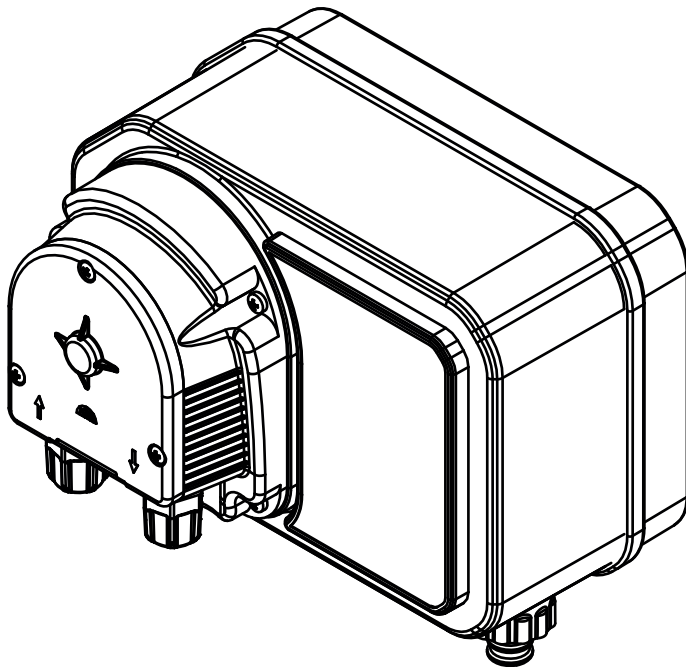


DIGITAL ASPENDOSE PR - DMS USER MANUAL



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Introduction

2 Introduction

Please read following information carefully and completely. This information shall ensure that you benefit from operating instructions at optimum level.

These instructions define the functions of technical data.

2.1 Explanation of Safety Warnings

These operating instructions give information about the technical data and functions of the product. And provide detailed safety information.

Safety warnings and notes are categorized as below. Pictographs are used here as adapted for different circumstances. These pictographs are only for example.



DANGER!

Type and source of danger

Result: Death or severe injury.

Measures to be taken to prevent such danger.

Defines the danger that creates the threat directly. Causes death or severe injury unless prevented.



WARNING!

Type and source of danger

Possible Result: Death or severe injury.

Measures to be taken to prevent such danger.

Defines a possible dangerous situation. Causes death or grave injury unless prevented.



CAUTION!

Type and source of danger

Possible Result: Light or insignificant injuries. Material damage.

Measures to be taken to prevent such danger.

Defines a possible dangerous situation. Causes light or insignificant injury unless prevented. Can also be used for material damage warning.



NOTE!

Type and source of danger

Result: Causing damage to the product or individuals.

Measures to be taken to prevent such danger.

Defines a possible damaging action. Causes damage to the product or individuals unless prevented.



INFORMATION!

Operational tips and additional information

Source of information. Additional measures.

Defines operational tips and other useful information. Not given for a dangerous or harmful situation.

2.2 User Competence



WARNING!

Danger of injury in case of personnel incompetence!

Operator of device/facility is responsible for complying with competencies.

Incompetent personnel working with the device or keeping the device in danger zone might cause severe injuries or material losses.

- All operations should be handled by competent personnel
- Keep away incompetent personnel from danger zones

Training	Description
Informed Person	Defines a person that has been informed about possible hazards in case of unruly behaviors contrary to duties assigned, and informed about relevant situations and informed about necessary protection equipment and measures.
Trained User	Defines a person that meets the standards of an informed person and plus trained by the manufacturer or another authorized sales partner
Trained Expert	Defines a person that can recognize possible hazards and evaluate the duties assigned thanks to his/her knowledge of rules in addition to the training, information and experience in that field. The activities based on years of experience in that field can be taken into consideration while assessing someone as an expert.
Electricity Expert	Defines a person that can work in electrical facilities, and recognize and prevent possible dangers thanks to his/her knowledge of regulations and standards in place in addition to the training, information and experience. Electricity experts should have received training on the field of work and have knowledge on important standards and regulations. Electricity expert should fulfill the provisions of legal regulations for preventing accidents.
Customer Services	The service technicians that are trained and authorized for operations in the facility by the manufacturer are described as customer services.

Safety and Responsibility

3 Safety and Responsibility

3.1 General Safety Warnings

Following warnings are given for assisting you to eliminate possible dangers that might arise while using the product. Risk prevention measures are always valid independent of any special action. Safety instructions that give warning against certain activities or situations are given in relevant subsections.



DANGER

Life-threatening danger due to electric shock
Falsely wired, exposed or damaged cables might injure you.

Replace damaged cables immediately.

Do not use extension cables.

Do not bury cables.

Fix cables to prevent damage to other equipment.



