CleanSpace respirators use an internal Lithium-ion Polymer Battery. This battery is fully rechargeable and contained within the Power Unit. Lithium-ion batteries are widely used in portable electronic devices across many different industries including mobile phones.

CleanSpace batteries have a fast charge from flat to fully charged in just over 2 hours and can receive short (top up) charges with negligible effect on battery life. This allows for long operating times on one power unit.

# **BATTERY CAPACITY**

CleanSpace Battery Capacity: 20.54Wh (11.1V, 1850mAh)

The optimal performance for a Lithium-ion rechargeable battery is dependant on use and storage conditions.\*

Providing user battery management is in line with CleanSpace guidelines, the batteries can provide optimal performance for up to 5 years. After this, operating run times will reduce over time and more frequent charging will be required.

\*See below for optimal use and storage conditions.

## **BATTERY CHARGE INDICATOR**

A Battery Charge Indicator is located on the keypad of all CleanSpace respirators.



The table below shows the expected battery charge as a percentage and as approximate run time remaining.

BATTERY CHARGE INDICATION	BATTERY CHARGE (%)	APPROXIMATE USEFUL TIME REMAINING (HRS)
3 Green Lights*	80 – 100 %	Up to 8 hrs
2 Green Lights	50 – 80 %	4 – 6 hrs
1 Green Light	20 – 50 %	1 – 4 hrs
No Lights	< 20 %	≤ 1 hr
Alarm + No Lights	< 3 %	5 – 15 mins

Note: Battery operating time is affected by breathing and work rate and actual operating times may vary. Operating times quoted in the table above are average durations at moderate work rates.

### **LOW BATTERY ALARM**

All CleanSpace respirators incorporate an audible alarm to alert the user when the battery is approaching low charge.

The low battery alarm volume is 75dB(A) at ear and consists of 3 beeps repeated once per second. The low battery alarm will sound when the battery reaches 5 - 15 minutes of useful battery life remaining.

If the low battery alarm sounds, leave the contaminated area immediately and re-charge the battery.

# **BATTERY CHARGING CONSIDERATIONS**

- The respirator should not be worn whilst being charged.
- Only CleanSpace specified chargers are to be used to charge CleanSpace respirators. Use of other chargers may invalidate the warranty.
- CleanSpace batteries can receive short (top up) charges.
- There is no requirement to fully discharge the battery before re-charging.

#### STEPS TO CHARGE THE BATTERY

- 1. Locate the charging port on underside of Power Unit.
- 2. Insert charger cable connector into charging port.
- 3. Ensure the charger is plugged into a power socket.
- 4. Charging is indicated by at least one green flashing light on the Battery Charge Indicator.
- 5. When fully charged 3 solid green lights will display on the Battery Charge Indicator.
- 6. Once charged, disconnect charger cable from the charging port before use.



## RECOMMENDED USE CONDITIONS

Temperature: -10°C to 45°C (14°F to 113°F)

## RECOMMENDED STORAGE CONDITIONS

- Dry environment (Relative Humidity below 75%).
- Temperature: 15°C to 35°C (59°F to 95°F).
- Away from direct sunlight and dust.

Battery life is dependent on use (number of cycles) and the storage temperature. High temperatures (over 35°C / 95°F) accelerate battery aging.

Storage on charge: If the Power Unit is left continually on charge, there is minimal battery degradation.

<u>Storage off charge:</u> For optimal battery performance, battery manufacturers recommend the battery be regularly cycled (optimally, every 3 months). When stored off charge it is recommended to fully charge the battery every 3 months.

## **WARNINGS:**

The following precautions should be followed to ensure the best battery performance, life, reliability, and safety.

- Avoid mechanical shocks or impacts to the Power Unit, this includes penetration of sharp or hard objects.
- CleanSpace respirators will not function at internal temperatures above 60°C (140°F).
- Do not immerse or soak the Power Unit.
- Do not dispose of the Power Unit in fire.
- Do not disassemble the Power Unit case. There are no user serviceable parts inside. Disassembling the Power Unit case will void the manufacturer's warranty.
- Do not use the CleanSpace Respirator if there are any signs of severe mechanical damage in the Power Unit.