

CURE.LOG

PRELIMINARY MANUAL



22.04.2024

<https://soudronic.com/products/curelog/>



Components

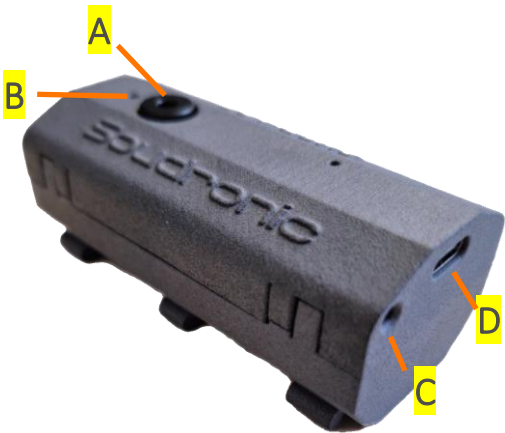


| | |
|---|--------------------------------|
| 1 | Box |
| 2 | High-temperature adhesive tape |
| 3 | USB cable |
| 4 | CURE.Log with 2 magnetic bars |
| 5 | Spacers A-D |
| 6 | Holder E |

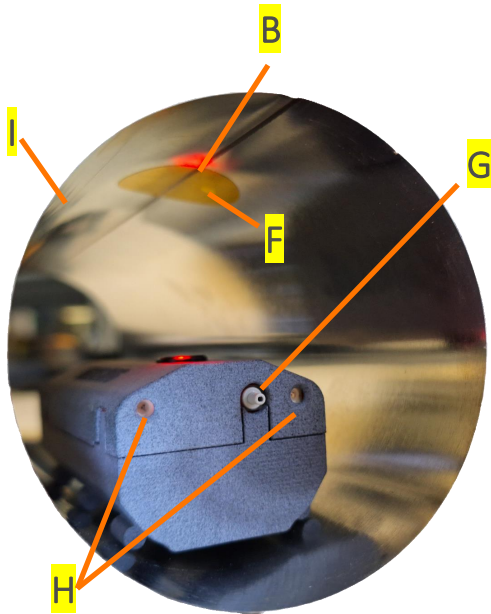


Design and functionality

CURE.Log measures the can temperature in an oven. With the built-in IR sensor, the surface temperature of a can is determined without contact when it passes through an induction or gas oven. With the built-in acceleration sensor, twisting and vertical jolts can also be detected. The recorded data is stored in a .csv file directly on the logger. After the measurement, the data can be evaluated on a computer via USB. An Excel template is available for data evaluation.



| | |
|---|--------------------------------|
| A | IR sensor |
| B | Target light |
| C | Control LED charging mode |
| D | USB connector |
| F | High-temperature adhesive tape |
| G | Button |
| H | Alignment control LED |
| I | Can |



Simplified, spacer are missing in this picture



Charging

Connect CURE.Log via USB **A** to a computer. The target light **B** is always on when connected to a computer.

- Data logger charging time < 2min.
- Capacity with fully charged data logger → 5 measurements à 3 min.

LED charging status indicator:

- LED **C** on during charging.
- LED **C** off as soon as the data logger is charged.



The device does not contain any replaceable batteries or rechargeable battery. It is not necessary to open the device at any time. Opening the device will void the warranty and may affect its functionality.