DANGER

Do not use the product in explosive environments.



WARNING

Caustic burns due to dosage material or other types of burns!

Dosage starts after connection to the mains power.

Connect dosage lines before connecting to mains power.

Make sure that all screws are tightened and sealed properly.



WARNING

While working on dosage head, valves and connections, you might get in touch with dosage liquid.

Use sufficient personal protective equipment.

Rinse the product with a liquid that doesn't bear any risk (e.g. water). Make sure that the liquid is in line with the dosage material.

Do not look at the exposed ends of attached pipe lines and valves without protective goggles.



WARNING

Product materials and system hydraulic parts should be compliant to dosage liquid. Make sure that the materials are suitable for the dosage material.



CAUTION

Increased accident risk due to lack of qualification on personnel side!

Product and accessories can only be mounted, operated and maintained by staff with sufficient qualifications.

Make sure that all actions are taken by personnel with sufficient and appropriate qualifications.

Prevent access to system by unauthorized persons.



CAUTION

Personal injury and material damage hazard!

Changing the dosage liquid might cause unforeseeable reactions.

In order to prevent chemical reactions, clean dosage pumps and hoses thoroughly.

3.2 Hazards arising from non-compliance with safety instructions

Non-compliance with safety instructions will bring risks not only for the staff but also for environment and the unit.

Here are some specific consequences:

Failure of vital functions in product and system,
Failure of necessary maintenance and repair methods,
Danger for individuals due to dangerous dosage material,
Environmental hazard due to leaking materials.

3.3 Safe operation

There are more safety rules in addition to the safety instructions stated in this operating manual and they should be followed:

Accident prevention regulations safety and operating provisions
Safety measures for using dangerous items
Environmental protection provisions,
Applicable standards and legislation.

3.4 Personal protective equipment

You might be exposed to dosage liquid. You should use relevant protective equipment depending on the type of work and degree of risk.

As minimum, following protective equipment is provided:



Protective
Clothing



Protective
Gloves



Protective
Goggles

The operator should use protective equipment during these tasks:

Assigning,
When device is working,
Demounting, maintenance works, disposal.

3.5 Personnel competence

Any staff member working on the device should have specific knowledge and skills.

Anyone working on the device should meet following conditions:

- Participation in all training courses,
- Personal fitness to the specific task,
- Personal competence for the specific task,
- Training for the use of device,
- Safety equipment data and mode of operation
- This Operating Manual and especially the safety instructions relevant to this work with sub-sections,
- Knowledge on basic arrangements relevant to health, safety and accident-prevention.

All persons should have following qualifications as minimum:

- Receive training as expert to work on the product independently,
- Receive sufficient training to work on the product under the guidance and surveillance of a trained expert.

This user's manual differentiates between user groups:

[\(see User Competence Page 4\)](#)

Appropriate and Desired Use

4 Appropriate and Desired Use

4.1 Notes about product warranty

Undefined use of the product in any way might risk the function or desired protection of the product. This shall invalidate warranty claims!

Please remember that responsibility lies with the user in following cases:

Use of the dosage pump against the user's manual and in an inconsistent way with the section titled "appropriate and desired use" especially with regards to safety.

When persons use incompetent products to perform relevant activities ([See 2.2. User's Competence Page 4](#)).

When unauthorized changes are made on the device by the user,

When user chooses a different dosage media than the one stated in the order.

Users should not prefer dosage liquid that is in a changed concentration, density, temperature, etc. against the manufacturer's conditions.

4.2 Purpose of production

Dosage pumps are precision dosage devices designed for dosage release of acid, chlorine, liquid fertilizer, etc chemicals (pool, potable water, agricultural irrigation, etc.).

4.3 Device Revision

This user's manual applies to following devices.

Devices	Software
Aspendose D-PR Dosage Pump	v1 R1

4.4 Principles

- The manufacturer has checked and operated the device under specific conditions before delivery (in a specific density and temperature with a specific dosage material, under specific pipe dimensions, etc.).
- Since such conditions may vary on site under different usages, the capacity of the product should be measured during installation by the operator company.
- Information on usage and environment ([see 6. Technical Data page 11](#)).
- Product materials and system hydraulic parts should be compliant to dosage material. Please remember that resistance of components shall vary depending on dosage material temperature and operating pressure.
- Product is not designed for outdoors unless appropriate protective measures are taken.
- Avoid liquid and dust leakage into product and also direct sunlight exposure.
- Do not operate the product in a potentially explosive environment unless there is EC Certificate of Conformity for potentially explosive atmospheres.

4.5 Prohibited dosage media

Product **should not** be used for following materials and ingredients:

- Gaseous substances,
- Flammable materials,
- Radioactive substances,
- Solid materials.

