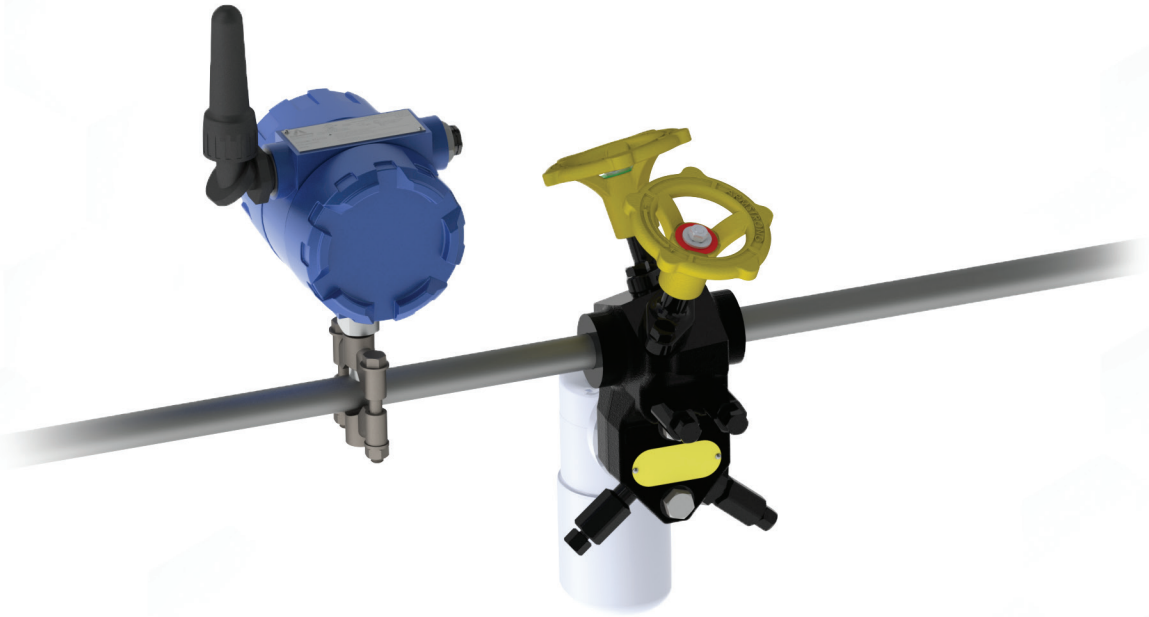
Armstrong®

STEAM TRAP MONITORING



AIM™
ARMSTRONG INTELLIGENT MONITORING

ISA100 Wireless COMPLIANT

AIM® ST6700 Series & ISA100 WIRELESS™

Why Steam Trap Monitoring?

If the steam trap **fails open** (Leaking or Blow-Through):

- Increased back pressure.
  - Reduced flow for surrounding steam traps.
- Steam losses (monetary losses).
- Safety issue.
- Environmental issue...

If the steam trap **fails closed** (Cold):

- Wet steam.
  - Water hammering.
  - Damaged turbine LP saturated steam stage.
  - Piping corrosion.
  - Erosion on valves, reducers.
- "Stalling" or flooded heat exchanger.
  - Decrease in production.
  - Reduced heat transfer.
  - Batch process losses.
  - Thermal stress.

There are **3 challenges** for an effective steam trap 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 steam trap specific acoustic and temperature monitoring with integrated smart wireless solutions.

	STEAM LOSS THRU AN ORIFICE • DRIP APPLICATION					
	10barg	150psig	17barg	250psig	28barg	400psig
Orifice	[kg/day]	[lb/day]	[kg/day]	[lb/day]	[kg/day]	[lb/day]
#38	495	1,091	796	1,754	1,246	2,747
7/64"	575	1,267	924	2,036	1,447	3,190
1/8"	751	1,655	1,207	2,660	1,890	4,167
5/32"	1,173	2,586	1,885	4,156	2,953	6,511
11/64"	1,419	3,129	2,281	5,029	3,573	7,878
3/16"	1,689	3,724	2,714	5,984	4,253	9,376
7/32"	2,299	5,068	3,695	8,145	5,788	12,761
1/4"	3,003	6,620	4,826	10,639	7,560	16,668
5/16"	4,692	10,343	7,540	16,623	11,813	26,043
3/8"	6,756	14,894	10,858	23,937	17,011	37,502
1/2"	12,011	26,479	19,303	42,556	30,241	66,671
9/16"	15,201	33,512	24,430	53,859	38,274	84,380
11/16"	22,707	50,061	36,495	80,457	57,175	126,050
3/4"	27,024	59,577	43,432	95,750	68,043	150,009

