

# ClampOn DSP PIG Detector

DIGITAL SIGNAL PROCESSING



*ClampOn Ex ia version.*

## ADVANTAGES

- **Real-time measurement**
- **Non- Intrusive**
- **Easy to install**
- **Retrofit installable w/o shut-down**
- **Local or remote indication**

## BACKGROUND

Pigging is part of everyday operation on many offshore and onshore installations. The operator requires a trustable method confirming the PIG departing a pig launcher, and likewise, the arrival of the PIG at the receiver end. The ClampOn DSP PIG Detector, based on ClampOn's patented Ultrasonic Intelligent Sensor technology platform, is a compact and

user-friendly unit. It's fast and simple installation principle is unparalleled by any other PIG detector available. It provides reliable detection of any type of PIG, without requirement for any type of insert.

## OPERATING PRINCIPLE

The ClampOn DSP PIG Detector senses the PIG passing through the pipe by use of passive acoustic (ultrasonic) technology. The instrument has internal Digital Signal Processing (DSP). As a PIG passes the location point of the PIG Detector, the instrument senses and analyses the changes in signal level at multiple frequencies. The indication of a PIG passing can be made either by local light at the instrument, or with a signal output to a control system or indicator panel etc. Signal output can be "PIG passed"

(i.e. relay contact etc.) or RAW-data for further analysis.

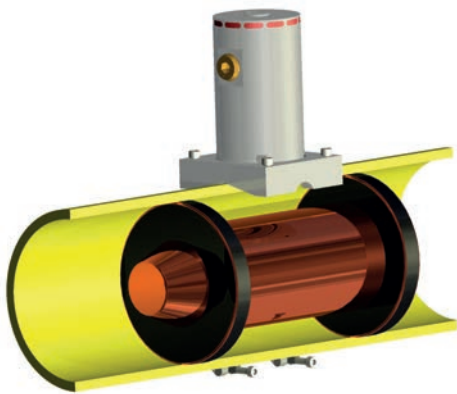
By using either a dedicated PC with ClampOn software or input to MCS, the user can get a graphic display of the received signal from the PIG Detector. The data output signal can be either analogue 4-20mA or digital RS485.



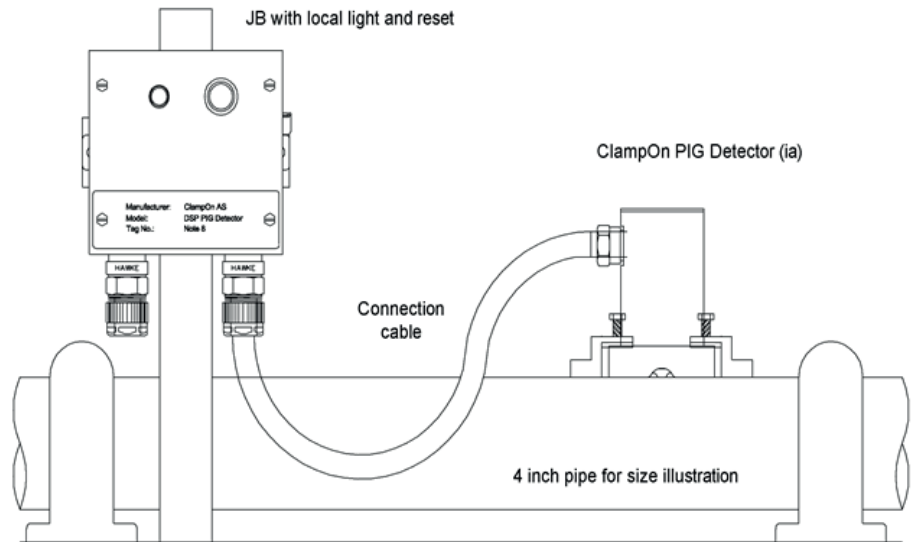
*ClampOn Ex dem version.*

## INSTALLATION

The ClampOn DSP PIG Detector is non-intrusive and clamped on the pipe surface; hence no parts are in contact with the flow. All instruments are factory calibrated and tested before delivery. The sensor is set to detect the PIG passing through the pipe where the sensor is installed. The sensor, available in both Intrinsically Safe and Explosion Proof versions, can easily be installed on pipes of various dimensions, using the associated mounting fixtures. For installation on existing pipes that are already flowing, no hot work permit is required. The best sensor placement would be on the lower side of the pipe, as this will give the best signal in a pipeline with low flow velocity. Changes in flow velocity that can occur over time will have minimal effect on the measured results due to the flow independence of ClampOn DSP PIG Detector. The system requires minimum 1 pair cable for local light only, or 2 pair cable with signal output from the Detector.



ClampOn Ex ia version.



Typical setup with PIG detector on pipe and separate Junction Box with light/reset.

## KEY SPECIFICATIONS\*

- |  |   |
|--|---|
| <ul style="list-style-type: none"> <li>• Method of operation</li> <li>• Processing</li> <li>• Installation principle</li> <li>• Location rating</li> <li>• Certification code</li> <li>• Ambient temperature</li> <li>• Pipe temperature</li> <li>• Power supply</li> <li>• Communication</li> <li>• Alarm indication</li> <li>• Sensor material</li> <li>• Sensor weight</li> <li>• Ingress protection</li> <li>• Certifying bodies:</li> </ul> | <p>Passive acoustics on multiple frequencies, and magnetic gate</p> <p>DSP inside sensor unit</p> <p>Clamp-on (non-intrusive)</p> <p>Ex ia: Zone 0, Ex de/m: Zone 1, Cl I Div 1 Gr. A,B,C,D</p> <p>Ex ia: Ex ia IIB T2-T5, Ex de/m: Ex dem IIC T5</p> <p>-40 °C to 60 °C [-40 °F to 140 °F]</p> <p>-40 °C to 150 °C [-40 °F to 300 °F]</p> <p>12-30VDC - 1W typical/2W max per detector</p> <p>Relay, 4-20 mA, RS-485 (Modbus RTU, ClampOn DSP protocol)</p> <p>Relay, local light, external light &amp; MCS, 4-20mA, Modbus via RS485</p> <p>SS 316 (optional Duplex)</p> <p>Ex ia &lt; 3kg, Ex de/m &lt; 8 kg</p> <p>Ex ia: IP 66&amp;68, Ex de/m: IP 66&amp;67</p> <p>IECEX, ATEX, CSA C&amp;US, INMETRO cCSAus, cULus</p> |
|--|---|

\* Depending on configuration/conditions/certification



ULTRASONIC INTELLIGENT SENSORS

**NORWAY:** ClampOn AS, Vaagsgaten 10, NO-5160 Laksevaag, Bergen, Norway, Phone: +47 5594 8850, Fax: +47 5594 8855, e-mail: mail@clampon.com - **USA:** ClampOn, Inc., 15720 Park Row, Ste. 300 (77084), PO Box 219206 (77218-9206), Houston, TX, USA, Phone: +1 281 492 9805, Fax: +1 281 492 9810, e-mail: infoinc@clampon.com - **WEB:** www.clampon.com