Technical Data

Operating Frequency

Normal: 10 Hz to 10 MHz
Rotary: 10 kHz to 2 MHz
Conductivity: 60 kHz

Display

LCD with LED backlight
Protected by hard coated acrylic window
480 x 320 pixel resolution
115 x 78 mm viewable area

Gain

Adjustable together or as independent X and Y control for ultra-precise setting
-8 dB to 96 dB overall in 0.1 dB steps
Input Gain selectable 0 dB or 14 dB
Probe Drive -8 dB, 0 dB, and +8 dB

Low and High Pass Filters

Low Pass: 3 Hz to 2 kHz in more than 2,000 steps
High Pass: DC to 1.99 kHz in more than 500 steps

Alarms

Alarm options are: + and - levels, sector and box gate, flashing LEDs, internal sounder

Phase

0 to 359.9 in 0.1 steps

Internal Data Storage

Capacity from up to 50 traces and 50 settings. 28-character alphanumeric names, plus time and date stamps. Dynamic data may be recorded and replayed

Conductivity and Coating Thickness Measurement

Capable of measuring electrical conductivity of materials in the range from 1 to 110 % IACS
Coating thickness readings from 0 to 1.3 mm (0 to 0.050")

Probe Compatibility

Absolute locator (100 ohm impedance)
Absolute standard (50 ohm impedance)
Bridge
Reflection
Hocking, Staveley, Zetec, and Rohmann rotary drives
Hocking 60 kHz conductivity probe

Balance Load

Manual or automatic. Selection from 1.3, 8.2, 22, 47, 82, or 120 µH

Outputs

Rear Panel Connectors
Probe 1, 12 way Lemo for normal, rotary, and conductivity probes
Probe 2, 12 way Lemo for normal and absolute load for probe 1
Probe ABS, BNC for absolute probe
Note: The connections of Probe 2 and PROBE ABS are in parallel with Probe 1.
VGA OUT, standard 15-pin VGA "D" connector
RS 232, 9-way "D" connector
Standard I/O, 15-way "D" connector for analogue outputs;
Remote control inputs for Balance, Freeze and Clear;
External LED and relay drive outputs
Outputs, BNC connectors for analogue outputs and remote control inputs
Note: The output BNC connectors are in parallel with the Standard I/O connector.
Power, 12-24 V DC at 2 A

Power Source

12 V, 5 A

PC Connectivity

Dedicated Windows software allows easy reporting and printing

Languages

English, French, German, Spanish, Portuguese

Instrument Weight

3.5 kg (7.72 lbs)

Dimensions

With Case
Width: 249 mm
Depth: 308 mm
Height: 147 mm (with feet)
133 mm (without feet)
Without Case
Width: 213 mm
Depth: 260 mm
Height: 129 mm

Hocking Vector 2d

Dual Frequency Industrial Eddy Current Inspection System

Features

- Dual frequency, differential, and absolute modes through a single input
- Detects defects in many components regardless of shape complexity
- Determines hardness of parts and can trigger accept/reject gates
- Finds corrosion, erosion, fatigue, and cracks in non-ferrous pipes
- Results can be seen and interpreted in real time
- Applicable industries include automotive, power generation, tube/pipe manufacture and metal manufacturing.

Giving automotive & metals manufacturers speed & peace of mind

Surface Crack Detection

Inspection of Rotating Parts

Material Sorting & Verification

Eddy Current Instrument

Vector 2d is a single probe input, dual frequency eddy current instrument designed specifically for small in-line or off-line systems use. Following on from the highly successful Phasec 2d portable, dual frequency eddy current instrument, Vector 2d is also ideal for bench top and laboratory use where mains supplied electricity is available.

With high probe sample refresh rate, Vector 2d gives the option to inspect material at increased line speeds giving greater productivity, a must in today's industry.

With the latest filter technology, Vector 2d is able to eliminate long-term spot drift resulting from changing parameters such as temperature. These state-of-the-art filters are also able to create one of the best signal to noise ratio for small systems instruments currently on the market.

