RoboLabs

Incredible machines for fastfood & funfood

RoboFryBox One
Deep-fat fryer

User manual



Read this manual before use!

PDF version of this manual is available on www.robolabs.pro

Safety requirements



DO NOT operate without oil!



DO NOT operate with water!



Burn hazard! Hot oil!



Only instructed personnel is allowed to operate the equipment!

Contents

1 Overview **5**
- 1.1 Technical specifications . . . 5
- 1.2 Delivery set . . . 5
- 1.3 Assembling . . . 5
- 1.4 Ambient requirements . . . 6
- 1.5 Power requirements . . . 6
- 1.6 Design . . . 7
  - 1.6.1 Main components . . . 7
  - 1.6.2 Control panel . . . 7
  - 1.6.3 Light box . . . 8
  - 1.6.4 Air filter . . . 8
  - 1.6.5 Low oil and water detection . . . 8

2 Intended use **9**
- 2.1 Normal operation order . . . 9
- 2.2 Shutting down . . . 10
- 2.3 Adding oil . . . 10
- 2.4 Changing oil . . . 10
- 2.5 Water in oil (Err4) . . . 11
- 2.6 Oil temperature adjustment . . . 11
- 2.7 Program timers adjustment . . . 11

3 Cleaning and maintenance **12**
- 3.1 Cleaning instructions . . . 12
- 3.2 Filters replacement . . . 14

4 Transportation & storage **14**

5 Quality control check **15**

6 Warranty obligations **16**

7 Manufacturer details **16**

8 Technical service **17**
8.1 Error codes 17
8.2 Setup mode 18
8.2.1 Basket operation check 18
8.2.2 Fine adjustment 18
8.3 Electric components layout 20

1 Overview

RoboFryBox One is a deep fat fryer (hereinafter "unit" or "machine") intended for cooking various food in deep fat. The machine is used at public catering facilities as standalone unit, or as a part of processing line. Not for household use.

1.1 Technical specifications

Temperature adjustment range	+90–220°C
Operating oil volume	8 liters
Product load	up to 500 g per basket
Heat up time	not more than 20 min
Rated voltage	1P 230 V AC
Rated frequency	50 Hz
Rated power	3300 W
Net weight	50 kg
Dimensions (LxWxH)	350x545x820 mm

1.2 Delivery set

Unit	1 pc
Leg	4 pcs
Deflector	1 pc
Documentation	1 set

1.3 Assembling

1. Carefully unpack the machine, check delivery set and remove protective film from all surfaces.
2. Mount the legs and leg toes.
3. Put the machine on even flat surface.
4. Insert deflector in the door, under the load tray.

1.4 Ambient requirements

All items and surfaces close to the machine must be made of non-flammable materials, or have non-flammable coatings. The equipment must be operated at the ambient temperature from +5°to +40°C and relative humidity not more than 45% at 40°C. The temperature decreasing related to RH increasing, for example, 90% of RH at 20°C. Altitude above sea level should not exceed 1000 m.

1.5 Power requirements



Power outlet MUST have grounding contact!



If supply cord damaged, it must be replaced by manufacturer, service agent, or qualified persons in order to avoid hazard!



Connections must be done by qualified electrician ONLY!

Use IEC 60309 2P+PE 16 A plug:



Equipotential bonding wire (up to 10 mm^2) shall be connected to screw terminal marked with IEC 5021 sign:



1.6 Design

1.6.1 Main components

Main components of the machine are the following: 1 – Door; 2 – Latch; 3 – Light box; 4 – Control panel; 5 – Loading tray; 6 – Deflector; 7 – Leg; 8 – Paper/carbon filter assembly; 9 – Grease filter; 10 – Oil tank; 11 – Basket; 12 – Heating element; 13 – Drain valve:



