# Incucenter ICN52/118

## User Manual


swiss made +

# User Manual Incucenter ICN52 / 118

# CE DECLARATON OF CONFORMITY

CE

## Declaration of Conformity

**Wir**
**We** **Renggli AG / SalvisLab**
**Nous**

(Name des Anbieters) (supplier's name) (nom du fournisseur)

**Birkenstrasse 31, CH-6343 Rotkreuz**

(Anschrift) (address) (adresse)

erklären in alleiniger Verantwortung, dass das Produkt
declare under our sole responsibility that the product
déclarons sous notre seule responsabilité que le produit

**Incubator** **ICN 52 / 118**

**Year of Construction** **2009**

(Bezeichnung Typ oder Modell, Los-, Chargen- oder Seriennummer, möglichst Herkunft und Stückzahl)
(name, type or model, lot, batch or serial number, possibly sources and numbers of items)
(nom, type ou modèle, no de lot, d'échantillon ou de série, éventuellement sources et nombre d'exemplaires)

auf das sich diese Erklärung bezieht, mit der/den folgenden Norm(en) oder normativen Dokument(en) übereinstimmt
to which this declaration relates is in conformity with the following standard(s) or other normative document(s)
auquel se réfère cette déclaration est conforme à la (aux) norme(s) ou autre(s) document(s) normatif(s)

(Titel und/oder Nummer sowie Ausgabedatum der Norm(en) oder der anderen normativen (Dokumente)
(title and/or number and date of issue of the standard(s) or other normative document(s)
(titre et/ou no et date de publication de la (des) norme(s) ou autre(s) document(s) normatif(s)

Gemäss den Bestimmungen der Richtlinien; following the provisions of Directives; conformément aux dispositions des Directives; (falls zutreffend) (if applicable) (le cas échéant)

**Safety EN 61010-1:2001** **Safety EN 61010-2:2003**
**Low voltage directive 2006/95/EC** **EMC directive 2004/108/EC**

(Ort und Datum der Ausstellung)
(Place and date of issue)
(Lieu et date)

(Name/Unterschrift oder Kennzeichnung des Befugten)
(name and signature or equivalent marking of authorised person)
(nom et signature du signataire autorisé)

Rotkreuz, 12.10.2009

Marcel Käppeli
Technical Manager

# Important Information

## Information for Service

Please fill out all necessary information about your Vacucenter

| | |
|---|---|
| SERIAL NUMBER | |
| TYPE | |
| PHONE NUMBER SERVICE | |
| PURCHASE DATE | |
| SOFTWARE VERSION<br>(See Display during Power ON) | |

# Technical Data

| | | | ICN 52 | ICN 118 |
|---|---|---|---|---|
| **Outer Dimension** | | | | |
| Width | | mm | 460 | 570 |
| Height (incl. feet) | | mm | 525 | 650 |
| Depth | | mm | 590 | 720 |
| Clearance distance from back wall | | mm | 100 | 100 |
| Clearance distance from side wall | | mm | 100 | 100 |
| **Inner Dimension** | | | | |
| Width | | mm | 340 | 450 |
| Height | | mm | 370 | 500 |
| Depth | | mm | 410 | 530 |
| Internal Volume | | L | 52 | 118 |
| Wire shelf | | Standard/max | 2/8 | 2/8 |
| Wire shelf dimension (WxD) | | mm | 330x365 | 437x495 |
| Distance between shelf | | mm | 40 | 40 |
| Max. load per shelf | | kg | 10 | 10 |
| Max. load per oven | | kg | 40 | 40 |
| Weight from oven (empty) | | kg | 45 | 55 |
| **Temperature data** | | | | |
| Temperature Range approx. > 5°C oRt to | | °C | 80 | 80 |
| Temperature Variation [1] | at 37°C | ± °C | 0.5 | 0.5 |
| | at 50°C | ± °C | 0.7 | 0.8 |
| Temperature fluctuation [2] | at 37°C | ± °C | 0.1 | 0.1 |
| | at 50°C | ± °C | 0.1 | 0.2 |
| Heating up time [3] | to 37°C | Min | 25 | 41 |
| | to 50°C | Min | 50 | 70 |
| Recovering time after 30 sec door opening [3] | at 37°C | Min | 6 | 7 |
| | at 50°C | Min | 8 | 9 |
| **Electrical data** | | | | |
| Power supply (±10%) 50/60 Hz | | Volt | 230 | 230 |
| Nominal Wattage | | Watt | 450 | 550 |
| Energy consumption | at 37°C | Watt | 125 | 130 |
| Housing protection (EN 60529) | | | IP20 | IP20 |
| **Recommended ambient values** | | °C | 15 – 25 | 15 – 25 |
| | | RhF% | 20 - 60 | 20 - 60 |
| **Equipment** | | | | |
| Microprocessor -Temperature Controller LCD Display | | | Yes | Yes |
| Timer | | Hours / Min. | 999 / 59 | 999 / 59 |
| RS232 Interface | | | Yes | Yes |
| Automatic Restart after Power Cut-Off | | | Yes | Yes |
| Adjustable Print Interval | | | Yes | Yes |
| Programming | | Program / Step | 50 / 15 | 50 / 15 |
| Ramp function | | | Yes | Yes |

1) Measured with 3 temperature probes on horizontal level / divided in 1/3 of the chamber size
2) maximum temperature deviation in time for one temperature probe
3) to 98% of set temperature

All technical specification are specified for units with standard equipment at an ambient temperature of 25 °C (77 °F) and a voltage fluctuation of ±10 %. The temperature data are evaluated in accordance to following DIN 12880, part 2 respecting the recommended wall clearances of 10 % of the height, width and depth of the inner chamber. All indications are average values, typical for units produced in series. Differing ambient temperatures or variances in the design of individual equipment may produce different performance. We reserve the right to alter technical specifications at all times without prior notice.

# Introduction

## Overview

The Incucenter ICN is a Incubator with **natural convection** and a Microprocessor Controller with enhanced Fuzzy Logic. It allows precise ramping of temperature as well as an excellent reproduction of temperature distribution in the chamber.
Special Insulation - Less heat loss. Saves energy and costs.
Robust Swiss quality design – Made for scientific applications
Work Chamber made of stainless steel and provided with wire shelf
Exterior is of textured powder coated mild steel

## Applications

The Incucenter is designed for all purposes of incubation in a variety of laboratory fields.
All Systems have a controller with alphanumeric display and programming capabilities.
Temperature range up to 80°C.

**Note:** The Incucenter is not built to use as ovens for drying substances which are explosive or let free explosive gases during the drying process.

