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Principal Display Panel

# Aero HygenX

## SPARX

UVC DEVICE



REG NO. 34927 P.C.P. ACT



KEEP OUT OF REACH OF CHILDREN

COMMERCIAL

**READ LABEL AND OPERATING MANUAL BEFORE USING.**

When used as a supplement to regular cleaning practices, kills up to 99.99% of bacteria and viruses on hard non-porous surfaces and soft surfaces.

Aero HygenX Inc.  
217-150 Katimavik Road  
Ottawa, Ontario  
K2L 2N2  
CANADA  
1-800-260-0787

NOTICE TO USER: This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label.

# SPARX Operating Manual

READ AND SAVE THESE INSTRUCTIONS!

THIS DEVICE IS INTENDED FOR COMMERCIAL USE ONLY. READ ALL INSTRUCTIONS, WARNINGS AND CAUTIONS IN THIS MANUAL AND ON THE PRODUCT LABEL PRIOR TO USE.

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# 1. PRECAUTIONS

## PRECAUTIONS

WARNING – UV radiation emitted from this device.

Unintended use of the device, or damage to the housing, may result in exposure to ultraviolet radiation.

Ultraviolet radiation may cause eye and skin irritation.

Avoid exposing eyes and skin to radiation.

## FIRST AID

- For UV overexposure of the eye, place a sterile dressing over the eye and get medical attention.
- For UV overexposure of the skin, apply cold water or ice to the skin burns and get medical attention.

Take the container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.



## WARNINGS & CAUTIONS

**WARNING:** This device contains Ultraviolet “C” (UVC) lamps; UV radiation is emitted from this device. Unintended use of the device, or damage to the housing, may result in exposure to ultraviolet radiation. According to the Canadian Centre for Occupational Health and Safety ([www.ccohs.ca](http://www.ccohs.ca)) exposure to UVC light can cause serious acute and long-term health effects, principally affecting the eyes and/or skin. Avoid exposing eyes and skin to ultraviolet radiation.

*To avoid exposing eyes and skin to UVC light, operators of SPARX should always use the device as indicated in the Directions for Use (Section 3).*

If line-of-sight contact with the device is unavoidable while the lamps are illuminated, operators should:

- ensure long-sleeved tightly woven clothing is worn, covering as much of the body as possible, to prevent any exposure to the skin.
- Ensure UV-blocking eyewear is worn (goggles, spectacles, face shields, with side-shields where applicable) to prevent UV exposure to the eyes. UV-400 rated glasses will sufficiently block UV-A, UV-B and UV-C light.

Personal UVC dosimeter indicators are also recommended for staff involved with the operation of SPARX. ([www.uvcdosimeters.com/personal-uvc-indicator/](http://www.uvcdosimeters.com/personal-uvc-indicator/))

(According to the American Conference of Government Industrial Hygienists (ACGIH), the Threshold Limit Value (TLV) for UVC is 6 mJ/cm<sup>2</sup> per workday, as indicated in the *Documentation of the Threshold Limit Values and Biological Exposure Indices, 8th Edition, Copyright 2020.*)

- a. This device contains a Lithium Iron Phosphate (LiFePo4) Battery. To reduce the risk of fire, electric shock, or injury, refer to the “MAINTENANCE & CLEANING” section for instructions regarding battery replacement. To eliminate any possible exposure to UVC light, ensure the Master Power Switch is off and the battery disconnected before servicing the device. The battery must also be disconnected before shipping.
- b. The battery in this device must only be charged using the charger supplied by Aero HygenX. Charging with unapproved chargers may result in battery damage, explosion or fire.
- c. The UVC lamps in this device contain traces of mercury (Hg). Dispose of or recycle UVC lamps according to applicable laws. (Visit: [www.lamprecycle.org](http://www.lamprecycle.org)). Should lamps require replacement, they must be replaced with lamps approved and certified by Aero HygenX. Failure to do so could result in damage to the machine or the production of ozone.
- d. Use SPARX only as described in this Operating Manual. Do not carry out any maintenance other than that shown in this manual, or as advised by a company supervisor. This device is not intended for use by persons with reduced physical, sensory or reasoning capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the device by a person responsible for their safety.
- e. Disconnect the battery when not in use for extended periods and before maintenance or servicing. If the device is not working as it should, has received a sharp blow, has been dropped, damaged, left outdoors, or dropped into water, do not use and contact a company supervisor. When service or repair is required, a company supervisor should contact the Aero HygenX Helpline (1-800-260-0787).