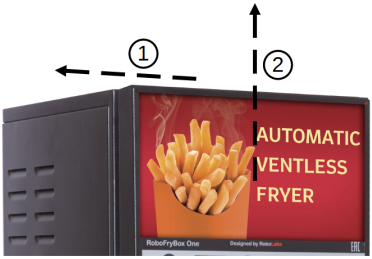
1.6.2 Control panel

Control panel has the following items: 1 – ON/OFF button; 2 – 4-digit display; 3 – program buttons:



1.6.3 Light box

Light box media can be easily changed. To change the media, first, slide the door upper edge (that is held by magnet locks), and second, remove the media:



1.6.4 Air filter

Unit has 3-stage air-filter, so no special exhausting hood is needed. First stage is a grease filter, second stage is a paper HEPA filter, and third stage is a carbon filter. Up to 98% of smallest particles less than 0,3 micron are retained.

1.6.5 Low oil and water detection

The machine can detect low oil and water in oil. If oil is low, then the machine will cut off the power supplied to the heaters and notify the operator. If considerable amount of water presents in the oil, then machine will also cuts off the power supplied to the heaters and notify the operator.

2 Intended use

2.1 Normal operation order

Make sure that machine is assembled, and all components are in its place and oil drain valve is closed. Fill frying tank with oil up to the mark (8 liters), set the basket into dumping mechanism, and latch the door. Put a suitable container for ready made product in front of the machine, under the loading tray, it may be GN container, for example. When the machine is turned off, light box is not lit, and display shows "OFF" message.

Press ON/OFF button to turn the machine on. The basket will be returned to lower position, oil is started to be heated (by default to 180°C); ventilation and backlight are on. Heating progress is to be visualized on the display. In the beginning of heating process, display shows four blinking letters: **HHHH**. While temperature is rising up, there are less **H** letters blinking. Once the set point is reached, display shows the temperature set value (180 for example). The machine is now ready for operation. To prepare a portion of product, do the following:

1. Open the loading tray and put the product in the tray (not more than 500 g per batch).
2. Close the tray.
3. Press a program button.
4. Wait until the product is being discharged automatically.



DO NOT open the tray while product is being cooked!

Each program button corresponds to a timer that defines the product residence time. Timers are adjustable, so it is possible to tailor the machine for virtually any product.

2.2 Shutting down

To end the operation, press ON/OFF button, the lightbox and the heater are turned off. After turning off, ventilation operates for 5 minutes more, and then automatically is turned off.

2.3 Adding oil

If "OIL" message appears on the display, it means that the machine has detected low oil level. Do the following:

1. Turn the machine off.
2. Close loading tray
3. Open the door
4. Carefully pour oil into the frying pan up to the MAX mark.
5. Close the door
6. Turn the machine on.

2.4 Changing oil

The same load of oil can be used for certain time, which depends on the product used, settings, and other factors. It is recommended to use special tool or testing strips to find out when oil should be changed. To change the oil, daily cleaning procedures must be performed, see Technical Maintenance section.

2.5 Water in oil (Err4)

Err4 message means that water in oil protection system was tripped. This can happen either if there is water in oil, or if the machine has been turned on with oil that was already warm, about 100°C. To fix the error, do the following:

1. Turn the machine off and turn on again. If the message is still here, proceed to the next step.
2. Turn the machine off and drain the oil. Make sure there is no water in the oil. Fill the tank with oil, and turn the machine on.

2.6 Oil temperature adjustment

1. Turn the machine off.
2. Press and hold ON/OFF button until **Pr** appears on the display, then release the button.
3. Press ON/OFF button again, **Pr-C** appears on the display. Press button #1 to decrease, or button #2 to increase the value. By default the temperature is 180 °C.
4. The machine automatically returns back to standby mode after 10 sec of idle.

2.7 Program timers adjustment

1. If machine is on, turn it off by pressing ON/OFF button.
2. Press and hold ON/OFF button for 3 seconds, **Pr** appears on the display.
3. Choose a program (buttons #1 to #4).
4. Set the time, by pressing buttons #1 (decrease) or #2 (increase).

