

# **EAGLE 1**

## **H<sub>2</sub>S Gas Detector Watch**

### **Operating Instructions**

**Revision: 3**



Approval by	Checked by	Originated by
OV	JH	OV

## Versions

Revision	Date	Editor	Modifications
1	31.07.2018	OV	Initial release
2	22.03.2018	OV	US certification additions
3	07.08.2018	OV	FCC certification additions

## Referenced Document

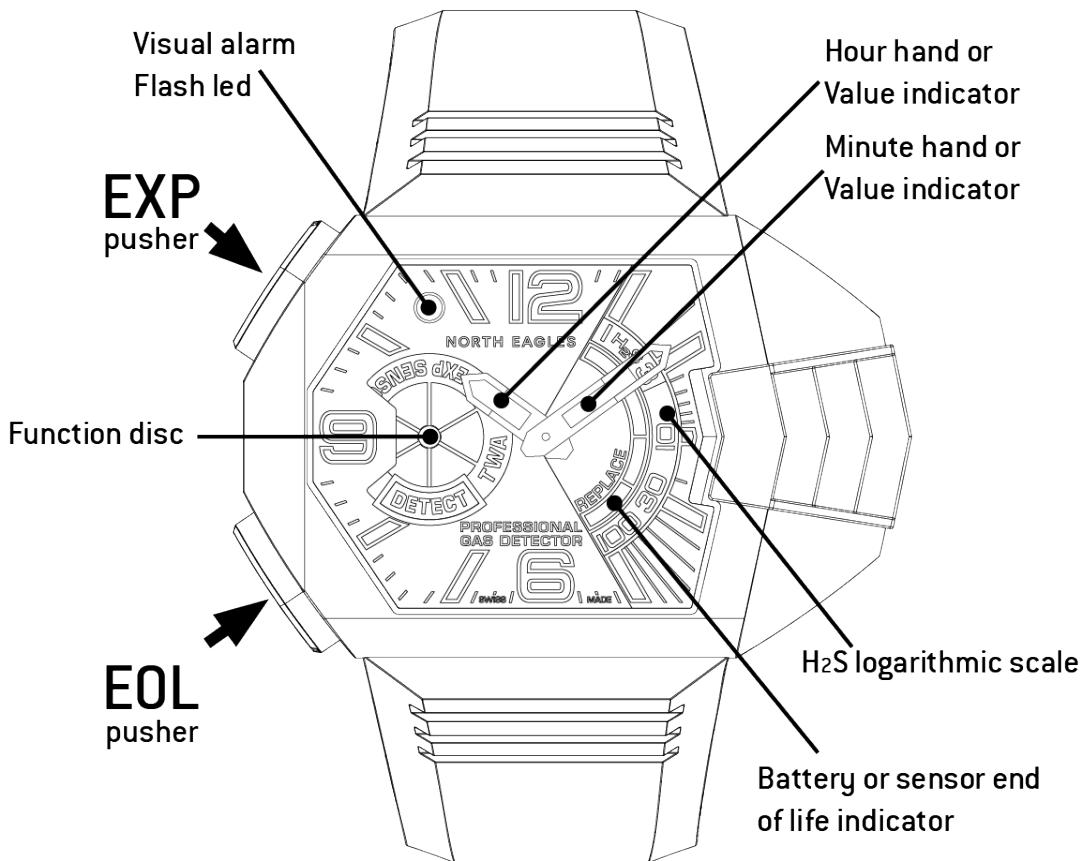
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## 1. Introduction

The NORTH EAGLES gas detecting watch "Eagle 1" is a single gas detection instrument manufactured by NORTH EAGLES in Switzerland. The watch permanently measures the concentration of H<sub>2</sub>S gas in the ambient air and triggers an alarm once the pre-set gas levels on the watch are exceeded. It is the wearer's responsibility to properly react to this alarm.



## 2. Safety Warning To Read Before Any Operating Of The Watch

1. Never replace the sensor, the battery or any other components by any person other than certified North Eagles technicians.
2. Never change the battery in a ATEX zone.
3. Regularly test the reaction of the watch by exposing the watch to a gas concentration superior to the low gas alarm setting.
4. When the watch is in « sleep » mode, it will not detect any gas level.