## IMPORTANT SAFETY FEATURES

- a. Auto-Delay during Start-Up: SPARX is equipped with a configurable time delay between operator input on the device and lamp illumination. The default value for the auto-delay is 1 minute. NOTE: Disinfection treatment is controlled with the Aero Hygenx Sparx App. A manual start can only be used if the operator can ensure that they are outside of the treatment area before the treatment starts.
- b. Motion detection - within 5 metres (16.4 feet) using infra-red sensors providing a 120-degree “vision cone” from the front and back of the unit. If motion is detected within this range, SPARX will stop within 3 seconds and the UVC lamps will extinguish. Operator input is required before SPARX will re-start.
- c. STOP button: The control button on the front of the device can be pressed at any time during startup or during use. This second press of the control button will act as an emergency STOP, extinguishing all lamps.
- d. Master power switch: The Master Power Switch is located on the back side of the device. Moving the rocker switch to the OFF position will disconnect the battery from all electronics and lamps. The Master Power Switch should be OFF for safe transport or maintenance of the unit.
- e. Protective Cover: SPARX is equipped with a protective cover to prevent damage to the lamps during transport of unit. The cover should be removed during operation of unit.

- f. **Warning Lights:** During the disinfection sequence, the LED ring around the control button will flash indicating that the UVC lamps are ON, and that the disinfection process has started.

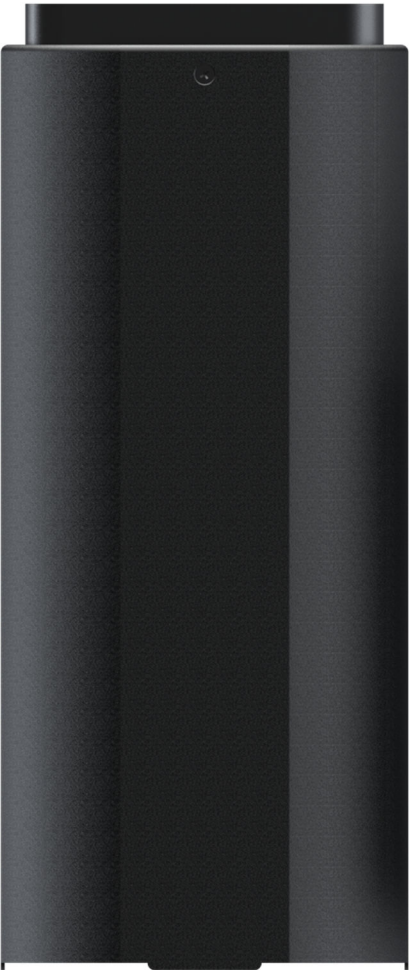
For more information regarding safety features, contact the Aero HygenX Helpline @ (1-800-260-0787)

## 2. FEATURES AND CONTROLS

FRONT VIEW



REAR VIEW



**Infrared Sensor**  
Safety Movement Detection

**Master Power Switch**

**Battery Charger Receptacle**

### 3. DIRECTIONS FOR USE

SPARX is to be used on inanimate, hard non-porous, and soft environmental surfaces.

The Aero HygenX SPARX UVC Device is not classified as a Medical Device and is not intended to disinfect Medical Devices or in any way to be in direct contact with patients. The use of the SPARX UVC DEVICE is a supplement to, and not a substitute for, standard infection control practices. Users must continue to follow all current infection control practices, including those practices related to cleaning and disinfection of environmental surfaces.

Prior to using this device, arrange the room and area in a way to minimize the shadowing by objects and pre-clean the target surfaces to remove any soil and moisture.

