Eddy Current Instruments and -Systems

Rohmann GmbH

ELOTEST M3

Hand held and portable dual frequency eddy current instrument

with oversized 5,7“ display

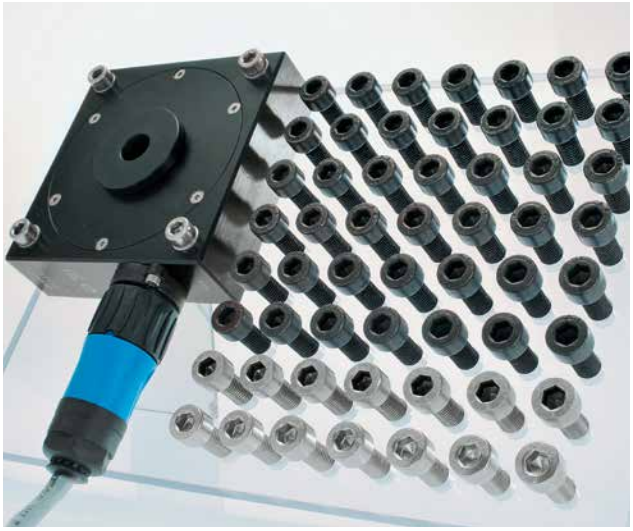
Additional HD-Rotorfilter for specific ROTOR applications

ELOTEST M3 - EXAMPLES OF APPLICATIONS

Crack detection of hidden defects in aluminium rivet layers

Dynamic surface crack detection rotor blade

Manual surface crack detection with adapted contour sensor



Coil for sorting test with screws of different tensile strengths

Test set for rough environmental conditions with LED-crack indicator on the probe

Bore hole inspection with mini rotor on aluminium structures

Conductivity measurement in IACSor MS/m from 1 % up to 110% IACS

ELOTEST M3 Set

ELOTEST M3
Technical Data

Rohmann GmbH

User-Interface ELOTEST M3

- Pictograph-based operation via key pad with key-click
- 6 languages: English, German, French, Italian, Swedish, and Spanish
- Direct-function keys for offset- and liftoff-compensation
- Programmable function key
- Intuitive operation using only one submenu-level
- Speed control for rotor (torque compensated) in 10 steps (corresponds to approx. 900rpm to 2700rpm using Rohmann standard rotors)

Probe Connection

- 11-pin Fischer socket, compatible with the 8-pin Fischer connector
- BNC connector for parametric probes (resonant probes)
- OEM probes to be connected via an adapter or directly to the BNC connector

Activ Probe Compensation

- Compensation of the probe response signal for optimum signal dynamics
- Automatic test frequency selection using the probe characteristics
- Automatic balancing of single-coil probes using finely graduated, internal compensating loads (no external elements required)

Frequency Range

- 10Hz to 12MHz, continuously adjustable, quartz stabilized, display in Hz, kHz, MHz
- Adjustable driver current to 100% in 2% steps, (100% ≈ +/-10V at Imax=0.3A)
- Dual-frequency operation in multiplex-mode (on one probe)

Gain

- Preamplification 0 to 60dB in 0.5dB steps (0 to 40dB in 100kHz range)
- Gain 0 to 60dB in 0.5dB steps
- Axis spread 0 to 20dB in 1dB steps
- Automatic selection of preamplification and gain

Phase

- 0-359.5° in 0.5° steps; step size adjustable

Filter

- Low-pass filter 1.3Hz to 10kHz in 40 steps
- High-pass filter 0Hz to 10kHz in 40 steps
- Band-pass filter 0Hz to 10kHz, combination of HP and LP
- Selectable automatic filter for rotor operation
- HD-filter to optimize the defect classification during rotor inspection (e. g. distinction crack/corrosion)

LCD – Display

- LCD featuring long-life LED backlight, 120 x 89mm (4.72" x 3.5")
- Temperature-compensated contrast setting
- Resolution 320 x 240pixel, refresh rate 75Hz,
- 220.000 data samples/second, no signal delay
- Signal display covering 100% of the screen; over 89% with menu displayed
- 80° viewing angle

Display Modes

- Impedance plane/spot display (X/Y), available for all probes
- Time-base/sweep display (Y/t) 5ms bis 60s in 17 steps, synchronized
- Simultaneous X/Y- and Y/t-display (dual-screen mode)
- Reference signal may be displayed in the background
- 2 screen grid sizes with adjustable intensity
- Selectable display range: X/Y center – X/Y center bottom – X/Y center right
- Freely positionable zero point
- Automatic trigger during rotor operation
- Simultaneous multi-signal display during multi-frequency operation
- Persistence: 0.1s to 70s adjustable in 12 steps
- On-screen signal storage; cleared manually or via auto-erase (2s - 80s)

Gates/ Alarm

- Alarm: optical and acoustic
- Active in all display modes; may be inverted
- Adjustable gates: +Y-gate, Box-gate, Circle-gate with adjustable flat in the Y-direction

Parameter Settings/Image Memory

- 99 user settings may be programmed, stored and recalled
- Application-related factory default settings (cannot be overwritten)
- 32 signal memories incl. parameter settings for documentation
- Parameter setups and images may be named using alphanumerical characters
- Long-term recording (strip chart) of X- and Y-signals, from 20s to 24hrs; 90.000min/ max-values (envelope, without data-loss)
- Data storage maintained (backup-battery)

Coating Thickness Measurement

- Measurement in % IACS or MS/m from 1% IACS to 110% IACS
- Measuring frequency 60kHz
- Calibration using 2 individually adjustable calibration points

Coating Thickness Measurement

- Measurement of non-conductive layers on conductive non-ferromagnetic materials
- Measurement range up to1000µm

Multi-Frequency Operation

- 2-frequency multiplex
- Multiplex rate up to 1kHz
- Both frequencies fully adjustable, independent of each other
- Signal mix-function to suppress unwanted effects

Interfaces

- RS232-interface for PC or printer (HP Laserjet and Epson LX80)
- Bluetooth for wireless communication

Operation with Lithium-Ionen Accu

- Without rotor: approx. 4.5 hrs
- With rotor: approx. 3.5 hrs
- Indication of remaining charge capacity
- Acoustic and optical alarm for low battery
- Charge time Lithium Ion Battery from 0% to 70% - approx. 1 hour
- Charge time Lithium Ion Battery from 0% to 100% - approx. 6 hours
- Accu may be replaced in less than 10 seconds

Ambient Conditions

- Operation between -20°C (-4°F) and 50°C (122°F) at max. 85% rel. humidity (non-condensating)
- Storage between -30°C (-22°F) and 80°C (176°F) at max. 85% rel. humidity (non-condensating)
- Accu charge between 0°C (32°F) and 40°C (104°F) at max. 85% rel. humidity (non-condensating)

Dimensions

- Hight: 180mm
- Width: 200mm
- Depth: 76mm
- Weight: 1.2 kg

Power Supply

- Li-Ion battery (14.8V/1.95Ah) charging time with charging station LS: approx.. 1.5 hours to 80%, 3 hours to 100%
- Mains operation via wide-range charger (90 - 250VAC)

PC-Software

- Setting Manager PC software to archive parameter settings and to document screen dumps and inspection protocols

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