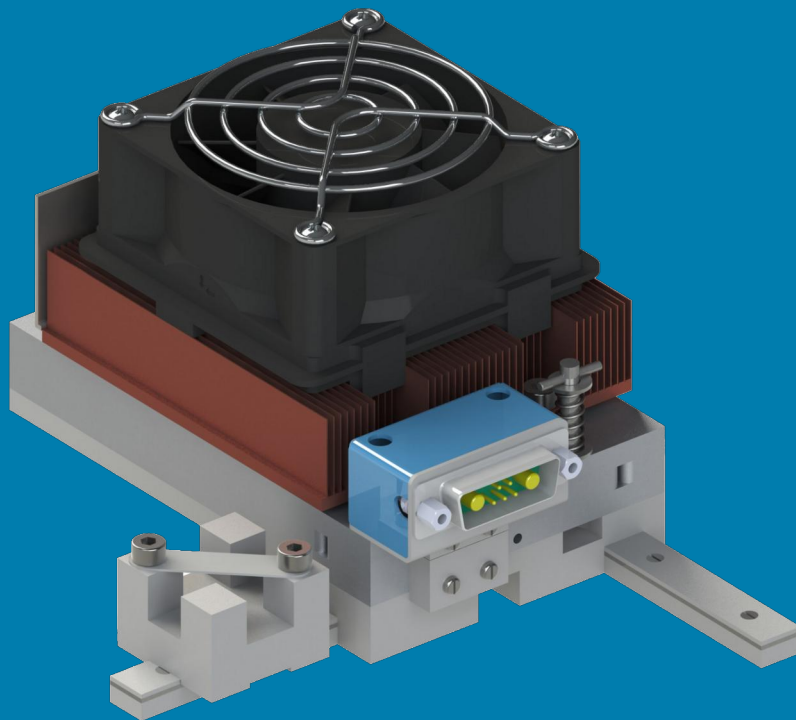


# Column Oven PRSO-V1

## Users Manual

Revision 2011-10-11



# Contents

<b>Important safety instructions</b>	<b>3</b>
<b>Scope of supply</b>	<b>4</b>
<b>Functional description</b>	<b>5</b>
Oven Controller	
<b>Installation</b>	<b>7</b>
Hardware installation	
Installation of the conversion kit	
Mounting the oven to the source	
Connecting the controller	
Column loading	
Software Installation	
Installing the oven control software	
<b>Control</b>	<b>10</b>
Using COControl	
Setting up an instrument method	
<b>FAQ</b>	<b>13</b>

# IMPORTANT SAFETY INSTRUCTIONS

- Read these instructions
- Keep these instructions
- Heed all warnings
- Follow all instructions
- Do not use this apparatus near water
- Mains powered apparatus shall not be exposed to dripping or splashing and no objects filled with liquids shall be placed on the apparatus
- Do not block any ventilation openings. Install in accordance with the manufacturer's instructions
- Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus
- Only use attachments/accessories specified by the manufacturer
- Do not use any adhesive tape or other non heat-resistant materials inside the oven
- **WARNING:** This apparatus shall be connected to a mains socket outlet with a protective earthing connection
- Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped

## Scope of supply

The Sonation Column Oven PRSO-V1 comes with all needed parts for an installation with the Proxeon nano-source. If you use the newer Thermo nano-source, a conversion kit is needed to mount the oven properly. The oven can also be used with sources from other manufacturers. Please contact Sonation for more information.

The complete kit "PRSO-V1" consists of:

- Column Oven consisting of top part, bottom part and round middle part (A)
- Regulator (B)
- USB to serial converter (C)
- Software CD (D)
- Oven control cable (E)
- Cable for RS232 and contact closure (F)
- Power supply cable (G)
- Power supply 24V, wide range input (H)
- Crossholder with crossholder lock (I)
- Camera holder kit (Old proxeon source only) (J,K)



Fig. 01: Scope of supply PRSO-V1

The conversion kit "PRSO-V1-Pkit" consists of:

- 2 x screw M5x20 Allen head (A)
- Upper camera holder (B)
- Distance piece left camera holder (C)
- Safety hood (D)