## Construction

Extremely compact construction. Saves valuable space in the lab.
Inner chamber made of stainless steel.
For max. 8 wire shelves.
Door seal can easily be removed for cleaning or replacing.
The door handle is integrated in the door. No hot surfaces. There is no risk of injury or burn.

## Controller

Fuzzy Logic Microprocessor controller with digital alphanumeric LCD-Display and real time clock.
Wide range of temperature ramping functions. More user application. In combination with Fuzzy Logic gives you an excellent stability of temperature distribution and accuracy of programmed values.
Brilliant LCD Display for user dialog and easy to operate keypad for fast programming and operating.
User dialog with controller is displaying your local language. Up to five languages can be selected.
Easy to operate and programming with EasyMenu
It allows the storage of 50 programs with 15 program steps (step = 1 ramp, 1 temperature and 1 Hold Time). The programs remain stored in the memory even without external power
Holding Time 0 - 999h 59m
The real time clock allows a process to be started at any time – i.e.: on December 6, 2009 / 10:30 PM
RS232 interface. All data can be achieved with a printer or computer.
Door switch interrupts heating during open door.

## Safety / Power Cut-Off

DIN 12880 class 3.1
In case of over temperature, a built in safety controller as a back-up circuit takes over the control of the heating and will shutdown the oven.
There is also an additional mechanical over temperature device which shuts down the oven.
After a Power Cut-Off the Controller restarts automatically and the last stored values will be maintained again (only for Menu Temp & Options)
High quality accurate PT 100 temperature sensor.
Superior "Swiss Made" manufacturing quality.

# Getting Started

## Parts Delivered

Your System will be delivered with following Parts:
1 System Unit
2 Wire Shelf
1 Power Cord
1 User Manual

## Installation Requirements

Electric power connection as per Serial Number plate on the inner door

## Installing

Place shelf in appropriate position
Plug cord
Close door
Switch power on
Display shows current Software version during power on sequence
To start oven see chapter Operating Menu

## Cleaning

To clean the System use mild detergents. No Acid or similar detergents should be used.

## System Components

1 Air Exhaust
2 Flap for Exhaust
3 Air Inlet
4 Door Handle
5 Controller
6 RS232 Interface
7 Shelf Glider
8 Wire Shelf
9 Spring loaded door lock
10 Door Switch to indicate a open door (alarm switch)


## Controller


To control the system the controller has few “easy to use” buttons.
Simply turn / press desired button.
All information are displayed on a Liquid Crystal Display (LCD).

LED indicators for status of Power, Heating and Program are used to indicate the main process status.

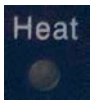
Buzzer is indicating audible Status or Alarm situation

## Keypad & Display

### *Buttons*

| | | | |
|---|---|---|---|
|  | ↻ | Down | Scroll through the menu structure |
|  | ↻ | Plus | Increase a value in flashing input fields , select multiple choices;<br>Input value must flash to make ↻ button operable |
|  | ↺ | Minus | Decrease a flashing value, select multiple choices;<br>Input value must flash to make ↺ button operable |
|  | ↵ | Enter | Confirm a menu selection, a value input or an answer choice |
|  | **ESC** | Escape | Cancel actual operation, goes back in Menu Structure, quit actual state |
|  | | ON/OFF | Switch ON or OFF your System. When ON LED is lit |

### *LED Indicators*




When **lit**: Heat Power is on


When **lit**: You are running a program
When **flashing**: Delayed start for a program is entered

## How to interpret Displays Messages described in this Manual

### Power ON Sequence


By pressing the power ON button, the display will show the Software version. All data's and stored information's are loaded during this process. After a while display will show Main Menu

### Input Field


A input value which is highlighted with yellow (grey Background) means this value is flashing on the real display.

### Multiple Input Fields


If you reach a multiple input display, the first part (... of 3 in this example) of the input field is flashing to indicate input here. Flashing input fields are changed with ↻ or ↺

### Multiple Choice Fields


In a multiple choice field the last actual saved value is flashing.
Change with ↻ or ↺ and confirm with ↵

### *Definitions of terms*

#### What is a Set Temperature?

A Set Temperature is the target temperature you want operate the oven with.

#### What is a Gradient?

A Gradient is the slope of the heating up process to the specific Set Temperature.
It is indicated as °C / Minute. Negative Gradients are not allowed. The maximal value of a gradient is system depending and has a range and is pre-defined by the factory setup.

#### What is a Hold Time?

A timer is used to specify how long a set temperature has to be hold. The timer starts counting back when 98% of the set temperature is reached. The maximal time you can set is: 999 hours and 59 minutes. This is equal to 41 days, 15 hours and 59 minutes.

#### What is a Start Date/Time

If you are using this feature you will be able to set a date/time to start a process or a program in the future.

# Main Menu - Overview

**General operation buttons**

In general you can scroll through the menu points with the ↻ button.

Select the desired menu point with ↵

## 1 Temperature & Options


**Manual Operation:** Define a set temperature and options like Gradient and Hold Time

↻ Change Menu

↵ Accept Menu ➔ **1.1**

**ESC** returns to ➔ **1**

## 2 Program


**Programmed Operation**: The menu Program is divided in menus for creating, editing, deleting, starting and printing programs

↻ Change Menu

↵ Accept Menu ➔ **2.1**

**ESC** returns to ➔ **1**

## 3 Configuration


This menu point allows you to configure the system

↻ Change Menu

↵ Accept Menu ➔ **3.1**

**ESC** returns to ➔ **1**

## 4 Service Mode


This menu point is protected by a access code and has limited access for the user

↻ Change Menu

↵ Accept Menu ➔ **4.1**

**ESC** returns to ➔ **1**

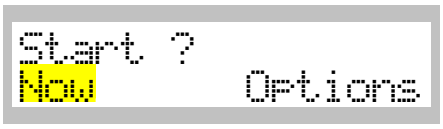
# 1 Main Menu - Temp & Options


**Manual Operation:** Define a set temperature and options like Gradient, Hold Time (Dwell Time) and Start date/time
↵ Accept menu ➔ **1.1**
**ESC** returns to ➔ **1**

## 1.1 Set Temperature

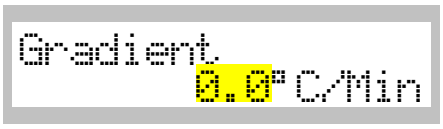

↻ ↺ Change value
↵ Accept value ➔ **1.2**
**ESC** restores the old value or returns to ➔ **1**

