

spirax sarco

STAPS

TI-P014-04
 MI Issue 1

Wireless Steam Trap Monitoring System for ATEX and IECEx applications

Description

The STAPS 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 a 2.4 GHz wireless network, it is 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.

Benefits include:

- Continuously monitoring of all steam traps.
- Reduces energy and emissions loss significantly.
- Immediate identification of failure location for quick response/action.
- Ability to validate losses via integrated software.
- 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.

Certification and Approvals

- | | |
|---|--|
| EMC Emissions and immunity: | Emissions class B and Industrial immunity. |
| - EN 61326-2-1: 2006 | Complies with FCC rules CFR 47 (1 st October 2011). |
| - EN 61326-2-3: 2006 | Safety to IEC/EN 61010-1 2001 (second edition). |
| - Hazardous area approvals | CSA 22.2 |
| for the head only: IECEx certification and ATEX intrinsic safety certification. | |

Associated equipment:

- Repeater.
- Laptop / PC software.
- Receiver.
- Access to the company's LAN network is preferred, giving improved network coverage.
- For stand alone PC systems, it is recommended that a network switch device is used between the PC and receiver.

PC application:

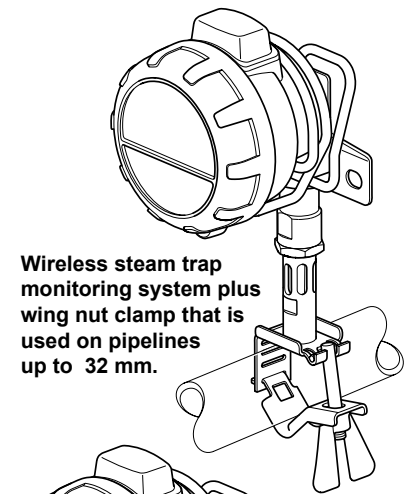
- Allows quick and easy viewing of whole steam trap population.
- Alerts the user to any issues with traps.
- Historical view of data and maintenance on each trap.

Sizes and pipe connections

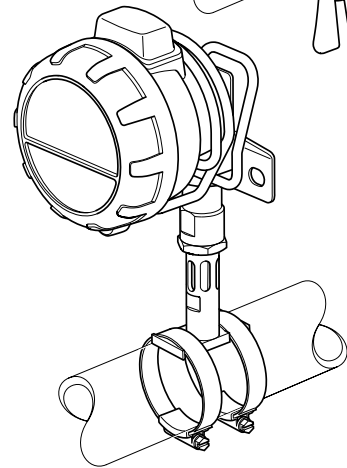
The STAPS wireless monitoring system is suitable for connecting to pipework up to 100 mm (4"), via an adjustable clamp. The head can be directly mounted to the sensor or fitted remotely.

Materials

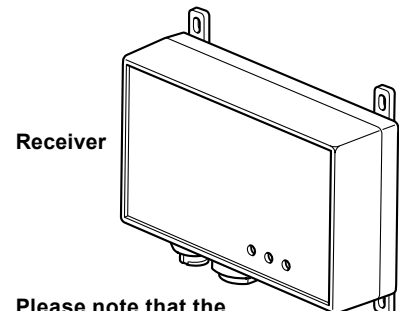
Head unit	Head casing	PA12 glass filled
	Sensor housing	Stainless steel 316/304
	Sensor	PZT
	Clamp	Stainless steel 430/304
	Winged nut	Stainless steel 316
	LED enclosure	PA12
	Sensor cable	FEP/PTFE insulation
	Probe	Stainless steel
	Mounting Bracket	Stainless steel 430
	Sensor guide	Stainless steel 304
Receiver/Repeater	Casing	ABS



Wireless steam trap monitoring system plus wing nut clamp that is used on pipelines up to 32 mm.



Wireless steam trap monitoring system plus jubilee clamp that is used on pipelines from 40 mm to 100 mm.




Receiver

Please note that the Receiver/Repeater is only designed for use outside of the hazardous environment.

Technical information

Head unit:

Available with post or tethered head mountings.

