

MicroLog SP3

Battery replacement



EMS Brno, November 2023

Notice:

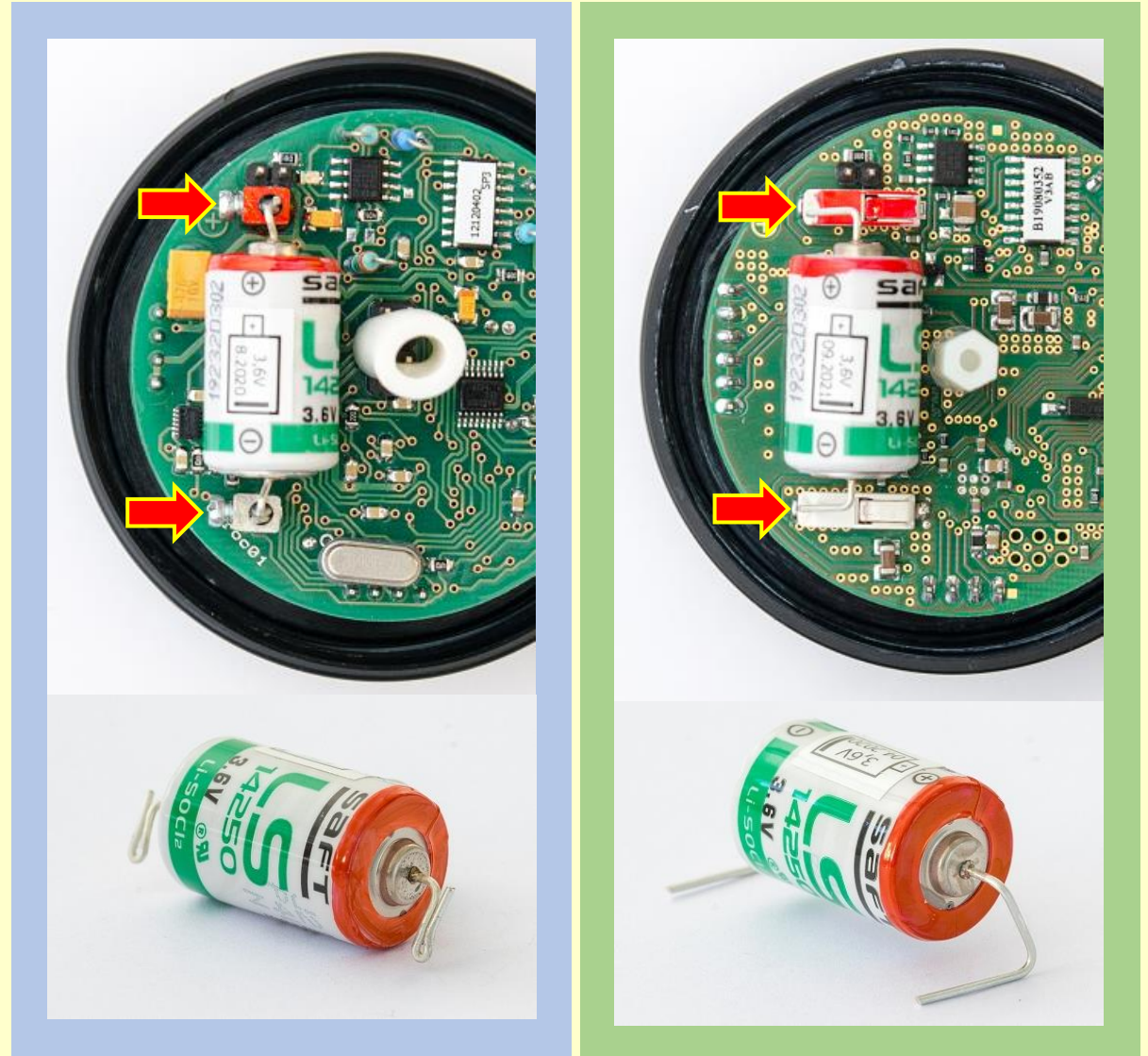
Please note that there are two versions with different battery terminals:

- MicroLog with screw terminals
- MicroLog with screwless terminals - Wago (serial number of MicroLog SP3 starts with "B")

Both versions use SAFT LS14250CNA battery, single cell, 3.6 V, 1/2AA, Lithium Thionyl Chloride (Li-SOCl₂), 900 mAh with axial wires.

The main difference between those models is in the wire adjustment of batteries – see pictures.

When asking manufacturer for new batteries, please specify the version (incl. prefix of serial number) and we will adjust battery terminals accordingly.



Related tools and accessories:



Gloves

or



MicroLog
opener



PC and
IrDA/USB cable



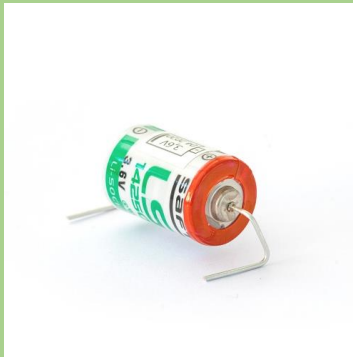
Desiccant bag



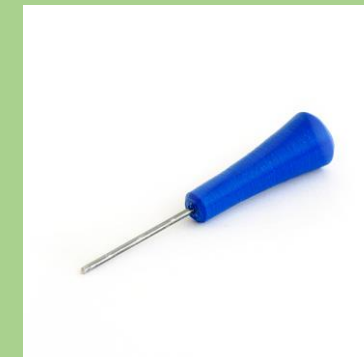
Battery for screw
terminals



Flat screwdriver
2.5 mm



Battery for screwless
terminals (Wago)



WAGO tool
(for WAGO 2060
terminals)

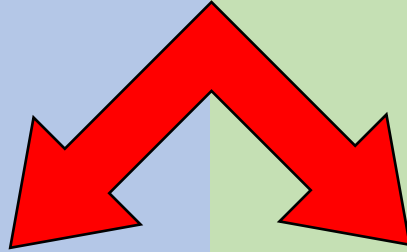
For alternate parts of manual, due to terminal type, follow background colour

Datalogger opening

Screw out the datalogger lid by MicroLog opener or by hand (use non-slip gloves for better grip). If the datalogger is dirty, clean it before opening to prevent dirt from getting inside and on the lid threads.



