Instructions Manual

PREMIUM pumping and bottling device with a turntable

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The manual covers following devices (codes):

W204002P, W204002PZ

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1. General safety instructions, intended use

Before first use read the manual carefully and follow the instructions contained therein. The manufacturer is not liable for damage caused by equipment used inappropriately or by incorrect handling.

1.1. Intended use

1. The device is designed to automatically dispense honey into jars or to pump/cream honey

2. Before use, the appliance must be thoroughly cleaned with hot water and a small amount of detergent approved for cleaning food equipment.

1.1. ELECTRICAL SAFETY

Make sure that the nominal voltage of the device and power source are compatible and the socket is grounded

The electrical supply system must be fitted with a residual-current circuit breaker with rated tripping current not higher than 30mA. Performance of the circuit breaker should be checked periodically.

Periodically check the condition of the power cord. Replace the power cord if damaged. Replacing the power cord can only be performed by the manufacturer or by qualified personnel.

Do not use the device if the power cord is damaged!

Short-circuit on the outputs of the controller can lead to damage to the device.

1.3. Operation safety

a) a) The device is not intended for use by persons (including children) with limited physical, sensory or mental abilities, or by inexperienced users, unless under supervision or with instructions given by an accountable party.

This device is not a toy, and shouldn't be used as one. Children should not to play with it.

b) In the event of damage to the device, to avoid any health and safety risks, repairs should be carried out only by qualified personnel.

c) Do not use the device near any flammable materials.

d) Never carry out any maintenance or repairs during operation or if the device is plugged in!

e) In case of any danger, use the safety switch immediately.

f) The device can be restarted after the hazard has been eliminated.

g) For indoor use only. The device is not suitable for outdoor use.

h) Protect the motor and the control unit from moisture (also during storage).

i) Do not pull the power cord.

j) Keep the power cord away from heat sources and sharp edges to ensure its good condition.

2. Instructions for use

NOTE!

HONEY INTENDED FOR BOTTLING SHOULD BE WARMED UP TO 30°C.

POUR HONEY INTO THE PUMPING UNIT BEFORE USING THE DISPENSER.

2.1. Dispensing/extra dose mode

Presented FM-02 controller is a device that controls the operation of the dosing pump and controls the execution of the creaming cycle. The device is fully programmable and gives the possibility to precisely set the dosing sequence. The operation of the device is facilitated by an interactive, intuitive screen menu.

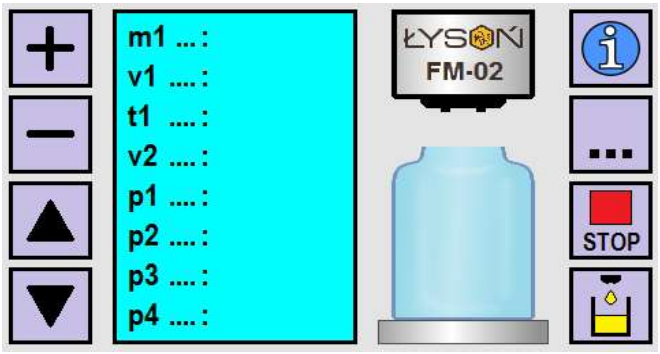


Fig 1. Controller operation screen – selected dosing / extra dose mode

Button	Function
„plus” button	Increase the value of the selected parameter.
„minus” button	Decrease of the value of the selected parameter.
„up” button	Navigating through the parameters – place the cursor on the parameter to modify it
„down” button	
„i” button	Display of the currently selected parameter description. Button active in stop state.
„…” button	Operation mode selection button: dosing <-> creaming / pumping. Button active in stop mode.
„STOP” button	Stop button
„extra dose” – 1g button	Single application of the minimum dose. Pressing and holding the button dispenses 1g and then activates continuous weighting mode which continues until the button is released.

PARAMETER	FUNCTION
m1	Programming the dispensing mode of the controller is done by modifying a set of parameters that configure the dispensing process. Modified parameters directly influence the shape of the dosing curve - presented on figures 2 and 3. All modifiable parameters have been gathered in groups - having a common letter index.
v1	The parameter regulates the speed of dosing. The adjustment range is 50[%] - 100[%]. The setting raster is 10[%]. The parameter setting does not reset after switching off the power supply.
t1	Parameter regulates the time of reverse movement of the pump rotor - blocking the dripping of the honey. The range of adjustment is 10-900[ms]. The setting raster is 10[ms]. The parameter setting does not reset after switching off the power supply.
V2	Parameter regulates the speed of the pump during extra dose filling (one dose of 1[g]). If the operation time in the pumping direction remains constant, the change of speed results in the change of the dosed amount. Increasing the speed increases the dosed amount. The range of adjustment is 40[%] - 100[%]. Setting raster is 5[%]. The parameter setting does not reset after switching off the power supply.

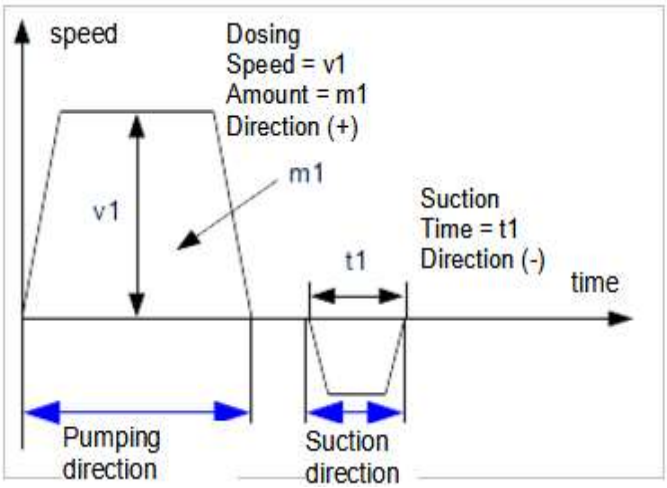


Fig 2. m1 dosing cycle.