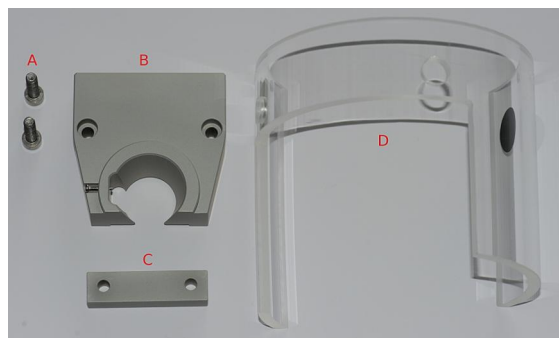


Fig. 02: Scope of supply PRSO-V1-Pkit

# Functional description

## Oven

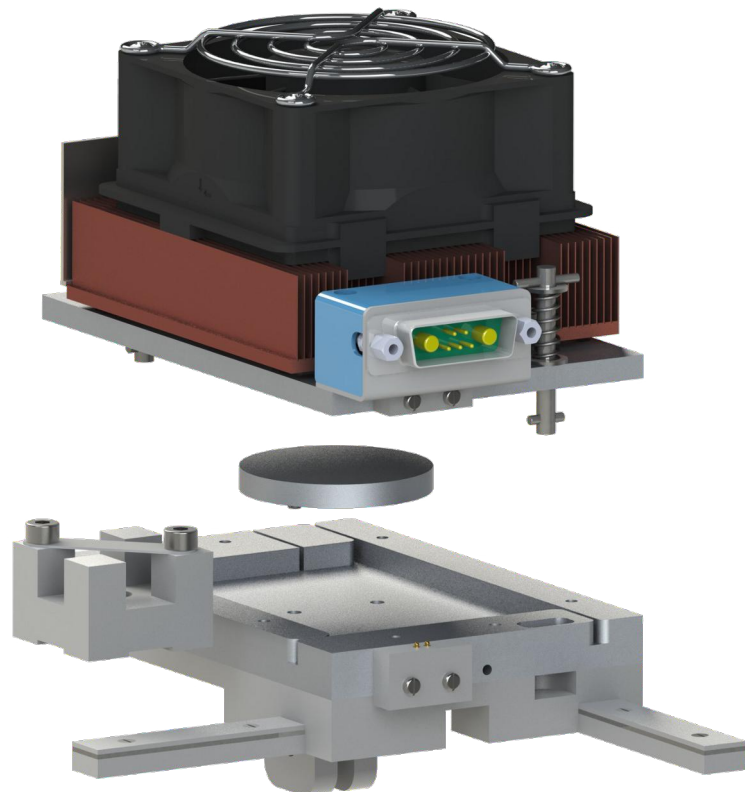
The oven itself consists of three main parts. The top-part contains the heating/cooling unit, the heat sink and a ventilator. This part is connected to the oven controller.

The bottom part holds the column and provides two inlets and one outlet for the columns. This part also provides the adapter to mount the oven to the source. Depending on the column length, the front or the lateral column inlet is used and therefore the front or the lateral arm can be used to mount the crossholder.

The round middle part sits between the top and the bottom part. If longer columns are used they can be wound around this part.



**Warning: During operation the surface of the oven can get very hot!**



*Fig. 03: Oven (top-, bottom-, middle-part and crossholder) exploded view*

# Controller

The controller contains the regulator and the power stage as well as the serial interface to connect it to the instrument PC. Further it can be switched between two temperatures with the provided contact closure interface. If no serial port is available, a USB-to-serial adapter is provided.

The front view shows the connector for the connection between controller and oven. The rear view shows the connectors for the connection to the power supply, the PC and the contact closure interface.

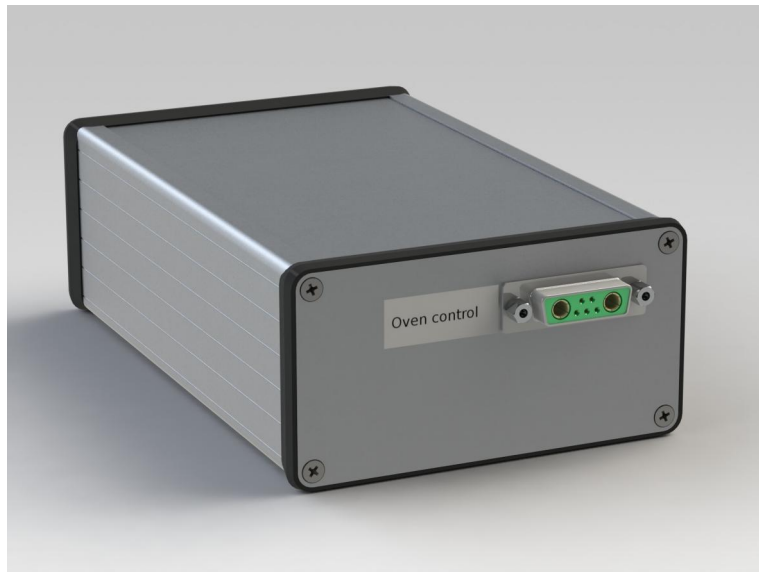


Fig. 04: Controller front view



Fig. 05: Controller rear view

# Installation



Before installing the oven, please make sure your instrument is switched to standby or at least the high voltage has been switched off.

