ITC

A **VERDER** COMPANY

DOSmart

MANUAL

ENGLISH

CONTENTS

⚠ **SAFETY INSTRUCTIONS**

To avoid personal injury risks and damage to the environment, and to ensure proper equipment operation, personnel responsible for installing, commissioning and maintaining the equipment must follow the instructions in this manual, with special attention to the detailed recommendations and warnings. The specific instructions for the use of the chemicals to be dosed must also be followed.

This appliance must not be used by people (including children) with reduced physical, sensory or mental abilities or who lack experience and knowledge, unless they have received supervision or instruction. Children should not play with the appliance unsupervised.

1 GENERAL DESCRIPTION

DOSmart is a range of stepper motor-driven dosing pumps designed to automate the precise and efficient dosing of liquid chemicals.

These pumps are known for their high accuracy, wide adjustability, and strong suction capacity—even when handling viscous fluids. The flow rate range meets dosing requirements from 1.5 to 60 l/h, with pressure up to 16 bar.

Selecting the appropriate pump head material—PP, PVDF or stainless steel—allows safe and effective dosing of most chemicals commonly used in water treatment, the chemical industry, food processing, and agriculture.

Operating modes

Manual: Flow rate adjusted manually via the keypad.

Flow proportional: Dosing rate is proportional to a water flow signal

AC only:

Analogue: Dosing rate is proportional to an analogue input signal (0/4–20 mA).

Pulse proportional: Dosing is controlled by input pulses; dosing cycles are proportional to pulse frequency.
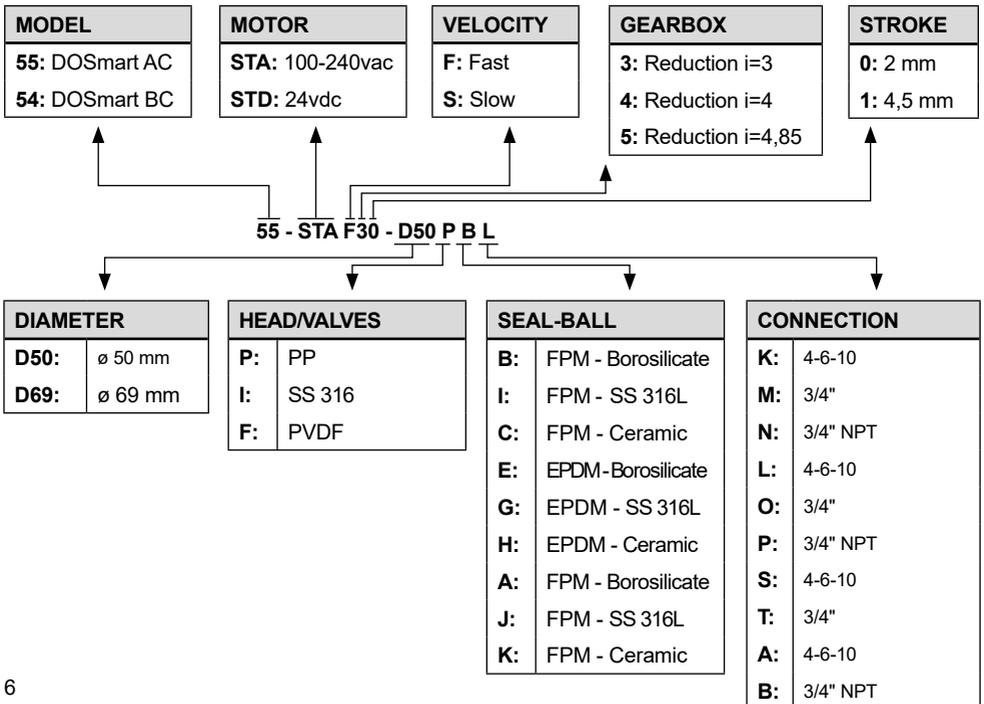
Batch dosing (by volume): Delivers a defined volume. Can be triggered manually, remotely, or on a timer.

Timed dosing: Delivers dosing over a preset time period. Can be triggered manually, remotely, or on a timer.

ModBus: Dosing control via ModBus RTU protocol.

ModBus: control de la dosificación a través del protocolo ModBus RTU.

Code formulation

MODEL	MOTOR	VELOCITY	GEARBOX	STROKE
55: DOSmart AC	**STA:** 100-240vac	**F:** Fast	**3:** Reduction i=3	**0:** 2 mm
54: DOSmart BC	**STD:** 24vdc	**S:** Slow	**4:** Reduction i=4	**1:** 4,5 mm
			5: Reduction i=4,85	

55 - STA F30 - D50 P B L

DIAMETER		HEAD/VALVES		SEAL-BALL		CONNECTION	
D50:	ø 50 mm	**P:**	PP	**B:**	FPM - Borosilicate	**K:**	4-6-10
D69:	ø 69 mm	**I:**	SS 316	**I:**	FPM - SS 316L	**M:**	3/4"
		F:	PVDF	**C:**	FPM - Ceramic	**N:**	3/4" NPT
				E:	EPDM-Borosilicate	**L:**	4-6-10
				G:	EPDM - SS 316L	**O:**	3/4"
				H:	EPDM - Ceramic	**P:**	3/4" NPT
				A:	FPM - Borosilicate	**S:**	4-6-10
				J:	FPM - SS 316L	**T:**	3/4"
				K:	FPM - Ceramic	**A:**	4-6-10
						B:	3/4" NPT

Pulse Frequency

The DOSmart pump accepts pulse input signals to externally control the dosing flow rate. The supported input frequency ranges are as follows:

- AC model: accepts input frequencies from 0.005 Hz to 300 Hz.
- BC model: allows input frequencies from 0 Hz up to 500 Hz.

This wide operating range provides flexibility to meet various control requirements, ensuring accurate and stable dosing at all times.

2 PACKING AND STORAGE

The original packaging is designed to allow the equipment to be transported and stored without damage, provided this takes place in dry, ventilated spaces away from heat sources.

Included in the packaging are:
- DOSmart AC dosing pump
- Instruction manual
- Connection accessories for 4 x 6, 6 x 8, 6 x 12, 10 x 12 conduit

2.1. WASTE DISPOSAL

This equipment is labeled with the crossed-out waste container symbol in accordance with the European Directive 2012/19/EU on Waste Electrical and Electronic Equipment. Do not dispose of the device with household waste. For proper disposal, use the available collection and recycling points and follow the applicable local regulations.

It is the owner's responsibility to manage the equipment as waste in accordance with the current regulations in the country of use at the end of its useful life.

3 TECHNICAL SPECIFICATIONS

STA... / STD ...		S50-D50	F50-D50	F30-D50	F50-D69	F30-D69	F41-D69	F31-D69
Flow max. at P max.	l/h	1,5	4	8	12	24	40	60
	gph	0,40	1,05	2,10	3,15	6,30	10,50	15,80
Max. pressure	bar	16	12	8	7	5	3	2
	psi	232	174	116	100	72	44	29
Diaphragm diameter	mm	50	50	50	69	69	69	69
Stroke	mm	2	2	2	2	2	4,5	4,5
Cycles/min		40	82	143	85	164	113	164
Volume/cycle at Pmax	ml	0,63	0,82	0,93	2,36	2,44	5,92	6,08
Adjustment range	**(AC)**	1:3000	1:3000	1:3000	1:3000	1:3000	1:3000	1:3000
	(BC)	1:1000	1:1000	1:1000	1:1000	1:1000	1:1000	1:1000
Minimum flow	ml/h	0,50	1,34	2,66	4,00	8,00	13,33	20,00
	gpd	0,0032	0,0085	0,0169	0,0254	0,0507	0,0845	0,1268
Slow suction max. flow 75% (AC)	l/h	1,12	3	6	9	18	30	45
	gph	0,30	0,79	1,59	2,36	4,73	7,94	11,90
Slow suction max. flow 50% (AC)	ml/h	0,75	2	4	6	12	20	30
	gph	0,20	0,53	1,06	1,56	3,15	5,29	7,94
Max. suction head in operation	m	6	6	6	5	5	5	3
Max. suction head, priming with empty head	m	2	2	2	1,5	1,5	3	3
Max. viscosity, std. valve (and minimum DN pipe)	mPa.s	100	10	200	100	200	200	100
Max. viscosity, M valve with spring (and DN15 pipe)	mPa.s	3000	3000	3000	3000	2100	2000	600
Max. viscosity, M valve SS1 with spring (and DN15 pipe)	mPa.s	3000	3000	3000	3000	3000	3000	1800
Max. viscosity, M valve SS2 with spring (and DN15 pipe)	mPa.s	3000	3000	3000	3000	3000	3000	1800
Valve connections		4x6	4x6	6x8/6x12	6x8/6x12	10x12	10x12	10x12
Recommended minimum pipe DN (water and up to L=2 m)	mm	4	4	6	6	10	10	10
SUC L=2m	mm	4	4	6	6	10	10	15
SUC L=5m	mm	4	4	10	10	15	15	20
P max. suction	bar	1	1	1	1	1	1	1
Ambient T max.	C/F	0…45 C / 32…113 F						
T max. average	C/F	PP: 0…50C / 32…122 F; PVDF: -10…50C / 14…122 F; AISI316: -10…60 / 14…140 F						
Relative humidity max.:		95% (without condensation)						
Noise level	dB(A)	< 60						
Protection		IP65						
Weight	Kg	4,5 kg / 10 lb						
Voltage	V	100-250 Vac / 22-30 Vdc						
Frequency	Hz	50/60 Hz						
Power	W	32						
Current	A	0,14 A (230 Vac) / 0,24 A (110 Vac) / 1 A (24 Vdc)						

Inputs	BC	AC
• Analogue input 0/4–20 mA	✗	✔
• Level sensor input (pre-alarm)	✗	✔
• Leak detector input	✗	✔
• Flow sensor input	✗	✔
• Pressure sensor input	✗	✔
• RS-485 ModBus serial port	✗	✔
• External pulse input	✔	✔
• Remote start/stop input (on/off)	✔	✔
• Level sensor input (alarm)	✔	✔
Outputs		
• 4–20 mA output for monitoring and logging	✗	✔
• Pulse output for logging, monitoring and controlling a second pump	✗	✔
• Alarm output (relay)	✗	✔
• Level alarm output (relay)	✗	✔

DIMENSIONS
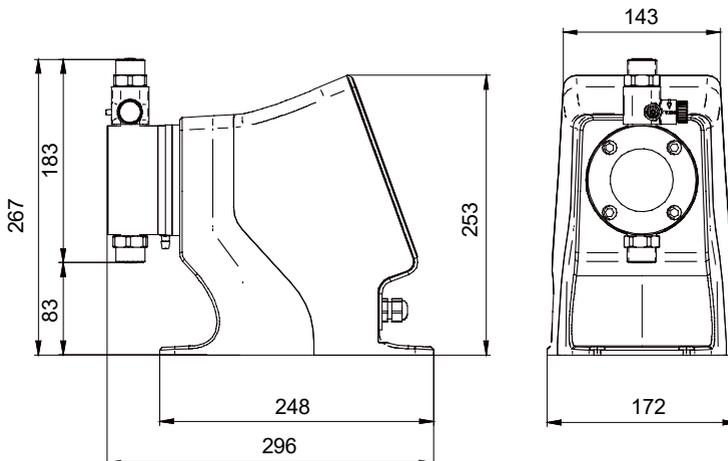
FLOW AND PRESSURE GRAPHS

—— Pressure compensation activated

- - - - Pressure compensation deactivated

S50-D50

GPH l/h — Bar / Psi

F50-D50

GPH l/h — Bar / Psi

F30-D50

GPH l/h — Bar / Psi

F50-D69

l/h — Bar / Psi

F30-D69

l/h — Bar / Psi

F41-D69

l/h — Bar / Psi

F31-D69

GPH — Psi
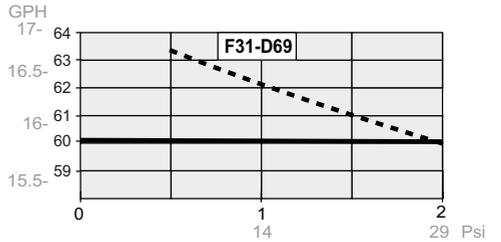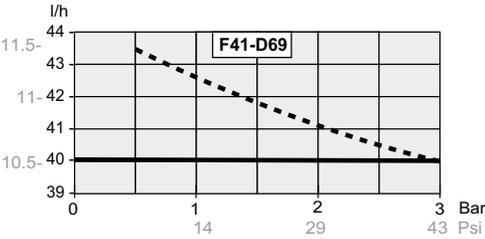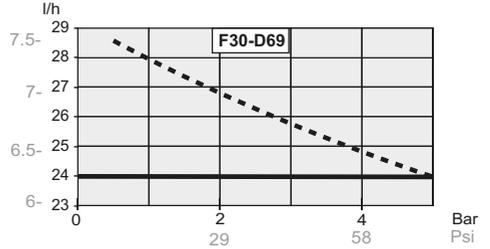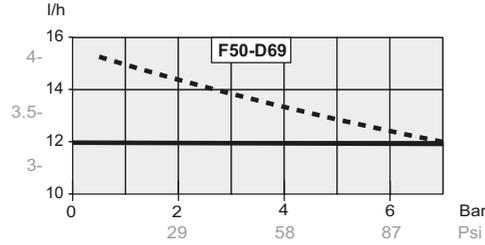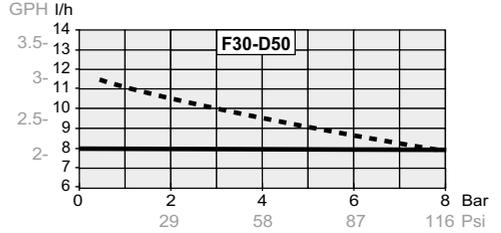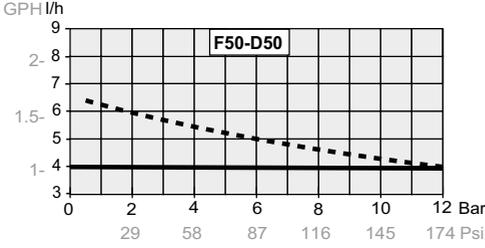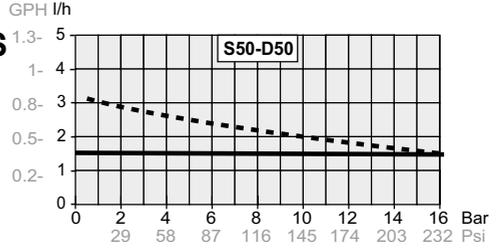
4 INSTALLATION

4.1 GENERAL

It should be installed in a place protected from water, away from heat sources and with renovation of air.