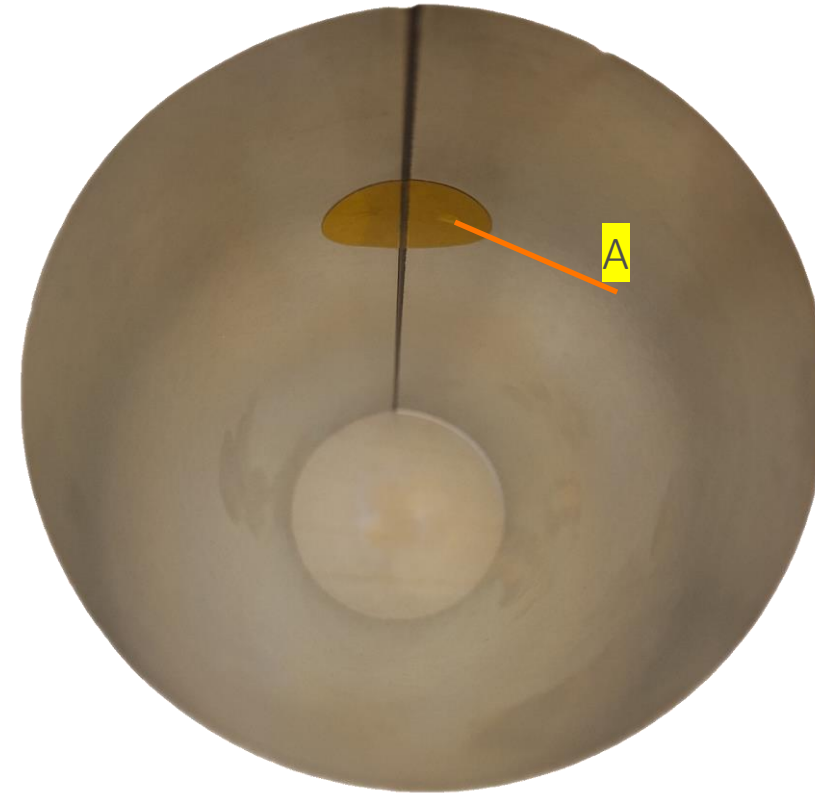




Can preparation

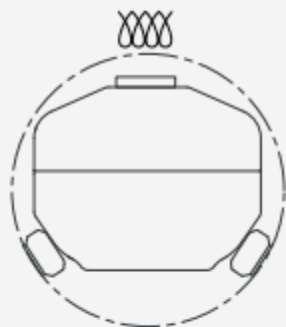
To determine the surface temperature with an IR-sensor, the surface to be measured must have a defined emission coefficient in order to obtain reliable temperature data. For this reason, a high-temperature adhesive tape **A** must be applied.

For consistent results, run your prepared can through the oven once and attach the CURE.Log into the can for subsequent runs.