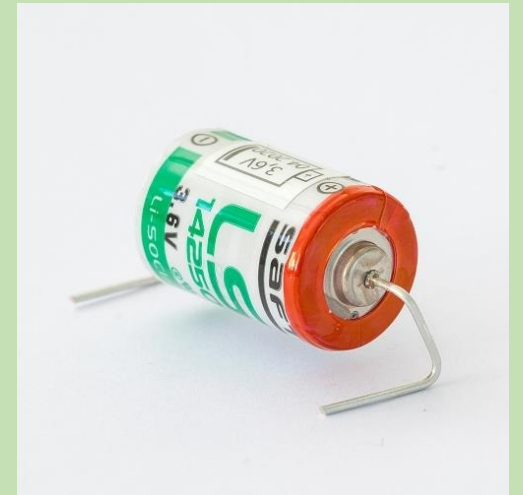
Battery replacement procedure



SCREW TERMINALS



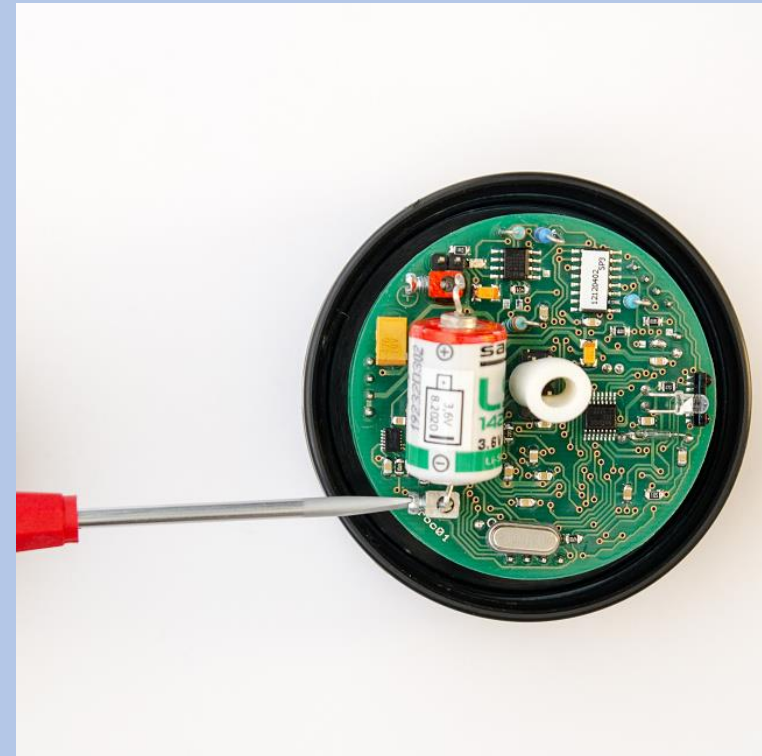
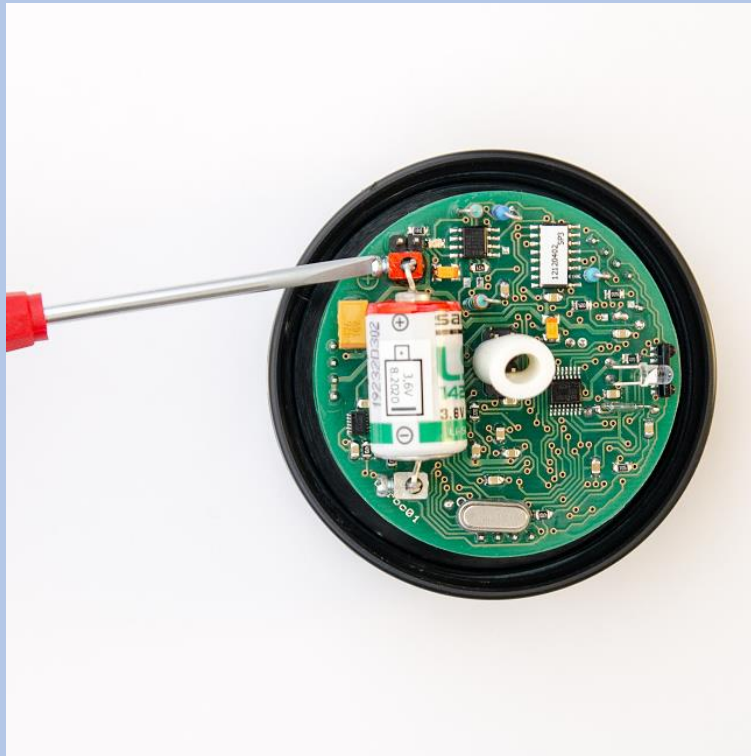
SCREWLESS TERMINALS



For alternate parts of manual, due to terminal type, follow background colour

SCREW TERMINALS - Battery removal

- Remember the battery polarity.
- Screw out the positive battery terminal and lift the battery wire.
- Screw out the negative terminal and remove the battery.
- Don't forget to recycle the battery.



SCREW TERMINALS - Battery removal

Important!

