HR–10 / HR–10–DO
Desktop Reflow Oven

User Manual
V2.11

NHR 01/2020

Dear customer,

thank you for your trust in our products, and for your table reflow oven HR–10 or HR–10–DO purchase. This user manual is included with the product. It contains important instructions on the product's entry into service. Should you be providing this product for a third party, please take care to also provide this manual.
Keep this manual for future reference.

Install the HF10LF application on your device.

Contents

1. Abbreviations used

PCB ..... Printed Circuit Board

IR ..... Infra-red

LED ..... Light Emitting Diode

SN ..... Serial Number

RO ..... Reflow Oven

HR–10 ..... Reflow Oven with manual door opening

HR–10–DO ..... Reflow Oven with motorized door opening

FE–10 ..... Fume Extraction Unit

2. Package contents

- **1 x** Reflow oven HR–10, manual door opening or motorized HR–10–DO
- **1 x** Tablet with OS Android, including user manual for HR–10 / HR–10–DO in digital form
- **1 x** Cover for 7“ tablet
- **4 x** PCB holder + pins which are needed for oven’s rack
- **1 x** External temperature sensor T3
- **1 x** Measurement protocol

3. Work safety

Use the device for the purposes designated by the producer exclusively, in accordance with the user manual and the guarantee certificate. Read the manual carefully, the producer does not assume responsibility for damages and injuries caused by incorrect usage.
The device must be placed on a non-flammable, flat floor mat, on a stable floor construction. Remove all packaging material. Should you detect a damage caused by the transporter, do not use the device and contact your seller. Remove all easily flammable or combustible substances (gases and liquids) from the device's vicinity before commencing to switch it on and to start heating. In no case may these substances be found in the vicinity of the oven and the oven door.

During normal operation, some parts of the device may heat up to 300°C.

Hence it is forbidden :

- **to place hands in the space of the heating chamber both during operation and immediately after its completion**
- **to touch the heating spiral and the halogen lamp**
- **to touch the rack and the PCBs just after reflow, or material that has undergone the drying process immediately after opening the door. It is necessary to wait until they are cooled by the ventilators, the staff is acoustically and visually by the information on the LED display instructed to replace the PCBs**

In case of a necessary intervention in the chamber (such as service), it is necessary to turn off the oven with the main on-off switch, then to leave the door open and wait at least 30 minutes until the oven cools down.

Only fix the external thermocouple to the rack while the oven is cooled - should the thermocouple be inserted while operating the device, there is danger of burns from the metal parts of the oven.

It is forbidden to insert hands or fingers into the door area when they are in the process of closing. Risk of injury!

Do not look directly into the halogen lamps if they are in the reflow phase. There is danger of eye damage. Soldering pastes containing lead are toxic, which is why it is strictly forbidden to eat, drink, or smoke while operating the device. Always wash your hands carefully after working with lead-containing pastes.

With a bigger amount of PCBs for reflow, it is necessary to provide a surface air extractor for the space above the oven. Another option joining the FE–10 fume extractor to the reflow oven. Please abide by the national and international regulations pertaining to health and safety at work.

4. Technical parameters

HR-10 / HR-10DO

Power supply	230 V, 50 Hz
Electric energy consumption	max. 3100 W
Electric current supply breaker	16 A type C
Heating units	4 x linear lamp 1000 W 1 x heating unit 2000 W
The number of reflow / drying profiles	99
Preheating temperature	50 - 200 °C
Reflow temperature	100 - 260 °C
Initial drying temperature	50 - 100 °C
Drying temperature	50 - 150 °C
Preheating time	10 - 600 s
Reflow time	1 - 300 s
Drying time	1 - 999 min = 16 hours
Heating the oven to operating mode	< 5 min
Cycle length with basic parameters	7 min on average
Stabilisation time in between cycles	< 3 min
Work surface dimensions	320 x 220 mm
Rack dimensions	360 x 220 mm
Max. height for components on PCB	50 mm top side and 30 mm bottom side
Oven dimensions (length x width x height)	505 x 362 x 340 mm
Weight	18 kg
IP Code	IP 30

FE–10

Power supply	230 V, 50 Hz
Electric energy consuption	max. 50 W
Airflow at 2550 rpm	185 m^3/h
Inner diameter of the input hose	ϕ 50 mm
Inner diameter of the output hose	ϕ 56 mm
Fume extractor dimensions (length x width x height)	190 x 200 x 180 mm
Weight	3 kg
IP Code	IP 30

5. Device description

The HR–10 / HR–10–DO is the reflow oven with IR and conventional heating. Uniform heating of the PCBs is provided by forced hot air convection. It is possible to fix the PCBs to the adjustable holders on the rack, joined to the door of the reflow oven. After opening the door, the ventilators placed under the rack will quickly cool the PCB.

After the oven is switched on, it will try to connect to a paired tablet or smartphone via Bluetooth. If it finds none, the oven continues in autonomous mode without any change to the programs or to the transmission of information. In this mode, the oven is operated by the buttons on the oven's front panel, and brief information is being displayed on the two-line display. If the HR–10 / HR–10–DO oven connects to a paired device, the user may create new programs or edit already existing ones in the running Android application. The portable device also shows the process variables of the currently running program displayed on the oven's display. For each process it is possible to set the time and temperature of preheating, time and temperature of reflow, resp. time and temperature for drying. Process settings are stored in the oven's memory and also backed up on a portable device.

During a program run, the oven and the android application display continuous information about the process's state, current temperature, and the time remaining. After a program is completed, the reflow oven instructs the staff to open the oven door with an acoustic signal (which can be turned off in the application). The acoustic signal is transferred also to the operating tablet or smartphone.

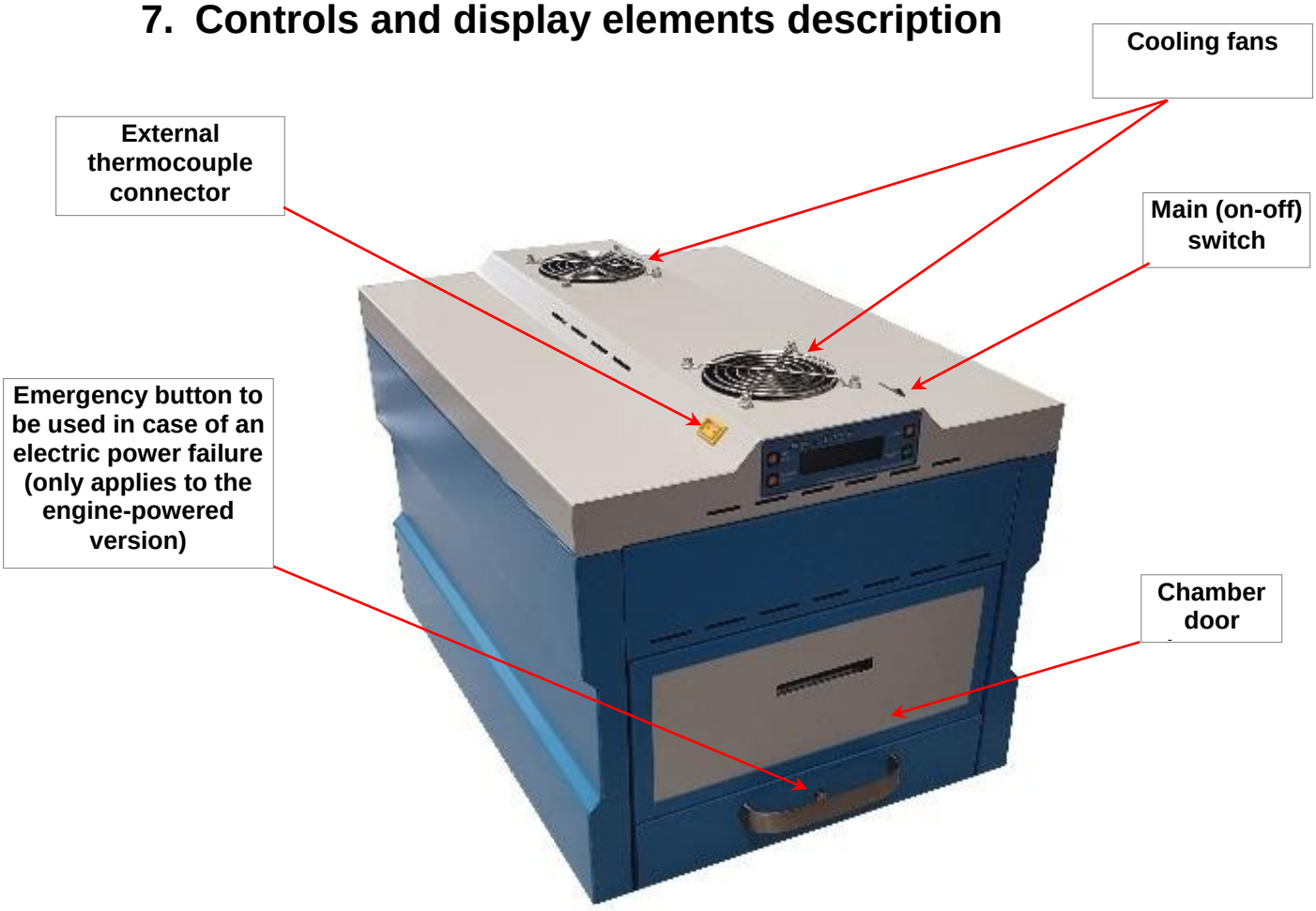
For harmful fumes extraction, it is possible to use the FE–10 fume extractor.