When used as a supplement to regular cleaning practices, kills up to 99.99% of bacteria and viruses. The exposure time required to achieve this result varies with distance from the device, and the height of the surface to be treated, relative to the device. Refer to the tables below to select the appropriate exposure time.

**Table 1:** Exposure time needed (minutes) to kill 99.99% of viruses.

Target Surface Height* (cm)	Horizontal Distance From Midpoint of SPARX (cm)							
	10	30	50	70	90	110	130	150
85	6.40	2.50	4.24	7.44	11.96	14.07	16.84	25.10
65	1.60	1.27	2.67	4.92	7.90	10.67	16.00	21.33
45	0.14	0.62	2.09	4.65	7.76	11.64	15.06	21.33
25	0.53	1.29	3.20	5.45	9.01	13.20	17.07	22.86
0	128.00	6.24	6.56	8.95	12.19	16.62	21.33	27.83
-25	213.33	19.69	12.67	13.91	16.41	19.39	23.27	29.09

\*Height of the target surface relative to the SPARX Device (0cm is the bottom of the SPARX Device)

**Table 2:** Exposure time needed (minutes) to kill 99.99% of bacteria.

Target Surface Height* (cm)	Horizontal Distance From Midpoint of SPARX (cm)							
	10	30	50	70	90	110	130	150
85	32.4	12.7	21.5	37.7	60.6	71.2	85.3	127.1
65	8.1	6.4	13.5	24.9	40.0	54.0	81.0	108.1
45	0.7	3.1	10.6	23.6	39.3	58.9	76.3	108.1
25	2.7	6.5	16.2	27.6	45.7	66.8	86.4	115.8
0	648.3	31.6	33.2	45.3	61.7	84.2	108.1	140.9
-25	1080.6	99.7	64.2	70.5	83.1	98.2	117.9	147.3

\*Height of the target surface relative to the SPARX Device (0cm is the bottom of the SPARX Device)



## AREA OF COVERAGE

- a. SPARX allows for fast operation and safe UVC disinfection at the push of a button.
- b. SPARX is effective within a direct line-of-sight radius of up to 1.5 metres distance and 85 cm height.
- c. Run-time of the lamps is configurable through the Aero Hygenx App. (Refer to Quick Start Guide for details)
- d. The 12V LiFePo 7Ah battery allows for a minimum of 30 stationary disinfection routines before recharging is required.
- e. The optional tripod is fully adjustable to allow positioning of the unit in a variety of locations.



## DISINFECTION SEQUENCE

- a. The following procedure outlines the disinfection sequence for use of the device.
- b. This device is supplement to, and not a substitute for, standard infection control practices; users must continue to follow all current infection control practices, including those related to the cleaning and disinfection or environmental surfaces.
- c. Ensure all personnel involved in the task familiarize themselves with the required safety precautions and operating instructions associated with the device. (Refer to “PRECAUTIONS”, Section 1, above.)
- d. Disinfection using UVC light is based upon line-of-sight exposure to target surfaces. Liquid spills, including bodily fluids, must be removed from surfaces prior to the commencement of disinfection. Remove any objects that may cause shadowing.
- e. Ensure the following Tools and Equipment are available prior to commencing disinfection:
  1. A DO NOT ENTER sign.
  2. Warning placards. (WARNING or CAUTION signs that there is ultraviolet radiation.)
  3. Shielding and/or blackout curtains to prevent light escaping treatment area.
- f. Before starting the SPARX disinfection cycle, pre-clean target surfaces according to regular practices to remove any soil and moisture.
- g. Ensure room/area is clear of people and animals.