## Hardware installation

The column oven has been developed for use with the original Proxeon source. For the newer Proxeon (now Thermo) source with the transparent safety hood, a conversion kit is available.

The oven can also be used with sources from other manufacturers. All that has to be done is a mechanical adaption to the source. Please call Sonation if a conversion kit or an adapter is available for your source.

## Installation of the conversion kit

If the original Proxeon source without the transparent safety hood is used, this step can be skipped.

First the original transparent safety hood has to be removed. After removing the two screws it can be dismantled. Also the two camera holders have to be dismantled by removing the corresponding screws. The upper camera holder has to be replaced by the one in the conversion kit. The distance block has to be mounted between the left camera holder and the source. As last step mount the provided safety hood. Please see figure 06 for reference.

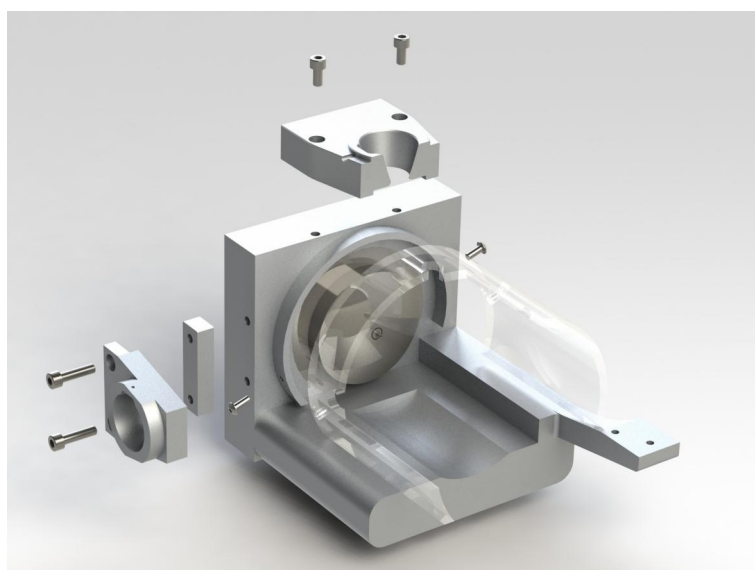


Fig. 06: Safety hood mounting

## Mounting the oven to the source

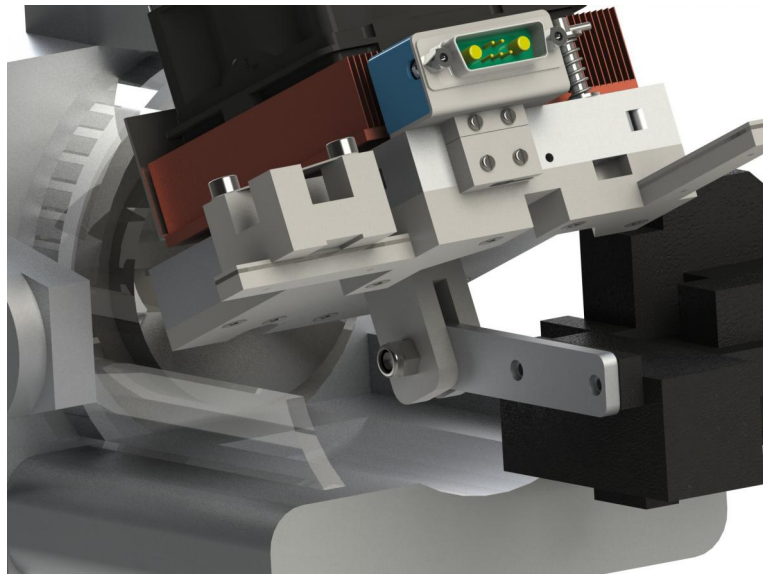


Fig. 07: Mounting

With the Proxeon respectively the newer Thermo source the installation is most simple. Just mount the oven by screwing it to the arm of the X-Y-Z-actuator with the provided screw and nut as shown on figure 07.