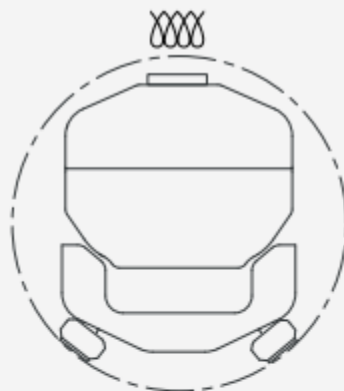


Adapt CURE.Log to can diameter



No Spacer

ø45mm - ø55mm : None



1 Spacer

ø56mm - ø68 mm : A
ø69mm - ø81 mm : B
ø82mm - ø94 mm : C
ø95mm - ø108 mm : D

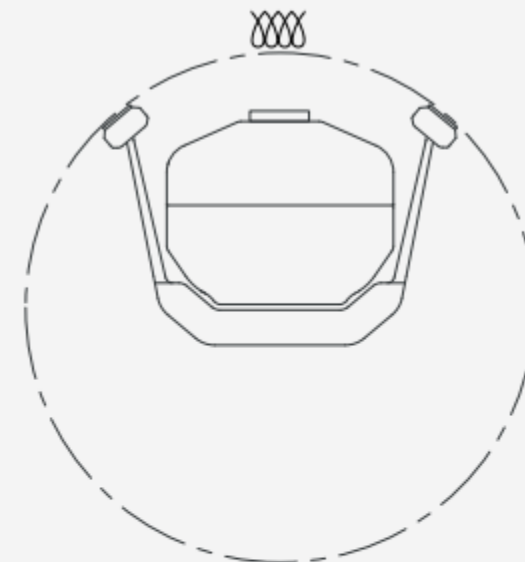


2 Spacer

ø109mm - ø121mm : A+D
ø122mm - ø135mm : B+D
ø136mm - ø149mm : C+D

3 Spacers

ø150mm - ø164mm : A+C+D



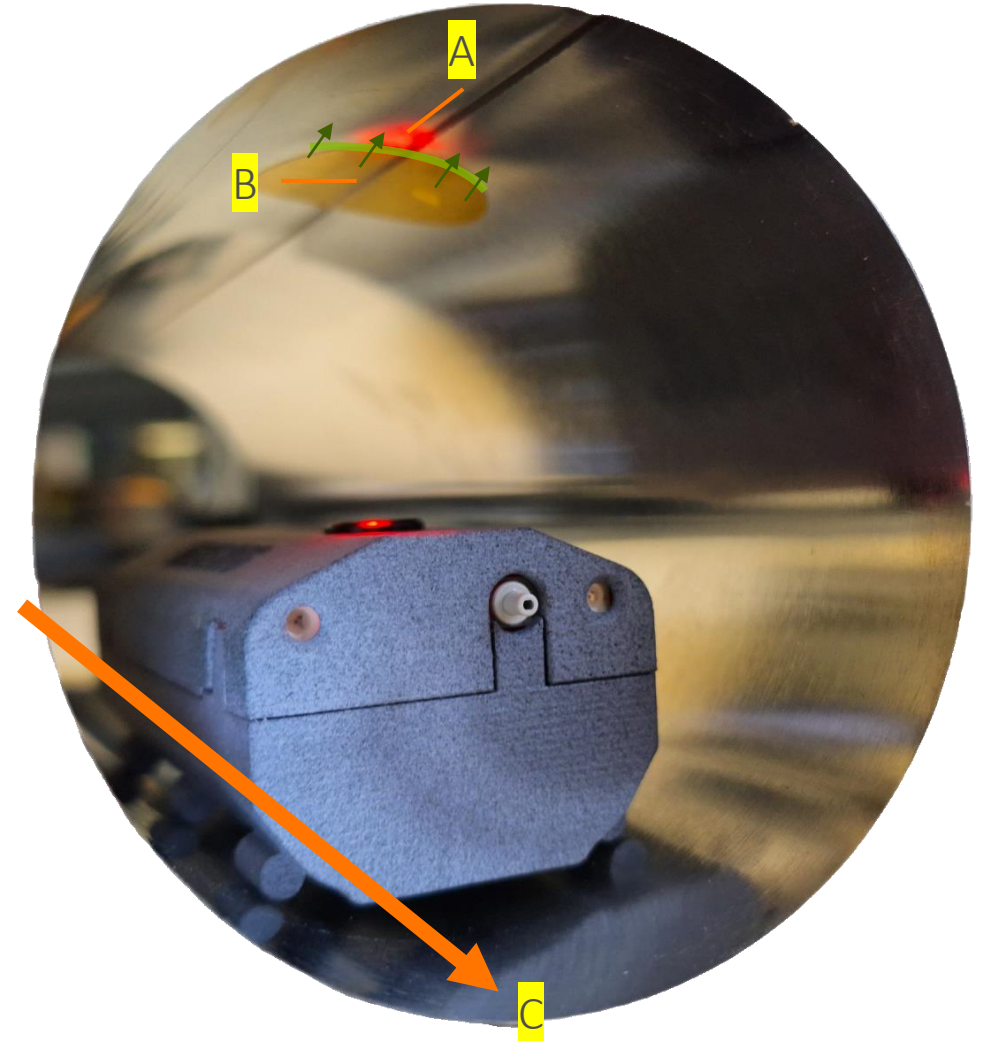
Holder

ø165mm - ø330mm : E



Positioning CURE.Log inside can

Place the target light **A** ahead of the high-temperature adhesive tape **B** in direction **C**. For accurate measurements, ensure the target light is positioned correctly.





