

Dendrometer DRL26

Battery replacement

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Notice:

Generally, the following operation can be done (gently) even without removing the sensor from its original position on tree trunk.

Dendrometer DRL26 is factory designed with screws type M3x12 tightening the plastic cap. To maintain the strength of the cover mounting is important that it is equipped with ST3x12 self tapping screws.

We recommend to use screwdriver HITACHI DB3DL2 or another, where is possible to set the moment of force 0.7 Nm. Possible to get screwdriver from EMS Brno.

Models DRL26A, B, C require different battery replacement procedure. Do not mistake.

Related tools and accessories:



Dendrometer
DRL26



Screwdriver
HITACHI DB3DL2



Battery for screw
terminals



Screwdriver



6 self tapping screws
ST3x12



Desiccant bag



Multimeter



Tweezers



IrDA/USB cable

Sensor opening

Screw out all six screws tightening the white plastic lid.



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 battery.



Battery reset

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!



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.
- Activate the system with a magnet. The LED must light up and turn off after ca 15 second. If not, the electronics is broken and must be replaced.
- Insert new desiccant bag.



Voltage check

For technicians:

After the battery replacement, the idle power consumption measurement should be performed.

For this purpose, the voltage between two pins marked with the red circle should be measured.

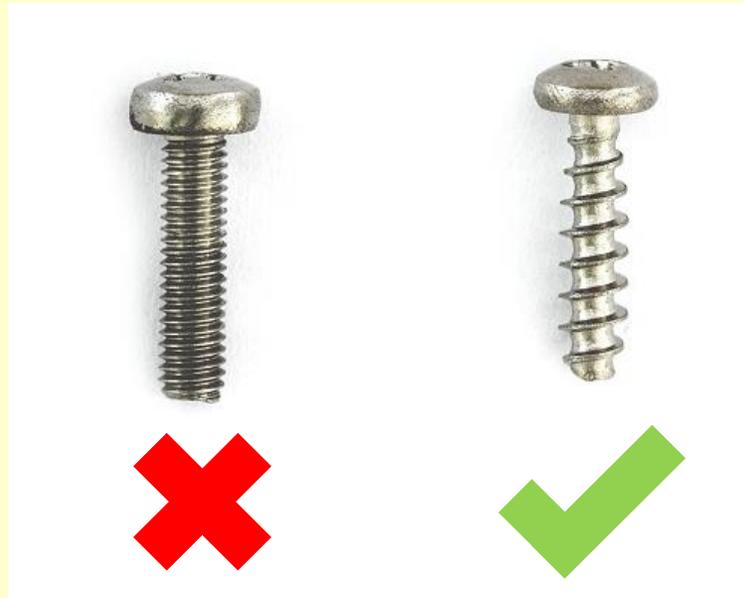
During the measurement the LED has to be off!

The voltage should be less than $20 \mu\text{V}$. If there is no sensitive multimeter available, check whether the value is below 0.1 mV at least.



Sensor closing

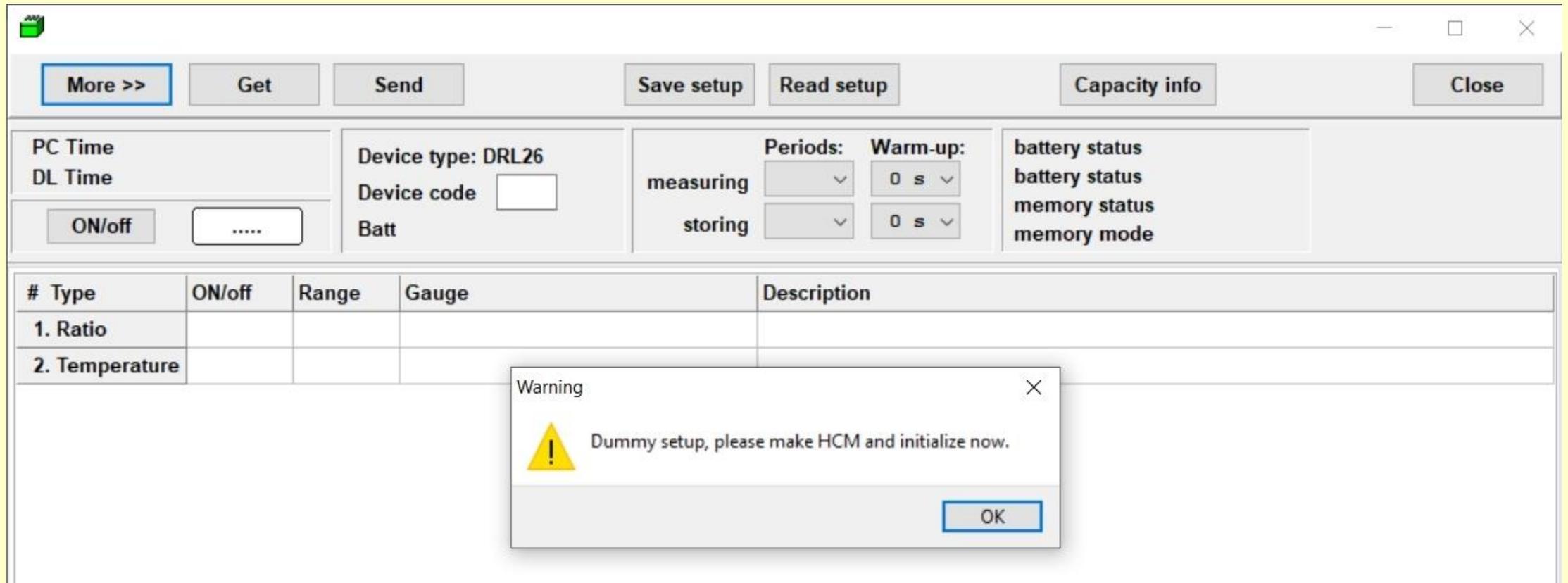
- Put the metal ring over the lid and place the lid on the sensor. Make sure to turn the lid such a way that the center of the label “IrDA access point and magnetic activation area” is located above the red LED on the PC board.
- If the sensor is still screwed with M3x12 screws (metric thread) is necessary to replace them with self tapping screws ST3x12. It is good idea to tight screws few times jumping over neighbors – see sequence in picture. Use screwdriver HITACHI DB3DL2 with clutch dial set at 5 (0.7 Nm moment of force).



