

# ClampOn BIRD Condition Monitor

DIGITAL SIGNAL PROCESSING



*ClampOn BIRD sensor*

## ADVANTAGES

- **Non-intrusive**
- **Wireless**
- **Internal power module**
- **Versatile**
- **Real-time measurement**

## BACKGROUND

The ClampOn BIRD is a new and unique wireless acoustic sensor for the downstream and unconventional market. The BIRD (Battery-operated Intelligent Remote Detector) is non-intrusive and can be used for condition monitoring of pipes, flowlines, valves and other structures.

With wireless communication and power from an integral long lasting power module, the need for expensive cabling, complex wiring diagrams, and termination boxes is now a thing of the past. The ClampOn BIRD offers the latest

technology, including energy efficient Digital Signal Processing (DSP), a very low-power RF node, and a sub 1 GHz programmable ultra-low power mode.

These technologies combine to allow the sensor to operate for more than a year on a single PowerModule. The ClampOn BIRD sensor continuously monitors the condition of the power module and will inform the client when it is time to replace the module.

## INSTALLATION

The sensors are supplied fully calibrated without the need for on-site calibration and can easily be clamped to a pipe. With its wireless connection interface, the ClampOn BIRD sensor utilizes a self-forming mesh network that will add any additional ClampOn BIRD

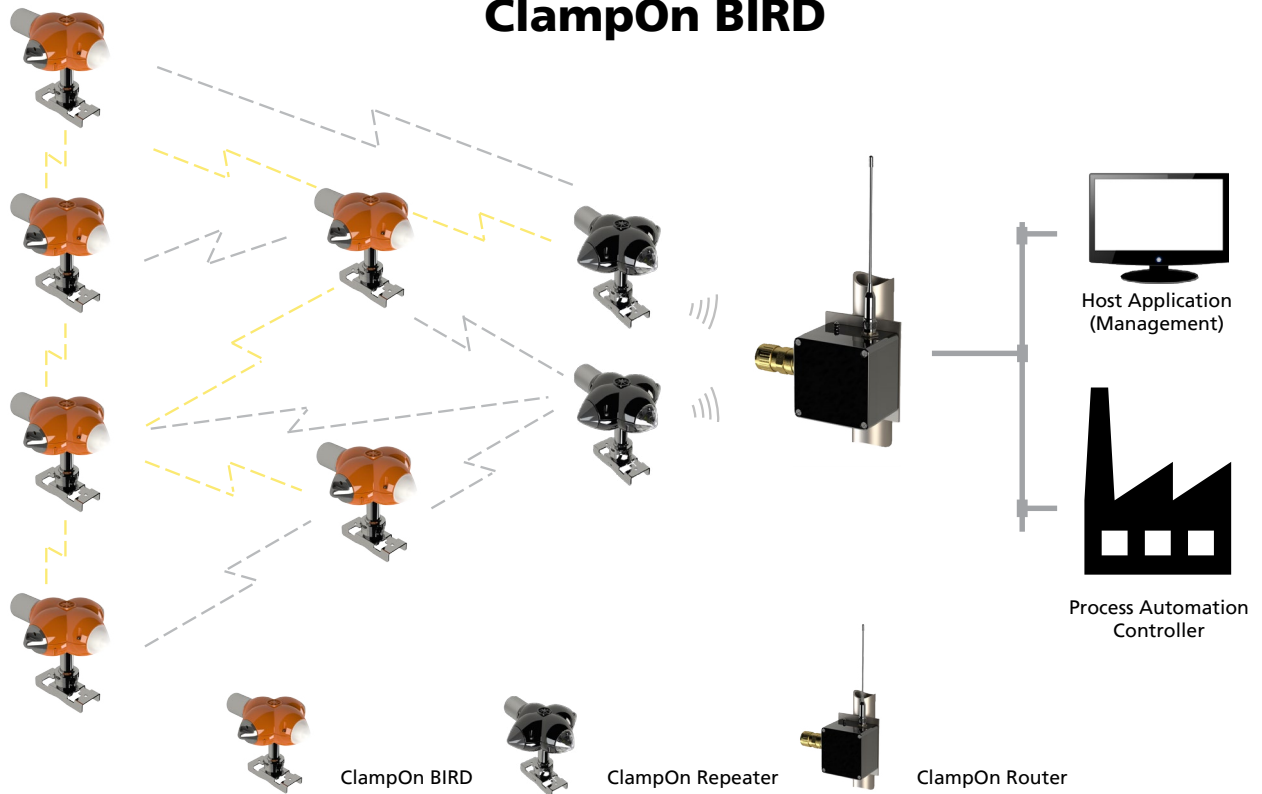
sensor to the network automatically. Installing and setting up an entire network of ClampOn BIRD sensors is done in only a few hours. Even installation in remote and rural locations is no longer a problem.

## CONDITION MONITORING

By measuring, analyzing and reporting acoustic noise, temperature and vibration, the BIRD is extremely flexible and can be used for leak monitoring, vibration detection, steam detection, foam monitoring, temperature monitoring, particle monitoring and pig detection.

The BIRD has a wireless range of up to 1000 meters (line of sight), and its multi-function capability is designed and approved for worldwide operation in just about any industry.

# ClampOn BIRD



## APPLICATIONS

**Condition monitoring:** Monitors for any acoustic change in pipes, valves, tanks etc. A general purpose system to monitor process-applications, and allows configuring user-defined events. Can monitor temperature, vibration and acoustic events simultaneously.

**Steam/valve monitoring:** Monitors the temperature and acoustic activity in a steam valve and provides important information about performance and efficiency. If the valve starts to leak, the system will provide an alarm and status report on the fault condition.

**Leak monitoring:** Monitors the condition of a valve in the open and closed positions. Monitors and detects small leakages through the valve seat or seal.

**Particle monitoring:** Monitors particle flow in any pipeline for particles down to 25  $\mu\text{m}$ . The sensor only needs a bend/obstacle to detect the flowing particles.

**PIG detection:** Detects scrapers, isolation dishes or PIGs in any transport pipeline using acoustic and/or magnetic detection principles. Will provide local and remote alarms with a time stamp.

**Temperature monitoring:** Monitors flow temperature of the pipe, process or tanks non-intrusively - just clamp it on.

**Crack monitoring:** Monitors for and detects cracking in metal tanks, pipes and plates. Installed close to or on the location of the event - all events are detected and recorded.

## KEY SPECIFICATIONS

- |                         |   |
|-------------------------|---|
| • Mesh network          | Up to 250 nodes in a network - self forming |
| • Wireless connectivity | Line of sight: up to 1 000 m (urban: 200 m) |
| • Security              | Encrypted data communication                |
| • Firmware update       | OTA - Over the Air                          |
| • Battery operated      | 1 year of operation                         |



ULTRASONIC INTELLIGENT SENSORS

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