

# Digital eddy current testing for the metal processing industry

## ELOTEST IS500

**NEW**



- With high-resolution color display
- For crack detection and/or material sorting
- Can be integrated directly into the production line



**General**

The focus of the new instrument family is the fully digitized signal processing chain on the NF-side (after demodulation) with a bandwidth of 10 kHz and ultrafast multiplexing capability featuring a multiplexing rate of 32 kHz (probe to probe).

The full dynamics of 96 dB (digital) across the frequency range from 10 Hz to 12 MHz speak for themselves.

The display is something special, too:

The display of an analog tube is simulated in a digital manner with adjustable persistence and so far unmatched definition and brilliance— simply the best analog display, if it wasn't digital and thus a effective combination of traditionally proven and modern technology.

**Technical data**

**Screen display**

- Color TFT display, 800 x 480 pixel (WVGA), 229 mm (9") 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: +/-10Vs; max. 300mA

**Bandwidth useful signal**

- 10 kHz
- Fully digitized 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-increments
- 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 => a total of 80 filter steps

**Phasing**

- 0 - 359° in 0.5°-increments

**Real time gates for evaluation**

- 2 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 connector**

- 24 In
- 16 Out
- 24 V opto decoupled
- 2 counter inputs

**Analog output**

- Max. ±10V amplitude

**Distance compensation option**

- 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.

**General information on the instrument:**

**Housing data:**

Housing  
IP54 protective system

**Dimensions**

Width: 470 mm (185")  
Depth: 273 mm (107")  
Height: 296 mm (116,5")

**Weight**

16 kg (35,3 lb)

**Option: Multiplex operation**

Two (2) types of multiplex operation are possible:

**1. Parameter multiplex ("frequency multiplex")**

In the test channel various parameters such as frequency, gain, phase, filter etc. may be set successively for one and the same probe during probe multiplex operation. Depending on the selected test frequency, the change-over frequency may be up to 32 kHz. The parameter-multiplex operation is a standard feature of the test instrument.

**2. Probe multiplex**

During probe-multiplex operation one and the same channel may be switched to several probes in rapid succession. Depending on the selected test frequency, the change-over frequency may also be up to 32 kHz.

For the probe-multiplex operation at least one (1) probe-multiplex module (optional) will be required.

**Probe-multiplex module:**

Available as external multiplexer box:

- Basic configuration: 8 each symmetrical (or earth-related) transmitter outputs and receiver inputs; may be upgraded for up to 32 transmitter outputs and receiver inputs
- External module in IP65 with 8 separate 26-pin HD-SUB IP65 connectors, max. distance to test channel = 30 m (customer-specific external multiplexer module available upon request)

**Q500 sorting channel module**

Channel module for the automatic self-learning structural and sorting inspection using up to 8 channels.

- 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
- Guided learning from goods 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 new Q500-module