



STAPS Wireless Head Unit for ISA100.11a applications

Description

The STAPS ISA100 wireless steam trap monitoring system has been designed to efficiently monitor and evaluate steam trap operation. It surveys the operation of the steam trap at regular intervals and identifies poor performance that can cause reduced plant efficiency and increased energy consumption. It can diagnose both failed-open steam traps that leak live steam, and those that have failed-closed or are blocked, resulting in waterlogging, leading to plant damage, product spoilage and health and safety concerns.

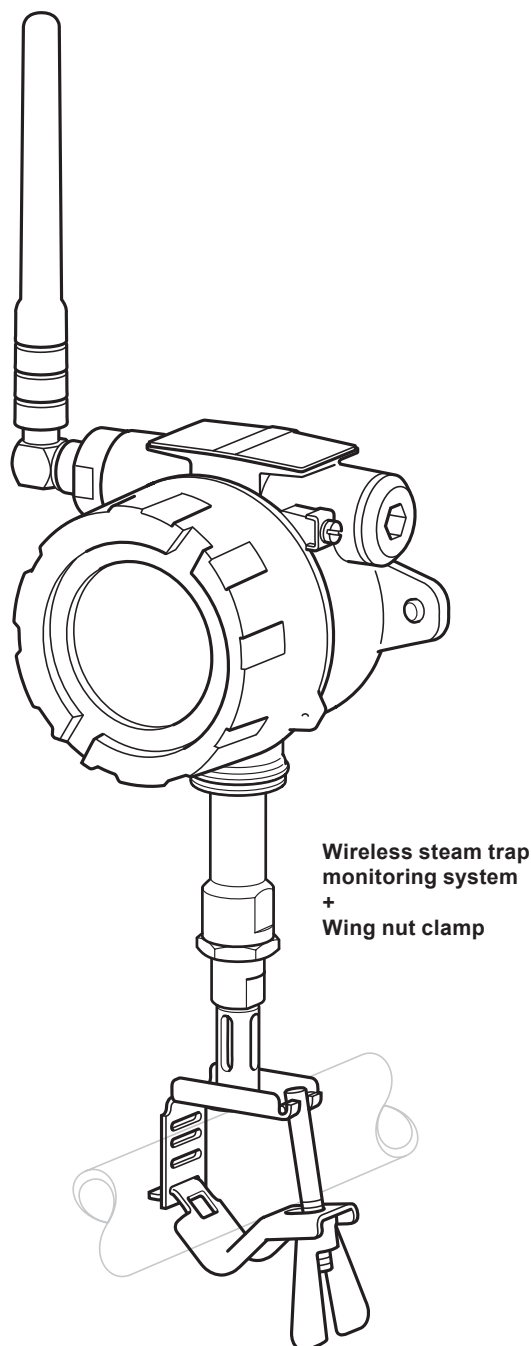
Using non-intrusive installation technology combined with an ISA100 wireless network makes it an ideal solution for steam trap monitoring.

It is suitable for use with all types of steam trap and can be connected to pipework up to 100 mm (4"), via an adjustable clamp.

For manifold applications please contact Spirax Sarco.

Benefits include:

- Fully ISA100.11a compliant.
- Continuous monitoring of all steam traps.
- Reduces energy and emissions loss significantly.
- Immediate identification of failure location for quick response/action.
- Non-intrusive – no need to break into the steam line to install.
- A range of clamps to suit pipework ranging up to 100 mm (4").
- No need for height access equipment to check trap operation.
- Typically 3 years battery life.
- Security assured wireless network certified to ISA100.11a.
- Intrinsically safe for hazardous zones



Certification and Approvals

Radio:

Complies to EN 300 328 V2.1.1
FCC CFR 47 part 15.247

EMC Emissions and immunity:

- EN 61326 -1: 2013
- EN 61326-2-1: 2013
- EN 61326-2-3: 2013

Safety:

- Complies with IEC / EN 61010 1 2010 (third edition) CSA 22.2.

Hazard area approvals:

- IECEx certification and ATEX intrinsic safety certification.
 - IECEx certificate : IECEx SIR 15.0070X
 - ATEX certificate : Sira 15ATEX2197X

Associated equipment:

- ISA100.11a compliant gateway (not supplied).
- Infrared network configuration tool (not supplied).

