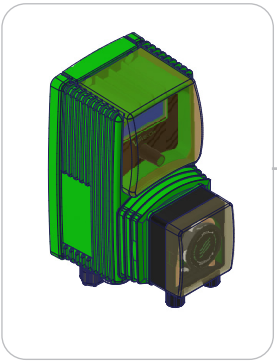
This manual contains important safety information regarding the installation and operation of the equipment.
Strictly follow these instructions to avoid injury to persons and damage to property.

The use of this equipment with radioactive chemical materials is strictly prohibited.



OPERATION MANUAL
FOR “VELON” SERIES METERING PUMPS

Keep the pump protected from direct sunlight and rain.
Avoid water splashes.

ENGLI SH Version

R040926

Read Carefully!

General Safety Information

Danger!

In the event of any emergency in the environment where the pump is installed, immediately disconnect the power supply and unplug the pump from the mains.

When using particularly aggressive chemical substances, strictly comply with all applicable regulations regarding their use and storage.

Always comply with local safety regulations.

The manufacturer of the metering pump cannot be held liable for damage to persons or property resulting from improper installation or incorrect use of the metering pump.

Warning!

Install the metering pump so that it is easily accessible whenever maintenance is required.
Never obstruct the area where the metering pump is installed.

The equipment must be connected to an external control system.
In the event of water shortage, dosing must be stopped.

Servicing and maintenance of the metering pump and all its accessories must always be carried out by qualified personnel.

Before performing any maintenance operation, always depressurize the metering pump connection tubing.

Always carefully empty and flush tubing that has been used with particularly aggressive chemical substances.
Wear appropriate personal protective equipment during maintenance operations.

Always carefully read the chemical characteristics of the product to be dosed.

Model Overview

VELON MF is the most advanced model in the range, designed for complex applications requiring maximum versatility.
Thanks to its multifunction stepper motor and the availability of numerous operating modes, it easily adapts to scenarios where dynamic and highly configurable dosing is required.

VELON CL is the essential model in the range, designed to ensure constant and safe dosing with maximum ease of use.
It is the ideal solution for systems and applications where advanced communication functions are not required, and where continuous, linear, and trouble-free operation is preferred.
Its compact and robust construction makes it suitable for a wide range of standard applications, ensuring reliability in everyday operating conditions.

VELON PM is the model designed for integration into complex and centralized systems.
Thanks to its architecture, it not only ensures precise and reliable dosing, but also becomes an active component of industrial automation systems, communicating with PLCs and supervisory platforms.

VELON PO is a “smart” metering pump developed for applications where precision must go hand in hand with adaptability to process parameters.
Thanks to advanced peristaltic technology and a stepper motor, it ensures stable, safe, and dynamic proportional dosing, even under variable operating conditions.

DOSING CAPACITY			
Pressure	**RPM**	**Flow Capacity** (Hose **Ø1,6x1,6)**	**Flow Capacity** (Hose **Ø4,8x1,6)**
bar (psi)	rpm	l/h (gal/h)	l/h (gal/h)
2 (29)	1 to 100	0,018 to1,8 l/h | 0,0047 to 0,47 gal/h	0,12 to12 l/h | 0,0317 to 3,17 gal/h

Designs and technical specifications may be modified without prior notice for the purpose of improving product performance.

2. Package Contents

The package contains the pump and all accessories required for proper installation and commissioning, as listed in the table below.

MOD.	INJECTION	LEVEL PROBE WITH FOOT FILTER	FUSE	INPUT CABLE	STANDBY CABLE	MODBUS CABLE	ALARM CABLE	WALL PLUGS	HOSES	HOSE KIT	HOSE KIT FOR PER	USER MANUAL
CL	✓	✓	✓	X	X	X	✓	✓	✓	✓	✓	✓
MF	✓	✓	✓	✓	X	✓	✓	✓	✓	✓	✓	✓
PM	✓	✓	✓	X	X	✓	X	✓	✓	✓	✓	✓
PO	✓	✓	✓	X	✓	✓	✓	✓	✓	✓	✓	✓

The packaging used for transport (box, protective materials, molded inserts, etc.) is designed to ensure product integrity during shipment.

It is recommended not to dispose of the original packaging after opening the package.
These materials may be essential in the event of:

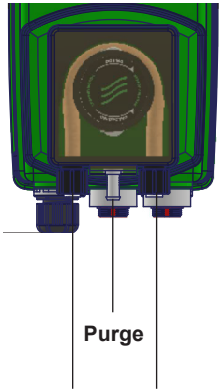
- shipment of the unit for service or repair;
- possible return of the product;
- subsequent relocation of the equipment.

Use of the original packaging reduces the risk of damage during transport and ensures compliance with the safety conditions specified by the manufacturer.
If the original packaging is no longer available, it is the user's responsibility to adopt equivalent packaging solutions suitable for adequately protecting the product.

The packaging materials are recyclable and must be disposed of in accordance with applicable local waste management regulations.

NEVER DISPOSE OF THE PACKAGING.
IT CAN BE REUSED TO TRANSPORT THE PUMP.

Disconnect the pump from the power supply before making connections to the probes, the selected outputs, and the hydraulic connections. The hydraulic connections for all models are as follows:



Correct tubing connection is essential to ensure safe and reliable operation of the peristaltic pump.
Before proceeding, make sure that the unit is switched off and disconnected from the power supply.
Use only tubing of the type, diameter, and material compatible with the pump model and the fluid to be dosed, in accordance with the technical specifications provided by the manufacturer.
Use of unsuitable tubing may impair performance, reduce tubing service life, and cause malfunctions or leaks.

Insert the tubing into the peristaltic pump head following the specified routing, ensuring that it is correctly seated in the roller track and that it is free from bends, twists, or compression.
Ensure that the tubing is evenly positioned and that the ends are correctly aligned with the suction and discharge fittings.
Once the tubing is in place, secure it to the suction and discharge connections using the appropriate fittings and check that all connections are properly tightened.
Improperly tightened connections may result in air ingress, fluid leakage, or irregular dosing.

After installation, perform a brief visual and functional check by running the pump at low speed to verify that the tubing moves smoothly and that there are no vibrations, abnormal noise, or fluid leakage.
It is recommended to periodically inspect the condition of the tubing and replace it in the event of wear, hardening, or deformation, in order to maintain system efficiency and reliability over time.

For peristaltic tubing maintenance and/or replacement procedures, refer to the “Peristaltic Maintenance” chapter of this manual.

Warning: the bleed tube must be inserted into the container of the product to be dosed.
If left free, it may cause damage to persons or property.

4. Preparation for Installation

Installation and commissioning of the pump are divided into four main steps:

- Pump installation
- Installation of hydraulic components (tubing, level probe, injection valve)
- Electrical installation (connection to the power supply, priming)
- Setup

Before starting installation, ensure that all necessary precautions for installer safety have been taken.

Protective Clothing

Always wear protective masks, gloves, safety glasses, and, if required, additional personal protective equipment (PPE) during all installation phases and when handling chemical products.

Installation Location

- Ensure that the pump is installed in a safe location and securely fastened so that vibrations generated during operation do not allow any movement.
- Ensure that the pump is installed in a location that is easily accessible.
- The metering pump must be installed with the base in a horizontal position.
- Avoid water splashes and direct sunlight.

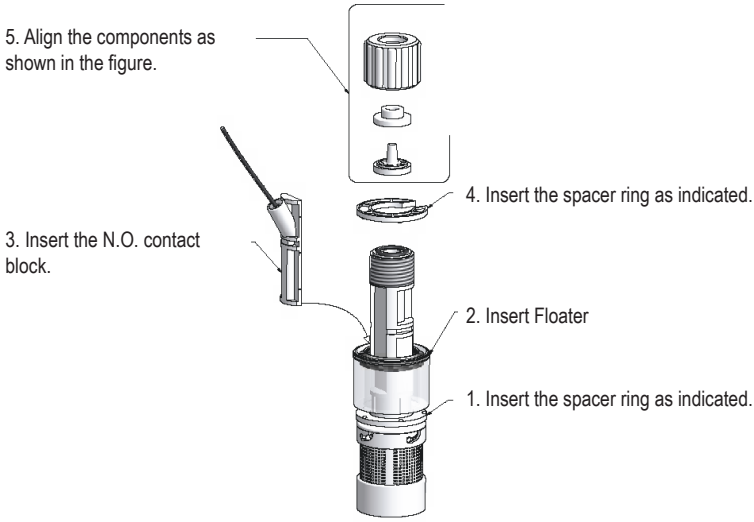
Tubing and Valves

- Suction and discharge valves must always be installed in a vertical position.
- All tubing connections to the pump must be made using hand-tightening only.
- Use only tubing compatible with the chemical product to be dosed.
- Refer to the chemical compatibility table.
- If the product is not listed in the table, consult the supplier.

5. Installation of Hydraulic Components

Assembly of the foot filter with level probe

The level probe must be assembled using the supplied kit with foot valve.
The foot valve is designed to be installed on the bottom of the product container, ensuring proper suction without drawing in sediment.