Fig 2. m1 dosing cycle.

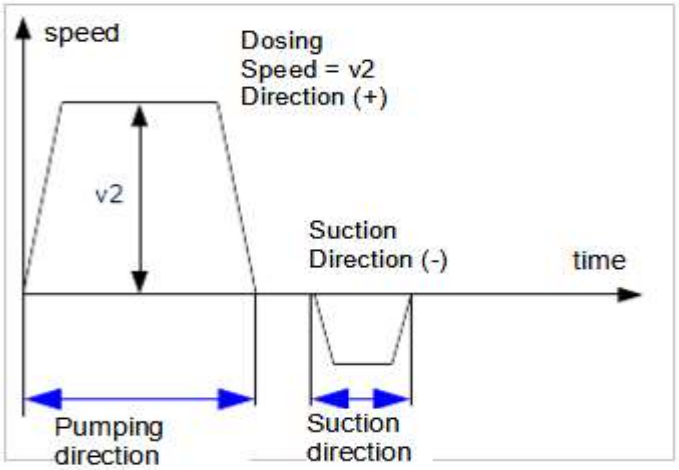


Fig 3. extra dose cycle 1[g]

2.2. CREAMING / PUMPING MODE

The process of creaming using a dispenser is based on the principle of pumping honey from one container to another. The process consists in cyclical pumping of the honey over several days until the appropriate consistency is achieved.

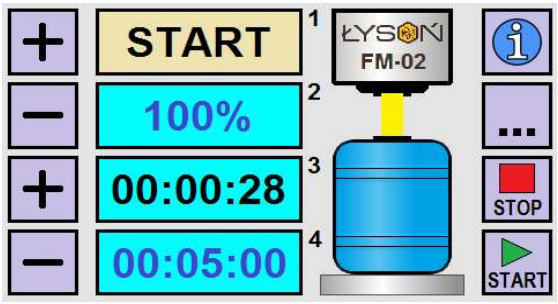


Fig 4. CREAMING / PUMPING MODE screen

Additional mode parameters

PARAMETER	FUNCTION
p1	Counter of dosing cycles. It is possible to enter any value as the starting value. The counter range is 0-999.
p2	Filling progress indicator. The displayed value represents the percentage of filling completion in relation to the value set by parameter m1. The indication varies from 0[%] to 100[%]. The indication raster is 1[%].
p3	Positive correction factor. The factor enabling precise increase of dosed mass m1 - in case when the dosed mass is smaller than the set value and the 10g jump is too big to precisely set the required dose. Increasing of the factor value increases the dosed amount. Range of settings is 0-50. The coefficient is not related to the current mass setting, i.e. it adds the same value (mass) to the setting of 50[g] as to 1500[g]. The parameter setting does not reset after switching off the power supply.
p4	Negative correction factor. The factor enabling precise decrease of dosed mass m1 - in case when the dosed mass is bigger than the set value and the 10g jump is too big to precisely set the required dose. Increase of the factor value decreases the dosed amount. Range of settings is 0-20. The factor is not related to the current mass setting, i.e. it subtracts the same value (mass) to the setting of 50[g] and 1500[g]. The parameter setting does not reset after switching off the power supply.

Field	FUNCTION
1	Pump status (START / STOP).
2	Pump status (START / STOP).
3	Elapsed time counter. Changing the timer resets the counter
4	Time left to the program finish

BUTTON	FUNCTION
Upper „plus” button	Increase of the creaming / pumping speed. Setting range 50% ... 100%.
Upper „minus” button	Reduction of the creaming / pumping speed. Setting range 50% ... 100%.
Upper „minus” button	Increases the timer time after which the pump will stop automatically. The display 00:00:00 deactivates the automatic pump stop function. Change of setting possible in start mode.

Upper „minus” button	Reduces the timer time after which the pump will stop automatically. The display 00:00:00 deactivates the automatic pump stop function. Change of setting possible in start mode
„I” button	Help screen
„…” button	Operation mode selection button: dosing <-> creaming / pumping. Button active in stop mode.
„STOP” button	Pumping stop button
„START” button	Pumping start button

2.3. CONTROLLER DIAGNOSTICS

The FM-02 controller is equipped with a set of advanced diagnostic procedures – allowing to perform tests. In order to enter the diagnostics mode, press the button no. 5 in the appropriate phase of the controller start-up (see figure below).

Fig 5. *Controller screen view during start-up*

The diagnostics screen is divided into 14 sections with the functions described below. The diagnostics screen disappears automatically after approximately 25 seconds.

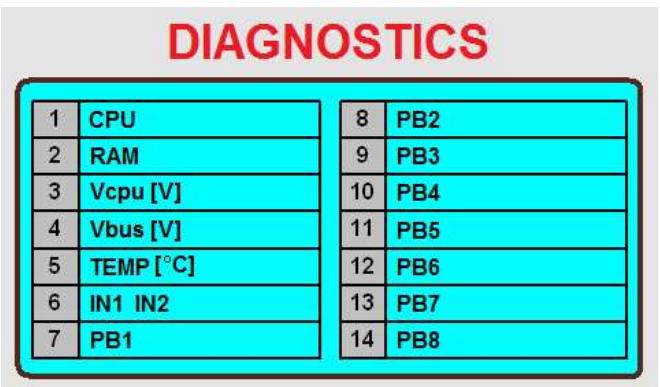


Fig 6. View of the controller diagnostics screen.