6. Installing the device

Place the HR–10 / HR–10–DO oven on a flat, non-flammable floor mat, on a stable floor construction. The work space operational conditions are a temperature of 15-30°C and air humidity of 30-80% RH. There must be no flammables, nor any easily flammable substances (e.g. fluxes) in the close vicinity of the device. To operate correctly, the rack in the reflow oven should be in a horizontal position.

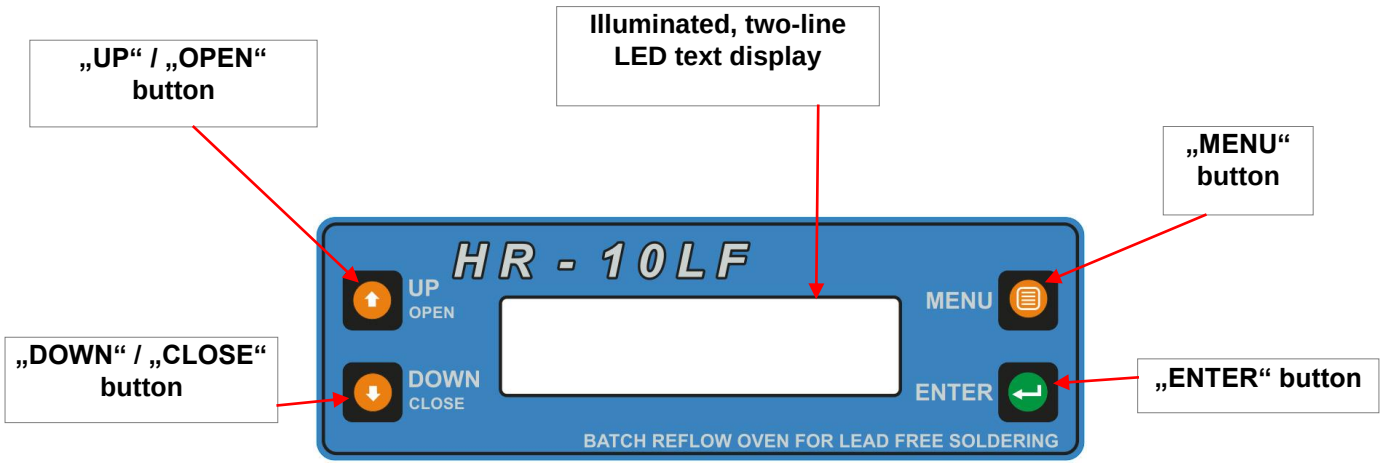
Plug the device in an individual socket with the electric power supply of 230V/50 Hz, with a circuit breaker of 20A. Do not plug any more devices in this circuit breaker. During the device's operation, you must not cover the air intake openings of the ventilators, which serve for cooling down the reflow chamber, and provide the airflow of 360 l/min. Also, take care that small and light items are not found in the space under the open door, as these could be sucked in by the cooling ventilators. As reflow soldering pastes produce a larger amount of fumes, we recommend that you install a surface air extractor for the space above the oven, or FE–10 fume extractor.

7. Controls and display elements description



Main (On-Off) switch – connects the voltage supply of 230V/20A

External Thermocouple Connector – yellow, placed on the top side on the left. If needed, it enables for an external thermocouple, type "K" to be connected. This thermocouple enables the user to measure the temperature of critical places on the PCB inside the oven (in the area around larger circuits etc.). We recommend that you mechanically connect this thermocouple to the PCB, as well as to the rack supporting the PCB. The measured temperature is viewed on the display as well as in the mobile application, as the T3 value. The other two temperature sensors, for values T1 and T2, are placed inside the chamber of the reflow oven.



HR–10LF Control Panel

LED two-line text display – views reports about the oven's state, as well as instructions for the staff. It displays information about selected profiles, temperatures and times, changes in the parameters of the selected profiles, the air temperature inside the chamber T1, the temperature of the chamber's casing T2, and the temperature of the external thermocouple T3.

„UP" / „OPEN" button – serves for upwards movement in the menu, and at the same time enables the user to pause a running program. If needed, the button opens the reflow oven door (applies to the HR–10–DO version).

„DOWN" / „CLOSE" button – serves for downwards movement in the menu. If pressed during a running program, the oven switches to tempering mode, which means that a stable temperature of 100°C is maintained in the oven. Tempering mode is only switched into if at the time the button is pressed, the oven temperature is < 150°C. Tempering mode can be paused by pressing the "UP"/"OPEN" button. If needed, the "DOWN"/"CLOSE" button closes the oven door (applies to the HR–10–DO version).

„MENU" button – serves for entering to the MENU mode. When the reflow oven is switched on, the last selected program from previous usage will load. For example, if we had last used a

soldering program, we can see which program it was, and by pressing the "MENU" button again, we can view what the preheating time and temperature were, and by pressing the "MENU" button yet again, we can view reflow time and temperature. You can exit this overview by waiting 30s and returning to the home screen automatically, or by pressing and holding the "ENTER" button.

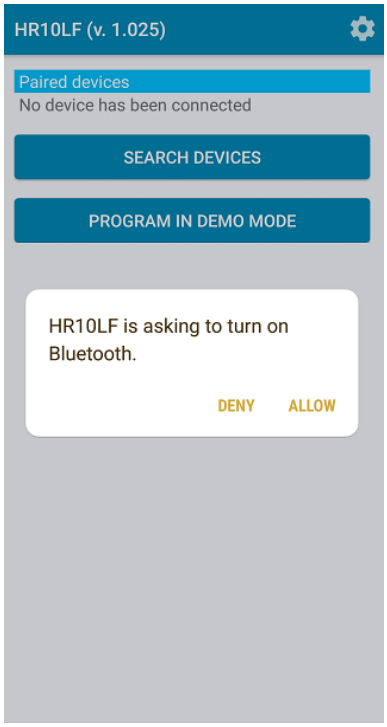
„ENTER" button – serves, as has been mentioned, to exit the MENU overview by holding it pressed, and to confirm a selected profile.

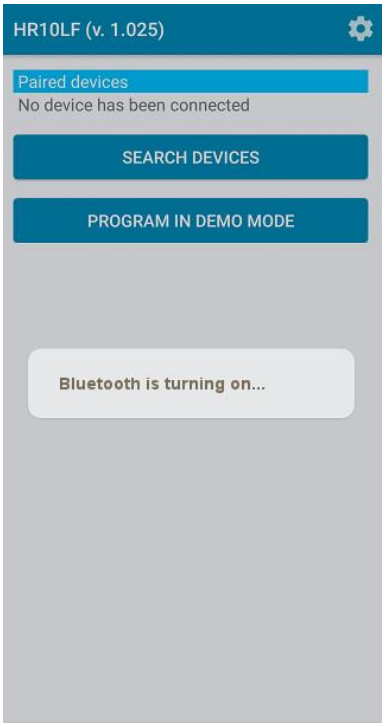
Each pressing of the "UP"/"OPEN" and "DOWN"/"CLOSE" buttons as well as the "MENU" button is accompanied by an acoustic signal. The "ENTER" button is silent, and after pressing and holding the button, confirmation of the user's request is signalled acoustically.

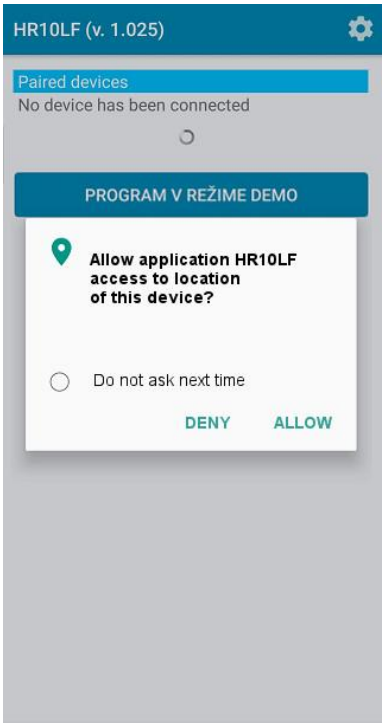
8. Operating the oven via the HR10LF application

A great advantage of the HR–10 / HR–10–DO table reflow oven is the option to operate and control the oven via a smartphone or a tablet with OS Android, using Bluetooth connection.

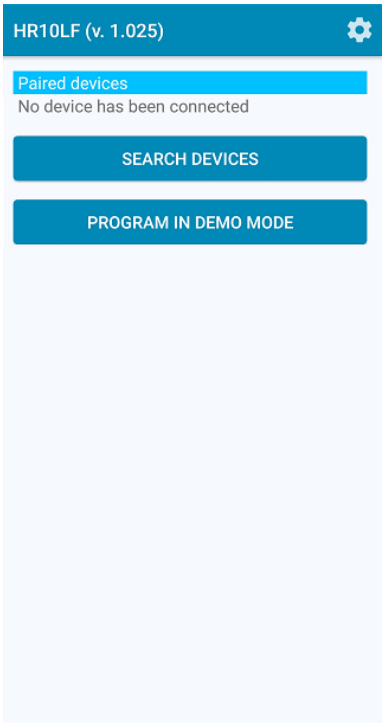
Application is already installed in tablet delivered together with the oven. User could install it also to another device - download the application, found as HR10LF (for the QR code of the application, see page 3 of this manual), from Google Play. After installing and opening the application on your device, a request for permission to turn on Bluetooth will appear. To improve performance in searching for Bluetooth, permission to access the device's location is also requested.