## START SEQUENCE

- a. Once SPARX is placed in the desired position, and the protective cover has been removed, press the Master Power Switch (on the rear of the device) to the ON position. (Power-up is verified by the rocker switch turning red). The device will now go through a short System Health Check.
- b. When the “System Health Check” is complete, the red LED ring around the control button (on the front of the device) will light up indicating the device is ready for use.
- c. The operator must leave the treatment area. Close off entry points.
- d. Prevent unauthorized access to treatment area.
- e. Prevent escape of ultraviolet radiation from rooms or treatment areas with shielding or blackout curtains. On ships, vehicles or aircrafts where exterior shielding of treatment areas is difficult (i.e. due to location of the windows), operators must enlarge the unauthorized access area to prevent in line of sight exposure to UVC lamps.
- f. Mark entrance(s) with a DO NOT ENTER sign and a WARNING or CAUTION sign that there is ultraviolet radiation.
- g. Disinfection treatment is controlled with the Aero Hygenx Sparx App.
- h. SPARX users should select the exposure cycle based on the distance to the target surfaces to ensure the desired efficacy (refer to Table 1. and Table 2).
- i. Information on the size of the space can be inputted into the device by the operator or using QR scanning codes, placed in the area.
- j. To start the disinfection cycle, the user presses the “START” button.
- k. The disinfection countdown can be viewed on the control portion of the App.
- l. The status will indicate “STOP” when the disinfection cycle is complete.
- m. Room/treatment area can be used immediately after the treatment.



## MANUAL START

**A manual start can only be used if the operator can ensure that they are outside of the treatment area before the treatment starts.**

- a. A manual start could be initiated after the “System Health Check” is complete.
  - b. For a manual start, the operator presses the control button to commence the disinfection process.
  - c. The disinfection process starts with an auto-time-delay of 1 minute before the lamp warms-up.
  - d. The operator leaves the treatment area.
    - The LED ring will flash to indicate the start of the countdown.
    - When the countdown is complete, the LED ring will continue to flash and lamp warm-up will commence.
    - **If** the operator is still present when the lamp warm-up starts, the control button should be pressed once again to halt the start-up.
    - When the lamp warm-up is complete (default warm-up time is 8 seconds), the lamps will fully illuminate, and the disinfection process begins. The LED ring around the control button will continue flashing indicating that the UVC lamps are ON, and that the disinfection process is underway.
- Close off entry points.
  - Prevent unauthorized access to treatment area.
  - Prevent escape of ultraviolet radiation from rooms or treatment areas with shielding or blackout curtains. On ships, vehicles or aircrafts where exterior shielding of treatment areas is difficult (i.e. due to location of the windows), operators must enlarge the unauthorized access area to prevent in line of site exposure to UVC lamps.
  - Mark entrance(s) with a DO NOT ENTER sign and a WARNING or CAUTION sign that there is ultraviolet radiation.
  - The disinfection cycle is confirmed to be complete when the Master Control Button stops flashing or when the lamps turn off.
  - Room/treatment area can be used immediately after the treatment.

## 4. TRANSPORTING THE DEVICE

- a. When transporting SPARX, the protective cover should be on. A carry handle is located at the top of the cover.
- b. The protective cover is secured by latches on either side of the unit.
- c. When replacing the cover, align the lock symbols on the cover with the latches on both sides of the base of SPARX.



- d. Turn the latches on both sides of the unit to align with the upper and lower lock symbols.
- e. The cover is now locked and SPARX is ready for transport.



## 5. BATTERY CHARGING

- a. Charge the battery as often as possible, to maximize battery life. (Numerous short charges are better than one long charge.)
- b. A complete charge will take approximately three hours, using the 12A charger provided.
- c. SPARX should remain powered off during charging.



- d. Connect the charger to the XLR charge receptacle at the back of SPARX.



## 6. MAINTENANCE & CLEANING

### BATTERY EXCHANGE

- a. Power off SPARX by ensuring the Master Power Switch is OFF.



- b. Unscrew both thumb screws on the bottom of SPARX and remove the bottom cover.



- c. Pull back the aluminum spring handle.