Section	Description	Indication	Function
1	CPU	1E9705	Displaying a value other than 1E9705 indicates damage to the main processor.
2	EEPROM	OK / ERROR	If repeated (despite restarts of the controller) ERROR indication means damage of the controller EEprom memory cell/s.
3	Vcpu [V]	4,60 – 5,40	Measurement of the voltage supply to the controller's CPU module. Indication out of range means damage / overload of the power supply or damage to the CPU module
4	Vbus [V]	4,30 – 5,70	Measurement of the voltage at the data communication interface to the inverter. Out of range value

			indicates inverter failure or interruption of the controller <> inverter connection
5	TEMP [°C]	5 - 65	Measurement of the temperature inside the controller box. The values read should not exceed the specified range.
6	IN1 IN2	0 / 1 0 / 1	Testing the operation of the dosing start input (IN1) and the emergency button (IN2).
7	PB1	0 / 1	Button test 1.
8	PB2	0 / 1	Button test 2.
9	PB3	0 / 1	Button test 3.
10	PB4	0 / 1	Button test 4.
11	PB5	0 / 1	Button test 5.
12	PB6	0 / 1	Button test 6.
13	PB7	0 / 1	Button test 7.
14	PB8	0 / 1	Button test 8.

2.4. ERROR CODES

The FM-02 controller is equipped with advanced error detection mechanisms. The detection of any error initiates an emergency stop action and calls up the error report screen. The error report screen is displayed continuously. It is therefore necessary to switch off the power supply, remove the error source and restart the controller.

Fig 7. Controller error report screen view

Section	Description	Indication	Error description
1	CPU	OK / ERROR	The ERROR indication means an error of the data memory of the main processor of the controller. The most frequent reason of such failure is a damage caused by electrostatic discharge.

2	RAM	OK / ERROR	Wskazanie ERROR sygnalizuje wykrycie błędu spójności danych pamięci RAM sterownika. Sytuacja taka możliwa jest w przypadku pracy sterownika w środowisku o zbyt dużym poziomie zakłóceń. Powodem takiego stanu rzeczy mogą być: uszkodzone połączenia kablowe, uszkodzony falownik, uszkodzona obudowa falownika. Innym powodem występowania takiego błędu może być uszkodzenie modułu procesora głównego powstałe głównie wskutek wyładowań elektrostatycznych
3	Vcpu [V]	OK / ERROR	Wskazanie ERROR oznacza, że zmierzone napięcie zasilania modułu sterownika wyszło poza dopuszczalny zakres. Sytuacja taka oznacza awarię lub przeciążenie zasilacza 5V, awarię sterownika lub uszkodzenie połączenia kablowego zasilacz <> sterownik.
4	Vbus [V]	OK / ERROR	Wskazanie ERROR oznacza, że napięcie zmierzone na złączu transmisji danych do falownika wyszło poza dopuszczalny zakres. Sytuacja taka oznacza awarię falownika, awarię sterownika lub przerwę w połączeniu kablowym falownik <> sterownik.
5	TEMP [°C]	OK / ERROR	Wskazanie ERROR oznacza, że temperatura zmierzona wewnątrz obudowy sterownika wyszła poza dopuszczalny zakres 5 °C do 65 °C. Powodem takiego stanu rzeczy może być przeciążenie falownika lub użytkowanie miodarki w warunkach temperaturowych z poza dopuszczonego zakresu.
6	STATUS	OK / ----	
7	PB1	OK / ERROR	The ERROR indication signals the detection of a controller RAM data consistency error. This situation is possible when the controller operates in an environment with too much interference. The reasons for this may be: damaged cable connections, damaged inverter, damaged inverter housing. Another reason for such an error may be damage to the main processor module caused mainly by electrostatic discharges
8	PB1	OK / ERROR	As above
9	PB1	OK / ERROR	As above
10	PB1	OK / ERROR	As above
11	PB1	OK / ERROR	As above
12	PB1	OK / ERROR	As above
13	PB1	OK / ERROR	As above
14	PB1	OK / ERROR	As above

3. Setting up and operation

NOTE!

HONEY INTENDED FOR DOSING SHOULD BE WARMED TO 30 °C.

POUR A LITTLE HONEY OVER THE TOOTHED MODULE BEFORE STARTING TO WORK WITH THE DISPENSER.

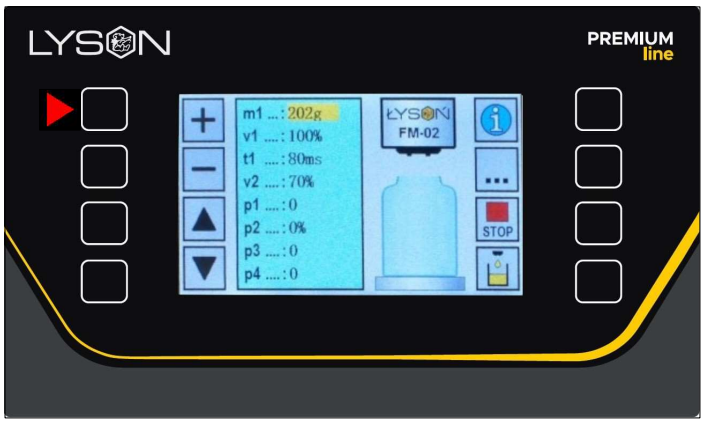
There are two ways of filling the module with honey:
One:

1. Connect the hose to the dispenser module using a clamp, taking care to seat the gasket correctly.
2. Then pour approximately 1 kg of honey into the other end of the tube.
3. hold the hose up until the honey flows into the toothed module.
4. the tube is transparent so you can see when the honey flows into the module.
5. when the honey flows into the module place the hose in the honey container press and hold the "No8" button until the honey is sucked in.
6. when the hose is completely filled with honey release the No8 button - the dispenser will stop.

