Manhole/Vault Leak Detection by Rovanco®

ISO 9001:2015
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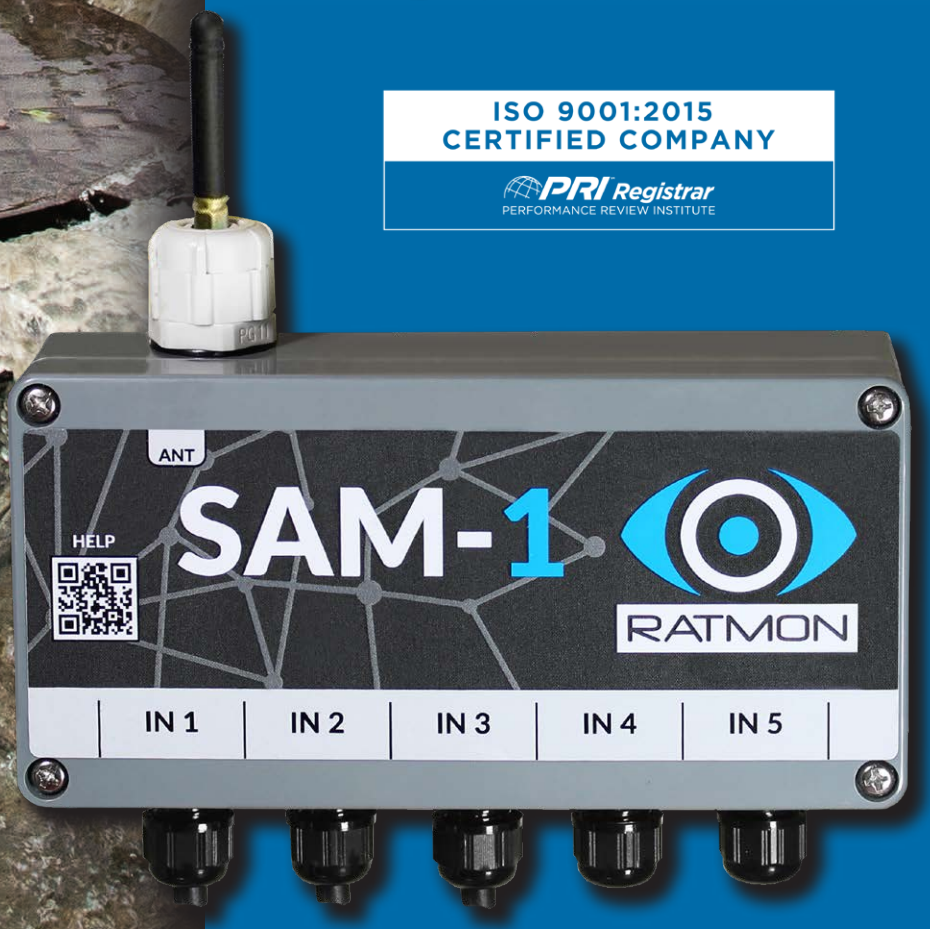


- NB-IoT Communication
- Lithium Ion Battery

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

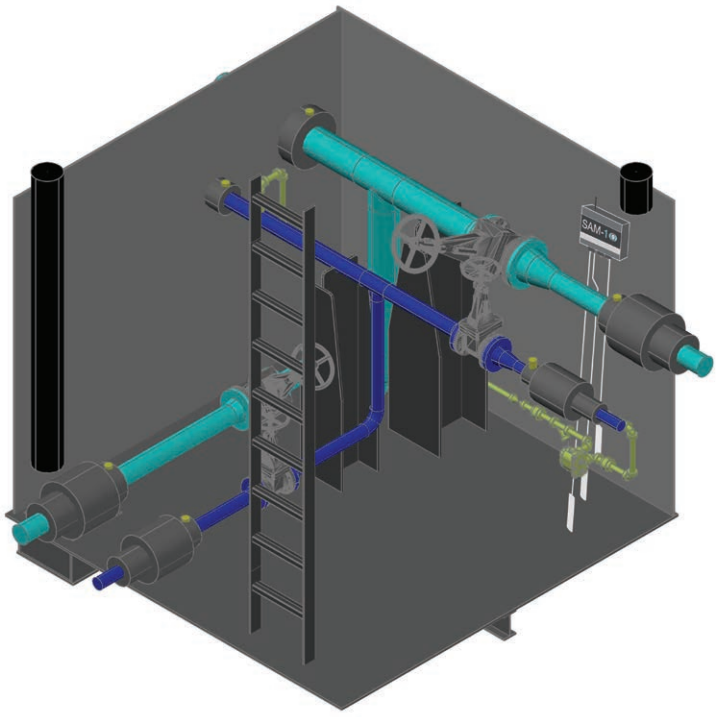
Manhole/Vault Units are designed to gather data about the local space and pipes running in and out; including water levels, humidity and temperature of the space or the pipes.

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 in the unit, viewable using Google Earth™
- 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 in order to measure room temperature, humidity, flow and return water temperatures in media pipes and water levels in chambers and other wet rooms.
- 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.

Real Time Clock

- The real time clock (RTC) keeps the current calendar time. Calendar time allows the unit to record when measurements are made and follow an established schedule. Measurement data and time are recorded in the portal.

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

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

Communication

NB-IoT

Power Supply

Primary – Battery Pack / 12v DC

Protection Class

External Steel Case available
External Insulated Steel Case or External H-20 Case (optional)

Measurement

Temperature
Water Level

Battery

Voltage – (-0.5v - +0.5v)

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