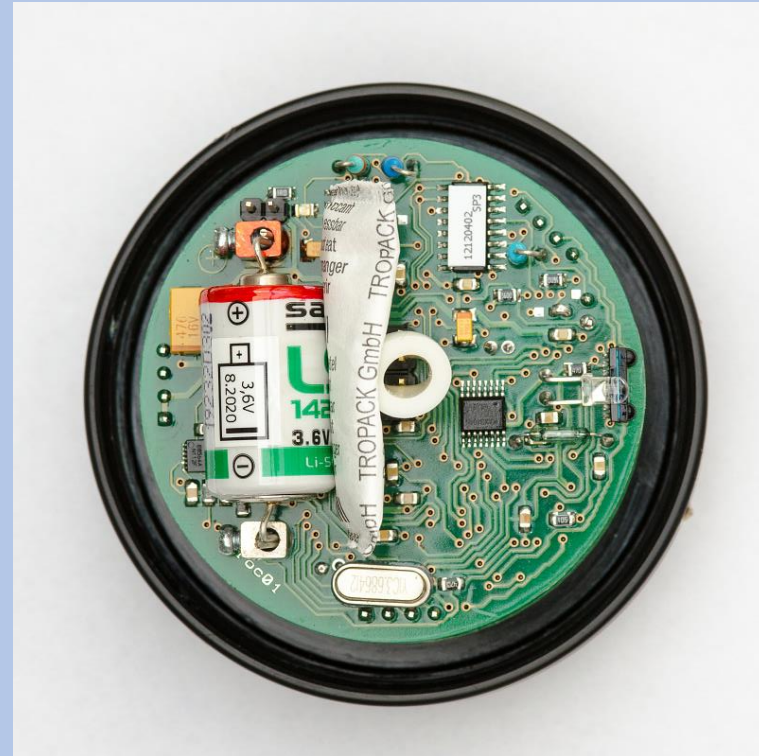
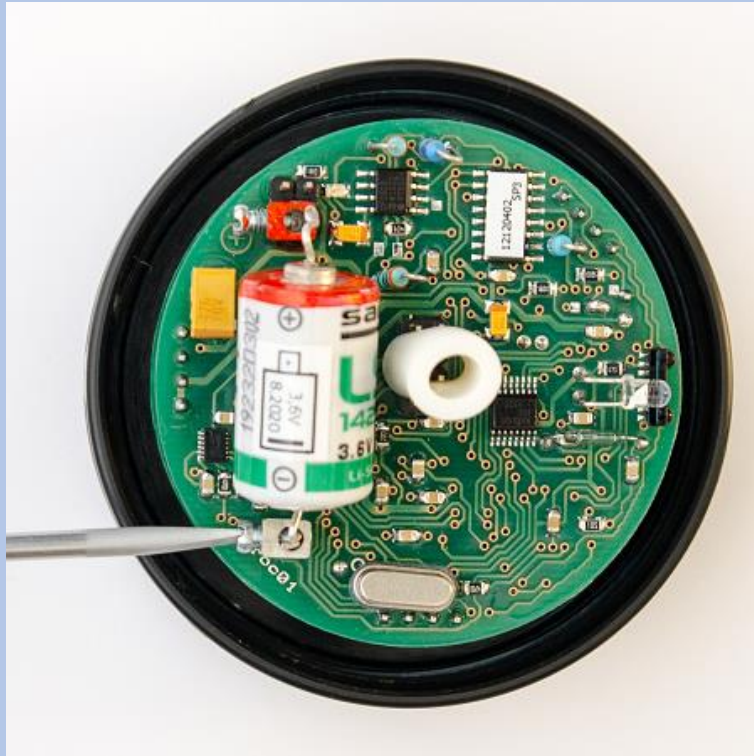
Short circuit thoroughly (better twice) for a few seconds the battery terminals with a metal tool (tweezer, screwdriver, knife, piece of wire) after removing the old battery in order to recharge the remaining energy in capacitors.

It is necessary for resetting the battery life counter!



SCREW TERMINALS - Battery inserting

- Insert new battery back to terminals. Consider polarity! Screw it up firmly.
- It is good idea to write down the time stamp of battery replacement.
- Insert new desiccant bag.