4.6 Foreseeable wrong use

You can find below information about unaccepted product practices or relevant equipment practices. This section has been designed to detect and prevent possible wrong uses beforehand. Foreseeable wrong use will affect product life:

4.6.1 Wrong assembly

Wrong or loose screwing.

4.6.2 Wrong installation

Wrong installation of suction and stroke lines.

Wrong connection of pipes due to wrong material or improper connections.

Damage in pipe lines due to twisting or excessive tightening.

Use of damaged parts or exceeding the permitted pressure on suction and discharge sides.

4.7 Wrong electrical wiring

Unsafe mains or mains voltage that do not comply with standards.

Wrong connection cables for mains voltage.

Installation where it is not possible to cut off power supply immediately or easily.

4.7.1 Erroneous commissioning

Commissioning with damaged facility

Shut-off valve closed to circuit

Closed suction or pressure line, (e.g. due to clogging)

Staff not experienced with the device

[\(See 2.2. User's Competence Page 4\).](#)

Insufficient protective equipment

4.7.2 Erroneous operation

Auxiliary equipment not working properly or fall apart

Unauthorized replacement of dosage pump

Negligence of operational faults

Elimination of operational faults by unauthorized staff without necessary competencies

[\(See 2.2. User's Competence Page 4\).](#)

Turning off the external fuse

4.7.3 Wrong maintenance

Performing maintenance on a running dosage pump

Performance of activities not described in the user's manual or insufficient or irregular control for correct operation

Inability to replace damaged pieces or cables due to insufficient insulation

Absence of any precaution against accidental commissioning during maintenance

Use of cleaning substances that might cause reaction with dosage media

Use of inappropriate cleaning equipment with wrong spare parts or lubricants

Installing spare parts without following the instructions in user's manual

Confusing sensor lines while reconnecting all lines

Failure to renew gaskets (damage in all gaskets or failure to remove them)

Negligence of safety data forms and insufficient protective equipment

Product Description

5 Product Description

5.1 Product Data

Dosage pumps are precision dosage devices designed for dosage release of acid, chlorine, liquid fertilizer, etc chemicals (pool, potable water, agricultural irrigation, etc.)

5.2 General Specifications

This operating manual is applicable to analogue dosage pumps. Installation, operation and service of all these pumping devices are different from each other (certain differences in technical data, malfunctions and repair).

5.3 Electrical Features

Device fulfills dosage duty by respecting user settings.
Device complies with electrical devices regulations.



5.4 Scope of delivery

Please compare the delivery note with the scope of delivery. Following items are covered by delivery scope:

Dosage pump

User's Manual

Hose Set

Suction Set 4x6

Stroke set 4x6-1/2

Assembly Set

6 Technical Data

6.1 Operating Conditions and Limits

Ambient Temperature	0-45°C
Chemical temperature	0-45°C
Suction Line Max. Height	1,5 mt
Stroke Line Max. Distance	4 mt

6.2 Electrical Data

	AC	DC
Supply Voltage	AC 100 - 240V 50-60Hz	DC 12-28V
Power	6-8W	4W
Fuse Current	0,315A 5x20 cartridge fuse	

6.3 Other Information

Product Weight	825 gr
Box Weight	1615 gr
Product Dimensions	164x140x118mm
Box Dimensions	21x24x18 cm
Protection Class	IPX5

6.3.1 Raw Materials Based on Parts Used in Dosage Pump

Parts Used in Aspendose Digital Serial Dosage Pumps		
	4,5L/0,5B	2,5L/3B
OEM Body	PP	PP
Pump Body	ABS	ABS
Suction Set	PP, Viton Oring, Zirconium Ball	PP, Viton Oring, Zirconium Ball
Stroke Set	PP, Viton Oring, Zirconium Ball	PP, Viton Oring, Zirconium Ball
Number of Pulleys	3 pulleys	2 pulleys
Hose	Norprene	Silicon
Unions	PP	PP
Suction Hose	PVC	PVC
Stroke Hose	PE	PE
Discharge Hose	PVC	PVC

Dimensions

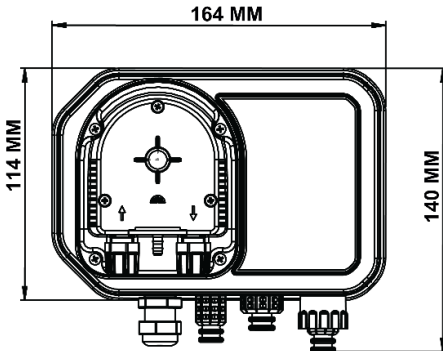
7 Dimensions

Below you can find hanger and pump stand assembly holes for the device.