Perform measurement

Program sequence:

1 Power off

When switched off, no LED is lit.

2 Positioning

When the button is pressed, the target light starts to shine. This is used for positioning the measurement.

3 Leveling

If the sensor position is correct, the button can be pressed again to start the leveling.

Here, red indicates which side is too high. If the alignment is level, both LEDs light up green. After a short time, when both are green, the CURE.LOG goes into measuring mode.

Leveling can be interrupted early if the button is pressed during leveling to bypass the alignment. (If this is irrelevant for the application).

4 Measurement

In measurement mode, temperature data is saved to a .csv file.

These are stored in 3min long files. (Premature end of measurement leads to shorter files).

The last 10 measurement files are stored in CURE.LOG. (When creating the new files, the oldest one will be deleted).

5 Switch off:

If the button is pressed for approx. 1.5s (both LEDs light red during this time). When the CURE.LOG finishes the measurement, it saves the data and then switches itself off.

The power off operation can be done in any step.

Force switch off:

To force switch off, hold the button for more than 15 seconds.

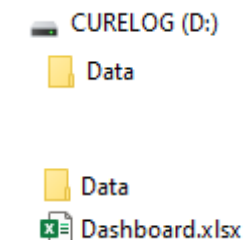
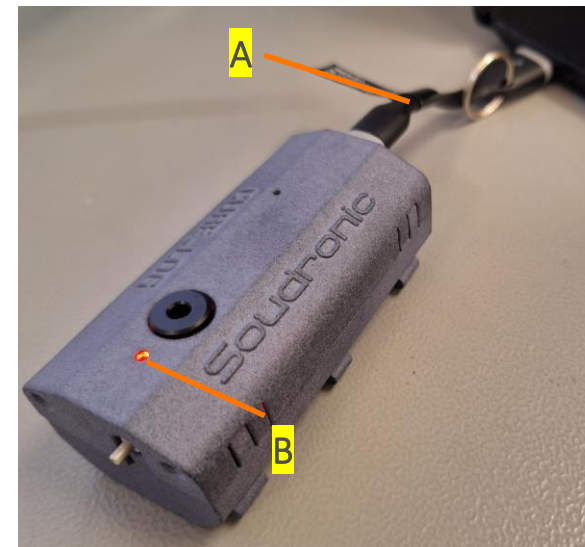
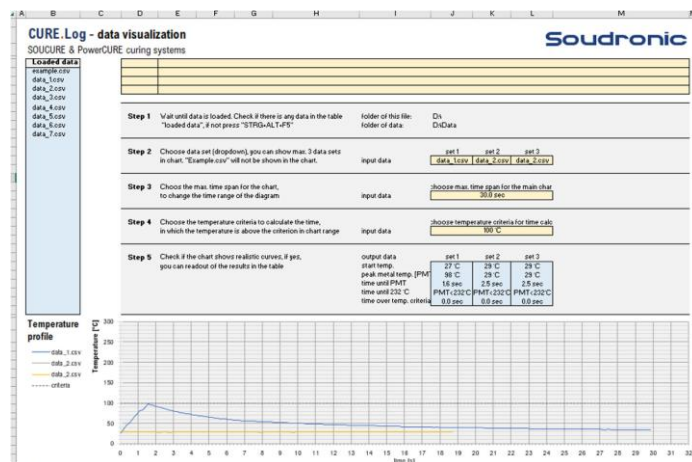


The last 10 measurement are saved. When creating further files, the old ones will be deleted.

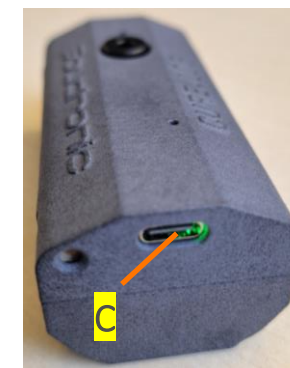


Data analysis

1. Connect CURE.Log to a computer via USB **A**, CURE.Log will be displayed.
2. With the Excel file: **Dashboard.xlsx** the data can be analyzed. When the Excel file is opened, all data from the Data folder are read in directly.
3. For the analysis follow the instructions in the Excel file.



