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# REFLOW OVEN, FORCED CONVECTION FT02

( Item code F31114)

## INSTRUCTIONS MANUAL



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## EC Declaration of Conformity



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We certify under our responsibility that this product conforms to European Economic Community standards :

**REFLOW OVEN FORCED CONVECTION - FT02**

**(Item Code F31114) sérial number:**

Is conform to the following european standards:


- Low tension standard 73/23/EEC, modified by 93/68/EEC
- EMC standard 89/336/EEC modified by 92/31/EEC and 93/68/EEC

Is conform to the standards:

- EN 292-1, EN 292-2
- EN-60204-1

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# 1. Presentation

## 1.1 Introduction

You acknowledge receipt of the reflow oven FT02. We thank you for your choice. To get a maximum satisfaction, please carefully read this manual. In case of loss, a new manual can be sent to you free of charge; please send us so the buying date and serial number of your oven.

It includes in line many functions as 10 programmes memorisation, information display upon LCD monitor, a wide viewing window to supervise the process.

For a better safety, FT02 includes a double window with air circulation to avoid any burning risk as well as a blocking door opening to avoid any unwanted opening.

## 1.2 Working with FT02

- Use FT02 only for soldering through reflow of hybrids cards, SMT cards or glues and screenprinting inks polymerisation.
- In case of bad programmation of the oven, you can overheat the card, **and put fire on it.**
- **Never keep the machine unattended.**

## 1.3 Characteristics

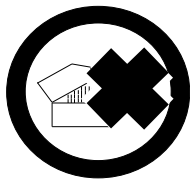
Working area	<b>190 x 290 mm</b>
Heating	<b>2 levels</b>
Quartz heating elements	<b>2 x 1 KW</b>
Temperature control	<b>by microprocessor</b>
Working temperature	<b>up to 300°C</b>
Thermic stabilisation time	<b>about 5 minutes</b>
Ext. dimensions W x l x H:	<b>410 x 400 x 310 mm</b>
Net weight	<b>17.5 Kg</b>
Power supply	<b>230 V - 50/60 Hz</b>
Electrical supply	<b>110/220 Volts, 50- 60 Hz on normalised plug 16 A with differential circuit breaker 30 mA + ground.</b>
Total power	<b>2,2 KW</b>
Noise level	<b>Lower than 50 dB(A)</b>

## 2. Transport

Before unpacking, verify the packing has no hurts. If this is the case, verify the machine state and advise the forwarder. If not, you loose your rights regarding the insurance companies

## 3. Safety

**NOTA:** If during functioning, the switch on / switch off button is switched on or the stop button pushed, the oven inside remains hot. A card inside can be damaged by high temperature.



**A HOT OVEN DOES NOT INSTANTANEOUSLY COOLED. DO NOT PUT YOUR HAND INSIDE.**

- Never make internal repair or adjustment by yourself.
- Ensure you use compatible materials dedicated to reflow ovens. Never put inside flammable or explosive materials.
- Place the oven in a ventilated area where it is not possible to get fire.
- Ensure the oven is switched off and cooled before cleaning.
- Wait 30 minutes before any manual intervention.
- Only use soft dusts and non aggressive detergent.
- Do not use cleaning solvent or air sprays.
- Do not clean the inside oven, this has to be made by a specialised technician during first maintenance.
- Once it is done, ensure all verifications were made to get a high safety functioning.
- Use anti-heating gloves to handle soldered circuits.

## 4. Installation

### 4.1 FT02 Unpacking

Unpack the oven with precaution, and keep the packing in case you have to bring the oven.

Verify the packing includes:

- **A FT02 oven**
- **A instruction manual!**

### 4.2 Placement

Put the FT02 oven on a flat area.

The FT02 oven has a viewing glass with cooling on the upper part, it is important you put nothing on it not to damage the machine.

Only use the oven in a well ventilated area. Ensure there is no fire risk.