## 1.2 Select Quick Start or Start with Options




↻ ↺ Change answer
↵ Accept answer
If **Now** selected: System will start immediately ➔ **6**
If **Option** selected ➔ **1.3**
**ESC** cancels and returns to ➔ **1**

## 1.3 Set Gradient




↻ ↺ Change value
↵ Accept value ➔ **1.4**
**ESC** restores the old value or returns to ➔ **1**
**Note: Value of 0.0 means maximum heating power up to set temperature!**

## 1.4 Set Holding Time (dwell time)


↻ ↺ Change value
↵ Accept value and skips to the next input field (HH➔MM) or stores the time and go to ➔ **1.5**
**ESC** restores the old value and skips back one input field (MM➔HH) or goes back to ➔ **1**
**Note: Value of 00:00 means endless Holding Time**

## 1.5 Set Start-Date


↻ ↺ Change value
↵ Accept value and skips to the next input field (DD➔MM➔YY) or stores the date and go to ➔ **1.6**
**ESC** restores the old value and skips back one input field (YY➔MM➔DD) or goes back to ➔ **1**

## 1.6 Set Start Time


↻ ↺ Change value
↵ Accept value and skips to the next input field (HH➔MM) If Start Date/Time is in the **past** you will see the operating display ➔ **6**
If Start Date/Time is in the **future** you will see the status display ➔ **5**
**ESC** restores the old value and skips back one input field (MM➔HH)

# 2 Main Menu - Program


**Program Operation**: The menu Program is divided in menus for creating, editing, deleting, starting and printing programs.
↻ Scroll through the menu
↵ Accept menu ➔ **2.1**
**ESC** returns to ➔ **1**

## 2.1 Menu Program - Start


Start a stored program
↻ Scroll through the menu
↵ Accept menu ➔ **2.1.1**
**ESC** return to ➔ **2**

## 2.2 Menu Program - New


Create a new program
↻ Scroll through the menu
↵ Accept menu ➔ **2.2.1**
**ESC** return to ➔ **2**

## 2.3 Menu Program - Edit


Edit a stored existing program
↻ Scroll through the menu
↵ Accept menu ➔ **2.3.1**
**ESC** return to ➔ **2**

## 2.4 Menu Program - Delete


Delete a stored program
↻ Scroll through the menu
↵ Accept menu ➔ **2.4.1**
**ESC** return to ➔ **2**

## 2.5 Menu Program - Print


Print a stored program
↻ Scroll through the menu
↵ Accept menu ➔ **2.5.1**
**ESC** return to ➔ **2**

## 2.1 Menu Program - Start


Start an existing Program
↵ Accept menu ➔ **2.1.1**
**ESC** returns to ➔ **2**

### 2.1.1 Select Program #


↻ ↺ Change value
↵ Accept value ➔ **2.1.2**
**ESC** returns to ➔ **2.1**
**Note:** Only stored Program Numbers will appear in the display. If no Program exist a message will be displayed.

### 2.1.2 Choose type of program start


↻ ↺ Change answer
↵ Accept answer
If **Now** selected: Program starts immediately ➔ **6**
If **Later** selected :➔ **2.1.3**
**ESC** returns to ➔ **2.1**

### 2.1.3 Set Start Date


↻ ↺ Change value
↵ Accept value and skips to the next input field (DD ➔ MM➔YY) or stores the date and go to ➔ **2.1.4**
**ESC** restores the old value and skips back one input field (YY➔MM➔DD) or goes back to ➔ **2.1**

### 2.1.4 Set Start Time


↻ ↺ Change value
↵ Accept value and skips to the next input field (HH ➔MM) If the Start Date/Time is in the **past**, the display will return back to ➔ **2.1.2**
If your Start Date/Time is in the **future** you will see the operating display ➔ **7**
**ESC** restores the old value and skips back one input field (MM➔HH) or goes back to ➔ **2.1**

## 2.2 Menu Program - New

The storage capacity is 50 Programs with 15 Steps/Program. Each Step contains Set Temperature, Gradient, and Hold Time.
The following sample assumes creating a Program #4 with 2 Steps.


Create a new Program
↵ Accept menu ➔ **2.2.1**
**ESC** returns to ➔ **2**

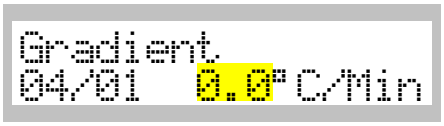
### 2.2.1 Create a new program


↻ ↺ Change value
↵ Accept value ➔ **2.2.2**
**ESC** returns to ➔ **2.2**
**Note**: Only free Program Numbers will appear in the display

### 2.2.2 Set Temperature – Step 1

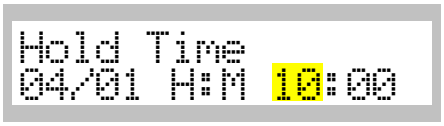

↻ ↺ Change value
↵ Accept value ➔ **2.2.3**
**ESC** restores the old value or returns to ➔ **2.2** and the step 1 as well as selected program number is not stored!

### 2.2.3 Set Gradient – Step 1




↻ ↺ Change value
↵ Accept value ➔ **2.2.4**
**ESC** restores the old value or returns to ➔ **2.2** and the step as well as selected program number is not stored
**Note:** A value of 0.0 means maximal heating power

### 2.2.4 Set holding time (dwell time) – Step 1

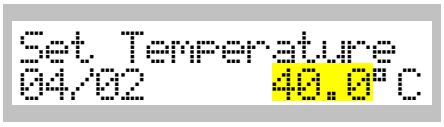



↻ ↺ Change value
↵ Accept value and skips to the next input field (HH➔MM) ➔ **2.2.5**
**ESC** restores the old value and skips back one input field (MM➔HH) or goes back to ➔ **2.2** and the step 1 as well as selected program number is not stored!
**Note: A value of 00:00 means endless holding time and program will not go to next step**

### 2.2.5 Choose if a additional step is required


↻ ↺ Change answer
↵ Accept answer
If Yes selected: step number will increment with 1➔ **2.2.6**
If No selected: ➔ **2.2.1**

### 2.2.6 Set Temperature – Step 2




↻ ↺ Change value
↵ Accept value ➔ **2.2.7**
**ESC** restores the old value or **if in step 2 and higher** returns to ➔ **2.2.5** but the actual step will not be saved!

### 2.2.7 Set Gradient – Step 2


↻ ↺ Change value
↵ Accept value ➔ **2.2.8**
**ESC** restores the old value or **if in step 2 and higher** returns to ➔ **2.2.6** but the actual step will not be saved!

