Rohmann GmbH

Eddy Current Instruments and Systems

ELOTEST IS500

*Digital eddy current testing system*

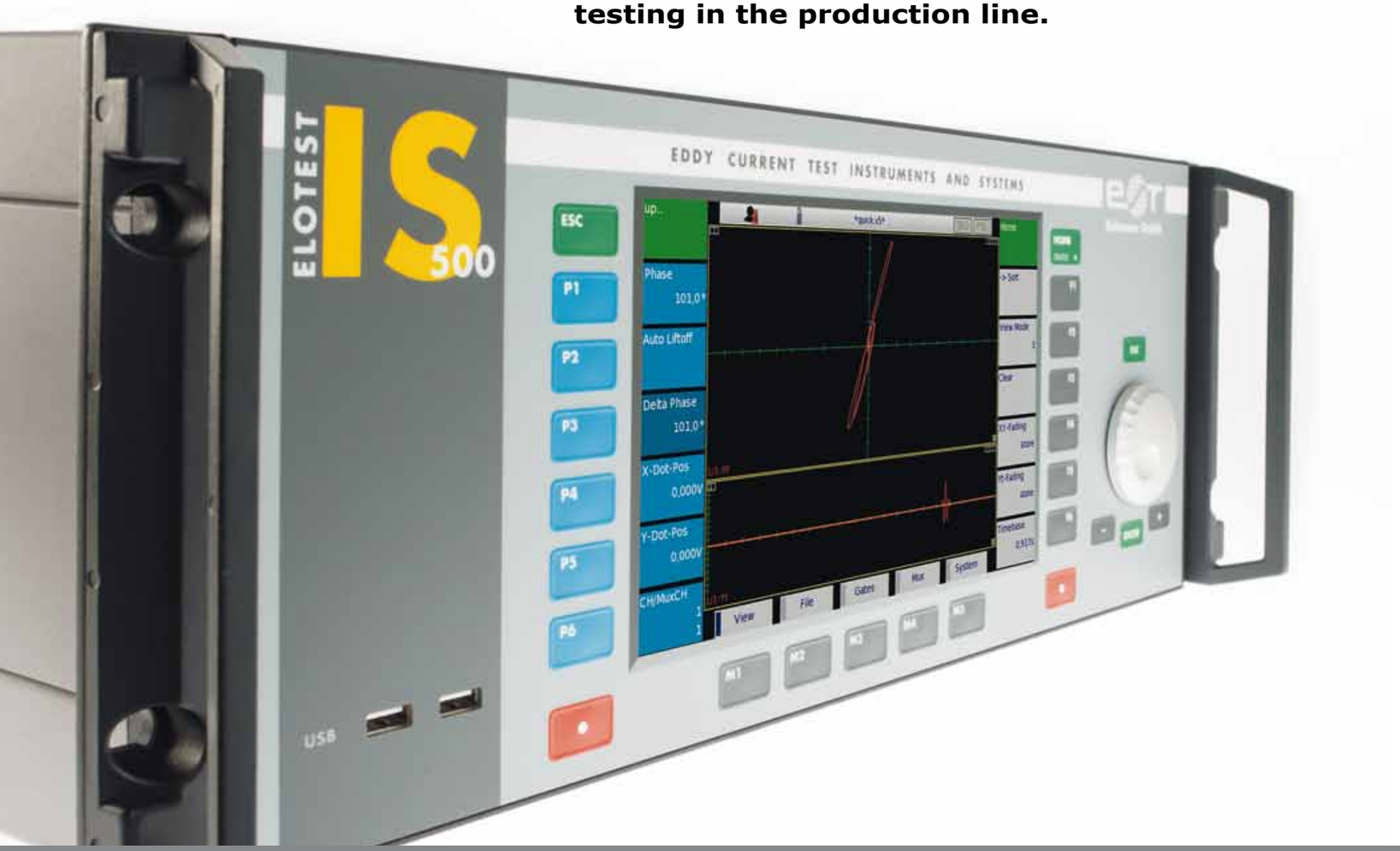
*for Industry applications*

# ELOTEST IS500


- *For crack detection and/or material sorting*
- *Direct integration into production line*
- *Distance compensation*
- *Multiplex operation*
- *Sorting channel module*
- *Multi-Lot sorting capability*
- *Retro Teach functionality*

**Trend-setting in performance and flexibility due to the consistent use of the most modern technologies and the implementation of innovative solutions for materials testing using eddy currents.**

**Crack detection and multifrequency material testing in the production line.**




***The main feature of the new family of instruments is the fully digital signal processing chain with an extremely wide bandwidth starting from 10 kHz and with an ultra-fast multiplexing rate of a 32 kHz (probe to probe).***
***The full dynamics of 96 dB across a frequency range of 10 Hz to 12 MHz speaks for itself.***

***The display of an analog picture tube with adjustable fading period and previously unachieved sharpness is simulated digitally - simply the best analog display if it weren't digital - in order to create an inconspicuous connection between traditional established technology and the latest technology.***

# Technical Data IS500 Box + 19“



## Screen Display

- Color TFT display, 800 x 480 pixel (WVGA), 229 mm (9,01”) diagonally, 16:9 format
- Simultaneous display of up to 8 signals with a display rate of 250,000 signal dots per second for each channel (in real time)