## Connecting the controller

Connect the 24-Volt power supply to the power connector. The power supply will be connected to a wall outlet later.



**The wide side of the plug faces the top of the control module, do not force it in twisted.**

Connect the controller with the provided RS232 cable to an available com-port on your instrument PC. The remaining two open leads of this cable are connected to the 'contact closure out' of your instrument. If there is no com-port available, please use the provided USB-to-com adapter.

Now connect the cable between the controller and the oven.

## Column loading

Open the oven by turning the little spring loaded handles at the front and back of the oven. The upper part can be removed now. Install your column either



through the front- or left side gap, depending on the column length. Longer columns enter through the left

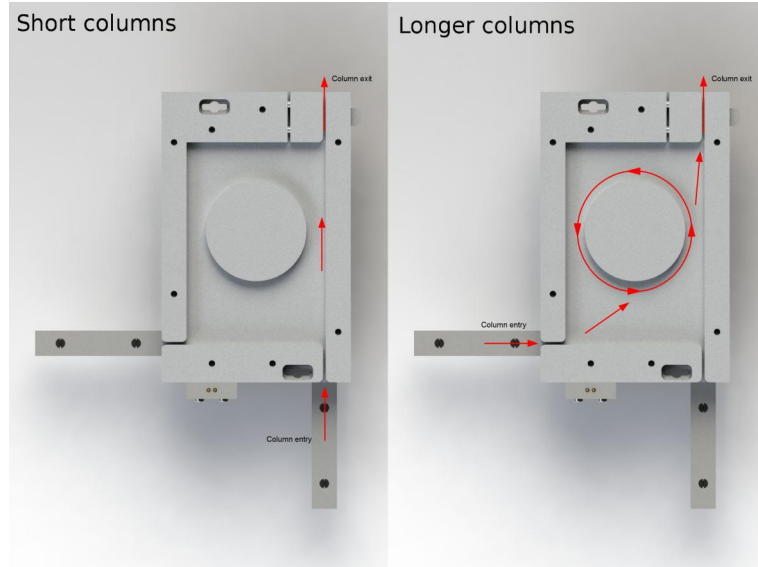


Fig. 08: Column loading

side gap and can be wound around the round middle part as often as needed. Install your T- or cross piece into the cross holder. It can slide on the left or front rail and is held down by a magnet. The exit end of your column should point out 15-20 mm. It is held in place by the spring loaded clamp.



**Do not use any adhesive tape or other temperature sensitive materials inside the oven.**

Now reinstall the upper part of the oven and plug in the power cord from the power supply to a wall outlet.

The oven is now ready to use.

## Software Installation

### Installing the oven control software

To install the oven control software, just copy the directory COControl from the provided CD to your desktop or any other place on your computer. If you save the directory directly on your desktop you can start the software by simply doubleclicking the COControl.exe. If you have the directory somewhere else, it makes sense to create a shortcut pointing to the COControl.exe and put it on your desktop.

The software also needs an installed Microsoft .NET. If the software won't start and throws an error message showing .NET is missing, just install it from the provided CD.

# Control

## Using COControl

After starting the software it comes up with the main view.

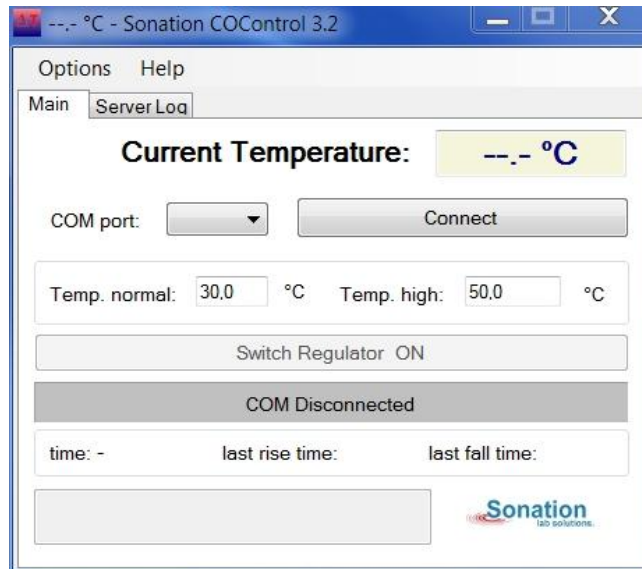


Fig. 09: COControl

Choose the COM-port to which the controller is connected and click "connect". Now you should see the current temperature of the oven in the display in the upper right. If no temperature is displayed, please ensure that the upper part of the oven sits proper on the bottom part. If the oven is open, no temperature will be displayed.