Fix the pump on a rigid horizontal surface. Provide enough space to comfortably perform basic

maintenance and facilitate installation and removal.

Fix the pump to the chosen flat surface using 4 screws

(See drawing).
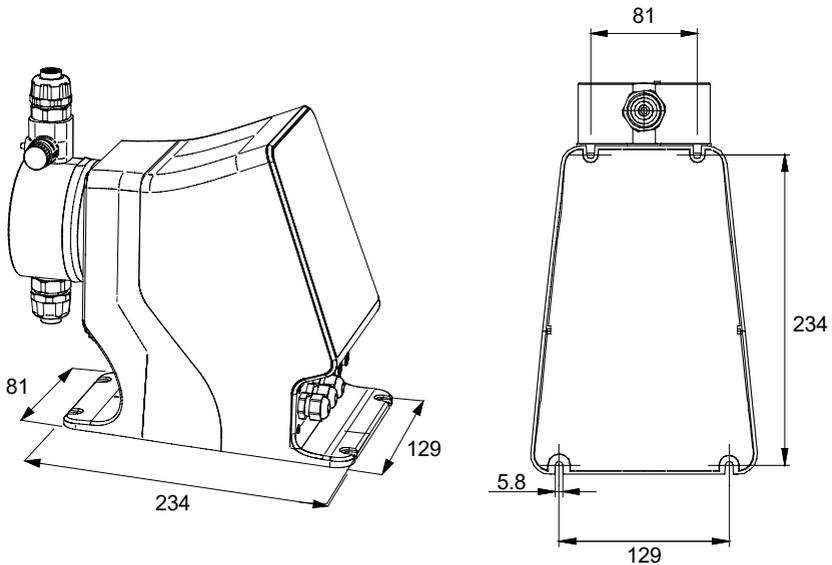
4.2 WIRING

The electrical protection of the motor must be installed and adjusted on the basis of its nominal current (thermomagnetic circuit breaker). (See connection).
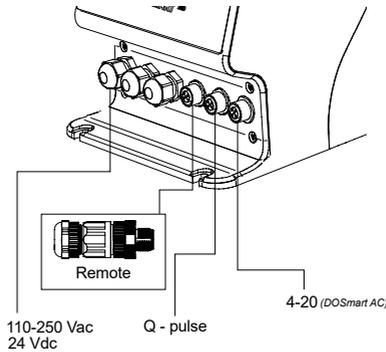
A device for disconnection in case of emergency must be installed.

The equipment must be protected against false starts.

If the power cord is damaged, it must be replaced by the manufacturer, by its after-sales service or by similar qualified personnel in order to avoid any hazard.

STA : 110-250V AC
STD : 24V dc

Remote

110-250 Vac
24 Vdc

Q - pulse

4-20 *(DOSmart AC)*

DOSmart BC WIRING

N	FUNCTION	DETAIL
Inputs		
	Proportional pulse input	Pulses
	Proportional pulse input	(-)
	Remote	Voltage free contact
	Remote	Voltage free contact
	Level sensor 1	Voltage free contact
	Common level sensor	Voltage free contact

DOSmart AC WIRING

N	FUNCTION	DETAIL
Inputs		
1	Encoder	+12 V dc
2	Encoder	F1
3	Encoder	F2
4	Encoder	S
5	Encoder	(−)
6	Flow detector	(+)
7	Flow detector	(−)
8	Leakage detector	(+)
9	Leakage detector	(−)
10	Pressure transmitter	+24 V dc
11	Pressure transmitter	(+)
12	Pressure transmitter	(−)
13	4-20 mA input analogue mode	(+)
14	4-20 mA input analogue mode	(−)
15	Proportional pulse input (flow meter / counter)	Pulses
16	Proportional pulse input (flow meter / counter)	(−)
17	Remote	Voltage free contact
18	Remote	Voltage free contact
19	Level sensor 1	Voltage free contact
21	Level sensor 2	Voltage free contact
22	Common level sensor	Voltage free contact
Outputs		
33	RS-485	+5 V dc
34	RS-485	H (B)
35	RS-485	L (A)
36	RS-485	(−)
37	4-20 mA monitor output	(+) Not isolated
38	4-20 mA monitor output	(−) Not isolated
39	Monitor pulse output	Isolated signal
40	Monitor pulse output	(−) isolated
41	Level alarm 2 output	NO
42	Level alarm 2 output	NC
43	Level alarm 2 output	Common (max. 5 A 250 V ac)
44	Alarm output	NO
45	Alarm output	NC
46	Alarm output	Common (max. 5 A 250 V ac)

# 4.3 HYDRAULIC INSTALLATION

4.3.1 Installation examples
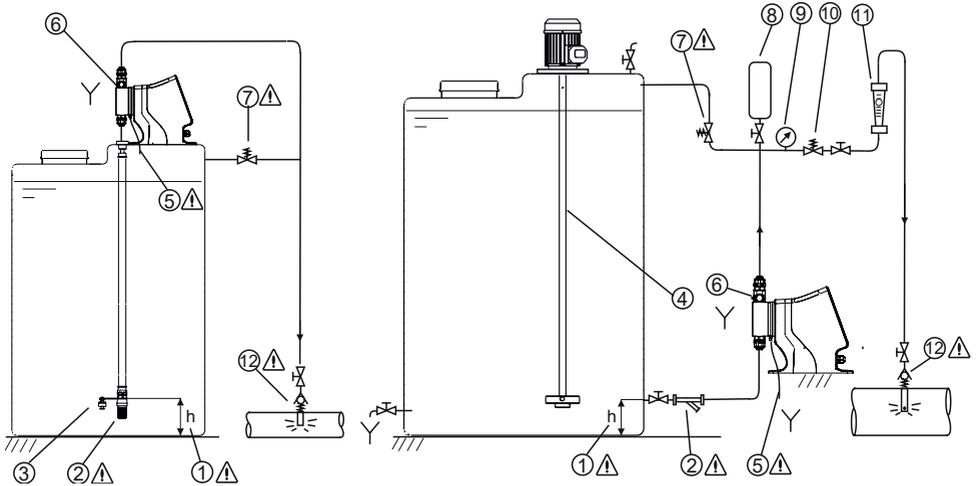
⚠ 1. To avoid undissolved particles, never suck the product to be injected from the bottom of the tank.

⚠ 2. Filter. It is essential to install a filter (150 micron) in the suction piping.

3. Level sensor

4. Agitator

⚠ 5. Make sure to connect a hose or pipe made of material compatible with the product dosed to the bottom of the cylinder at the drain hole in case of a rupture of the membrane and collect the liquid in a safe place.

6. Priming and drain valve built into the pump.

⚠ 7. Pressure relief valve. Install a pressure relief valve in a bypass as close as possible to the pump in order to protect the pump and the installation from possible overpressure. This bypass should pipe the liquid to a safe place.

8. Pulse dampener

9. Pressure gauge.

10. Pressure maintenance valve.
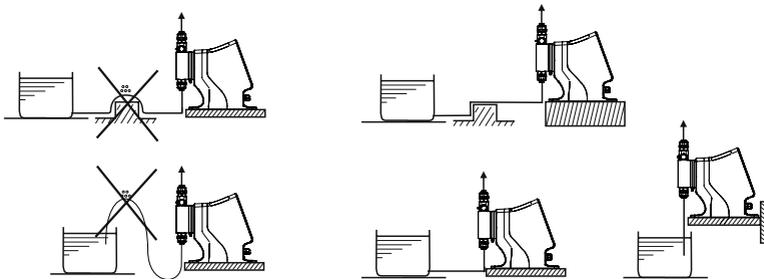
11. Flowmeter

⚠ 12. Injection check valve

4.3.2 Installation recommendations
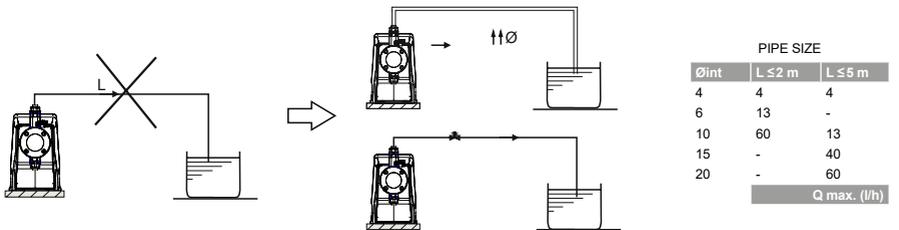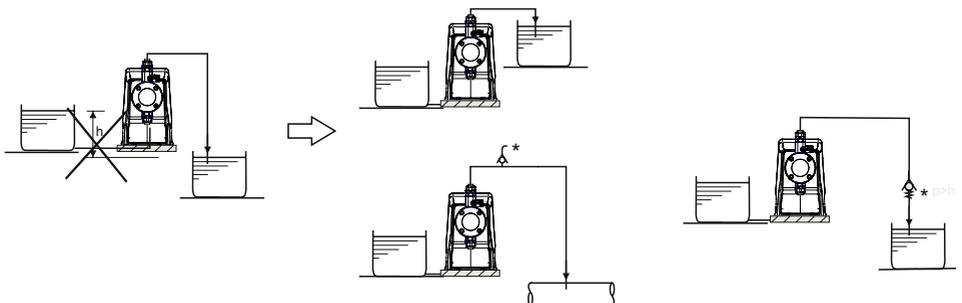
SUCTION

⚠ Long suction: L> 2 m (6.5 ft)

Øint	L ≤ 2 m	L ≤ 5 m
PIPE SIZE		
4	4	4
6	13	13
10	60	40
15	-	60
		Q max. (l/h)
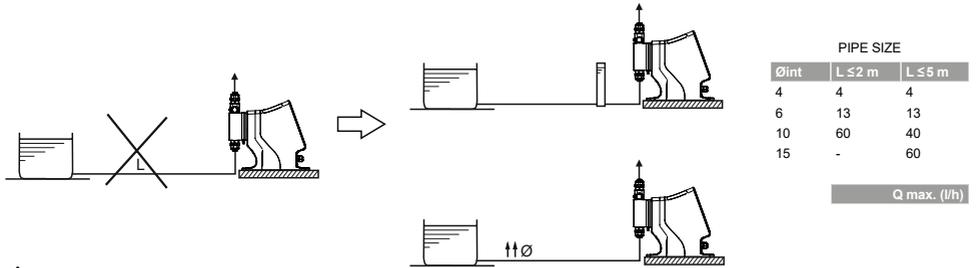
⚠ Air in suction

DISCHARGE

⚠ Long discharge: L> 5 m (16 ft)

Øint	L ≤ 2 m	L ≤ 5 m
PIPE SIZE		
4	4	4
6	13	-
10	60	13
15	-	40
20	-	60
		Q max. (l/h)

⚠ Siphon

4.4 ACCESSORIES

4.4.1 Multifunction Valve

The multifunction valve is designed for use with DOSmart pumps and combines five functions into a single accessory: pressure sustaining valve, safety valve, priming valve, non-return valve, and anti-siphon valve. Its integration enhances the safety and stability of the DOSmart dosing system, especially in installations with pressure fluctuations.
It is available for flow rates up to 60 l/h and features 3/4" L-type inlet connections. Manufactured in PVDF, with seals in various materials (EPDM, FPM, or TFE/P), it is compatible with a wide range of chemicals.
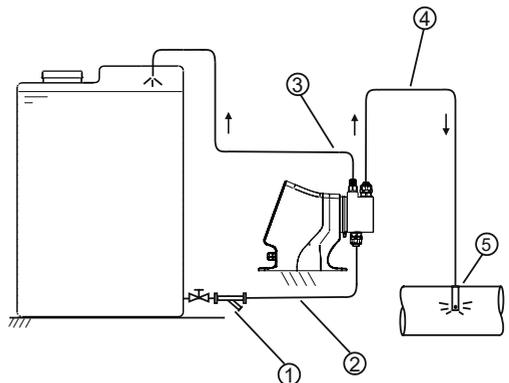

Pressure Sustaining	Code
2-8 bar ±0.5	18-019
1-2 bar ±0.5	18-020
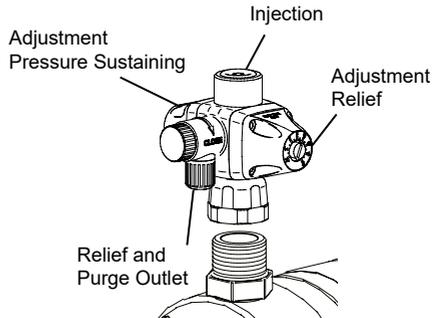
4.4.2 Automatic Degassing Head

The automatic degassing head allows continuous evacuation of air or gas bubbles from the hydraulic circuit, preventing interruptions in dosing.