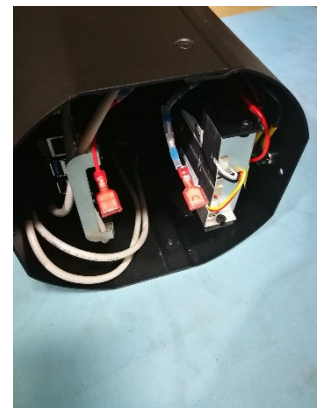
d. Slide the battery halfway out.



e. Disconnect the positive (red) and negative (black) leads from the battery terminals.



f. Remove the battery.





g. Slide the replacement battery in. Reattach the two wire tabs to the battery terminals. Ensure the red wire connects to the red terminal of the battery (+), and the black wire connects to the black terminal of the battery (-).

h. Push the replacement battery all the way in. (A “click” should be felt when the battery is moved past the spring handle)



i. Close the bottom panel and secure it with the two thumb screws.



j. Ensure SPARX can be powered on.



k. Ensure disposal of the original battery in compliance with local regulations.

## LAMP EXCHANGE

- a. Power off SPARX by ensuring the Master Power Switch is OFF. Ensure safety gloves are worn to avoid skin contact with glass and to avoid the possibility of injury if the lamp were to shatter.



- b. Hold the lamp to be replaced at both ends and gently pull the base of the lamp away from the connector.



- c. Hold the lamp as close as possible to the base of the unit until the lamp is detached from the connector.



d. Slide the replacement lamp through the top bracket.



e. The white lines on the side of the lamps should face inwards. This will ensure the lamp pins and the connector key are aligned. Apply gentle downward pressure on the lamp to ensure it is fully seated into the connector.



## CLEANING

- a. Clean SPARX with a soft, dry cloth.
- b. For more stubborn stains, use a soft cloth slightly dampened with a solution of mild soap and warm water. Do not use alcohol or acetone-based cleaners.
- c. Do not allow water or other liquids to pool or enter the unit from the top panel.
- d. Ensure the electronic components inside the unit are not exposed to water or moisture.

## 7. TROUBLESHOOTING

<b>Problem</b>	<b>Possible cause</b>	<b>Solution</b>
Master Power Button LED does not light up.	Dead battery Main battery connection	1. Charge Battery 2. Check main battery connection 3. Swap battery
SPARX does not respond to button press.	Internal issue	First, try pressing again all the way to the bottom with more force. If the problem persists, reset unit by turning the Master Power Switch OFF for 10 seconds, then ON.
All Lamps fail to illuminate	Battery discharge or possible relay issue.	Charge Battery. Remove the bottom panel and check wire connections.
Half of the lamps fail to illuminate	Ballast failure	Reset unit by turning Master Power Switch OFF for 10 seconds then ON.
Single lamp fails to illuminate	Poor connection with lamp or ballast failure.	Check lamp connections.
No response to commands from tablet	Wireless network not available.	1. Check wireless connection. 2. Use a different wireless connection. Manually use the control button.

## 8. WARRANTY

The sole and exclusive obligation of Aero HygenX (AHX) to the Customer for any Product (including, without limitation, integral parts thereof not manufactured by AHX but excluding bulbs, fuses, or parts made from glass construction) and services made by AHX and sold hereunder are to be repaired, returned, or provided with a replacement Product, at the sole option of AHX.

For any Product which has been returned to AHX under the Return Material Authorization (RMA) procedure (as defined below) and is determined to be defective in workmanship, material or not in compliance with the AHX specification applicable to the Product and has in fact failed under normal use on or before one (1) year from the date of original shipment, then the product will be repaired or replaced by AHX.

During the warranty period, any labour or travel costs associated with warranty services performed at the Customer's facility shall be at the Customer's sole expense.

Replacement accessories or parts are warranted hereunder to be free from any material defect in workmanship and materials for a period of thirty (30) days from the original date of delivery.

All third parties' products (including software) sold by AHX carry only the original manufacturer's warranty applicable to the Customer. Any Product repaired or replaced under warranty is only warranted for the period remaining in the original warranty for the Product. The warranty provided herein shall extend to any Product which has proven to be defective and has failed through normal use but excludes and does not cover any Products or parts thereof which have been accidentally damaged, disassembled, modified, misused, used in applications which exceed the Product specifications or ratings, neglected, improperly installed by the Customer or otherwise abused or used in hazardous activities.

