



ACOUSTIC MONITORING



AIM[™]
ARMSTRONG INTELLIGENT MONITORING
WirelessHART[®]

Why Monitoring Valves?

Fugitive emissions are unintended or irregular releases of gases or vapors from pressurized system, either due to faulty equipment, leakage, or other unforeseen mishaps. Leak detection is an essential component of risk management as it allows the operator to respond to the leaks to prevent further escalation of incidents.

Pressure/Safety Relief Valves are necessary to the protection of many processes but most of these are known to be continuous sources for leakage. Regardless of whether these gases, hazardous area pollutants or more benign fluids such as steam, are released to an enclosed recovery system or to the environment, it is important to identify the source, time, and magnitude of the release.

There are **four benefits** of valve monitoring:

Safety

- It reduces exposure of employees to potentially harmful emissions and fluids as well as exposure of property to potentially highly corrosive fluids.

Environmentally

- It reduces global warming and greenhouse gases getting to the atmosphere.

Economically

- It makes sure the process is efficient by limiting downtime and reducing losses of pressurized gases.

Legally

- It helps avoid fines from local and states regulated by complying with legislation.

There are **three challenges** for effective valve monitoring:

- Identifying a failure – What, when, and where?
- Evaluating the scope – How big of an impact?
- Measuring the impact – Value the tangible and intangible losses.

AIM® enables you to tackle all three challenges with one system solution that combines a mix of methods including valve specific acoustic and temperature monitoring with integrated smart wireless solutions.



SIMPLE

- | Easy set-up of network and Hart devices
- | Self-organizing, adaptive mesh network
- | Seamless integration to existing hosts

RELIABLE

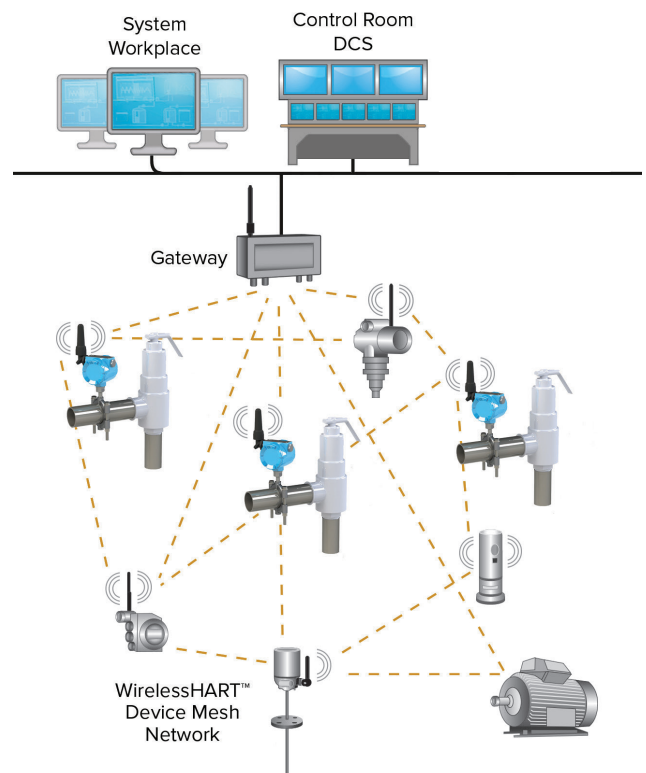
- | Robust, multi-tiered, always-on security
- | Device authentication and passwords
- | Industry standard data encryptions

SECURE

- | Channel hopping to avoid interference
- | Time-synchronized communication
- | Redundant self-healing network

WirelessHART® Protocol

WirelessHART® is a highly reliable, easy to deploy wireless communications protocol for process automation applications. It adds wireless capabilities to HART technology while maintaining compatibility with existing HART devices, commands, and tools. *WirelessHART* uses mesh networking technology. Each device in a mesh network can serve as a router for messages from other devices. In other words, a device doesn't have to communicate directly to a gateway, but just forward its message to the next closest device. This extends the range of the network and provides redundant communication routes to increase reliability, particularly in the difficult radio environment found in process facilities. The Armstrong Intelligent Monitoring (AIM®) AD5000 series is the only valve monitoring device *WirelessHART*® registered by FieldComm Group.™



Simple • Smart • Sustainable



INSTALL



JOIN NETWORK



MONITOR



DCS INTEGRATION

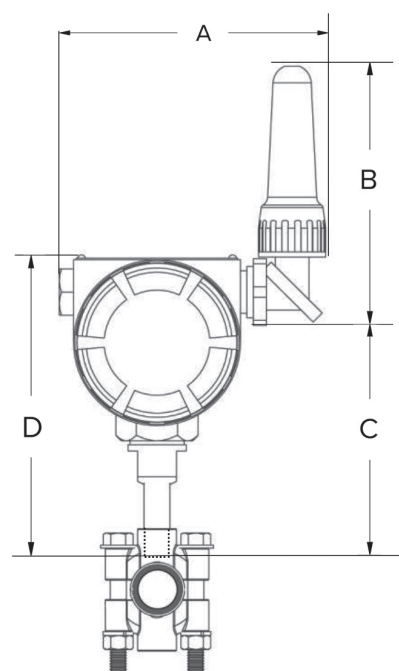
- No integration to external software necessary.
- Transmitted Information to gateway:
 - **Device variable 0:** Value of the level of sound detected by the monitor
 - **Device variable 1:** The temperature detected at the tip of the stem of the monitor (skin temperature)
 - **Device variable 2:** Number of occurrences where the acoustic level exceeds a defined threshold (with reset).
 - **Device variable 3:** Calculate the total time that a lift is detected between resets (in seconds).
 - **Device variable 4:** Battery Life
 - **Device variable 5:** Acoustic Level Threshold
 - **Device variable 6:** Sample rate
- Acoustic range specifically calibrated for valves
- Patented waveguide for proper acoustic filtration and vibration resistance.
- Non-intrusive installation, clamped directly on the pipe downstream of the valve.
- Waveguide hardware allows multiple transmitter installation orientations.
- 24/7 monitoring of the valve population.
- AIM® devices scattered in the plant will strengthen the wireless network.

These are all the available variables that can be mapped, only four can be displayed to PV, SV, TV, and QV.

SPECIFICATIONS

Housing Material	Epoxy coated aluminum
Waveguide Material	CF8M casting
Protection Rating	IP66
Hazardous Location	Class I, Division 1, ATEX Zone 0
Ambient Temperature	-40°F to 158°F (-40°C to 70°C)
Min. Operating Pressure	15psig (1barg)
Max. Process Temperature	824°F (440°C) *
Battery Type	Epoxy Lithium-metal battery pack
Pipe Diameter	½" to 12" (DN15 to DN300)
Weight (without waveguide)	4.1lbs (1.9kg)

* See IOM, not derated on ambient temperature using specific installation kit.



DIMENSIONS

	[in]	[mm]
A	6.4	162
B	5.0	128
C	5.2	131
D	6.5	164



Armstrong International

North America | Latin America | India | Europe | Middle East | Africa | China | Pacific Rim



INTELLIGENT THERMAL UTILITIES SOLUTIONS FROM
A GLOBAL LEADER IN ENERGY MANAGEMENT
AND ENJOYABLE EXPERIENCES.

Armstrong International

North America | Latin America | India | Europe | Middle East | Africa | China | Pacific Rim

armstronginternational.com