Designed for use with DOSmart pumps, it is available in polypropylene (PP) and PVDF versions, and supports flow rates up to 60 l/h.

① SUCTION FILTER
② SUCTION TUBING
③ GAS OUTLET
④ INJECTION TUBING
⑤ INJETION VALVE

Construction Material	Code
Polipropileno (PP)	18-028-P
PVDF	18-028-F

4.4.3 Diaphragm leakage detector (DOSmart AC)

The diaphragm leakage detector is an electrical conductivity sensor capable of detecting the presence of liquid when its conductivity is 0.05 mS or higher. The pump must be provided with the specific diaphragm flange for housing the detector.

Diaphragm Ø	Diaphragm leakage sensor kit
50	29-068-P
69	29-063-P

Fit the detector Ref. 29-056 in the lower opening of the diaphragm and connect pins 8 - 9 as shown in the drawing.
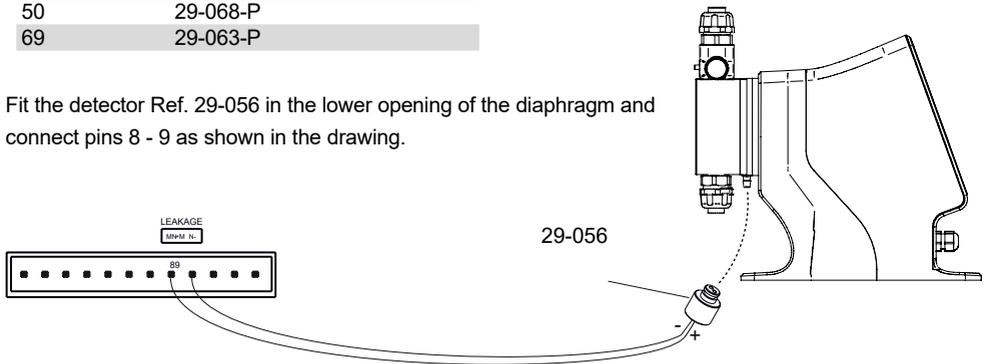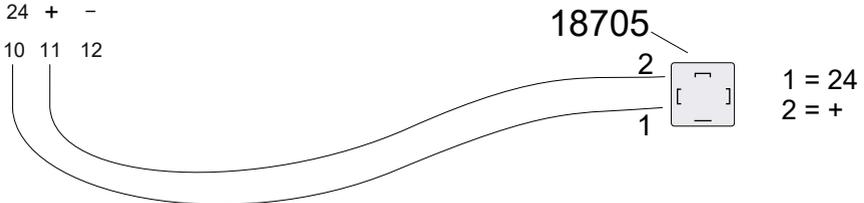

4.4.4 Pressure sensor (DOSmart AC)

The pressure sensor protects the pump from working in overpressure conditions, when the pressure alarm is activated. Connect the 4 - 20 mA 10 bar pressure sensor Ref. 18705 as shown in the drawing.
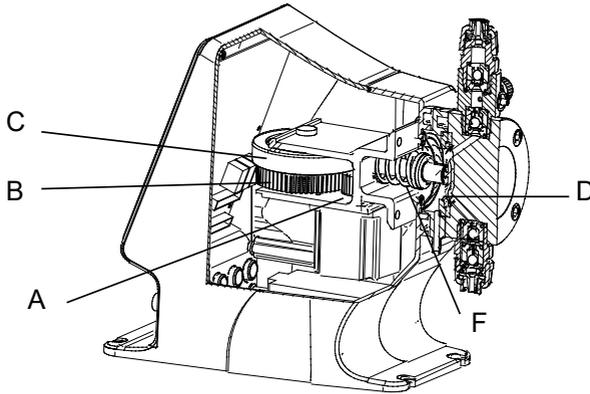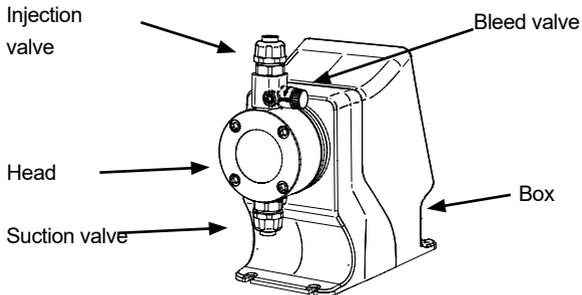
5 OPERATION

The electric motor transmits power via a reducer, consisting of a pinion (A) and an eccentric crown (B) that drives a connecting cam (C) onto which the diaphragm (D) is screwed. Spring (F) is compressed during the suction cycle, thus storing energy which is released during the delivery cycle.
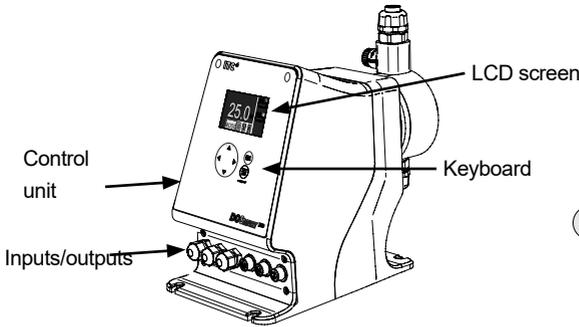
By varying the speed of the motor and depending on the operating mode selected in the Control Unit, the equipment will regulate the flow to the desired value with a maximum variation of 1:3000.
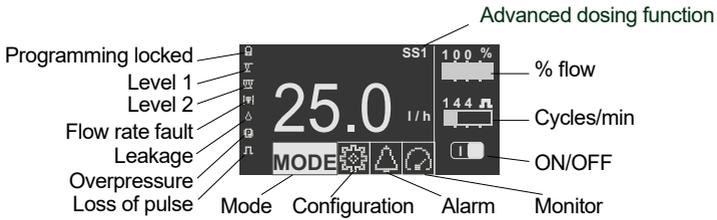

EQUIPMENT DESCRIPTION

6 DOSMART AC USE AND CONFIGURATION

LCD screen

Control unit

Keyboard

Inputs/outputs

ESC — Exit without confirming / 🔒

START STOP — Start / Stop / Enter (Validate)

▲ ▼ — Increase/decrease value

▶ — Scroll left

◀ — Scroll right/test

LCD DISPLAY DESCRIPTION

Advanced dosing function

Programming locked
Level 1
Level 2
Flow rate fault
Leakage
Overpressure
Loss of pulse
Mode   Configuration   Alarm   Monitor

% flow
Cycles/min
ON/OFF

Operation

Menu.s

6.1 Operating modes

- Manual
- Proportional
- Analogue
- Batch

6.2 Configuration

- Pump calibration
- Dosing Mode
  - Standard (ST)
  - Slow Suction 1 (SS1)
  - Slow Suction 2 (SS2)
- Set Up
  - Dosing pump
  - Units
  - Flowmeter
  - Lock code
  - ModBus
- In/Out
  - Pressure Input
  - Flow detector
  - Pulse output
  - 4-20 mA out
- Maintenance
  - Valves
  - Diaphragm
  - Bellows

6.3 Alarms

- Level 1
- Level 2
- Flow rate
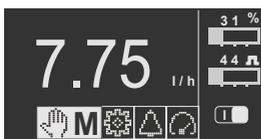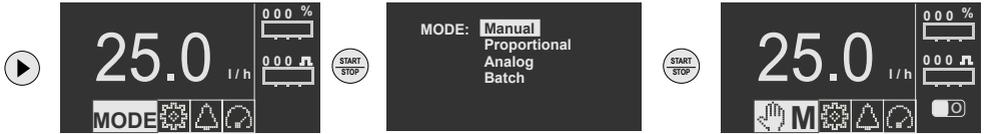- Leakage
- Pressure

6.4 Monitor

- Real time
  - Inputs
  - Outputs
  - Monitor motor
- Counters
- Info Unit

6.1 OPERATING MODES

6.1.1 Manual mode

This mode allows manual adjustment of the dosing flow rate.

(▲) (▼) Increase/decrease flow

START/STOP Start/stop the pump

The pump will start if the Remote Activation input is activated.

6.1.2 Proportional mode

This mode allows dosing to be proportional to a pulsed input. Use X:Y mode to establish a ratio of input pulses (X) to pump cycles (Y). Use the %/ppm mode for proportional dosing.Ajustes del modo proporcional
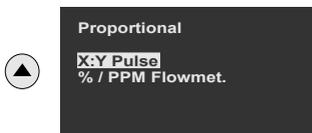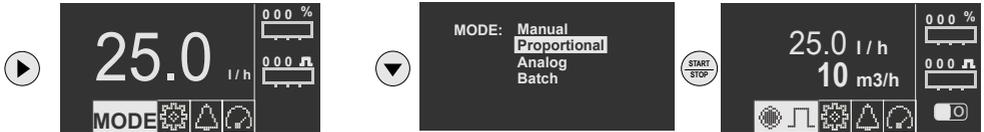
Proportional to a pulse input from a flowmeter
1. X:Y for low frequency pulses (0,005-30 Hz)
2. %/ppm for high frequency flowmeters (1-300 Hz)

6.1.2.1 X:Y pulses

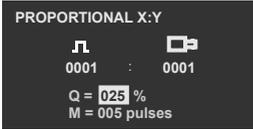The pump will cycle Y times after receiving X input pulses. The pump speed can be adjusted manually.

Select the number of input pulses
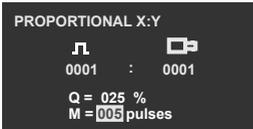
Change by pressing (▲) (▼) and confirm by pressing START/STOP

PROPORTIONAL X:Y

0001 : 0001

Q = 025 %
M = 005 pulses

Select the number of pump cycles

Change by pressing (▲) (▼) and validate by pressing (START/STOP)

PROPORTIONAL X:Y

0001 : 0001

Q = 025 %
M = 005 pulses

Select pump speed in %

Change by pressing (▲) (▼) and confirm by pressing (START/STOP)
For Y=1 Q must be set at less than 50%

PROPORTIONAL X:Y

0001 : 0001

Q = 025 %
M = 005 pulses

Select the maximum number of pulses in memory

Change by pressing (▲) (▼) and confirm by pressing (START/STOP)

6.25 l/h

25 %
36

(START/STOP) Start/stop the pump
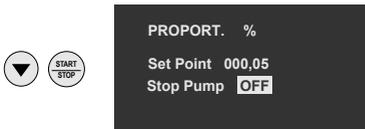The pump will start if the Remote Activation input is activated.

6.1.2.2 %/ppm Flowmeter

By entering a proportion value (%/ppm) and with a pulse input from a flowmeter, the pump will regulate its speed to dose the flow according to the desired proportion.
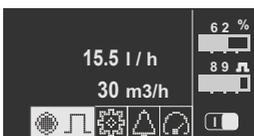
(▼) (START/STOP)

PROPORT.   %

Set Point 000,05
Stop Pump OFF
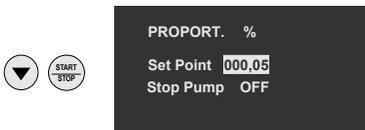
Proportionality value in % or ppm

Change by pressing (▲) (▼) and confirm by pressing (START/STOP)

(▼) (START/STOP)

PROPORT.   %

Set Point 000,05
Stop Pump OFF

Select OFF to perform proportional dosing with no volume limit.

Change by pressing (▲) (▼) and confirm by pressing (START/STOP)

15.5 l/h
30 m3/h

62 %
89

Instantaneous water flow rate

Pressing (START/STOP) will cause the ON/OFF indicator to toggle to ON and the pump will start if the Remote Activation input of is activated

* For the configuration of units (%/ppm) see Units in the Configuration section
* For flowmeter configuration. See the Configuration/Setup section

```
PROPORT.    %
Set Point    000,05
Stop Pump   ON
Stop Vol (1)  03,6
```
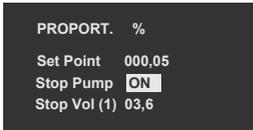
Select ON to perform proportional dosing with a volume limit.
The pump will stop when it reaches the ENT maximum volume
to be dosed.

