

# MicroLog EC2

Battery replacement

*EMS Brno, May 2020*

*Michal Bellan*

# Related tools and accessories:



MicroLog EC2



Battery for screw terminals



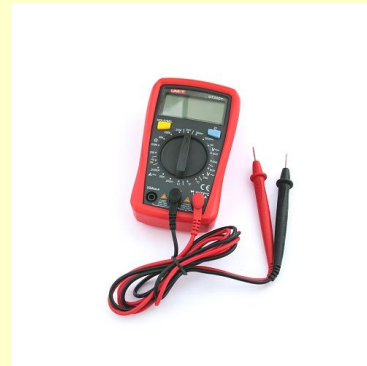
Screwdriver



Gloves



Dessicant bag



Multimeter



Tweezers



IrDA/USB cable

# Datalogger opening

Screw out the datalogger lid by hand.



# 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.

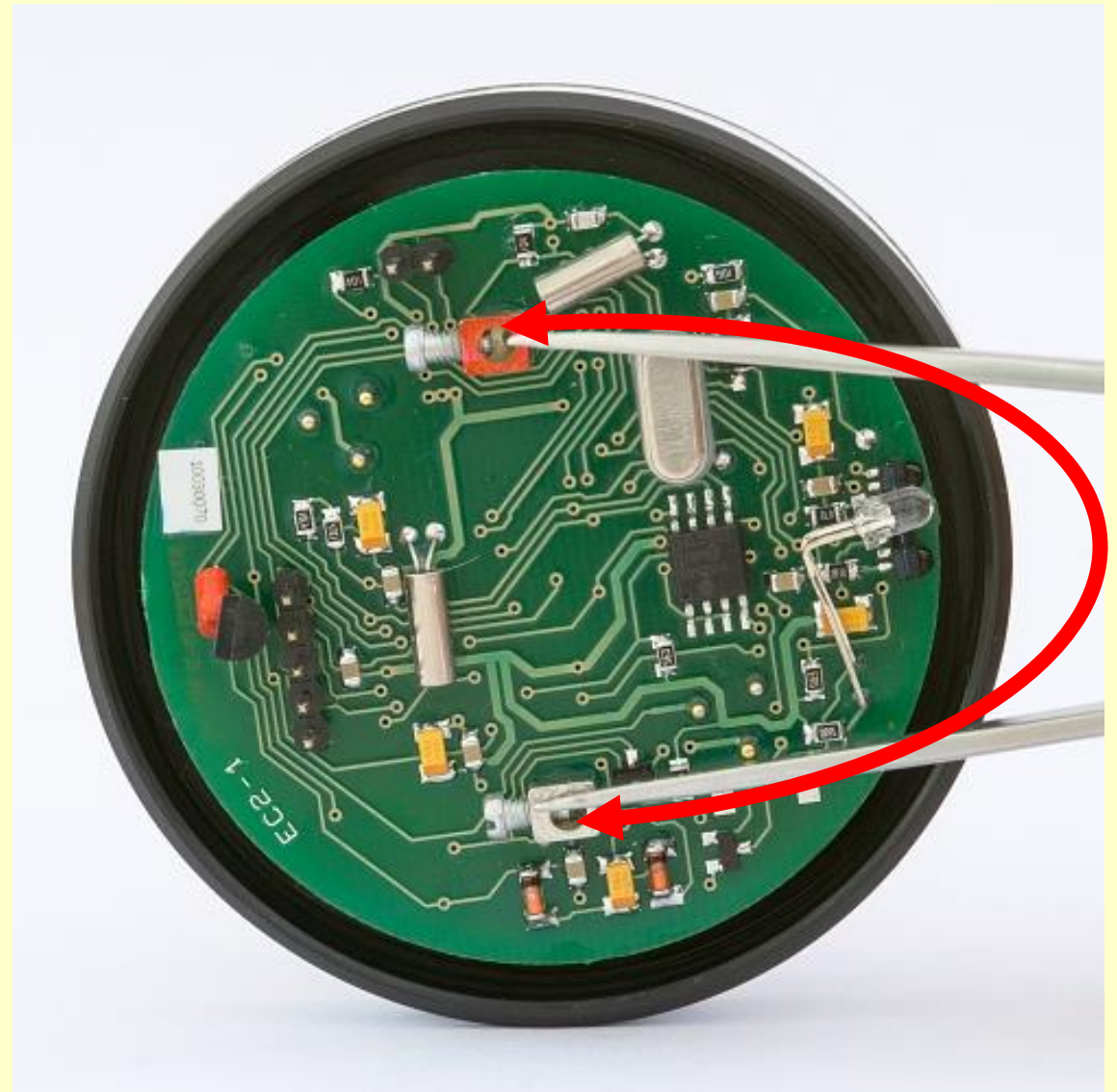


# Battery reset

## 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  $20\text{ }\mu\text{V}$ . If there is no sensitive multimeter available, check whether the value is below  $0.1\text{ mV}$  at least.



# Datalogger closing

Screw up the datalogger lid. Make sure the lid thread and seal are clean or clean it by brush.

