

Orientable Mobile Diffuser

Pro Sprayer Series NO



NO 400
NO 800
NO 1200

Technology



Table of contents

SPRAI SAS

Centre Entrepreneurial - Bât. 503 - BP 53- 91401 ORSAY CEDEX - France

Tél : 01 69 35 88 93 - commercial@spraysas.com

www.spraysas.com – www.myprosprayer.com - www.ecoclimsprai.com

1.	The NO series	3
2.	Description.....	3
3.	The control panel	4
4.	Operation principle.....	5
5.	Charging the battery (the NO 400 and the NO 800).....	5
6.	Tank filling.....	5
	Programming the diffuser	6
	Diffusion time calculation :	6
	Diffuser programming :	6
7.	Diffusing process.....	8
	Emergency stop :	8
	Control by LED	9
8.	Operating default	10
9.	Cleaning the diffuser	10
10.	Troubleshooting.....	11
11.	Maintenance	11
12.	Preventive care	12

1. The NO series

NO devices are battery operated diffusers designed to be placed on a table or a bench with an orientable sprays dispersing direction. The series comprises three models differentiated by flow rates :

Model	Flowrate (milliliter by hour)	Battery
<i>Pro Sprayer</i> NO 400	400	12V / 3.2Ah
<i>Pro Sprayer</i> NO 800	800	12V / 3.2Ah
<i>Pro Sprayer</i> NO 1200	1200	without

The NO 1200 is the only one in the series without a battery.

2. Description

The main components of the enclosure are (figure 1) :

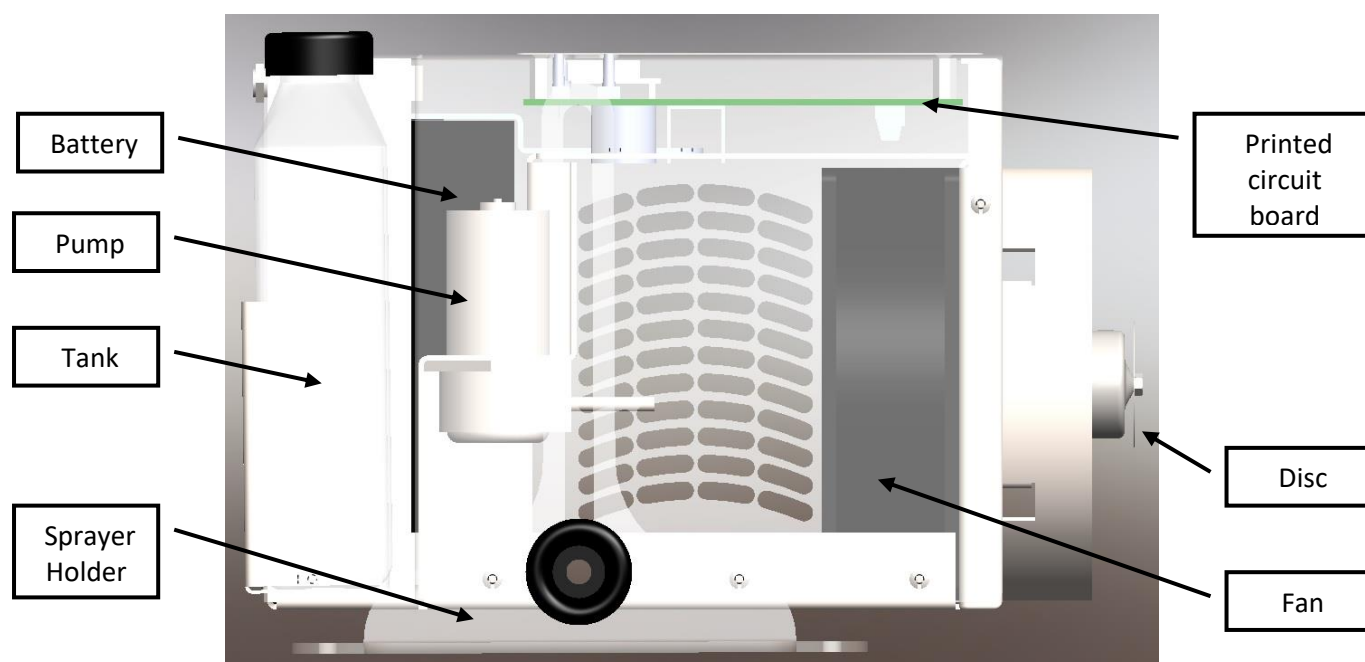


Figure 1: diffuser components

- A thin, 35mm diameter stainless steel disc, spun by a brushless motor and fed liquid near its centre.



