

Logger WD-68

Logger WD-68 is a battery-driven cellular datalogger for remote monitoring. It is sensor-agnostic and supports the most common industrial interfaces, so it can be used with any compatible sensor you might already own.

[Download the datasheet as PDF \(https://drive.google.com/file/d/1KTZTdLDL3mossnRgKIL306esSoQF9yvM/view?usp=sharing\)](https://drive.google.com/file/d/1KTZTdLDL3mossnRgKIL306esSoQF9yvM/view?usp=sharing)



Specifications

Overall

Parameter	Value
Expected lifetime	+10 years
Guarantee	1 year

Parameter	Value
Connectivity	Cellular: LTE Cat-M1, NB-IoT (eSIM included; a custom nanoSIM can be inserted). WiFi: 2.4 GHz (802.11 b/g/n). Add-on: Satellite.
Standards	DS/EN 61326-1:2013

Cellular

One of the most crucial parts of remote monitoring is robust connectivity, because it ensures that data is transmitted seamlessly and without interruption, allowing for real-time monitoring and analysis. Unreliable connectivity can result in lost or delayed data, which can significantly impact the effectiveness and quality of remote monitoring systems.

We have solved that by using unbranded SIM cards that operate across:

- 700+ vendors
- 180+ countries

in combination with an algorithm running on the Logger that periodically scans for the network with the best coverage. This means that if one vendor/network provider does not provide proper coverage or is temporarily out of service at the location of the datalogger, it will automatically detect it and select another network — and you don't have to do anything.

This greatly reduces the risk of insufficient connectivity. Furthermore, all cost for SIMs, data etc. is included in a Consibio Cloud subscription.

Mechanical

Parameter	Value
Material	Outer shell constructed from abrasion- and impact-proof ABS; bumpers in shock-resistant TPU; carabiners in A4 marine-grade stainless steel
Dimensions (outer)	250 × 155 × 73 mm (9.84" x 6.12" x 2.89")

Mounting

The preferred mounting method is via an eyebolt where Logger WD-68 is snapped on using the included carabiners.

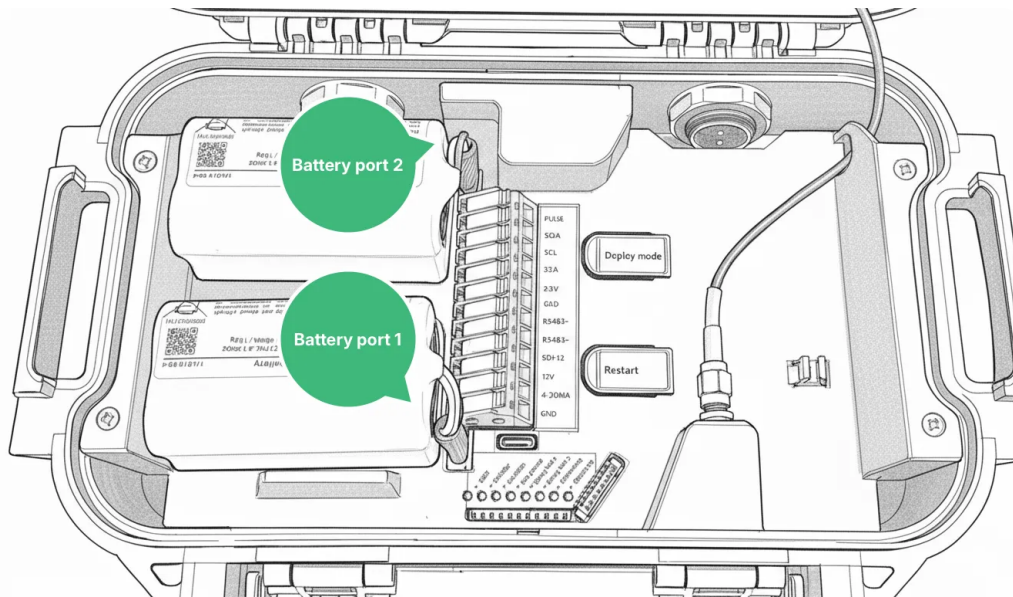


Electrical

Battery power options

Logger WD-68 has two battery ports. When the battery on port 1 is depleted, the Logger will seamlessly switch to battery 2 and use this instead.