If you have problems opening the Excel file, you can delete the file and restart CURE.Log. During the generation of the file, the logger lights green in the area of the USB connector **C**. When the file is generated, the target light starts to glow **B**. CURE.Log can now be used as before.

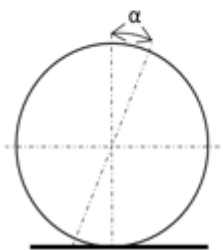




Data analysis

Roll angle profile

example.csv
example.csv
example.csv

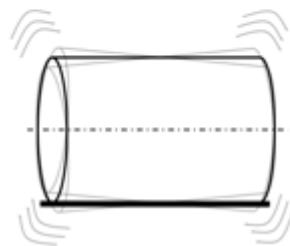


Roll angle [°]

Illustrates the can's rotation throughout a measurement cycle in the oven.

Jolt profile

example.csv
example.csv
example.csv



Jolt [dg/dt]

Jolt indicates force variations on the can in every direction, displaying the maximum force per time segment. This aids in identifying misalignments in oven transport.

Temperature profile

example.csv
example.csv
example.csv
criteria



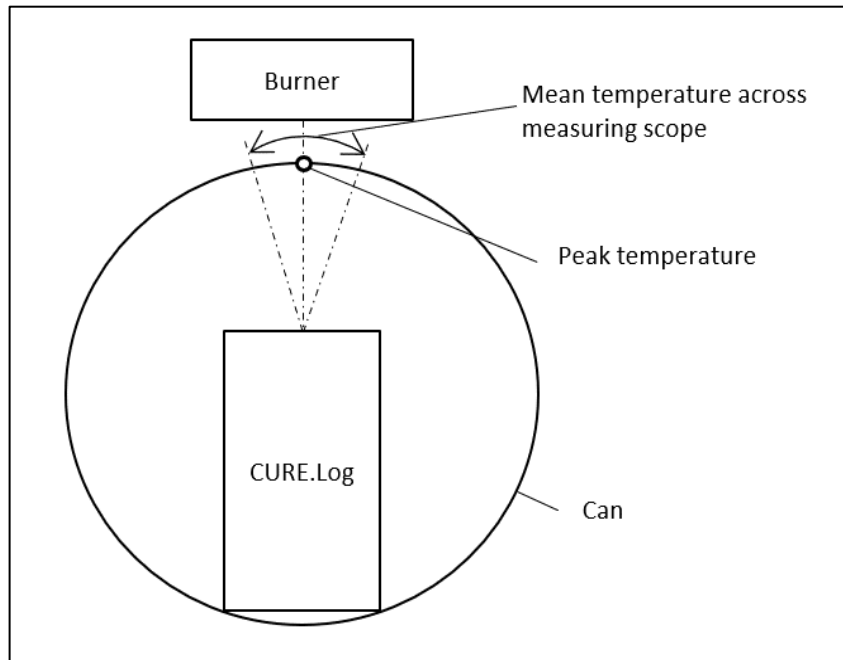
Mean temp. across measuring scope [°C]

The temperature curve is displayed to identify temperature increases, facilitating more effective comparisons.



Note: Measuring method

The infrared sensor spans a measuring scope on the can. The width of the measuring scope correlates with the distance of the CURE.log to the can surface. A mean temperature is measured across this measuring scope. Be aware that a point in the measuring scope can be on higher temperature.





Software Update

1. Use a tool like an extended paper clip to press the update button.
2. While holding the button, connect the USB-C cable.
3. Look for the device labeled "RPI-RP2" in your file explorer.
4. Drag and drop the new firmware file (e.g., "curelog-vx.x.x.uf2") onto the "RPI-RP2" drive to update.