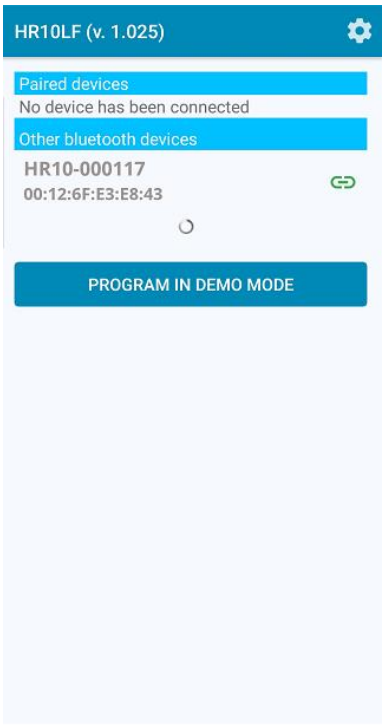


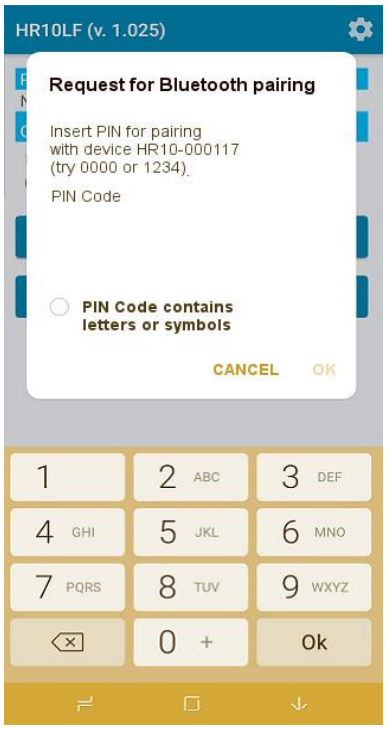




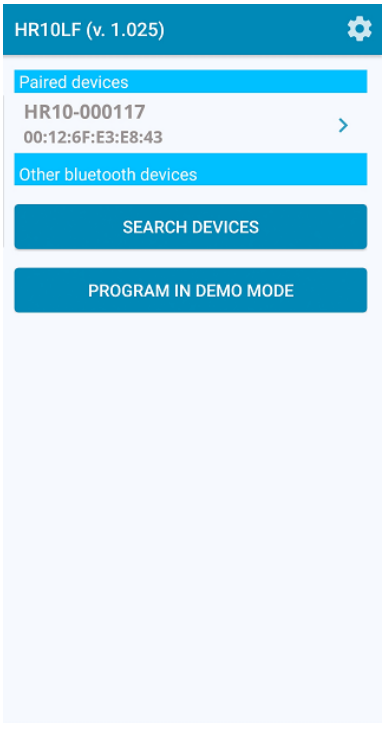
It is necessary to confirm this request by tapping on ALLOW so that a connection with the reflow oven may be established.

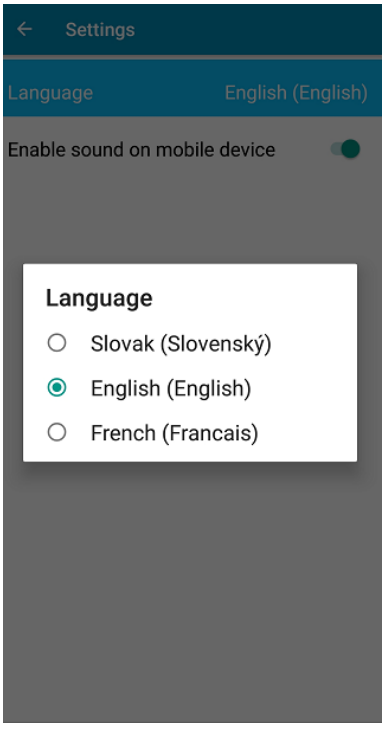


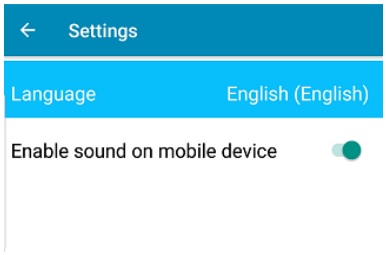




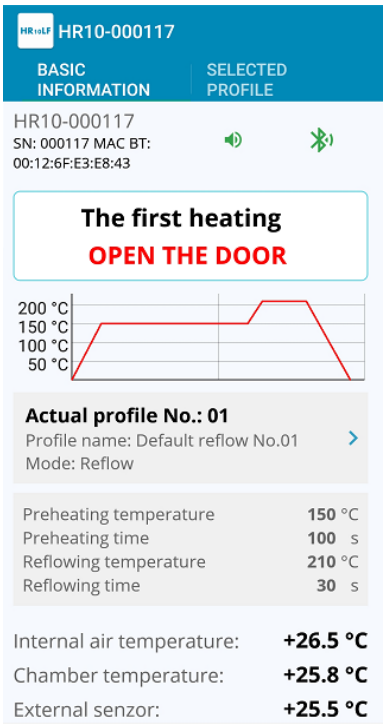
While on the home screen, you may select the application's language in the settings. Currently there are the following languages available: Slovak, English and French. After selecting the language, both the HR10LF application and the reflow oven will switch into the chosen language mutation. Another option is to select settings pertaining to sound notifications on the mobile device, where the notifications can be turned off, resp. on.

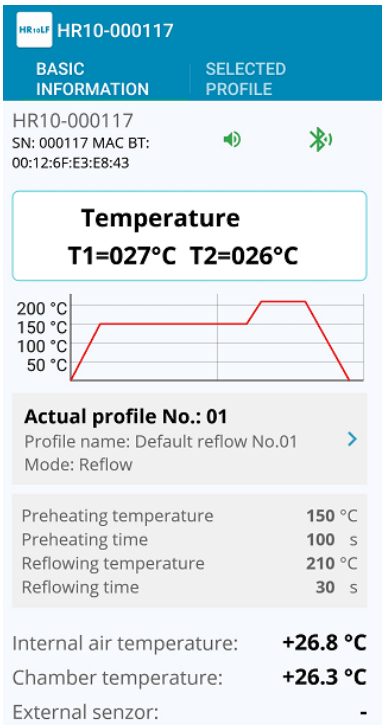


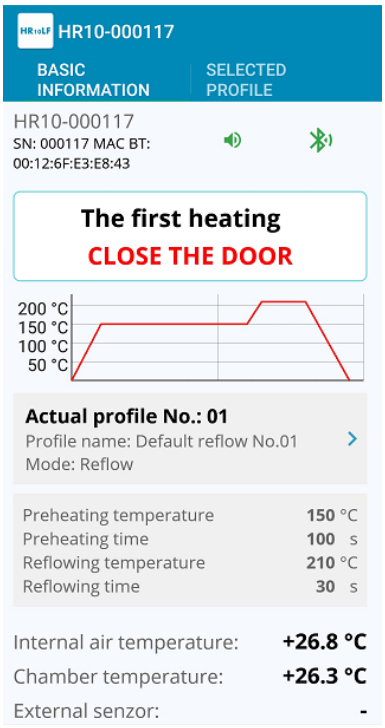


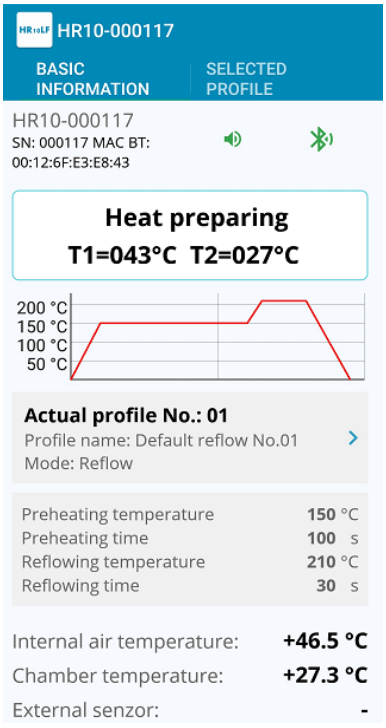


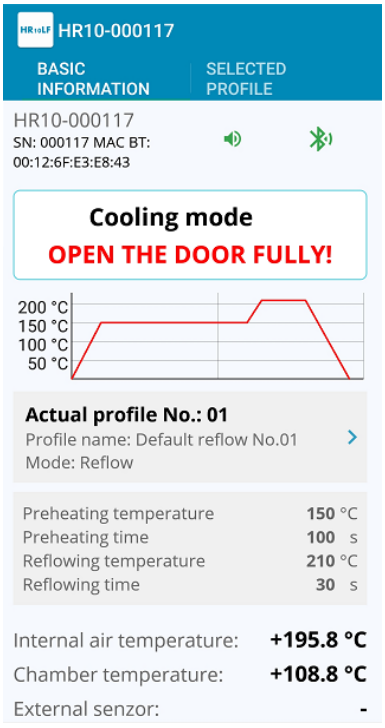
After tapping on the paired device, the reflow oven can be operated via the HR10LF application. The established connection with the oven is indicated by the Bluetooth icon on the screen of the mobile device. If this icon is green, the connection is running; if the icon is red, the connection has been interrupted or there has been no connection with the oven. On the screen of the mobile device, information for the user is displayed in black font, while instructions are displayed in large red font. The paired reflow oven is displayed in the description panel along with the serial number and the MAC address BT, under the "BASIC INFORMATION" tab.