### 2.2.8 Set Holding Time – Step 2


↻ ↺ Change value
↵ Accept value and skips to the next input field (HH➔MM) or stores the time and go to ➔ **2.2.9**
**ESC** restores the old value and skips back one input field (MM➔HH) or **if in step 2 and higher** returns to ➔ **2.2.7** but the actual step will not be saved!
**Note: A value of 00:00 means endless holding time and program will not go to next step**

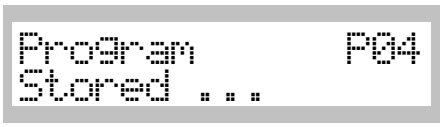
### 2.2.9 Choose if a additional step is required


↻ ↺ Change answer
↵ Accept answer
If **Yes** selected: step number will increment with 1➔ **2.2.2**
If **No** selected: ➔ **2.2.10**

### 2.2.10 End of programming sequence


↻ ↺ Change answer
↵ Accept answer
If **Yes** selected: ➔ **2.2.11**
If **No** selected: ➔ **2.2.9**

### 2.2.11 Confirming & Saving the new program




Confirmation that the new program has been stored
After a few seconds Display will return to ➔ **2.2**

## 2.3 Menu Program- Edit

The example assumes to edit the program #4 with 2 steps


Edit an existing program
↵ Accept menu ➔ **2.3.1**
**ESC** returns to ➔ **2**

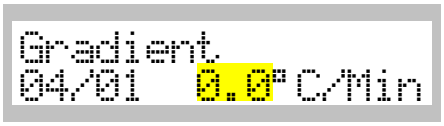
### 2.3.1 Choose program / step to edit


↻ ↺ Change value
↵ Accept value and skips to the next field (P➔S) or ➔ **2.3.2** (to the selected Step Number respective)
**ESC** returns to ➔ **2.3**
**Note**: Only stored programs/steps will appear in the display

### 2.3.2 Set Temperature – Step 1


↻ ↺ Change value
↵ Accept value ➔ **2.3.3**
**ESC** restores the old value or returns to ➔ **2.3** and the step 1 as well as selected program number is not stored!

### 2.3.3 Set Gradient – Step 1

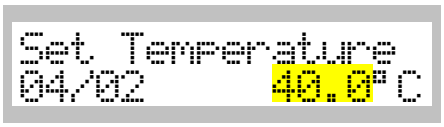



↻ ↺ Change value
↵ Accept value ➔ **2.3.4**
**ESC** restores the old value or returns to ➔ **2.2** and the step as well as selected program number is not stored
**Note:** A value of 0.0 means maximal gradient

### 2.3.4 Set Hold Time (Dwell Time) – Step 1


↻ ↺ Change value
↵ Accept value and skips to the next input field (HH➔MM) or stores the time and go to ➔ **2.3.5**
**ESC** restores the old value and skips back one input field or goes back to ➔ **2.3** and step 1 is not stored!
**Note: Value of 00:00 means endless holding time and program will not go to next step**

### 2.3.5 Set Temperature – Step 2




↻ ↺ Change value
↵ Accept value ➔ **2.3.6**
**ESC** restores the old value or **if in step 2 and higher** returns to ➔ **2.3** but changes to the actual step will not be saved!

### 2.3.6 Set Gradient – Step 2


↻ ↺ Change value
↵ Accept value ➔ **2.3.7**
**ESC** restores the old value or **if in step 2 and higher** returns to ➔ **2.3** but changes to the actual step will not be saved!

### 2.3.7 Set Holding Time – Step 2


↻ ↺ Change value
↵ Accept value and skips to the next input field (HH➔MM) or stores the time and go to ➔ **2.3.8**
(MM➔HH) or **if in step 2 and higher** returns to ➔ **2.3** but changes to the actual step will not be saved !
**Note: Value of 00:00 means endless holding time and program will proceed to next step**

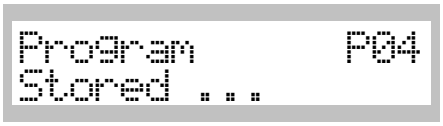
### 2.3.8 Choose if a additional step is required


↻ ↺ Change answer
↵ Accept answer
If Yes selected: step number will increment with 1➔ **2.3.2**
If No selected: ➔ **2.3.11**

### 2.3.9 End of programming sequence


↻ ↺ Change answer
↵ Accept answer
If Yes selected: ➔ **2.3.11**
If No selected: ➔ **2.3.9**

### 2.3.10 Confirming & Saving the new program




Confirmation that the edited program has been stored
After a few seconds Display will return to ➔ **2.3**

## 2.4 Menu Program - Delete


Delete an existing program
↵ Accept menu ➔ **2.4.1**
**ESC** returns to ➔ **2.4**

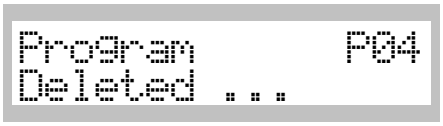
### 2.4.1 Choose program # to be deleted


↻ ↺ Change value
↵ Accept value ➔ **2.4.2**
**ESC** returns to ➔ **2.4**
**Note**: Only stored program numbers will appear in the display

### 2.4.2 Deletion selection will be displayed


↻ ↺ Change answer
↵ Accept answer
If Yes selected: ➔ **2.4.3**
If No selected: ➔ **2.4**

### 2.4.3 Deletion confirmation will be displayed




Confirmation that the selected program has been deleted
After a few seconds Display will return to ➔ **2.4**

## 2.5 Menu Program - Print


Print a program
↵ Accept menu ➔ **2.5.1**
**ESC** return to ➔ **2**

### 2.5.1 Choose program # to be printed


↻ ↺ Change value
↵ Accept value ➔ **2.5.2**
**ESC** return to ➔ **2**
**Note**: Only used program numbers will appear in the display

### 2.5.2 Displaying print in progress


Confirmation that the program has been printed
After a few seconds Display will return to ➔ **2.5**

# 3 Main Menu - Configuration

Configuration of the system by the user


In this menu point you can define and set system options
↵ Accept menu ➔ **3.1**

## 3.1 Select language


↻ ↺ Change language
↵ Accept language ➔ **3.2**
**Attention**:
After confirmation subsequent dialogs are displayed in the selected language

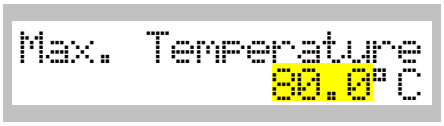
## 3.2 Set Actual Date for the Real Time Clock