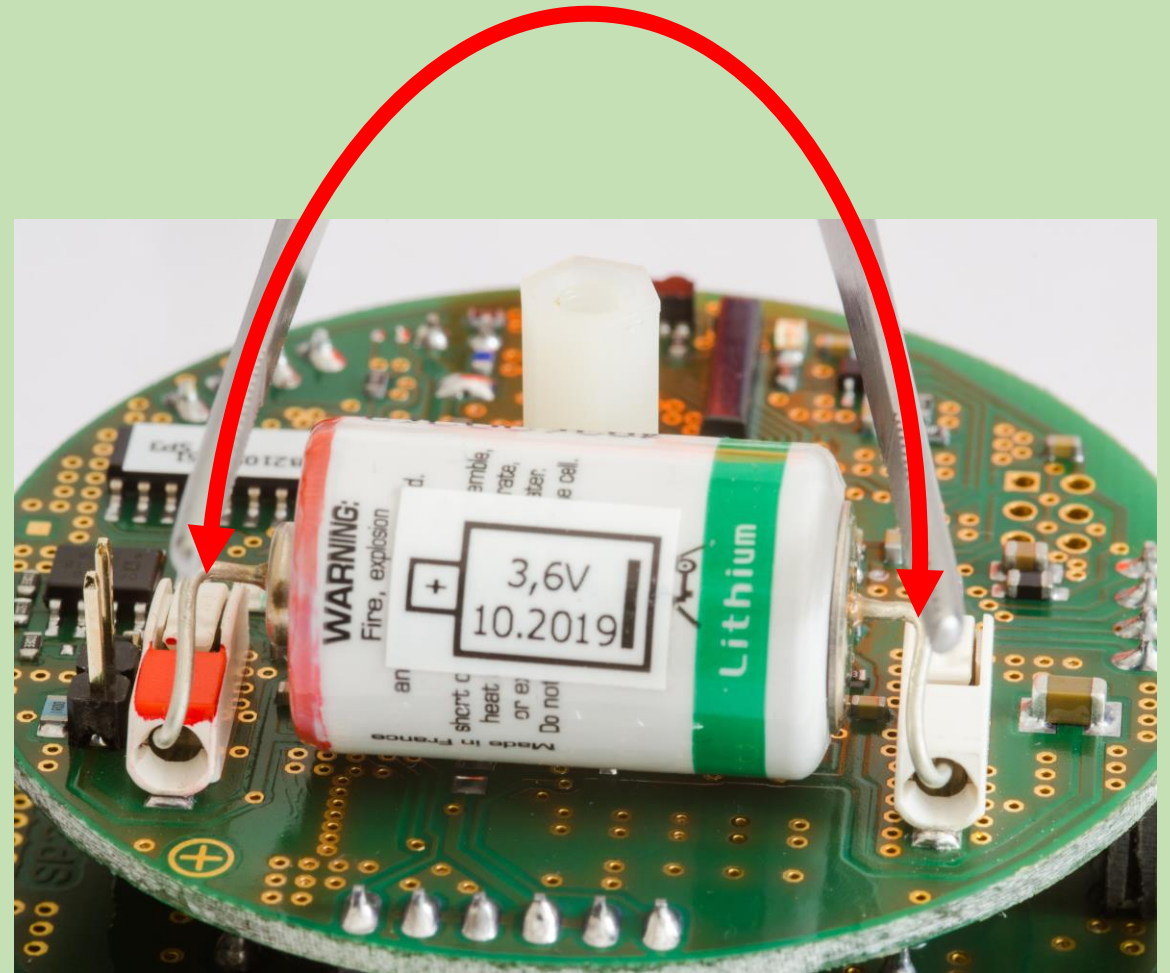


SCREWLESS TERMINALS - battery reset

Important!

Short circuit thoroughly (better twice) for a few seconds the battery wires with a metal tool (tweezer, screwdriver, knife, piece of wire) after removing the old battery in order to recharge the remaining energy in capacitors.

It is necessary for resetting the battery life counter!



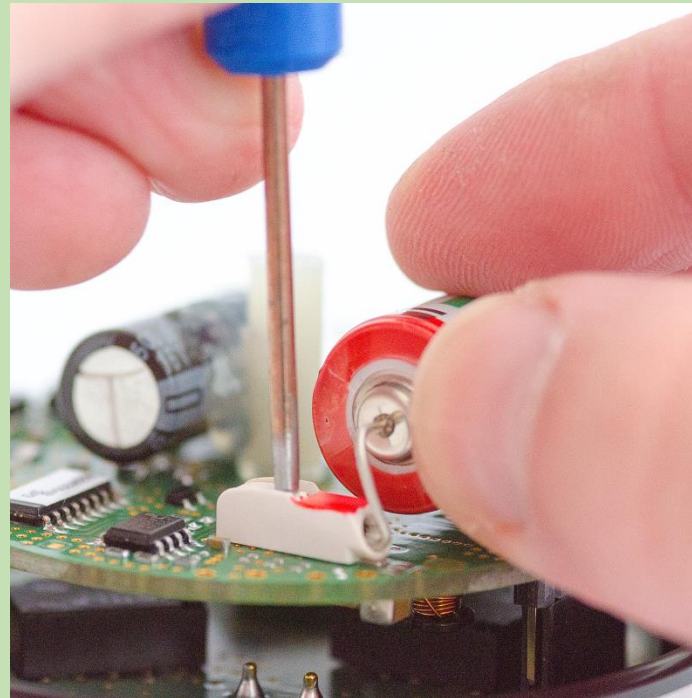
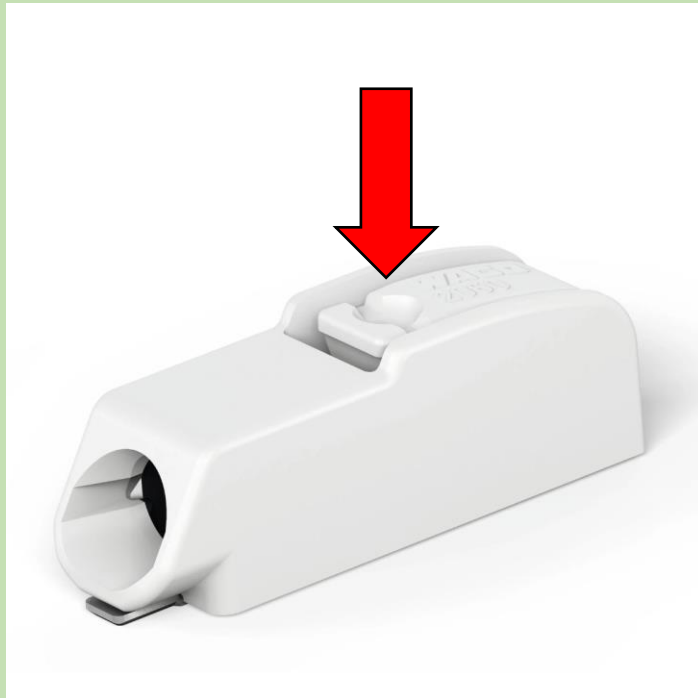
SCREWLESS TERMINALS - battery removal

- Release the positive battery terminal and remove the battery wire:
 - insert the end of the WAGO tool into the circular depression in WAGO 2060 terminal
 - lightly press **perpendicularly** on a push-button and remove the wire
- Release the negative battery terminal in the same way as positive terminal and remove the battery.
- Don't forget to recycle battery.