Integral battery	Lithium Thionyl Chloride		
Maximum altitude	3 000 m (0.7 bar atmospheric)		
Ambient temperature range	-29 to +59°C (battery life based on cycling at 15 minute intervals at an ambient temperature of 20°C)		
Maximum pipe temperature	315°C		
Maximum relative humidity	95%		
Enclosure rating	IP66		
Output	IEE 802-15 2.4 GHz		
Display	LED		
Operating modes	Trap monitoring unit - end device or repeater/end device		
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	
		Gas	Ex ia IIC T4 Ga
		Dust	Ex ia IIIC T135°C Da
		Tamb	-20 to +59°C
		Tprocess	-20 to +315°C
		For use with SAFT LS 33600 3.6 V Lithium Thionyl Chloride Battery only.	
		Standards used IEC 60079-0, IEC 60079-11 and IEC 60079-26	
		ATEX Intrinsic Safety 	
		Gas	II 1 G Ex ia IIC T4 Ga
		Dust	II 1 D Ex ia IIIC T135°C Da
European	Tamb	-20 to +59°C	
	Tprocess	-20 to +315°C	
	For use with SAFT LS 33600 3.6 V Lithium Thionyl Chloride Battery only.		
	Standards used EN 60079-0, EN 60079-11 and EN 60079-26		

Receiver / Repeater

Please note that the Receiver/Repeater is only designed for use outside of the hazardous environment.

Power	Mains powered 100 – 250 Vac, 50 – 60 Hz
Current	ac - 0.5 A 100 Vac
	dc - 1.5 A 12 V
Connector	ac - 2 pin IEC 320-C8
	3 pin UK, US and European mains plug dc - 2 pin IP65 connector
Maximum altitude	3 000 m (0.7 bar atmospheric)
Ambient temperature range	-29 to +70°C
Maximum relative humidity	95%
Enclosure rating	IP65 (Excluding external power supply)
Visual indicators	LED
Input/Output (I/O)	IEE 802.15 2.4 GHz RJ45 port
Operating modes	Receiver or repeater