Two:

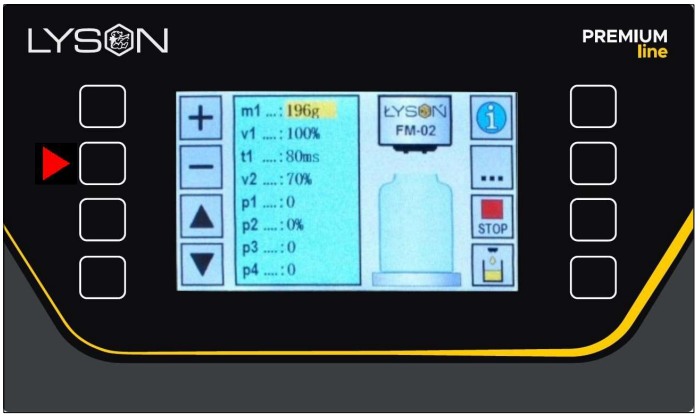
1. Pour honey generously over the rotor using a large syringe.
2. Put the hose on, taking care that the gasket is seated correctly. Place the other end of the hose into the container with honey and press and hold the "No8" button until the honey is sucked in and fills the suction hose. 3.
3. Pass a small amount of honey through to remove the air that has remained in the hose, thus avoiding uneven filling of jars.
4. remember to place a honey container or jar under the dispenser nozzle.
5. When the hose is completely filled with honey release the button no8 - the dispenser will stop.
6. after completing the above steps proceed to setting the dispenser.

3.1. SETTING THE CONTROLLER FOR HONEY DOSING



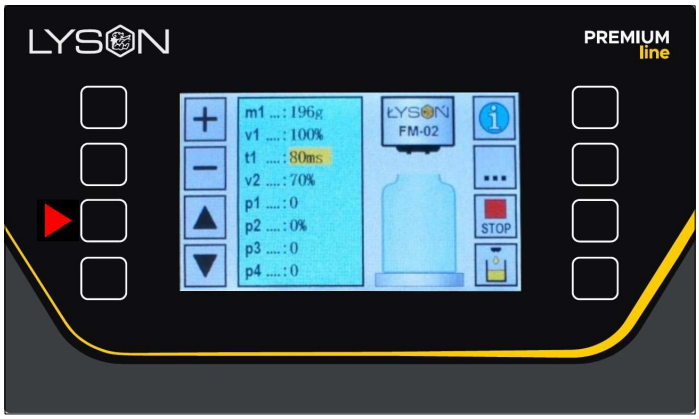
Fot. 1 *Increasing the value of a parameter*

After starting the controller we can set the individual parameters needed for programming the controller. The dispenser after switching on displays the parameters which are set using the buttons **„plus" (No1), „minus" (No2)**

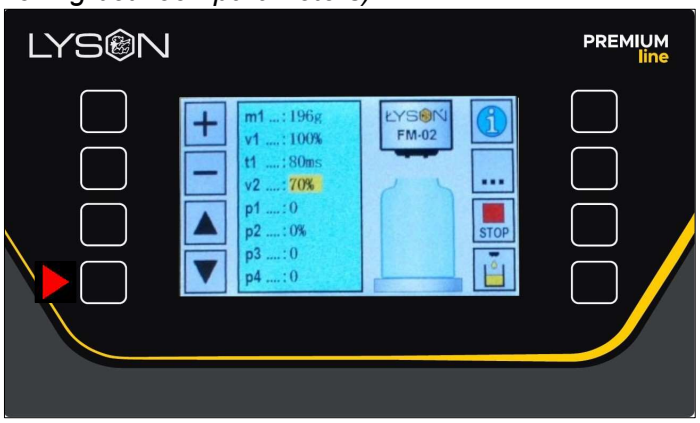


Fot. 2 *Decreasing the value of a parameter*

To move between parameters, press the **"up" arrow button (No3) or the "down" arrow button (No4).**



Fot. 3 *Parameter selection by "up" or "down" arrow (moving between parameters)*



Fot. 4 *Parameter selection (moving between parameters)*

> The controller is ready to make changes to the parameters as soon as it is switched on.

> After setting, the dispenser automatically remembers the changed parameters.

DESCRIPTION OF THE PARAMETERS

– **m1** parameter is used for setting the mass (number of grams of honey to be dosed by the device).

The range of adjustment is 4-45000[g].

The parameter setting does not reset after

switching off the power supply.

– **v1** honey pouring speed - e.g. 100%. If the honey is pumped too quickly and aerates too much, then we decrease the filling speed, e.g. to 70%.

The range of adjustment is 50[%] - 100[%].

The parameter setting does not reset after switching off the power supply.

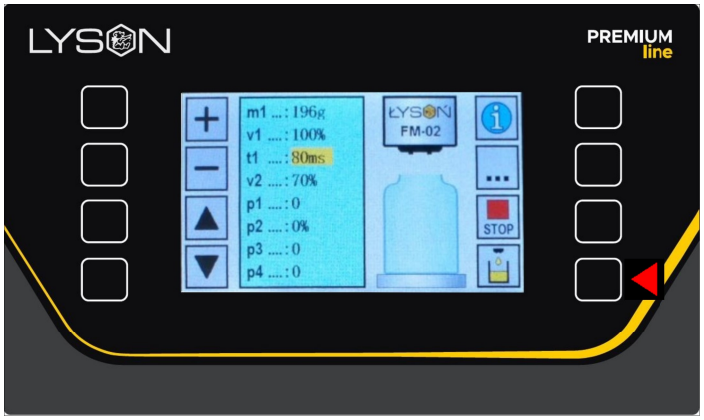
– **t1** is the reversal time in ms. It is best to set this parameter only after the first attempt to pour honey into jars. Then it is easy to determine whether the dispenser withdraws honey fast enough to prevent dripping. The range of adjustment is 10-900[ms].