WARNING

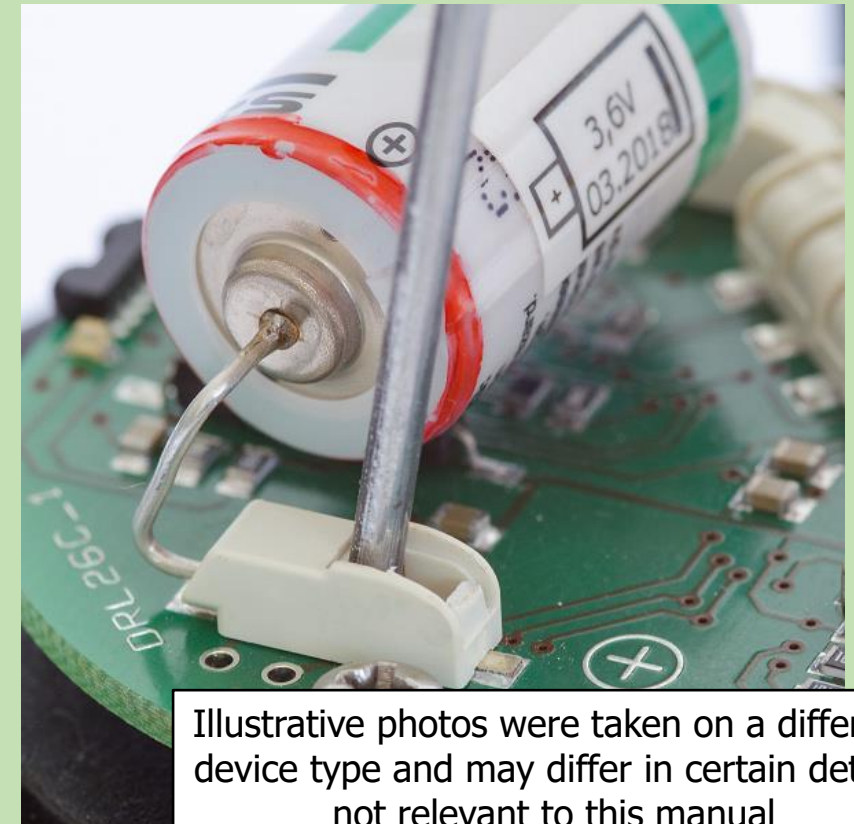
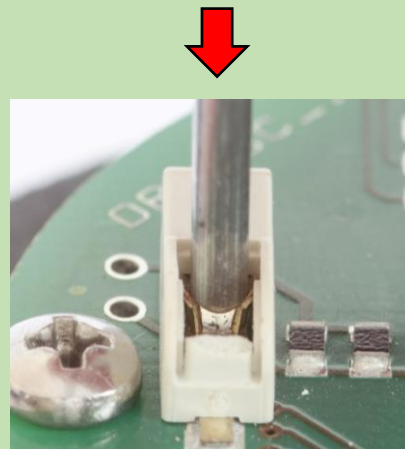
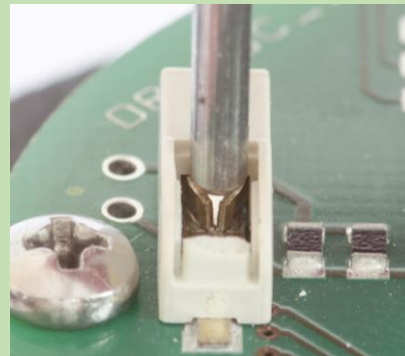
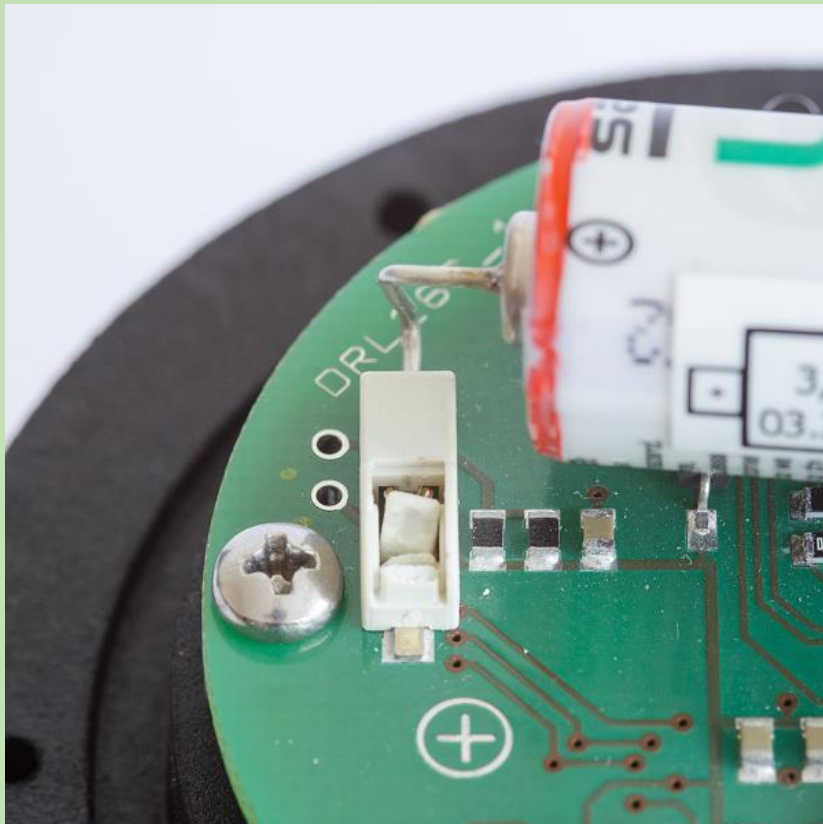
the plastic part is extremely fragile. Make sure to use appropriate tool!