The disc must be protected by its cover when not in use. Any shock could distort it and damage the motor wheel bearings.



The disc should not be touched when it is spinning.

- A 18V brushless motor, rotation speed 45000 RPM.
- A buffer tank to feed the disc with liquid.
- A PP plastic tank, capacity 250mL.

- A 24V constant flow rate peristaltic pump with Pharmed tube (**ID=1mm, OD=3.2mm** for the NO 400 and the NO 800 and **ID=2mm, OD=4mm** for the NO 1200)
- A 24V axial fan (**163 m³/h** for the NO 400, **323 m³/h** for the NO 800 and **384 m³/h** for the NO 1200)
- Printed circuit board (power and controls).
- Connecting tubes.
- **For the NO 400 and the NO 800**, a waterproof 12V/3.2Ah batter (dimensions : 13.4 x 6.7 x 6.1cm, weight : 1.2kg)

The dimensions of the sprayer :

- Overall dimension L=240mm ; W=180mm ; h= 155mm
- Wight : 4.2 Kg for the NO 400 and the NO 800
- Wight : 3 Kg for the NO 1200

The Sprayer is supplied with :

- A external power supply ;
 - **NO 400 and NO 800 : Input** 100-240 VAC, 50-60Hz, 1 A ; **Output** 18VDC, 3.33A, 60W Max
 - **NO 1200 : Input** 100-240 VAC, 50-60Hz, 1.5A ; **Output** 19VDC, 4.4A, 80W Max
- A tank for cleaning, capacity 250mL.

3. The control panel

The control panel is located on the front of the diffuser (figure 2). There are four buttons on the control panel :

- **On/OFF** switch
- **Menu**
- **+ /Ok** : to increase the displayed value
- **- :**
 - ❖ to lower the displayed value
 - ❖ to know the battery level (press < 1 second).
 - ❖ To know the program version and the total running duration of the machine (press < 1.5s and 3s)
 - ❖ To change the language Fr or en (press > 3 second).

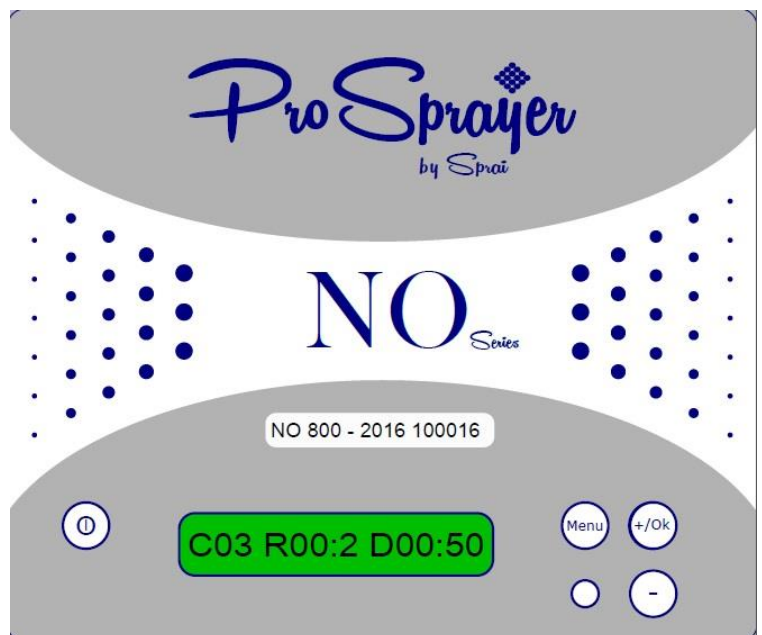


Figure 2 : Control panel

4. Operation principle

The pump sucks the liquid from the tank to send it towards the disc through the pipes and the buffer tank. The liquid spreads on the spinning disc's lower surface and diffuses it all in fine droplets near its edge. The air stream created by the fan carries the droplets upwards, and diffuses them over the entire volume treated.

5. Charging the battery (the NO 400 and the NO 800)

The NO 400 and the NO 800 are equipped with a 12V/3.2Ah battery.

The battery is charged before delivery. When the battery is full, the dispenser can be used for a duration of approximately 90 minutes. Please ensure the battery is fully charged before each use. This must be carried out with the dispenser switched **off**.

Charging the battery is automatically done, if necessary, even if device is off when it is connected to a source. When the unit is on and the battery is charging, the LED flashes red.