### **WARNING!!!**

**Any electrical equipment can be hazardous if not used according to the standards. If you have not normalised plug, ask a qualified electrician to do it. You have to!**

**Connect the machine to power supply 230 V - 50/60 Hz and 16 amperes protected by a differential circuit-breaker 30 mA.**

## 5. Starting up

### 5.1 Suggestions

- First totally read the manual and use our methods before using yours.
- Keep this manual near your oven and follow the safety instructions.
- Keep your oven clean and in good functioning conditions. You will get the best results possible.
- Never keep your oven unattended.
- When temperature profile research, start with the lowest temperatures to avoid burning the components.
- Avoid any draught around the machine, it could modify the temperature profile.

## 6. Oven use

### 6.1 Front Face



The control panel has:

**3 buttons    A    B    C (yellow).**  
**1 switch on / switch off button.**  
**1 LCD display LCD to view consigns.**

**After switch on, the oven keeps in mind the latest adjustments.**

### 6.2 Remarks on infrared reflow

Infrareds are defined as radiations with wave length between approx. 0.8 microns and 400 microns. At the lowest, infrared radiations are contiguous to the luminous spectrum; at the highest, they are limited by micro-waves (radar). Any hot material has infrared radiations.

The FT 02 oven has a wide infrared spectrum. The short waves transmitters are instantaneously hot or tepid. You can so heat a product without overheating it even if it remains longtime under infrared transmitters.

### 6.3 Recommended adjustments

Using the hereunder recommended adjustments, you can solder most of the cards. On the contrary, we can not guarantee the adjustments are perfect for your applications and you need to evaluate the results before deciding to use your own adjustments. When you want to look for the good adjustments for your card, start with lowest temperatures. Starting with high temperatures or long time can cause fire by burning a card. If you see the card is overheated, immediately press the stop buttons to stop the process.

Waiting temperature:	90°C
Preheating temperature:	150°C
Preheating time:	2 min 30
Reflow temperature:	210°C
Reflow time:	1 min

## 7. Use

Switch the oven on. After few minutes, the latest consigns display on the LCD screen. The screen by defect is the following one, indicating the actual state of oven:



To the left: the actual values, to the right: the consigns.

To know the current program number and consigns of preheating, reflow and times, move into the menu thanks to **A** or **B** buttons until you see this screen:



**Px :Programme Nr**    **xxx°C : preheating consign**  
                              **xxx°C : reflow consign**

**xxx : time consign**  
**xxx : time consign**

To change of programme, press the **C** button (yellow).

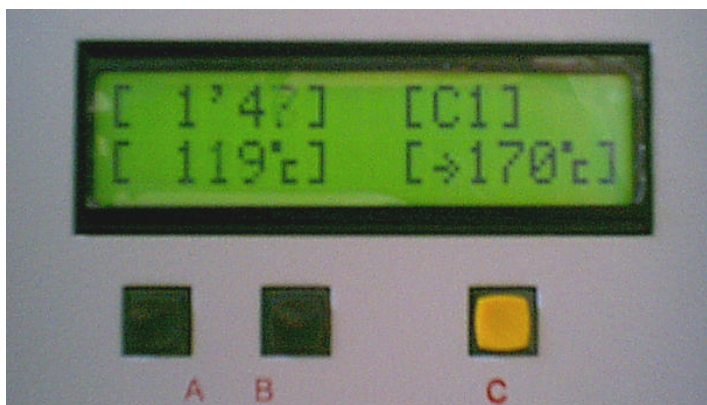


As soon as the temperature is reached, the defect screen gives the ready state of the oven as well as the chosen programme number.



**Push the C button to start the cycle**

During cycle, the defect screen displays the different process levels.



**On the top: time and cycle phase (C1 preheating, C2 reflow and C3 cooling).**

**On the bottom: probe value T0 (internal probe of the oven) and temperature consign for current phase.**

## 8. Programming

10 programmes (**P0 to P9**) can be memorised with the FT 02 oven.

