Manhole/Vault Leak Detection by Rovanco®

ISO 9001:2015
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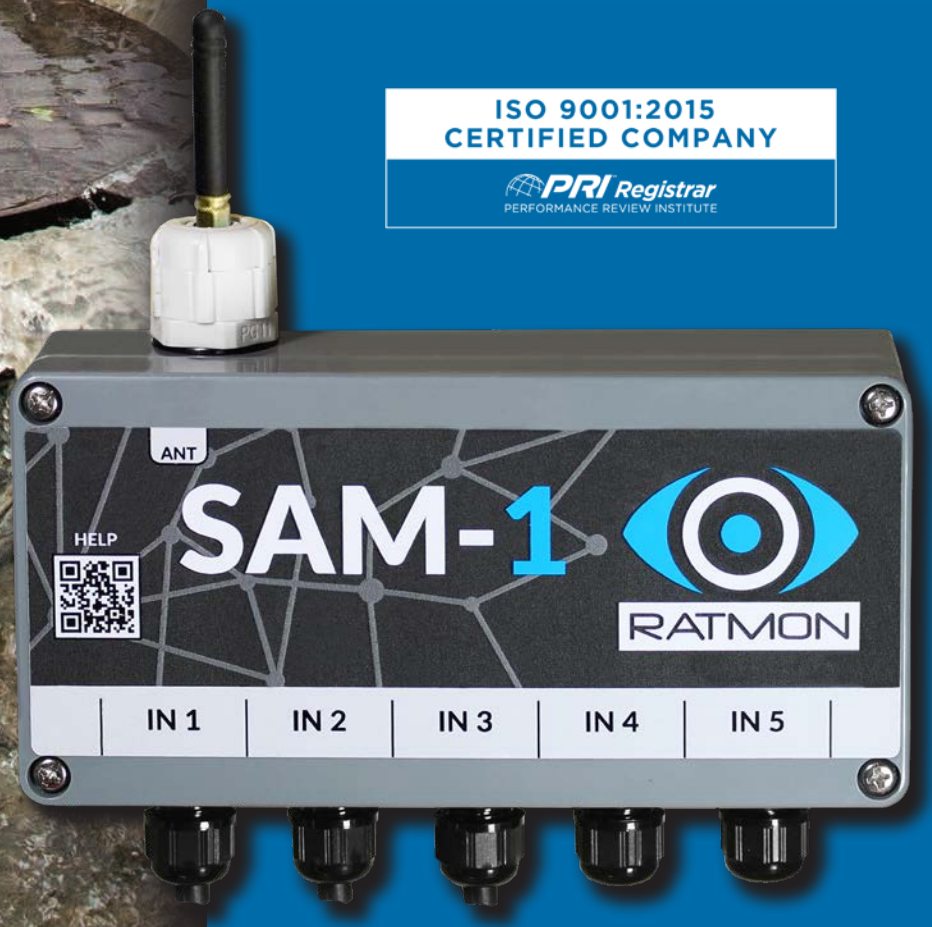


- NB-IoT Communication
- Lithium Ion Battery

Reclaim $534,000 in maintenance cost over 30 years!*

Manhole Failure Causes...

- Flooding from heavy rain
- Sump pump failure
- Pipe corroding or failure
- Fire from heat build-up, electrical short, cable overheating
- Illegal removal of manhole covers
- Salt and water build up with electrical lines
- Intentional destructive actions

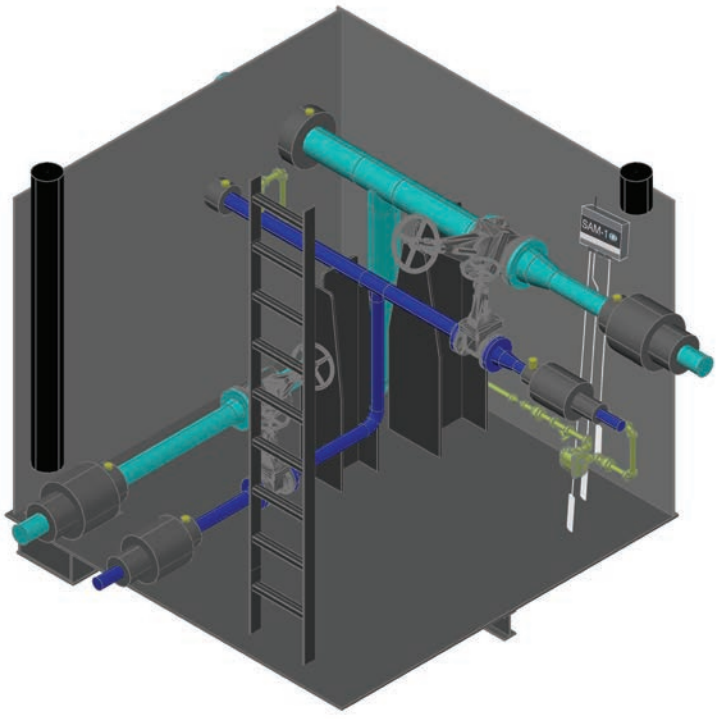
Manhole/Vault Units are designed to gather data about the local space and pipes running in and out; including water levels, humidity and temperature of the space or the pipes.