In the main view you can also adjust the two temperature setpoints "Temp. normal" and "Temp. high".

By clicking "Switch regulator on" the regulator starts to heat or cool the oven to one of the setpoints, depending on the state of the contact closure input.

To visualize the temperature profile, a graph window

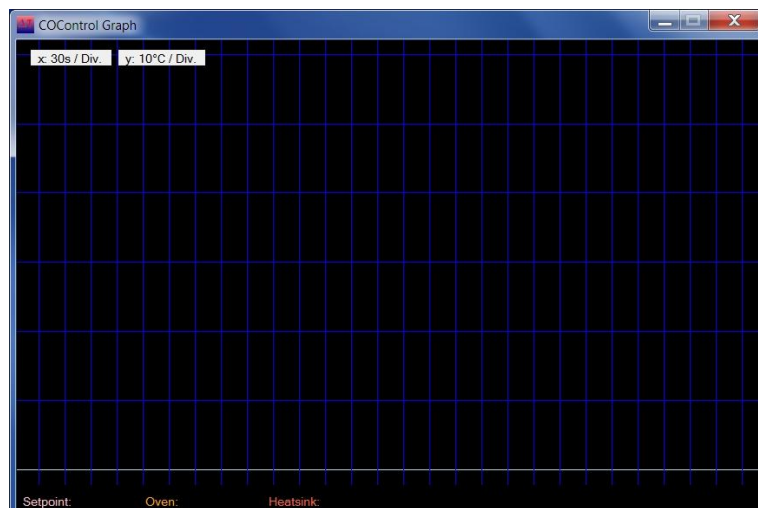


Fig. 10: Graph view of COControl

can be displayed. To show it up, chose "Options>Graph window" from the main menu.

In the settings window under "Options>Settings" the graph window can be started automatically on startup.

It is possible to unlock an extended temperature range. If your application requires higher or lower temperatures, please ask Sonation for an option code. But also keep in mind that a higher temperature range is stress for the Peltier-modules and can lead to a shorter lifetime.

## Setting up an instrument method

If the oven regulates the temperature to the lower or the higher setpoint is up to the state of the contact closure input. Open means normal temperature, shortened means high temperature.

This can be done automatically by an instrument method in Xcalibur. Please refer to your Xcalibur manual to get more information on how an instrument method can be created.

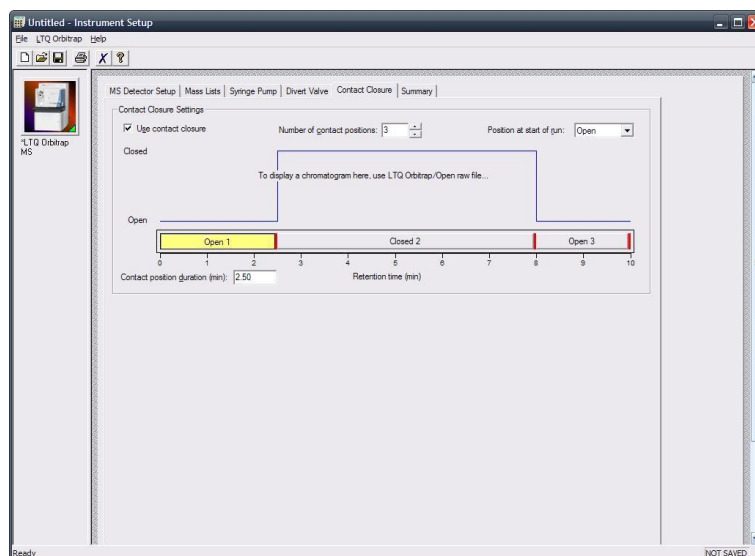


Fig. 11: Xcalibur Instrument method

Please keep in mind that the oven needs around 100 seconds to heat up from 30°C to 50°C and around 200 seconds to cool down back to 30°C.

## FAQ - Frequently Asked Questions

Q: My PC does not have any COM-ports / no available COM-ports. Can I run the oven anyhow?

A: Yes. Please use the provided USB to serial converter to install a virtual com-port.