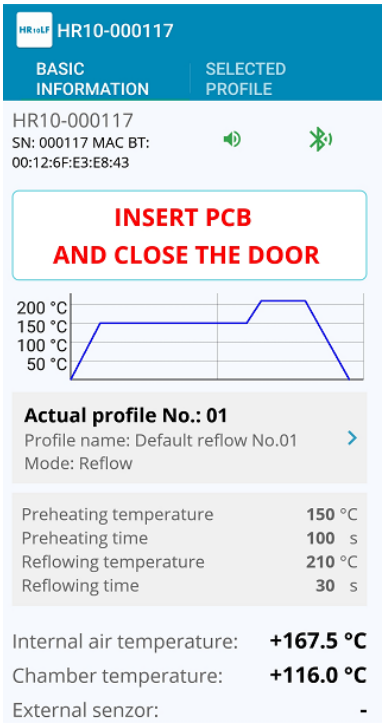




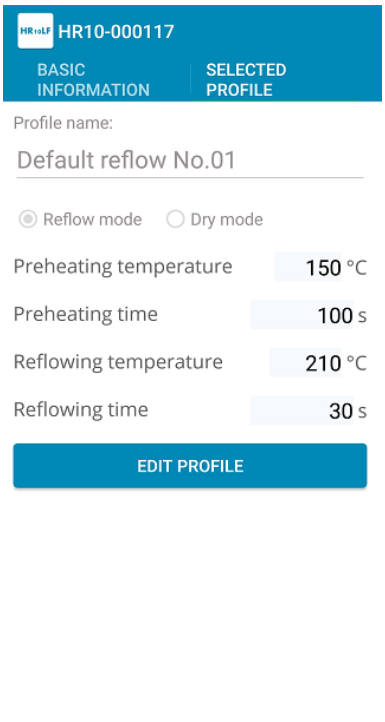


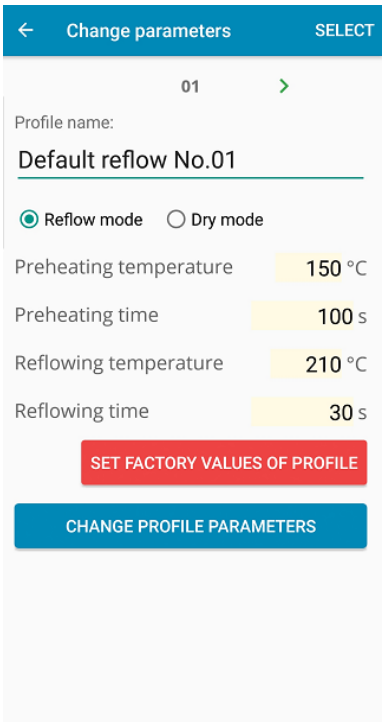


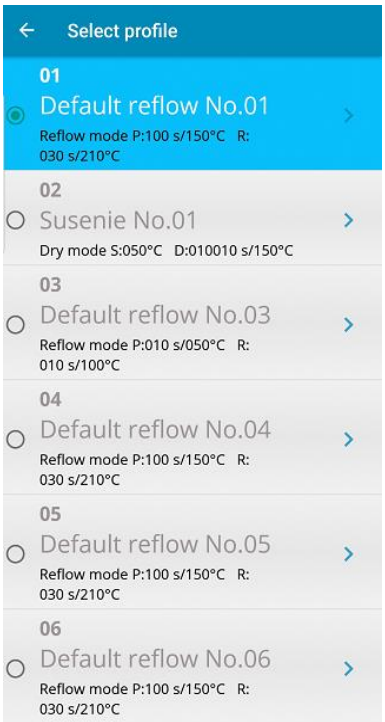




The oven is initialising the heating cycle. During this process, it is necessary to fully open the oven door so that oven cooling via the cooling ventilators can start. The staff is instructed to open the door by visual as well as by acoustic signals, that is, by continuous beeping. The user is then instructed to close the door. After closing the door of the reflow oven, the heating cycle starts automatically. This process is necessary for maintaining the repeatability of other, staff-selected programs. The display reads information about the reflow oven being heated until the chamber temperature reaches the required value. After the required value has been reached, the display reads the instruction to fully open the oven door. All information, as well as instructions for the user, are continuously displayed on the screen of the mobile device, as well as on the LED display of the oven. We recommend that you abide by these instructions, and thereby avoid possible problems related to the oven's operation and eventually save your time. After the door has been opened and the oven has cooled down to the required temperature, an instruction to place PCBs on the rack of the reflow oven is displayed. The "BASIC INFORMATION" tab displays information about the currently selected program. If you switch from "BASIC INFORMATION" to "SELECTED PROGRAM", you have the option to click on the EDIT PROFILE button, where you can select production parameters or set the parameters as needed. In "BASIC INFORMATION", by clicking on the arrow in the Current Program field on the right, you enter the program selection settings, where you can see the programs listed, as well as the distinction of whether it concerns soldering or drying. At the same time, you can see the times and temperatures of the currently selected program - in our example, this is soldering.

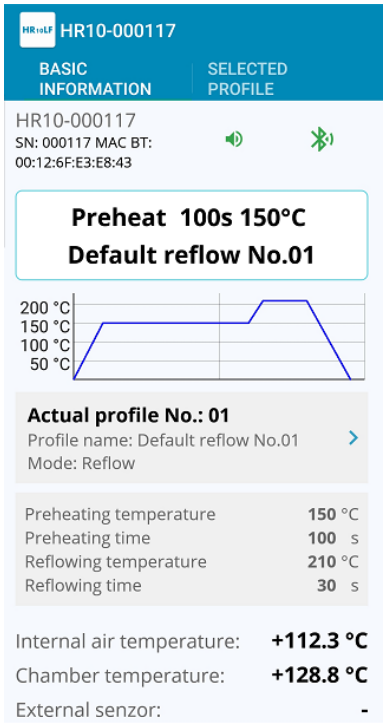






8.1. Soldering mode

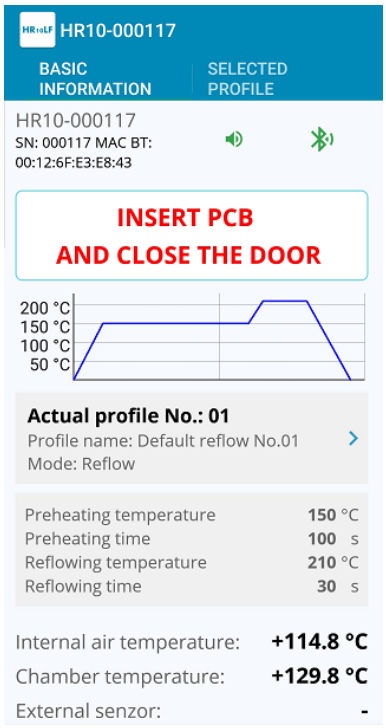
Via the mobile application, or via the control panel, along with LED text display (see chapter 9.1), select the required soldering program and close the door of the reflow oven.
In the HR10LF application, let us return to basic information by tapping on the "BASIC INFORMATION" tab. On the home screen, under the information and command lines, where information and instructions for the staff are displayed, there is the option to enter program selection by tapping on the blue arrow on the right. At this moment we enter into a program list window in which we may enter the current program or any other program by tapping on the blue arrow on the right. Of course, there is also the option to create a new program according to the user's own requirements and save this program.

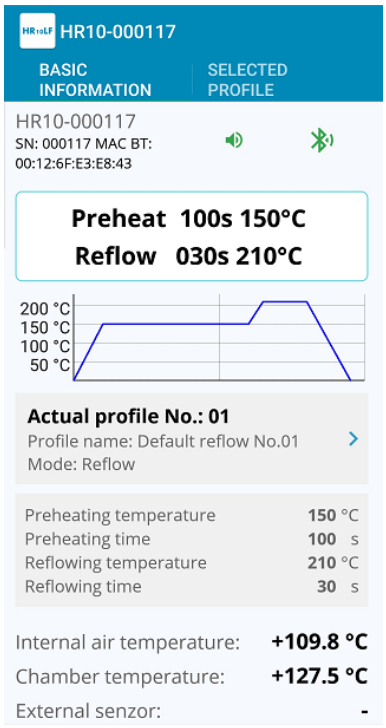


In our given example, we select program No.1 "Default reflow No.1" and enter a window in which we can edit the program data: we can edit the particular values as needed in the respective temperature and time fields. We can also edit the program's title. By tapping the blue "EDIT PROGRAM DATA/VALUES" button, the new values are written in the program, which the oven confirms by a long acoustic beep.Let us return to the instruction "INSERT PCB AND CLOSE THE DOOR". We recommend that you place your PCBs in such manner that you utilise the rack's dimensions 360 x 220 mm to the maximum. Load the PCBs, starting from the rear side of the rack, in the direction to the door. The rack may be adjusted according to the PCB's dimensions. There are support bars attached to the beams with cotter pins, and after extracting the cotter pins the support bars may be adjusted.

