



WatchGas SST1 & SST1E Fixed-Life Detectors Hibernation – Extending Remaining Service Life While Reducing Total Cost of Ownership

1. Purpose

The WatchGas SST1 and SST1E maintenance-free detectors introduce a different approach to hibernation than most fixed-life gas detectors.

Many manufacturers describe hibernation primarily as a method to preserve battery capacity. However, if detectors are designed correctly, the power consumption has minimal impact. Only a few sensors, such as the oxygen, Cl₂, and NO₂ sensors, require a bias current, and this offers a limited battery life extension - but those sensors will require a warm-up time. So while battery capacity preservation is certainly beneficial, it is **not the primary purpose of the WatchGas hibernation feature**.

WatchGas hibernation pauses the detector's remaining service-life timer.

This enables organizations to use the detector only when its gas protection is actually required, significantly extending the practical calendar life of the instrument, while still preserving its high-quality, maintenance-free concept. Note, however, that this does not extend the warranty.

The SST1/SST1E supports hibernation through multiple platforms, including the **SST Hibernation Starter**, **WatchGas Device Link App**, and **SST Dock**, all without requiring a dedicated PC, desktop software, or permanent workstation. This enables users to quickly and easily hibernate their SST1/SST1E devices.

NOTE: Throughout this document, **remaining service life** refers to the detector's fixed-life service timer and should not be confused with remaining battery capacity, or warranty.





2. Why Was This Feature Developed?

Historically, many users purchased **90-day disposable H₂S detectors** for temporary projects such as:

- Plant shutdowns
- Turnarounds
- Construction projects
- Drilling campaigns
- Temporary contractors
- Bringing your gas detector on a plane, or other means of transportation where the power down state is required

Once the project finished, detectors were often discarded - even though both the battery and sensor were still in excellent working conditions.

At WatchGas, we approached this problem differently, with the aim to minimize product waste, and maximize user options.

Modern SST1 and SST1E detectors are available with:

- **24-month remaining service life**
- **36-month remaining service life** (H₂S and CO models)

These detectors incorporate batteries designed to support the intended service life under normal operating conditions.

However, many industrial applications do **not** require continuous monitoring throughout the entire calendar period.

Typical examples include:

- Annual shutdowns
- Seasonal maintenance
- Commissioning projects
- Rental fleets
- Contractors between projects
- Emergency response stock

Without hibernation, the detector's remaining service life would continue counting down while sitting unused in storage.

WatchGas eliminates this unnecessary loss of operating time by allowing users to pause the remaining service-life timer whenever the detector is intentionally not being used.

3. How WatchGas Hibernation Works

When placed into Hibernation Mode:

- the detector powers down;
- the **detector's remaining service-life timer stops**;



- the detector's remaining service life is preserved until the detector is reactivated.

Unlike traditional battery-saving sleep modes, WatchGas hibernation is specifically designed to preserve the detector's **remaining service life**.

Important

A detector in hibernation **does not monitor gas** and **cannot alarm**.

It should only be placed into hibernation when intentionally removed from service.

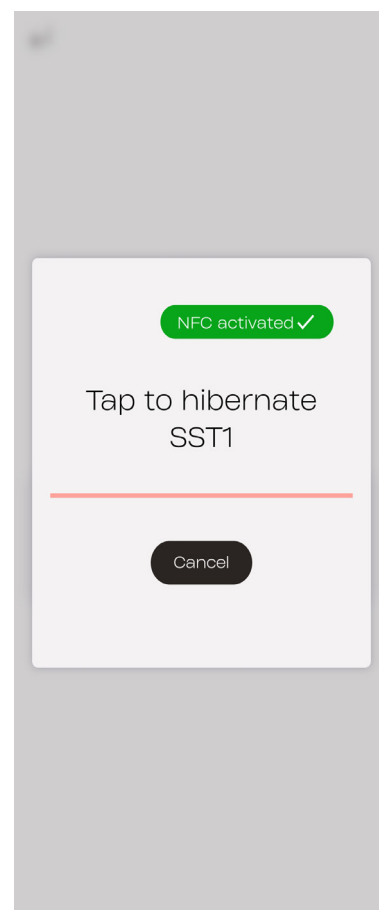
After reactivation, the detector must complete its normal warm-up period in a fresh air environment (with 20.9% oxygen concentration) and in a safe area that is free of any hazardous gases, before it can be used in a hazardous area.

4. Multiple Ways to Hibernate

WatchGas provides several methods for placing detectors into hibernation, allowing organizations to choose the workflow that best suits their operational needs.

Available methods include:

- SST Hibernation Starter
- WatchGas Device Link App (NFC)
- SST Dock





Unlike many fleet-management systems, these methods do not require users to return to a desktop computer simply to store a detector.

Whether managing a single detector or an entire fleet, hibernation can be performed quickly using the most convenient platform.