Press simultaneously the buttons **A** and **B** and then slacken to enter into programming mode. Playing with **A** or **B** buttons, the 8 following functions are accessible validating by the yellow **C** button:

- |                         |                    |
|-------------------------|--------------------|
| 1. CYCLE Menu           | 4. DATE Menu       |
| 2. PREHEATING Menu      | 5. ADJUSTMENT Menu |
| 3. VENTILATION END Menu | 6. LANGUAGE Menu   |
|                         | 7. OUTPUT Menu     |

Parameters of the oven are very simple and include 4 phases. A preparing phase (waiting temperature), preheating one, reflow one and cooling one.

### 8.1 CYCLE menu



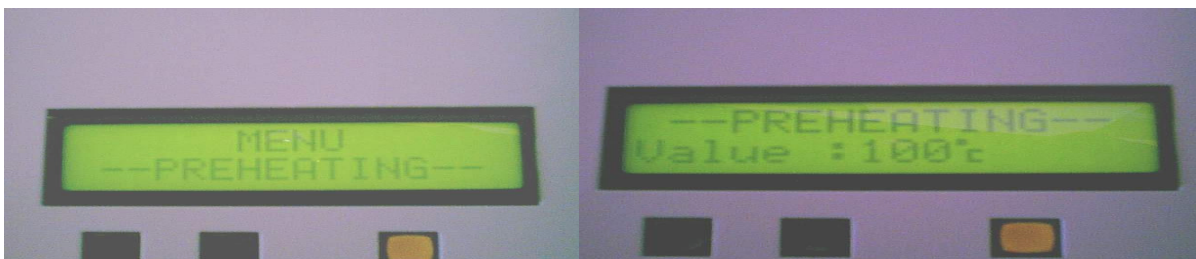
An arrow points the field, to modify it, press **C**, a star replaces the arrow, modify the value thanks to **A** button to decrease or **C** button to increase.

Press **C** again to get the arrow, move into the fields with **A** or **B** buttons.

Values modify when you exit from the menu.

The first consigns are relevant to cycle **C1** of preheating, the second ones to cycle **C2** of reflow.

### 8.2 PREHEATING menu



**Preheating menu** fixes the waiting temperature of the oven.

The **A** button decreases, the **B** one increases the value, you validate with **C** button.

### 8.3 Ventilation end menu

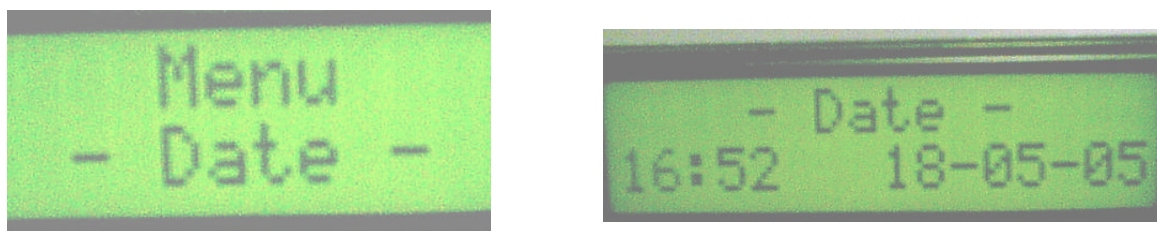
Ventilation end menu fixes cooling time before the end of the cycle.



The **A** button decreases, the **B** one increases the value, you validate with **C** button.

### 8.4 Date menu

It permits to update the date and the hour of the internal clock of the oven.