## 3. Security Warning To Read Before Any Operating Of The Watch

1. This watch is a gas detecting and alarm system instrument and not a measuring instrument.
2. The watch is water resistant and water splash resistant. It is strongly advised not to immerse the watch in water, wear in the shower, wear for swimming or diving. Its functioning could be seriously altered.
3. Verify that the sensor caption grille is free from dust, oil splashes or any other materials. Always make sure the sensor grille is never obstructed.
4. Always use a clean and humid cloth to clean the exterior of the watch.

## 4. FCC Statement

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Caution: The user is cautioned that changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

This equipment complies with FCC radiation exposure limits set forth for uncontrolled equipment and meets the FCC RF exposure guidelines. This equipment has very low levels of RF energy that are deemed to comply without testing of specific absorption ration.

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USA  
Phone: 201 924 02 66

## 5. IC Statement

This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions:

- [1] this device may not cause interference, and
- [2] this device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :

- [1] l'appareil ne doit pas produire de brouillage, et
- [2] l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

This equipment complies with Canada radiation exposure limits set forth for uncontrolled environments. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

## **6. Factory Settings**

Both hands and the disc are set at the factory. The day time is set to Swiss time [GMT+1].  
The watch is delivered in SLEEP mode, the gas sensor is not activated, the hands are set at 9 O'clock and the disc is set on SENSOR

### **6.1. Activation Of The Watch**

The watch is delivered in SLEEP mode and can only be activated via the application (Cf "User's manual for the application"), or just follow the instructions on the application.

The gas sensor is activated, and the watch moves to HOUR mode

### **6.2. Time Display**

When the watch is in « TIME » (normal mode of the watch), the hands indicate the time of day, the disc shows » DETECT », to indicate that it is in detection mode

## 7. Setting The Time

### 7.1. Setting The Minutes And Hour Time

Using the TIME mode, press simultaneously both pushers until you hear a beep.

This beep sound indicates that the watch is in hours SETTING and the disc indicates DETECT

Press the EXP pusher to increment hours.

Press the EXP pusher to decrement hours.

To change minutes ⇔ hours, quickly press both pushers simultaneously.

To revert to TIME mode, (day-time display), use either of the following commands:

- 1- By waiting 30 seconds, without touching the watch, it will revert automatically to hour mode.
- 2- Press both pushers simultaneously for more than a second

The return in mode TIME will be indicated by a double beep sound

## 8. Alarm

The watch is continuously measuring the presence of gas in the ambient air.

In case of gas detection, the watch automatically reverts to code «ALARM»

Once gas is no longer detected, the watch reverts to TIME mode

### 8.1. Alarm Mode

In ALARM mode, the disc indicates DETECT. The hour hand indicates the actual gas detected on the gas detection display scale. The minute hand indicates the maximum gas concentration reached.

In case of alarm, the red LED will flash, the vibrator will vibrate and a loud BIP will sound.

### 8.2. Time In Alarm Mode

During ALARM mode, it is possible to check the time of day by pushing the EOL pusher.

The watch will show the time and will automatically revert in ALARM AFTER 10 SECONDS.

## 9. TWA and Exposed Duration

When the watch is exposed to gas, both following values can be read:

- TWA (Time Weighted Average), is the average time of exposure to gas on 8 hours.
- Maximum exposition, this is the maximum level of gas concentration measured.

It is possible to view the TWA and Maximum exposition when the watch is not exposed to gas.

### 9.1. TWA Display

From the «TIME» mode, press the pusher EXP to display the TWA. The disc will indicate the TWA.

The minutes hand will move to the 9 o'clock position and the hour hand.

To re-instate the TWA, press both pushers simultaneously during 3 seconds.

From the TWA mode, the watch will return automatically to mode «TIME» after 10 seconds

### 9.2. Maximum Exposition Display

From the TWA mode, press the EXP pusher to display the maximum exposition. The disc will indicate MAX EXP. The minute hand will move to 9 o'clock and the hour hand will the maximum exposition on the gas concentration scale.