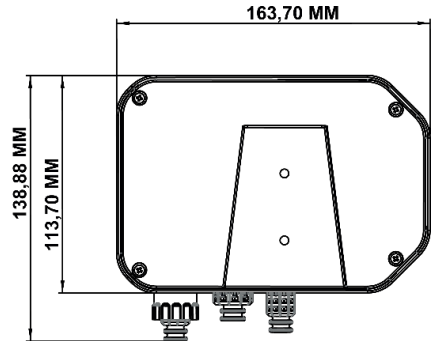
Mark the surface on which the pump is to be installed in accordance with the template before starting assembly.

Make sure that the surface for pump installation is dry and clean.

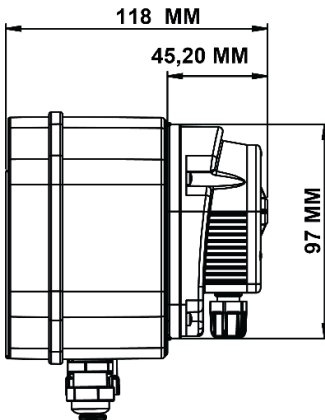
7.1 Pump Dimensions



Picture 1 Device Front Side Dimensions

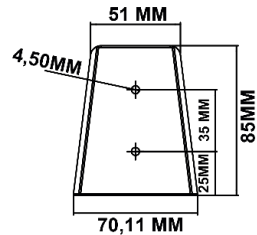


Picture 3 Device Rear Side Dimensions



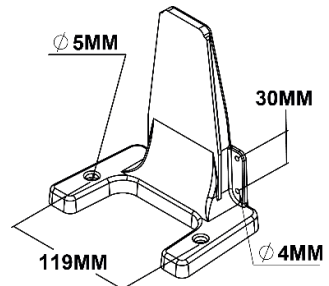
Picture 2 Device Lateral Side Dimensions

7.1.1 Pump Hanger Apparatus Dimensions



Picture 4 Hanging Apparatus Size

7.1.2 Pump Stand Dimensions



Picture 5 Pump Stand Dimensions

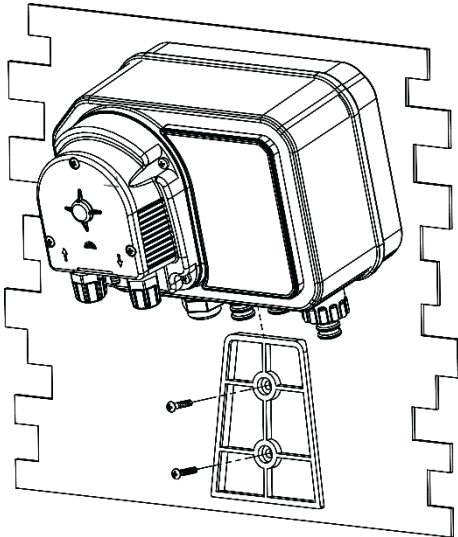
8 Mechanical Installation

Use the hole template in accordance with your pump's model to fix it to a wall

Mark the surface that you would like to fix the pump based on given sizes.

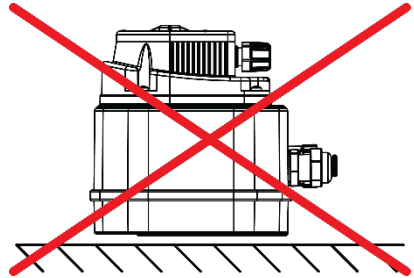
Drill maximum 7mm hole on the surface to drive in 8mm anchors that you will find among the accessories.

After driving in the anchors, place the pump in such a way that holes overlap. Then fix with screws. Mount the pump on the hanger.



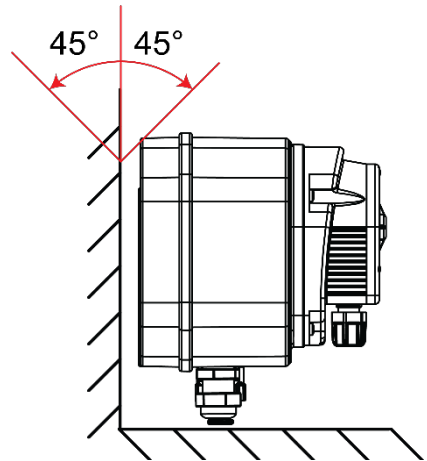
Picture 7 Wrong Assembly Position

8.1 Pump Assembly Position



Picture 8 Pump Wall Mount

WRONG ❌



Picture 6 Correct Assembly Position

CORRECT ✓

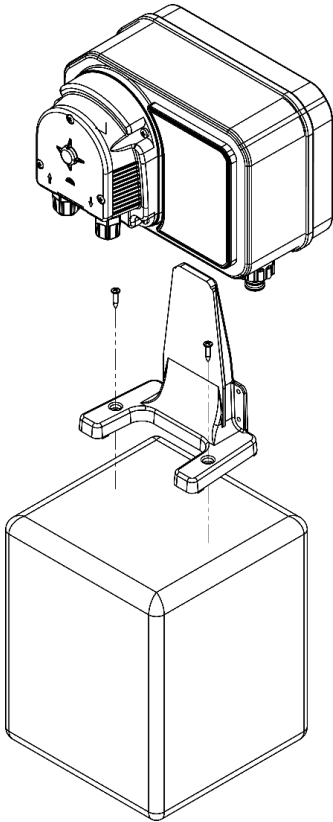


WARNING

Place the dosage pump vertically $\pm 45^\circ$. Fix the pump to a wall or any other vertical surface through two holes on the hanger.