Q: I've successfully connected to the oven but can still see no temperature. What is wrong?

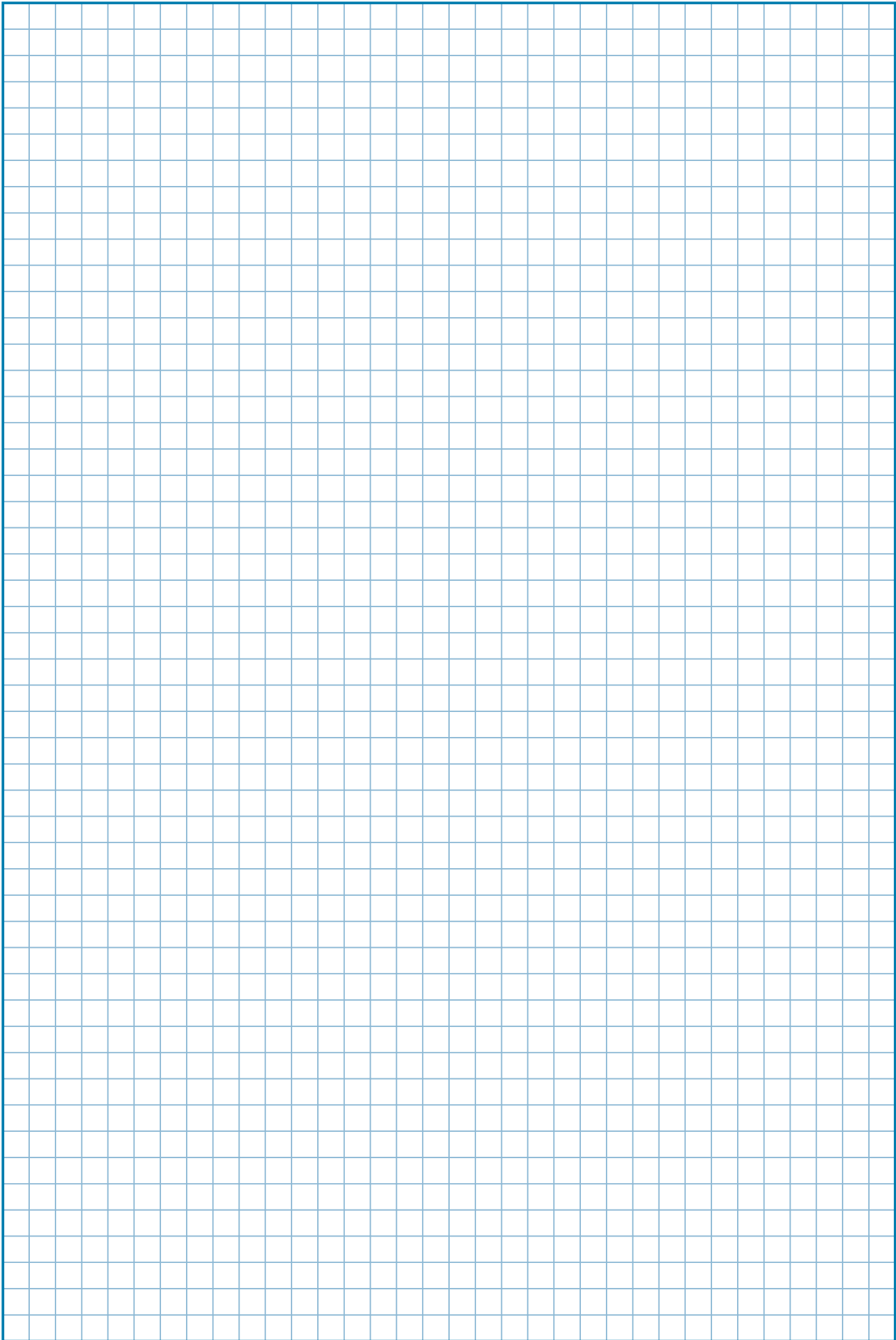
A: Please ensure that your oven is closed properly. When the oven is open or even not properly closed, the temperature sensor cannot be read.

Q: Is it possible to set up higher temperatures than 50°C or lower temperatures than 30°C

A: Yes, it is possible. Please ask Sonation for an option code, but remember that the lifetime of the Peltier-elements will be lowered because of the additional thermal stress.

## Notes

A large grid of graph paper for taking notes, consisting of 20 columns and 30 rows of small squares. The grid is enclosed in a blue border.



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