Simultaneously press both pushers during 3 seconds to re-initialize the Maximum exposition.

From the «EXPOSITION» mode, the watch will revert back to mode «TIME» after 10 seconds.

## 10. EOL (EOL=End Of Life)

It is possible to read the following two values:

- EOL SENSOR, indicator of sensor caption (time before re-calibrating).
- EOL BATTERY, battery end of life indicator.

The sensor must be re-calibrated frequently. This period of time is configurable only with the technical application (the default value is 2 years)

Checking EOL SENSOR and EOL Battery is only possible when the watch is not exposed to gas.

### 10.1. EOL Sensor Display

From the TIME mode, press the EOL pusher to display the EOL of the SENSOR. The disc indicates SENSOR.

The minutes hand will align to 9 o'clock, and the hour hand will indicate the % of the time before re-calibrating

From the EOL SENSOR mode, the watch will automatically return into HEURE (hour) mode, after 10 seconds.

### 10.2. Re-initialisation Of The Deadline For Recalibrating The Sensor

From the EOL SENSOR mode, press both pushers simultaneously for 3 seconds. A beep sound indicates that the re-calibration is set back to zero.

### 10.3. EOL Battery Display

From the EOL SENSOR mode, press the EOL pusher to display the EOL BATTERY. Indication on disc is: BATT.

The minute hand will align at 9 o'clock and the hour hand indicates the % of the remaining charge of the battery.

From the EOL BATTERY mode, the watch will return automatically the TIME mode after 10 seconds.

### 10.4. Reset Of Battery EOL

From the EOL BATTERY mode, press simultaneously both pushers during 10 seconds.

A beep will indicate that the EOL battery is reset to zero.

### 10.5. Recalibration Time Expired

When the sensor must be recalibrated (< 5% of the time), the watch does not display the time anymore and the disc will display SENSOR and the hour hand will show the lowest point on the scale marked REPLACE on the dial.

## 10.6. Battery Discharged

When the battery is discharged (<5%) the watch does no longer display the time of day, and the disc will display BATT and the hour hand will indicate the lowest point on the scale marked REPLACE on the dial.

## 10.7. Priority Of Automatic Alarms

There are 3 automatic alarms displayed as follows:

- 1- Gas alarm detected
- 2- Battery discharged
- 3- Re-calibrate sensor

## 11. Calibration

When the watch is subjected to a significant shock, it is possible that the disc or the hands lose their alignment.

Also, during a battery change, it is necessary to re-calibrate the disc and hands.

### 11.1. Calibration Of The Hands And Disc

From the «TIME» mode, press simultaneously both pushers. A first beep indicates that the watch switches to HOUR SETTING mode.

Keep pressing both pushers. After 3 seconds, a second beep indicates that the watch switches to CALIBRATION. The disc indicates DETECT, and the hands move on top of each others at 12 o'clock.

If the disc is not exactly on DETECT or if the hands are not exactly on 12 O'clock, a calibration is necessary.

Press pusher EXP to move the hour hand by one step clock wise.

Press the pusher EOL to turn the hour hand by one step counter clock wise.

Align the hour hand precisely at 12 o'clock.

Press simultaneously both pushers to calibrate the minute hand.

Press pusher EXP to move the minute hand by one step clock wise.

Press the EOL pusher to move the minute hand of a step counter clock wise.

Align the minutes hand precisely at 12 o'clock.

Press both pushers simultaneously to calibrate the disc.

Press EXP pusher to move disc by a step clock wise.

Press the EOL pusher to move disc of a step anti-clock wise.

Align disc precisely on the red DETECT window.

Press simultaneously both pushers to finish calibration.

With no action, the watch automatically resets to «TIME» mode after 30 seconds.

## 12. Sleep mode

The sleep mode purpose is to avoid battery discharge.

When in this mode, the gas detection is disactivated. The hands are resting at 9 o'clock and the disc is resting on SENSOR. The watch will keep the time but will not display it anymore

The sleep mode can be only activated by an authorized service centre.

When changing battery, the watch automatically reverts to SLEEP.