Mechanical Installation

8.2 Pump Stand Assembly



Picture 9 Pump Stand Mount

For Stand Assembly:

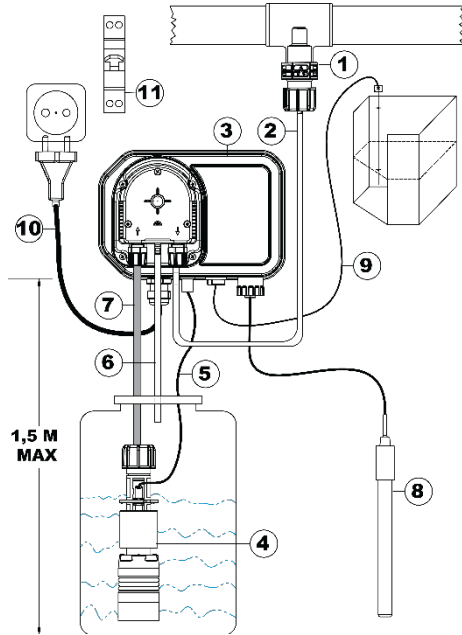
To assemble the device with pump assembly stand, fix the SCREW M4,2X19 YSB CHROMIUM PLATE as shown here.

For Pump Assembly Stand hole sizes

[See. 7.1.2. Pump Stand Dimensions Page 11](#)

9 Hydraulic Installation

9.1 General Assembly of the Device



Picture 10 General Assembly of the Device

General assembly of the device should be performed as shown above.

Distance between suction line and pump, placed inside the liquid tank, should be maximum 1,5 meters.

Assembly should be completed before electrical connection has been made.

Electrical connection should be in such a distance not to be affected by liquid or chemicals.

Device should be placed in a distance that provides ease of use and reading for user's access.

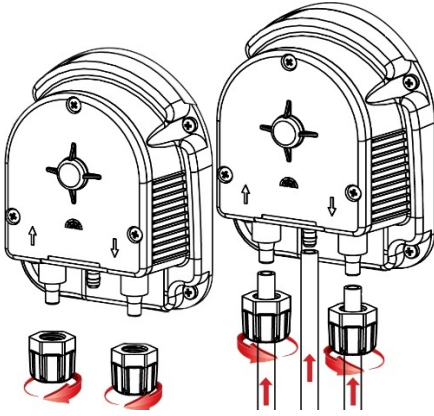
To make your device long lasting and properly operating, assembly site should not be wet or humid.

No	Description
1	Stroke (Line Set)
2	Stroke Line Hose
3	Dosage Pump
4	Suction (Line Set)
5	Liquid Level Sensor
6	Discharge Hose
7	Suction Hose
8	Sensor (pH or ORP)*
9	Sensor Holder*
10	Power Cable
11	Electricity Safety Fuse

*Optional.

Hydraulic Installation

9.2 Placing the Hoses



Picture 11 Mounting Hoses

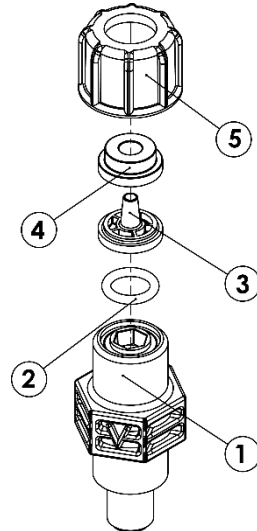
Cut the tips of hose properly
Turn and dismantle hose passage unions.
Place PVC hose to chemical dosage pump inlet tip (suction tip) and discharge tip, and place PE hose to enter the line (Pumping Tip) by sliding.
Turn and tighten hose passage unions.
Cut the excess of suction side of hose.
Direct the hose that has been mounted on discharge tip towards the chemical tank.

9.3 Check Valve and Ball Stroke Line



WARNING

Stroke line should always be placed on upper part of pump marked with arrow (↑).
All parts of the stroke line should be attached in the order and direction as shown below.
Your pump will not pump if order or direction of parts is changed.