Change by pressing ▲ ▼ and confirm by pressing START/STOP

```
PROPORT.    %
Set Point    000,05
Stop Pump   ON
Stop Vol (1)  03,6
```

Set the desired maximum volume.
Change by pressing ▲ ▼ and validate by pressing START/STOP

```
03,6 l / h      62 %
00,0 l / h
150 l / h      89
30 m3/h
```
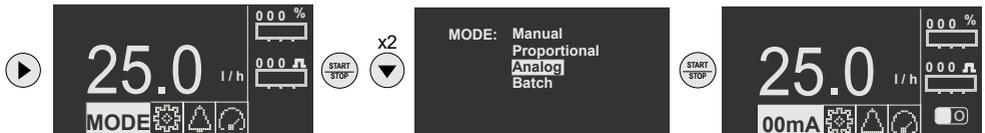
Volume to be dosed
volume dosed

By pressing ENT the ON/OFF indicator will change to ON and
the pump will start if the Remote Activation input is activated.
The pump will stop when it reaches the maximum volume set.

6.1.3 Analogue mode

This mode allows dosing proportional to an analogue 0/4-20 mA input.

6.1.3.1 Analogue mode configuration

```
ANALOG INPUT
INPUT
00,0 mA = 067 %
16,0 mA = 100 %
```
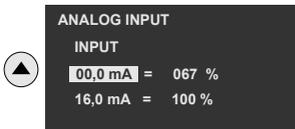
Select mA input for the first point
Change by pressing ▲ ▼ and confirm by pressing START/STOP

```
ANALOG INPUT
INPUT
00,0 mA   067 %
16,0 mA = 100 %
```
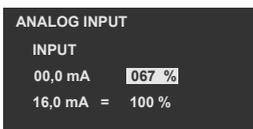
Select the flow in % for the first point in mA
Change by pressing ▲ ▼ and confirm by pressing START/STOP

```
ANALOG INPUT
  INPUT
              =    067 %
  16,0 mA  =    100 %
```
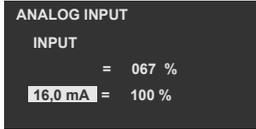
Select mA output for the second point
Change by pressing (▲)(▼) and confirm by pressing (START/STOP)

```
ANALOG INPUT
  SPAN
  4 mA    =    000 %
  20 mA  =    100 %
```

Select the flow rate in % for the second point in mA
Change by pressing (▲)(▼) and confirm by pressing (START/STOP)

```
          25 %
6.25 l/h  36
8.0mA
```

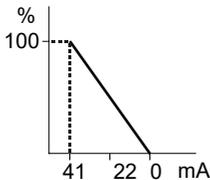(START/STOP) Start/stop the pump
The pump will start if the Remote Activation input is activated

Examples:

1: 4 mA=0%   2: 4 mA=100%   3: 4 mA=0%   4: 12 mA=0%
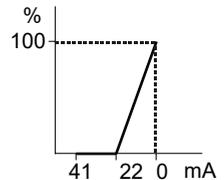   20 mA=100%   20 mA= 0%   12 mA= 100%   20 mA= 100%

```
%                    %                    %                    %
100 ─ ─ ─ ─ ─ ┌     100 ┌─ ─ ─ ─          100 ─ ─ ─ ┌──        100 ─ ─ ─ ─ ─ ┌
              │          │                         ││                       ┌┘
              │          │                         ││                      ┌┘
              │          └─                        ││                     ┌┘
   ───────────┴──          └──────────     ────────┴┴──        ───────────┴──
   41  22  0  mA     41  22  0  mA          41  22  0  mA        41  22  0  mA
```
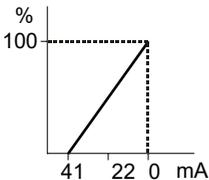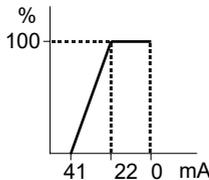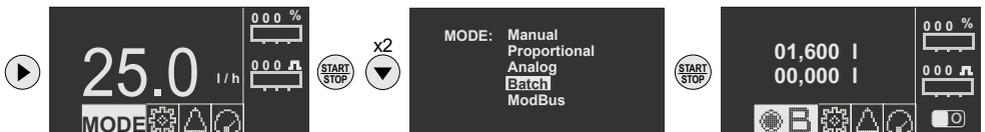
Examples 3 and 4 can be combined into two pumps when both are controlled with the same mA signal to start a second pump as supplementary flow.

6.1.4 Batch dosing mode

This mode allows batch dosing. Various activation options may be chosen (manual, external, time), and an end of the work cycle defined by number of cycles/volume or by time. In any of the operating modes, the speed of the pump can be defined in %.

```
              000 %                                  MODE:  Manual                              000 %
(▶) 25.0 l/h  000        (START/STOP) ×2 (▼)                Proportional     (START/STOP)  01,600 l   000
    MODE                                                    Analog                         00,000 l
                                                            Batch
                                                            ModBus                          B
```

Batch dosing mode settings

6.1.4.1 Select start-up mode

(▲)
```
BATCH MODE
  Start    Man.
  Flow     000 %
  Stop     Stroke
```
Manual: start the pump by pressing (START/STOP)

(▲)
```
BATCH MODE
  Start    Ext
  Flow     000 %
  Stop     Stroke
```
Ext.: start the pump via remote input

(▲)
```
BATCH MODE
  Start    Time
  Flow     000 %
  Stop     Stroke
```
Time: start the pump using a timer by entering a frequency (00:00:01-23:59:59)

6.1.4.2 Select stroke frequency in % (flow)

(START/STOP)
```
BATCH MODE
  Start    Man.
  Flow     050 %
  Stop     Stroke
```
Change by pressing (▲)(▼) and confirm by pressing (START/STOP)

6.1.4.3 Select stop mode

```
BATCH MODE
  Start    Man.
  Flow     050 %
  Stop     Stroke
```
Stroke: select the number of cycles before stopping

(START/STOP)
```
BATCH MODE
  Start    Man.
  Flow     050 %
  Stop     000050 St
  Volume   208,15ml
```
Change by pressing (▲)(▼) and confirm by pressing (START/STOP)

BATCH MODE

Start	Man.
Flow	050 %
Stop	Time
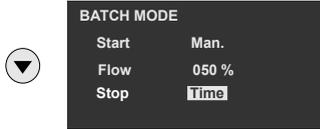
Time: set cycle execution time before stopping

BATCH MODE

Start	Man.
Flow	050 %
Stop	00 : 00 : 10
Volume	34,722 ml
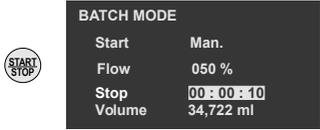
Change by pressing (▲) (▼) and confirm by pressing (START STOP)

Viewing the different configuration modes

Start : Man. / Ext
Stop : Strokes

01,379 l — Volume to be dosed
00,000 l — Volume counter
50 %
73

Start : Man. / Ext
Stop : Time

00 : 00 : 10 — Execution time
00 : 00 : 00 — Time counter
50 %
73

Start : Time
Stop : Strokes

00 : 10 : 00 — Initial frequency
01,379 l — Volume to be dosed
00,000 l — Volume counter
50 %
73

Start : Man. / Ext
Stop : Time

00 : 10 : 00 — Initial frequency
00 : 00 : 10 — Execution time
00 : 00 : 00 — Time counter
50 %
73
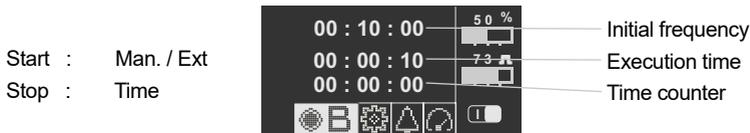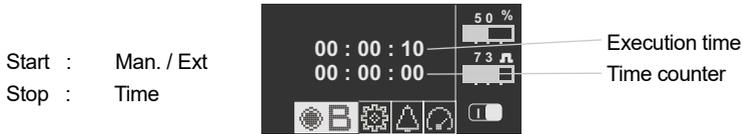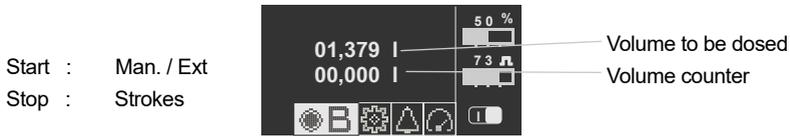
6.1.5.1 Priming function test

Press and hold the (◄) button for 3 seconds in manual mode to start the pump at maximum speed. The pump will continue running only while the (◄) button is pressed.
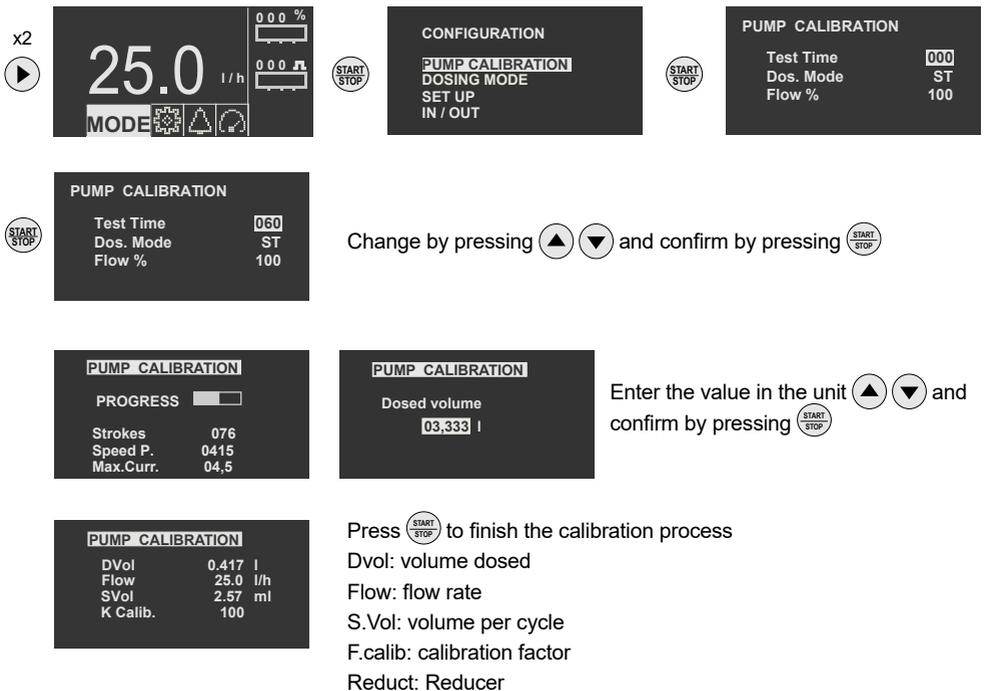
This function allows for a quick test of the unit and assists with priming the pump.
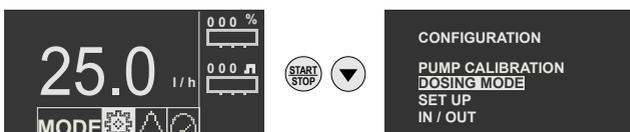
6.2 CONFIGURATION

6.2.1 Pump calibration

The pump calibration function allows the pump flow to be calibrated in real working conditions via a product suction test of a given duration. For a correct calibration, a test duration of at least 60 seconds must be entered. The pump will automatically start during the time of the test.

Once the test is finished, the suction volume must be entered. With this result the equipment will recalculate the dosing flow.

x2 ▶

```
000 %
25.0 l/h    000 ⌐
MODE ⚙ △ ⌂
```

START/STOP

```
CONFIGURATION
PUMP CALIBRATION
DOSING MODE
SET UP
IN / OUT
```

START/STOP

```
PUMP CALIBRATION
Test Time        000
Dos. Mode        ST
Flow %           100
```

START/STOP

```
PUMP CALIBRATION
Test Time        060
Dos. Mode        ST
Flow %           100
```

Change by pressing (▲)(▼) and confirm by pressing START/STOP

```
PUMP CALIBRATION
PROGRESS  ▭
Strokes      076
Speed P.     0415
Max.Curr.    04,5
```

```
PUMP CALIBRATION
Dosed volume
03,333 l
```

Enter the value in the unit (▲)(▼) and confirm by pressing START/STOP

```
PUMP CALIBRATION
DVol       0.417 l
Flow       25.0 l/h
SVol       2.57 ml
K Calib.   100
```

Press START/STOP to finish the calibration process
Dvol: volume dosed
Flow: flow rate
S.Vol: volume per cycle
F.calib: calibration factor
Reduct: Reducer

6.2.2 Dosing mode

The Dosing Mode function allows the various Advanced Dosing Functions to be selected. These functions can regulate the speed of the mechanism during the suction and delivery cycle of the pump in order to optimize the dosing and suit it to the characteristics of the process.

```
000 %
25.0 l/h    000 ⌐
MODE ⚙ △ ⌂
```

START/STOP (▼)

```
CONFIGURATION
PUMP CALIBRATION
DOSING MODE
SET UP
IN / OUT
```

6.2.2.1 Low pulsation standard

The Standard ST mode is the normal operating mode where the doser has symmetrical behaviour during suction and delivery of the product while working at maximum capacity. As the flow rate is reduced, the delivery cycle is extended, keeping the suction duration constant.
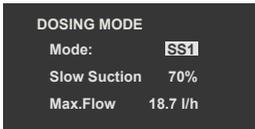
100% operation   50% operation

DOSING MODE
Mode: STA
Standard
Max.Flow   25.0 l/h
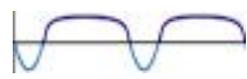
Change by pressing ▲ ▼ and validate by pressing START/STOP

6.2.2.2 Slow suction SS1

The Slow Suction 1 (SS) mode reduces the speed during the suction cycle while increasing the pressure cycle to compensate for the loss of flow. In this way, the accuracy of the dosing of viscous liquids is improved, since the risk of cavitation and incomplete filling of the head is reduced. Suction is carried out at 50% of the speed of Standard mode, but the final flow is reduced to only 75%.