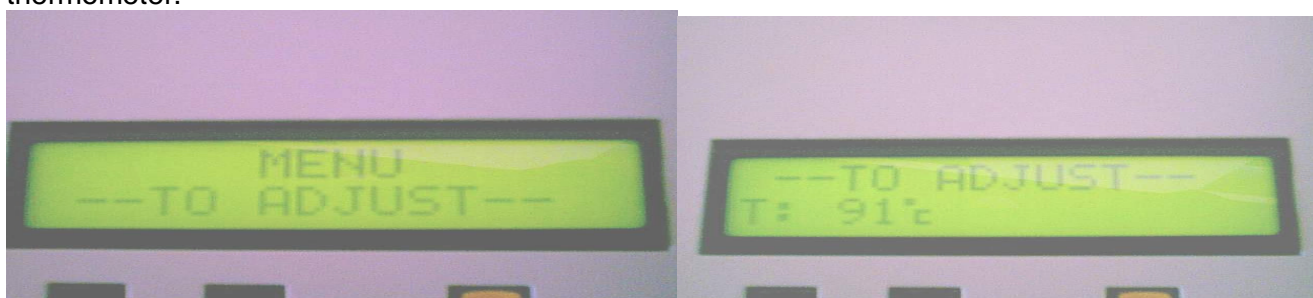


The first field flashes, modify with **A** and **B** buttons, change fields with **C** button.

### 8.5 Adjustment menu

It permits to correct the probes indication **T0**, between +/- 10 °C.

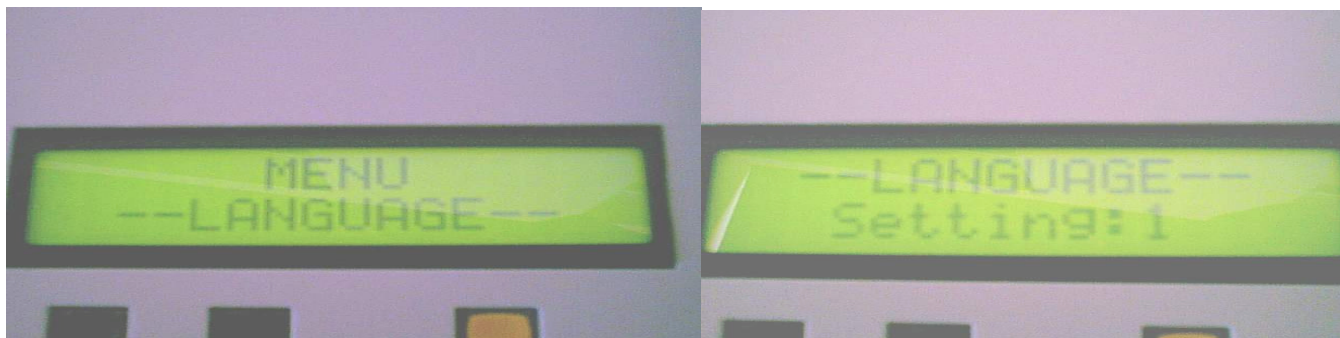
The operation is made in current temperature and in reference to the value supplied by a precise thermometer.



The **A** button decreases, the **B** one increases the value, you validate with **C** button.

## 8.6 Language menu

Possibility to choose French or English language.



Modify with **A** and **B** buttons  
Validate with **C** button.

0 French language, 1 English language.

## 8.7 Output menu

Permits to get back to the start function.



Validate with **C** button.

Consigns choice of time/ temperature depends on many criterias, including used product nature (solder paste, glue, etc.), card size, quantity and density of component sin the card, weight plans, etc. It is necessary to read carefully and respect the prescriptions of the products. It is also important to make test and note all adjustment parameters.

**Latest parameters of the reflow cycle are memorised. During starting up of the oven, preheating is done according to the latest memorised value.**

## 9. Maintenance

Clean the oven once a week thanks to a soft dust.

Do not use cleaning products inside the oven, you could damage it.

Do not use this oven to heat food.

In case of problem on this equipment, do not dismantle or repair the machine by yourself but ask your supplier or his agreed reseller.