Sensor initialization

Run Mini32 software and click on the "Configuration" button. Activate IR connection with magnet if the red LED below the lid is off.

Ignore some possible error messages until you reach "More>>" window.



The screenshot shows the Mini32 software configuration window. The window has a title bar with a green icon and standard window controls. The main area contains several sections:

- Buttons:** "More >>" (highlighted with a blue border), "Get", "Send", "Save setup", "Read setup", "Capacity info", and "Close".
- PC Time / DL Time:** A section with an "ON/off" button and a text input field containing ".....".
- Device Information:** "Device type: DRL26", "Device code" (text input), and "Batt" (text input).
- Periods and Warm-up:** Two columns of settings. "measuring" and "storing" each have a dropdown menu. "Warm-up:" has two dropdowns, both set to "0 s".
- Checklist:** A list of items: "battery status", "battery status", "memory status", and "memory mode".
- Table:** A table with columns: "#", "Type", "ON/off", "Range", "Gauge", and "Description".

#	Type	ON/off	Range	Gauge	Description
1.	Ratio				
2.	Temperature				

A "Warning" dialog box is overlaid on the table, containing a yellow warning icon and the text: "Warning: Dummy setup, please make HCM and initialize now." with an "OK" button.

Sensor initialization

The screen may display strange values, or it will probably look like this:

The screenshot shows the 'MicroLog - SETTING UP Mini32 v. 10.2.10.0' window. At the top, there are navigation buttons: 'Less <<', 'Init', 'RAM clear', 'HCM', 'Password', and 'Set time'. Below these, the interface is divided into several sections:

- Time and Device Info:** PC Time: 29.04.2020 13:34:59, DL Time: 29.04.2020 13:33:44. Device type: DRL26, Device code: XY.
- Power and Battery:** A red 'off' button is shown next to 'Batt: 0 V'.
- Measurement Settings:** 'measuring' and 'storing' are both set to '1 h' via dropdown menus under the 'Periods:' label.
- Memory and Overwrite:** Memory capacity: 3276 days, Overwrite ENABLE.

At the bottom, there is a table with the following data:

#	Type	ON/off	Range	Gauge	Description
1.	Ratio	off	---	Increment [mm]	
2.	Temperature	off	---	Temperature [oC]	

Sensor initialization

Push "HCM" for downloading and saving the whole memory content to file for later decoding.