Connect the BNC connector of the level probe to the level input located on the pump connection side. Insert the level probe, with the assembled foot filter, into the bottom of the container of the product to be dosed.

Note: If an agitator is present in the container, a suction lance must be installed.

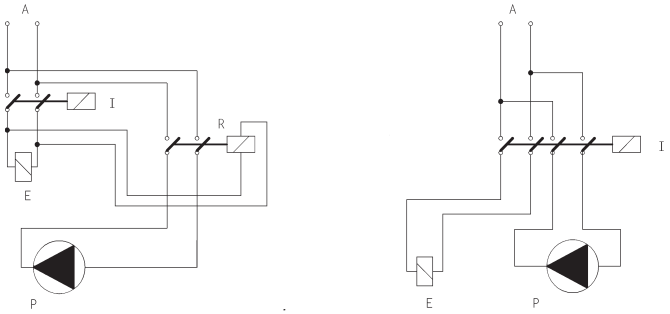
6. Electrical Installation

Electrical connection of the pump must be carried out by qualified personnel only.

Before connecting the pump, check the following points:

- Verify that the nameplate ratings of the pump are compatible with the mains power supply. The pump nameplate is located on the side of the unit.
- The pump must be connected to an electrical system equipped with an efficient grounding system and a residual current device (RCD) with a sensitivity of 0.03 A.
- To prevent damage to the pump, never connect it in parallel with inductive loads (e.g. motors); use a relay instead.

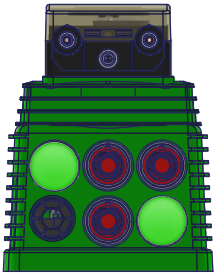
  See the figure below.



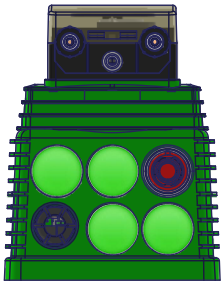
R – Relay
I – Switch or safety device
E – Solenoid valve or inductive load
A – Power supply

Warning: For pumps powered at 115 or 230 VAC, do not use motor protection devices (“motor protection switches”).

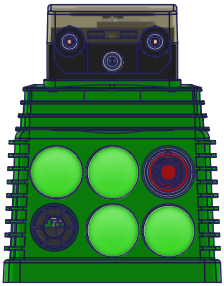
Pump connections by model.
Make the connections to the metering pump according to the drawings for your specific product.



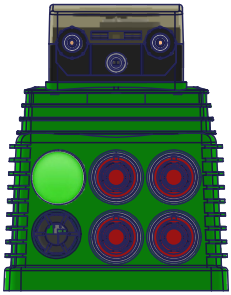
VELON MF	
INTERFACE	POSITION
ALARM (OPTIONAL)	Top left
POWER SUPPLY INPUT	Bottom left
MULTI FUNCTION INPUT	Bottom center
MODBUS RS485	Top center
LEVEL INPUT	Top right



VELON CL	
INTERFACE	POSITION
ALARM (OPTIONAL)	Top left
POWER SUPPLY INPUT	Bottom left
LEVEL INPUT	Top right



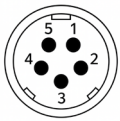
VELON PM	
INTERFACE	POSITION
POWER SUPPLY INPUT	in basso a sinistra
MODBUS RS485	in alto al centro
LEVEL INPUT	in alto a destra



VELON PO	
INTERFACE	POSITION
ALARM (OPTIONAL)	Top left
POWER SUPPLY INPUT	Bottom left
STANDBY INPUT	Bottom center
MODBUS RS485	Top center
LEVEL INPUT	Top right
SERIAL PROBE INPUT	Bottom right

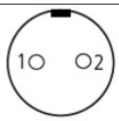
CONNETTORI

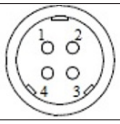
N.	M12x1	Decription	Wire Color	Function
1		RS485 MODBUS	1 Yellow	+ RS485
			2 Green	- RS485
			3 Blue	GND

N.		Decription	Wire Color	Function
2		STAND-BY	4 White	+ STAND-BY
			3 Brown	- GND
		INPUT [1]	2 Blue	+ INPUT (MAX 120Hz FREQ.)
			3 Brown	- GND
			1 [Yellow] - Hall effect water meter	+ 12 V
		EXT CONSTANT	5 Green	+ EXT CONST
			3 Brown	- GND

1 This INPUT can be used as:
pulse input from a dosing lance (reed signal)
pulse input from a dosing lance with Hall effect sensor
start contact for "BATCH" mode
voltage input for "VOLT" mode
"PULSE" contact

If not in use, it is recommended to protect the connectors with the appropriate cap.

N.		Decription	Wire Color	Function
3		LEVEL	sonda di livello (1 giallo, 2 blu)	/

N.		Decription	Wire Color	Function
4		ALARM contatto libero	3 Bianco	N.O.
			1 Giallo	N.C.
			2 Verde	COMMON

Navigation
The backlit LCD display and the front encoder allow simple and intuitive user interaction, even when numerous options are available. The menus guide the user step by step, simplifying programming and reducing configuration time.

Dosing
The pump features 10 operating modes, allowing it to cover both standard applications and more advanced processes requiring flexibility and adaptability.

Additional Functions
The pump integrates tank management to ensure operational continuity and prevent unexpected shutdowns.
A multifunction operating mode is available for selecting the specific required task.
The optional alarm provides an additional level of safety.
Advanced electronics ensure consistent accuracy even under varying load conditions.

IoT and Services
The pump stands out for its connectivity features: it supports Wi-Fi, OTA firmware updates, and can be managed through dedicated digital platforms.
This enables remote monitoring and control, making it suitable for applications requiring continuous supervision.

Navigation and Selection
Encoder Knob

Startup

All operations described above must be completed before starting the pump:

- Pump positioning
- Hydraulic connection
- Electrical connections (power supply, standby/input, level, alarm output)
- Programming

⚠ The pump may require a few seconds before starting.
This depends on the motor start-up time.

⚠ Verify that the pressure does not exceed the nameplate pressure.
If this occurs, immediately stop the motor.

If the pump does not dose, perform the following operations:

a) Stop the motor.
b) Prime the pump.
c) Restart the motor.

Monitor the pump while it is operating.

Test

Use this function to accurately determine the pump flow rate with the liquid being used. (MF model only)

1. Install the pump on the system, making sure that the suction tubing (complete with foot filter) is inserted into a graduated cylinder in milliliters (ml) (1 ml = 1 cc).

2. Fill the graduated cylinder with the product to be dosed and prime the pump, ensuring that the pump head is completely filled with the product.
Check the initial quantity of product in the graduated cylinder, including the foot filter.

3. Power the pump.

4. From the Setup / More menu, select "TEST" and set the test duration time.

5. Press the "START" icon. The pump will begin dosing the liquid against the system pressure.

6. At the end of the test, read the remaining quantity of chemical product on the graduated scale.
The dosed quantity corresponds to the initial quantity minus the remaining quantity.

The hourly pump flow rate is calculated by multiplying the dosed quantity per minute by 60 minutes.

Example:
Dosed quantity: 100 ml
Test duration time: 60 seconds

Hourly pump flow rate: 100 × 60 = 6,000 ml/h = 6 l/h

Note: To optimize the procedure, it is also possible to set the quantity of product to be dosed during the test phase.

Warnings

Prime the pump:

- at first use;
- whenever the pump has been stopped for a long period;
- if air is present in the pump body or in the suction tubing.

⚠ The equipment must be connected to an external control system.
In the event of water shortage, dosing must be stopped.

⚠ Adopt suitable measures to prevent different chemical products from coming into contact with each other.

⚠ Stop dosing during backwash cycles and in the absence of flow, as these conditions may cause chemical overdosing and/or the generation of hazardous gases in tanks or piping.

⚠ Do not operate the pump with suction and discharge blocked.
Adopt all necessary measures to prevent this condition.

OPERATOR PROTECTION

Always wear safety equipment in accordance with company regulations.

In the work area, during installation, maintenance, and when handling chemical products, use:

- protective mask
- protective gloves
- safety glasses
- earplugs or earmuffs
- additional PPE, if required

Priming

At first use and whenever the pump has been stopped for a long period, priming must be performed.
To prime the pump without coming into contact with the chemical product:

- connect all tubing (discharge tubing, suction tubing, and drain tubing);
- open the bleed valve by fully turning the bleed knob;
- select PRIMING on the display, set the time, and start the procedure.

When the product begins to circulate through the drain tubing, close the bleed knob.
At the end of the procedure, the pump will return to the normal operating mode, if set.
With viscous liquids, to facilitate priming, insert a 20 cc syringe into the bleed tubing and draw the liquid.
When the syringe is almost full, close the valve by turning the bleed knob.