The batteries are shipped with connectors that plug directly into the Logger, making them easily accessible and ensuring they can be swapped on-site within seconds without any tools.



In the standard configuration, the Logger is shipped with two 48 Wh rechargeable Li-Ion batteries providing a very high battery capacity. An external **battery charger** is included with each Logger.

Spare batteries avoid downtime

If you have a set of spare batteries you can completely avoid downtime in the data collection by:

1. Charging the spare batteries at the office.
2. Going on-site and swapping the charged batteries with the existing ones.
3. Bringing the depleted batteries home and recharging them.

Rechargeable Li-ion Battery SKU: 112009

Extremely low self-discharge with Li-SOCI2 batteries

If the Loggers are used in a setup where you only need to measure and transmit very infrequently (e.g. once a day), you can achieve +5 years of battery life if the rechargeable Li-Ion batteries are replaced with non-rechargeable Li-SOCI2 batteries.

This is a different battery chemistry that has a much lower **self-discharge**, enabling them to function for many years where only a small amount of power is drawn. They cannot be recharged and must be replaced when depleted.

The LSH-20 Backup Battery is a 46 Wh Li-SOCI2 battery compatible with Logger WD-68 with the same connector used for the rechargeable battery pack.

The LSH-20 Backup Battery can also be used in combination with a rechargeable battery to enable a setup with a rechargeable battery used as the primary power supply and the LSH-20 battery as a

“backup” that doesn’t deplete itself unless used by the Logger.

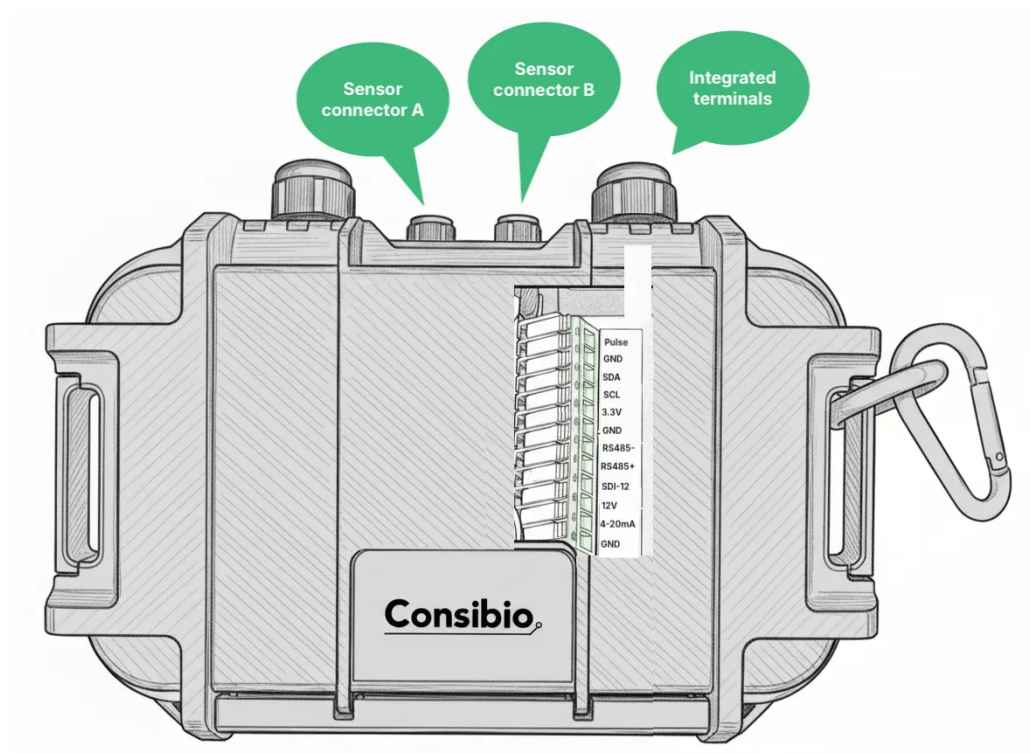
LSH-20 Backup Battery SKU: 112004

I/O and sensor connections

Logger WD-68 supports all the most common interfacing options and protocols.