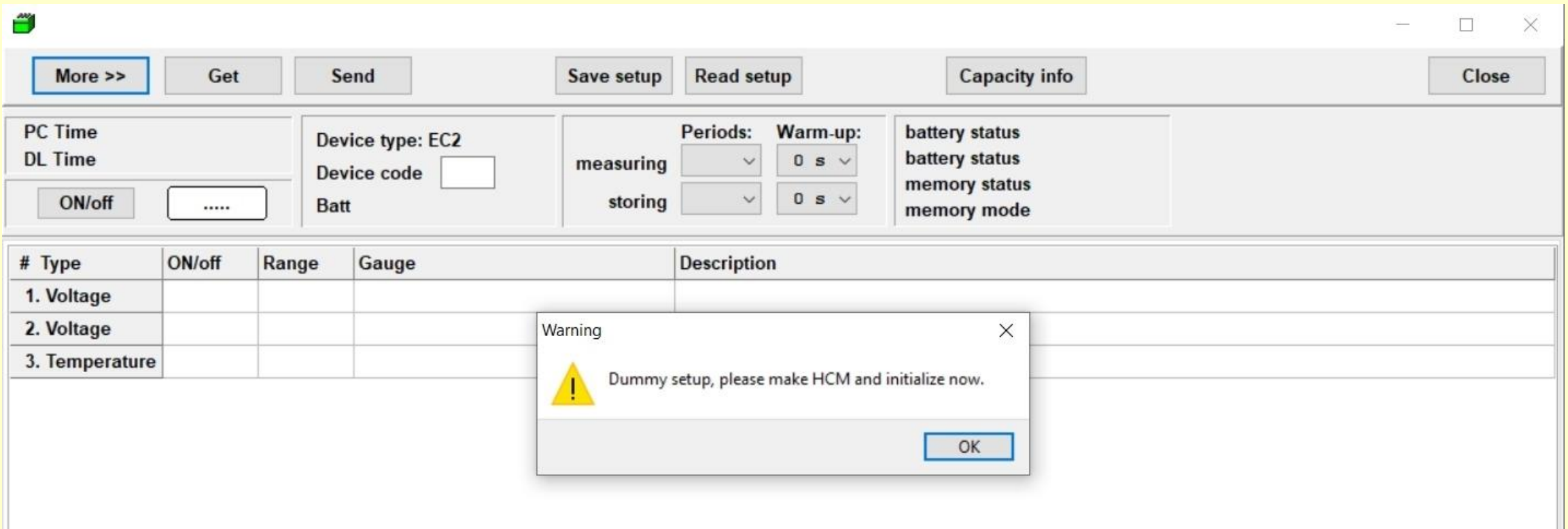




# Datalogger initialization

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

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



The screenshot shows the Mini32 software interface with a warning dialog box overlaid. The main window has a title bar with a green icon and standard window controls. Below the title bar is a toolbar with buttons: "More >>", "Get", "Send", "Save setup", "Read setup", "Capacity info", and "Close". The "More >>" button is highlighted with a blue border. The main area contains several sections: "PC Time" and "DL Time" on the left; "Device type: EC2", "Device code" (with a text box), and "Batt" in the middle; "Periods:" and "Warm-up:" (both with dropdowns and "0 s" values) on the right; and a list of status items: "battery status", "battery status", "memory status", and "memory mode". Below these is a table with columns: "#", "Type", "ON/off", "Range", "Gauge", and "Description". The table has three rows: "1. Voltage", "2. Voltage", and "3. Temperature". The "Warning" dialog box is centered, featuring a yellow warning icon, the text "Warning", and the message "Dummy setup, please make HCM and initialize now." with an "OK" button.

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

# Datalogger initialization

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

MicroLog - SETTING UP Mini32 v. 10.2.10.0

Less << Init RAM clear HCM Password Set time

PC Time: 04.05.2020 13:53:35  
DL Time: 04.05.2020 13:52:24

Device type: EC2  
Device code XY  
**Batt: 0 V**

measuring 1 h  
storing 1 h

Periods:  
1 h  
1 h

Memory capacity: 3276 days  
Overwrite ENABLE

#	Type	ON/off	Range	Gauge	Description
1.	Voltage	off	1250mV	$Y = A+B*V+C*V^2$	
2.	Voltage	off	1250mV	$Y = A+B*V+C*V^2$	
3.	Temperature	off	---	Temperature [oC]	