Battery removal – broken terminal

If you accidentally broke the push-button of WAGO terminal:

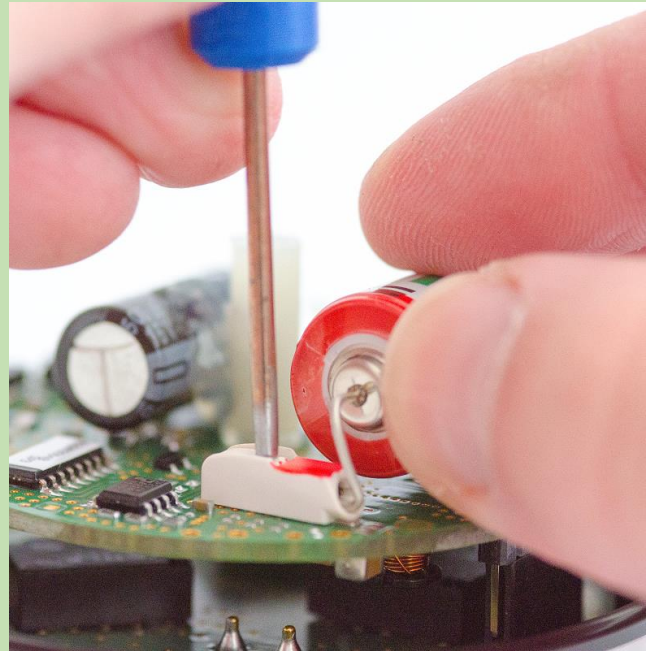
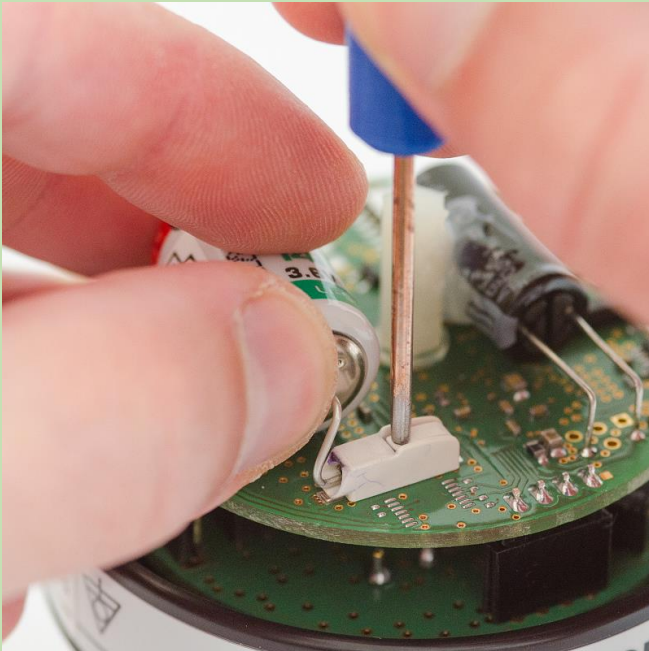
- remove the broken remains
- use the same WAGO tool for opening the clamping jaws
- slightly more force is required for opening (compared to a functional, not broken terminal)



Illustrative photos were taken on a different device type and may differ in certain details not relevant to this manual

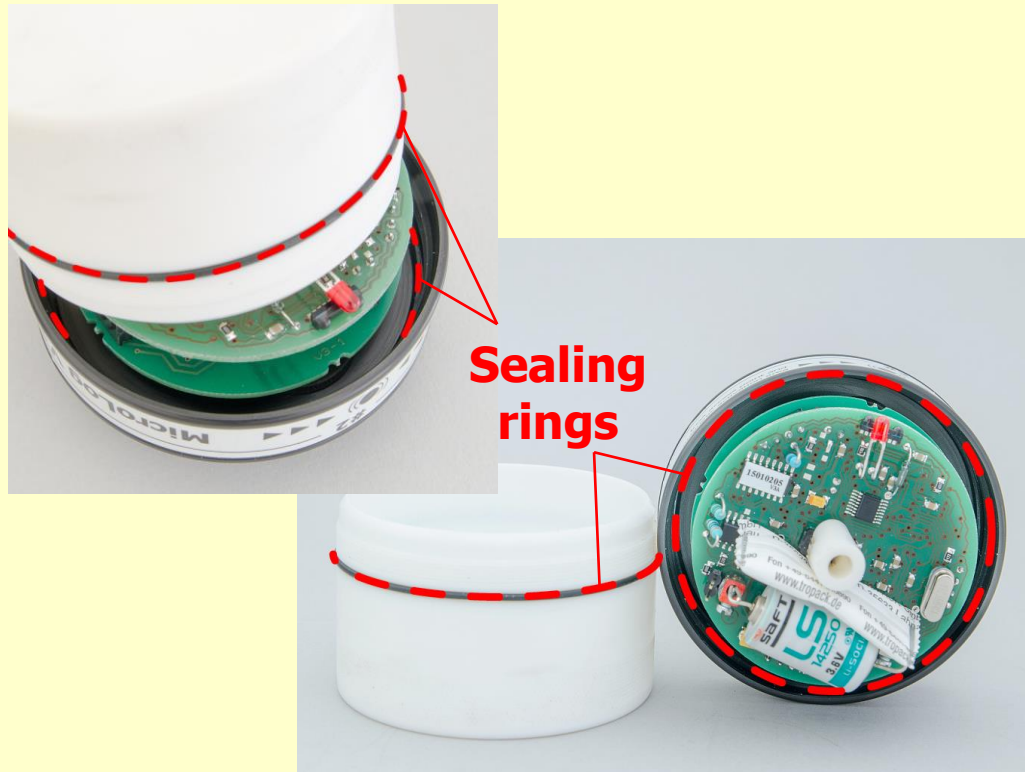
SCREWLESS TERMINALS - battery inserting

- Insert new battery. Consider polarity!
- Squeeze negative terminal and insert the battery wire.
- Squeeze positive terminal and insert the battery wire.
- It is good idea to write down the time stamp of battery replacement.
- Insert new desiccant bag.