**PLEASE KEEP IN MIND A CLEAN MACHINE WORKS PROPERLY.**

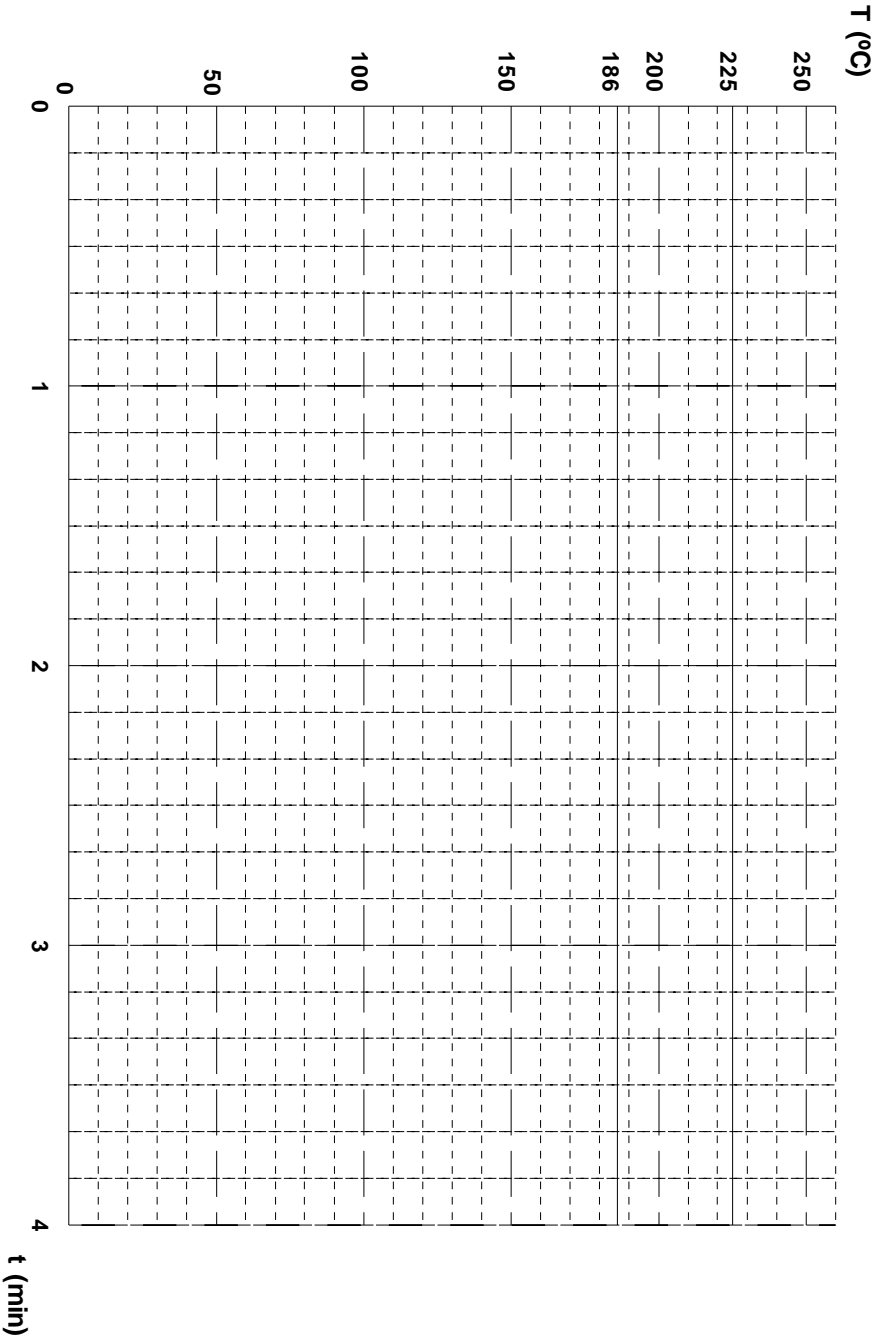
**All repairs must be made by a qualified technician agreed by CIF. Only original pieces supplied by CIF can be used.**

**For any questions about FT02 oven, contact technical services of CIF.**

**More precisely you explain your problem, easiest will be the answer. Before calling, describe and write the problems to clarify the request.**

# 10. Profile example

Use the hereunder graphic to set a temperature profile.



## 11. Scheme



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