5. Press ON/OFF button to save the new value.
6. To set another timer, repeat steps 3 to 5.
7. The machine automatically returns back to standby mode after 10 sec of idle.

3 Cleaning and maintenance



ALWAYS unplug before cleaning!



DO NOT use excessive water for cleaning!



DO NOT use aggressive solutions for cleaning!



DO NOT use sharp tools or items for cleaning!



Wait until oil is cooled down!

The purpose of cleaning and maintenance is to keep the machine operable during the entire service life and to meet hygiene requirements.

3.1 Cleaning instructions

In the end of a day do the following:

1. Let the oil to cool down.
2. Attach oil drain hose to the valve, get ready a drainage container, and put free end of the hose into container.

3. Open the valve and wait until oil is drained to the container.
4. Close the valve.
5. Take out the loading tray assembly, and detach tray and deflector (Fig.1).
6. Take out the basket (Fig.2).
7. Lift up the heaters assembly until it is locked in upper position (see Fig.3). To unlock the heater, pull it up, and pull up the pin on the left side of the chamber, and then put the heater down.
8. Take out the frying tank. Pour the oil remains to the drainage container (see Fig.4).
9. Take out paper/carbon filter assembly (see Fig.5). **DO NOT wash or soak the filters!**
10. Take out the grease filter (see Fig.6).
11. Thoroughly wash basket, tank, heaters assembly, internal surfaces of the chamber, grease filter, loading tray and deflector. Use warm water and mild detergent suitable for stainless steel.
12. Wipe dry immediately.

Fig.1



Fig.2



Fig.5

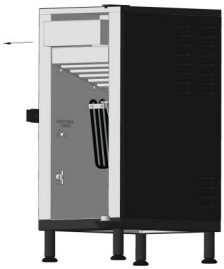


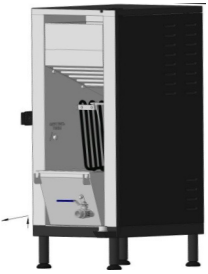
Fig.6



Fig.3



Fig.4



3.2 Filters replacement

Change paper filter every 2–3 months, carbon filter — every 4–6 months. Depending on intensity of machine operation, the period may vary.

4 Transportation & storage

The equipment may be transported by any kind of covered vehicle, in accordance with transportation rules for this kind of vehicle. Ambient temperature during the transportation and storage must be between minus 25°C and +55°C.

5 Quality control check

Product name	Serial #

The equipment is made with accordance to mandatory requirements of the state standards, actual technical documentation, and approved for use.

QC Engineer

STAMP HERE

Signature	Full name

DD.MM.YYYY

Actuator factory parameters:
A1 —
A2 —
A3 —
A4 —

6 Warranty obligations

The manufacturer guarantees trouble-free operation of the equipment during 12 months from the date of receiving the equipment by a dealer (in accordance with transport documentation); or, in case of purchase directly through RoboLabs LLC, from the date of purchase, given that terms of using, transportation, and storage are met.

The warranty repair is performed upon presentation of this manual and filled warranty card with the seller's seal and the date of sale. Technical specifications of the equipment can be changed by manufacturer at any time due to improvements and/or other reasons. Technical specifications stated in this document are intended to act as a reference point, which is necessary to evaluate suitability of the equipment for the customer's needs, and are not the subject of warranty policy.

The information stated in this document has been thoroughly checked and considered as accurate one; nevertheless, the manufacturer is not responsible for any typographical errors or misprints.

Due to constant improvement of the equipment, technical specifications are subject to change without prior notice!

7 Manufacturer details

RoboLabs LLC
11 Industrialnaya Street, Tver, 170100 Russia
Technical support:
Email: support@robolabs.pro
Phone: +7 495 956 4000

8 Technical service



This section is for qualified technical personnel only!

8.1 Error codes

Below is the list of error messages that may appear on the display and responding actions suggested.

