

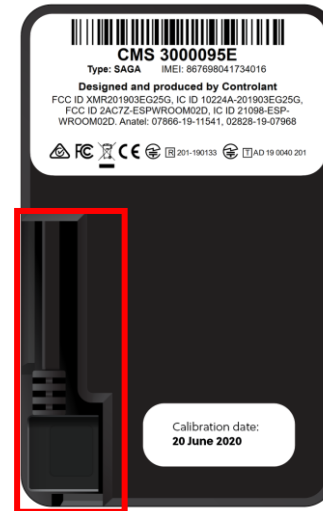


## **Charging of Controlant loggers and charging environment**

# Charging loggers

1

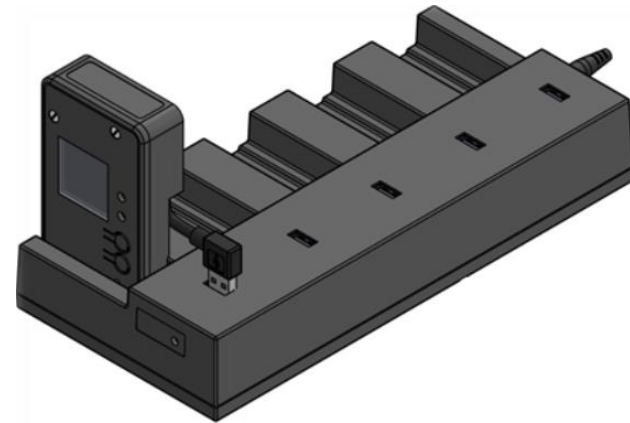
Unplug the USB cable from the side of the logger.



Loggers are charged at Controlant service centers. Only charge loggers that are below the required threshold for the designated shipment.

2

Plug the USB cable into a charging port.

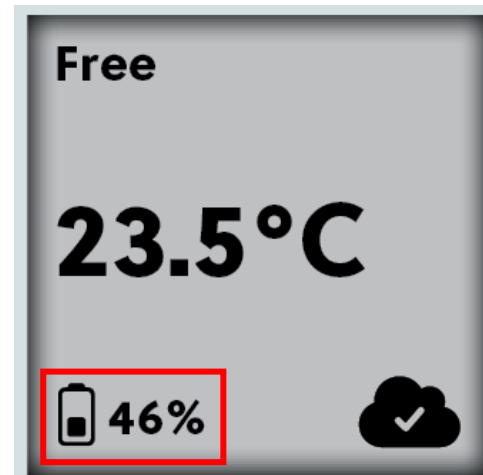


The logger can be charged by any USB port that provides power however, it is recommended to use the charging station provided by Controlant.

The logger wakes up when plugged into a charger.

3

Read the icons that appear when plugged in.



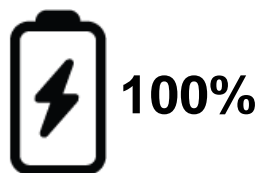
The display will show a USB icon for a few moments when first plugged in.



When charging, the battery icon on the logger display has a flash symbol.

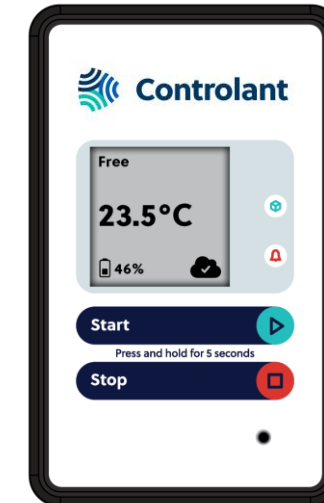


When fully charged, the battery percentage will show alongside the charging icon.



4

Charge each logger until fully charged.

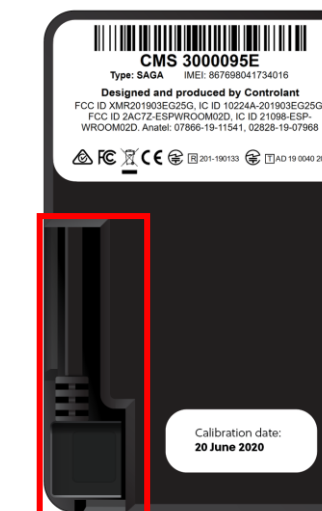


Fully charging the logger from depleted takes 6 hours. The logger wakes up when fully charged and again when it's removed from the charger.

Note: Leaving the logger on charge for an extended period (>24 hours) is not recommended as it may affect battery health and performance. Extended charging does not present any safety hazard.

5

Unplug the logger from the charging port.

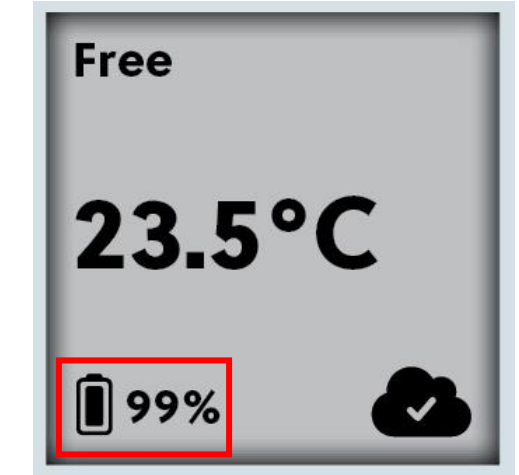


Once unplugged, reinsert the USB port back into the logger.