System requirements

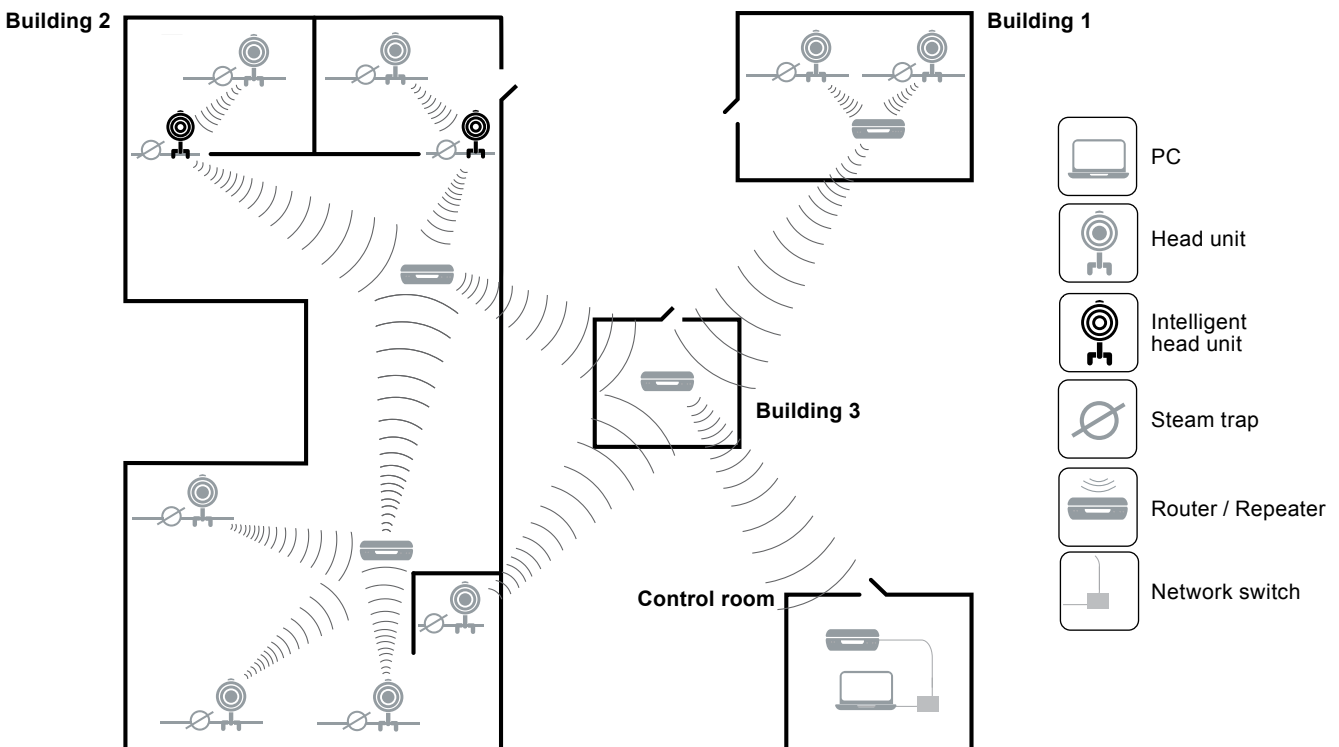
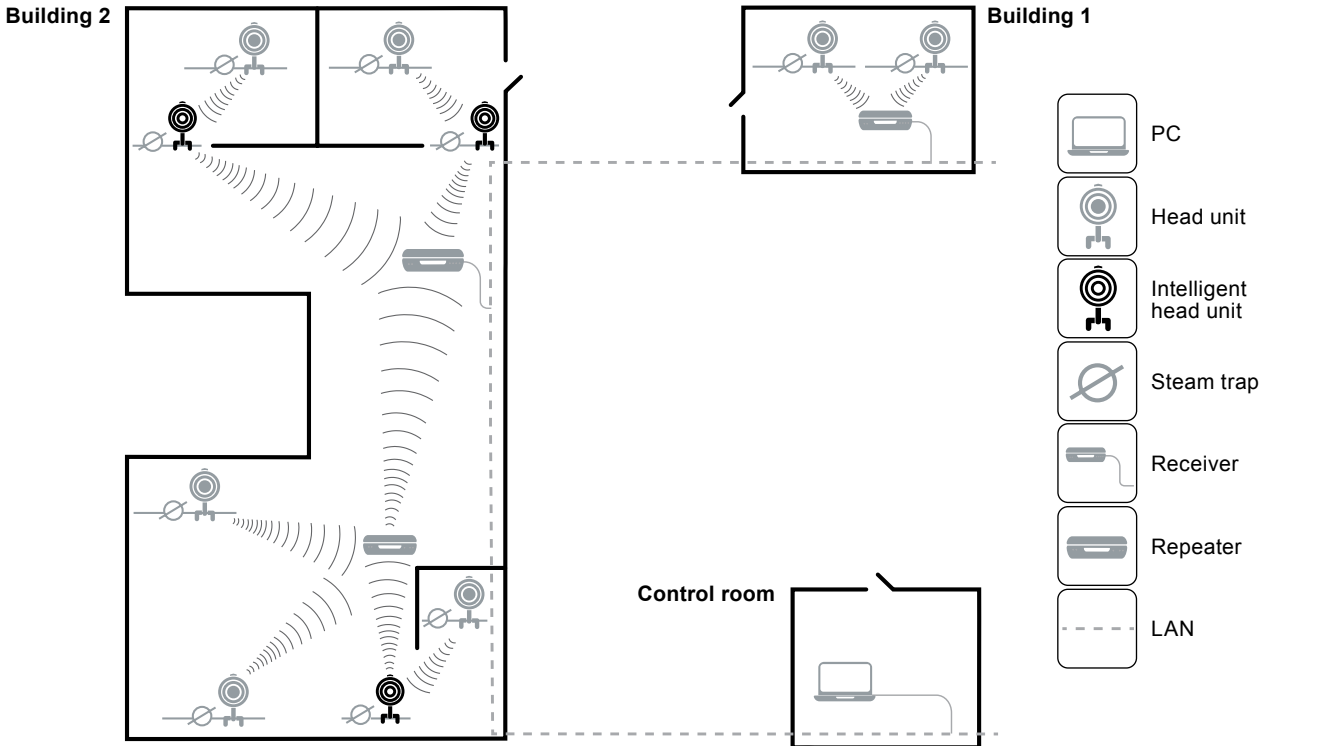
PC	Windows XP .NET 3.5
	Windows 7 .NET 3.5
	Network switch or access to company LAN network

How does it 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 categorised and transmitted via 2.4 GHz wireless network to a central PC. The PC determines the trap condition and calculates any steam loss.

