MicroPulse LT Product Specification

Product Overview

Built on MicroPulse technology, MicroPulse LT is a high performance ultrasonic inspection system designed to be compatible with the existing Micropulse inspection system range. The Micropulse LT is implemented as a self contained unit designed to meet the requirements of IP67. It connects to a PC running the test application via Ethernet. It takes power from the Ethernet or from a separate 48V power source. It is available as a 2-channel, a 4-channel or an 8-channel version. It is suitable for use in pulse-echo, TOFD and immersion inspections where because of its small size it may be gantry mounted.

Software Platforms

Standard with Peak NDT’s LTScan software with pulse-echo, TOFD and corrosion mapping. Also compatible with British Energy MIPS/GUIDE and Winspect/InspectionWare from UTEX. Open data format and long-established MicroPulse command language mean that the users have the option to write their own applications.

Contact Details

<table>
<thead>
<tr>
<th>UTEX Scientific Instruments Inc.</th>
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</thead>
<tbody>
<tr>
<td>2319 Dunwin Drive, Unit 8</td>
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<tr>
<td>Mississauga ON</td>
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<td>L5L 1A3</td>
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<td>Canada</td>
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</tbody>
</table>

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NOTE: Peak NDT Ltd. reserves the right to change these specifications without notice.
**Specification**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Range</th>
<th>Step Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pulser Type</td>
<td>Negative square wave</td>
<td>N/A</td>
</tr>
<tr>
<td>Pulser Voltage</td>
<td>25 to 200Volts</td>
<td>25Volts</td>
</tr>
<tr>
<td>Pulser Rise Time</td>
<td>~6ns</td>
<td>N/A</td>
</tr>
<tr>
<td>Pulser Width</td>
<td>20nsec to 500nsec</td>
<td>2nsec</td>
</tr>
<tr>
<td>Pulser Damping</td>
<td>50Ω to 660Ω in 8 steps</td>
<td>N/A</td>
</tr>
<tr>
<td>Pulse Repetition Frequency</td>
<td>1Hz to 20kHz</td>
<td>1Hz</td>
</tr>
<tr>
<td>Gain</td>
<td>-12 to 70dB</td>
<td>0.25dB</td>
</tr>
<tr>
<td></td>
<td>NB Max DAC plus main gain is 110dB</td>
<td>N/A</td>
</tr>
<tr>
<td>Input Noise</td>
<td>2mV typical</td>
<td>N/A</td>
</tr>
<tr>
<td>Gain Linearity</td>
<td>Better than 0.25dB</td>
<td>N/A</td>
</tr>
<tr>
<td>Input Impedance</td>
<td>660Ω</td>
<td>N/A</td>
</tr>
<tr>
<td>Bandwidth</td>
<td>0.75MHz to 25MHz (-3dB)</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td>0.75MHz to 12MHz (-3dB) Bandpass Filter</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2.5MHz to 18MHz (-3dB) Bandpass Filter</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3MHz to 22MHz (-3dB) Bandpass Filter</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3MHz to 25MHz (-3dB) Bandpass Filter</td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.5MHz Bandpass Filter</td>
<td></td>
</tr>
<tr>
<td>Analogue Filters</td>
<td>1MHz Bandpass Filter</td>
<td>Discrete selection</td>
</tr>
<tr>
<td></td>
<td>2MHz Bandpass Filter</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4MHz Bandpass Filter</td>
<td></td>
</tr>
<tr>
<td></td>
<td>5MHz Bandpass Filter</td>
<td></td>
</tr>
<tr>
<td></td>
<td>10MHz Bandpass Filter</td>
<td></td>
</tr>
<tr>
<td></td>
<td>5MHz 2nd order TOFD Bandpass Filter</td>
<td></td>
</tr>
<tr>
<td>Channel Crosstalk</td>
<td>&lt; 60dB between channels at 2MHz</td>
<td></td>
</tr>
<tr>
<td>DAC Dynamic Range</td>
<td>0 to 70dB</td>
<td>0.25dB</td>
</tr>
<tr>
<td></td>
<td>NB Max DAC plus main gain is 110dB</td>
<td>N/A</td>
</tr>
<tr>
<td>DAC Trigger</td>
<td>Transmit pulse or material interface echo</td>
<td>User selectable</td>
</tr>
<tr>
<td>No of DAC curves</td>
<td>256 utilising up to 32kbytes</td>
<td>N/A</td>
</tr>
<tr>
<td>DAC update</td>
<td>40dB/μsec</td>
<td>N/A</td>
</tr>
<tr>
<td>DAC Clock Rate</td>
<td>1.5625MHz to 25MHz</td>
<td>5 settings</td>
</tr>
<tr>
<td>ADC Resolution</td>
<td>12 bits, 14bit ready</td>
<td>N/A</td>
</tr>
<tr>
<td>ADC Rate</td>
<td>25, 50, and 100MHz</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td>No Rectification</td>
<td></td>
</tr>
<tr>
<td>Rectification</td>
<td>+ve halfwave</td>
<td>Discrete selection</td>
</tr>
<tr>
<td></td>
<td>-ve halfwave</td>
<td></td>
</tr>
<tr>
<td>Post Rectification Filter</td>
<td>None and 7 selectable settings</td>
<td>N/A</td>
</tr>
<tr>
<td>Gates</td>
<td>4 gates utilising up to 32kbytes</td>
<td></td>
</tr>
<tr>
<td>Gate Delay</td>
<td>64k sample points from trigger or I/F echo</td>
<td></td>
</tr>
<tr>
<td>Interface Echo</td>
<td>Hardware interface trigger for gate and DAC</td>
<td></td>
</tr>
<tr>
<td>Hardware Peak Processing</td>
<td>Up to 80 peaks (N + largest), first peak, largest peak</td>
<td></td>
</tr>
<tr>
<td>Averaging</td>
<td>2 to 256 realtime</td>
<td></td>
</tr>
<tr>
<td>Output Options</td>
<td>Peak processed data or full digitised waveform</td>
<td></td>
</tr>
<tr>
<td>Threshold</td>
<td>160 to 4095</td>
<td>1</td>
</tr>
<tr>
<td>Gain Reduced Firing</td>
<td>Selectable to be triggered on saturation with programmable adjustment level</td>
<td></td>
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### General Specifications