Main Functions

The encoder allows you to:

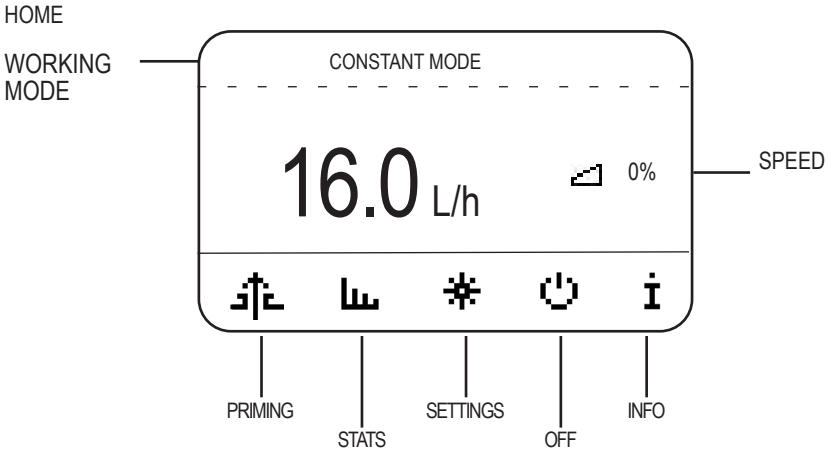
Select a menu	Rotate the encoder to scroll through the menu items.
Enter a menu	Press the encoder on the selected menu item.
Save changes and return to the main screen	Press the encoder on the icon
Save and return to the previous menu	Press the encoder on the icon
Enter a (numeric) value	Press the encoder on the value, rotate clockwise to increase and counterclockwise to decrease. Press to confirm the selection.

On all screens, after 60 seconds of inactivity, the display automatically returns to the main screen without saving.

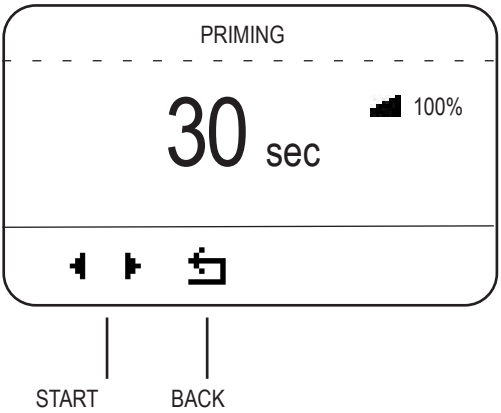
At first power-up, set the language.
The language can be changed later in the Advanced / More menu.

Icone sul display

	PRIMING		STOP
	STATISTICS		RESET
	SETTINGS		SAVE and GO TO MAIN SCREEN
	OFF		ALARM / STANDBY
	SAVE and GO BACK TO PREVIOUS SCREEN		FLOW SPEED
	START		
	INFO		



PRIMING

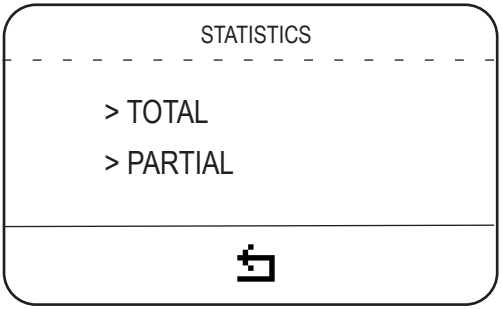


START: starts the priming ▶ or unloading ◀ function.

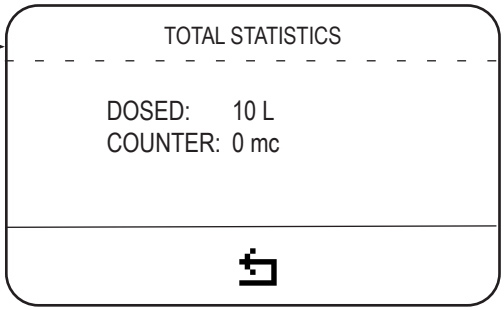
■ STOP: stops the priming process and resets the counter. The default counter value is 30 seconds.

The pump may take up to 10 seconds before starting the PRIMING function.

STATISTICS



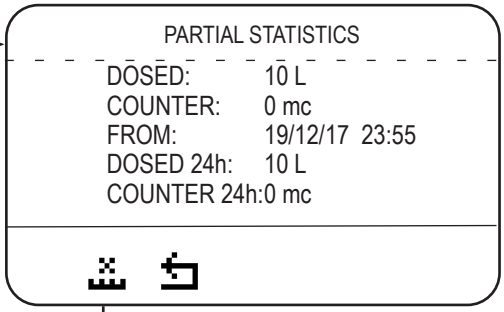
> TOTAL
> PARTIAL



DOSED: TOTAL DOSED QUANTITY (MAX 999,999,999 L).
COUNTER: COUNTER (CUBIC METERS OF WATER).

To reset all counters, access the LOAD DEFAULT function in the menu:
Settings / Advanced / More / Load Default

> TOTAL
> PARTIAL

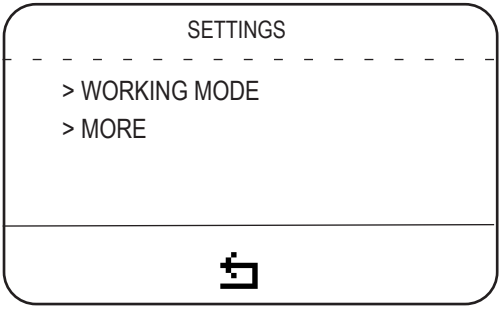


RESET

DOSED: total dosed quantity (max 999,999,999 L).
COUNTER: counter (cubic meters of water).
FROM: date and time of the last statistics reset.
DOSED 24h: quantity dosed during the previous day (00:00 to 23:59 of the previous day).
COUNTER 24h: water counter for the previous day (00:00 to 23:59 of the previous day).
To reset all counters, press the RESET icon.

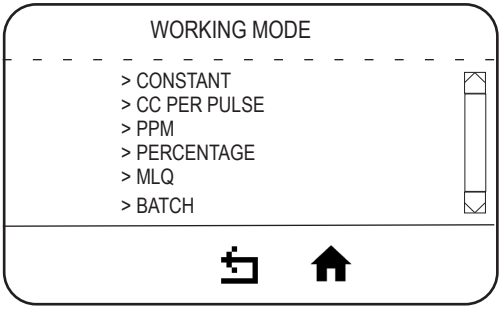
SETTINGS

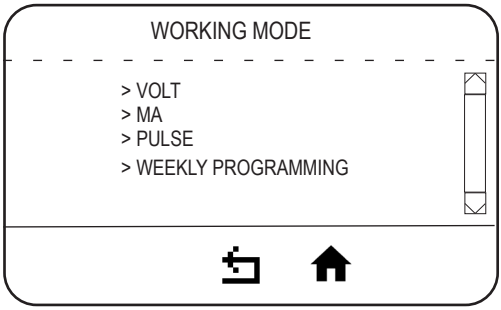
In the Settings menu, after 60 seconds of inactivity, the display automatically returns to the HOME screen without saving.



> WORKING MODE

> MORE





Note: Only the MLQ, PERCENTAGE, and PPM modes affect the pulse counter statistics.

WORKING MODE	PARAMETERS TO SET*	NOTES	WHEN
CONSTANT	l/h: liters / hour. turn the knob to the required liters per hour VALUE. the pump will increase / DECREASE the speed according to its maximum capacity.	The pump doses at a constant frequency corresponding to a specific number of engine's rotations that can be visualized by the icon .	To dose regularly a standard quantity of chemical (no external signal).
CC PER PULSE*	CC MIN 0,0001 M/L MAX M/L 1X 1 PULSE = M/L SET WMETER P/L OR L/P AND PULSES SET	Dosing rate is determined by pulses from a water meter..	When using an external signal from a pulse sender water meter.
PPM	PPM:1.00 (max 9999.99) CONCENTRATION:10.0% WMETER P/L OR L/P AND PULSES SET	Dosing rate is determined by pulses from a water meter, PPM, chemical product (%) concentration.	When using an external signal from a pulse sender water meter and it's necessary to specify only PPM (parts per million) and product concentration, leaving the pump to manage coming pulses.
PERCENTAGE	PERCENTAGE:1.00 (max 100.00) CONCENTRATION:10.0% WMETER P/L OR L/P AND PULSES SET	Dosing rate is determined by pulses from a water meter, percentage (%), chemical product concentration.	When using an external signal from a pulse sender water meter and it's necessary to specify only %, leaving the pump to manage the coming pulses.
MLQ	MLQ:1.00 (max 1000.00) CONCENTRATION:10.0% WMETER P/L OR L/P AND PULSES SET	Dosing rate is determined by pulses from a water meter on the base of set MLQ (milliliters per quintal), chemical product concentration (%).	When using an external signal from a pulse sender water meter and it's necessary to dose the product quantity set specifing the MLQ (milliliters per quintal) and leaving the pump to manage the coming pulses.
BATCH	EXTERNAL MANUAL	EXTERNAL Quantity: 10.000 L Contact: N.C. (or N.O.) ☐ RESET AFTER ALARM	External mode: signal from an external contact starts the pump to dose the amount product at max frequency.	This mode allows to start dosing after pump receives an external signal. Reset after alarm to reset counting.
		MANUAL 10.000 L (Start icon for manual dosing)	Manual mode: to dose a quantity at max frequency (manual start).	This mode allows to start dosing manually.
VOLT	HIGH:10.0 V 60.00 L/H LOW: 0.0 V 0.00 L/H	In Voltage mode, the pump doses proportionally between the low and high voltage values. In VOLT working mode, voltage input value is shown on main menu (top/right).	This mode is used with controllers provided of a proportional output in voltage.