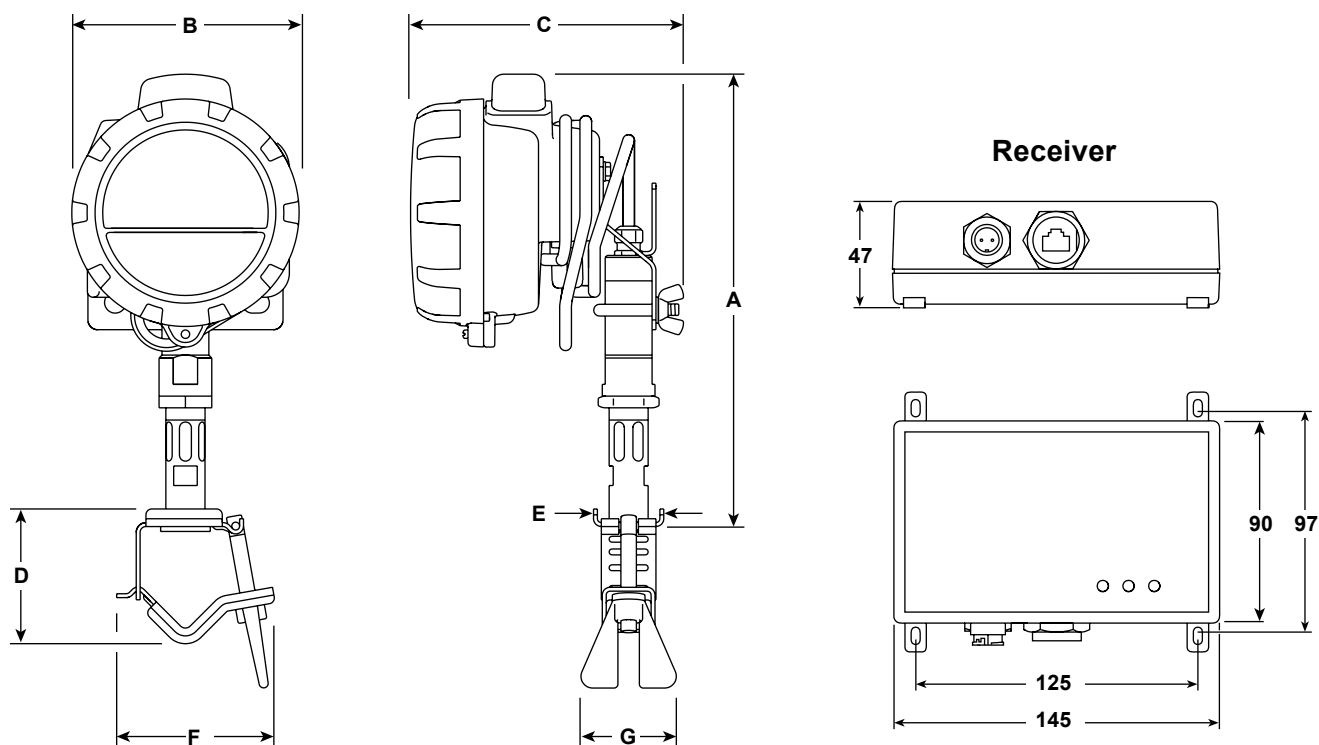
Each STAPS head unit assembly is powered by a long life Lithium battery (typical battery life of over 3 years). It can communicate directly to a receiver that is connected to the PC software via a LAN connection or via another intelligent head or repeater. The PC software can be installed onto a PC on the sites internal network, or onto a standalone local PC.

The STAPS head, repeater and receiver create a network and can communicate with each other, passing on the steam trap data to the supervisory PC. The illustration below illustrates a typical network.



Dimensions / weights (approximate) in mm and kg

Wireless steam trap monitoring system + wing-nut clamp



Size	A	B	C	D	E	F	G	Weight
DN15 - 1/2"	234	117	126	44 - 69	36	55	50	1 kg
DN20 - 3/4"	234	117	126	44 - 69	36	55	50	1 kg
DN25 - 1"	234	117	126	44 - 69	36	55	50	1 kg
DN32 - 1 1/4"	234	117	126	44 - 69	36	55	50	1 kg
DN40 - 1 1/2"	234	117	126	44 - 69	36	55	50	1 kg
DN50 - 2"	234	117	126		50	30		1 kg
DN65 - 2 1/2"	234	117	126		50	30		1 kg
DN80 - 3"	234	117	126		50	30		1 kg
DN100 - 4"	234	117	126		50	30		1 kg

Safety information, installation and maintenance

For full details see the Installation and Maintenance Instructions (IM-P014-03) 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 system. No other parts are supplied as spares.

Available spares

Battery (SAFT LS 33600 3.6 V battery)	1
'O' ring spares kit	2
Head mounting bracket, 'U' bolt and wing nuts	8, 9, 10 and 19
Ethernet cable spares kit	15
Clamp, 'T' bolt and wing nut (UK) spares kit	5, 6 and 7 11 and 14
Power supply (US) spares kit	12 and 14
(EU) spares kit	13 and 14
Front cover spares kit	3 and 4
Spare receiver mounting kit	6, 17 and 18

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
(SAFT LS 33600 3.6 V battery)
and

1 off Wall mounting spares kit

These spares are for a DN15 STAPS wireless steam trap monitoring system.