Sizes and pipe connections

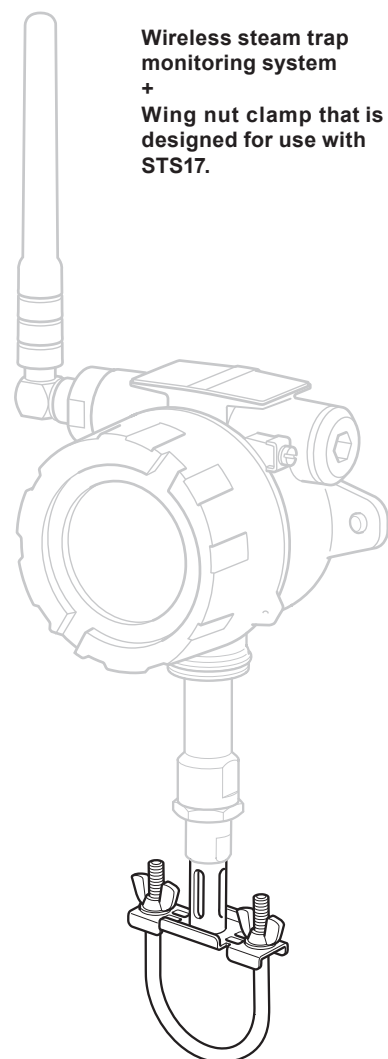
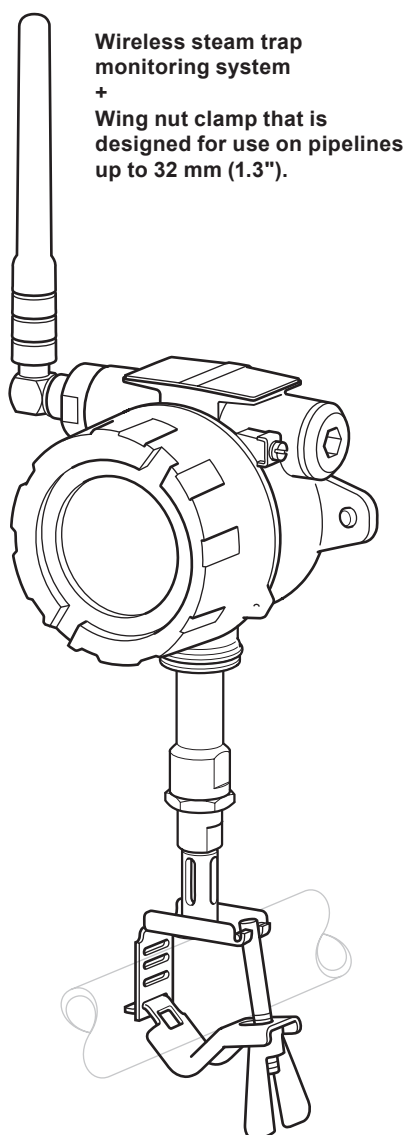
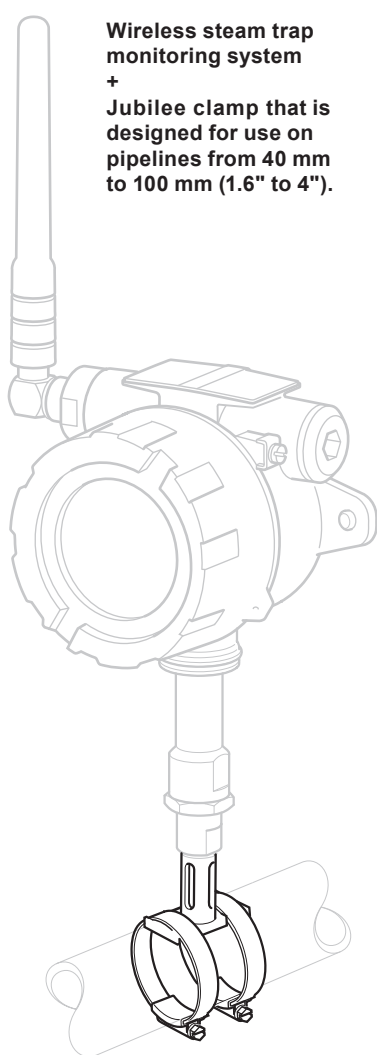
The STAPS wireless monitoring system is suitable for connecting to pipework up to 100 mm (4"), via an adjustable clamp.