The parameter setting does not reset after switching off the power supply.

– **v2** This parameter is used to adjust the dispenser to dispense 1g of honey. The adjustment consists in setting the rotor rotational speed with respect to the density, viscosity, and temperature of the honey.

The parameter setting does not reset after switching off the power.

*Place the jar on the scale, tare the scale, press button **No8** (i.e. reweighing) and check the result on the scale if it indicates 1g. (manual option used when filling jars using button **No8** or footswitch)*
range 40[%] – 100[%]



***Fot. 5** Button for boost or continuous pump operation (press and hold to run the pump continuously)*

-**p1** ndoes not need to be set.
You can use the parameter by setting, for example, the number of jars poured the day before in order to have continuity of charging.

Counter range is 0-999.

–**p2** not to be set, parameter displays jar fill level in %.
–**p3** Positive weight calibration (1g)

It is used to calibrate (increase) the parameter **m1**.

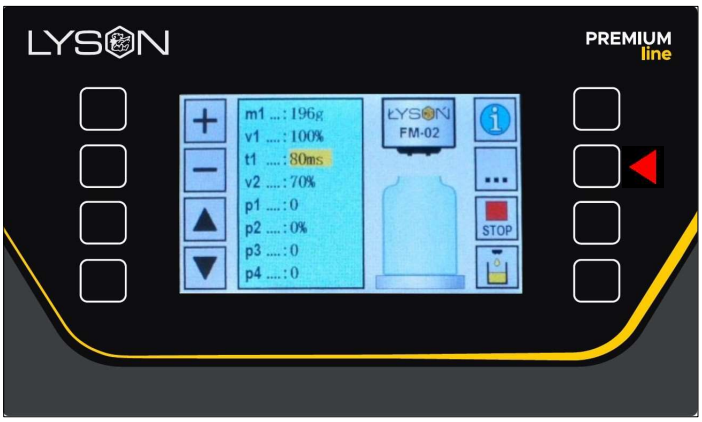
If set mass **m1=e.g. 500g** is not sufficient and after filling the jar the scale indicates **495g**, and there is no possibility to set parameter **m1** more precisely, then it is possible to make correction using parameter **p3.**

Set parameter **p3=5** (i.e. missing 5g), which increases the weight of **m1** by 5. After starting work, the dispenser sums up the weight settings from parameter **m1+p3** and measures **500g** of honey into the jar.

Adjustment range 0-50

The parameter setting does not disappear after switching off the power supply.

- **p4** - Negative weight calibration (1g)
It is used to calibrate (increase) the parameter **m1.**



If the set weight **m1=e.g. 500g** is too large and after filling the jar the scale indicates **505g,** and there is no possibility to set parameter **m1** more precisely, then it is possible to make a correction using parameter **p3.**

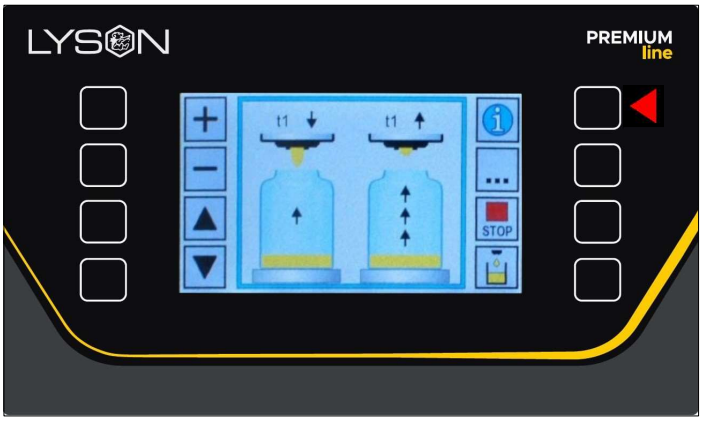
Set the parameter **p3=5 (i.e. 5g over),** which increases the weight of **m1** by 5. After starting work, the dispenser sums up the weight settings from the parameter **m1+p3** parameter and measures **500g** of honey into the jar.

Adjustment range 0-20

The parameter setting does not disappear after turning off the power.

3.2. INFO BUTTON

It gives the possibility to display graphic information about the given parameter. Pressing the button activates the graphic display and pressing the "i" button (No5) deactivates the graphic display.This parameter is a form of hinting what the parameter is responsible for.



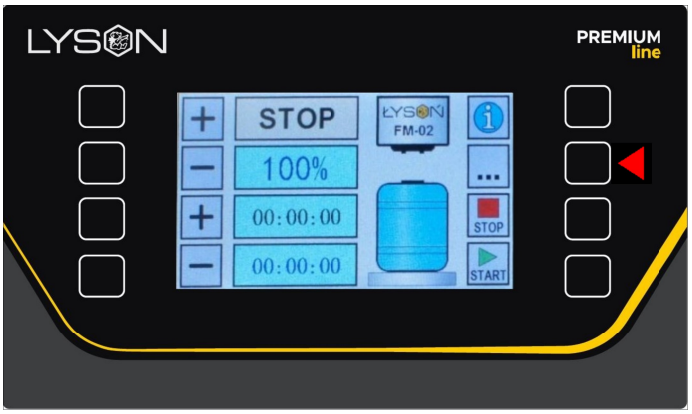
Fot. 6 *Info button*

3.3 Creaming/pumping mode settings

The honey creaming mode involves pumping the honey, i.e. running the pump in continuous mode. The controller offers the possibility of setting the pumping/creaming for a specific time.