Err#	Meaning	Action
Err1	Temperature sensor BT1 readout is beyond the range of 0–300°C during 3 seconds	Check integrity of the sensor wires, their connections, and the sensor itself. Fault sensor must be replaced.
Err2	Temperature sensor BT2 readout is beyond the range of 0–300°C during 3 seconds	Check integrity of the sensor wires, their connections, and the sensor itself. Fault sensor must be replaced.
Err3	Sensor BT2 readout exceeds sensor BT1 readout for more than 20°C	Check that the sensors are connected to proper inputs on the temperature regulator unit.
Err4	Water in oil detected	See Intended use section

8.2 Setup mode

In setup mode it is possible to check the basket drive operation and also to change some parameters of the machine. To enter the setup mode, press and keep pressed button #4, and then press ON/OFF button once. Once **St** message appears on the display, release the button #4.

8.2.1 Basket operation check

Press and hold the button #3. Basket is being dumped while button is kept pressed. Once the button released, basket returns back automatically.

8.2.2 Fine adjustment

Use ON/OFF button to list parameters. Use button #1 to decrease and button #2 to increase the value. NOTE: all values are represented in decimal format (ds or dd). For example, 150 ds is equal to 15 seconds.

Param	**Meaning**	**Default value**
A1	Basket return time, ds	0150
A2	Basket operation full cycle duration, ds	0300
A3	Time to drain-stop, ds	0030
A4	Drain-stop duration, ds	0070
P	Proportional band, dd	0003
I	Integral time, ds	0500
D	Derivative time, ds	0100
H1	Temperature difference (oil level check), dd	0200
H2	Forced heating temperature difference, dd	0100
H3	Forced heating time, ds	0200
temp	Oil temperature real time indication	OFF

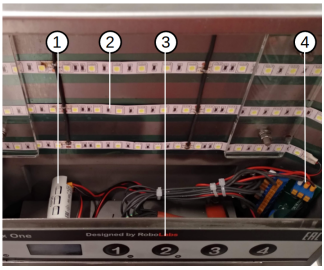
To reset all parameters to default values, press buttons #2 and #4 simultaneously, and then release them after 3 seconds (the display shows **DEF** message).



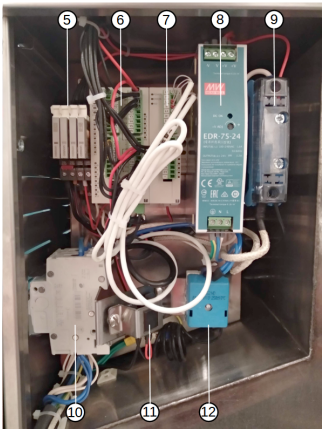
Parameters A1—A4 MUST be set accordingly to the values written down in the Quality Control check section of the manual that came with this particular unit!

To exit the setup mode, press ON/OFF button after all parameters were listed through, or just doesn't press anything for 30 seconds. The machine will exit automatically.

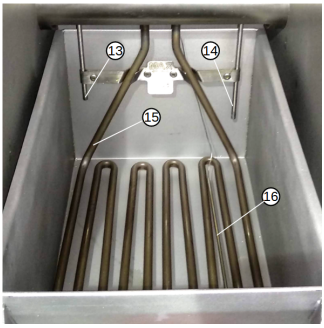
8.3 Electric components layout



1 – 4-digit display (DC3)
2 – LED stripes (HL1–HL4)
3 – Keypad (KE)
4 – Keypad socket (XS)



5 – Electromechanical relays (K1–K4)
6 – Programmable logic controller (DC1)
7 – Temperature regulator (DC2)
8 – Power supply unit (PSU)
9 – Solid-state relay (VS)
10 – Circuit breaker (QF)
11 – Buzzer (BZ)
12 – Thermal cut-out (AT)



13 – Temperature sensor (BT2)
14 – Temperature sensor (BT1)
15 – Heating element (EK)
16 – Thermal cut-out bulb (AT)