***Only one operating mode can be set at a time.*

PULSE	HIGH:180 p/m 60.00 L/H LOW: 0 p/m 0.00 L/H		The pump doses proportionally between the low and high p/m values. In Pulse working mode, pulses number is shown on main menu (top/right).	This mode is used with controllers provided of an impulsive output
WEEKLY PROGRAMMING	☑ PROGRAM 1 ☐ … ☐ PROGRAM 24	Start: hh:mm Duration: 00h 00m Quantity: 2,5 l 15% ☑ Sunday ☐ Monday ☐ … ☑ Saturday	Set programs (up to 24). For each program set start time, duration, quantity to dose and days. Pump will dose the quantity starting at the time set. The duration cannot be over the day. Minimum quantity is calculated basing on pump capacity. Do not overlap programs.	The mode is used to schedule the pump's weekly dosing. The operating frequency cannot be lower than 1%. Note: time adjustment is in 10-minute steps.

Note: in all operating modes, the pump has a dosing value resolution of 1%.

"UPKEEP" Mode.

The "ppm", "perc", and "mlq" operating modes include an additional configurable function called "upkeep", which can be enabled or disabled. This function allows a "timeout" to be set, a countdown between 0 and 24 hours.

Once the timeout has elapsed, if the pump has not yet received a pulse from the pulse counter, it performs a series of maintenance dosing cycles until the ml/h value set in the "upkeep dosage" field is reached.

> WORKING MODE

> MORE

MORE

> PUMP CAPACITY
> TEST
> LEVEL ALARM
> STAND-BY
> EXTERNAL INPUT
> WATER METER

MORE

> TIMEOUT
> OVERFLOW
> UNIT OF MEASURE
> DATE & TIME
> POWER ON DELAY

MORE

> PASSWORD
> LANGUAGE
> ALARM OUTPUT
> DISPLAY CONTRAST
> FACTORY DEFAULT
> MODBUS

MORE

> COMMUNICATION
> HOME VIEW
> SOFTWARE UPDATE
> ENTRY DELAY
> MAINTENANCE

	PARAMETERS TO SET		NOTES
PUMP CAPACITY	FLOW: 999.9 L/h CC/MIN: 16665.00 HOSE: IF SET TO 12L/H THEN SIZE IS 4,8X1,6 IF SET TO 1.8L/H THEN SIZE IS 1,6X1,6		By default, the pump flow rate is the one indicated on the nameplate.
TEST	FROM 1 MIN TO 60 MINUTES (DEF 6 MINUTES)		Perform the test to verify the pump flow rate at maximum frequency (see page 12).
LEVEL ALARM	STOP AFTER: 10.0 L CONTACT: N.O.		Level pre-alarm (low product level). To clear the alarm, refill the container. If set to “0 L”, the pump stops when the alarm occurs. The contact can be set as N.O. or N.C.
STAND-BY (EXT CONSTANT)	DISABLED STAND-BY	CONTACT: N.O.	The external signal connected to the stand-by input can be: enabled (Stand-by) and set as N.O. or N.C. This is for starting the pump in constant mode upon opening or closing of an external contact.
EXTERNAL INPUT	DISABLED EXTERNAL INPUT	CONTACT: N.O. QUANTITY: 12.00 l/h 15%	The external signal starts constant dosing of a defined hourly quantity (QUANTITY). In this case, the displayed operating mode is EXT CONSTANT. The mode remains active until the contact state changes. In both cases, the contact can be set as N.O. or N.C.
WATER METER	L/pulse: 1.0 [gal/pulse: 1.0]		This menu allows setting the characteristics of the counter. It is possible to select the quantity in pulses per liter or liters per pulse generated by the counter. This value determines dosing in PPM / MLQ / percentage modes.
	pulse/L: 1.0 [pulse/gal: 1.0]		
TIMEOUT	0 - 120 SEC		Maximum time between one pulse and the next: within this interval, the pump will distribute the product evenly. The default value is 10 seconds; 0 disables the function.
OVERFLOW	ALARM WORK		The Overflow function generates an alarm (displayed on the screen) that may or may not stop the pump. The function can be enabled for PPM / percentage / mlq / BATCH operating modes. In PPM / percentage / mlq, the overflow alarm occurs when the operating frequency exceeds the rated value. In BATCH, it occurs when the pump receives an external signal during the dosing phase.
	ALARM STOP		
UNIT OF MEASURE	LITER	GALLONS	Units of measure: liters / gallons
DATE & TIME	Format: dd/mm/yy 24 Date: Saturday 26/12/15 time: 16:01:19	Format: mm/dd/yy 12 Date: Saturday 12/26/15 time: 04:01:19 pm	Changing the date and time resets the partial statistics.

POWER ON DELAY	00 min (max 10 min)		Power on delay sets a start-up delay from 0 to 10 minutes.
PASSWORD	ADMINISTRATOR PASSWORD New password: 0 _ _ _	> ADMINISTRATOR > USER	The pump is supplied without a password. At first use, set the administrator password. To also set the user password, exit and re-enter the PASSWORD menu. To reset the passwords, perform the Load Default function from the menu.
LANGUAGE	IT - EN - FR - DE - PT - ES - PL - TK		System Language choice
ALARM OUTPUT	ENABLED CONTACT N.C.(or N.O.) LEVEL WARNING LEVEL ALARM STAND BY OVERFLOW WARNING OVERFLOW ALARM NO INPUT MC ERROR OFF WARNING HOSE RPM WARNING HOSE DAY		Alarm output manages the status of the alarm relay output contact (N.O. or N.C.): **level warning**: product reserve **level alarm:** product reserve ended **stand-by**: pump stopped **overflow w.**: too many pulses, if warning: continues to operate, if alarm: stop activity; **no input**: missing input signal; **mc error**: engine blocked, error code ref.; **off**: when off and pump is off then it active alarm out **warning hose:** hose status alarm / hose life exceed
DISPLAY CONTRAST			Display Contrast Adjustment
FACTORY DEFAULT	YES	NO	Reset of all values and restoration of factory settings.

MODBUS	ID: 1 BAUDRATE: 9600 FORMAT 8N1 (default)	Set ID (1 to 255) Set the communication speed: 2400 / 4800 / 9600 / 19200 / 38400 / 115200 Set the bit format

COMMUNIC.	DHCP MODE MESSAGE WIFI SCAN* ***2,4 Ghz WiFi only supported**	**DHCP** to set automatic retrieval of network parameters, or manual configuration if specified by your network administrator. **MESSAGE** to configure push notifications via the app and the alarm type, or email notifications by entering a valid email address. **WIFI SCAN** to list all available Wi-Fi networks in the area and connect to the preferred one.

HOME VIEW	OPERATING UNIT DISPLAY MODE	% mode L/h % mode % L/h mode

SOFTWARE UPDATE **ENTRY DELAY** **MAINTENANCE**	UPDATE FIRMWARE IF ENABLED, STANDBY AND LEVEL DELAY RESET HOSE WARNING	OTA / WIFI UPDATE 3SECONDS HOSE EXCHANGED

> INFO

ALARMS
SOFTWARE RELEASE
RESERVE
INSTANT FLOW RATE
IOT SERVICES
MAINTENANCE

To view active alarms, access the Info / Alarms menu.

The ⚠ icon on the main menu indicates one or more active alarms or standby status.

Tab. 1. Alarms management

ALARM	PROBLEM	HOW TO FIX IT
LEVEL	Tank, end of product	Fill Tank
OVER FLOW	Pump's flow out of range	Check settings then switch off and then back on the pump

Tab. 2. Software Release

Release	Current Firmware Release

Tab. 3. Reserve

Reserve	Indicates the reserve level of the product to be dosed in the container, as set in the level alarm menu (stop after).

Tab. 4. INSTANT WM FLOW RATE

Insant WM FR	Indicates the flow capacity of the pulse counter connected to the installation.

Tab. 5. IoT SERVICES

NIMBUS	Product activation and registration on the NIMBUS portal (serial number, network MAC address, portal registration QR code)

Tab. 6. MAINTENANCE

MAINTENANCE	Peristaltic Tube Life Counters

Navigation
The interface is intentionally minimal, designed for maximum ease of use. The front potentiometer allows quick and intuitive adjustment of the flow rate, while the status LED and the ON/OFF button enable the operator to continuously monitor pump operation. This operational simplicity makes the pump suitable even for less experienced users.