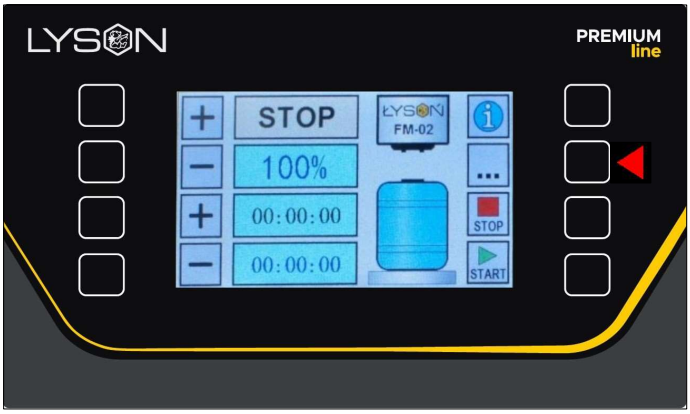
Note!

Pull out the dispensing nozzle immediately before starting the creaming or pumping process!!!

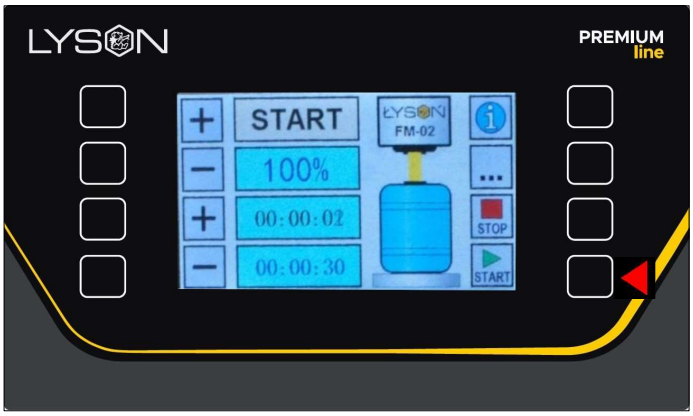


Fot. 7 *Entering the PUMPING/CREAMING MODE*

After pressing button (...)No6 a panel will be displayed giving the possibility of pumping - creaming continuously or pumping for a set time min 15 s max 90h.

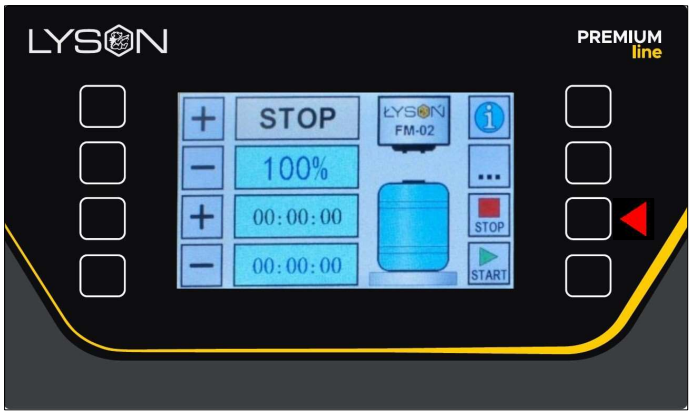


Fot. 8 *Pumping, creaming panel.*



Fot. 9 *Switching on the pumping mode push-button No8 "START"*

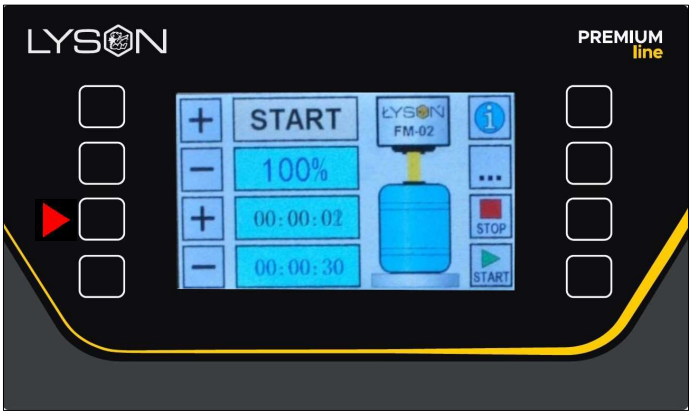
The pump starts continuous operation until the "START" button is pressed.



Fot. 10 *Switch off pumping mode push-button No7 (STOP)*

SETTING THE PUMP FOR A SPECIFIC TIME AND SPEED

- To set the pumping for a specific time, e.g.: for 20min. turn on the pumping/creaming mode (button **No6)** Press the **"START" button** (**No8)**
- After activating pumping by means of the lower "plus" (**No3)** or "minus" **(No4)** we set the time for which the pump is to operate. After programming the time, the timer will start counting from the beginning and after the end of the programmed time it will turn off automatically

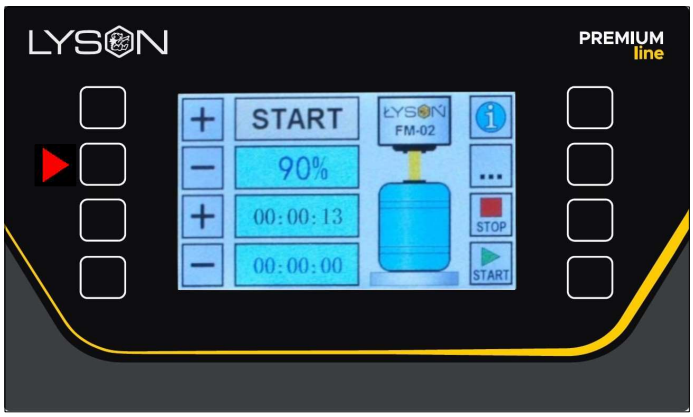


Fot. 11 *Lower "**plus" button (No3) or "minus" (No4)** set the pump running time.*