The Customer must claim under the warranty, in writing, not later than thirty (30) days after the claimed defect is discovered. AHX warrants that services will be performed in a good and workmanlike manner in accordance with standards reasonably applicable to the services and will perform any services which AHX determines are not in compliance with this warranty which the Customer advises AHX of in writing, on or before thirty (30) days immediately following completion of the applicable service.

The Customer must make all claims under these warranties and no claim will be accepted from any third party. Warranties hereunder are not transferable or assignable.

## RETURN MATERIAL AUTHORIZATION (RMA)

AHX will only accept Products returned under the AHX Return Material Authorization (“RMA”) process. The customer shall obtain an RMA number from AHX prior to returning any Product. Upon the issuance of an RMA, the customer shall diligently return the Product with prepaid shipping arrangements and sufficient insurance against the loss or further damage to the Product, to AHX’s facility.

Any Product which has been returned to AHX but which is found to meet the applicable specification for the Product and not defective in workmanship and material, may be subject to AHX’s standard examination charge in effect at the time and may be charged to the Customer, at the sole discretion of AHX.

# 9. SPECIFICATIONS

## Product Dimensions

Length	16 cm
Width	16 cm
Height	70 cm
Weight	5 kg

## Robotics

Wi-Fi	Yes
Bluetooth	Yes
Motion Detection	Yes
IOT	Yes

## UVC Hard Surface Disinfection

Lamp Life	13,000 hours
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## Certifications

CE, FCC

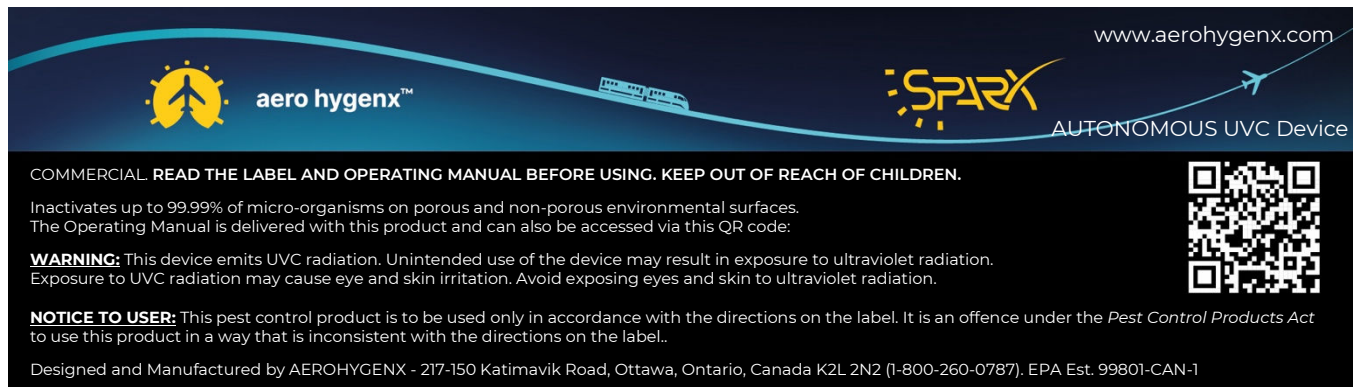
## Replacement Lamps

SP-3500-01





## Sticker



www.aerohygenx.com

**aero hygenx™**

**SPARK**

AUTONOMOUS UVC Device

**COMMERCIAL. READ THE LABEL AND OPERATING MANUAL BEFORE USING. KEEP OUT OF REACH OF CHILDREN.**

Inactivates up to 99.99% of micro-organisms on porous and non-porous environmental surfaces.  
The Operating Manual is delivered with this product and can also be accessed via this QR code:

**WARNING:** This device emits UVC radiation. Unintended use of the device may result in exposure to ultraviolet radiation. Exposure to UVC radiation may cause eye and skin irritation. Avoid exposing eyes and skin to ultraviolet radiation.

**NOTICE TO USER:** This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label.

Designed and Manufactured by AEROHYGENX - 217-150 Katimavik Road, Ottawa, Ontario, Canada K2L 2N2 (1-800-260-0787). EPA Est. 99801-CAN-1