Datalogger closure

Make sure that both lid thread and seals are clean or clean them by brush before closing.



Waterproofing

is ensured by a thread and a pair of sealing rings - one above the thread and the other on the bottom of the component containing the PCB and connectors.

Always check if these parts are clean before closing

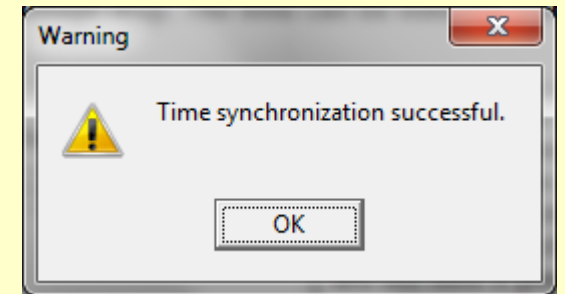
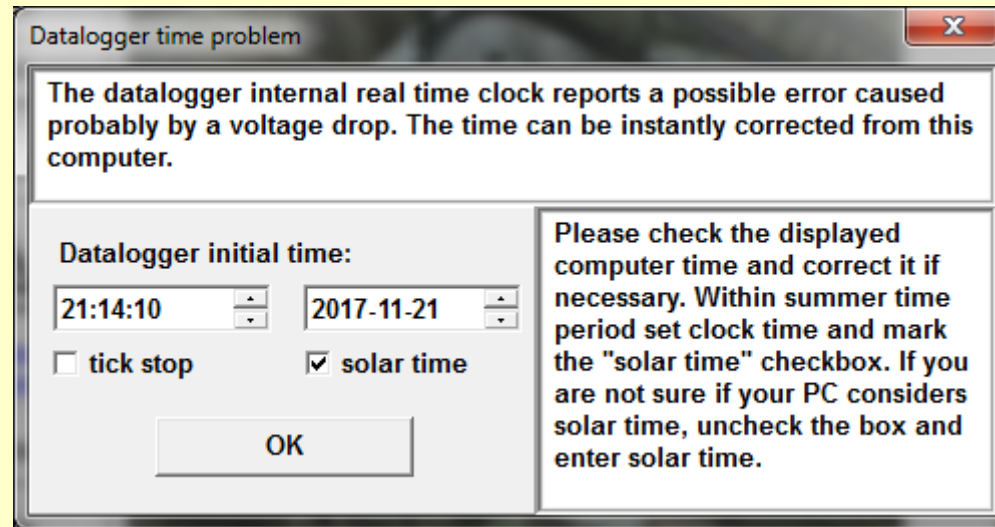
Datalogger closure

- Screw up the datalogger lid by hands (do not use opener!).
- Guide the thread carefully so that you do not screw "through the thread".



Sensor set up

Run Mini32, connect the datalogger by IrDA/USB cable and go to Configuration. You will pass datalogger time synchronization:



Battery counter

Reset the battery counter through Mini32: Configuration > More > Batt. reset.

MicroLog - SETTING UP - ADVANCED Mini32 v. 10.2.14.19

Less << Init RAM clear HCM Password Set time **Batt. reset**

PC Time: 27.05.2022 14:47:57
DL Time: 27.05.2022 13:49:05

ON/off **ON**

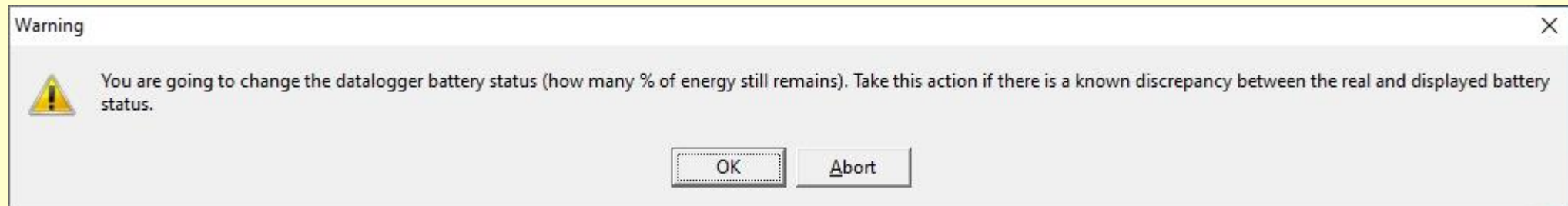
Device type: SP3
Device code 51
Batt: 3,52 V

Periods:
measuring 4 h
storing 4 h

Battery remains: not available
Memory capacity: 3855 days
Overwrite ENABLE

#	Type	ON/off	Range	Gauge	Description
1.	A.C. Resist	ON	35kOhm	Resistance [kOhm]	
2.	A.C. Resist	ON	35kOhm	Resistance [kOhm]	
3.	A.C. Resist	ON	35kOhm	Resistance [kOhm]	
4.	Temperature	ON	---	Temperature [oC]	

Warning

 You are going to change the datalogger battery status (how many % of energy still remains). Take this action if there is a known discrepancy between the real and displayed battery status.

OK Abort

Battery counter

- Choose the battery status of battery
- If inserted battery is used and only temporarily removed, choose this option and set remaining energy (%)

Battery counter reset

Battery status information has failed, probably due to battery replacement or temporary removal.
If a used battery has been put back into the unit, please click on lower button and enter the estimated amount of remaining energy [%]. A recent data file could help.
Note that older system don't need to support this option.

Battery status:

☒ new (replaced) battery

☐ used battery temporarily removed

Energy remaining: %

OK

Battery counter reset

Battery status information has failed, probably due to battery replacement or temporary removal.
If a used battery has been put back into the unit, please click on lower button and enter the estimated amount of remaining energy [%]. A recent data file could help.
Note that older system don't need to support this option.