↻ ↺ Change value
↵ Accept value and skips to the next input field (DD➔MM ➔YY) or saves the date and goes to ➔ **3.3**
**ESC** restores the old value and/or skips back one input field (YY➔MM➔DD)

## 3.3 Set Actual Time for the Real Time Clock


↻ ↺ Change value
↵ Accept value and skips to the next input field (HH➔MM) or saves the time and goes to ➔ **3.4**
**ESC** restores the old value and/or skips back one input field (MM➔HH)

## 3.4 Set allowed max. Temperature




Set the maximal possible temperature value for manual operation (Main Menu / Temp & Option)
↻ ↺ Change value
↵ Accept value➔ **3.5**
**ESC** restores value

## 3.5 Set Print interval for Printer Log via RS232 Interface


Set the Print Interval time. A value of 00:00 will disable printout of operating values
↻ ↺ Change value
↵ Accept value and skips to the next input field (HH➔MM➔SS) and goes to ➔ **3.6**
**ESC** restores the old value and/or skips back one input field (SS➔MM➔HH)

## 3.6 Set automatic interval to scroll status displays


Select if operation display will switch automatically instead of manual switching by ↻
↻ ↺ Change value
↵ Accept value ➔ **3.7**

### 3.7 Select Baud Rate for RS232 Interface


Available Baud Rate are 4800/9600/57600/115200
↻ ↺ Change value
↵ Accept value ➔ **3.8**

### 3.8 Set Program End Buzzer


Buzzer will give an audio signal when program has finished
↻ ↺ Change answer
↵ Accept answer ➔ **3.9**

### 3.9 Set Safety Alarm Buzzer


In a case of an over temperature alarm situation, the Buzzer will give an audio signal
↻ ↺ Change answer
↵ Accept answer ➔ **3.10**

### 3.10 Set Offset between internal PT100 Sensor and actual Display


Offsets the internal PT100 sensor with the actual displayed temperature. Calibrate with an external temperature sensor.
↻ ↺ Change value
↵ Accept value ➔ **3.11**
**ESC** restores value

### 3.11 Confirmation of Storing Entered Values


Confirmation that the Configuration has been Stored.
After a few seconds Display will return to ➔ **3**

# 4 Menu Service Mode


End user has only access to the History Data's
↵ Accept menu


↵ ↻ ↺ Change value to 8
↵ Accept value
Repeat until Display shows 888
↵ Accept last value


The number (11) indicates how many entries are stored
↵ Accept menu


Display shows in the first line Date and Time when the entry was stored. Second line shows the code for the Stored value/message
↻ Change to next entry


↵ ↻ ↺ Change to next/previous entry
↵ Back to Main Display History


↻ Change to next input field


↵ ↻ ↺ Change answer
↵ Accept answer
After a few seconds Display will return to ➔ **1**

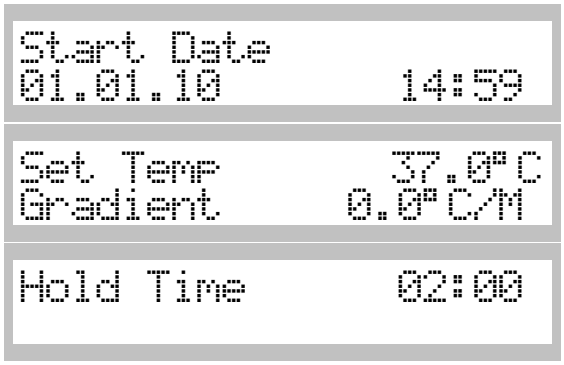
## Status Displays

### General

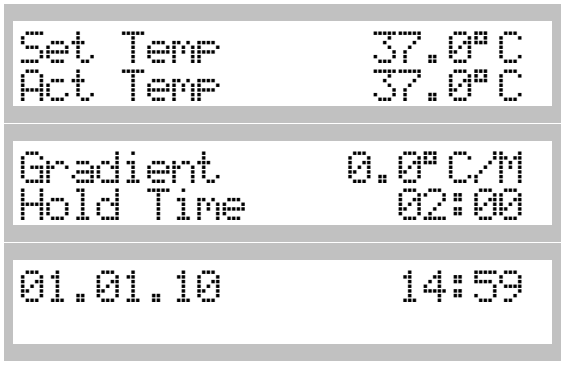
Change the display with ↻ ↺ or set Display Interval to yes in Menu Configuration to let change the display automatically.
The display will differ according to the installed options

### 5 Status Display: Manual Mode – Defined Start Date

If the programmed start date/time has achieved the systems starts. The display switches to ➔ 6

| | |
|---|---|
|  | Start Date and Time<br>↻ to next set of operating display<br><br>Set Temperature and Gradient<br>↻ to next set of operating display<br><br>Hold Time (Dwell Time)<br>↻ returns to first set of operating display |

### 6 Status Display: Manual Mode – Process Running

| | |
|---|---|
|  | Set Temperature and Actual Temperature<br>↻ to next set of operating display<br><br>Gradient and Hold Time<br>↻ to next set of operating display<br><br>Actual Date and Time<br>↻ returns to first set of operating display |

## 7 Status Display: Program mode - Defined Program Start Date

If the programmed Start Date/Time has achieved the system is running the selected program and the display switches to ➔ **8**


The LED „Prog“ is flashing as long as the defined start date/time has not been reached.

| | |
|---|---|
| Start Date P14<br>01.01.10 12:00 | Start Date and Program number<br>**ESC** Cancels the Start Date ➔ **9** |

## 8 Status Display: Program mode - Program Running


The LED „Prog“ is on during a programmed operation

| | |
|---|---|
| Set Temp 37.0°C<br>Act Temp 37.0°C | Set Temperature and Actual Temperature<br>↻ to next set of operating display |
| Gradient 0.0°C/M | Gradient<br>↻ to next set of operating display |
| Hold Time 00:59<br>01.01.10 12:00 | Hold Time and actual Date and Time<br>↻ to next set of operating display |
| Program 04<br>Step 01 | Program Number and Step Number<br>↻ returns to first set of operating display |

If the program has finished a buzzer will sound and the following message will be shown:

| | |
|---|---|
| Message:<br>Program finished | ↵ Accept message |

# 9 Cancel a Running Process by ESC Button

Pressing ESC stops a running heating cycle / program

## 9.1 Safety question when stopping a running system


↻ ↺ Change answer
↵ Accept answer
If **Yes** selected: ➔ **9.2**
If **No** selected: ➔ **Back to running status**

## 9.2 Conformation of cancelling a process


Confirmation that the running process has been stopped
After a few seconds display will return to Main Menu ➔ **1**