Dosing
The pump operates in constant mode, ensuring a stable and precise flow thanks to a highly reliable stepper motor. This approach makes the VELON CL ideal for repetitive processes where dosing stability is the most critical requirement.

Additional Functions
Additional features include tank level management, which helps prevent unexpected shutdowns, and an optional alarm output, providing an extra level of system safety.

Operating Modes
The pump is switched off by pressing and holding the ON/OFF button for 2 seconds. The LED turns orange.
When the pump is in OFF status, pressing and holding the ON/OFF button for 4 seconds switches the pump to unloading mode, or from unloading mode back to dosing mode.

LED (COLOUR)	PUMP STATUS
RED flashing	Motor alarm or BUS communication error
RED steady on	Level alarm, refill the chemical container
GREEN Quick flashing (once every 0.5 seconds)	Pump paused (OFF) and powered in loading mode (counter-clockwise motor rotation)
GREEN Turns OFF at each motor revolution	Pump operating in dosing mode (clockwise motor rotation)
ORANGE Fast flashing (once every 0.5 seconds)	Pump paused (OFF) and powered in unloading mode (counter-clockwise motor rotation)
ORANGE Turns OFF at each motor revolution	Pump operating in unloading mode (counter-clockwise motor rotation)

Navigation
Unlike other models, the PM does not rely on an advanced local user interface.
Control is performed via the MODBUS RTU protocol, allowing the pump to be directly integrated into plant management and supervision systems.
A status LED and an ON/OFF button complete the basic local control functions.

Dosing
The pump ensures constant and regular dosing, controlled by external systems.
The stepper motor provides stability and precision, while MODBUS control allows the pump to be synchronized with complex and centralized process logic.

Additional Functions
The pump includes tank level management to ensure safety and operational continuity.
Its compact and robust design facilitates integration even in limited installation spaces.

Connectivity and Services
The distinguishing feature is MODBUS RTU communication, which enables the pump to be managed and monitored as part of a larger system. Wi-Fi is not provided, as the pump is designed for industrial environments where wired and centralized automation is preferred.

LED (COLOUR)	PUMP STATUS
RED flashing	Motor alarm or BUS communication error
RED steady on	Level alarm, refill the chemical container
GREEN Quick flashing (once every 0.5 seconds)	Pump paused (OFF) and powered in loading mode (counter-clockwise motor rotation)
GREEN Turns OFF at each motor revolution	Pump operating in dosing mode (clockwise motor rotation)
ORANGE Fast flashing (once every 0.5 seconds)	Pump paused (OFF) and powered in unloading mode (counter-clockwise motor rotation)
ORANGE Turns OFF at each motor revolution	Pump operating in unloading mode (counter-clockwise motor rotation)

MODBUS PROGRAMMING OF REGISTER 40001

MODBUS is a serial communication protocol created in 1979 by MODICON (a company now part of the Schneider Electric Group) to enable communication between its programmable logic controllers (PLCs). It has become a de facto standard in industrial communications and is currently one of the most widely used connection protocols worldwide among industrial electronic devices. The main reason for the widespread adoption of MODBUS compared to other communication protocols is that it is an open, royalty-free protocol. With the MODBUS protocol, the format and method of communication are defined between a "master" that manages the system and one or more "slaves" that respond to the master's queries. The VELON MF device operates as a "slave".
The device address (ID), data format, and communication speed in baud can be set directly from the device's MODBUS Communication menu.

MODBUS allows the connection of one master (e.g. a PC) and several "slaves" (e.g. measurement and control systems). Two versions are available: one for serial interfaces (RS-232 and RS-485) and one for ETHERNET. The following operating modes can be distinguished for data transmission:

MODBUS TCP: ETHERNET TCP/IP communication based on the client/server model
MODBUS RTU: asynchronous serial transmission via RS-232 or RS-485
MODBUS ASCII: similar to the RTU protocol, except for a different data format

The operating mode of the VELON PM is RTU (asynchronous serial transmission via RS-485).

The pump can be controlled exclusively via MODBUS RTU (RS-485 connector) at memory location 40001.
Format 8N1 (default): 8 data bits, no parity ("No parity"), and 1 stop bit. The pump will always have ID 01.
Baud rate: 38400.

Address	Byte Number	Format	Property	Function	Description
40001	2	uint16	R/W	03 / 06	0-100% Motore

Request to read the status of register 40001 by the "MASTER"

ID	FUNCTION	ADDRESS (HIGH)	ADDRESS (LOW)	DATE WORD (HIGH)	DATE WORD (LOW)	CRC (HIGH)	CRC (LOW)
01	03	00	00	00	01	84	0A

Esempio di invio comando di **scrittura** del registro 40001 per funzionamento della pompa al 50% della capacità da parte del "MASTER".

ID	FUNCTION	ADDRESS (HIGH)	ADDRESS (LOW)	DATE WORD (HIGH)	DATE WORD (LOW)	CRC (HIGH)	CRC (LOW)
01	06	00	00	00	32	78	14

Il campo "DATE WORD (LOW)" definisce la percentuale di capacità della pompa espressa da 0 a 100% in esadecimale. Nell'esempio il valore "DATE WORD (LOW) 32" corrisponde al decimale 50 ovvero 50%.

CRC ERROR HANDLING

During transmission, two types of errors may occur, which are handled differently: transmission errors and operational errors. Transmission errors occur when the transmitted message is corrupted during transmission and is therefore received incorrectly. In this case, the error is detected by a possible bit parity check, if enabled in the serial transmission, or by the CRC check. The "slave" that detects this type of error considers the message invalid, discards it, and does not send any response. If, on the other hand, the message is correct in its format and free from transmission errors, an error may still occur in the content of the message itself. For example, the requested function may not be executable for any reason, or an incorrect address may be specified. In this case, an operational error occurs. For this type of error, the "slave" device responds with an exception message.

This message consists of the address, the requested function code with a delta applied, an error code, and the CRC. To indicate that the response is an error notification, the function code is returned with the most significant bit set to "1". The structure of the response is as follows:

ADDRESS SLAVE	FUNCTION	ERROR CODE	CRC (HIGH)	CRC (LOW)

Request to a "slave" with an incorrect ID

ID	FUNCTION	ADDRESS (HIGH)	ADDRESS (LOW)	DATE WORD (HIGH)	DATE WORD (LOW)	CRC (HIGH)	CRC (LOW)
04	06	00	00	00	32	78	14

The message is considered invalid and no response is returned.

Richiesta con un "CRC" sbagliato

ID	FUNCTION	ADDRESS (HIGH)	ADDRESS (LOW)	DATE WORD (HIGH)	DATE WORD (LOW)	CRC (HIGH)	CRC (LOW)
01	06	00	00	00	32	BB	BB

The message is considered invalid and no response is returned.

Request to a non-existent address

ID	FUNCTION	ADDRESS (HIGH)	ADDRESS (LOW)	DATE WORD (HIGH)	DATE WORD (LOW)	CRC (HIGH)	CRC (LOW)
01	06	02	35	00	32	78	14

Answer: "Illegal Data Address"

ID	FUNCTION	EXCEPTION CODE	CRC (HIGH)	CRC (LOW)
01	83	02	C0	F1

Write request to an existing register with a non-permitted value

ID	FUNCTION	ADDRESS (HIGH)	ADDRESS (LOW)	DATE WORD (HIGH)	DATE WORD (LOW)	CRC (HIGH)	CRC (LOW)
01	06	00	00	00	FF	78	14

Answer

ID	FUNCTION	EXCEPTION CODE	CRC (HIGH)	CRC (LOW)
01	86	03	02	61

Request for a non-existent function

ID	FUNCTION	ADDRESS (HIGH)	ADDRESS (LOW)	DATE WORD (HIGH)	DATE WORD (LOW)	CRC (HIGH)	CRC (LOW)
01	06	00	00	00	01	21	CB

Answer

ID	FUNCTION	EXCEPTION CODE	CRC (HIGH)	CRC (LOW)
01	80	01	80	00

ERROR CODES

CODE	NAME	DESCRIPTION
01	ILLEGAL FUNCTION VALUE	Non-existent Function
02	ILLEGAL DATA ADDRESS	The address referenced by the data field is not a permitted address on the addressed "slave". Attempted write operation to a read-only register.
03	ILLEGAL DATA VALUE	The value to be assigned to the data field is not permitted for this address.
05	BUSY WRITING	n/a

Address	Register Number	Format	Property	Function	Description
40001	2	Int16	r/w	3/6	RPM value
40003	2	Int16	r/w	3/6	RUN
40004	2	Int16	r/w	3/6	OFF
40005	2	Int16	r/w	3/6	Loading*
40006	2	Int16	r/w	3/6	Unloading**

Only one of the two registers must be set to 1.

Example:

40003 = 1
40004 = 0
Pump in RUN.