*Sett the pumping/creaming speed with **"plus" (No3) or "minus" (No4).***

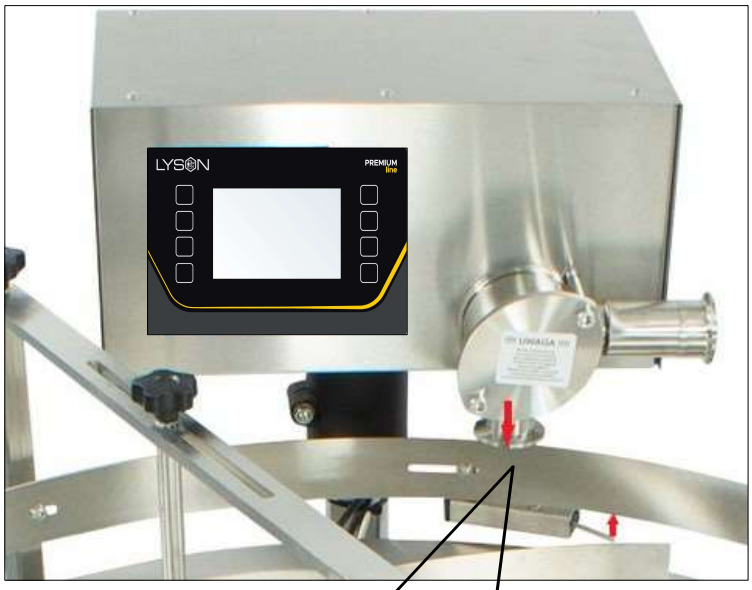
*With this parameter we change the speed of pumping/creaming honey. Changing the settings is possible during pump operation as well as in **"STOP"** mode.*

*Setting range **50% ... 100%**"*



Fot. 12 *The **upper "plus" button (No1) or "minus" (No2)** is used to increase or decrease the pumping/creaming speed*i

3.4 Positioner switch settings and turntable



Correctly set the limit switch should be under the nozzle of the dispenser

Before starting work:

a) Set the limiter so that the jar stops under the dispensing nozzle.

After setting the limiter, perform a test on empty jars without dispensing honey....

Warning! The turntable and the dispenser are connected to each other by a communication cable "B", so be sure to start the turntable controller with the "SERVICE" button when testing with the jar (calibrating the limit setting), which disables the dispenser (honey dispensing) operation during calibration.

Turntable controller

The controller has a potentiometer knob for adjusting the speed of the turntable and buttons:

START - Starting the device, dispensing honey.

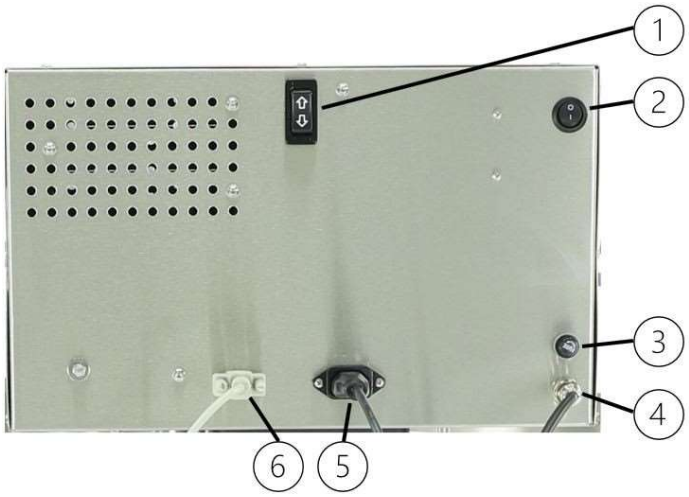
STOP - Stopping device operation or calibration.

SERVICE - Adjusting the position of the limiter relative to the dispensing nozzle without dispensing honey.

For proper operation of the dispenser with the turntable, connect sockets "6" and "9" with communication cable "B".

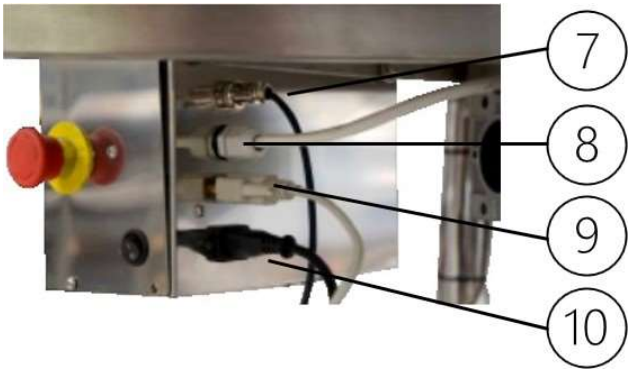
In turn, for the turntable controller, plug the jar detection limiter into socket "7".

3.4.1. Dispenser connectors:



1 -dispenser lift/lower switch
2- main power switch
3 -fuse socket
4 -power socket for lifting/lowering actuator
5 -power socket 230VAC
6 -communication socket (footswitch, dispenser-table connection)

3.4.2. Turntable connectors:



7-socket for limiter switch
8-power supply cable for table motor
9-communication socket (dispenser-table connection)
10-socket for 230VAC power supply

3.4.3. Technical specifications

-Power supply 230 V

-Power 360 W

-Filling range 50 g - 45000 g

-Fills approximately 350 jars 500 g/hour (depending on type and density of honey).