DOSING MODE
Mode: SS1
Slow Suction   70%
Max.Flow   18.7 l/h

Change by pressing ▲ ▼ and validate by pressing START/STOP

6.2.2.3 Slow suction SS2

The Slow Suction 2 (SS) mode reduces the speed during the suction and delivery cycle. The suction operation is as described for Slow Suction 1, and the delivery cycle speed is also reduced to 50% to avoid overpressure in long deliveries. In this mode the flow is reduced to 50%
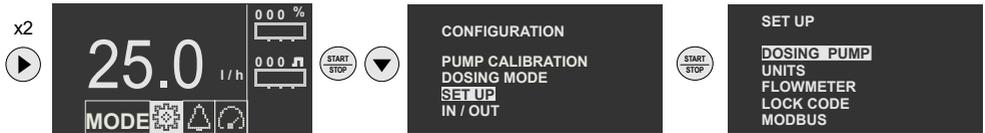
DOSING MODE
Mode: SS2
Slow Suction   50%
Max.Flow   12.5 l/h
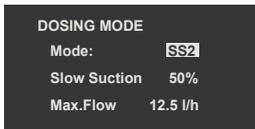
Change by pressing ▲ ▼ and validate by pressing START/STOP

6.2.3 Configuration

5.2.3.1 Dosing pump

Technical characteristics of the pump

Pump flow rate

Real Flow is the flow rate resulting from the calibration, if it has been performed. Max. Flow is the resulting flow according to the limit and/or selected dosing profile.

Limited flow %

This is the maximum limited flow of the pump. It limits the pump flow so that it does not exceed the entered value under any circumstances.

Change by pressing (▲)(▼) and confirm by pressing (START STOP)

Maximum pressure

Dosing pump maximum working pressure

Change by pressing (▲)(▼) and confirm by pressing (START STOP)

Compensation of working pressure

Flow compensation as a function of working pressure

Change by pressing (▲)(▼) and confirm by pressing (START STOP)

Auto: If the pump has a pressure sensor connected, by selecting this option the pump will keep the flow unchanged even if the working pressure changes.

Manual (MAN): If the pump does not have a pressure sensor, but the working pressure is constant, the pressure value can be entered manually so that the pump adjusts to the nominal flow value.
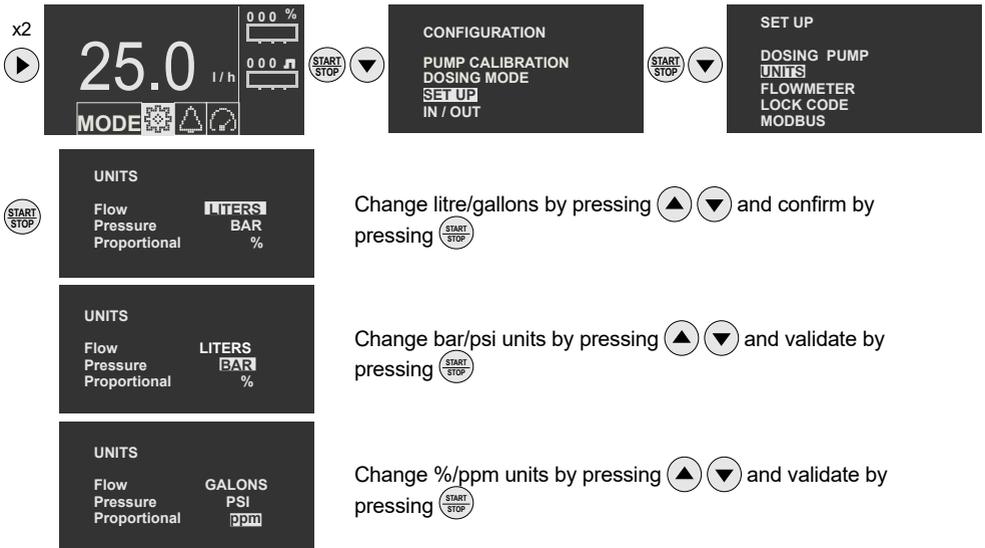
DOSING PUMP		
Flow	25.0	l/h
Flow max	12.5	l/h
Limit	100	%
Pres. Alm	05.0	Bar
Pres. Comp	Off	
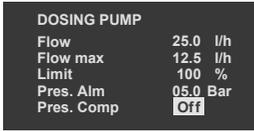
Change by pressing ▲ ▼ and confirm by pressing START/STOP

With no compensation (OFF): The pump flow will be as shown in the curves on page 8.

6.2.3.2 Units
Select the units for flow, pressure and proportionality

x2 ▶

| 25.0 l/h | 000 % 000 ♫ MODE |

START/STOP ▼

CONFIGURATION
PUMP CALIBRATION
DOSING MODE
SET UP
IN / OUT

START/STOP ▼

SET UP
DOSING PUMP
UNITS
FLOWMETER
LOCK CODE
MODBUS

START/STOP

UNITS
Flow   LITERS
Pressure   BAR
Proportional   %

Change litre/gallons by pressing ▲ ▼ and confirm by pressing START/STOP

UNITS
Flow   LITERS
Pressure   BAR
Proportional   %

Change bar/psi units by pressing ▲ ▼ and validate by pressing START/STOP

UNITS
Flow   GALONS
Pressure   PSI
Proportional ppm

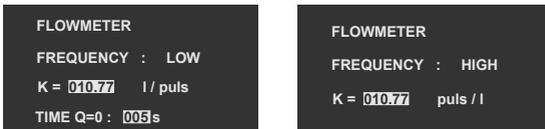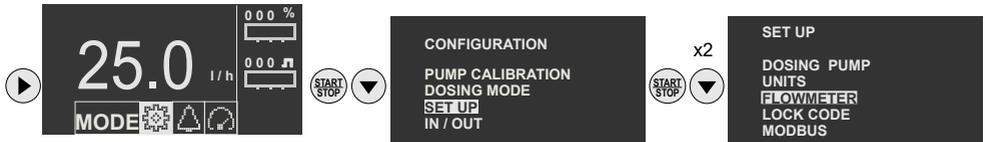Change %/ppm units by pressing ▲ ▼ and validate by pressing START/STOP

6.2.3.3 Flowmeter

For a correct water flow reading, the flowmeter constant (volume/pulse or pulses/volume) must be entered. Previously select the type of flowmeter for low or high frequency.

Low frequency: for water meters with low frequency outputs (0.005 Hz to 30 Hz). The constant is expressed in volume/pulse (litres/pulse; gallons/pulse).
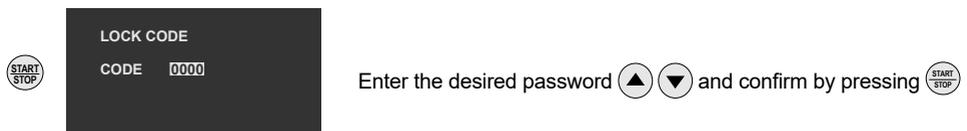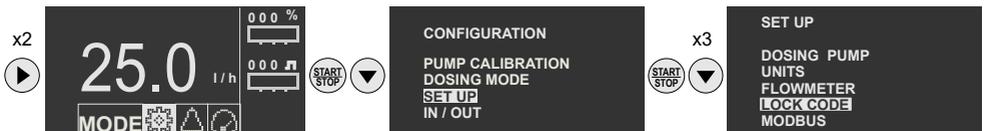
High frequency: for flowmeters with high frequency outputs (1 to 300 Hz). The K-factor constant is expressed in pulses/volume (pulses/litre; pulses/gallon).

Change low (LOW) or high (HIGH) frequency by pressing ▲ ▼ and confirm by pressing START/STOP

Change by pressing ▲ ▼ and confirm by pressing START/STOP

TIME Q=0, Time interval (seconds) between two pulses to consider zero flow.
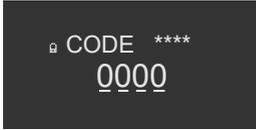
6.2.3.4 Lock code

Blocks access to the equipment configuration, allowing the pump to start and stop. When the access code is 0000 (default value), the lock is disabled.
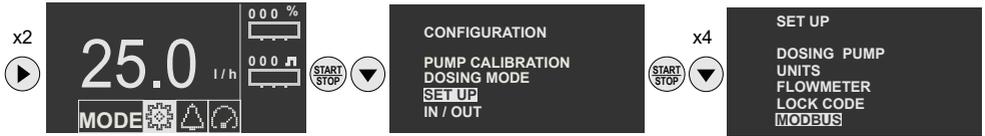

Enter the desired password ▲ ▼ and confirm by pressing START/STOP

Pressing START/STOP for 3 seconds locks the pump

CODE   ****
0000
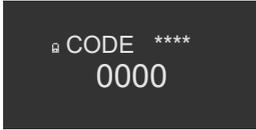
Press (START/STOP) for 3 seconds to enter the code and unlock the pump

CODE   ****
0000

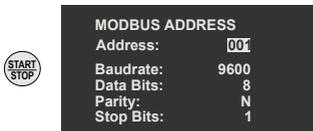Enter the code starting with the units (from right to left).
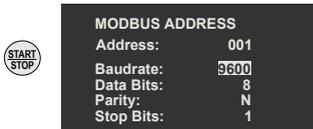Change values by pressing (▲)(▼) and validate by pressing (START/STOP)

6.2.3.5 ModBus

x2 (▶) | 25.0 l/h 000 % 000 ♪ MODE | (START/STOP)(▼) | CONFIGURATION PUMP CALIBRATION DOSING MODE SET UP IN / OUT | x4 (START/STOP)(▼) | SET UP DOSING PUMP UNITS FLOWMETER LOCK CODE MODBUS

The pump can be controlled via the RS485 serial port and a ModBus RTU protocol. See the complete ModBus manual.

- Bus: Rs485
- Communication: half-duplex A, B & GND
- aud rate: 9600
- Data bits: 8
- Parity: None

- Stop bits: 1
- Hardware handshake: No
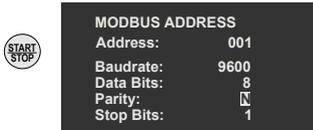- Character time out: 20 ms
- Time out message end: 100 ms

Important: If an RS232RS485 or similar type converter is required, make sure that the signal emitted does not produce an echo.
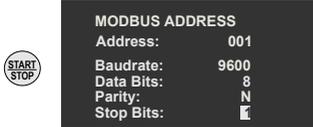
(START/STOP)

MODBUS ADDRESS
Address: 001
Baudrate: 9600
Data Bits: 8
Parity: N
Stop Bits: 1

Change by pressing (▲)(▼) and confirm by pressing (START/STOP)

(START/STOP)

MODBUS ADDRESS
Address: 001
Baudrate: 9600
Data Bits: 8
Parity: N
Stop Bits: 1

Change by pressing (▲)(▼) and confirm by pressing (START/STOP)

(START/STOP)

MODBUS ADDRESS
Address: 001
Baudrate: 9600
Data Bits: 8
Parity: N
Stop Bits: 1

Change by pressing (▲)(▼) and confirm by pressing (START/STOP)

(START/STOP)

MODBUS ADDRESS
Address: 001
Baudrate: 9600
Data Bits: 8
Parity: N
Stop Bits: 1

Change by pressing (▲)(▼) and confirm by pressing (START/STOP)

6.2.4 Inputs/outputs

6.2.4.1 Pressure input

Calibration of the 4‑20 mA pressure transducer input.

x2
▶
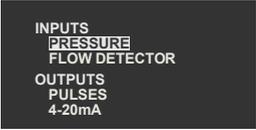
25.0 l/h

000 %

000 ♪

MODE

START/STOP ▼

CONFIGURATION
PUMP CALIBRATION
DOSING MODE
SET UP
IN / OUT

START/STOP

INPUTS
PRESSURE
FLOW DETECTOR
OUTPUTS
PULSES
4-20mA

PRESSURE INPUT

4 mA	000,0 bar
20 mA	000,0 bar

Enter the pressure value corresponding to 4 mA
Change by pressing ▲ ▼ and confirm by pressing START/STOP
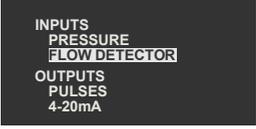
PRESSURE INPUT

4 mA	000,0 bar
20 mA	020,0 bar

Enter the pressure value corresponding to 20 mA
Change by pressing ▲ ▼ and confirm by pressing START/STOP

6.2.4.2 Flow detector

The flow detector is an accessory that allows the pulses of the supplied flow to be monitored.

x2
▶
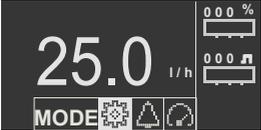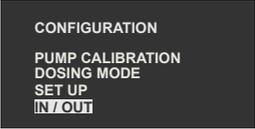
25.0 l/h

000 %

000 ♪

MODE

START/STOP ▼

CONFIGURATION
PUMP CALIBRATION
DOSING MODE
SET UP
IN / OUT

START/STOP

INPUTS
PRESSURE
FLOW DETECTOR
OUTPUTS
PULSES
4-20mA

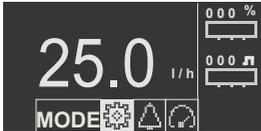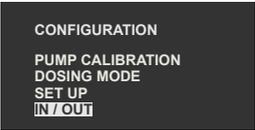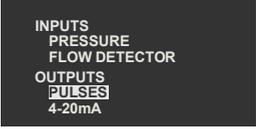**FLOW DETECTOR IN**

Strokes Pump   010

Enter the number of pump cycles during which no pulse is detected for the alarm to be activated.