To set the pump to OFF, set register 40004 to 1. Register 40003 will automatically switch to 0.
To set the pump to RUN, set register 40003 to 1. Register 40004 will automatically switch to 0.

* Motor rotation clockwise (normal operation, priming)
** Motor rotation counterclockwise (depriming operation)

Navigation

The backlit LCD display and front encoder provide simple and intuitive user interaction, even when navigating through a wide range of options. The menus guide the user step by step, simplifying programming and reducing configuration time.

Dosing

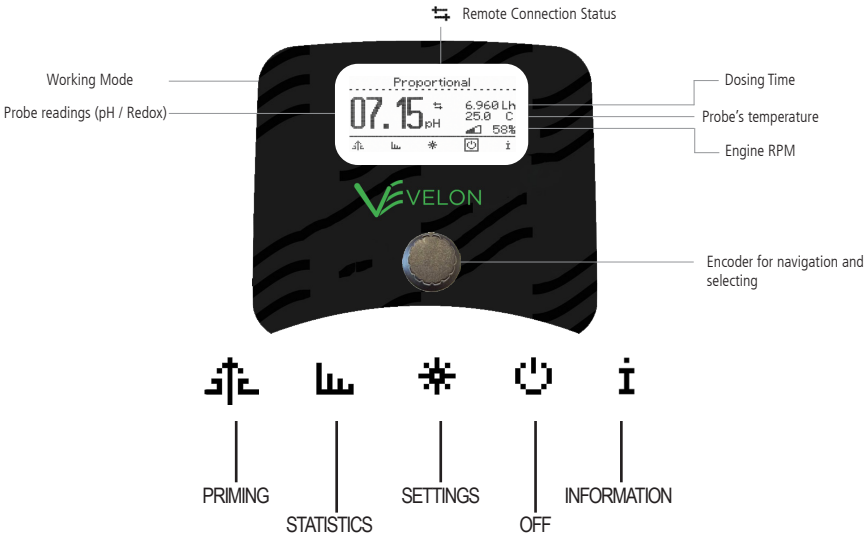
The pump supports two operating modes: Proportional, based on the values measured by the probes (pH, Redox and temperature), and Autodosing, which automatically adjusts the dosing rate according to the set value and tank volume. This versatility makes the pump ideal for applications where process parameters change dynamically and dosing needs to adapt continuously.

Additional Functions

The pump features tank level management to ensure operational continuity and prevent unexpected interruptions. A Standby function is also available, allowing dosing to be temporarily suspended by an external command and resumed immediately when required. An optional alarm provides an additional level of safety. Advanced electronics ensure consistent dosing accuracy even under varying load conditions.

IoT and Services

The pump stands out for its connectivity features: it supports Wi-Fi, OTA firmware updates, and integration with dedicated digital platforms. This enables remote monitoring and control, making it ideal for applications requiring continuous supervision.



The probe auto-detection function is available only on pump models designed to support this feature.

PRIMING / UNLOADING

The priming function allows the peristaltic pump to be operated manually to load the product to be dosed (LOADING) or to discharge any residual product from the hydraulic circuit (UNLOADING).

Before starting the operation, set the operating time in seconds. For normal priming, an operating time of 30 seconds is recommended.

Then use the arrows shown at the bottom of the display to select the pump rotation direction:

Left arrow, UNLOADING: the pump rotates in the reverse direction, allowing any residual product in the tube to be discharged back towards the tank.

Right arrow, LOADING: the pump rotates in the normal dosing direction and draws the product from the tank, filling the tube. This mode is used to prime the pump.

Once the function is started, the peristaltic pump motor runs at 100% speed for the previously set time.

At the end of the selected time, the motor stops automatically.

Note: For initial priming or when particularly long tubing is used, if 30 seconds is not sufficient to completely fill the circuit, repeat the LOADING operation until the product reaches the discharge point.

STATISTICS

The STATISTICS menu displays information about the amount of product dosed by the pump. The menu is divided into two sections: TOTAL and PARTIAL.

TOTAL

The TOTAL item displays the total amount of product dosed, expressed in ml.

This value represents the overall amount of product dosed by the pump.

PARTIAL

Selecting PARTIAL opens the PARTIAL STATISTICS screen, which displays dosing statistics for the period since the last reset.

The screen shows:

DOSED, total amount of product dosed since the last reset, expressed in ml.

FROM, date and time of the last statistics reset. This value therefore indicates the starting point from which the partial dosing amount is calculated.

DOSED 24h, amount of product dosed during the last 24 hours.

The X icon at the bottom left of the display can be used to reset the partial statistics.

When the reset is performed, the DOSED value is reset to zero and FROM is updated with the date and time of the reset, starting a new partial statistics period.

Note: Resetting the PARTIAL statistics does not affect the overall dosing value displayed in the TOTAL section.

SETTINGS

The SETTINGS menu allows the main pump operating parameters, dosing modes, and settings related to the probes connected to the device to be configured.

The settings are organised into different sections, each dedicated to a specific group of functions.

Working Mode
The Working Mode menu allows the pump dosing mode to be selected and configured.

The following modes are available:

Proportional: proportional dosing based on the measured value and the configured control parameters.
Autodosing: operation using the automatic dosing mode.

The selected mode determines how the pump operates during normal operation and makes the corresponding configuration parameters available.

Probe pH/mV (or ORP/mV)
The Probe pH/mV menu contains all settings related to the probe used for pH/mV measurement. Depending on the pump version, an ORP/mV probe may be available instead.

This menu includes the functions required for probe configuration, calibration, and monitoring.

Setting Probe
This section contains the configuration parameters related to the installed probe and its operation.

Info Probe
This section displays information about the probe and its current status.

Probe Temperature
The Probe Temperature menu allows the probe used for temperature measurement to be configured and managed. The temperature measurement can be used by the system both as process information and, when supported by the configuration, to compensate the measurements performed by the main probe. The corresponding settings therefore allow the behaviour of the temperature measurement and the associated probe to be configured.

More

The More menu contains additional pump settings that are not directly related to the dosing mode or probe configuration. This section provides access to further general configuration functions of the device.

Note: The availability of some settings may depend on the pump configuration, the selected operating mode, and the installed probes.

WORKING MODE

The WORKING MODE menu allows the dosing mode used by the pump to be selected and configured.
Two operating modes are available:

PROPORTIONAL

The pump adjusts the dosing rate according to the value measured by the probe. Configuration is performed by defining two reference points, High and Low, with the corresponding Pot values assigned to each point.

The following parameters are available:

High, upper reference value of the measured parameter.

% High, pump output associated with the High value.

Low, lower reference value of the measured parameter.

% Low, pump output associated with the Low value.

These two points define the pump behaviour according to the measured value and allow proportional dosing control to be configured.

AUTODOSING

The Autodosing mode provides automatic dosing based on a configured Setpoint.

The following parameters are available:

Action, defines the control action used for dosing.
Setpoint, reference value used by the system to control dosing.
Volume, reference volume used by the automatic dosing function, expressed in m^3.

The selection between Proportional and Autodosing therefore determines the control logic used by the pump during normal operation.

In Proportional mode, the dosing rate is modulated according to the value measured by the probe and the configured High/Low points.

In Autodosing mode, dosing is managed automatically according to the configured Setpoint, Action, and Volume.

Note: The available parameters and the corresponding configuration procedures depend on the selected operating mode. Proportional and Autodosing modes are described in detail in the following sections.

PROBE

The PROBE pH/mV menu contains all functions for configuring, calibrating, monitoring, and diagnosing the probe connected to the pump. The menu contents are adapted according to the type of probe installed. When a pH probe is connected, the parameters and procedures specific to pH measurement are displayed. If a Redox (ORP) probe is connected, the menu changes accordingly and provides the settings required for measurement in mV.

The available menu items may therefore vary depending on the type of probe detected by the device.

Compensation

The Compensation function allows temperature compensation of the measurement to be enabled or disabled according to the system temperature.

When compensation is enabled, the device applies the temperature compensation defined by the instrument configuration to the probe measurement.

Probe Calibration

Calibration allows the probe measurement to be corrected using known reference values.

For the pH probe, both one-point calibration, using Single Point, and two-point calibration, using First Point and Second Point, are available.

Single Point

The Single Point function allows calibration to be performed using a single buffer solution.

Immerse the probe in the buffer solution and wait until the displayed measurement is stable.

The calibration screen displays:

pH, value currently measured by the probe.
Calib. at, reference value used for calibration.
Offset, correction resulting from the calibration.

In the Calib. at field, set the value corresponding to the buffer solution being used and confirm the calibration.

One-point calibration therefore corrects the deviation between the measured value and the reference value.

First Point and Second Point

Two-point calibration uses two different buffer solutions and is performed in two stages.
For the First Point, immerse the probe in the first buffer solution, wait for the measurement to stabilise, set the nominal value of the solution in Calib. at, and confirm the first calibration point. Then remove the probe and rinse it to prevent contamination of the second solution. Immerse the probe in the second buffer solution and select Second Point. Wait for the measurement to stabilise again, set the nominal value of the second solution, and confirm the second calibration point. **Acquiring two calibration points allows the device to calibrate the probe response using two different reference values.**

Note: Use suitable buffer solutions and always wait for the measurement to stabilise before confirming a calibration point. Rinse the probe before moving from one buffer solution to another.