The status of the battery charging can be seen by pressing for a very short time (less than a second) on the (-) button, the display shows the level of battery charge. The battery will be fully charged in around 6 hours

It is recommended to charge the battery at least once every three months, even if the dispenser is not being used.

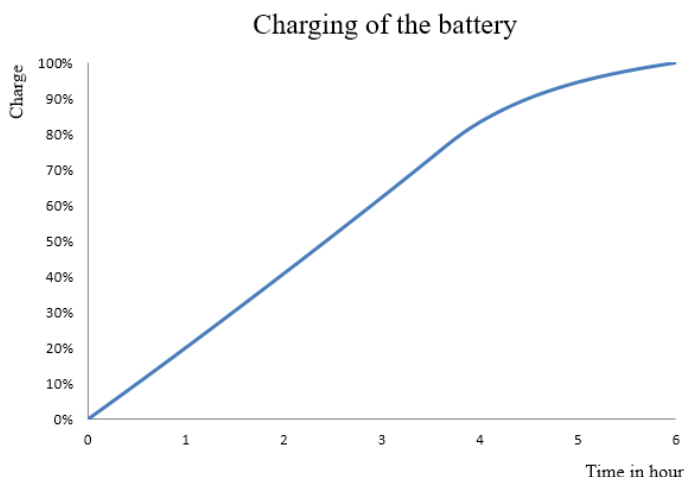


Figure 3: Battery charge

load : ■■■□□

Charge OK

6. Tank filling

Please make sure the tank is full and that the suction pipe is in place before operating the device.

The tank is located in the center part of the diffuser (figure 4). The tank can be filled up without removing it from the diffuser:

- Open the tank cap
- Fill the tank with the liquid
- Check that the aspiration tube is still in place
- Close the tank cap.



Figure 4 : Tank with connexions

When starting, if no liquid is present after 2 minutes, dispenser stops and screen indicates :

Missing liquid

When functioning, if liquid no longer arrives at the disk, the dispenser stops : and screen indicates

Missing liquid

Programming the diffuser

The diffuser is designed to diffuse at a constant rate **continuously** or **sequentially**. It needs to be programmed with a number (**C**) of cycles, a delay (**R**) and duration (**D**) of diffusion of each period.

Diffusion time calculation :

The volumetric pump providing the diffusing has a constant flow rate,

The exact flow rate is mentioned on the specifications sheet delivered with the diffuser.

Diffusion time is obtained by dividing the quantity of liquid to be diffused by the flow rate.

Example :

DEVICE	NO 400	NO 800	NO 1200
Quantity of liquid to diffuse	100mL	400mL	900mL
Flowrate	400ml/h	800ml/h	1200ml/h
Diffusion time $d = \text{quantity} / \text{flow rate}$	0.25 hour (15 minutes)	0.5 hour (30 minutes)	0.75 hour (45 minutes)

Diffuser programming :

When switched on, the diffuser displays :

Start

After parameter initialization, the diffuser displays :

Prosprayer NO 400

And indicates the program parameters :

Co1 R0:01 D00:01

Co5	R1:15	D05 :10
<i>Number of cycles</i>	<i>Delay</i>	<i>Duration of each cycle</i>

C indicates the number of cycles (adjustable from 1 to 99)

R indicates the programed delay (hours and minutes)

D indicates the diffusion duration of each cycle (minutes and seconds).

- Programming the right **C**, **R** and **D**
 - Press **Menu**. The number for **C** starts flashing.
 - Press **+ / Ok** or **—** to obtain the required value (between 1 and 99).
 - Press **Menu** to set the next value. The number for **R0:01** starts flashing indicating the delay in hours.
 - Press **+ / Ok** or **—** to obtain the required value (between 1 and 9).
 - Press **Menu** to set the next value. The number for **R0:01** starts flashing indicating the delay in ten of minutes.
 - Press **+ / Ok** or **—** to obtain the required value (between 1 and 5).
 - Press **Menu** to set the next value. The number for **R0:01** starts flashing indicating the delay in minutes.
 - Press **+ / Ok** or **—** to obtain the required value (between 1 and 9).
 - Press **Menu** to set the next value. The number for **D00:01** starts flashing indicating the spray duration in tens of minutes.
 - Press **+ / Ok** or **—** to obtain the required value (between 1 and 5).
 - Press **Menu** to set the next value. The number for **D00:01** starts flashing indicating the spray duration in minutes.
 - Press **+ / Ok** or **—** to obtain the required value (between 1 and 9).
 - Press **Menu** to set the next value. The number for **D00:01** starts flashing indicating the spray duration in tens of seconds.
 - Press **+ / Ok** or **—** to obtain the required value (between 1 and 5).
 - Press **Menu** to set the next value. The number for **D00:01** starts flashing indicating the spray duration in seconds.
 - Press **+ / Ok** or **—** to obtain the required value (between 1 and 9).
 - Once the last value has been set, press **Menu** to save. Set values will be stored even when the diffuser is switched off.