Picture 12 Assembly of Check Valve and Ball Stroke Line

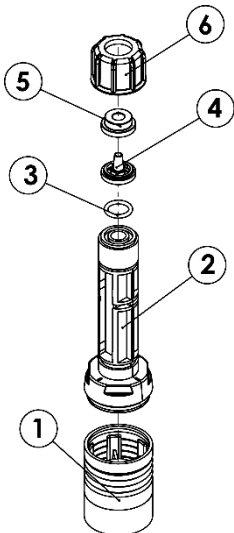
No	Description	Unit
1	STROKE BODY 1 PP	1
2	ORING 11,15x2,62	1
3	HOSE TIP 4X6 PP	1
4	HOSE PRESS 4X6 PP	1
5	UNION COVER 2 PP	1

9.4 Suction Line



WARNING

Suction line should always be attached to lower part of the pump and dipped into chemical tank. All parts of the suction line should be attached in the order and direction as shown below. Your pump will not absorb if order or direction of parts is changed.



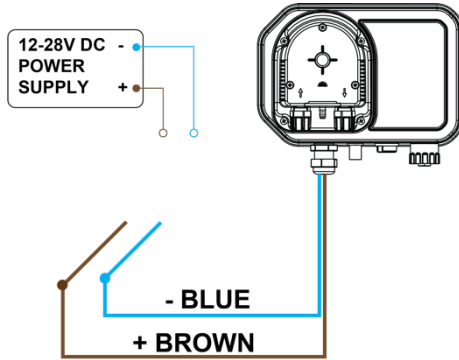
Picture 13 Suction Line Assembly

No	Description	Unit
1	SUCTION FILTER BODY 1 PP	1
2	SUCTION BODY 1 PP	1
3	ORING 11x2 VITON	2
4	HOSE TIP 4X6 PP	1
5	HOSE PRESS 4X6 PP	1
6	UNION COVER 2 PP	1

Electrical Installation

10 Electrical Installation

10.1 Electrical Connection for DC Models

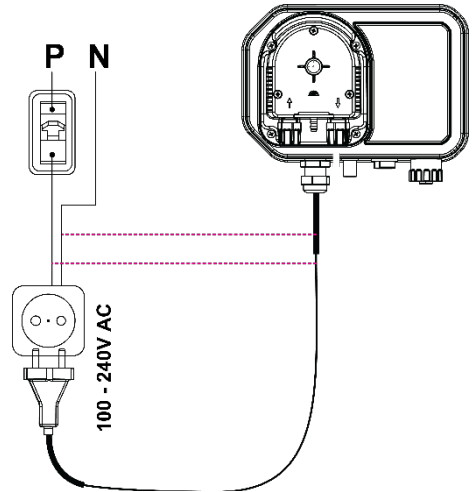


Picture 14 Electrical Connection for DC Models

Electrical connection of 12-28V dosage pump is as seen here.

Brown cable should be connected to + end of power supply whereas blue cable should be connected to - end.

10.2 Electrical Connection for AC Models



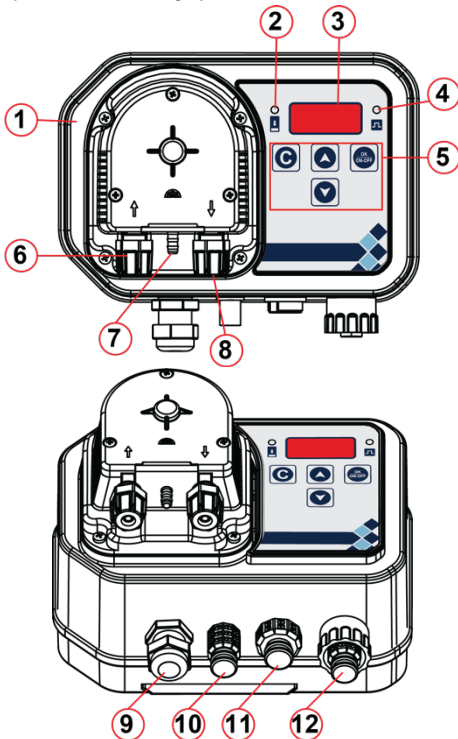
Picture 15 Electrical Connection for AC Models

Power connection of dosage pump should be fixed as shown here. No need for ground line connection. If the pump is to be powered using the socket electrical cable on it, then you should choose a wall plug protected with security box.

11 Operation

You can adjust pump capacities of digital models from the parameters using the buttons on them easily. Parameter settings are given in detail in following pages.

You can mount Liquid Level Sensor to BNC socket if needed. If Liquid Level Sensor has been installed, pump will stop operating once the liquid in the chemical tank is consumed up. If the model has pump alarm output feature, it activates alarm output tips and the warning system.