Probe Alarm
The Probe Alarm menu allows the monitoring and alarm functions associated with the probe and the dosing process to be configured. The screen includes the Probe Fail, Dos Alarm, and Tcal parameters.

Probe Fail
Allows the monitoring function associated with a probe fault condition to be configured. The parameter includes a time interval, expressed in minutes, and the corresponding action to be performed when the alarm condition occurs.

Dos Alarm
Allows the dosing alarm monitoring function to be configured. This parameter also includes a time interval, expressed in minutes, and the corresponding action to be performed when the alarm condition occurs.

Tcal
This is a time parameter associated with probe calibration management.
The conditions generated by these functions can also be used when configuring the Alarm Output, where the firmware distinguishes, among others, between Probe Fail Warning, Probe Fail, Dosing Warning, and Dosing Alarm signals.

Setting Probe
The Setting Probe menu contains the functions required to manage the probe associated with the pump.
The following functions are available:

Add Probe
Allows a new probe to be added to the device.

Remove Probes
Allows a previously associated probe to be removed.

Recovery Calibration
Provides access to the probe calibration recovery function.

This section is therefore mainly used to manage the association between the pump and the probe and to perform calibration recovery operations.

Info Probe

The Info Probe menu displays identification and operating information for the connected probe.

The following information is displayed:

Serial Number
Serial number identifying the probe.

Firmware Version
Firmware version installed on the probe.

Day of Work
Information relating to the number of days the probe has been in operation.

Last Calibration
Information relating to the most recent calibration performed.

The Info Probe menu therefore provides a quick overview of the probe identification, firmware version, operating information, and calibration status.

Redox Probe: When a Redox (ORP) probe is connected, the menu is automatically adapted to the installed probe. The available procedures, parameters, and reference values may therefore differ from those described for the pH probe and, where applicable, are expressed in mV.

PROBE TEMPERATURE
This menu contains the functions for configuring and calibrating the temperature probe connected to the pump. The calibration methods follow the same principle used for the pH or Redox probe. However, for temperature calibration, the reference value is not provided by a buffer solution but must be measured using a reference thermometer. The menu includes the Calibration, Temperature Offset, Recovery Calibration, and Delay of K functions.

Calibration
The Calibration function allows the temperature probe to be calibrated by comparing the value measured by the probe with the value measured by a reference thermometer. As with the pH or Redox probe, calibration can be performed using either a single point or two different temperature points.

Single-Point Calibration
To perform a single-point calibration, place the temperature probe and the reference thermometer under the same conditions, ensuring that both are measuring the temperature of the same sample or environment. Wait until both readings have stabilised, then use the temperature indicated by the reference thermometer as the calibration value. The difference between the value measured by the probe and the value measured by the reference thermometer is used by the device to correct the measurement.

Two-Point Calibration
Two-point calibration follows the same principle as the First Point / Second Point calibration used for pH or Redox probes, but is performed using two different reference temperatures. For the first point, bring the probe and the reference thermometer to the first temperature, wait until both readings have stabilised, and use the value indicated by the reference thermometer as the first reference value. Then bring both the probe and the reference thermometer to a different second temperature, wait again until the readings have stabilised, and acquire the second reference value. Whenever possible, it is recommended to select two temperatures that are representative of the temperature range in which the probe will normally operate. For tank applications, the two points can therefore be selected by considering the minimum and maximum temperatures, or two other significant temperatures, that the liquid is expected to reach during normal system operation. This allows calibration to be performed over a range that is more representative of the probe's actual operating conditions.

Note: To ensure reliable calibration, the probe and the reference thermometer must be exposed to the same thermal conditions. Before acquiring each calibration point, wait until both readings have stabilised.

Temperature Offset
The Temperature Offset function allows a correction to be applied to the temperature value measured by the probe. The offset can be used to compensate for a known deviation between the measured temperature and the reference temperature.

Recovery Calibration
The Recovery Calibration function allows the calibration information associated with the temperature probe to be recovered.

MORE

The MORE menu contains the general settings, service functions, communication options, and pump maintenance functions that are not directly related to the dosing mode or probe configuration.

From this menu, it is possible to configure level and stand-by management, measurement units, date and time, start-up delay, administrator password, alarm outputs, display settings, communications, main screen display options, and peristaltic tube maintenance.

Pump Capacity

The PUMP CAPACITY menu displays information about the dosing capacity of the peristaltic pump and the configuration of the installed tube. The screen displays the following parameters:

Flow
Indicates the nominal pump flow rate, expressed in L/h.

cc/min
Indicates the corresponding dosing capacity, expressed in cubic centimetres per minute (cc/min).

Tube ID
Identifies the peristaltic tube associated with the pump configuration.

This information provides a quick overview of the expected dosing capacity and the tube configured in the device. For example, the screen shown displays a flow rate of 11.99 L/h, a dosing capacity of 199.983 cc/min, and the corresponding Tube ID (peristaltic tube size, e.g. 4.8 × 1.6).

Test
The TEST function allows a manual operating test of the peristaltic pump to be performed.
The screen displays the amount dosed during the test, expressed in ml, the operating time, expressed in seconds, and the resulting flow rate, expressed in ml/sec. When the test is started, the pump operates the peristaltic motor to allow the dosing system to be checked. During the test, the data relating to the operation in progress are displayed. This function can be used to check pump operation and verify the amount of product actually delivered over a given period of time.

Note: To obtain a reliable result when checking the flow rate, make sure that the hydraulic circuit is correctly primed and free of air before performing the test.

Level Alarm
The Level Alarm function allows management of the input dedicated to monitoring the level of the product to be dosed to be enabled or disabled. When Level Alarm is enabled, the pump uses the corresponding signal to detect the condition associated with the product level. Level-related signals can also be associated with the Alarm Output, allowing the Level Warning and Level Alarm conditions to be signalled externally.

Stand-by
The Stand-by function allows management of the corresponding stand-by input to be enabled or disabled.
When the function is enabled, the pump can receive and manage the external stand-by command provided by the installation. The Stand-by status can also be associated with the Alarm Output, allowing it to be signalled through the configured output.

Unit of Measure

The Unit of Measure menu allows the measurement units used by the pump to display the parameters available in the interface to be selected. The selected unit is used on all screens where the corresponding parameter is displayed.

Date & Time
The Date & Time menu allows the date and time of the pump's internal clock to be configured. The following parameters are available:

Format
Allows the format used to display the date to be selected.

Date
Allows the current date to be set.

Time
Allows the current time to be set.

Correct date and time settings are required for functions that use time references, such as statistics and information relating to operations performed by the pump.

Power-on Delay
The Power-on Delay function allows a delay interval, expressed in minutes, to be set before the pump starts operating after power-up or after the power supply is restored. This function prevents the pump and the dosing process from starting immediately when the device is powered on.

Password
The Password menu allows access to pump functions and settings to be protected by means of two different authorisation levels: ADMINISTRATOR and USER. The distinction between the two profiles allows full pump configuration to be restricted to authorised personnel, while ordinary users are given access only to the functions required for normal operation.

Administrator Password
The ADMINISTRATOR password provides full access privileges.
Once logged in as Administrator, all pump functions and configuration parameters can be accessed, including restricted settings. This access level is intended for personnel authorised to install, configure, and maintain the device.

User Password
The USER password provides limited access privileges.The user can operate the pump and access only certain available functions, while settings reserved for device configuration remain protected. This access level therefore allows normal operation of the pump without permitting changes to parameters that require Administrator privileges.

Note: Keep the ADMINISTRATOR password secure and make it available only to authorised personnel. USER access should be used when normal pump operation needs to be permitted without allowing changes to the complete device configuration.

Language
The LANGUAGE menu allows the language used by the pump interface to be selected. The selected language is applied to menus, configuration items, messages, warnings, and information displayed on the screen, allowing the interface to be adapted to the operator's requirements. Once the selection is confirmed, the pump interface is displayed in the selected language. Note: The available languages may vary depending on the firmware version installed on the pump.

Alarm Output
The Alarm Output menu allows the output used for external signalling of alarm and warning conditions generated by the pump to be configured. The output can be enabled or disabled. When enabled, the contact type can also be configured. The N.O. (Normally Open) option is available in the configuration screens. One or more conditions can be selected to activate the output. The available conditions include:

*** Level Warning**
*** Level Alarm**
*** Stand-by**
*** MC Error**
*** Warning Tube RPM**
*** Warning Tube Day**
*** Warning Calib 1 / 2**
*** Probe Fail Warning**
*** Probe Fail**
*** Dosing Warning**
*** Dosing Alarm**
*** Off, Probe 1n/a, Probe 2n/a**

Multiple conditions can be associated with the same output simultaneously, allowing a single external signal to be used for different events. Warning and Alarm conditions are managed separately by the device and must therefore be considered as separate signals.

