Sk Resident

RoboLabs

Incredible machines for fastfood & funfood

TECHNICAL MANUAL

ROBOPOP® 60 (VPM-RM4)

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

TESTING MODE

In testing mode, main machine components may be tested. From the start screen, press SETTINGS, type '3333' password, and confirm with ENTER. Testing screen will appear:

There are buttons and indicators that are responsible for certain components of the machine:

VFD MOTOR RS485	turbine drive
Y0.SA SIFTER	sifter motor
Y1.SA OIL PUMP	oil pump motor
Y2 CORN FEED.L	left corn feeder motor (Butterfly)
Y3 CORN FEED.R	right corn feeder motor (Mushroom)
Y3.SA SALT FEED	salt feeding auger motor
Y4.SN SALT FAN	salt blowing fan
Y0.SN HEATER_0	1st group of heating elements[1]
Y1.SN HEATER_1	2nd group of heating elements
Y5.SN BUZZER	Buzzer
X0 Sensor Chamber	chamber sensor condition
X1 Button SIFTER	SIFTER button condition
X2 Button WARM	OIL WARM switch condition
X3 Sensor Corn Left	left corn hopper sensor condition
X4 Sensor Corn Right	right corn hopper sensor condition
X5 Sensor Bag	cart sensor condition
X6 Heater control	AL1 signal from safety temperature limiter
Probe Type K	type of temperature sensor

In the low part of the screen there are buttons for adjusting turbine speed (VFD), oil and salt supply rates, and also current chamber temperature. Turbine speed and oil/salt supply rates are only valid in testing mode and don't affect program settings.

1 Heating elements can be activated only while the turbine is on.

SAFETY TEMPERATURE REGULATOR

Temperature set point (SV) is 370°C by default. Note that after changing in-t (temperature sensor type) or Un-t (temperature unit) values, parameters H-Su, L-Su, AL1, AL2, AHYS must be set again.

PARAMETER	VALUE	DESCRIPTION
in-t	K.CA	Temperature sensor type
L-Su	250	SV low-limit value
H-Su	400	SV high-limit value
out	rLY	Control output type: relay
C-md	onoF	Control mode type: ON/OFF
AL-1	Ani.L	Alarm operation mode
AHYS	10	Alarm output hysteresis
AL1	-20	Alarm temperature
HYS	20	Output hysteresis
LoC	LoC3	Lock settings: all locked, except SV

The regulator has three setting groups: SV setting group, 1st setting group, and 2nd setting group. Setup order is the following: 2nd group >>>1st group >>> SV group.

To access the second group of parameters, press and hold orange MODE button for 4 seconds; once you see PAr2 on the display, release the MODE button. To access the first group of parameters, do the same, but hold the MODE button 2 seconds, until you see PAr1 on the display.

Use MODE button to list parameters. Use “<<” button to see the actual value of the parameter. Use up or down arrow keys to change the value. Once the new value is set, press MODE button to proceed to the next parameter.

Before changing parameter’s values, the parameter LoC must be set to oFF.

VFD SETTINGS

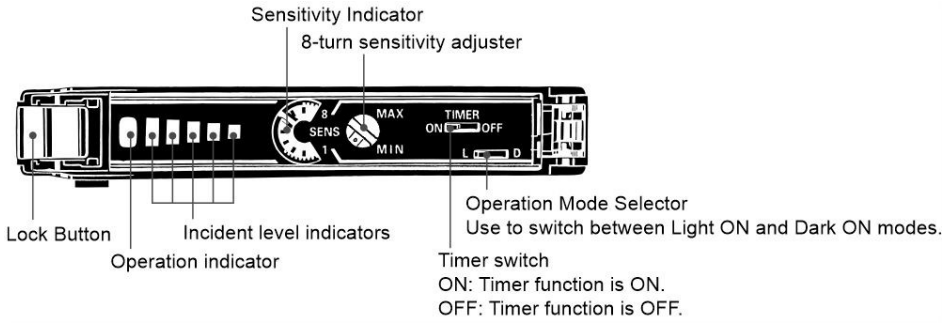
PARAMETER	VALUE	DESCRIPTION
00.03	0	Start-up display selection: display the frequency command value (Fxxx)
01.00	60.00	Maximum output frequency
01.16	4	Auto acceleration/deceleration
02.00	3	Source of first master frequency command: RS-485
02.01	4	Source of first operation command (RS-485)
02.04	0	Motor direction control
02.07	1	Up/Down mode
02.10	1	Combination of the first and second master frequency command
02.11	40.00	Keypad frequency command
09.00	5	Communication address of the VFD
09.01	1	Transmission speed (9600 bps)
09.02	3	Transmission fault treatment (keep operating)
09.04	1	Communication protocol (ASCII 7, E, 1)

To change or view parameter value, press ENTER key, the display shows 00. then use up or down arrow keys to choose the group number (for example, 02.). Now press ENTER again, display shows 02.00. Use up or down keys to choose the parameter, for example, 02.11. Press ENTER again to see the current value. Change value, if needed, with up or down arrow keys. Press ENTER to save the new value, and the display shows End. Use MODE button to return back to the previous level of selection or to the main mode.