5. Lower Total Cost of Ownership

One of the greatest advantages of WatchGas hibernation is the reduction in **Total Cost of Ownership (TCO)**.

Because SST1 and SST1E detectors require:

- no routine calibration
- no sensor replacement
- no charging
- minimal maintenance

Every month of remaining service life that is preserved lowers the effective daily ownership cost.

Example

A contractor purchases a **24-month H₂S detector**.

The detector is used:

- six months during Turnaround #1
- hibernated for six months
- used during Turnaround #2
- hibernated again
- used on future projects

If the detector spends approximately **50% of its calendar time in hibernation**, WatchGas recommends that users can approximately **double the practical calendar ownership period by placing it into hibernation when it is not being used**.

A detector with 24 months of remaining service life may therefore prolong product availability for up to **48 calendar months**, provided it is used within specification and sufficient remaining service life is available.

No additional service life is created.

Instead, unused service life is preserved until the detector is needed again.



6. Battery Consumption and Replacement

Gas alarms consume battery energy. Applications with unusually frequent alarms may reduce the achievable operating life by increasing battery consumption.

Unlike many fixed-life disposable detectors, **the batteries used in WatchGas detectors can be replaced** if required. This provides additional flexibility for users whose detectors have experienced exceptionally high alarm activity.

However, once the detector has reached or exceeded the user's desired useful service life, replacing the entire detector may be the more practical and economical choice - particularly if the instrument has become worn through daily use. A new detector provides a fresh enclosure, new sensor, full operating life, and maximum reliability.

The purpose of WatchGas hibernation is not to avoid battery replacement, but to preserve valuable remaining service life while the detector is not in service, allowing users to maximize the value of their investment before deciding whether battery replacement, or detector replacement is the best option.



7. Special Considerations for O₂ Models

The SST1/SST1E O₂ model uses a **lead-free oxygen sensor**.

Unlike the H₂S and CO sensors, this sensor is **biased**, meaning it requires continuous electrical power during normal operation to maintain optimum performance.

As a result, the O₂ version has a higher continuous power demand than the H₂S and CO models.

Consequently, battery replacement may be required sooner depending on operating conditions and usage. Which means that hibernation provides an additional advantage for O₂ detectors.

When the detector is placed into hibernation, the powered sensor is switched off. This not only pauses the detector's remaining service-life timer, but also significantly reduces battery consumption while the detector is stored.

For users who operate O₂ detectors intermittently, hibernation can therefore prolong product availability and greatly reduce the need for battery replacement over the detector's operational lifetime.

Important

After reactivation, the O₂ sensor requires approximately **42 minutes** to warm up and stabilize before the detector is ready for normal gas monitoring.

Always allow this warm-up period before placing the detector back into service.





8. Sustainability Benefits

Maintenance-free detectors are often described as “disposable.”

However, WatchGas hibernation changes that perception.

Without hibernation:

- detectors may be discarded after a single shutdown;
- despite a healthy sensor;
- despite remaining battery capacity;
- despite substantial remaining service life.

With hibernation:

- the detector can be reused across multiple shutdowns;
- prolong product availability and reduce the need to purchase new units;
- fewer detectors enter the waste stream;
- manufacturing and transportation requirements are reduced.

Extending the useful life of an existing detector is almost always more sustainable and preferable than replacing it prematurely.

By preserving unused remaining service life, WatchGas helps organizations reduce electronic waste while simultaneously lowering operating costs.





9. Which Models Support Hibernation?

The SST1 & SST1E Fixed-Life product family that supports the WatchGas hibernation concept includes:

Gas	Available Remaining Service Life	Hibernation
H ₂ S	24 & 36 months	Yes
CO	24 & 36 months	Yes
O ₂	24 months	Yes
SO ₂	24 months	Refer to current product documentation

The current SST1/SST1E family includes 2-year H₂S, CO, O₂ and SO₂ models, while 3-year versions are available for H₂S and CO.

Always refer to the latest WatchGas product datasheet and user manual for model-specific functionality.

10. Why Isn't Every Gas Detector a Fixed-Life Hibernating Detector?

Not every electrochemical sensor is suitable for a maintenance-free fixed-life concept.

Several factors determine whether a detector can successfully support hibernation, including:

- sensor chemistry;
- long-term stability;
- expected sensor life;
- battery capacity;
- application requirements;
- regulatory requirements.

Many specialty gas sensors require periodic calibration or performance verification throughout their service life because of sensor characteristics or application-specific accuracy requirements.

These products are therefore better suited to serviceable instruments.

The availability of hibernation should therefore not be viewed as simply a software feature.

It is the result of combining stable long-life sensor technology, efficient electronics, sufficient battery capacity, and detector architecture specifically designed for maintenance-free operation.



11. Storage Recommendations

Proper storage is essential to maximize both battery life and sensor performance.