Co5 R1:15 D05 :10

This message indicates that there are 5 cycles each having a spray duration of 5mn and 10s. Each cycle begins 1 hour and 15 minute after the preceding cycle has finished. The total duration of use is 6h.40mn.50s.

- Press **Menu** to go back to the main display screen.

7. Diffusing process

Press the Ok button to begin the diffusing process, the diffuser displays the following message:

Priming

- The fan starts first, followed by the rotating disk and the oscillation system.
 - The pump starts after. diffusion Time begins to be calculated when liquid reaches the disk
 - During diffusion, the diffuser indicates the time remaining before the end of spraying.
- For example :

20 :49

At the end of each cycle, the pump stops first, followed by the fan, the rotating disk and the oscillation system.

At the end, the pump rotation inverses and empties the hydraulic circuit:

Empty

At the end of a diffusing cycle, the display indicates:

Pulverizing OK

For the NO 400 and the NO 800, if the charge level is too low, the display will indicate :

Empty battery

and switch itself off after 3 seconds.

Emergency stop :

If the cycle needs to be stopped for any reason, press the Increase/OK button. Pressing the same button will take the device back to the main page, to resume normal cycle.

If there is an anomaly, the diffuser will stop and indicates the amount of time the diffusing lasted:

Worked 05 :00

Control by LED

The diffuser is equipped with a LED which indicates the status of the system :

❖ For the NO 1200 and the NO 400 and the NO 800 without battery charges



Green flashing light (1s) indicates that diffuser is in **starting** phase



Green permanent light indicates that diffuser is in **diffusion** phase

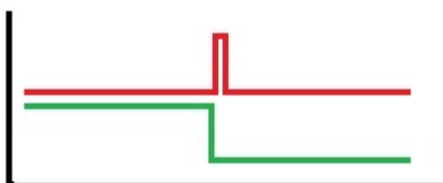


Green fast flashing light indicates that diffusion has successfully completed.
Panel indicates **"Pulverizing OK"**



Red fast flashing light indicates that diffusion has finished but a fault has occurred

❖ For the NO 400 and the NO 800 with battery charges



Green flashing light (1s) associated with a red flash every 2 seconds indicates that dispenser is in starting phase and battery charges



Green permanent light associated with a red flash every 2 seconds indicates that dispenser is in diffusion phase and battery charges



Green fast flashing light indicates that diffusion has successfully completed.
Panel indicates **"Pulverizing OK"**



Red fast flashing light indicates that diffusion has finished but a fault has occurred

8. Operating default

When a default has occurred during diffusion, the LED flashes red and two messages appear alternately:

- The first message indicates the origin of default:

No liquid

Indicates that the liquid does not reach the diffuser, check if the liquid remains in the tank

Error#001

Indicates a fan anomaly

Error#002

Indicates a pump anomaly

Error#003

Indicates a motor anomaly

- The second message indicates the diffusion time

10 : 50

A simple press of the OK button clears these messages.

It is advisable to start a new spray cycle and if the problem persists, contact the maintenance department.

9. Cleaning the diffuser



Do not clean the diffuser with tap water

- Cleaning the external casing: the casing should be cleaned regularly with a damp cloth.
- Cleaning the hydraulic system: it should be rinsed **after each use** :
 - Replace the product container by a second container containing water (or solvent).
 - Check that the suction tube is still in place.
 - Program the diffuser for a 5 minute diffusing period.

10. Troubleshooting

PROBLEM	POSSIBLE CAUSE	SOLUTION
No liquid gets to the disc	<ul style="list-style-type: none">• The tank is empty• The suction tube does not reach the liquid• The pump does not work• A pipe is clogged up• The buffer tank is clogged up	<ul style="list-style-type: none">• Fill up the tank• Replace the tube correctly• Send diffuser back• Send diffuser back• Send diffuser back
The disc does not rotate	<ul style="list-style-type: none">• Motor failure• PCB failure	<ul style="list-style-type: none">• Send diffuser back
The fan does not work	<ul style="list-style-type: none">• Motor failure• PCB failure	<ul style="list-style-type: none">• Send diffuser back
The diffuser is abnormally noisy	<ul style="list-style-type: none">• Fan noise• Diffusing system noise• Pump noise	<ul style="list-style-type: none">• Send diffuser back
The diffusion is not good enough	<ul style="list-style-type: none">• Fan problem• Wrong spinning speed• Wrong liquid	<ul style="list-style-type: none">• Send diffuser back• Use an appropriate liquid

