ZETEC
THE INSPECTION ADVANTAGE

MIZ®-21C

The Most Advanced Handheld With Surface Array Capability

INSPECTION CONFIDENCE SIMPLIFIED

www.zetec.com

Inspection Confidence Simplified

Introducing MIZ®-21C, the most advanced handheld instrument with surface array capabilities. The MIZ-21C is ideal for aerospace, oil & gas, manufacturing and power generation applications. Inspection confidence is simplified with its ergonomic design, long battery life, and intuitive touchscreen which enables users to inspect more areas faster than ever without fatigue. The MIZ-21C is compatible with a wide range of probes and scanners with 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.

Low Total Cost of Ownership.

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. Take fewer steps with automated features and the easy to use interface.

Improved Inspection Performance.

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. Focus on scanning quality with post analysis on recorded data.

Technology that Works for Today and Tomorrow.

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. Multiple models are upgradeable in one software ecosystem.

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 Productivity, Wherever You Go.** 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.
- **Ease of Use & Multi-Language Software.** One model for worldwide 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.
- **Maximize POD.** With impeccable signal to noise ratio, the MIZ-21C excels at all applications: bolt holes, layer detection, rivet holes, corrosion, cracking, conductivity, coating thickness, welds, and depth sizing.

AVAILABLE IN THREE MODELS

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

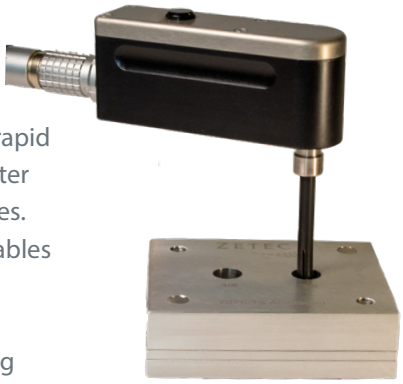
COVER AND STAND INCLUDED!

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

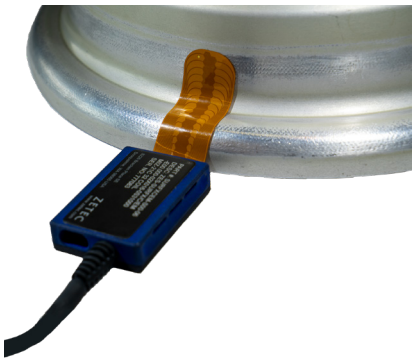
MIZ-21C offers a range of accessories designed to meet your specific inspection needs.

ZM-5 Rotating Scanner for Small Diameter Holes.

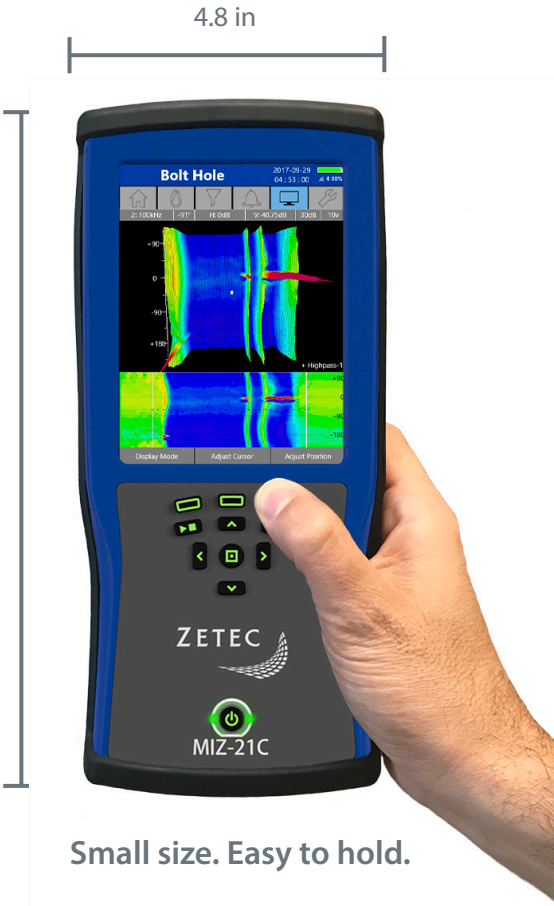


Zetec's ZM-5 High-Speed Scanner is a convenient handheld tool designed for rapid and thorough inspection of small diameter holes, such as bolt hole and fastener holes. With an ergonomic design, the ZM-5 enables inspection of the hardest to reach areas. A rotating transformer couples the eddy current 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, Only 1 axis is currently available for surface array applications
Probe Recognition and Setup	Automatic with Zetec ID Chip
Coil Inputs	MIZ-21C-SF: 1, MIZ-21C-DF: 1, MIZ-21C-ARRAY: 3
Frequencies Per Timeslot	MIZ-21C-SF: 1, MIZ-21C-DF: 2, MIZ-21C-ARRAY: 2
Data Channels	MIZ-21C-SF: 32, MIZ-21C-DF: 64, MIZ-21C-ARRAY: 192
Maximum Probe Coils	MIZ-21C-SF: 2, MIZ-21C-DF: 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 173 dB
Phase	0 to 359.9° down to 0.1° increments
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, Head-phone 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 (0 mil) to 2.032 mm (80 mil). 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-DF: 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, Russian
Internal Storage	128 GB
Instrument Calibration	ISO 15548-1:2013, 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	
IP Rating: Designed to IP-66	
Altitude: Up to 1700 m	
Overvoltage Category: II	
Pollution Degree:	PD3 on battery power PD2 with external power supply Indoor or outdoor use when battery powered (protected at all times from liquids, dust, direct sunlight, precipitation, and wind)
Wet Locations: On battery power only	
Supply Voltage Fluctuation for AC Adapter: ±10%	

CE mark is an attestation of the conformity with all applicable directives and standards of the European Community. WEEE, RoHS 3, ISO 12718, ISO 15549, ISO 15548. MIZ-21C NRTL: IEC 61010-1:2010, AMD1:2016 All CENELEC members listed in EN 61010-1:2010+A1:2016. Canada National Differences according to CSA C22.2 No. 61010-1 + Amd 1. US National Differences according to UL 61010-1(3rd Ed.); Am.1 Switzerland National Differences according to SN EN 61010-1:2010 Australian National Differences according to AS 61010-1.

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
10061917	ZES-ACC-MIZ-21C-GEN3-NRTL BATTERY 18650 LI-ION 3.6V
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 - 516.8 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 that 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-DF
Fully integrated dual frequency handheld Eddy Current system featuring 1 input that 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-DF_WIRELESS-LOCKED
Wireless locked version of MIZ-21C-DF.

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

ZETEC
THE INSPECTION ADVANTAGE

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

© Zetec Inc. 2023. All Rights Reserved.
"Zetec", "MIZ" and "SURF-X" are registered trademarks or trademarks of Zetec Inc. in the United States and/or other countries. The names of actual companies and products mentioned herein may be the trademarks of their respective owners.

All the information herein is subject to change without prior notification. ZDS0228 Rev B