To change the mode of display, press MODE button few times, until the display shows F00.0. Use up and down arrow keys to change the reference frequency. It must be between F30.0 and F40.0

CHAMBER OPTICAL SENSOR

The optical sensor consists of three parts – a heat-resistant head, an optical amplifier, and an optical fiber between them. Optical amplifier is located in the upper electric compartment of the machine. This is how it looks like:



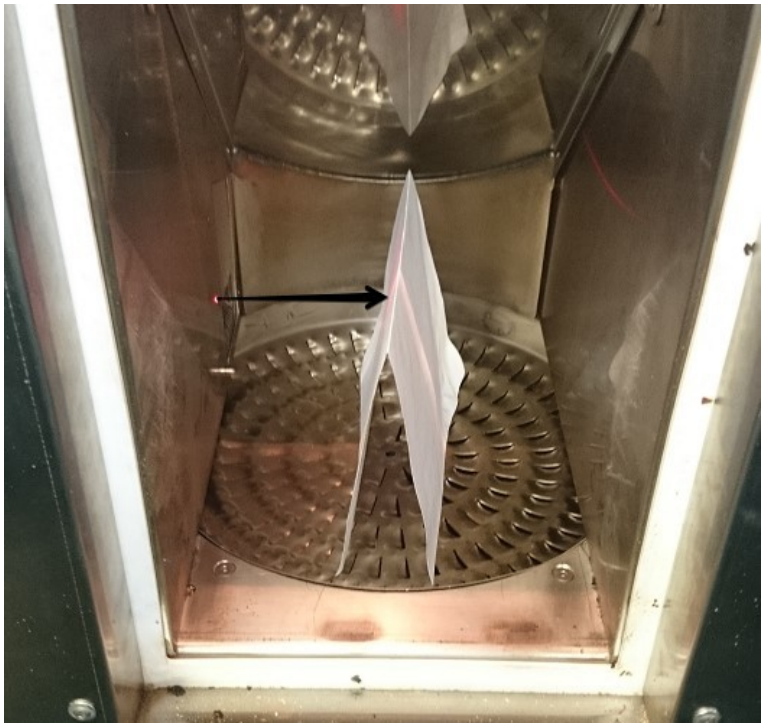
Timer switch must be set to OFF position.

Operation Mode Selector must be set to L position.

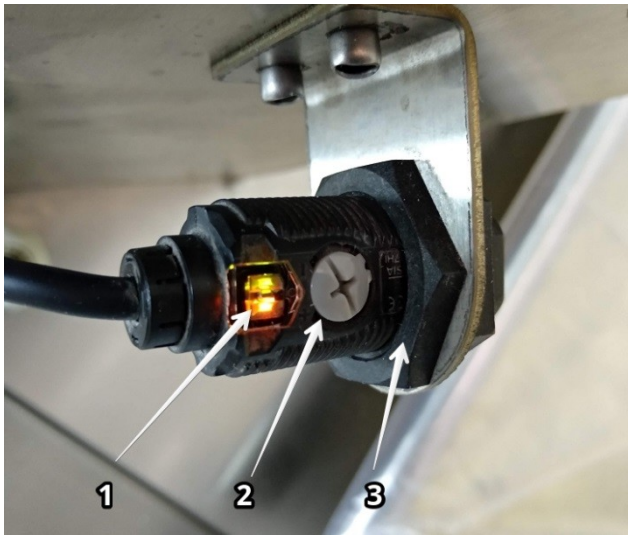
The operating distance must be 1–3 cm.

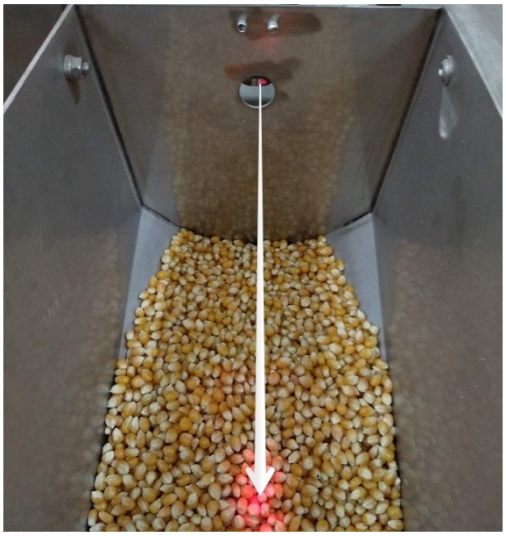
To adjust the operating distance, put a folded sheet of white paper in the chamber in such a way to interrupt the sight line of the sensor, as shown on the picture below. Make sure that the sensor's head is clean.

Slowly rotate adjusting screw to catch the point where the Operation indicator is lit up.



HOPPER OPTICAL SENSOR





Operating distance of each sensor can be adjusted with adjustment screw 2 (coarse tuning), and locking nut 3 (fine tuning). Use operating indicator to see the current status of the sensor. Also you can see the status of the sensor in the testing screen of the machine (from the main screen press SETTINGS – 3333 – ENTER).

If you see “Corn sensor delay” parameter in the machine settings (from the main screen press SETTINGS – 6666 – ENTER), operating distance must be adjusted with hopper full for 1/3 of the volume (5 kg of corn approx.). Otherwise the operating distance must be adjusted for minimal amount of corn in the hopper.