

# WIRELESS GAS & STEAM LEAK DETECTOR SWWRF61.1X (LoRa IoT)

## General Description

The Bitherm SWRF61.1X wireless electronic device is a non-intrusive and continuous gas & steam leak detector based on the LoRa Technology to extend its radio distance range for hundreds of Kilometers even in industrial environments.

The SWRF61.1X includes temperature and ultrasound sensors and is powered by a battery designed for ultra low energy consumption and extra-long lasting battery life. There are 3 different variants depending on the type of battery used.

SWWRF61.1X features a compact size for easy clamp-on

## Typical Applications

Bitherm SmartWatchWeb system can be used to detect and survey steam leaks and gas leakages on any steam trap, relief & safety valve, or other type of valves. Among the typical applications for this product we can list:

- Improving energy efficiency.
- Reducing deployment cost.
- Autonomous monitoring nodes.
- Network support for other Bitherm products.



## Main Features

- Communications :
  - LoRa frequency bands.
- Measurement channels:
  - Temperature.
  - Ultrasounds.
- Low power:
  - <math><100 \mu\text{A}</math> sleeping mode.
  - Down to <math>500 \mu\text{A}</math> equivalent continuous consumption in active mode (configuration dependent).
- Ip67 Protection Grade.

## Installation

The SWRF61.1X equipment is easy to install, using a non-invasive system where penetration is not required inside pipes or valves.

The device can be installed in any type of steam trap, safety valve or on-off valve. The installation process is done through a clamp attached to the pipe.



BiTherm steam traps do not require the use of clamps to install the SWRF61.1X device due to the existence of a specific connector on the top of the trap itself.



## WIRELESS GAS & STEAM LEAK DETECTOR SWWRF61.1X (LoRa IoT)

### SWWRF61.1X – Technical Specifications

|                          |                          |  |  |  |
|--------------------------|--------------------------|--|--|--|
| <b>Enclosure</b>         | Size                     | With antenna (HxLxW)                             | 10.8x5.1x3.7 in. ( 275x130x95mm)                                   |  |
|                          |                          | Without antenna (HxLxW)                          | 7.7x5.1x3.7in. (195x130x95 mm)                                     |  |
|                          | Weight                   | 3.3 lbs. (1.5 kg)                                |  |  |
|                          | Material                 | Stainless steel 316L /Aluminium Alloy (optional) |  |  |
|                          | Protection grade         | IP67   |  |  |
| <b>Communications</b>    | Radio                    | (LoRa Frecuency Plan)                            | US915, AS923-1/2/3/4, AU915, EU868, IN865, KR920, RU864, CN470     |  |
|                          | Output Power             | 20 / 23 dBm                                      |  |  |
| <b>Operating Range</b>   | Process Temp.            | Thermocouple (type K)                            | -20°C to 540°C (-4°F to 1004°F)                                    |  |
|                          | Ultrasound               | Piezoelectric sensor                             | 40 KHz ± 2KHz  |  |
|                          | Humidity                 | 0 to 99 %RH, non-condensing                      |  |  |
|                          | Variant 10<br>SWWRF61.10 | Battery type                                     | Lithium-thionyl chloride (Li-SOCl <sub>2</sub> )                   |  |
|                          |                          | Battery voltage                                  | 3.6 V  |  |
|                          |                          | Battery nominal capacity                         | 19000 mAh  |  |
|                          | Variant 11<br>SWWRF61.11 | Battery type                                     | Lithium-thionyl chloride (Li-SOCl <sub>2</sub> )                   |  |
|                          |                          | Battery voltage                                  | 3.6 V  |  |
|                          |                          | Battery nominal capacity                         | 17000 mAh  |  |
|                          | Variant 12<br>SWWRF61.12 | Battery type                                     | Lithium Manganese Dioxide (Li-MnO <sub>2</sub> )                   |  |
| Battery voltage          |                          | 3 V  |  |  |
| Battery nominal capacity |                          | 7.4 Ah   |  |  |
| <b>Power Consumption</b> | Sleep                    | < 100 uA   |  |  |
|                          |                          | Idle   | < 0.5 mA   |  |
|                          | Active                   | RX   | < 30 mA  |  |
|                          |                          | TX   | < 65 mA  |  |
| <b>Ex Certification</b>  | IECEX                    | Marking  | Ex ia IIC T4 Ga, -40°C < Ta < 80 °C<br>(-40°F < Ta < 176 °F)       |  |
|                          | ATEX                     | Marking  | II 1 G Ex ia IIC T4 Ga, -40°C < Ta < 8 °C<br>(-40°F < Ta < 140 °F) |  |

For more information please visit <https://bitherm.com> or contact your local BiTherm distributor.

Technical modification reserved.

BiTherm Copyright 2025.



#### Headquarters

**BITHERM SISTEMAS S.A.**  
Ulises 89  
28043 Madrid (Spain)  
Tel: (+34) 91 404 80 87  
email: [ventas@bitherm-sistemas.com](mailto:ventas@bitherm-sistemas.com)

#### Factory

**PURGADORES DE CONDENSADO S.L.**  
Artes y oficios 24, nave 9  
30360 La Unión, Murcia (Spain)  
Tel: (+34) 968 54 04 45  
email: [purgasa@bitherm.com](mailto:purgasa@bitherm.com)