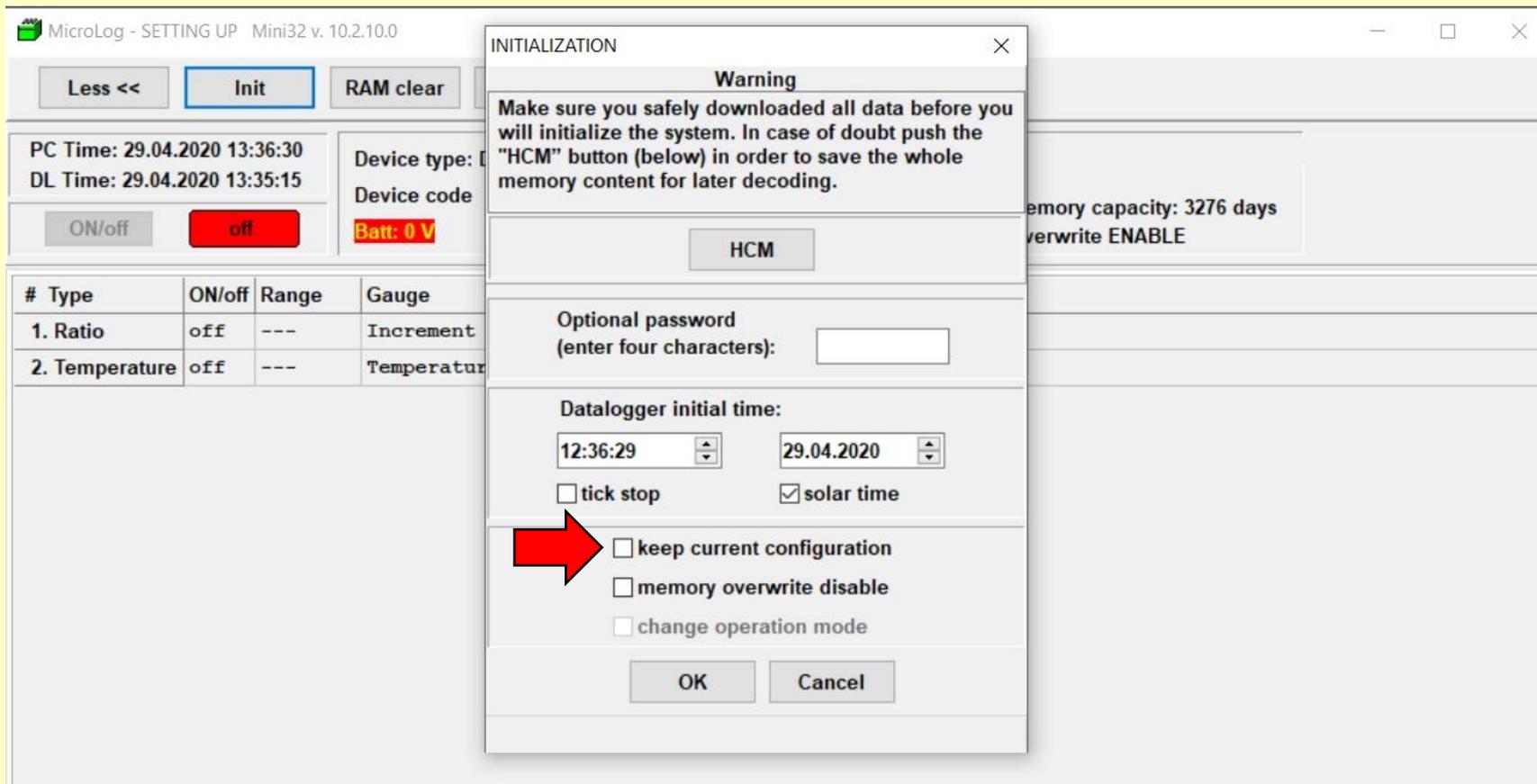
Since the filename does include (possibly wrong) device code, rename the file for later identification. Add also the new extension ".HEX" (Example: mydevice_0812.hcm.hex).

Try to convert this file by Mini32 as a standard HEX file.

If you doubt about the decoded file, send the original ("HEX" or "HCM") file to manufacturer for decoding. The best together with and older HEX or DCV file if they are available.

Sensor initialization

- Push "Init" button to reset the data logging system. This is absolutely necessary for the next proper operation.
- **Uncheck** the check box "keep current configuration"



Sensor initialization

After the system confirms that the initialization is completed, the logger will have the factory setting:

The screenshot shows the 'MicroLog - SETTING UP Mini32 v. 10.2.10.0' window. At the top, there are buttons for 'More >>', 'Get', 'Send', 'Save setup', 'Read setup', 'Capacity info', and 'Close'. Below these buttons, the interface is divided into several sections:

- Time and Status:** PC Time: 29.04.2020 13:39:02, DL Time: 29.04.2020 12:39:01. An 'ON/off' button is shown in a red state with the text 'off'.
- Device Information:** Device type: DRL26, Device code: XY, Batt: 3,29 V.
- Periods:** A section for 'Periods' with two dropdown menus: 'measuring' set to '1 h' and 'storing' set to '1 h'.
- Capacity and Settings:** Battery remains: 99,98% (approx. 2074 days), Memory capacity: 6553 days, Overwrite ENABLE.

At the bottom, there is a table with the following data:

#	Type	ON/off	Range	Gauge	Description
1.	Ratio	off	---	Increment [mm]	
2.	Temperature	off	---	Temperature [oC]	

Sensor set up

Push "Less<<" button to get the previous screen and reconfigure the logger. You can do it manually or to take the setting from an older HEX or DCV file (push "Read setup" and find a relevant file).

Push "Send" button to send the configuration to the sensor/datalogger.

As a last step, close "Configuration" and open "On-line". Run "Actual values" and check the measured value.

Refer to Mini32 user's manual for necessary details.

Final check

Go to back to Mini32 main screen and push "On-line" button. Check the actual values and all status information. You might also download data in order to be sure that there has nothing happened with memory structure.

#	Type	No. Gauge	Electrical	Physical	Description
1.	Ratio	Increment [mm]	0,00259403	0,164617	
2.	Temperature	Temperature [oC]	23,125	23,125	

Good luck!