Vector 2d is designed to cater for today's increasing productivity demands and at the same time give enhanced eddy current inspection performance.

Our Applications Team is available to assist you in the selection of probe and accessories to suit your needs as well as provide advice on material handling. There is also the scope to provide a full turnkey project service.

Automotive Components

Vector 2d will accurately inspect safety critical components where failure may result with major economic consequences.

The main methods used in this area are:

Crack Detection:

Working with industrial probes suitable for surface scanning, Vector 2d can identify defects in a wide variety of automotive components (ranging from engine valves to power steering) regardless of complexity of shape.

Hardness sorting:

Determining that a component is within the specified hardness range is critical to many automotive components. By detecting the difference in conductivity it is straight forward to segregate components within hardness specification from those that are not.

Output from Vector 2d can be used to activate a paint marking system or an accept/reject gate.

Power Generation

In power generation the main concern is plant availability. Regular use of eddy current inspection techniques can significantly reduce plant downtime.

Tube Inspection

The main areas under investigation are: corrosion, erosion, fatigue and cracks in in-situ non-ferrous tubes that are part of a heat exchanger.

Internal Diameter Inspections

These inspections can be carried out in-situ with an ID (Internal Diameter) Probe. The results can be interpreted in real-time and recorded using ARTIST software.

ID probes are available as flexible (JDP family) or rigid (IDP family) to suit your particular application for U bend or straight tubes respectively.

Metal Manufacturing

Eddy currents are widely used in component manufacture because of the ease of automation. Vector 2d can be configured to produce alarm signals when a flaw is detected activating an accept/reject gate thus removing the need for human supervision during the inspection process.

Tube/Pipe Manufacture

The enhanced filter system and high probe sample rate make the Vector 2d ideal for in-line inspection of tubing up to 100 mm (4") in diameter. For full circumference inspection use either a Galaxy coil or for smaller diameters the option of 840P/841P coils

For ERW tube, saddle probes are preferred where only the weld and near heat affected zone are inspected.

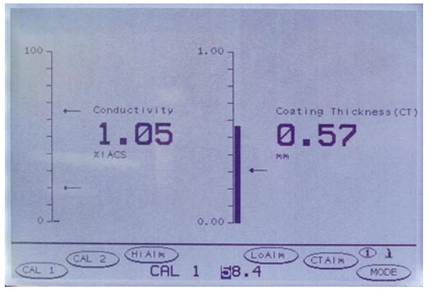
Please ask about our Weld Quality Monitor (WQM).

Vector 2d has been designed to ensure that inspections can be carried out as quickly and easily as possible:

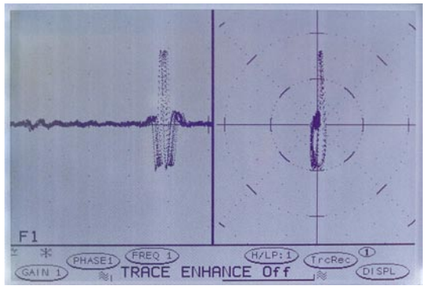
Mounting and Size

Vector 2d has been designed to fit into standard rack sizes.

In addition, a stand alone version of Vector 2d has drop down feet for bench mounting (at an angle to give ease of view-ability) and handles for ease of carriage.



Conductivity & Coating Thickness Measurement Screen



Split Screen Rotary Inspection

Ultra-filters

The filters on Vector 2d are designed to prevent long term spot drift resulting from changing parameters such as temperature.

The overall filter system is designed to give the best signal to noise ratio and eliminate interference from electrical sources as well as material movement (vibration, etc.)

Improved Productivity

With its high sample speeds, the Vector 2d allows high speed material inspection with rates up to 4 m (13 feet) per second.

Of course, greater line speeds will increase the demand for high performance filters to maintain a good signal to noise ratio - Vector 2d already has these filters incorporated into its design.