<table>
<thead>
<tr>
<th>UT Connectors</th>
<th>Coaxial LEMO EPS 00.250.NTN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control Connector</td>
<td>IP67 rated 9-pin D-type</td>
</tr>
<tr>
<td>Encoder Connector</td>
<td>LEMO EXG.1B.310</td>
</tr>
<tr>
<td>Aux. Power Connector</td>
<td>Via Ethernet port using modified adaptor</td>
</tr>
<tr>
<td>Control Interface</td>
<td>100 Base-T Ethernet</td>
</tr>
<tr>
<td>Digital Encoders</td>
<td>2 axes of 32 bit inputs accepting 5Vott encoders at rates of up to 700kHz</td>
</tr>
<tr>
<td>Analogue Encoders</td>
<td>2 channels, 0-5V (1MΩ input impedance) up to 100Hz signal bandwidth.</td>
</tr>
<tr>
<td>Case Size</td>
<td>160mm x 45mm x 108.5mm</td>
</tr>
<tr>
<td>Power Supply</td>
<td>48V DC from Ethernet (Class 3) or separate supply (48V 300mA)</td>
</tr>
<tr>
<td>Power Consumption</td>
<td>10W Max</td>
</tr>
<tr>
<td>Weight</td>
<td>550g</td>
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</tbody>
</table>

### Connectors and Interfaces etc

<table>
<thead>
<tr>
<th>Enclosure</th>
<th>IP67 (No dust ingress, temporary immersion up to 1m depth)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperature</td>
<td>0 - 40°C</td>
</tr>
<tr>
<td>EMC</td>
<td>EN61326</td>
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<tr>
<td>Safety</td>
<td>EN61010</td>
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