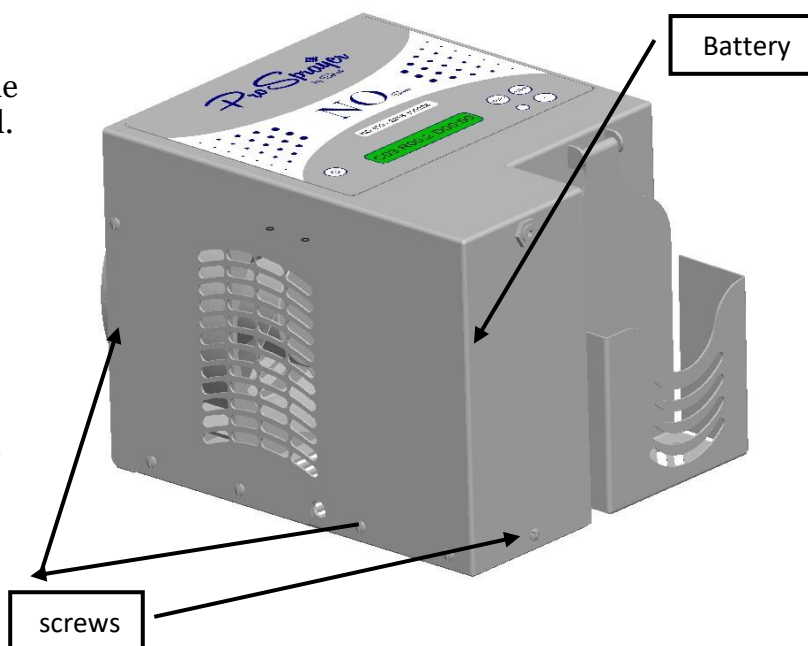
11. Maintenance

On site maintenance : the battery for the NO 400 and the NO 800 and / or the disc replacement can easily be carried out on site.

❖ Battery replacement

The battery (12V, 3.2Ah) is located on the sprayer support, under the control panel.

1. Remove the tank
2. Remove the sprayer holder
3. Remove the M3 x 6 screws
4. Remove the sprayer housing
5. Unplug the battery connections
6. Replace the battery
7. Connect the red cable to the + and the black cable to the –
8. Screw the fixing screws back on



Disc replacement :

The disc replacement can easily be carried out on site.

Figure 5 : Battery replacement (NO 400 and the 800)



Please do not use force on the motor, otherwise the bearings will be damaged. Do not remove the power supply cover.

1. Unscrew the M2.5 nut
2. Remove the disc
3. Replace the new disc in position
4. Tighten the M2.5 nut

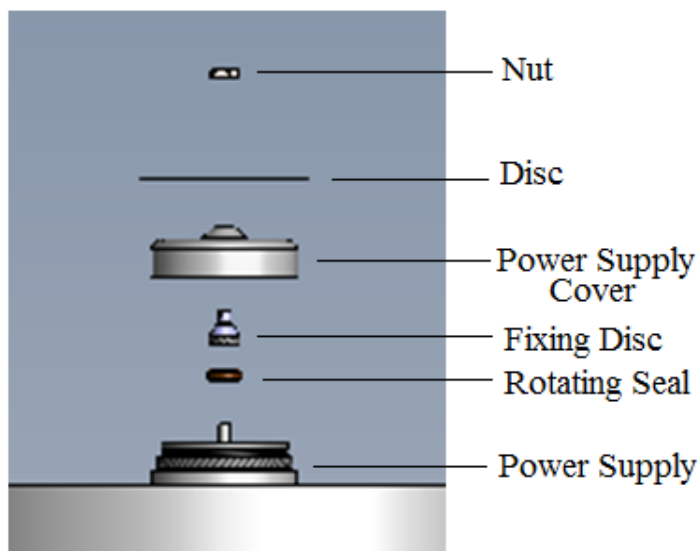


Figure 6 : Disc replacement

12. Preventive care

The diffuser you are using has undergone thorough controls before delivery. It is advisable to schedule a preventive maintenance visit at the manufacturer **every 200 hours** of use.

This visit will include :

- Disc replacement
- Seals replacement
- Pipes check and replacement if necessary
- Battery replacement for the NO 400 and the NO 800