-Filling accuracy +/- 1 g up to

1200 g capacity , above 1200 g accuracy +/- 1.5%

-All parts that contact honey are made of stainless steel or food-grade plastic.

-Can be used as a pump.

-Pump capacity of 250 - 300 L of honey/h.

3.4.4. Parts list:

-dispenser with turntable
-footswitch "A"
-communication cable "B"
-hose clamp Ø4 0
-hose Ø4 0 - 1,5m

A

B

4. Maintenance and cleaning

Pull the mains plug before starting maintenance.
Before first use and after finishing work the equipment must be thoroughly cleaned and dried.
While cleaning ensure the safety of all electrical components like motors and controller panels (for the time of washing cover them with waterproof fabric or plastic film).
No parts of the device require chemical conservation.
An additional technical check should be carried out before the start of the season, and if any defects are found, please contact the manufacturer.

Clean the device in two phases: preliminary and final (disinfecting).

Preliminary phase - rinsing out the honey from the nozzle and dosing module Do not dismantle the dispenser after bottling. Immediately after working with the dispenser, place the suction hose into a container with warm water and pump 40 l of warm water to rinse out the dispenser module.
For this operation, prepare approx. 40 l of water heated to 50°C to 60°C. This process protects the dispenser from damage that may be caused by crystallised honey (i.e.: breaking the seal and leaking honey). In the event of improper rinsing of the device, the seal on the shaft of the pumping module will break. Damage resulting from improper cleaning of the module is not subject to warranty.
Final disinfecting phase - take the nozzle and rotor apart according to the following photographs. Wash thoroughly, dry
and reassemble together again.
For cleaning you can use disinfectants approved for disinfection
of equipment intended for contact with food, then rinse abundantly, dry and reassemble again.

Maintenance of the dispenser module with rubber rotor

Step 1
Unscrew the cover

Step 2
Remove the cover

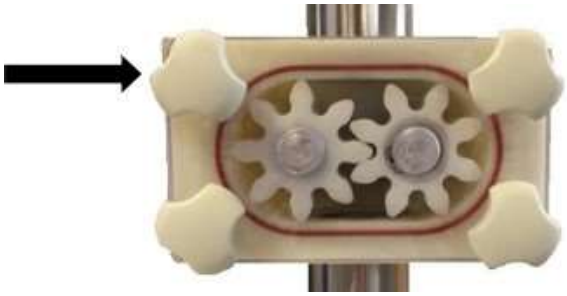
Step 3
Remove the securing ring

Step 4
Remove the nozzle

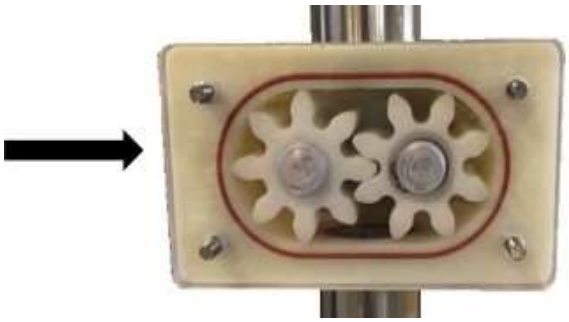
Step 5
Remove the dispensing module body

Maintenance of the toothed rotor dispenser module

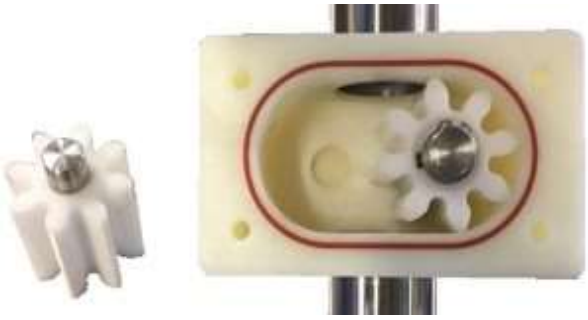
Step 1
unscrew the 4 knobs from the dosing module



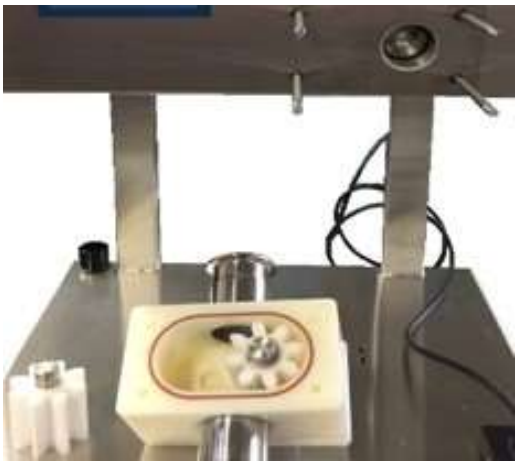
Step 2
Remove the cover



Step 3
remove the left gear



Step 4
Remove the dispensing module body



5. Waste disposal and environmental protection

The used product must be disposed in accordance with the local regulations. Return the device to a collection point from where it can be submitted for environmentally compatible recycling.

The consumer has the right to return used equipment directly to the manufacturer's distribution network, free of charge, while replacing it with a new unit as long as the used device is of the same kind and same application as the newly purchased device.

6. Warranty

The product purchased from the Lyson Company is covered by a manufacturer's warranty. The warranty period is 24 months from the date of purchase.
All purchased products come with receipts or VAT invoices. **Warranty details at:**

www.lyson.com.pl

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