# Datalogger initialization

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

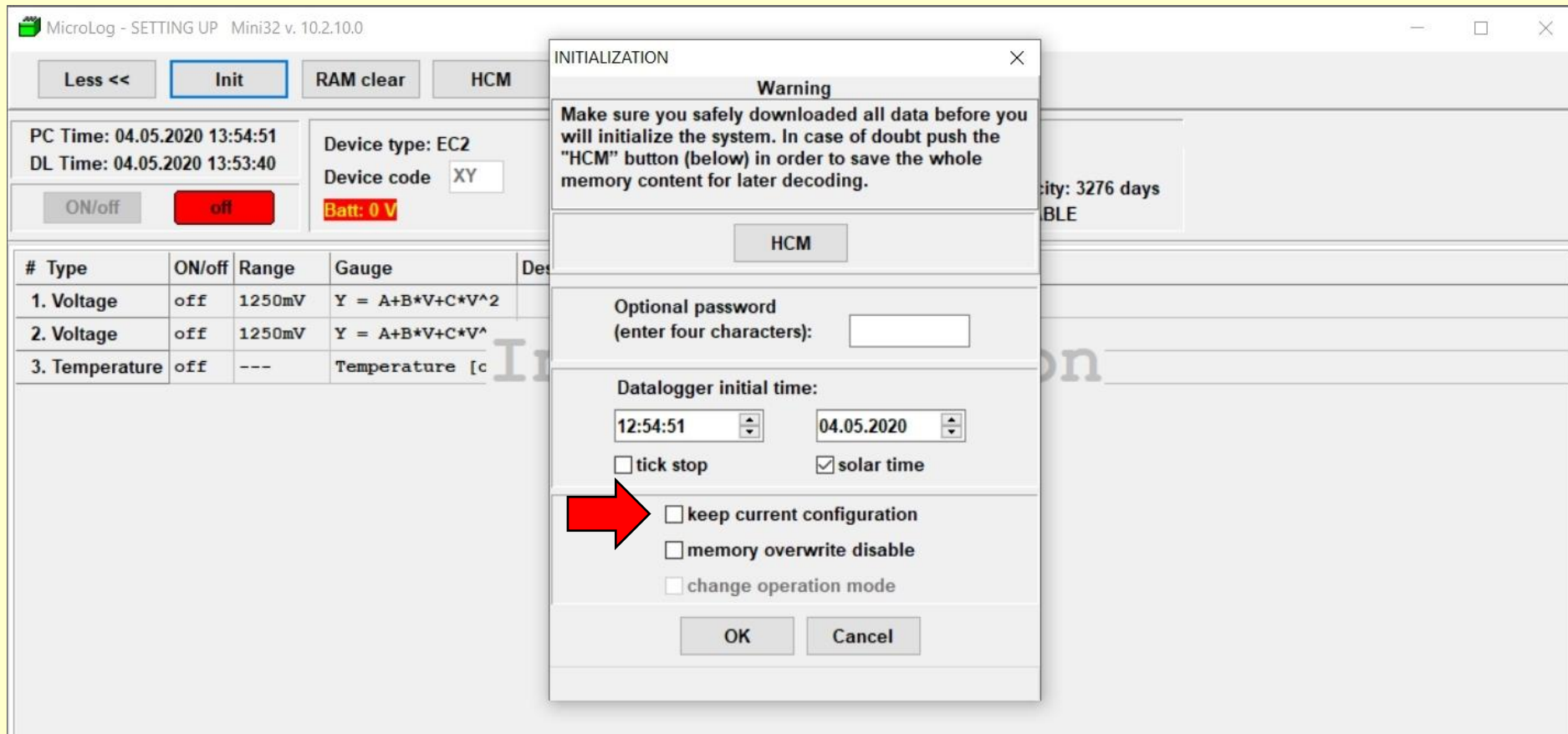
Since the filename does include (possibly wrong) device code, rename the file for later identification. Add also the new extension ".HEX" (Example: mydevice\_0812.hcm.hex).

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

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

# Datalogger 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"





# Datalogger initialization

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

MicroLog - SETTING UP Mini32 v. 10.2.10.0

Less <<

Init

RAM clear

HCM

Password

Set time

PC Time: 04.05.2020 13:56:34  
DL Time: 04.05.2020 12:56:35

ON/off

off

Device type: EC2  
Device code XY  
Batt: 3,27 V

measuring

storing

Periods:

1 h

1 h

Battery remains: 99,99%  
(approx. 2074 days)  
Memory capacity: 6553 days  
Overwrite ENABLE

#	Type	ON/off	Range	Gauge	Description
1.	Voltage	off	1250mV	$Y = A+B*V+C*V^2$	
2.	Voltage	off	1250mV	$Y = A+B*V+C*V^2$	
3.	Temperature	off	---	Temperature [oC]	

# Datalogger 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.

MicroLog - DATA HANDLING Mini32 v. 10.2.10.0

Actual values

Regular reading

☐ el. values

PrgmCalc

Close

PC Time: 04.05.2020 14:00:00  
DL Time: 04.05.2020 13:00:02

ON

Device type: EC2  
Device code: EM  
Batt: 3,31 V

Periods :  
measuring 1 h / warm-up 0 s  
storing 1 h

Battery remains: 99,99%  
(approx. 1991 days)  
Memory capacity: 799 da  
Overwrite ENABLE

#	Type	No. Gauge	Electrical	Physical	Description
1.	Voltage	$Y = A+B*V+C*V^2$	32,1078	0	
2.	Voltage	$Y = A+B*V+C*V^2$	33,7876	0	
3.	Temperature	Temperature [oC]	23,1016	23,1016	

**Good luck!**