



Features

- Exceptional Performance
- Exceptional Price
- Portable yet Powerful
- High Speed Real-time Data Collection
- Fast Inspection Speed
- Extensive Analysis Tools
- Easy to Use Menus
- Powerful Reporting Functions
- On-board 2-axis Drive Control
- 2 Axis Encoders & Video Tracking

Techniques

- TOFD
- Pulse Echo
- Corrosion Mapping
- Pipeline Inspection

Applications

- Pressure Vessels Welds
- Pipeline Welds
- Structural Welds
- Forgings & Castings
- Turbine Disks & Blades
- Aircraft Components
- Complex Geometries
- Hydrogen Damage Surveys

Software Options

- Pulse Echo
- ToFD
- Strip-Scan
- Long Range (Creep Wave & Corrosion Mapping)
- TD Super-View

TD Scan Technical Specification

Hardware

| General | |
|-----------------------------|-----|
| Number Of Probe Inputs | 16 |
| Number Of Software Channels | 128 |

| Digitiser | |
|----------------------------|------------------|
| A/D Sampling Frequency | 14Bit @ 200MHz |
| System Bandwidth | 0.25MHz to 50MHz |
| Pulse Repetition Frequency | Up to 10KHz |

| Pulser | |
|-------------------|------------------------------------|
| Number of Pulsers | 16 |
| Pulser Delays | 0us to 40us in 2.5ns steps |
| Output Impedance | 6 Ohms |
| HT Pulse Shape | Negative square wave |
| HT Pulse Voltage | 20 to 200V in 5V steps |
| HT Pulse Width | Range 20ns to 500ns in 2.5ns steps |
| Rise/fall time | < 5ns |

| Receiver | |
|---------------------|---|
| Number Of Receivers | 16 |
| Signal Bandwidth | (-3dB) 0.25MHz -50MHz |
| Gain Range | 0dB to 100dB's controllable in 0.1dB steps |
| Gain Linearity | 0.5dB (typical) |
| Input Noise Level | 2nV/(Hz) ^{1/2} (typical) across full system band width |
| Input Impedance | 50 Ohms |

| Time Corrected Gain (TCG) | |
|---------------------------|----------------------------|
| Number Of Curves | 1 to 8 |
| Gain Range | 0 to 80dB in 0.1dB steps T |
| Rate Of Gain Change | Up to 40dB/Js |

| Analogue Signal Filtering | |
|----------------------------|---|
| High Pass Filters | (-3dB) 0.25, 0.5, 0.75, 1.0, 2.5, 5, 7.5, 10 |
| Low Pass Filters | (-3dB) 1, 2.5, 5.0, 7.5, 10, 15, 20, 25, 30, 35, 40, 50 |
| Post Rectification Filters | (-3dB) No filter, 1, 2, 3, 4, 5, 6, 7MHz |

| A-Scan Digitisation | |
|-----------------------------|---|
| A-Scan Points Per Channel | 8000 points per channel |
| Sampling delay | 0 -10ms, in 10ns steps @ 100MHz sampling rate |
| Number Of Gates Per Channel | 3 hardware Gates |
| Gate Start/Width | User definable in 10 ns steps |
| Gate Reference Points | Transmit Pulse or Material Interface Echo |
| Storage Modes Per Gate | A-Scans, Peak Depth and Amplitude |
| Data Storage Rates | 6MByte/sec |

Software

| General Features | |
|---|--|
| • Simultaneous ToFD &/or Pulse Echo data collection | |
| • Operator definable weld geometry overlays | |
| • Real-time A, B, C and D-Scan images, with user defined display modes | |
| • Multiple TCG curves | |
| • Internal report generation including interactive print-preview & user-definable report fields | |
| • Full cursor analysis indicating peak depth, amplitude and x,y position | |
| • Supports single, dual, & encoder/motor drive | |
| • Export Bitmap images to any Windows application | |
| • 8 or 14 bit Data collection (Pulse Echo) | |

| Signal Averaging | |
|-----------------------|---|
| Number Of Channels | All |
| Averaging Performance | 100 million points per second |
| Averaging Rates | Real-time averaging 1-256, user definable |

| Peak Processing | |
|-----------------------------|--|
| Peak Storage Modes | All Peaks, First Peak, Largest Peak/s, Loss Of |
| Thickness Measurement Modes | Thinnest/Thickest/Between Peaks |
| Threshold Setup | 5 to 100% in 1% steps per hardware Gate |
| Number Of Peaks Per Gate | 14 |

| Scanner Interface Ports | |
|-------------------------|---|
| Input Type | Encoder, Potentiometer, Video Camera, Temperature |
| Number Of Axis | 2 TTL compatible |
| Number Of Limit Inputs | 4, TTL compatible |
| Encoder Interface | TTL compatible, 5V @ 1A, 12V @ 0.4A |
| Temperature Inputs | RTD. 2 or 4 wire |
| Potentiometer Interface | 0 to 2.5V, sampled at 100Hz |
| Video Input | 1Vpp Composite |

| Motor Drive (Internal) | |
|------------------------|---------------------------------------|
| Motor Types | DC Servo, 12Volts or 24Volts |
| Current Drive | 2Amps (Continuous) Up to 4Amps (Peak) |
| Current Limit | Software definable |

| PC (Internal) | |
|-----------------------|---|
| Operating System | Windows XP Professional |
| Processor | Celeron 1GHz |
| Memory | 1GByte |
| Display Colour | TFT (Industrial type) |
| FT Display Resolution | 1024 x 768 |
| Hard Disk | 60GBytes |
| Ports | 4 x USB, 1 x 10/100 Ethernet, 1 x Video |

| Size, Weight & Environmental | |
|------------------------------|--|
| Unit Dimensions | 360mm x 300mm x 86mm |
| Weight | 7Kg |
| Rating | IP54 |
| Temperature | 0°C to 40°C operating, -25°C to 85°C storage |

| Battery Capability | |
|--------------------|---------|
| Operating Time | 5 Hours |

| Power Requirements | |
|--------------------|--------------------------------------|
| DC Input | 30V to 72VDC @ 40W (Operating), 100W |
| AC Input | 90 to 260VAC @ 40 to 60Hz |

| Pulse Echo | |
|---|--|
| • Independent control of transmit and receive parameters | |
| • C-scan with end views for corrosion mapping | |
| • Trigger reference modes including Interface Echo or Tx Pulse | |
| • Multiple peak data storage modes, including full/selective A-Scan storage | |

| ToFD | |
|---|--|
| • Very fast inspection rates up to 400mm /sec | |
| • Perform multi-channel TOFD and Pulse Echo inspections simultaneously | |
| • Full suite of image analysis tools for defect/crack sizing | |
| • Real-time multi-channel averaging significantly improves signal quality | |
| • Linearization, Straightening, Synthetic-Aperture-Focusing-Technique (SAFT) | |
| • File utilities include file join, split, reverse, save partial, output data to text file etc. | |

| Weld Zone Discrimination | |
|--|--|
| • Fast, accurate inspection at up to 200mm/sec | |
| • Combined TOFD, Time/Amplitude view, Map view, | |
| • Couplant Check & Go/No-Go in a single pass | |
| • Inspection data displayed as strips indicating weld zones | |
| • Integrated TOFD analysis | |
| • Supports internal fixed or rotating head scans using Phased Array or conventional probes | |
| • Perform inspections over km's of pipeline | |



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