After closing the oven's door, a click of the electronic lock is heard. The oven door is safely closed. On the first screenshot of the HR10LF below, under the information message window, you can see that in our example we have selected profile No.1 "Default reflow No.1".

Program can only be selected before preheating has started, which is confirmed by the oven with a long beep. Three short beeps on the other hand inform the user that the selected program has not been confirmed by the oven, therefore has not been submitted. Preheating times and temperatures are also displayed, as well as current information about the chamber temperature, chamber case temperature, and the external sensor temperature, if connected.



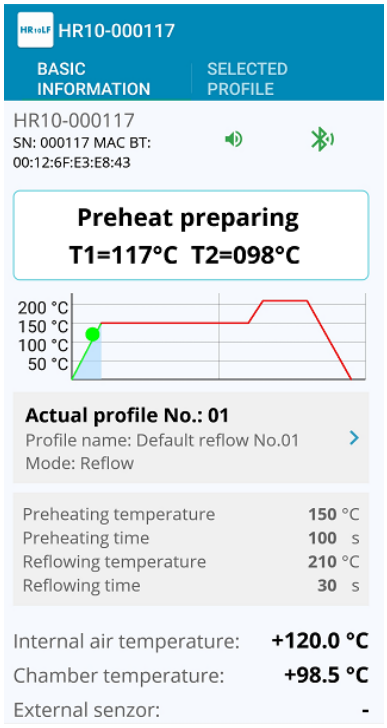


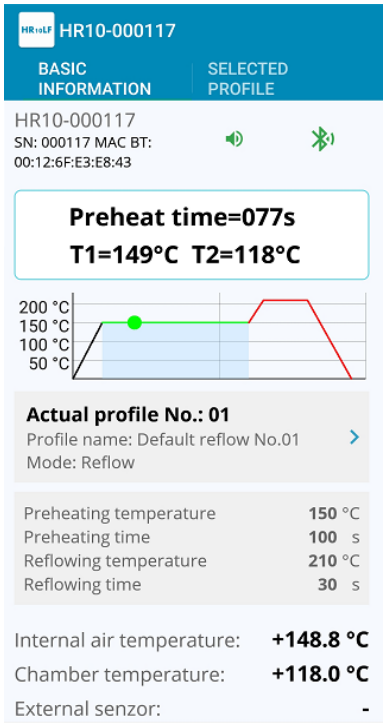
You can see in the information window the current temperatures of the oven T1 and of the chamber T2 are displayed. In our example is preheating temperature set to 150 °C and time to 100s. Oven is waiting for insertion of PCB and start of the process.

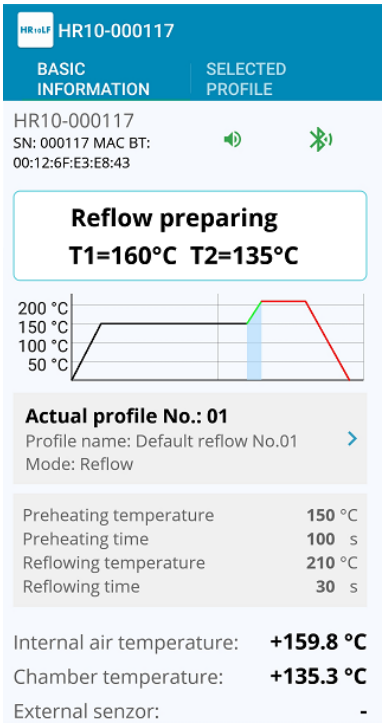
After closing the HR–10 oven door, a click of the electronic lock is heard. The oven door is safely closed. Now starts complete reflow process and you can follow it on the tablet screen.

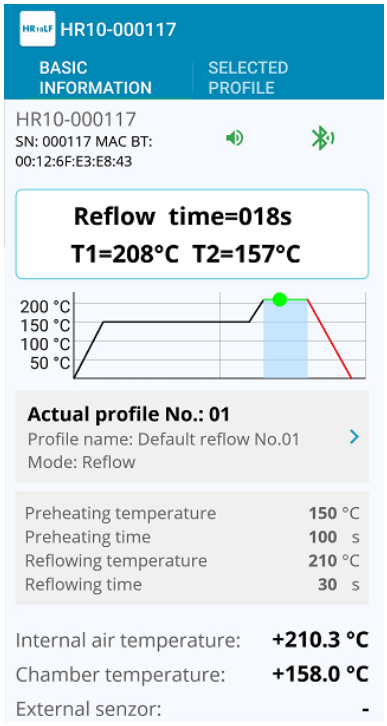
On another screenshots you can see 5 various states of soldering process.

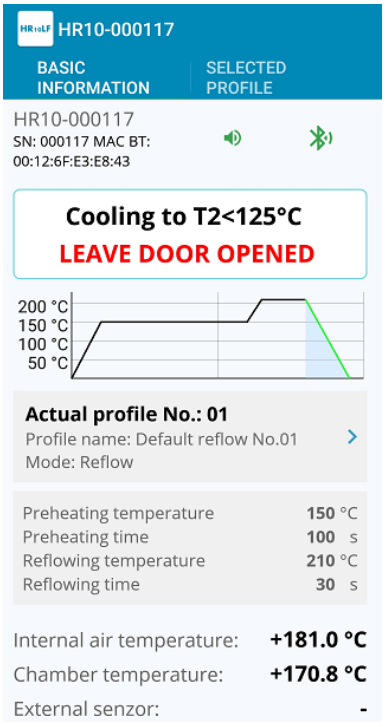
1. Preheat preparing – temperature is increasing from starting to preheat value.
2. Preheat – waiting at the preheat temperature for selected time.
3. Reflow preparing - temperature is increasing from preheat to reflow value.
4. Reflow - waiting at the relow temperature for selected time.
5. Cooling – cooling down from reflow to starting temperature.







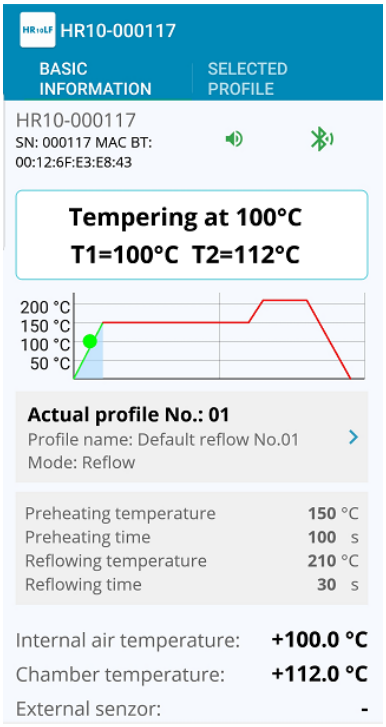


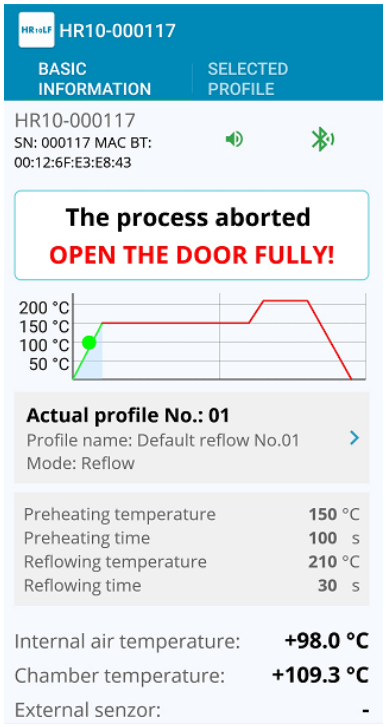


During the entire process, you can watch the progress of the temperature profile on the informational graph.

8.2. Tempering (Stand-by) mode

For cases when the staff has no PCBs prepared and would like to keep the oven heated. Proceed as follows: close the door of the HR–10 oven and the heating process will start. After pressing the “DOWN” button, the oven switches to tempering mode, which means that a stable temperature will be maintained in the oven. In case of the HR–10–DO version, press the “DOWN” button to close the door, and when the door is closed, press the “DOWN” button again to switch the reflow oven into tempering mode.



