.
- **Built for Demanding Environments.** Fully sealed and temperature rated for most outdoor conditions. Drop and vibration tested for rugged use.
- **Standard 1/4-20 Fitting.** Connect thousands of off-the-shelf accessories for expanded functionality.



AVAILABLE IN THREE MODELS

| Feature | MIZ-21C-SF | MIZ-21C | MIZ-21C-ARRAY |
|--------------------|------------|---------|---------------|
| Conductivity | ✓ | ✓ | ✓ |
| Single Frequency | ✓ | ✓ | ✓ |
| Dual Frequency | | ✓ | ✓ |
| Rotating Scanner | | ✓ | ✓ |
| Eddy Current Array | | | ✓ |

COVER AND STAND INCLUDED!

Removable cover with adjustable hand straps and stand is included with all models for added protection, convenience and extended operation.



Adaptable to Meet Your Needs

MIZ-21C offers a range of accessories designed to meet your specific inspection needs.

ZM-5 Rotating Scanner for Small Diameter Holes.

Zetec's ZM-5 High-Speed Scanner is a convenient handheld tool designed for rapid and thorough inspection of small diameter holes, such as bolt hole and fastener holes. With an ergonomic design, the ZM-5 enables inspection of the hardest to reach areas. A rotating transformer couples the eddy current signals for an improved operating life over conventional slip rings. The ZM-5 uses a quick-disconnect cable design for easy replacement. Through adapters the MIZ-21C can drive other manufacturers' rotating scanners.



Surf-X™ Array Probes for Faster Flaw Detection.

Introducing the Zetec Surf-X line of surface array probes. Featuring a unique flexible circuit design and proprietary X-Probe™ technology, Surf-X array probes can lower total cost of ownership while providing excellent data quality as well as faster, safer inspections when compared with other inspection methods.



Small size. Easy to hold.

Inspecting Corrosion or Cracking in Pipes, Pressure Vessels, or Tanks. Surf-X Flex Probes can conform to gradual changes in the geometry of pipes, pressure vessels, or tanks to detect surface and sub-surface flaws in a variety of materials including aluminum and stainless steel. Corrosion is a common flaw in non-pressurized components, while stress corrosion cracking is common in components subjected to sustained tensile stress in a corrosive environment. The Surf-X array probe can easily detect the locations of both types of defects using the high precision embedded encoder to track position.

Assessing and Sizing Cracks in Raised Welds and Friction Stir Welds. Surf-X Weld Probes can also conform to geometry changes associated with raised welds to simultaneously inspect for axial and transverse cracking in the weld cap, toe, and heat-affected zones. Surf-X array probes use position indicators on the probe to help with alignment to ensure the entire area of interest is inspected. The flexible nature of the Surf-X array probe allows for the inspection of flat surfaces including friction stir welds. The long-life wear surface has been tested to 10,000 ft.



Specifications

Specifications in this document are subject to change

| FEATURE | |
|--|--|
| Size (H × W × D) | 267 × 122 × 38 mm (10.5 × 4.8 × 1.5 in) |
| Weight (including batteries and cover) | 1.2 kg (2.6 lb) |
| Multi-Touch Display | 5.7 in (480 x 640 pixels) |
| Battery Life | Up to 10 hours |
| Eddy Current Connector | 18-Pin Lemo |
| Eddy Current Array Connector | 26-Pin Lemo |
| Connectivity | USB 2.0, Wi-Fi, Bluetooth |
| Encoders | 2 axes, quadrature |
| Probe Recognition and Setup | Automatic with Zetec ID Chip |
| Coil Inputs | MIZ-21C-SF: 1, MIZ-21C: 1, MIZ-21C-ARRAY: 3 |
| Frequencies Per Timeslot | MIZ-21C-SF: 1, MIZ-21C: 2, MIZ-21C-ARRAY: 2 |
| Data Channels | MIZ-21C-SF: 32, MIZ-21C: 64, MIZ-21C-ARRAY: 192 |
| Maximum Probe Coils | MIZ-21C-SF: 2, MIZ-21C: 2, MIZ-21C-ARRAY: 32 |
| Frequency Range | 5 Hz to 10 MHz |
| Generator Output | Up to 12 Vpp (19 Vpp for ECA) in 0.1 Volt increments |
| Injection Modes | Continuous and Super-Multiplex |
| Receiver Gain | 10 to 123 dB |
| Data Resolution | 16 bits |
| Probe Drive | 50 Ohm |
| Filters | Median, High Pass, Low Pass, High Pass 2 (Adjustable CC), Bandpass, Spike, SNR |
| Alarms | Adjustable Box, Sector, and Polar, Audio adjustable volume, Headphone support |
| Conductivity Frequency | 60, 120, 240 and 480 kHz |
| Conductivity Specification | Digital readout in 0.9 to 110 %IACS (0.5 to 70 MS/m), Accuracy within ±0.5% IACS from 0.9% to 65% IACS and within ±1.0% of values over 65% |
| Non-Conductive Coating Thickness | Can measure non-conductive coating thickness from 0 mm to 1.000 mm. Accuracy of 0.025 mm (±0.001 in.) over a 0 mm to 0.64 mm range |
| Rotating Scanner | MIZ-21C-SF: No, MIZ-21C: Yes, MIZ-21C-ARRAY: Yes Zetec Rotating Scanner, Others |
| Maximum Data File Size | 60 seconds or 10 meters |
| Languages | English, Spanish, French, German, Chinese, Japanese, Portuguese |
| Internal Storage | 128 GB |
| Instrument Calibration | ISO/IEC 17025:2005, Meets or exceeds manufacturer's requirements |