I/O	Description
ModbusRTU / RS485	ModbusRTU over RS485. Can be used with any ModbusRTU sensor. Multiple sensors can be connected to the same port if they have different addresses.
SDI-12	Connect to SDI-12 compatible sensors. Multiple sensors can be connected to the same port if they have different addresses.
4-20mA	Sample a 4-20mA signal from an analog sensor. In a two-wire setup, connect 12V to sensor (+) and connect the return path (-) to the 4-20mA input.
Pulse counter / Wake signal	Count pulses from relays, float switches, rain gauges, NPN sensors etc. This is a dry signal input that measures if a connection between this terminal and GND is closed or open. Can also be used to wake the Logger from deep sleep and perform a measurement outside the configured schedule.
3.3V power output	3.3V voltage output to power low-power sensors and peripherals. Max current: 500 mA
12V power output	Standard 12V voltage output to power sensors and peripherals. Max current: 200 mA

The Logger has 3 parallel ports, which all contain the input/output options listed above.



This means that the Logger can support up to three parallel connections of the same type without signal conflicts. This can be used to connect e.g. three 4-20mA analog sensors, three ModbusRTU devices with the same address or similar.

Furthermore, the integrated terminals can be used to easily connect custom sensors without a connector. Logger WD-68 is **sensor-agnostic** and can be used with any compatible sensor you might already own.

Internal measurements

The datalogger monitors several parameters internally, which are automatically reported to Consibio Cloud.

Parameter	Description
Temperature and humidity	Logger WD-68 has a built-in temperature and humidity sensor. This makes it possible to remotely monitor that the internal electronics are not exposed to conditions outside the recommended ranges. The humidity sensor also ensures that risk of condensation can be registered and alerted to the backend before the electronics are affected, to ease the troubleshooting process. Temperature sensor: Range -40° to $+125^{\circ}\text{C}$, Accuracy 0.2°C . Humidity sensor: Range 0 to 100% RH, Accuracy 1.8% RH.
Barometric pressure	The internal barometric pressure of the Logger is continuously measured. A pressure relief valve inside the enclosure ensures that the pressure inside the Logger is the same as the surroundings. This can be used to measure barometric pressure directly (for weather monitoring), but can also be used for automated pressure compensation of absolute pressure transducers. Sensor: Range 300 to 1250 mbar, Accuracy 0.5 mbar (worst-case).
Tilt and orientation	An internal accelerometer ensures that the Logger is always aware of its own orientation in 3D space. Thus, the Logger itself can be used as an inclinometer . It can also be used to generate automated alerts if the Logger is mounted on a structure that might be knocked over in traffic or similar.
Battery gauging	The Logger continuously monitors the actual state of charge of both the rechargeable battery and backup battery. This is used to monitor battery state from the backend and generate alerts when it is almost depleted, but also to alter operation to prioritize power over performance in situations where it is needed.

Power consumption and battery lifetime

The Logger has 3 operational states, which have very different power consumptions:

State	Description	Power consumption (typical)
Deep sleep	When the Logger is not actively performing a measurement or transmitting data, it goes to deep sleep to preserve power. In most configurations, it spends most of its time in deep sleep.	0.2 mW
Measurement	The Logger periodically wakes up to perform a measurement, save the result in its internal flash storage and then go back to sleep. The power consumption during measurement depends a lot on the type of sensors connected.	150 to 500 mW
Transmission	Transmission is by far the largest power consumer, and thus often dictates the battery lifetime.	1600 mW

The user can configure the **measurement interval** and the **transmission interval** for each Logger through Consibio Cloud:

0

Days

6

Hours

0

Min.