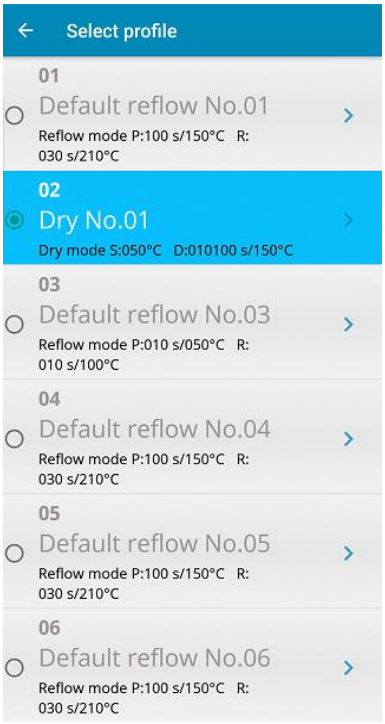


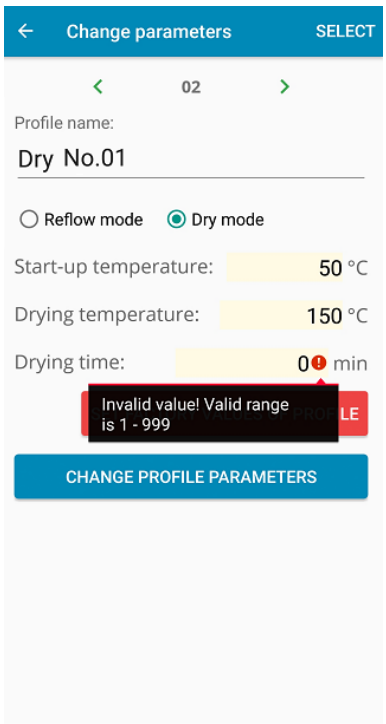
You can exit tempering mode by pressing the “UP” button, what unlocks the door (HR-10) or opens door (HR-10DO). When tempering is completed, the oven will instruct the staff to insert PCBs, and the reflow process may be renewed after closing the door.

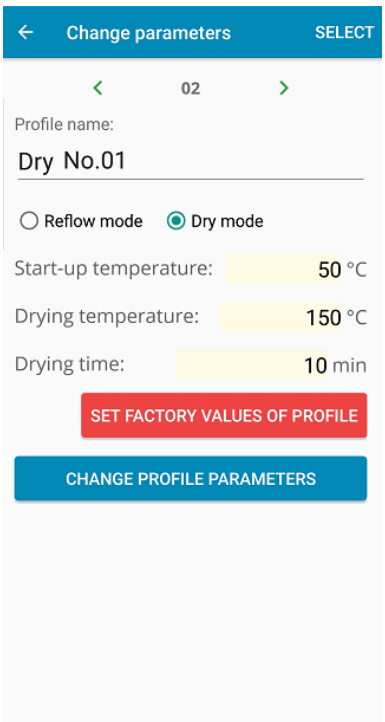
8.3. Drying mode

Let us proceed to drying mode. Via the mobile application, or via the control panel, along with LED text display (see chapter 9.3). In the mobile application, select a drying program in the program selection setting. By tapping from basic information to the selected program, you may see whether this selected program concerns soldering or drying.

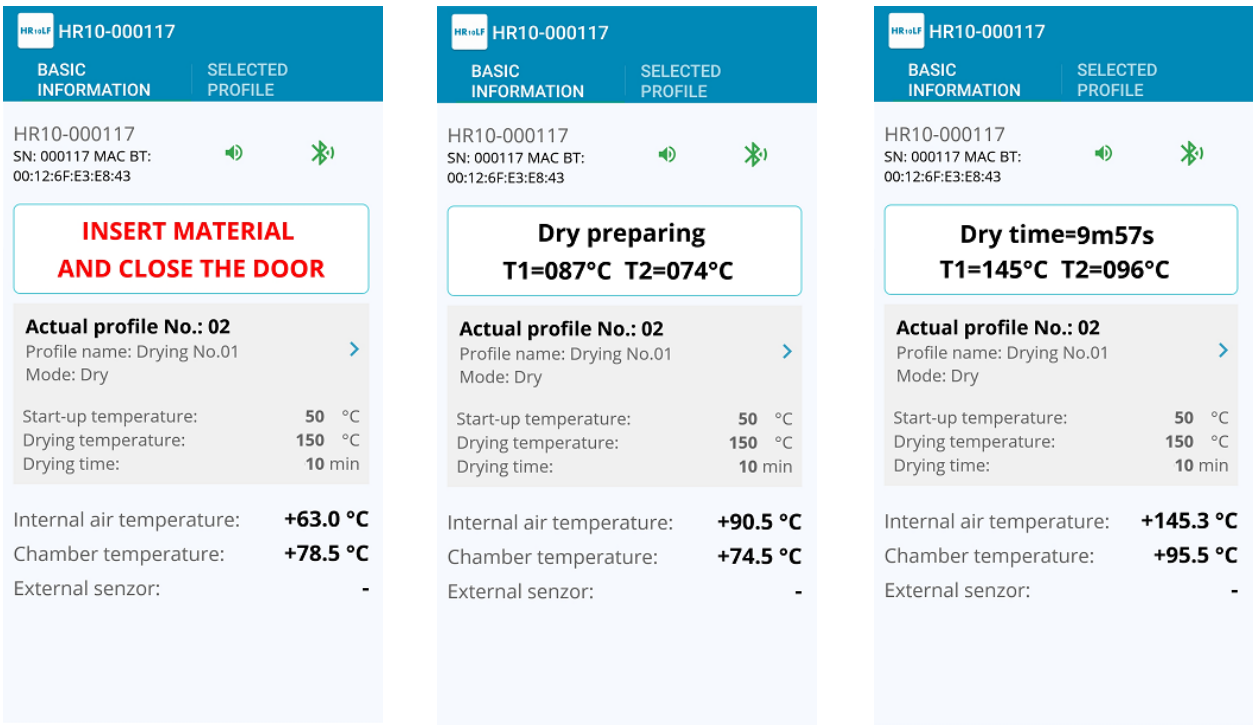
In the HR10LF application, let us return to basic information by tapping on the basic information tab. On the home screen, under the information and command window where information and instructions for the staff are displayed, there is the option to enter program selection. Subsequently, tap on the blue arrow on the right. At this moment you enter a window where, by tapping on the blue arrow on the right again, you may enter the currently selected program or any other program as needed. In our example of the drying program, we select program No.02 titled “Dry No.01”. A correct value from the permitted range must be selected for each field.







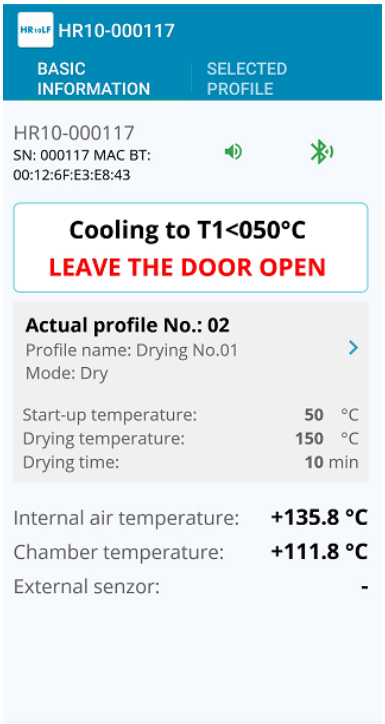
After a drying program has been selected, the HR–10 / HR–10–DO reflow oven will instruct the user to “INSERT MATERIAL AND CLOSE THE DOOR”. We recommend that you place the material to be dried in such manner that the rack’s dimensions 360 x 220 mm are utilised to the maximum. Place the material starting from the rear side of the rack, in the direction to the front. The rack may be adjusted according to the dimensions of the PCB. Support bars are attached to the beams with cotter pins, and after extracting the cotter pins the support bars may be adjusted.



After selecting the drying program and inserting the PCBs, close the door of the reflow oven. As soon as the door of the reflow oven is closed, a click of the electronic lock is heard (in case of the HR-10 version). From this moment the door is safely closed. On the first screenshot of the mobile application, under the information window, you can see that in our case we have selected program No.02 titled “Dry No.01”. What is important for the user to know is that a program can only be selected before the drying process has started, which is confirmed by the oven with a long beep. Three short beeps on the other hand inform the user that the selected program has not been confirmed by the oven, therefore has not been submitted and it is necessary to select and confirm a program again. Finally, current information about the chamber temperature, chamber case temperature, and the external sensor temperature, if connected, are displayed as well.

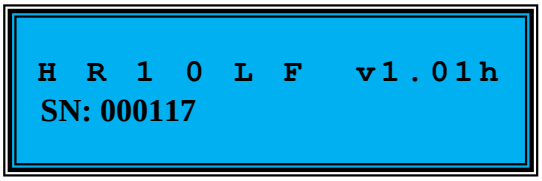
On the next screenshot, see in the information window where the current temperatures of the oven T1 and of the chamber T2 are displayed, you can see that drying start-up has been initiated. After the required drying temperature has been reached, drying countdown will start, counting down to 0. Drying time had been set in the program profile.

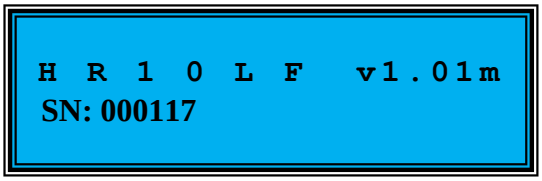
After the drying time interval has passed, in our example this was program No.2 with drying time 10 minutes, the reflow oven will instruct you to open the door. This information can be seen in the information window. It is necessary to let the oven cool down to the required temperature T1<50°C, which is the initial temperature for drying in our selected program. Information about the current temperature of the chamber and of the chamber case appears in the information window. After cooling down for approximately 5 minutes, it is possible to unload the dried material from the rack. The reflow oven again instructs the staff to load new material to be dried, and the entire process is repeated as needed.