Options

- +4 dBi Antenna with 3 m (9.84 ft) RF cable. Contact Spirax Sarco for model reference.
- Heat Shield Kit, see required usage in Technical information.

Materials

Head unit	Head casing	Epoxy coated copper free aluminium (less than 0.4% copper)
	Sensor housing	Stainless steel 316
	Sensor	PZT
	Clamp	Stainless steel 316
	Winged nut	Stainless steel 316
	Probe	Stainless steel
	Antenna	Stainless steel 316
	Antenna casing	ABS
	'O' ring	Oil proof TPE rubber



Technical information

Head unit:

Available with remote +4 dBi antenna.

Integral battery	Lithium Thionyl Chloride			
Maximum altitude	3 000 m (9843 ft)			
Ambient temperature range	-20 to +70 °C (-4 to 158 °F)			
Maximum pipe temperature	427 °C (801 °F)			
Maximum relative humidity	95%			
Enclosure ingress rating	IP66 / NEMA4X			
Output	Protocol	ISA100 11a		
	Data rate	250 kbps		
	Frequency	2400 – 2483.5 MHz free ISM band		
	Radio security	AES 128 bit codified		
	Output power	10 dBm (fixed)		
	Antenna	+2 dBi Omni directional monopole type (4dBi option). Maximum output transmitting power 15.85 mW.		
ISA100.11a analog inputs	Process pipe surface temperature			
	Sensor temperature			
	Trap condition (good, leak, cold)			
	Steam loss			
Configuration	Trap type			
	Polling rate			
	Orifice diameter			
	Pressure			
	Return line type			
Diagnostics	Battery status			
	Signal strength			
	DIAG_STATUS			
Certification The certification and approvals are only valid if the product is installed using the genuine supplied component parts and accessories, including consumable items such as batteries and power leads.	IECEX	Equipment protection level	IECEX certificate : IECEX SIR 15.0070X	
		Gas	Ex ia op is IIC T4 Ga	
		Dust	Ex ia IIIC op is T135 °C Da	
		Tamb	-20 to +70 °C (-4 to 158 °F)	
		T process	-20 to +427 °C (-4 to 801 °F)	
		For use with Tadiran SL 2880 3.6 V Lithium Thionyl Chloride Battery only.		
		Standards used	IEC 60079-0, IEC 60079-11 and IEC 60079-28	
	European	ATEX intrinsic safety 	ATEX certificate : Sira 15ATEX2197X	
		Gas	Ex ia op is IIC T4 Ga	
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Heat shield usage against temperature

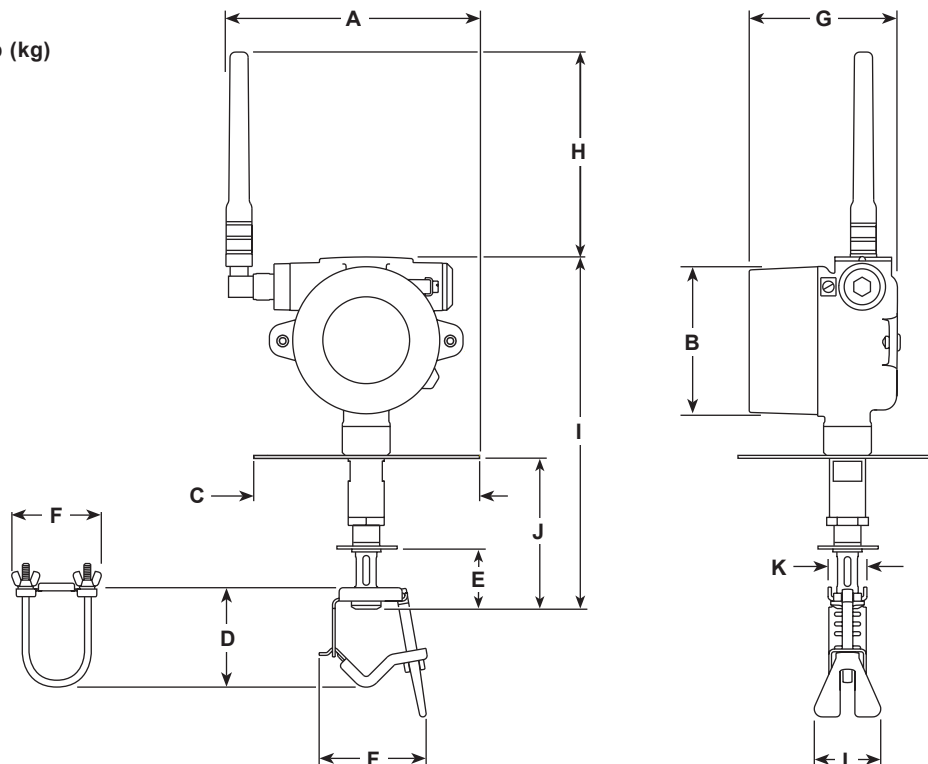
Ambient temperature	Maximum process temperature	Heat shield Required	Orientation
-20 °C to 65 °C (-4 to 149 °F)	427 °C (801 °F)	Yes	0° to 45°
-20 °C to 70 °C (-4 to 158 °F)	270 °C (518 °F)		
-20 °C to 70 °C (-4 to 158 °F)	150 °C (302 °F)	No	45° to 90°
-20 °C to 65 °C (-4 to 149 °F)	250 °C (482 °F)		
-20 °C to 60 °C (-4 to 140 °F)	350 °C (662 °F)		

