

# PERMANENT ULTRASONIC PIPEWALL MONITORS



## Non-intrusive Rapid detection

The Swarm® S1 consists of multiple daisy chained S1 sensors organized in a customized matrix to cover a bend, straight pipe, a weld, a T-piece or a vessel or a tank. The Sensor measures wall thickness as a function of time, providing market leading resolution on wall thickness loss.

Swarm® is the market leading non-intrusive corrosion and erosion monitoring system, providing wall loss resolution better than 0,1 mills or 2,5µm.

The high resolution gives swift detection of corrosion and erosion rate changes.

A world class corrosion monitoring system is an investment in improved economy, prolonged asset life and safer operations.

Swarm® S1's unique design allows for installation on critical areas such as top of welds, heated weld zones, elbows and T-pieces to monitor and detect:

- Selective weld corrosion.
- Heat-affected zone (HAZ) corrosion.
- Erosion and corrosion on elbows and T-joints.

Single sensors are replaceable. The entire Swarm® unit can be adjusted or relocated by the operator. Install Swarm®, monitor your pipeline and improve your asset integrity management.

**WIRED, WIRELESS AND  
CELLULAR OPTIONS**

**INTEGRATES WITH  
INTRUSIVE MONITORING  
DASHBOARD**

**DATA ALARMS  
DELIVERED BY SMS  
OR EMAIL**

**-40 TO 125C  
READS THROUGH  
COATINGS**

**ZONE 1 CERTIFIED FOR  
EUROPE & N.AMERICA  
IEC EX IB IIB T4 GB  
ATEX EX IB IIB T4 GB**

# Online Data In Real-time

SWARM® Sensors provide quick response to corrosion and erosion changes in pipelines and vessels. The S1 sensor is based on ultrasound and the system consists of multiple daisy chained S1 sensors organized in a customized matrix to cover a bend, straight pipe, a weld, a t-piece or a vessel or a tank.

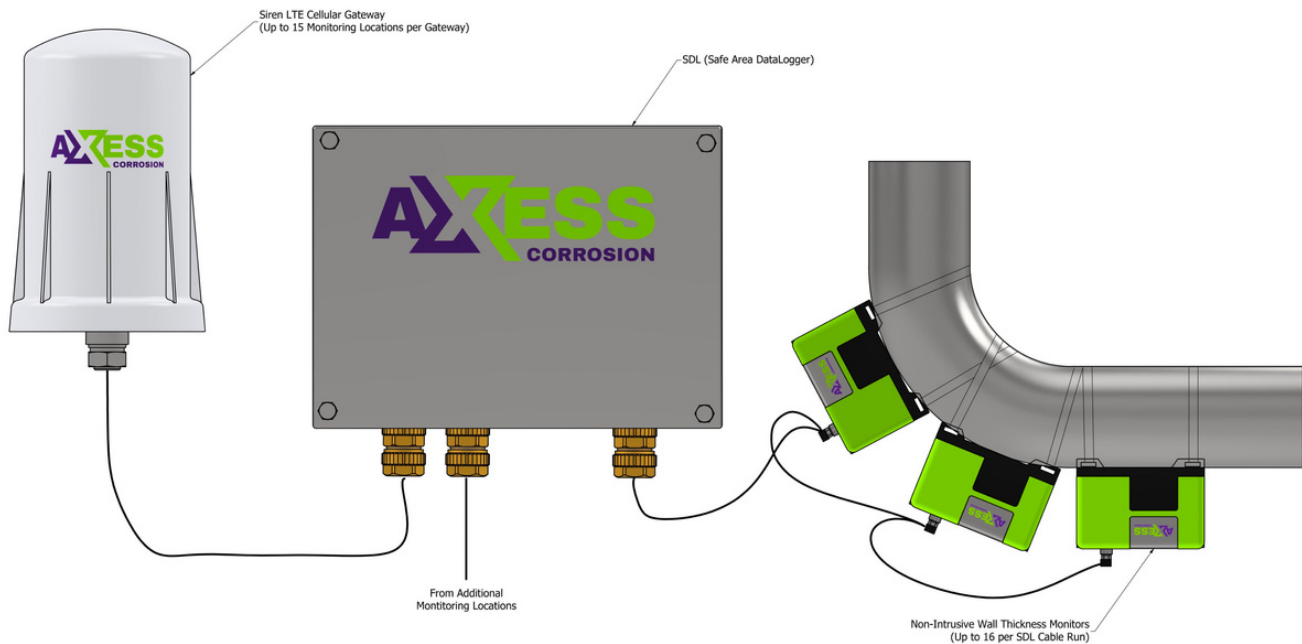
The Swarm can be connected to a USB Junction box for manual capture of data, or FDL (Field Data Logger) or SDL (Safe Data Logger) for autonomous operation.

# Simple Installation

The SDL is hard wired (RS 485) to the Swarm S1 sensor using a two pair instrumentation cable. Utilizing one or more extension kits the number of Swarm S1 sensors connected increase with 16 per kit. The SDL performs daily readings (configurable) of the sensors and communicates with the control system via Modbus TCP, Modbus RTU of 4-20 mA.

The Installation Kit is used to easily and quickly fasten and connect the PipeMonit® Swarm S1 units to the circumference of the pipe without the need for special tools.

Each item in the installation kit is also sold separately.



## Innovating Safety...