0

Sec.

TRANSMISSION INTERVAL

How often should the device send data to the cloud? If set to 0s, the device will attempt to stay online indefinitely.

0

Days

0

Hours

15

Min.

0

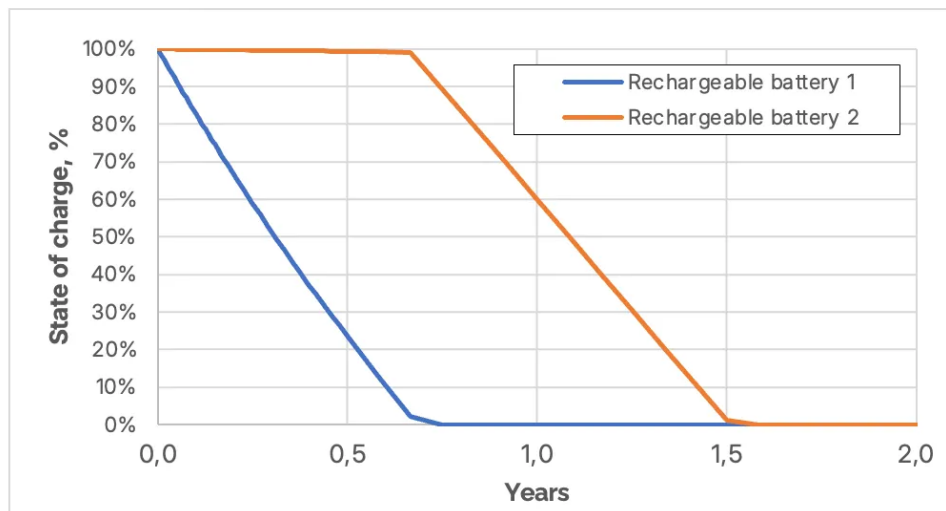
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MEASUREMENT INTERVAL

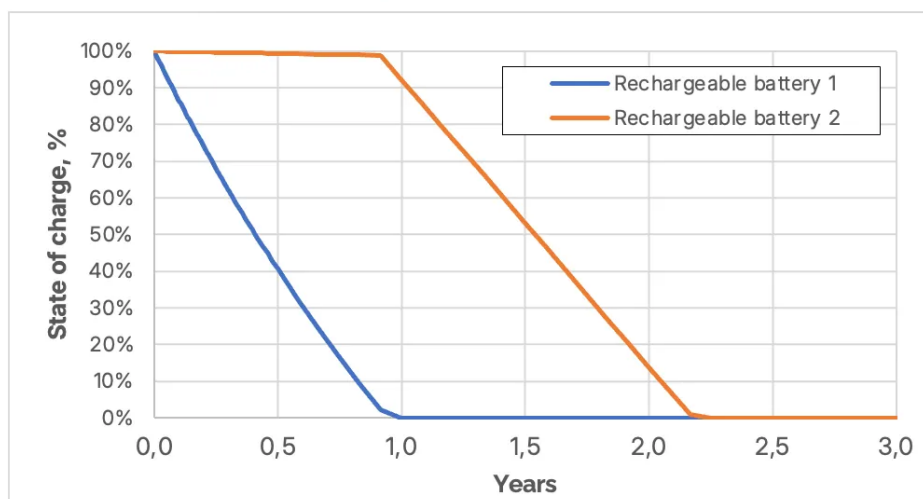
How often should the device make a measurement? It cannot be lower than 10s.

These settings dictate how much time the Logger spends in each state and thus the effective battery life. Below are discharge curves shown for typical setups:

Measurement interval 15 min
Transmission interval 6 h
Sensor Vegapuls C21 radar level sensor
Connectivity Good



Measurement interval 15 min
Transmission interval 6 h
Sensor Consibio H2S-sensor, 0-2000 ppm
Connectivity Good



The figures above are **estimates**. The transmission power and time depend highly on the quality of the cellular connection and can thus vary significantly if connectivity is very poor.