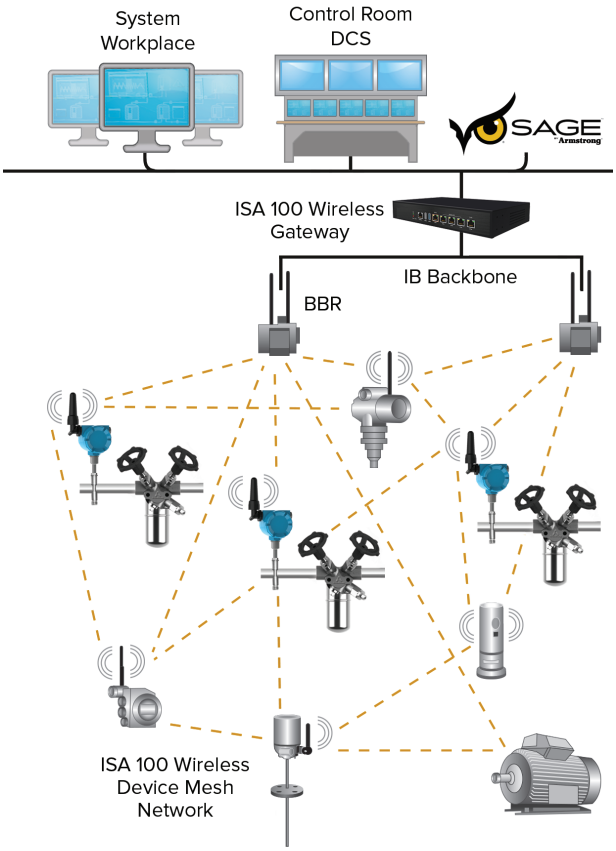
Blow-Through steam trap, Outlet Pressure < (Inlet Pressure/2) Source: AM0017 by UNFCCC

ISA100 Wireless™ Protocol

ISA100 Wireless™ is the only industrial wireless protocol standard to incorporate IPv6 directly as part of its network layer and transport layer. ISA100 Wireless™ supports multiple subnets which enables sensors to be grouped for traffic and network management, while breaking the network into zones for security reasons. ISA100 enables backbone-level routing which is also supported in ISA100 Wireless™.

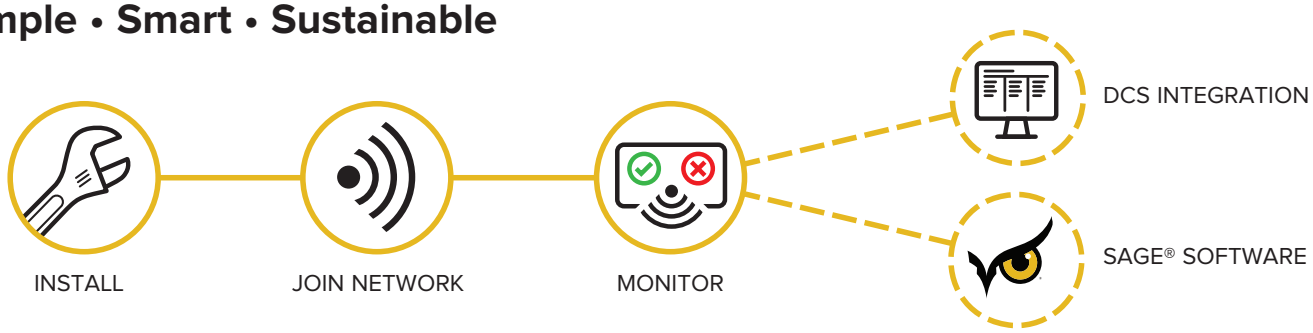
ISA100 Provides:

- Best in class transmitter for application.
- Robust encryption technology.
- Globally accepted standard.
- Downtime free communication.
- Control of latency and low error rates.



AIM® ST6700 Series & ISA100 WIRELESS™

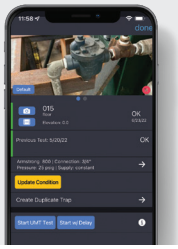
Simple • Smart • Sustainable



- No steam trap set-up (operating pressure, trap details, rate...).
- No integration to external software necessary.
- Transmitted Information to gateway:
  - Channel 9 ➜ Steam Trap Condition: 1=OK, 2=COLD, 3=BLOW-THROUGH
  - Channel 10 ➜ Current Temperature (°C or °F)
  - Channel 11 ➜ Temperature Set Point (°C or °F)
  - 100+ NAMUR NE107 diagnostics available.
- Acoustic range specifically calibrated for steam traps.
- Patented waveguide for proper acoustic filtration and vibration resistance.
- Non-intrusive installation, clamped directly on the pipe upfront of the steam trap.
- Waveguide hardware allows multiple transmitter installation orientations.
- 24/7 monitoring of the steam trap population.
- AIM® devices scattered on the steam system will strengthen the wireless network.

SAGE® keeps you fully informed, 24 hours a day by providing regular updates, precise documentation, custom-filtered reports, and real-time alerts to notify you immediately of any problems that arise.

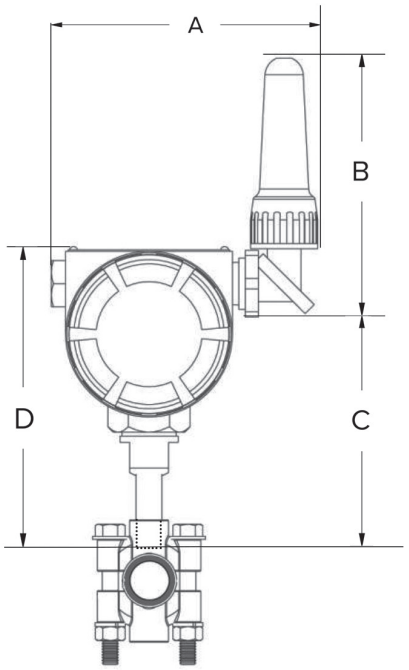
SAGE® calculates steam loss data and reports it using our proprietary steam system efficiency methodology approved by the United Nations Framework Convention on Climate Change (UNFCCC).



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



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