9. Starting up and operating the oven via oven's control panel

After the table reflow oven is switched on, an announcement about the software version of the reflow oven appears on the display, as well as information about the HR–10 or HR–10–DO version. The two models are differentiated by the last letter in the line. If the last letter is "h", the device is the HR–10 version with manual door opening; in case of the letter "m" it is the HR–10–DO version with engine-powered door opening. Furthermore, the display views the serial number (SN) of the reflow oven as SN: 000117. Furthermore, the LED transilluminated two-line text display views temperature and time information. Instructions for the staff are displayed in uppercase.

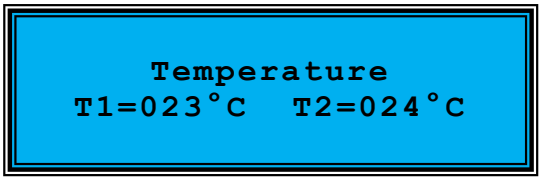


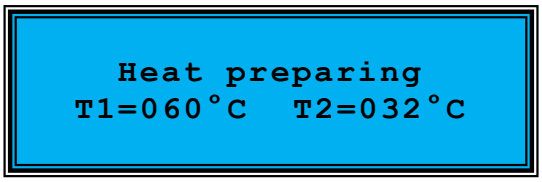


When the reflow oven is starting it is necessary to fully open the door, so that cooling via the cooling fans placed under the rack may be started. The staff is instructed to fully open the door by visual signals, as well as by acoustic ones, namely continuous beeping, which may be turned off if needed via the HR10LF application (see chapter 8). Subsequently, the user is instructed to close the oven door (without inserted PCB)..

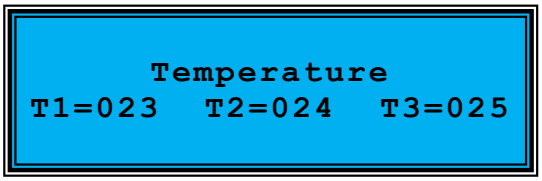
After closing the door of the reflow oven, the oven's heating process will start automatically. This first heating process is necessary to maintain the repeatability of temperature profile. After the door is closed, a click of the electronic lock can be heard with a manually operated door, or the door is closed by pressing the "DOWN"/"CLOSE" button with an engine-powered version. From this moment the oven door is safely closed. Information about the reflow oven being heated can be viewed on the display, until the chamber temperature has reached the required value. After the required value has been reached, there is an instruction to fully open the oven door with a manually operated door, or, with the engine-powered model the door of the reflow oven opens automatically.

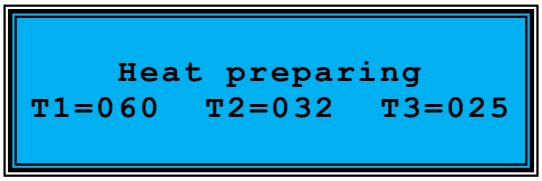
In the course of basic heating, the reflow oven informs about its activity on the LED display, with alternating two messages.



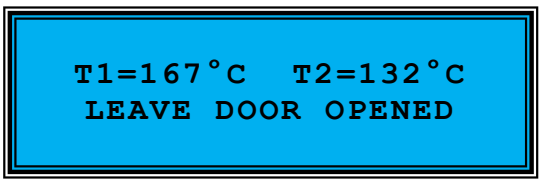


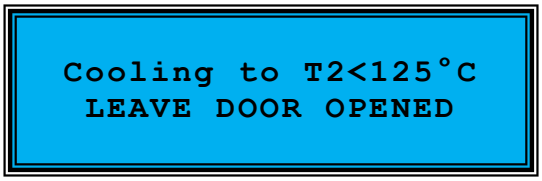
In case an external thermocouple is connected, the following is displayed.



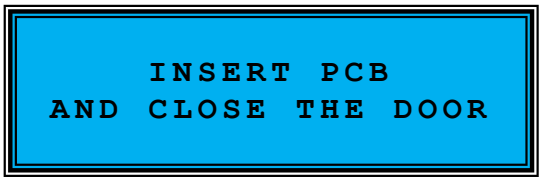


The heating cycle, as well as any selected reflow program, can be paused if needed by pressing the “UP”/”OPEN” button. Subsequently, it is necessary to let the reflow oven cool down to temperature T2<125°C, which the user is notified about continuously on the display.





If the basic heating process, or the selected program, is not paused, the oven resumes its activity in the selected reflow program. After the oven door has been open and the oven has cooled down to the required temperature, there appears an instruction to insert the PCB for reflow by placing them on the rack of the reflow oven.



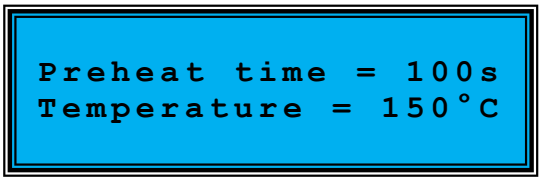
All information as well as instructions for the user are continuously displayed on the LED text display of the oven, as well as on the mobile device screen, and if notification sound is on, they are also signalled acoustically. We recommend that you abide by these information and instructions, that way you can avoid any possible problems related to the oven’s operation.

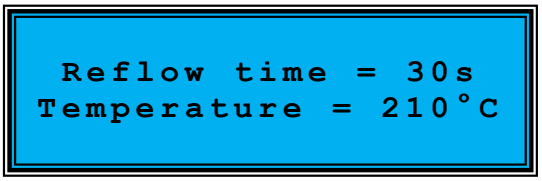
9.1. Soldering mode

As has been mentioned in chapter 8.1., the “MENU” button serves for entering the MENU. By pressing this button, you can find out which program is currently selected. By the program, you can see if this concerns soldering or drying, as well as the times and temperatures of the currently selected program.

Using the “UP”/”OPEN” and “DOWN”/”CLOSE” buttons you can move on the list of the individual saved programs. From position 01, you can quickly move to position 99 by pressing and holding the “DOWN”/”CLOSE” button, and conversely, if you need to get from position 99 to position 1, press and hold the “UP”/”OPEN” button. That way, it is not necessary to scroll through the entire program list in one direction, which is time-saving. In case a suitable program is selected, press and hold the “ENTER” button. The reflow oven will confirm the selected program acoustically by a long beep.

By pressing the “MENU” button, information about preheating time and temperature is displayed at first, and subsequently the information about reflow time and temperature.

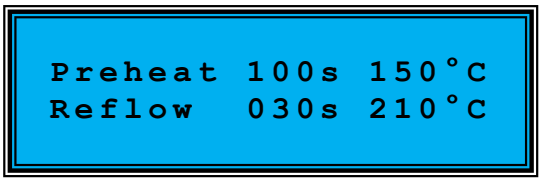


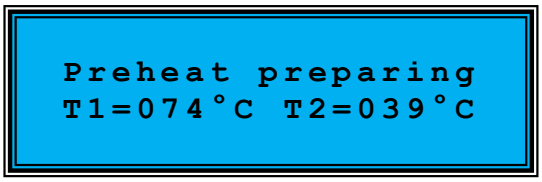


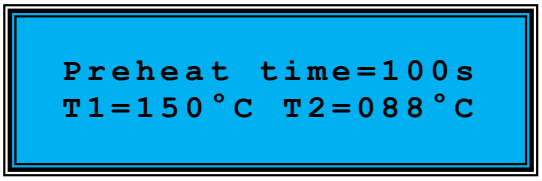
In our example, we have selected program no.01 “Default reflow No.01”. Let us return to the “INSERT PCB AND CLOSE THE DOOR” instruction. We recommend that you load your PCBs in such manner that the rack’s dimensions of 360 x 220 mm are utilised to the maximum. Place your PCBs from the rear side in the direction to the door.

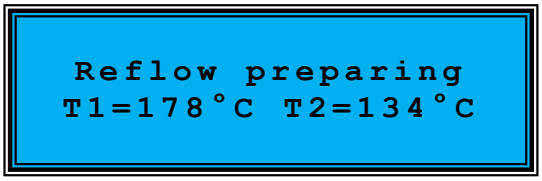
What is important for the user to know is that a program can only be selected before the preheating process has started, which is confirmed by the oven with a long beep. Three short beeps on the other hand inform the user that the selected program has not been confirmed by the oven, therefore has not been submitted. The selected program cannot be changed during a running program cycle. To do so, you must pause the running program by pressing the “UP”/”OPEN” button.

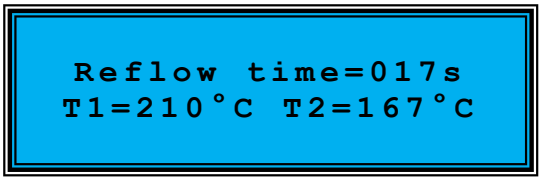
After the door of the reflow oven is closed, a click of the electronic lock is heard. From this moment the door of the reflow oven is safely closed.