Change by pressing ▲ ▼ and validate by pressing START/STOP

6.2.4.3 Pulse output

Configuration of the pulse output for monitoring or activation of a second pump.

x2
▶

25.0 l/h

000 %

000 ♪

MODE

START/STOP ▼

CONFIGURATION
PUMP CALIBRATION
DOSING MODE
SET UP
IN / OUT
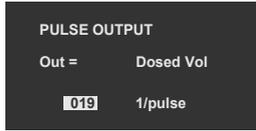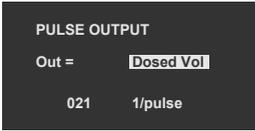
START/STOP

INPUTS
PRESSURE
FLOW DETECTOR
OUTPUTS
PULSES
4-20mA

START/STOP

PULSE OUTPUT

Out =   Pulse In

Set whether the pulse output is the same as the pulse input.
With this option a second Dostec AC can be controlled by the same flowmeter in proportional mode (%).
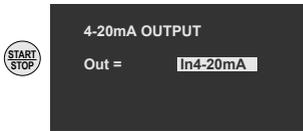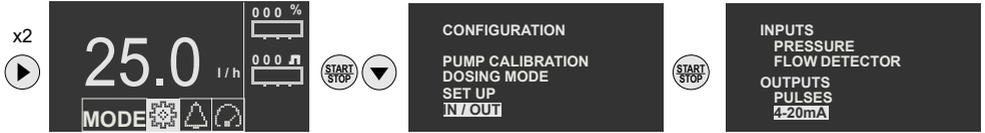
PULSE OUTPUT		PULSE OUTPUT	
Out =	Dosed Vol	Out =	Dosed Vol
021	1/pulse	019	1/pulse

Enter the volume of product dispensed for each product.
Change by pressing (▲)(▼) and confirm by pressing (START/STOP)

With this option another device can receive the dosed volume. Review 5.5.4 for connections.

6.2.4.4   4-20 mA output
4-20 mA output for log or monitoring.

x2 (▶)

25.0 l/h   000 %   000 ♪
MODE ⚙ △ ⌒

(START/STOP) (▼)

CONFIGURATION
PUMP CALIBRATION
DOSING MODE
SET UP
IN / OUT

(START/STOP)

INPUTS
  PRESSURE
  FLOW DETECTOR
OUTPUTS
  PULSES
  4-20mA

(START/STOP)

4-20mA OUTPUT	
Out =	In4-20mA

Set whether the pulse output is the same as the pulse input.

Change by pressing (▲)(▼) and confirm by pressing (START/STOP)

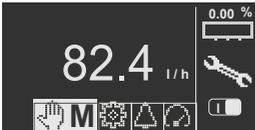| 4-20mA OUTPUT	
Out =	% Flow
4mA	004%
20mA	096%
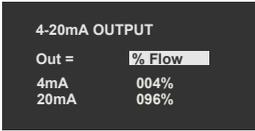
Set % flow for 4 mA output
Set % flow for 20 mA output
Change by pressing (▲)(▼) and confirm by pressing (START/STOP)

6.2.5. Mantenimiento

MAINTENANCE

VALVES ▭
DIAPHRAGM ▭
BELLOW ▭
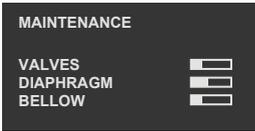
In the Maintenance menu, the status of components subject to wear can be viewed using the status bars.

82.4 l/h   0.00 %   🔧
🖐 M ⚙ △ ⌒   🔋

A warning will appear on the main screen at the end of the useful life of a component.

MAINTENANCE

VALVES ▭
DIAPHRAGM !▭
BELLOW ▭
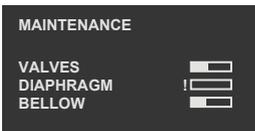
The status bars in the maintenance menu show the remaining life of each component and display a ! when the bar VAC, with this being the recommended time to replace the component.

You can view the cycles completed by selecting each component. A negative cycle value indicates that it has exceeded the maintenance interval.
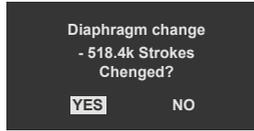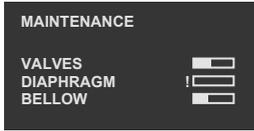
When replacing a component that has reached the end of its useful life, the cycle counter must be set to zero by using the YES option.

6.3 ALARMS

In the event of an alarm, the corresponding icon will flash on the main screen. If the cause of the alarm disappears the icon will remain steady. To erase the alarm icon, it is necessary to stop and start the pump using the "ENT" key. The security time is 5 seconds before any alarm is activated.

6.3.1 Level alarm 1

Low level pre-warning according to Level 1 input. Automatic reset (see connection 4.2).
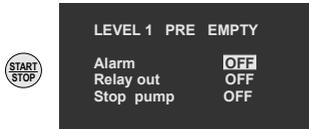
Activate or deactivate the alarm by pressing (▲)(▼) and confirm by pressing (START/STOP)
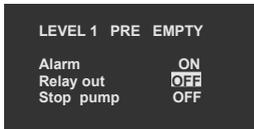
Activate or deactivate the Alarm Relay output, when the unit is in alarm, by pressing (▲)(▼) and confirm by pressing (START/STOP)
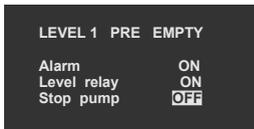
Activate or deactivate, stop the pump when the alarm goes off, by pressing (▲)(▼) and validate by pressing (START/STOP)

6.3.2 Level alarm 2

Low level alarm according to Level 2 input. Automatic reset (see connection 4.2).

35

LEVEL 2 EMPTY

Alarm OFF
Level 2 relay OFF
Stop pump OFF

Activate or deactivate the alarm by pressing ▲ ▼ and confirm by pressing START/STOP

LEVEL 2 EMPTY

Alarm ON
Level 2 relay OFF
Stop pump OFF

Activate or deactivate the Alarm Relay output, when the unit is in alarm, by pressing ▲ ▼ and confirm by pressing START/STOP

LEVEL 2 EMPTY

Alarm ON
Level 2 relay ON
Stop pump OFF

Activate or deactivate, stop the pump when the alarm goes off, by pressing ▲ ▼ and validate by pressing START/STOP

6.3.3 Flow fault alarm

Dosing flow detector alarm.
See section 4.2.4.2 (Configuration/Inputs/Flow Detector)

x3 ▶ **25.0** l / h 000 % 000 MODE

x2 START/STOP ▼

MENU ALARM

LEVEL 1
LEVEL 2
FLOW
LEAKAGE
PRESSURE

FLOW FAILURE

Alarm OFF
Relay out OFF
Stop pump OFF

Activate or deactivate the alarm by pressing ▲ ▼ and confirm by pressing START/STOP

FLOW FAILURE

Alarm ON
Relay out OFF
Stop pump OFF

Activate or deactivate the Alarm Relay output, when the unit is in alarm, by pressing ▲ ▼ and confirm by pressing START/STOP

FLOW FAILURE

Alarm ON
Relay out ON
Stop pump OFF
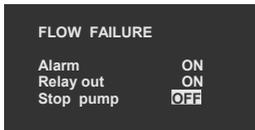
Activate or deactivate, stop the pump when the alarm goes off, by pressing ▲ ▼ and validate by pressing START/STOP

6.3.4 Diaphragm leakage alarm

Diaphragm leakage detection alarm for electrically conductive liquids (min. 0.05 ms).

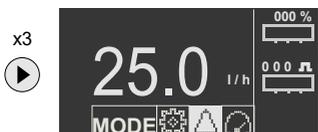Activate or deactivate the alarm by pressing ▲ ▼ and confirm by pressing START/STOP

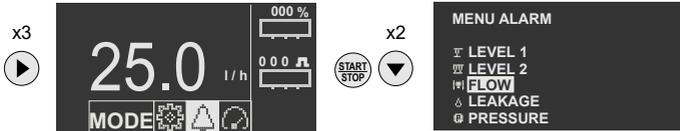Activate or deactivate the Alarm Relay output, when the unit is in alarm, by pressing ▲ ▼ and confirm by pressing START/STOP

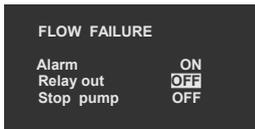Activate or deactivate, stop the pump when the alarm goes off, by pressing ▲ ▼ and validate by pressing START/STOP

6.3.5 Overpressure alarm

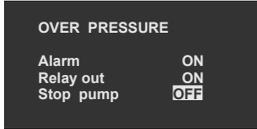Overpressure detection alarm. Automatic reset.

Activate or deactivate the alarm by pressing ▲ ▼ and confirm by pressing START/STOP

Activate or deactivate the Alarm Relay output, when the unit is in alarm, by pressing ▲ ▼ and confirm by pressing START/STOP

OVER PRESSURE

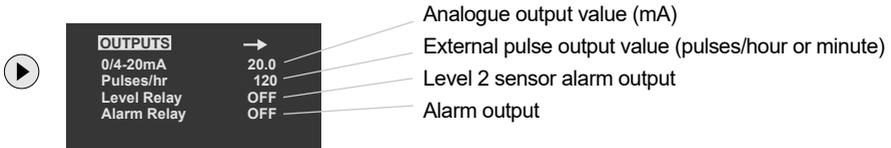| Alarm | ON |
| Relay out | ON |
| Stop pump | **OFF** |

Activate or deactivate, stop the pump when the alarm goes off, by pressing (▲)(▼) and validate by pressing (START/STOP)

6.4 MONITOR

6.4.1 Real time

Real-time working parameters

x4 (▶)

000 %
25.0 l/h
000 ♪
MODE

(START/STOP)

MONITOR
REAL TIME
COUNTERS
INFO UNIT

(START/STOP)

MOTOR MONITOR →
Rpm	192
St/min	39.3
Angle	086
Temp.(ºC)	03 0
Imput Volt	37.2

Revolutions per minute (rpm)
Cycles per minute
Angle of travel
Temperature (°C)
Input voltage (V)

(▶)

INPUTS →
0/4-20 mA	0.01
Press(Bar)	00.0
Pulse(Hz)	0.000
Pulse x:y	OFF
Remote	ON
Pulse Flow	001

Analogue input value (mA)
Pressure sensor input value (bar/psi)
External pulse input value (Hz)
External pulse input value
Remote control input
Flow detector pulse counter

(▶)

OUTPUTS →
0/4-20mA	20.0
Pulses/hr	120
Level Relay	OFF
Alarm Relay	OFF

Analogue output value (mA)
External pulse output value (pulses/hour or minute)
Level 2 sensor alarm output
Alarm output

6.4.2 Counters

x4 (▶)

000 %
25.0 l/h
000 ♪
MODE

(START/STOP)(▼)

MONITOR
REAL TIME
COUNTERS
INFO UNIT

COUNTERS
Tot. St. 27136
Part. St. 2971
Part. Vol.2
Total(h) 46

Total cycles
Cycles since last reset
Volume since last reset
Total operating time (hours)

COUNTERS
Sh. circ. 0
Over load 32
Over temp 0
Th. Shdwn 0
Load open 3
Volt range 0

Short circuit alarms
Overload alarms
High temperature alarms
High temperature alarms (chip)
Motor connection fault alarms
Input voltage alarms

RESET COUNTERS
ENT.. = YES
ESC.. = NO

Press (START STOP) to reset the cycle and volume counters or (START STOP) not to reset them

6.4.3 Info Unit

x4 ▶

0 0 0 %
25.0 l/h
0 0 0
MODE

x2 (START STOP) ▼

MONITOR
REAL TIME
COUNTERS
INFO UNIT

INFO UNIT →
55-001
Serial N. 1000
Flow l/h 1.50
Press Ba 16.0
Stk/min 050

Unit code
Serial number
Nominal pump flow (l/h or GPH)
Maximum pressure (bar or psi)
Cycles/min

INFO UNIT →
Vol/St ml 00.505
Gear 4.85
K. Calib 100
HW version 4204
SW version 5.07

Cycle volume
Reducer
Calibration factor

Hardware version
Software version

7 DOSMART BC USE AND CONFIGURATION

LCD Display

Modes

Control Unit

Keypad

Inputs / Outputs

START/STOP — Start / Stop / Enter (confirm)
Press and hold for 2 seconds to enter mode selection