# 10 Messages and Errors

The messages and Errors are announced by a Buzzer and can be confirmed by pressing ↵

## Messages


Indicates that no program is in memory
↵ Accept message


Indicates that the program memory is full
↵ Accept message


Indicates that the door is open (manual process or starting a program)
↵ Accept message

## Errors


PT100 Sensor or cable defect
↵ Accept message
**Call Service!**


Temperature exceeded security range level
↵ Accept message
Cool down oven
**If error persist call Service!**


↵ Accept message
**Call Service!**

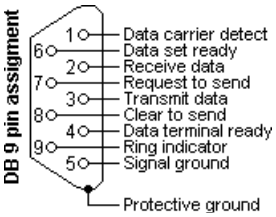
# Printer Operation

## Connecting a Printer

### *Printer Requirements*

In order to connect a printer with the serial RS232 Interface of the System, following requirements must be fulfilled : Serial RS232 Interface, Min. 4800 Baud Transfer Rate.

### *Pin Layout RS232 DB9 Connector System*




Used Pins: 2:TxD , 3:RxD and 5:Signal Ground
Data format: 8 Data Bits, 1 Stop Bit, No Parity
No specific protocol

## Examples for Different Printouts

### *Printout of a stored program*

To print the content of stored programs go to Menu "Print Program" ➔ 2.5

```
Program Nr::          1
Step::                1
Set Temperature:      37.0°C
Gradient:             0.0°C/Min
Hold time:            1:00HH:MM
```

### *Printout during a manual / program cycle*

In order to get printouts for logging you must set the print interval (see "Print Interval" ➔ 3.5) to a value greater than 00:00, otherwise it is disabled

**Manual Operation**

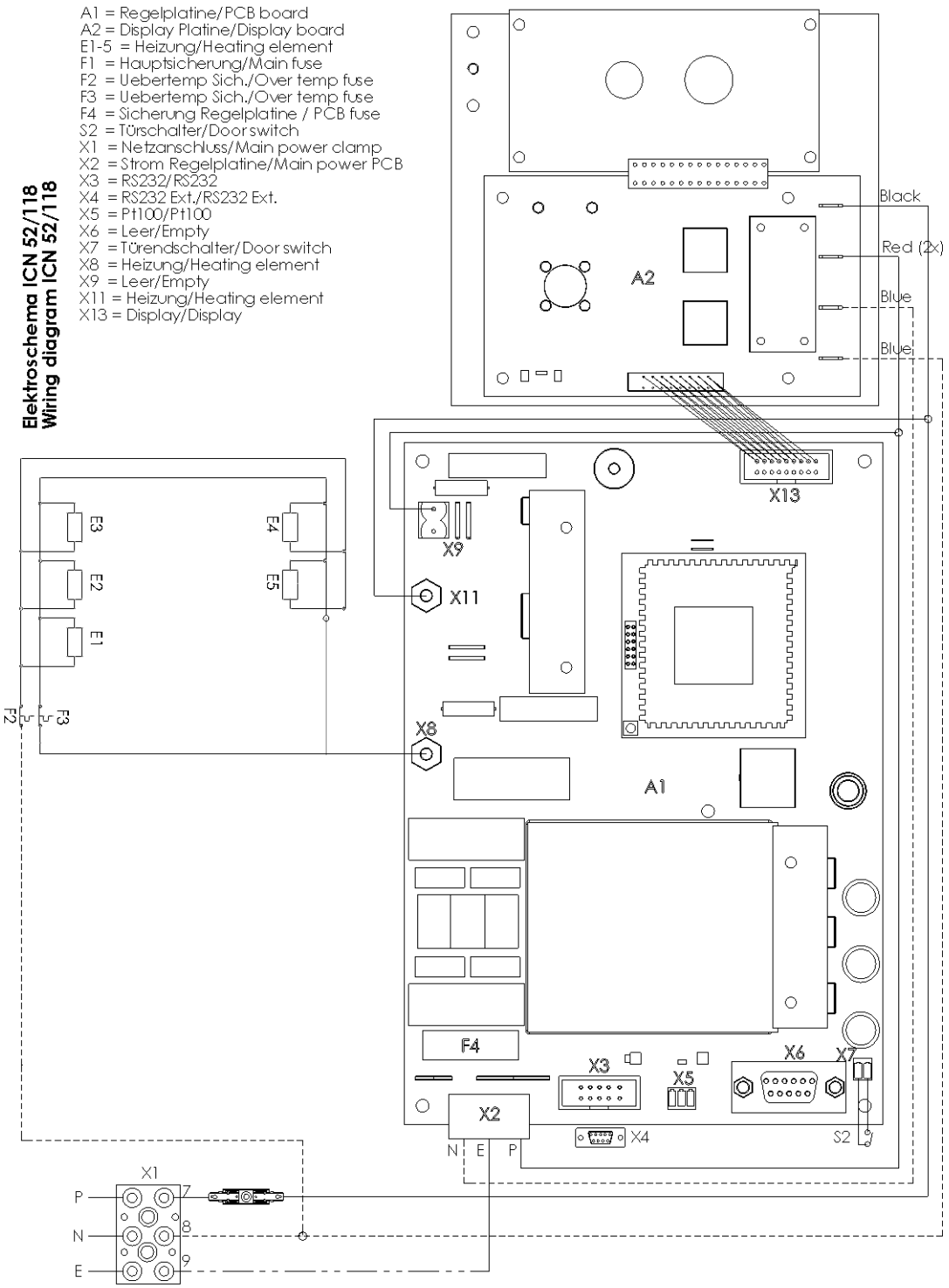
```
Date:                 01.01.10
Time:                 12:00
Set Temperature:      37.0°C
Act Temperature:      37.0°C
Gradient:             0.0°C/Min
```

**Programmed Operation**

```
Date:                 01.01.10
Time:                 12:00
Program:              4
Step:                 2
Set Temperature:      37.0°C
Act Temperature:      37.0°C
Gradient:             0.0°C/Min
Hold time:            1:00HH:MM
```