## Test Channel Module

**Frequency Range**
- 10 Hz - 12 MHz
- Driver output: +/- 10 Vs; max 300 mA

**Demodulated Signal Bandwidth**
- 10 kHz
- Fully digital signal processing; featuring a digitizing rate of 250 kHz with a resolution of 2 x 16 bit

**Pre-Amplification**
- -16.5 – 60 dB adjustable in 0.5 dB-increments

**Gain**
- 0 - 80 dB adjustable in 0.5 db-increme
- Additional 0 – 20 dB axis spread for the X- and/or the Y-axis

**Signal Filter**
- HP/LP independently adjustable from 1 Hz to 10 kHz in 20 logarithmic steps per decade giving a total of 80 filter steps

**Phasing**
- 0 - 359.5° in 0.5°-increments

**Real Time Gates for Evaluation**
- 4 gates per channel; selectable mode X, Y, Box, circle, flattened circle

**Connection Standard Probes to the Test Channel Module**
- 26-pin HD-Sub-connector to connect all probe types (Note: no rotor power supply for hand-held rotors)

**Input/Output Terminal Strip (24 V opto decoupled)**
- 16 In
- 24 Out
- 22 counter inputs
- Digital I/O optocoupled 24 VDC via connector HD-SUB 2 x 50 pin

**Analog Output**
- Max. ±10 V amplitude

## Software-Option: Distance Compensation

- A test channel module can optionally be equipped with a multiplexed distance compensation. This enables automatic amplification compensation during tests that do not have a consistent distance between the test pieces. The control range is ± 30 dB.

## Software-Option: Multiplex Operation

Two (2) types of multiplex operation are possible:

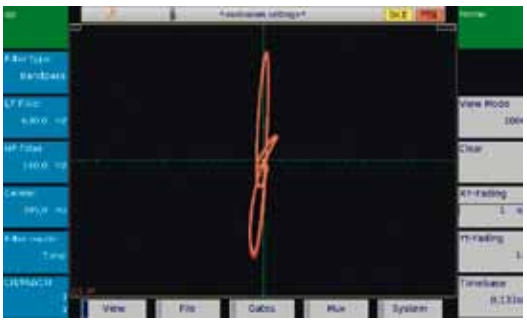
**1. Parameter Multiplex (“Frequency Multiplex”)**
The channel module can time-multiplex up to eight individual parameter sets, including the test frequency, driver amplitude, gain, phase angle and filter settings on one probe. Switching time is depending on the test frequency involved and can be as low as 32 microseconds.

**2. Probe Multiplex**
Using an optional external probe multiplexer box, up to eight probes or coils can be connected to one channel. Each probe has its own eddy current setting, including individual filters. The probe to probe switching frequency can be as high as 32 kHz, depending on the test frequencies involved. At least one probe multiplex module (option) is required for a probe multiplex operation.

**Probe-Multiplex Module:**
Available as external multiplexer box:
- External module rated to IP65 housing with 8 separate 26-pin HD-SUB IP65 connectors, max. distance to test channel = 30 m (customer-specific external multiplexer module available upon request)

## Sorting Channel Module

Channel module for the automatic self-learning structural and sorting inspection using up to 8 frequencies.
- 8 time-multiplexed test frequencies from 10 Hz to 150 kHz
- Fully digitized full-wave demodulator for the highest precision and stability
- Determination of the inspection point in 1.5 waves trains per frequency
- Self-learning “**BubbleGate**” evaluation gates
- Using the optional external multiplexer Module in quick succession, providing for tests on different test positions on a single part.
- Guided learning from good parts
- Sorting of up to 8 good batches (“**MultiLot**“)
- Retroactive teaching of good batches (“**RetroTeach**“)
- Integrated interface and programmable driver logic for sorting switches and systems



XY display during crack detection

Sorting mode “BubbleGate” in the Q500-module

## Device Configurations

- One Test Channel Module
- Two Test Channel Modules
- One Sort Channel Module
- One Test Channel Module and one Sort Channel Module

| Configuration | Slot 1 | Slot 2 | I/O | Fieldbus (optional) |
|---|---|---|---|---|
| 1 | Test Channel | - | ✔ | possible |
| 2 | Test Channel | Test Channel | ✔ | possible |
| 3 | Test Channel | Sort Channel | ✔ | - |
| 4 | - | Sort Channel | ✔ | possible |

## General Information on the instrument IS500 19“

| Housing data: | Dimensions: | Weight: |
|---|---|---|
| Housing IP30 protective system | Width: 448,8 mm (17.6“)<br>Depth: 375 mm+35 mm (4.7“)<br>Height: 177 mm (6.9“) | (Base unit with one test channel)<br>10,5 kg (23.1 lbs) |

## General Information on the instrument IS500 Box

| Housing data: | Dimensions: | Weight: |
|---|---|---|
| Housing IP54 protective system | Width: 470 mm (18.5“)<br>Depth: 273 mm (10.7“)<br>Height: 296 mm (11.65“) | 16 kg (35.3 lbs) |

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