▲ ▼ — Increase / Decrease Value / Menu Navigation

LCD SCREEN DESCRIPTION

% Flow

Mode Indicator

Modes

Pump Status

Manual

Proportional

Check info
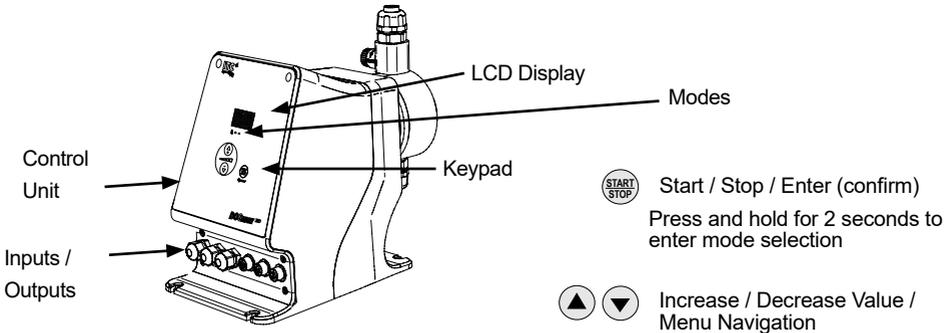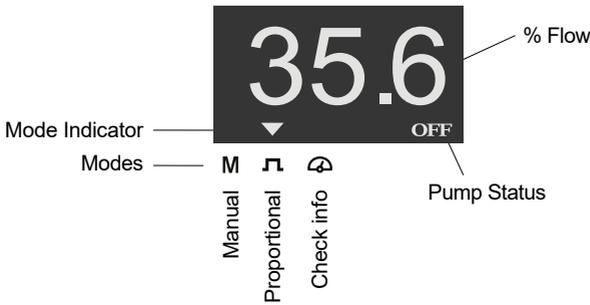
7.1 OPERATING MODES

The DOSMART BC pump offers three operating modes, which can be selected using the buttons on the front panel:

Mode Selection:
To change the mode:
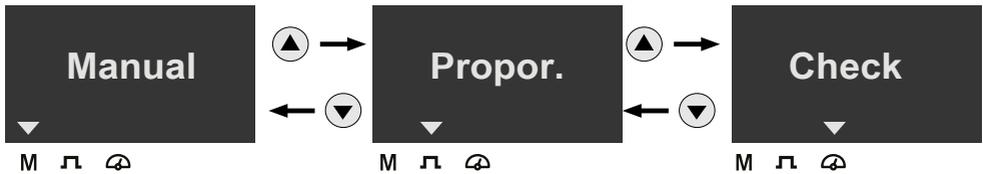1. Press ▲ or ▼ to scroll through the available modes.
2. Press (START/STOP) to confirm the selection.

Manual		Propor.		Check
▼	▲ → ← ▼	▼	▲ → ← ▼	▼
M ⊓ ☁		M ⊓ ☁		M ⊓ ☁

35.6 OFF → (START/STOP 2") → **Propor.**

M ⊓ ☁   M ⊓ ☁

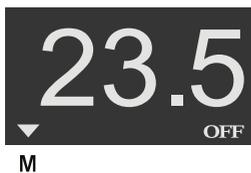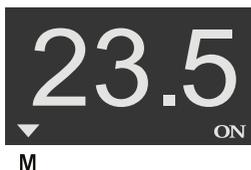To return to the mode selection menu, press and hold (START/STOP) for 2 seconds.

7.1.1 Manual Mode

In this mode, the user can manually adjust the dosing flow rate.

This mode allows simple and direct control, ideal for quick adjustments or testing.

23.5 OFF
M

Use the ▲ or ▼ buttons to change the operating percentage (e.g. 0–100%).

23.5 ON
M

Press (START/STOP) to start or stop the pump.

7.1.2 Pulse Mode (X:Y)

This mode sets the ratio between input pulses (X) and pump cycles (Y).

The pump begins dosing upon receiving the second pulse and automatically adjusts its speed based on the interval between pulses.

If the unit operates outside its pulse range, the alarm "PULSE RANGE" will be triggered. If the pulse frequency is too low, the pump will stop; if it exceeds maximum capacity, the pump will run at full speed and any excess pulses will be ignored.

Propor. ▼ ⎍	Select the X:Y mode from the main menu using ▲ or ▼, and confirm with (START STOP). Press any button to enter the mode configuration.
X : 150 **Y : 2**	Use ▲ or ▼ to adjust each value. Press (START STOP) to confirm and move between parameters or to finish. The value range is from 1 to 60,000.
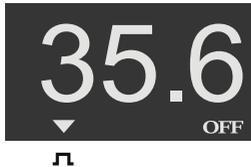
35.6 ▼ OFF ⎍	(START STOP)	**35.6** ▼ ON ⎍	Once configured, press (START STOP) to start or stop the pump.

The pump will stop when the time since the last pulse is twice the interval between previous pulses (see graph).
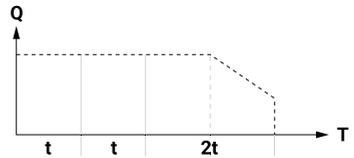
Proportional Configuration (%, ppm)

For configuring a very specific proportionality in % or ppm, it is recommended to use the X:Y calculator accessed via the QR code (also available on the itc. es website).

To obtain the X and Y values, enter the pump data, counter information, and desired proportion into the calculator. The tool will automatically generate the necessary parameters to configure proportional dosing.

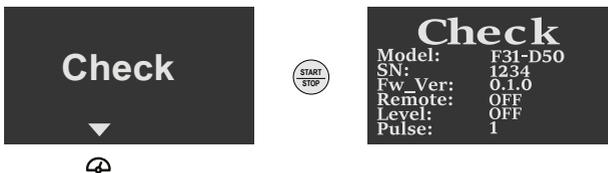## DOSmart BC X/Y Parameter Calculator

Pump Parameters

Flowmeter or Counter

Desired Ratio

Calculate X and Y ↓

7.1.3 Check Info Mode

This mode allows viewing technical and status information of the unit. Data is displayed sequentially on the screen and is read-only.

Check ▼

START STOP

Check
Model: F31-D50
SN: 1234
Fw_Ver: 0.1.0
Remote: OFF
Level: OFF
Pulse: 1

La información mostrada incluye:
• Remote control status
• Internal temperature
• Power supply voltage
• Presence of input pulses
• Product level status
• Installed firmware version
• Unit serial number
This mode is useful for diagnostics, technical support, and parameter validation during operation.

8 Special functions (AC & BC)

8.1 Remote activation

An external remote control can be used to start and stop the pump via volt-free contact at positions 17 - 18.
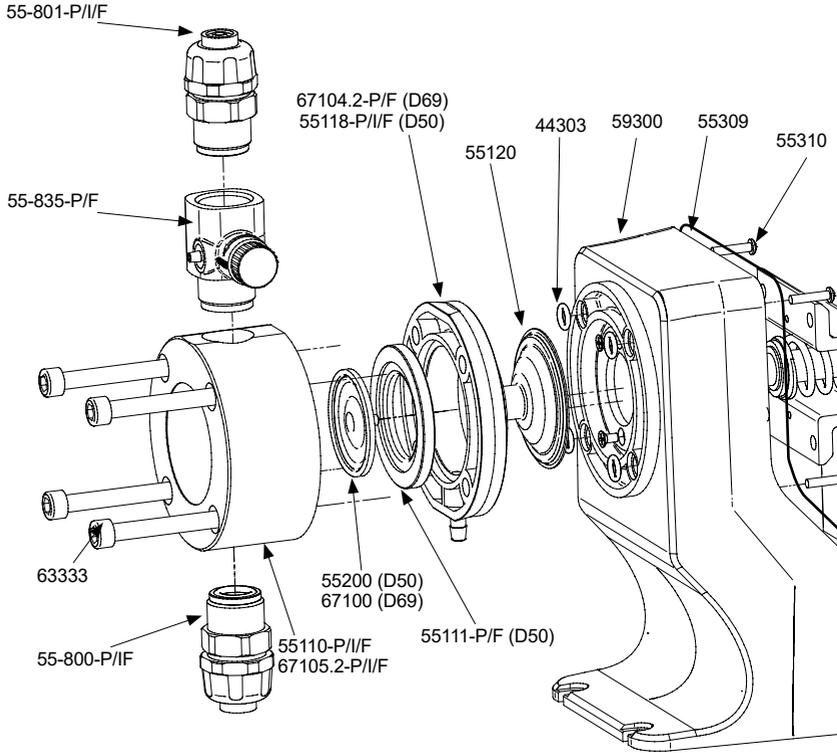

21304-M12

STOP
1 2

RUN (factory default)
1 2
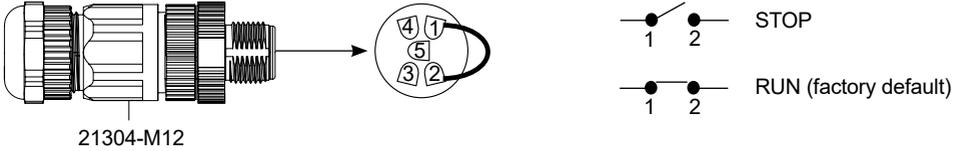
When the contact is closed (RUN) the pump may be run manually via the ENT key. After stopping the pump manually via the keypad, it is necessary to reset the Remote Input (open and close) to start the pump again remotely.

9 START-UP AND REGULATION

⚠ FIXING: Check that the pump is properly secured

⚠ HYDRAULIC CIRCUIT CHECK: Check that all valves are open, and that the bleed and relief valve outlets are diverting the liquid to a container

⚠ PUMP CHECK: Make a visual/auditory check of the correct operation of the pump.

⚠ PRIMING: To facilitate pump priming, open the priming valve.

⚠ OVERPRESSURE PROTECTION: Adjust the safety, overpressure or pressure relief valve to the desired pressure to protect the installation, while never exceeding the nominal pressure of the pump.

10 MAINTENANCE

SPARE PARTS

55-801-P/I/F

67104.2-P/F (D69)
55118-P/I/F (D50)

55120

44303   59300   55309   55310

55-835-P/F

63333

55200 (D50)
67100 (D69)

55111-P/F (D50)

55-800-P/IF

55110-P/I/F
67105.2-P/I/F

54202 (BC)
55202 (AC)

55150

55309

54602 (BC)
29620 (AC)

55149

59309

55606

55605

59353
(BC x1)
(AC x3)

55655-M12

73654-M2

73615-M12 C (AC)
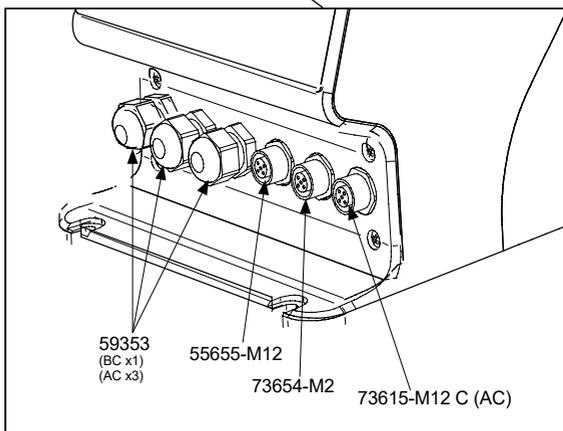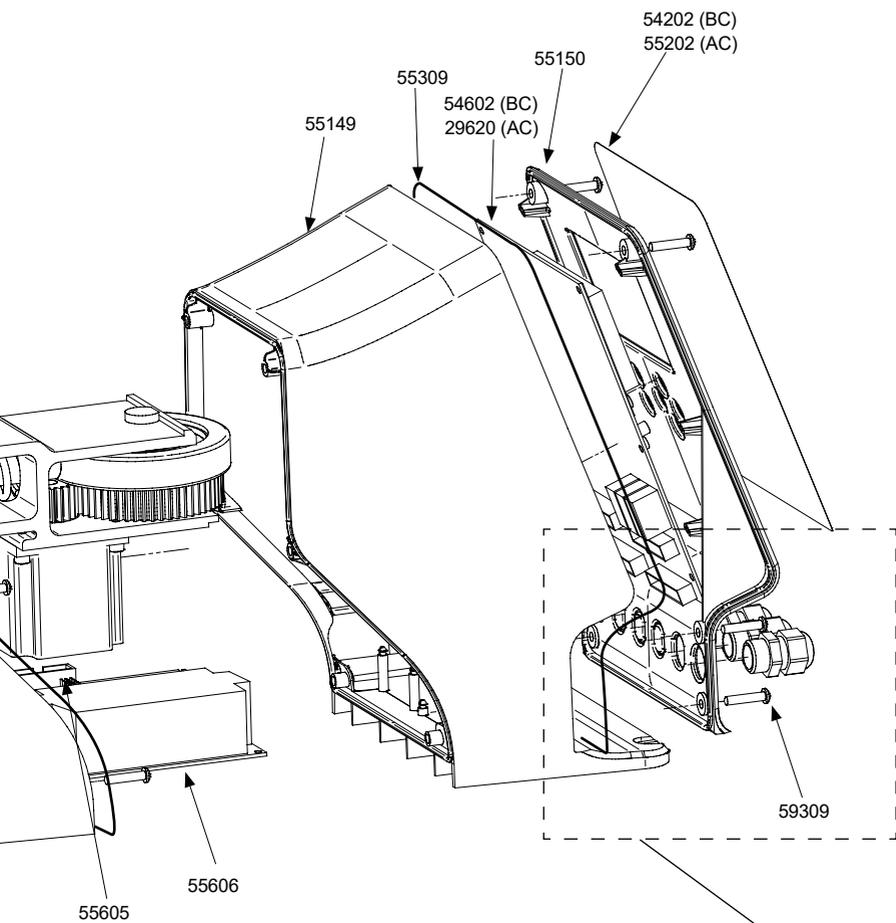
PARTS LIST

