

Technical
Specifications

MIZ-21C

Advanced handheld eddy current testing.

Introducing MIZ®-21C, the most advanced handheld instrument with surface array capabilities. The truly affordable MIZ-21C is ideal for aerospace applications.

SAVE TIME AND 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 get users inspecting in no time, offering quick setup and hassle-free operation.

INSPECT MORE AREAS

The MIZ-21C is designed for user comfort. Its low weight of 1.2kg (2.6lb) makes it ideal for one-hand operation. The small form factor enables users to carry the MIZ-21C in any inspection environment, enabling the portability of surface eddy currents to a level never reached before.

IMPROVE FLAW DETECTION

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

With features that include depth sizing, fully sealed unit, excellent operating temperature range, up to 10 hours of battery life, large internal storage capacity and more, MIZ-21C maximizes inspection efficiency and value.



INSPECTION ADVANTAGE

- **Increase Uptime, Wherever You Go.** Features up to 10 hours 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 Fittings.** Connect thousands of off-the-shelf accessories for expanded functionality



Figure 2: Blade inspection with MIZ-21C.



Figure 1: Annotated breakdown of MIZ-21C.

DESIGNED FOR A WIDE RANGE OF APPLICATIONS

MIZ-21C delivers an inspection advantage across numerous aerospace inspection applications.

AXIAL ENCODER FOR BOLT HOLE INSPECTION

Important maintenance decisions often require more contextual information than the simple detection of a crack. Traditional rotating probes indicate only whether a crack is present; when combined with an axial encoder, bolt-hole inspection is dramatically enhanced. The axial encoder enables speed-independent, multi-layer scans that precisely locate a flaw and identify the specific layer in which it resides. It also permits measurement and quantification of layer delamination. The axial-encoder module is designed for compatibility with standard rotating probes.



Figure 3: Axial encoder for bolt hole inspection.

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.

DETECTING CRACKS NEAR FASTENER HOLES

Pencil probes are an option 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. A fast, simple option is to use the available surface array capabilities of the MIZ-21C instrument and Surf-X Array probe. This approach can simplify the inspection and complete it in a fraction of the time compared to more traditional methods.



Figure 4: Crack detection around fasteners with MIZ-21C.

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.



Figure 5: MIZ-21C performs conductivity and coating thickness measurement.

AVAILABLE IN THREE MODELS

FEATURE	MIZ-21C-SF	MIZ-21C	MIZ-21C-ARRAY
Conductivity	●	●	●
Single Frequency	●	●	●
Dual Frequency		●	●
Rotating Scanner		●	●
Eddy Current Array			●

SPECIFICATIONS

INSTRUMENT

Dimensions (H × W × D)	267 × 122 × 38mm (10.5 × 4.8 × 1.5in)
Weight (including batteries and cover)	1.2kg (2.6lb)
Multi-Touch Display	5.7in (480 x 640 pixels)
Battery Life	Up to 10 hours
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/o batteries)
Relative Humidity	95% non-condensing
Storage	128 GB
Instrument Calibration	Compliant with ISO/IEC 17025:2005, Meets or exceeds manufacturer's requirments
Languages	English, Spanish, French, German, Chinese, Japanese, Portuguese

INSTRUMENT

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 0mm to 1.000mm. Accuracy of 0.025mm (±0.001in.) over a 0mm to 0.64mm range
Rotating Scanner	MIZ-21C-SF: No, MIZ-21C: Yes, MIZ-21C-ARRAY: Yes Zetec Rotating Scanner, Others
Axial Encoder (Accessory)	Determines depth, length, and location of flaws.
Maximum Data File Size	60 s or 10 meters

Please note that the MIZ-21C is manufactured by Zetec Inc. Although affiliated to Eddyfi Technologies, Zetec Inc. is an independently managed company because of contractual obligations with the US government as a key supplier for classified business. Zetec products are sold by Eddyfi Technologies on behalf of Zetec Inc. The information in this document is accurate as of its publication. Actual products may differ from those presented herein. © 2024 Eddyfi Canada, Inc. Eddyfi Technologies, MIZ-21C, and their associated logos are trademarks or registered trademarks of Eddyfi Canada, Inc. in the United States and/or other countries. Eddyfi Technologies reserves the right to change product offerings and specifications without notice.

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