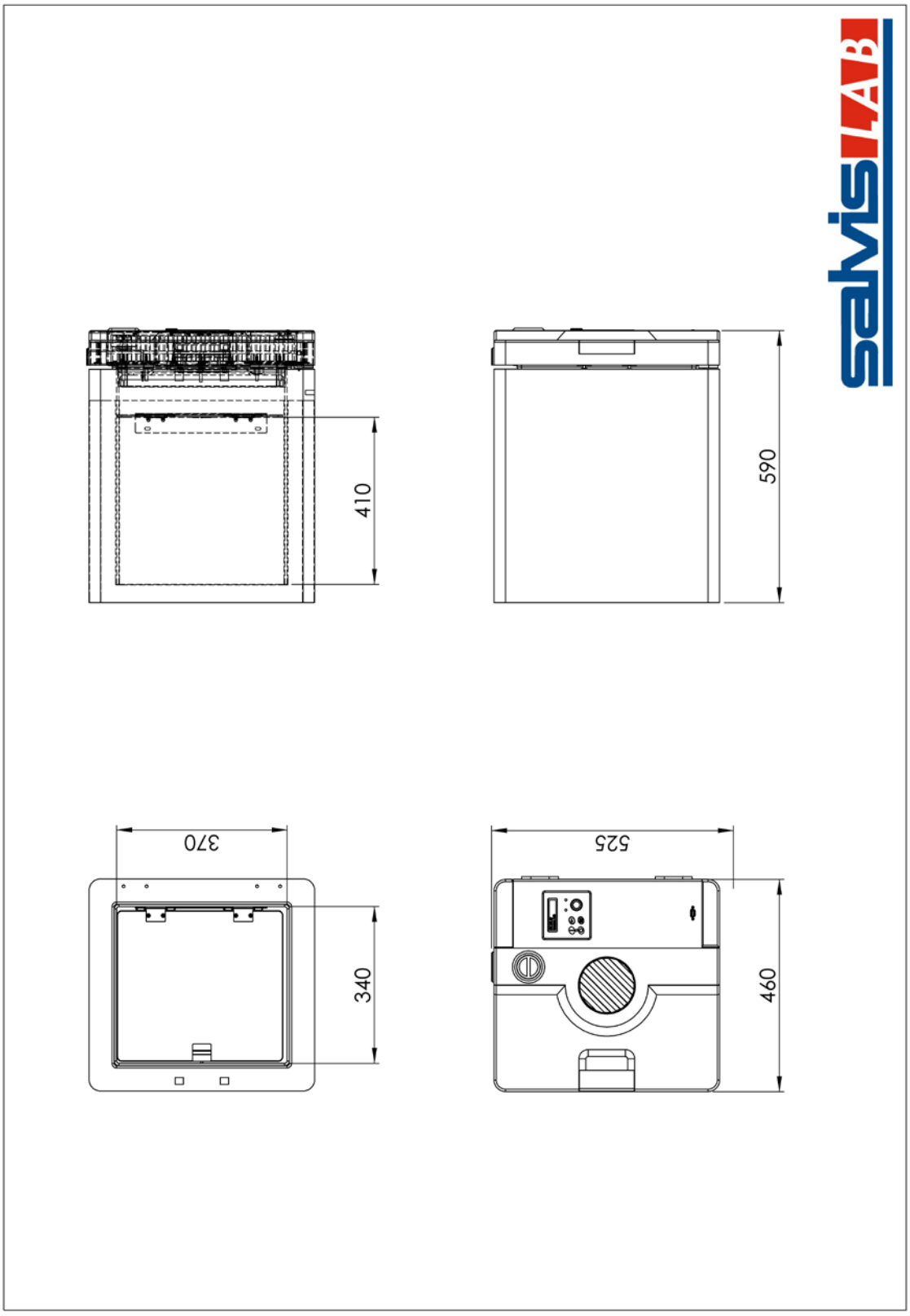
# Appendix A

## Wiring Diagram ICN



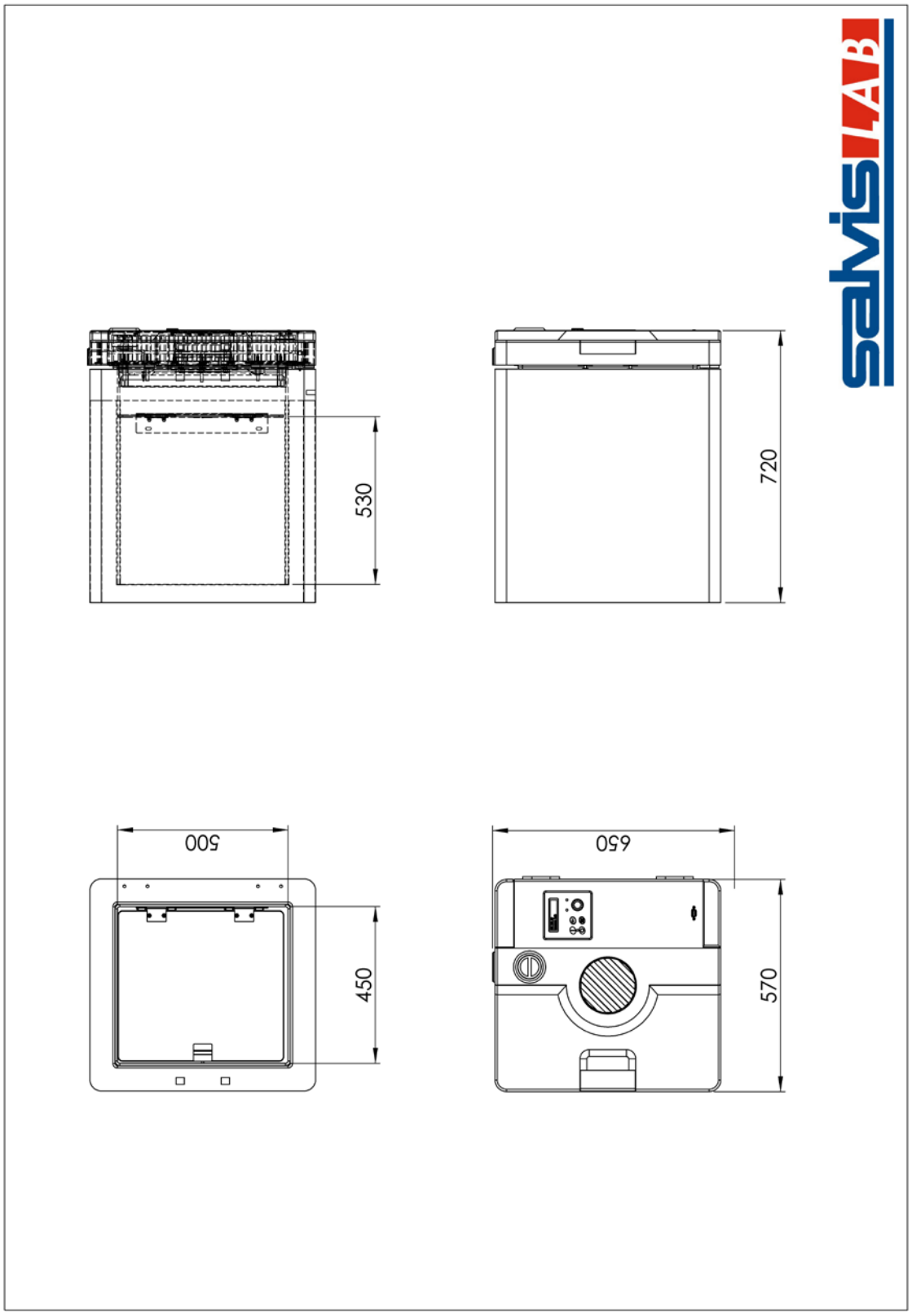
## Appendix B

# Drawing ICN52



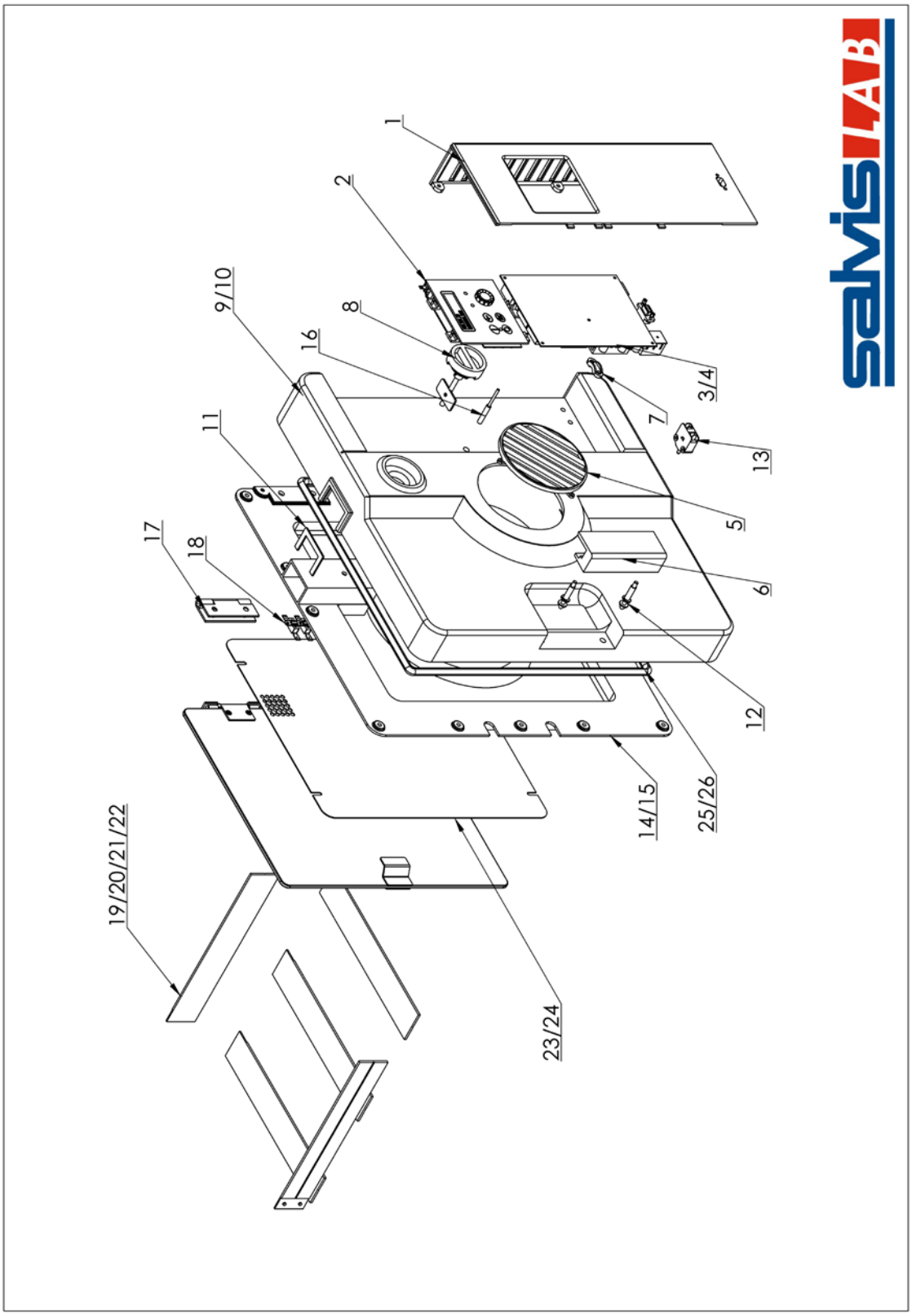
## Appendix C

### Drawing ICN118



# Appendix D

## Drawing Spare Parts



## Appendix E

## Spare Part Numbers

| Position | Part. No. | Description |
|---|---|---|
| 1 | 31W04141005 | Panel New Version |
| 2 | 31W04144155 | Display / Touch Panel 230V |
| 3 | 31W04144154 | Main PCB 230V / 10A |
| 4 | 31W04144153 | Main PCB 115V / 10A |
| 5 | 31W04142002 | Air Inlet Protection Cover |
| 6 | 31W04144014 | Door Handle |
| 7 | 31W04144013 | Cable Relieve |
| 8 | 31W04144018 | Exhaust Knob |
| 9 | 31W04140003 | Door Outer Case ICN52 |
| 10 | 31W04140001 | Door Outer Case ICN118 |
| 11 | 31W04144017 | Insulation for Exhaust |
| 12 | 31W04144016 | Closing Bolt |
| 13 | 31W04960700 | Door Switch |
| 14 | 31W04140002 | Door Inner Case ICN52 |
| 15 | 31W04140000 | Door Inner Case ICN118 |
| 16 | 31W04144123 | Temperature Probe PT100 |
| 17 | 31W04144002 | Door Hinge |
| 18 | 31W04962507 | Over Temperature Fuse |
| 19 | 31W04870018 | Heating Element 230V/110W |
| 20 | 31W04870019 | Heating Element 230V/133W |
| 21 | 31W04962923 | Heating Element 115V/110W |
| 22 | 31W04962924 | Heating Element 115V/133W |
| 23 | 31W04812003 | Air Distribution Plate ICN52 |
| 24 | 31W04812020 | Air Distribution Plate ICN118 |
| 25 | 31W04943203 | Door Seal ICN52 1,5 Meter |
| 26 | 31W04943203 | Door Seal ICN118 2,0 Meter |