CODE	DESCRIPTION	QUANTITY
28090	Power supply 240 V ac 24 V ac	1
29620	AC control PCB plate	1
44303	7.5 x 2.5 FPM O-ring	4
54202	DOSmart BC Control PCB	1
54662	DOSmart BC Lexan Cover	1
55103	Dosmart shaft	1
55105	Dosmart spring	1
55-109	Dosmart cam	1
55110-P/I/F	Diaphragm cylinder D50	1
55111-P/F	D50 diaphragm base	1
55116	Dosmart Cam spring stop	1
55118-P/I/F	D50 diaphragm base	1
55119	Dosmart Machined mechanism support	1
55120	Dosmart bellows	1
55148	Dosmart Hydraulics housing	1
55149	Dosmart Electronics housing	1
55150	Front Dosmart Electronics housing	1
55154	Dosmart Shaft bushing	1
55200	D50 diaphragm	1
55202	Lexan DOSMART	1
55300	Allen bolt M2,5x3 DIN 912	2
55302	Fitting washer 12 x 18 x 1 DIN 988	1
55303	D15 DIN 471 safety ring	1
55304	Allen screw M4 x 4 DIN 913	1
55305	Bearing 6201-2RSH (12 x 32 x 10)	2
55306	Bearing 61909-2RS (45 x 68 x 12)	2
55310	Bolt 4 x 20 E0210 A2	6
55601	Dosmart Hall Sensor PCB	1
55605	Dosmart power plate PCB	1
55606	Power Supply 240 Vac to 24 Vac	1
55655-M12	3 pin male panel connector	1
55-800-P/I/F	Double ball suction valve L ¾ 4-6-10	1
55-801-P/I/F	Delivery valve L ¾ 4-6-10	1
55-835-P/F	Dosmart priming valve L ¾	1
55309	Gasket 2 mm EPDM25	2
59300	Bolt M4 x 8 DIN965 A2	2
59309	Bolt 4 x 16 E0210 A2	6
59353	Cable gland M16 white	3
60304	Bolt M4 x 8 DIN912 A4	4
62318	Ferrite D6 x 3 sxp magnet	1
63212	Allen bolt M5 x 12 DIN912 A4-80	1
63213	Motor washer F5 18 x 5 x 2.5	1
63333	Screw M8 x 80 DIN912 A2	4
67100	D69 diaphragm	1
67104.2-P/F	D69 diaphragm base	1
67105.2-P/F	D69 Diaphragm cylinder	1
73615-M12	4-20 mA hose cable + connector	1
73654-M2	150mm flow hose cable	1

6 x 12 VALVES (60 l/h max.)

Discharge
55-801-P

- 60811.2-P
- Bridas
- Espigas
- 62310
- 55819-P
- 62310
- 60813.1-P
- 64348
- 60308
- 60812.1-P
- 62310

Suction
55-800-P
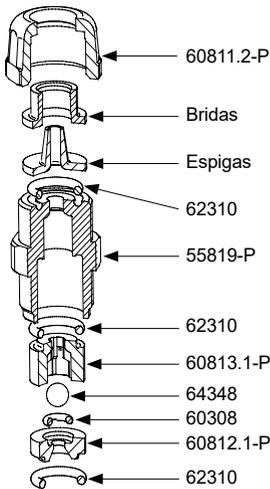
- 62310
- 60813.1-P
- 64348
- 60308
- 55822-P
- 62310
- 60813.1-P
- 64348
- 60308
- 55822-P
- 62310
- 55820-P
- 62310
- Espigas
- Bridas
- 60811.2-P
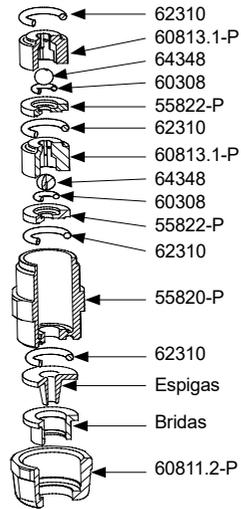
Pipes	4x6	6x8	6x12	10x12
Flanges	55826-P	60878.1-P	60877.1-P	
Pins	55825-P	55827-P		55829-P

PRIMING VALVE

55-835-P (60l/h máx.)

- 60815.1
- 59303
- 59306
- 59303
- 59810.1-P
- 59800.1
- 60813.1-P
- 64348
- 60308
- 60812.1-P
- 62310
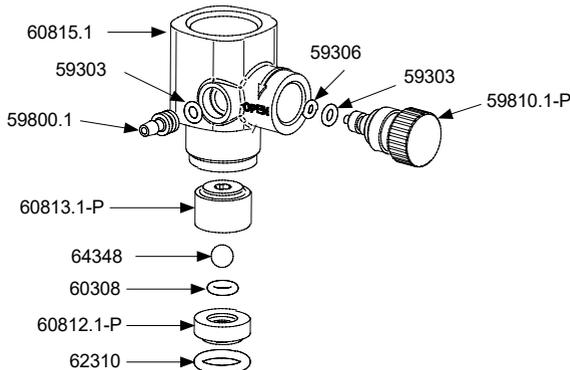
⚠️ Before any maintenance operation check:

The pump is stopped and disconnected from the power supply.

There is no pressure inside the head or in the discharge pipe. It is recommended to empty the head before opening it.

Maintenance personnel should use the appropriate means of protection for handling the liquid being dosed.

PERIODIC MAINTENANCE:

Check the condition of the suction filter once a month.

Check the condition of the valves every 3 months or 1000 hours

We recommend periodically circulating clean water through the dosing pump (coinciding for example with the emptying of the tank), in order to remove any precipitated remains from inside the cylinder or in the suction and discharge pipes.

In the event of using highly corrosive liquids, it is recommended to double the frequency of the checks.

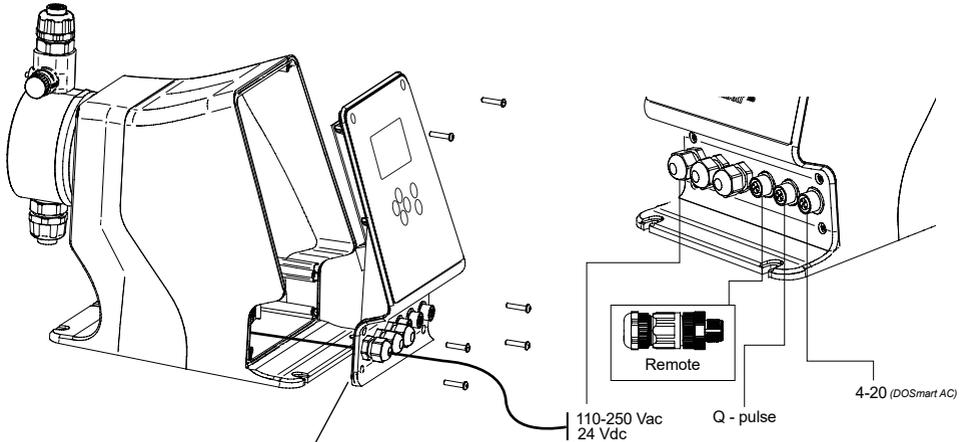# TROUBLESHOOTING: POSSIBLE CAUSE AND SOLUTION

PROBLEM	CAUSE	SOLUTION
Pantalla Apagada	- No voltage	- Check the input voltage with a voltmeter
	- The thermomagnetic circuit breaker has tripped	- Check for short circuit
Short Circuit ⚠ **AL-1**	- Unstable input voltage	Install a voltage stabilizer
	- Bad contact in power connector	- Check the electronics power connectors
	- Internal short circuit	- Contact ITC technical service
	- Blocking of the pump due to overpressure or mechanism fault	- Check for any closed valve in the pump delivery piping
		- Check that the mechanism rotates freely
Overt Temp / **Thermal Shutdown** ⚠ **AL-2**	- Ambient temperature higher than allowed (45 °C)	- Condition the work area to ensure temperature conditions within the tolerated range
	- The pump is working with overpressure	- Check that the line pressure is lower than the maximum allowable pressure of the unit
	- Incorrectly dimensioned delivery pipe	- Shorten the delivery pipe or increase its diameter
Over Load ⚠ **AL-3**	- The pump is working with overpressure	- Check that the line pressure is lower than the maximum allowable pressure of the unit
	- Incorrectly dimensioned delivery pipe	- Shorten the delivery pipe or increase its diameter
	- Connection fault between the motor and the electronics board	- Check the connections between motor and electronics
Out of Range Voltage ⚠ **AL-5**	- Supply voltage outside the allowed range	- Correct the input voltage so that it is within the allowed range

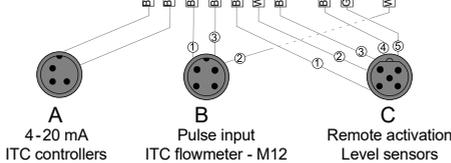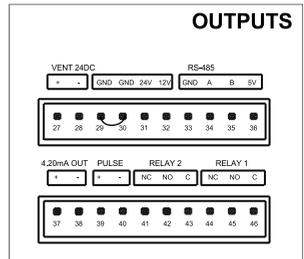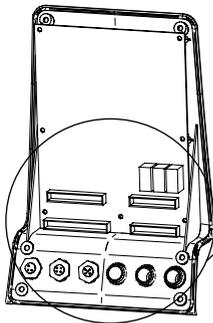| PROBLEM	CAUSE	SOLUTION
Motor runs but pump does not inject or dosing is lower than nominal	- Pump not primed	- Prime the pump by opening the priming valve or filling the head with the liquid to be injected
	- Dirty or damaged suction or delivery valve	- Clean or change valves
	- Dirty suction filter	- Clean filter
	- Air enters the suction pipe	- Check tightness of connection points
	- Cavitation in suction	- Increase pipe diameter. - Reduce the suction pipe length. - Reduce speed by using a variator. - Use a less viscous liquid.
Pump drips liquid from bottom orifice of cylinder	- Damaged diaphragm	- Change diaphragm

DOSMART BC UNIQUE ALARMS

PROBLEM	CAUSE	SOLUTION
Product Level ⚠️ **AL-6**	- Product dosing level low	- Refill product tank
Pulse Range (flashing)	- Input pulse frequency out of allowed range	- Check input wiring - Inspect flowmeter or pulse emitter - Adjust X:Y ratio to compatible values

WIRING

110-250 Vac
24 Vdc

Remote

Q - pulse

4-20 *(DOSmart AC)*

DOSMART AC BOARD

ENCODER • Red • Blue • Yellow
Flow
Leakage
Presure
P
① ②

INPUTS

ENCODER
12V F1 F2 S -
1 2 3 4 5

FLOW
+ -
6 7

LEAKGE
+ -
8 9

PRESSURE
24 P -
10 11 12

4-20mA/1
A1+ A1-
13 14

PULSE
+ -
15 16

REMOTE
+ -
17 18

LEVEL 1
+ -
19 20

LEVEL 2
+ -
21 22

SUPPLY
GND 24V
23 24

4.20mA/2
A2+ A2-
25 26

OUTPUTS

VENT 24DC
+ - GND GND 24V 12V
27 28 29 30 31 32

RS-485
GND A B 5V
33 34 35 36

4.20mA OUT
+ -
37 38

PULSE
+ -
39 40

RELAY 2
NC NO C
41 42 43

RELAY 1
NC NO C
44 45 46

Brown | Black | Brown | Blue | Brown | White | Blue | Black | Grey | White

A
4 - 20 mA
ITC controllers

B
Pulse input
ITC flowmeter - M12

C
Remote activation
Level sensors

B
① +
② + 24Vdc
③ -

C
① REMOTE
② REMOTE
③ LEVEL 1
④ LEVEL 2
⑤ COMMON

External quick connectors

CE DECLARATION OF CONFORMITY

CE

I.T.C. S.L.
Vallès, 26
Polígono Industrial Can Bernades-Subirà
08130 Santa Perpètua de Mogoda

Declares that all models of DOSmart AC products identified with serial number and year of manufacture comply with Machinery Directive 2006/42/EC, Low Voltage Directive D2014/35/EU and Electromagnetic Compatibility Directive D2014/30/EU, provided that the installation, use and maintenance are carried out in accordance with current regulations and following the instructions in the instruction manual.

Xavier Corbella
Manager

WARRANTY

ITC DOSING PUMPS

I.T.C. S.L. guarantees the product specified in this document, for a period of 1 year from the date of purchase, against all manufacturing or material defects, provided that installation, use and maintenance of the equipment are correct.
The equipment must be sent, free of charge, to our workshop or I.T.C. S.L.-accredited technical service and will be returned cash on delivery.
The equipment must be accompanied by the warranty document, with the purchase date and stamp of the establishment where purchased, or a photocopy of the purchase invoice.

MODEL
_____

SERIAL No.
_____

Date of purchase and stamp of the establishment where purchased

DATE: _____

ED. 27/06/2025