A U.S. Army Corps of Engineers® (USACOE) study states: The return-on-investment (ROI) for this cellular-system design is calculated at 94.6, roughly saving you $534,000 in maintenance cost over 30 years!*

Features & Benefits

- GPS coordinates are programmed into the system and each unit can be monitored using system software.
- Web based for monitoring and mapping your manhole system
- Robust signal-processing has an excellent signal/noise ratio even in higher ambient temperatures
- Data collection for energy usage analysis
- Constant monitoring of battery life
- Temperature gauge allows you to distinguish between rainfall & water/steam from a broken pipe
- Unit can withstand 185°F, other components can withstand over 450°F
- Any sensor with a 4-20 mA outout can be utilized upon request.
- 5 year cellular service plan and collected data storage included

- *Prompt notification of the need for critical repairs*
- *Avoidance of consequent additional damage that can result when the need for critical repairs is not promptly known*
- *Timely discovery & addressing of excess no-load heat losses, and prevention of the resulting wasted costs**



Get an Email or Text immediately if...

- **Water levels rise above sensors**
- **Temperature differentiates**
- **Humidity changes**
- **Manhole lid/access door is opened/moved**

Manhole Failure Can Result In...

- Loss of service
- Expensive repairs
- Dangerous situations
- Destruction of fiber optics, wiring & cables
- Steam pipe breaches, expansion joint & vent failure
- Unauthorized entry leading to injury, burns or even death
- Potential lawsuits

Unit Components:

- Built-in NB-IoT modem
- Software for remote configuration
- IP67 housing
- Float Switch – usually 2, mounted on wall at low (initial) and high (critical) water warning levels
- Temperature Probe (vault or pipe) – mounted on a wall of the vault or inserted into the insulation at the end of a pipe
- Lid Detect – will trip if a manhole lid is opened
- Antenna – Basic antenna for SIM/Cell communications
- Open MQTT protocol to communicate with any external BMS
- UL Listed Lithium Ion Battery Pack (for battery powered units) – can last up to 5 years when sending 1 burst of information per day

A USACOE study indicated that boiling manholes often go undetected for an average of one month. Assuming two pit failures per year, the result is a monthly cost of $4,327.16 in lost energy.*

*According to the USACOE, due to the failure of sump pumps and/or the leakage of carrier fluid, manholes become flooded with water. When this occurs, pipe insulation is defeated and heat is transferred out of the heat-distribution system due to continuous boiling inside the manhole. At very least, this wastes a considerable amount of energy, estimated conservatively to cost $50,000 – $125,000 per year.**

Unit can be mounted inside manhole

Unit can be mounted externally (remote monitoring)

Image above is an example of what monitoring might look like using Google Earth™

A USACOE study states a flooded manhole can cause the premature failure of adjacent system piping (an estimated 350 ft replaced every 5 years), at a cost of $750 per foot.*

Welcome to the Future of Leak Detection!

SAM-1 Basic Specifcations

- Monitoring unit for registration of water levels, humidity, temperatures, etc in chambers.
- 5 inputs for measuring water temperature, humidity, flow and return water temperatures in media pipes, water levels in chambers & other wet rooms or can be used for redundancy if desired.
- Rovanco SAM-1 is equipped with a NB-IoT modem which deliver measurement values to a Monitoring Software.
- The unit is delivered configured for battery operation.

Communication / Alarm Function

- The Rovanco SAM-1 is specifically designed to provide critical notification via the latest technologies. All units have built in NB-IoT communication.
- Can to set alarms on all analog and digital measurements.
- Alerts can be sent via SMS and email.

Time Period & Alarm

- System keeps calendar time.

External Program Memory

- A serial EEPROM memory stores measurement values for future transfer to the portal and can store more than 1,000 measurements.

Power Supply

- Battery
- The battery operation life is over 5 years during typical operating conditions.

**Data from U.S. Army Corps of Engineers® publication ERDC/CERL TR-16-2, the final report on project F09-AR03.*

https://erdc-library.erdc.dren.mil/xmlui/handle/11681/19740

Rovanco SAM-1 Technical Specifications

Unit

IP67 Rated
Water Leak Detection
Steam Leak Detection
Oil Leak Detection
Analog / Digital Inputs

Communication

NB-IoT

Power Supply

Primary – Battery Pack / 3.6v

Protection

Stainless Steel Case Provided
External Composite, H-20 Loading Case for Above or Below Ground Available

Measurement

Temperature
Water Level

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