General Specifications

Voltage: 100 to 240 VAC, Auto-Switching

Frequency: 50 to 60 Hz

Output Voltage: 15 VDC

Maximum Power: 40 W

Operating Temperature: -10°C to 50°C (14°F to 122°F)

Storage Temperature: -20°C to 70°C (-4°F to 158°F)
(w/out batteries)

Relative Humidity: 95% non-condensing

CE mark is an attestation of the conformity with all applicable directives and standards of the European Community. WEEE, RoHS.

Accessories Ordering Information

| Part Number | Description |
|-------------|--|
| 169A901-00 | ZES-SCN-ZM-5_HIGH_SPEED_ROTATING_SCANNER_KIT |
| 10058810 | ZES-ACC-MIZ-21C-BATTERY CHARGER, 6 BAY |
| 100561285 | ZES-ACC-MIZ-21C-BATTERY, 1 CELL |
| 177A000-14 | ZES-ACC-MIZ-21C-WIRELESS DISPLAY ADAPTER |
| 111A802-00 | ZES-ADP-MIZ-21C_18-PIN_TO_12-PIN_GE_SCANNER_6FT |
| 111A803-00 | ZES-ADP-MIZ-21C_18-PIN_TO_16-PIN_OLYMPUS_SCANNER_6FT |
| 111A804-00 | ZES-ADP-MIZ-21C_18-PIN_TO_MICRODOT_PROBES_6FT |
| 111A805-00 | ZES-ADP-MIZ-21C_18-PIN_TO_TRIAX_PROBES_6FT |
| 111A806-00 | ZES-ADP-MIZ-21C_18-PIN_TO_3-PIN_ZETEC_PROBES_6FT |
| 111A807-00 | ZES-ADP-MIZ-21C_18-PIN_TO_4-PIN_FISCHER_PROBES_1FT |
| 111A810-00 | ZES-ADP-MIZ-21C_18-PIN_TO_18-PIN_ZETEC_SCANNER_6FT |

Environmental Tests

As per MIL-STD-810H

Cold Storage - 502.7 procedure I

Cold Operation - 502.7 procedure II

Heat Storage - 501.7 procedure I

Heat Operation - 501.7 procedure II

Shock - 514.8 procedure I

Vibration - 514.8 Annex C Table 514.8C-IX

Transit Drop - 516.8 procedure IV

Drop Test - 516.8 procedure IV, 1.2 m (4 ft) with cover

Explosive Atmosphere - 511.7 procedure I

Specifications included in this document are subject to change.

Ordering Information

111A901-00 - ZES-HHT-MIZ-21C-SF

Fully integrated single frequency handheld Eddy Current system featuring 1 input and 32 active channels on up to 2 coil probes. Supports Conductivity. System purchase includes: MIZ-21C unit, rechargeable batteries, AC adapter, cover, stand, screen protector, user manual in USB drive, certification, and hard carrying case.

111A902-00 - ZES-HHT-MIZ-21C

Fully integrated dual frequency handheld Eddy Current system featuring 1 input and 64 active channels on up to 2 coil probes. Supports Conductivity and Rotating Scanner. System purchase includes: MIZ-21C unit, rechargeable batteries, AC adapter, cover, stand, screen protector, user manual in USB drive, certification, and hard carrying case.

111A903-00 - ZES-HHT-MIZ-21C-ARRAY

Fully integrated dual frequency handheld Eddy Current system featuring 3 inputs and 192 active channels on up to 32 coil probes. Supports Conductivity, Rotating Scanner, and Surface Array. System purchase includes: MIZ-21C unit, rechargeable batteries, AC adapter, cover, stand, screen protector, user manual in USB drive, certification, and hard carrying case.

111A904-00 - ZES-HHT-MIZ-21C-SF_WIRELESS-LOCKED

Wireless locked version of MIZ-21C-SF.

111A905-00 - ZES-HHT-MIZ-21C_WIRELESS-LOCKED

Wireless locked version of MIZ-21C.

111A906-00 - ZES-HHT-MIZ-21C-ARRAY_WIRELESS-LOCKED

Wireless locked version of MIZ-21C-ARRAY.



Zetec holds ISO 9001 and ISO/IEC 17025 certifications



FOR MORE INFORMATION ABOUT MIZ-21C OR OTHER ZETEC PRODUCTS CONTACT US AT info@zetec.com OR VISIT www.zetec.com.