Display Contrast
The Display Contrast menu allows the display contrast to be adjusted to optimise readability according to the ambient conditions and the pump installation position.

Communication
The Communication menu allows the device network connection and the channels used to send notifications and messages to be configured. These functions allow communication between the pump and compatible external systems and devices to be configured. The following items are available:

DHCP Mode
Allows the DHCP mode used for the pump network connection to be configured.

Message
Allows the device messaging and notification functions to be configured.
The Message menu includes the following items:

App Notifications
Allows the management of notifications sent through the application to be configured.

Active Message
Allows the message sending function to be enabled or disabled.

Email 1 / Email 2
Allows up to two email addresses to be configured for sending communications generated by the device.

WiFi Scan
Starts a scan for available Wi-Fi networks and allows the network to which the pump will connect to be selected.

Modbus
The Modbus menu allows the parameters required for communication via the Modbus protocol to be configured.

The following parameters are available:

ID
Defines the Modbus identifier assigned to the pump.

Baudrate
Defines the communication speed.

Parity
Defines the parity setting used for communication.

These parameters must be configured to match the settings of the Modbus system or network to which the pump is connected.

Home View
The Home View menu allows the display mode of the pump Home screen to be selected.
Two display modes are available:

l/h % or % l/h
The selection determines how operating information is arranged and displayed on the Home screen, without affecting the pump operating mode or dosing logic.

Maintenance
The Maintenance menu contains functions dedicated to pump maintenance and, in particular, to managing the service life of the tube installed in the peristaltic pump head.

Reset Tube
The Reset Tube function resets and restarts the peristaltic tube service life counter.

The tube installed in the peristaltic pump head is a wear component and must be replaced according to the specified maintenance intervals. Whenever a new tube is installed, Reset Tube must be performed so that the pump registers the replacement and starts monitoring the service life of the new component.

After replacing the tube:

1. Go to SETTINGS / MORE / Maintenance.
2. Select Reset Tube.
3. Confirm the operation.
4. The tube service life counter is reset and restarted, with the newly installed tube considered as new.

Correctly updating the tube service life allows the pump to properly manage tube-related maintenance information and notifications, including the Warning Tube RPM and Warning Tube Day conditions available among the Alarm Output signals.

IMPORTANT: Perform Reset Tube only after the peristaltic tube has actually been replaced. If the counter is reset without replacing the tube, the tube service life information will no longer correspond to its actual operating condition.

Factory Default
Restores the pump to its initial factory configuration settings.

Software Update
Updates the pump firmware when an update is available. Contact technical support to check whether any corrective actions are required before or after the update.

Entry Delay
When enabled, this function delays changes in the Level and Stand-by input status by 3 seconds to prevent possible fluctuations caused by contact instability.

Calibration Warning
The Calibration Warning function indicates that the probe must be recalibrated 90 days after the last calibration. The warning can be disabled by clearing the ENABLE checkbox.

INFORMATION

The INFORMATION menu provides access to pump status, diagnostic, identification, and maintenance information. The information available in this section is mainly for reference and allows operators or technical personnel to quickly check the device status, installed software versions, IoT service data, and information relating to the service life of the peristaltic tube.

The menu includes Alarms, Software Release, Reserve, IoT Services, and Maintenance.

Alarms
The ALARMS screen displays any alarms currently active on the pump.
When no alarm conditions are present, the following message is displayed:

There are no alarms.
If one or more alarms are active, this section allows their status to be identified and provides a reference point for diagnosing faults detected by the device.

Software Release

The SOFTWARE RELEASE screen displays the software versions installed in the different electronic modules of the pump. The following versions are displayed separately:

Pump
Displays the software version of the pump's main system. The screen also shows an additional identification code associated with the release.

Motor
Displays the software version of the motor control system.

WiFi
Displays the software version of the Wi-Fi module.

This information is particularly useful during technical support, maintenance, and update operations, as it allows the software versions installed on the device to be accurately identified.

Reserve
The RESERVE screen displays the amount of product available as a reserve, expressed in litres (L). The value is shown directly on the display in numerical format. This information allows the amount of product considered available by the pump for dosing to be checked.

IoT Services
The IoT SERVICES menu provides the information required to identify the pump within the IoT communication and connectivity services. The following items are available:

Serial Number
Displays the device serial number used to uniquely identify the pump.

MAC Address
Displays the MAC address associated with the device network interface.

QR Code
Displays the QR code associated with the pump's IoT services.

This information can be used when identifying, configuring, or associating the pump with the available communication services.

Maintenance
The MAINTENANCE screen allows the service life status of the tube installed in the peristaltic pump head to be checked. Two parameters are displayed:

RPM Tube
Indicates the count relating to the rotations accumulated by the tube during pump operation.

Day Tube
Indicates the number of days associated with the tube operating life.

These values allow the use of the peristaltic tube to be monitored and provide the reference data used for its maintenance management. When the tube is replaced, the RESET TUBE function must be used to reset the previous service life data and start the counter for the newly installed tube.

The information displayed on this screen is also associated with the Warning Tube RPM and Warning Tube Day signals provided by the pump alarm system.

ON / OFF

The ON/OFF menu allows the pump operation to be enabled or disabled.

Two states are available:

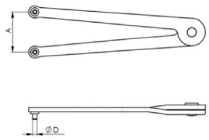
ON
The pump is active and ready to perform dosing according to the selected operating mode and configured parameters.
The display shows the normal Home screen.

OFF
Dosing is disabled, but the pump remains powered and the display stays on. The device therefore remains in standby, with the user interface available, without performing normal dosing operations.

To reactivate the pump, simply press the encoder again. The device returns to the ON state and is ready to operate according to the configured settings.

Note: The OFF state does not electrically switch off the pump. The device remains powered, with the display on and ready to be reactivated.

Procedure for Replacing the Peristaltic Pump Tube + Slide Semi-Assembly (WN)



Required / Useful Tools

New tube + slide semi-assembly (Required)
Adjustable pin wrench with ØD = 4 mm and A = 19.7 mm (Useful)

Operating Steps

1. Pump Preparation

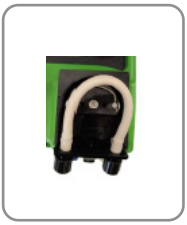
Switch off the pump and disconnect it from the power supply to ensure safety.
Close any discharge and suction valves to prevent liquid leakage.
Drain any residual fluid remaining in the peristaltic tube.

2. Removal of the Old Semi-Assembly

Open the pump cover to access the slide and the tube.

3. Remove the rotor cover disc

4. Remove the slide with the worn tube, taking care not to damage the rollers and the pump housing.



5. Insert and secure the slide with the new tube into the pump, ensuring it is correctly aligned.

6. Position the tube using the pin wrench or manually by rotating the roller carrier and guiding the tube while pressing it inward toward the pump housing.

7. Inspection and Test

Manually rotate the rollers to ensure that the tube is correctly positioned and moves freely without obstruction.

Reinstall the rotor cover disc.

Close the pump cover.
Restore the power supply and start the pump to perform a dry run test.

Warning: If the roller carrier is removed, always ensure that during reassembly the “A” marking is oriented toward the operator.

PRECAUTIONS RELATING TO DIRECTIVES, REGULATIONS AND STANDARDS

§ CE/EU and UKCA Marking

It is guaranteed that this product complies with the essential requirements of the applicable Directives and Regulations in accordance with the following specifications. Carefully consider the following specifications when using the product in European Union Member States and in the United Kingdom.

CE/EU Directives and Harmonized Standards

Directives
DIRECTIVE 2006/42/EC
DIRECTIVE 2014/35/EU
DIRECTIVE 2014/30/EU
DIRECTIVE 2011/65/EU
COMMISSION DELEGATED DIRECTIVE (EU) 2015/863

Harmonized Standards
EN ISO 12100
EN 809
EN ISO 20361
EN IEC 61326-1
EN 61010-1
EN IEC 63000

UKCA Regulations and Harmonized Standards

Regulations
2008 No. 1597
2008 No. 1091
2016 No. 1101
2012 No. 3032

Harmonized Standards
BS EN ISO 12100
BS EN 809
BS EN ISO 20361
BS EN IEC 61326-1
BS EN 61010-1
BS EN IEC 63000

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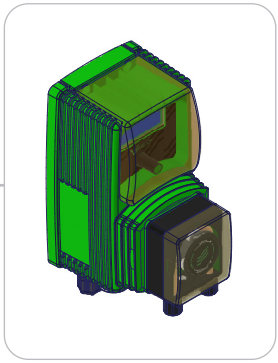

Tutti i materiali utilizzati per la costruzione della pompa dosatrice e per questo manuale possono essere riciclati e favorire così il mantenimento delle incalcolabili risorse ambientali del nostro Pianeta. Non disperdere materiali dannosi nell'ambiente! Informatevi presso l'autorità competente sui programmi di riciclaggio per la vostra zona d'appartenenza!