How does the STAPS ISA100 wireless steam trap monitoring system work?

A head unit assembly mounted on the pipe upstream of the trap to be monitored 'listens' to the sound signature of the trap in operation. This sound signature is categorized and a steam loss value is calculated and transmitted via an ISA100, 2.4 GHz wireless network to an ISA100 wireless compliant gateway (Not Supplied).

Each STAPS head unit is powered by a long life Lithium battery (typical battery life of over 3 years).

Dimensions / weights (approximate) in inches (mm) and lb (kg)



Size	A	B	C	D	E	F	G	H	I	J	K	L	Weight
DN15 - ½"	180 (7.09")	110 (4.33")	150 (5.91")	50 (1.97")	42 (1.7")	87 (3.4")	110 (4.33")	154 (6.06")	284 (11.2")	154 (6.06")	29 (1.14")	50 (1.97")	2.3 kg (5.1 lb)
DN20 - ¾"				56 (2.2")									
DN25 - 1"				64 (2.5")									
DN32 - 1¼"				74 (2.9")									
DN40 - 1½"													
DN50 - 2"											46 (1.8")		
DN65 - 2½"													
DN80 - 3"													
DN100 - 4"													
STS17.2				85 (3.3")		90 (3.5")							

Safety information, installation and maintenance

For full details see the Installation and Maintenance Instructions (IM-P014-23) supplied with the product.

Disposal:

- The Lithium Thionyl Chloride battery must be disposed of in line with local legislation. It must be remembered that battery hazards remain even when the cells are discharged.
- The Piezo sensor should be disposed of in line with local lead disposal guidelines.

No other ecological hazard is anticipated with the disposal of this product. It should be disposed of within the local recycling procedures.

How to order

Contact your local Spirax Sarco representative to arrange a site survey and installations.

Spare parts

Only the parts listed below are available for the STAPS ISA100 wireless steam trap monitoring system. No other parts are supplied as spares.

Available spares

Battery (Tadiran SL 2880 3.6 V battery)	11
Enclosure 'O' ring spares kit	10
Clamp, 'T' bolt and wing nut for pipe sizes ½" to 1¼"	4 and 5
Clamp for pipe size 1½"	
Clamp for pipe size 2" - 2½"	12
Clamp for pipe size 3" - 4"	
Clamp for STS17 (trap station)	13
Antenna (standard)	9
Antenna +4 dBi	
Heat Shield Kit	14

How to order spares

Always order spare parts by using the description given in the column headed 'Available spares' and state the size and unit nomenclature that they are intended for.

Example:

1 off Battery spares kit (Tadiran SL 2880 3.6 V battery)

and

1 off Enclosure 'O' ring spares kit.

These spares are for a STAPS ISA100 wireless steam trap monitoring system.

