

ClampOn DSP Crack Monitor

DIGITAL SIGNAL PROCESSING

INTRODUCTION

Acoustic Emission (AE) is a sudden transient release of energy, which occurs due to material deformation. Typical AE sources are; crack growth, corrosion, erosion, leaks, electric discharge and turbulence in fluids. ClampOn's DSP spectrum analyser is an ideal tool well suited for measurements of crack growth. Monitoring crack growth in real-time provide us with the possibility to record the level of stress, which again allows for early warning of crack growth, long before there is a risk of failure to the monitored pipe or structure.

ADVANTAGES

- Permanent
- Real-time monitoring
- Non-intrusive
- Cost effective
- Early warning
- Proven technology
- Lightweight
- Digital Signal Processing



Working Principle

When metal is subjected to stress, microscopic cracks will start forming within the material. When this occurs Acoustic Emission is released, which is defined as the rapid release of transient elastic waves. This emission is detected by the ClampOn DSP Spectrum Analyser and processed using ClampOn's AE software, which provides user friendly advanced processing, and analysis.

CLAMPON AE SOFTWARE

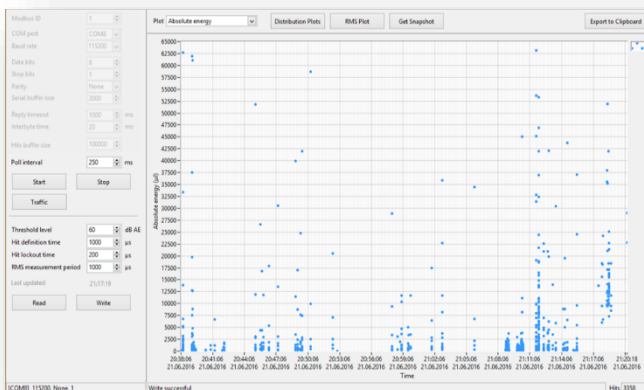


Figure 1 – AE Energy

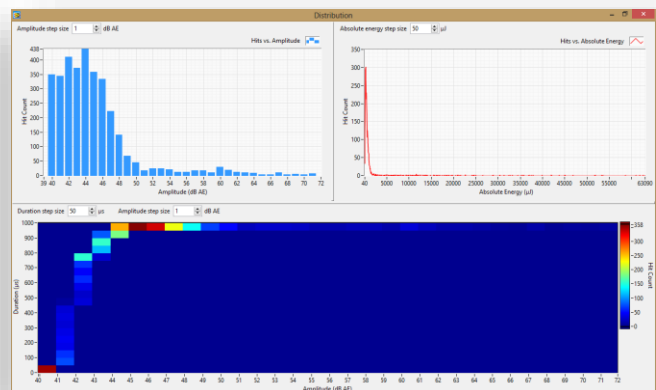


Figure 2 – AE Distribution Plot

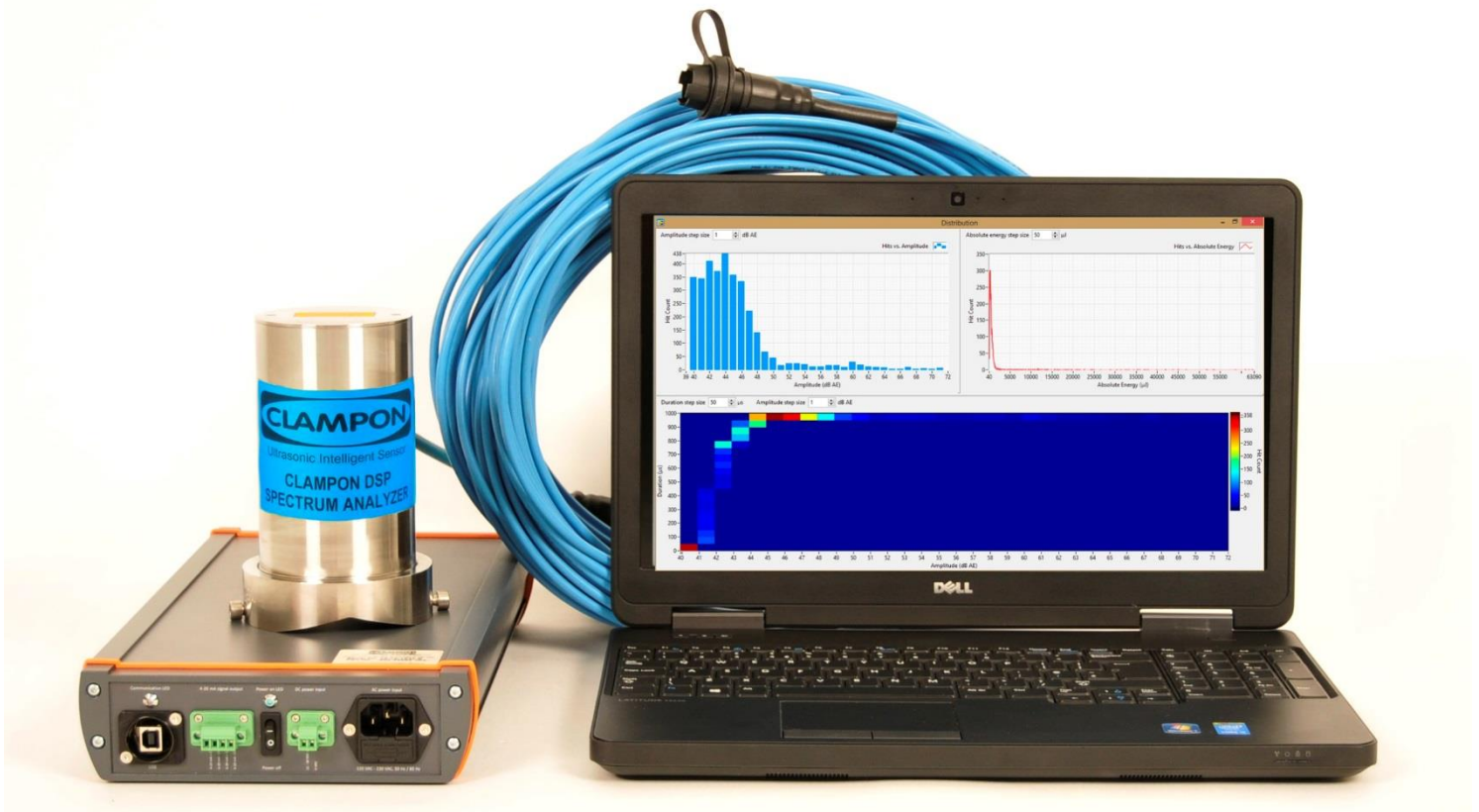


Figure 3 - Complete kit with field instrument, interconnect cable and signal converter/IS barriers for connection to computer

KEY SPECIFICATIONS

- | | |
|-------------------------|--------------------------|
| • Measurement principle | Passive Acoustic |
| • Processing | Internal, DSP |
| • Frequency range | 50 to 1000 KHz |
| • Weight | < 3Kg |
| • Certification | EEx ia IIB T2-T5 |
| • Hazardous area | Zone 0, 1, 2 |
| • Signal interface | Serial (RS485) |
| • Power supply | 12-25Vdc (I.S protected) |
| • Power consumption | Max 1,5W |
| • Material | AISI 316L |
| • Ingress protection | IP 68 |

Refer to instrument data sheet for full specifications

Aug 16