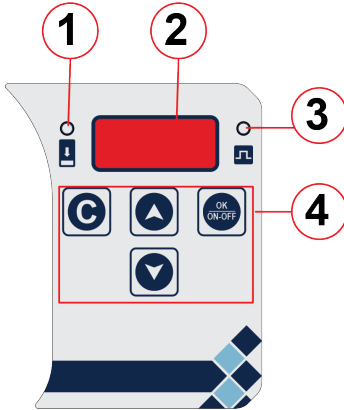
No	Description
1	Pump Body
2	Operating Indicator
3	Screen
4	Alarm Indicator
5	Buttons
6	Suction Line Input
7	Discharge
8	Stroke Line Input
9	Power Cable Inlet
10	Level Sensor Connection Input1
11	External Cable Connection Input
12	Sensor Connection Input (for PR Models) Level Sensor Connection Input (for DMS Models)

Picture 16 Pump Usage Functions

Operation

11.1 Control Panel

11.1.1 Panel



Picture 17 Panel label usage functions

No	Description
1	Operating Indicator
2	Screen
3	Alarm Indicator
4	Buttons

11.1.2 Indicators

Indicator	Description	Color
Operating Indicator	Marks that pump is powered, Blinks when pump strokes	Green
Alarm Indicator	Blinks in case of any alarm	Red

11.1.3 Buttons

Icon	Description	Duty
OK ON-OFF	On-Off	Stop, Start, Menu Enter, Confirm
▲	Up	Increase, Trigger, Process Stop
▼	Down	Reduce
C	Clean	Cancel, Process cancellation

11.2 Menu Enter

Press and hold Enter button more than 3 seconds. Screen will black out for 1 second and then MENU will appear on the screen. 2 seconds later you will see "Info" that is the first step of the menu.

11.3 Menu Navigation

Use up and down buttons to navigate. Press Enter to process a specific menu step. Use Clear button to exit the Menu.

11.4 Show

Shows device software details. Use Enter or Clear to exit.

11.5 Edit

Use up and down buttons to change the value. Press Enter to confirm new values. Use Clear to return previous value and exit.

11.6 Select

Use up and down buttons to change the selection.
Press Enter to confirm new selection.
Use Clear to return previous selection and exit.

11.7 Function Processes

Calibration Function

You will see buffer solvent 1 value for 2 seconds on the screen (e.g. 225 for ORP).

Screen will black out for 1 second.

You will see raw sensor value until you press any button or time-out.

Press Enter to pass on to next step or press Clear to cancel the calibration.

You will see buffer solvent 2 value for 2 seconds on the screen (e.g. 475 for ORP).

Screen will black out for 1 second.

You will see raw sensor value until you press any button or time-out.

Press Enter to pass on to next step or press Clear to cancel the calibration.

Zero and Span values are calculated.

Device will return to main screen.

11.8 Reset to Factory Settings

You will see "dFAC" message for 1 second.

Any selection will initiate the process.

Select "Yes" or "No" using up and down buttons.

If "yes" is selected, device will reset all parameters to Factory settings.

If "No" is selected, device will return to menu.

Operation

11.8.1.1 Operation Modes

Manual

Pump will stroke according to Dosage number adjusted with up and down button on main screen. Dosage amount can be limited with "DosageValLimLo" and "DosageValLimHi" parameters. Dosage Amount can be directly changed.

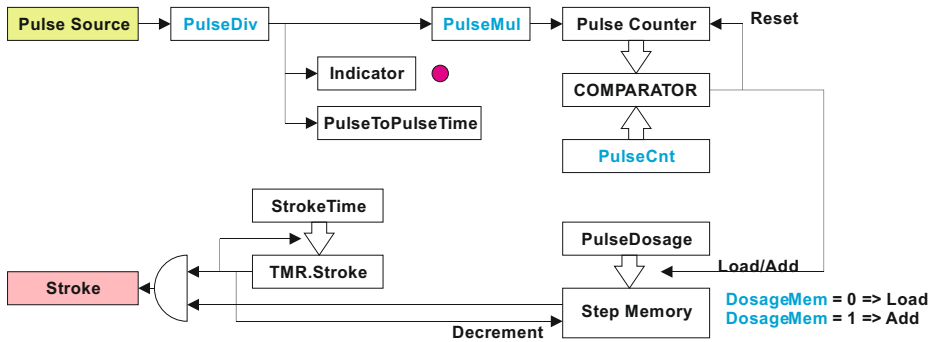
Timer

Pump will stroke according to Dosage number adjusted with up and down button in main screen however it will be bound to the time adjusted with "TM_RunTime" and "TM_StopTime" parameters.

You can select operation time unit with "TM_RunUnit" parameter and stopping time unit with "TMStopUnit" parameter.

