BondCheck

- Supports Pitch-Catch, Resonance and MIA Bond-Testing Modes
- Pitch and Catch Dry Coupled Bond testing mode for rapid detection of defects in laminate, bonded and sandwich structures.
- Automatic Test Frequency Optimisation.
- Sweep, RF, Y/T, Encoded and Phase/Frequency Plots.
### Transmission

**Operating Mode**
- Pitch-Catch only

**Output Frequency Range**
- 1kHz to 100kHz

**Main Gain**
- 0 to +76dB, 0.1dB steps

**Output Voltage**
- 3 ranges: ±12V, other TBC

**Minimum Output drive load impedance**
- 300 Ohms

**Waveform Type**
- Arbitrary waveform, supporting tone burst with rectangular/hanning window and frequency chirp.

**Transmit waveform points maximum**
- 8192

**Waveform Duration**
- Maximum 3.2ms

**Waveform Output DAC clock rate**
- 2.5MHz fixed

### Reception

**Sample Rate**
- 440kHz (subject to change).

**Bit Depth**
- 16 bit.

**Gain Range**
- 0 to 60dB (TBC subject to testing)

**Receive Bandwidth**
- 3kHz to 1MHz - 3dB points.

**Time Base Range**
- 100μs to 2ms

**Time Base Delay**
- 0μs to 1ms

**Amplitude/Phase Extraction Cursor**
- Position Resolution 2μs

### Software Specification

**Display Modes**
- RF Waveform, Y-T Mode*

**Acquisition Gate in RF Mode**
- With adjustable amplitude, start and parameter control.

**Acquisition Gate in Y-T Mode**
- Multiple box regions*

**Calibration Mode**
- Performing frequency sweep or bond and dis-bonded areas.

**Bond/Dis-bond Alarm**
- State on screen on probe.

**Live Waveform**
- Display during parameter adjustment*

**Save**
- Inspection data to SD card. *

**Export**
- Of inspection report.*

**Encoder**
- With 1D line plot of chosen parameter (phase/amplitude).

### BondCheck - Applications & Probe Selection

<table>
<thead>
<tr>
<th>Material</th>
<th>Inspection Requirement</th>
<th>Good</th>
<th>Possible</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bond Stiffeners</td>
<td>Disbonds</td>
<td>Both</td>
<td>Both</td>
</tr>
<tr>
<td>Carbon Laminate (multilayer)</td>
<td>Delaminations, Voids, Porosity</td>
<td>Resonance</td>
<td>Pitch-Catch</td>
</tr>
<tr>
<td>Carbon or Glass reinforced pipes or pressure vessels.</td>
<td>Disbonds, delaminations.</td>
<td>Pitch-Catch</td>
<td>No</td>
</tr>
<tr>
<td>Carbon Overwrapped Pressure Vessels (COPV)</td>
<td>Disbonds, delaminations</td>
<td>Pitch-Catch</td>
<td>No</td>
</tr>
<tr>
<td>Carbon Skin to Foam Core</td>
<td>Disbonds, delaminations</td>
<td>Pitch-Catch</td>
<td>Resonance</td>
</tr>
<tr>
<td>Carbon skin to metal Nomex honeycomb</td>
<td>Disbonds, delaminations and crushed core</td>
<td>Pitch-Catch</td>
<td>Resonance</td>
</tr>
<tr>
<td>Carbon-Carbon in Heat Shields</td>
<td>Delaminations, cracking, density changes</td>
<td>Pitch-Catch</td>
<td>Resonance</td>
</tr>
<tr>
<td>Composite Repair Validation</td>
<td>Disbonds, delaminations</td>
<td>Pitch-Catch</td>
<td>Resonance</td>
</tr>
<tr>
<td>Glass fibre skin to foam or wood core</td>
<td>Disbonds, delaminations</td>
<td>Pitch-Catch</td>
<td>Resonance</td>
</tr>
<tr>
<td>Metal Skin to metal honeycomb</td>
<td>Disbonds and crushed core</td>
<td>Both</td>
<td>Both</td>
</tr>
<tr>
<td>Metal to metal bonded skins</td>
<td>Disbonds</td>
<td>Resonance</td>
<td>Pitch-Catch</td>
</tr>
<tr>
<td>Perforated metal skin to honeycomb core, used for acoustic liners</td>
<td>Disbonds</td>
<td>Pitch-Catch</td>
<td>No</td>
</tr>
<tr>
<td>Sandwich Structure</td>
<td>Far-side flaws or core damage on sandwich construction</td>
<td>Pitch-Catch</td>
<td>Resonance</td>
</tr>
<tr>
<td>Sandwich Structure (multicore)</td>
<td>Inter-core disbonds, core damage</td>
<td>Pitch-Catch</td>
<td>Resonance</td>
</tr>
<tr>
<td>0.5’/12.7mm defect</td>
<td></td>
<td>Resonance</td>
<td>Pitch-Catch</td>
</tr>
<tr>
<td>Curved surface up to 1’/25mm</td>
<td></td>
<td>Pitch-Catch</td>
<td>Resonance</td>
</tr>
<tr>
<td>Depth of indication location in multi-layered structures</td>
<td></td>
<td>Resonance</td>
<td>No</td>
</tr>
</tbody>
</table>

### Pitch-Catch Probe Specification

- Operating Frequencies: Depends on piezo resonant frequency. Current model 30kHz (suitable for 10kHz to 50kHz operation).
- Transmit - receive probe separation: 17mm
- Transmit - receive probe linear travel: >5mm
- Probe auto-recognition: Yes*
- Probe alarm LED: Yes*
- Probe tips: Rounded end and flat end, replaceable by user.
- Probe housing material: Anodised aluminium case, with stainless steel probe housings, rubber finger grip.
- Probe connector: 8 pin LEMO.