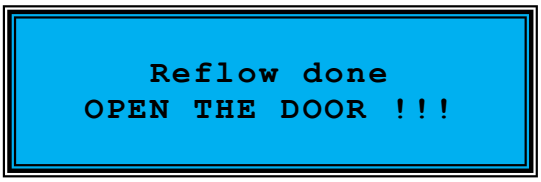




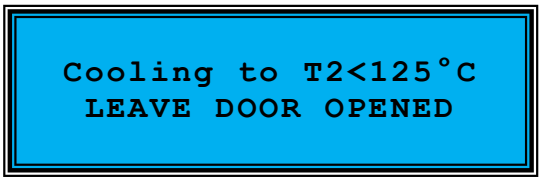


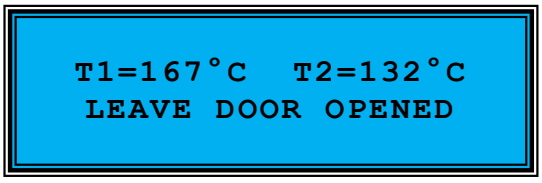






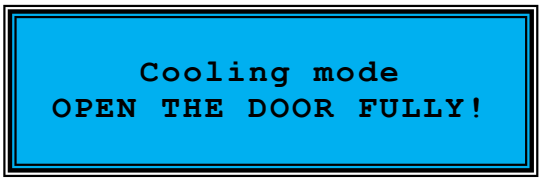
We can see that the profile we have selected, profile No.1 “Default reflow No.01”, has preheating values set to the temperature of 150°C with the duration time 100s and the reflow temperature is set to 210°C with reflow time 30s. First the oven completes preheating start-up, which is indicated on the oven display. After the required preheating temperature has been reached, in our example this is 150°C, preheating countdown will start with time counting down to 0. After the preheating time interval has passed, the reflow oven is heating for reflow. Information about this can be seen on the LED display, where reflow start-up is displayed; in our example of profile No.01 the reflow temperature is 210°C. After the required preheating temperature has been reached, reflow countdown will start, counting down to 0. When this time reaches 0, the process has been successfully completed.





The reflow oven signals that the process has been completed by continuous beeping. It is necessary to open the oven door for the oven to cool down. The oven door must be fully open so that the cooling ventilators connected to the door sensor may turn on. Otherwise the oven

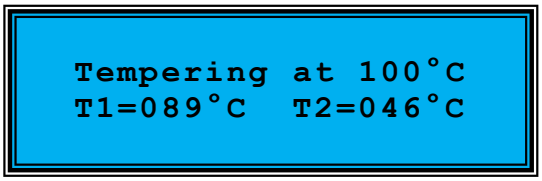
continuously instructs the user to open the door until the cooling fans, placed under the rack, turn on.



ATTENTION! This is very important for cooling down the oven. On the display, the oven informs and instructs the user about the necessity to open the door. After the oven has cooled down to the required temperature, which takes approximately 5 minutes, it is possible to unload the post-reflow PCB from the rack. Subsequently, the oven instructs the user to insert new PCBs, and the entire process is repeated as needed.

9.2. Tempering mode

With the selected reflow programs, in case the staff does not have more PCBs ready and would like to maintain the oven heated, close the oven door and the heating process will start. By pressing the “DOWN”/”CLOSE” button, the oven switches to tempering mode, which means that a stable temperature will be maintained in the oven. Tempering mode is switched into only if T1<preheating temperature of the currently selected soldering program.



You can exit tempering mode by pressing the “UP”/”OPEN” button, which in fact pauses the currently running program of the reflow oven. After tempering is completed, the oven instructs the staff to insert PCBs and the reflow process can be renewed after closing the oven door.

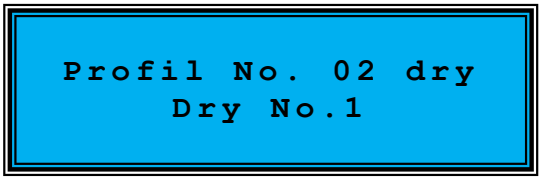
9.3. Drying mode

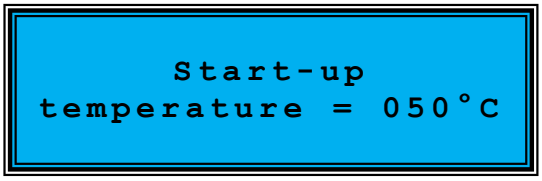
Drying mode is similar to reflow mode, however it only consists of one phase, unlike the two phases of reflow mode. As has been mentioned in chapter 8.3., the “MENU” button serves for entering the MENU, and by pressing this button you can see which program is currently

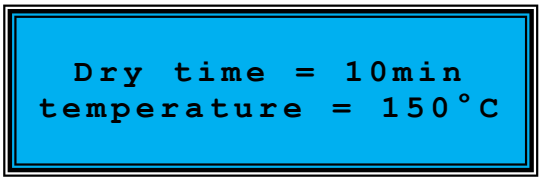
selected, as well as whether this is soldering or drying, and also the times and temperatures of the currently selected program.

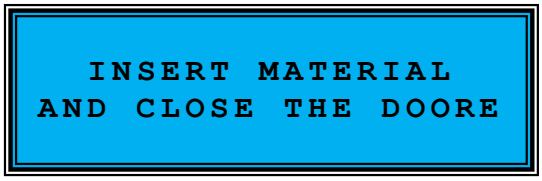
Move in the list of the individual saved programs using the “UP/”OPEN” and “DOWN”/”CLOSE” buttons. From position 01, you can quickly move to position 99 by pressing and holding the “DOWN”/”CLOSE” button, and conversely, if you need to get from position 99 to position 1, press and hold the “UP”/”OPEN” button. That way, it is not necessary to scroll through the entire program list in one direction, which is time-saving. In case a suitable program is selected, press and hold the “ENTER” button. The reflow oven will confirm the selected program acoustically by a long beep.

By pressing the “MENU” button, you can view information about the selected drying profile, the initial drying temperature and time along with the drying temperature, on the display. The staff is instructed to insert material.





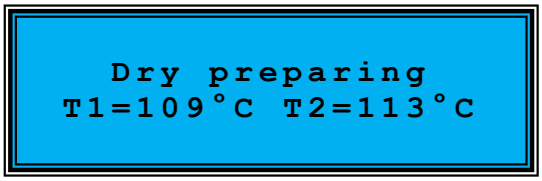


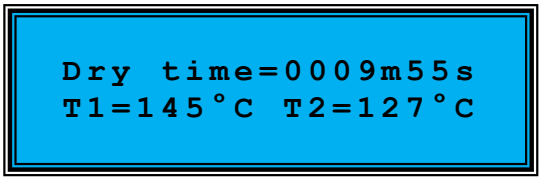


If needed, open the door and carefully place the material on the rack. The rack may be adjusted according to the dimensions of the material. Support bars are attached to the beams with cotter pins, and after extracting the cotter pins the support bars may be adjusted. It is ideal to place the material in the centre of the width of the workspace. If the material contains a lot of space to be cooled, it is appropriate to place these parts of the material to the rear side of the rack. In case of components prone to heat damage, please orient these components to the oven door.

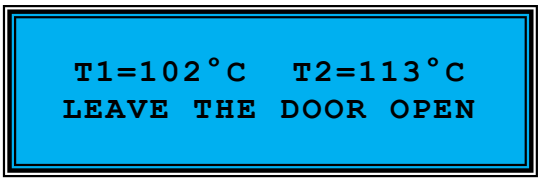
What is important for the user to know is that a program can only be selected before drying has started, which is confirmed by the oven with a long beep. Three short beeps on the other hand inform the user that the selected program has not been confirmed by the oven, therefore has not been submitted. A selected profile cannot be changed during an already running program cycle. To do so, you must pause the running program by pressing the “UP”/”OPEN” button.

After the door of the reflow oven is closed, you can hear a click of the electronic lock. From this moment the door is safely closed.





After the material is loaded, the oven starts to heat to drying temperature. You can see that in our example, the drying program has the temperature value set to 150°C and drying time is 10 minutes. This information can also be viewed on the oven display. After the required drying temperature has been reached, drying countdown will start, counting down to 0. When the time is up, the entire drying process has been successfully completed. With drying programs, there might be a potential deviation in the maintained temperature in the range of +/- 5°C; the higher the drying temperature, the lower the deviation.



The reflow oven notifies the user that the process has been completed by continuous beeping, and it is necessary to open the oven door for cooling. In our example, we have selected a drying program with the initial temperature of 50°C, thus it is necessary to let the oven cool down to T1<50°C. The oven door must be fully open so that the cooling ventilators connected to the door sensor may turn on, as the ventilators turn on the basis of the data from this sensor.

ATTENTION! This is very important for cooling down the oven. On the display, the oven informs and instructs the user about the necessity to open the door. After the oven has cooled down to the required temperature, which takes approximately 5 minutes, it is possible to unload the post-reflow PCB from the rack. Subsequently, the oven instructs the user to insert new PCBs, and the entire process is repeated as needed.

10. Error states

If a halogen lamp burnout occurs, it is possible to replace the lamp immediately for a lamp of the same type, or the same dimension and power. The producer recommends that you use the replacement radiators (PHILIPS Plusline Pro, typ: 494344 XX, 1000 W, cap-base R7s), supplied by your seller or by the producer of the HR–10LF table reflow oven.

The HR–10 / HR–10–DO is equipped with its own diagnostic mechanism, and in case of any error message on the display please contact your seller or the producer of the HR–10 / HR–10–DO, table reflow oven, e.g. via email on support@elpro-ke.sk

If an error occurs in the HR10LF application, we will appreciate you sending us an error report, as well as your feedback - it will contribute to the application's improvement. You can also send your comments and suggestions, for which we thank you in advance.

Please take a look at some more reflow ovens from our production as well.