## 13. Specifications

### 13.1. Norms and certifications

The NORTH EALGES gas detector watch meets and complies with the following norms :

EN 60079-0 :2012+A11 :2013 IEC 60079-0 Ed. 6.0

EN 60079-11 :2012 IEC 60079-11 Ed. 6.0

UL 61010-1 :2012/CSA C22.2 No. 61010-1-12 UL 60079-0 Part0 : 6<sup>th</sup> edition

UL 60079-11 Part 11 : 6<sup>th</sup> edition Can/CSA-C22.2 No. 60079-0 :15 Part :0

CAN/CSA-C22.2 No. 60079-11 :14 Part :11

The watch is certified as follow :

ATEX / IECEx UL/CSA

Ex II 1G Ex ia IIC T4 G EII4644

SEV 17 ATEX 0148 X Electrical safety

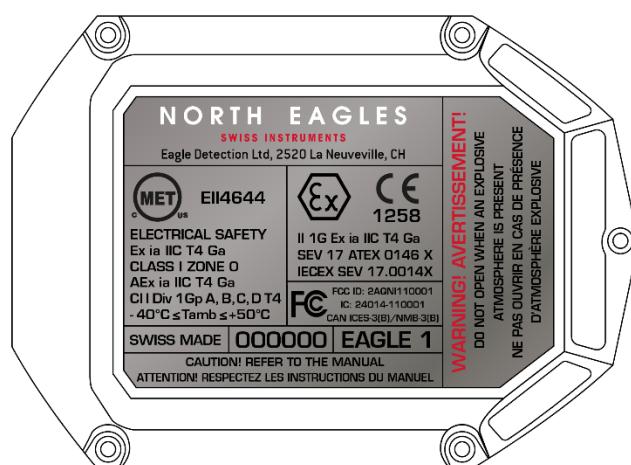
IECEx SEV 17.00 14X Ex ia IIC T4 Ga

CE 1258 Class I Zone 0

AEx ia IIC T4 Ga

CE 1258 CI Div 1 Gp A, B, C, D T4

-40°C ≤ Tamb ≤ +50°



### 13.2. Operational Temperatures

-40°C à +50°C (-40°F à +122°F)

### 13.3. IP Protection

The watch is IP66/67

### 13.4. Indoor / Outdoor Use, Wet locations, Altitude

The watch can be used indoor and outdoor.

The watch can be used in wet locations where water and another conductive liquid may be present and is likely to cause reduced human body impedance due to wetting of the contact between the human body and the equipment or wetting of the contact between the human body and the environment.

The watch can be used at an altitude up to 2'000 meters / 6'600 ft

The watch can be used at a relative humidity of 5% to 95% (non condensing)

### 13.5. Dimensions and mass of the product

Case dimensions: 62 x 41 x 25 mm / 2.44 x 1.61 x 0.98 in  
Strap (long part) dimensions: 136 x 26 x 4 mm / 5.35 x 1.02 x 0.15 in  
Strap (short part) dimensions: 87 x 26 x 4 mm / 3.42 x 1.02 x 0.15 in  
Total mass: 115 gr / 4,05 oz

### 13.6. Factory Provided Battery

Battery Li-SOCl<sub>2</sub> replaceable.

Battery brand: **SAFT** reference LS 14250, 3.6 V « Primary lithium-thionyl chloride (Li-SOCl<sub>2</sub>) High energy density <sup>1/2</sup> AA-size bobbin cell »

### 13.7. Changing The Battery

- When changing the battery, only use the battery described under point 11.3. Using a different battery could significantly affect the intrinsic safety of the watch and its functioning would not be guaranteed any longer.
- Never change the battery in a dangerous or explosive environment.
- Never change battery yourself. Bring the watch to your « Security and Health »department or to an approved and official service centre in your area. (cf [www.northeagles.ch](http://www.northeagles.ch))
- To change battery, unscrew the 5 screws and remove the back of the case, remove the used battery and replace with new battery, checking the correct poles + and – as printed in the battery housing. Replace back cover of watch case and screw back the 5 screws.
- After changing the battery, the battery duration indication has to be reset to zero using the technical application.
- After changing the battery, the watch has to be completely re-calibrated.