Whenever practical:

- place the detector into Hibernation Mode before storing it;
- store the detector within the storage temperature and humidity limits specified in the applicable WatchGas user manual and product datasheet;
- store in a clean, dry location;
- avoid direct sunlight;
- avoid excessive humidity and condensation;
- avoid corrosive vapours or contaminated storage environments.

Do not leave detectors inside parked vehicles.

Temperatures inside vehicles can quickly exceed the specified storage limits - even on relatively mild days - and may negatively affect battery performance, sensor stability, and overall product reliability.

Following the published storage specifications together with proper use of hibernation will help maximize both remaining service life, as well as long-term detector reliability.

12. End-of-Life and Disposal Guidance

WatchGas SST1 and SST1E detectors contain several different materials and components, including:

- plastic enclosure materials;
- batteries;
- electronic circuitry and printed circuit boards;
- glass and display components;
- electrochemical sensors;
- metals and other electronic components.

For this reason, an end-of-life detector should not automatically be treated as general household or industrial waste.

Always dispose of the detector in accordance with applicable local, regional, and national waste regulations.

Where available, the preferred practice is to send complete end-of-life detectors to an approved electronic-waste or WEEE recycling facility. Electronic equipment contains materials that can potentially be recovered and recycled, while other components require controlled treatment. In the European Union, electrical and electronic equipment is generally handled through dedicated WEEE collection and treatment systems rather than normal waste streams.



Recommended Good Practice

The following principles represent commonly accepted environmentally responsible disposal practices worldwide:

- Reuse before disposal. If a detector remains serviceable and has remaining service life, consider continued use or hibernation rather than premature disposal.
- Use an authorized electronic-waste recycler. Whenever possible, return complete detectors through an approved e-waste, WEEE, industrial-electronics or manufacturer-supported recycling program.
- Separate batteries where required. Batteries should be handled through appropriate battery collection and recycling systems in accordance with local requirements.
- Do not place batteries in normal waste streams. Batteries can present environmental and fire risks when incorrectly discarded. Dedicated recycling or hazardous-waste collection is preferred.
- Do not burn or incinerate detectors or batteries unless processing is performed by an appropriately licensed waste-treatment facility.
- Do not dismantle sensors unnecessarily. Sensors and electronic components should preferably remain within the detector and be handled by a qualified recycling organization unless local recycling procedures specifically require separation.
- Do not dispose of electronic components into the environment, landfill or general waste where dedicated electronic-waste collection is available.
- Where components are separated by an authorized recycler, plastics, metals, glass, batteries and electronic circuitry should be directed into their appropriate recovery or treatment streams.
- Businesses managing significant quantities of detectors should use documented waste-transfer and recycling processes and retain disposal or recycling records where required by local regulations.





International environmental guidance generally follows the principle that electronic waste should be collected and treated using environmentally sound management practices, minimizing risks to human health and the environment and maximizing recovery of usable materials.

Sustainability Principle

The most environmentally responsible detector is not necessarily the detector that is replaced most frequently.

WatchGas recommends the following hierarchy wherever technically and legally appropriate:

Use → Hibernate → Reuse → Service where practical → Recycle responsibly

Hibernation contributes directly to this approach by allowing a detector that remains in good physical and technical condition to continue serving its intended purpose rather than being discarded simply because it was temporarily not required.

Once the detector has genuinely reached the end of its useful life, responsible electronic-waste recycling allows valuable materials to be recovered while batteries, sensors and electronic components can be treated through appropriate controlled waste streams.

Important: Waste classification, battery handling and electronic-waste requirements differ between countries and regions. Always follow applicable local regulations and use authorized collection or recycling organizations where required.

13. Conclusion

WatchGas hibernation is fundamentally different from traditional battery-saving sleep modes.

Its purpose is to preserve the detector's remaining service life.

This enables organizations to:

- prolong product availability and maximize detector utilization;
- reduce total cost of ownership;
- simplify contractor and rental fleet management;
- reduce unnecessary electronic waste;
- improve sustainability without compromising worker safety.

For industries where detectors are used intermittently rather than continuously, WatchGas hibernation allows a maintenance-free detector to remain valuable across multiple projects, instead of being retired simply because its calendar time has elapsed.

Rather than preserving only battery capacity, **WatchGas preserves time** by allowing users to decide when the detector's remaining service life is consumed.



NOTE: This applies to WatchGas SST1 and SST1E fixed-life maintenance-free detectors equipped with the WatchGas Hibernation function.

Always return the detector to normal operating mode, allow the required warm-up period (20 seconds for toxic sensors and ~42 minutes for the O₂ model), and verify correct operation before use in a hazardous area.

For storage limits, operating conditions, warm-up times, and model-specific functionality, always refer to the latest WatchGas user manual and product datasheet.

**Regards,
WatchGas Team**