Note: The logger heats up while charging and therefore, **loggers should not be placed directly in a shipment** right after being unplugged. Each logger should be allowed to recover for **at least 30 minutes** after being removed from charging for the temperature measurements to be accurate.

6

Logger is charged.



The battery icon shows the **remaining battery**, with the black bar size shrinking as the battery level reduces, along with the percentage next to it reducing.

# Charging environment

Guidelines for setting up an optimal charging environment for Controlant loggers:

- 1. Controlant charging stations positioning:** The charging stations should be set up on a solid base that is stable and easily cleanable; metal shelving is recommended. If your Controlant charging station layout allows it, it is beneficial to place the electrical outlets behind or between the charging stations to allow easy access to each charging station, making accessing the loggers quicker and easier.
- 2. Temperature:** When charging, the loggers generate heat, especially towards the end of the charging cycle. The temperature ranges for charging the loggers are:

Minimum (0°C / 32°F)	Optimal (15-25°C / 59-77°F)	Maximum (40°C / 104°F)
If internal temperature is below this limit, the charging process will interrupt, and a barred battery icon will show on the display. Charging will restart once the logger warms up.	The charging area / room should be well-ventilated and at room temperature. Higher temperatures increase the risk of the loggers not being able to fully charge.	If internal heat is too high, the charging process will interrupt, and a barred battery icon will show on the display. Charging will restart once the device cools down.

- 3. Logger orientation:** It is crucial that the loggers are standing upright when they are charging. If the loggers are leaning to the side or against each other, they may heat up more than usual, preventing the battery from fully charging.
- 4. (Saga probe loggers only) Probe management:** To not bend the probe sharply, the Controlant charging station needs to sit on the edge of the base to allow the probes to hang from the edge. You might need to coil the probe up before charging to ensure that the probe does not touch the floor. When charging five devices simultaneously, you can coil the probes together before placing them on the charging station.

## Standard loggers



*Loggers standing upright correctly in a charging station.*

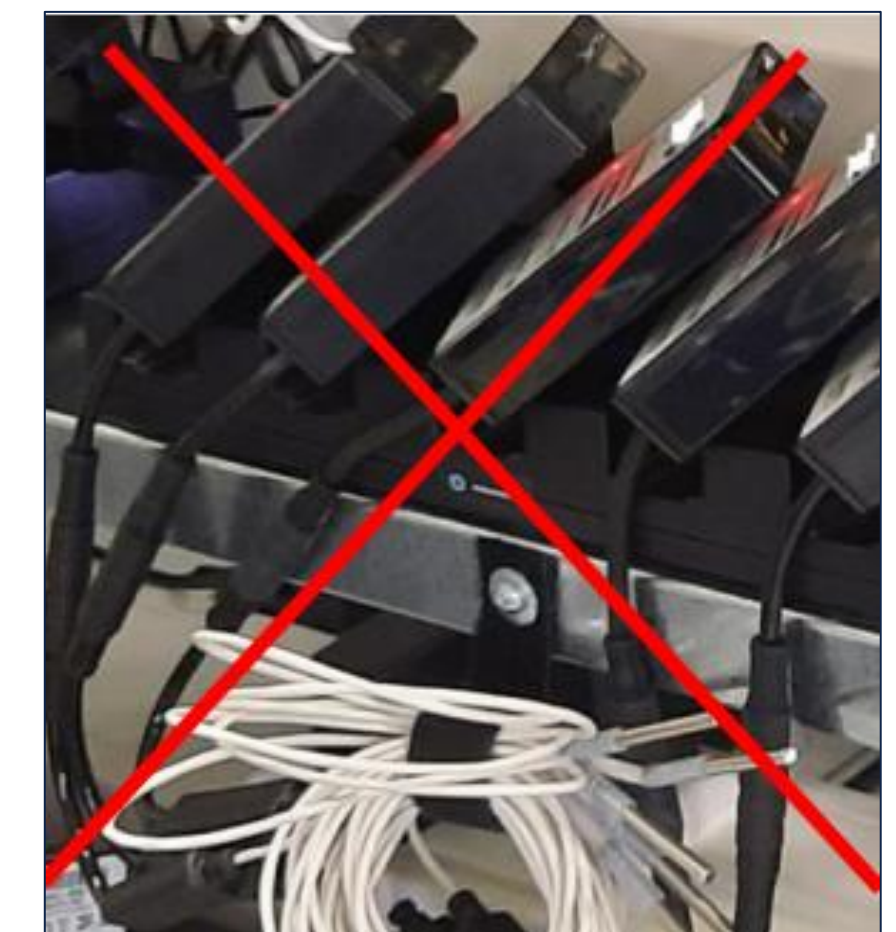


*Loggers standing incorrectly in a charging station.*

## Probe loggers



*Loggers standing upright correctly in a charging station.*



*Loggers standing incorrectly in a charging station.*

# Battery



### Battery type

The Controlant logger has a rechargeable NiMH battery of 2500mAh, with a lifecycle of at least 300 cycles.



### Hazardous?

NiMH batteries are not considered hazardous goods.



### Expected battery life

Note that low temperature and cellular conditions affect battery life along with any additional wake-ups, for example, due to button push and alarms.

Wake-up interval	Expected battery life
1 hour	20 days
2 hours	35 days
3 hours	45 days
6 hours	75 days
12 hours	110 days
24 hours	>110 days