Battery status:

☐ new (replaced) battery

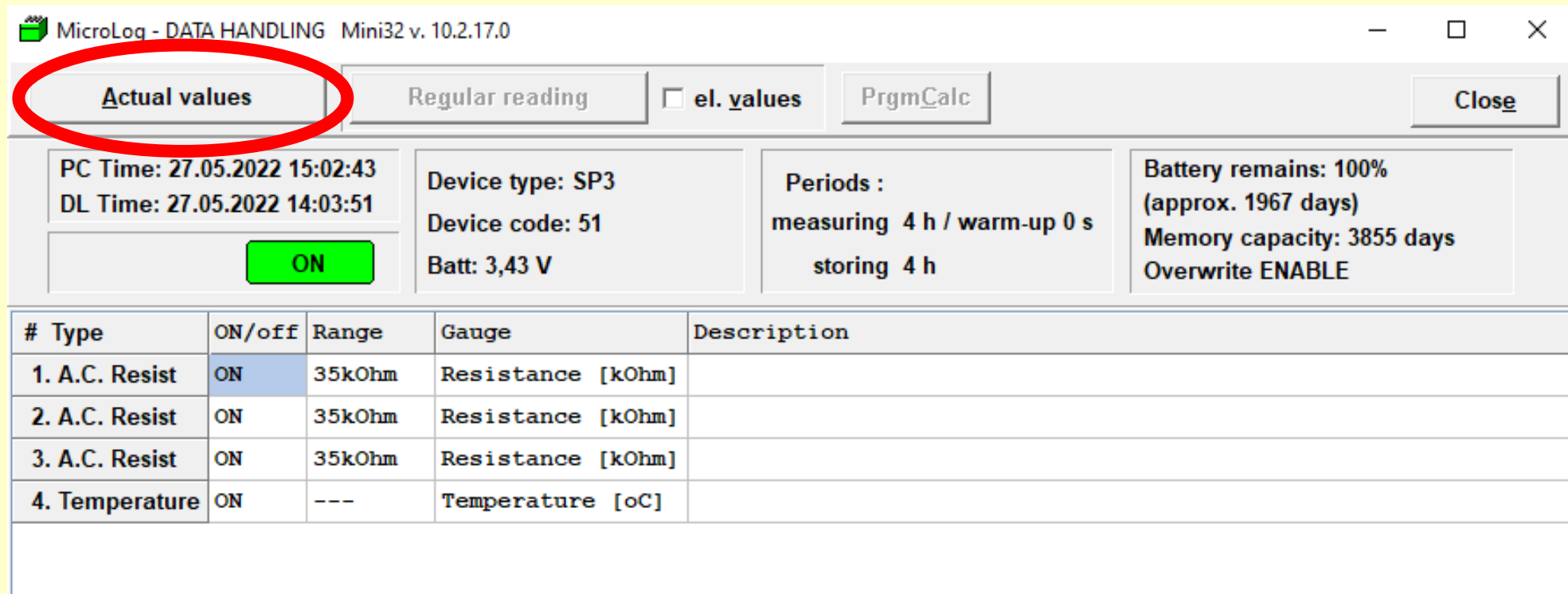
☒ used battery temporarily removed

Energy remaining: %

OK

Final check

Go back to Mini32 main screen and press "On-line" button. Check the actual values and all status information. You can also download the data to make sure that nothing happened with memory structure.



MicroLog - DATA HANDLING Mini32 v. 10.2.17.0

Actual values Regular reading ☐ el. values PrgmCalc Close

PC Time: 27.05.2022 15:02:43
DL Time: 27.05.2022 14:03:51

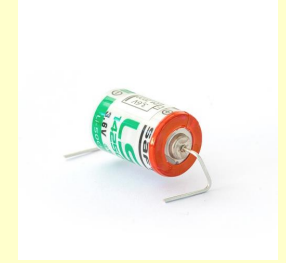
Device type: SP3
Device code: 51
Batt: 3,43 V

Periods :
measuring 4 h / warm-up 0 s
storing 4 h

Battery remains: 100%
(approx. 1967 days)
Memory capacity: 3855 days
Overwrite ENABLE

#	Type	ON/off	Range	Gauge	Description
1.	A.C. Resist	ON	35kOhm	Resistance [kOhm]	
2.	A.C. Resist	ON	35kOhm	Resistance [kOhm]	
3.	A.C. Resist	ON	35kOhm	Resistance [kOhm]	
4.	Temperature	ON	---	Temperature [oC]	

Storage of the dataloggers with Li-SOCl₂ batteries



The batteries used in these models (and batteries in general) are, on one hand, discharging by operation (measurement), and on the other hand they suffer with the degradation over time. Because of the chemical processes starting in the batteries after the device is started-up, continuous discharge is better than switching off the device for their long-term lifetime.

According to these circumstances, please keep in mind our recommendations:

- **Never turn devices off - have it set to a measuring interval of 1 - 4 hours**
- **Replace the battery after at least 5 years of use (even if the "battery remains" reports still enough time)**

Storage of older MicroLog SP3 dataloggers

The measurement of dry gypsum blocks during storage of older dataloggers MicroLog SP3 (with serial number lower then **#B22050852**) is more energy demanding.

We recommend to turn OFF the channels of SWP during storage of the device.

#	Type	ON/off	Range	Gauge	Description
1.	A.C. Resist	off	35k0hm	SWP [-bar] GB Delm.	
2.	A.C. Resist	off	35k0hm	SWP [-bar] GB Delm.	
3.	A.C. Resist	off	35k0hm	SWP [-bar] GB Delm.	
4.	Temperature	ON	---	Temperature [oC]	

Note: this does not apply to MicroLogs SP3 with serial number #B22050852 and higher, where this is solved by a hardware update.

Good luck!