Pulse

Pump will stroke according to pulse input.



$$\text{PulseDosage} = \text{DosageVal} / \text{mLStep}$$

$$\begin{aligned} \text{mLHour} &= \text{DosageVal} \\ \text{StepHour} &= \text{mLHour} / \text{mLStep} \end{aligned}$$

$$\begin{aligned} \text{EqSpc} = 0 &\Rightarrow \text{StepToStepTime} = 3600000 / \text{StepHour} \\ \text{EqSpc} = 1 &\Rightarrow \text{StepToStepTime} = \text{PulseToPulseTime} * \text{PulseCnt} / \text{StepMemory} \end{aligned}$$

Picture 18 Operation Modes Table

Divide input pulse with "PM_PulseDiv" parameter to increase pulse counter and multiply with "PM_PulseMul" parameter. When pulse counter is equal to "PM_PulseCnt" parameter, pulse counter will be reset.

If "PM_StrokeMem" is active, "PM_StrokeCnt" value will be added to stroke memory, whereas if "PM_StrokeMem" is passive, "PM_StrokeCnt" value will be added to stroke memory.

If "PM_EqSpc" is active, pump will calculate time from pulse to pulse and automatically adjust the duration from stroke to stroke.

Analogue

Pump will stroke according to 4-20mA analogue input. The % stroke rate for 4 mA can be adjusted from "AM_Set4mAStrokeRate" parameter while % stroke rate for 20 mA can be adjusted from "AM_Set20mAStrokeRate" parameter.

Dosage amount can be limited with "DosageValLimLo" and "DosageValLimHi" parameters

Control

Pump will stroke according to sensor input.

Control mode low set point value is adjusted from "CM_SetLow" parameter while stroke rate for low set point is adjusted from "CM_SetLowStrokeRate" parameter. Moreover, high set point value is adjusted from "CM_SetHigh" parameter while high set point is adjusted from "CM_SetHighStrokeRate" parameter.

"CM_StartupDelay" parameter is used to make sensor values to stop for a while when the device is powered.

"MeasSensorType" is used to select "pH" or "ORP" sensor.

"MeasCalType" is used to select "Single Point" or "Double Point" calibration type. Buffer solution values can be adjusted from "MeasCalBuf1" and "MeasCalBuf2".

Dosage amount can be limited with "DosageValLimLo" and "DosageValLimHi" parameters

Level

Use "LevelFlowSensType1,2,3" to adjust level sensor types.

You can not use Level/Flow 2 in PR models.

Level/Flow2 input uses pulse input on MIC connector.

You can not use "LevelFlowSensType3" in pulse mode.

	D series	PR series	PR series (PulseMode)
Level/Flow 1	BNC connector	BNC connector	BNC connector
Level/Flow 2	BNC connector	X	X
Level/Flow 3	MIC connector	MIC connector	X

Priming

If you press "C" button for more than 2 seconds in main screen, pump will stroke at highest speed to prime. This will last as long as the time stated in "PrimingTime". Press "C" again to stop priming.

Factory Settings

Use this to reset all parameters to factory settings.

Password Reset

Press and hold "C" and "Down" button for more than 20 seconds while the pump is not operational. When you see "rPAS" message, press Enter to cancel the password.

Alarm Cases

1	ERRF	FlashWriteError	Flash writing error
2	ELF1	LevelFlow1	Level low or no flow
3	ELF2	LevelFlow2	Level low or no flow
4	ELF3	LevelFlow3	Level low or no flow
5	EOSL	MeasRawOverRangeLow	Measured raw value is very low (possible sensor fault)
6	EOSH	MeasRawOverRangeHigh	Measured raw value is very high (possible sensor fault)
7	EORL	MeasValOverRangeLow	Measured value is very low (possible sensor or calibration fault)
8	EORH	MeasValOverRangeLow	Measured value is very high (possible sensor or calibration fault)

Operation

11.8.2 Parameter List

No	Screen	Se e	Parameter Name	Description	Process	Detail	Default	Min	Max
1	INFO	0	Info	Software Version	Show				
2	OPER	0	OperatingMode	Operating Mode	Select	MANU: Manual Tmr : Timer PULS: Pulse AnIG: Analogue Ctrl: Control *	Manual		
3	TRT	1	TM_RunTime	Timer Mode Operation Time	Adjust		1	1	9999
4	TRU	1	TM_RunUnit	Timer Mode Operation Time Unit	Select	Sec : Second min : Minute	Minute		
5	TST	1	TM_StopTime	Timer Mode Stopping Time	Adjust		1	1	9999
6	TSU	1	TM_StopUnit	Timer Mode Stopping Time Unit	Select	Sec : Second min : Minute	Minute		
7	POIU	2	PM_PulseDiv	Pulse Mode Pulse Divider	Adjust		1	1	9999
8	PMUL	2	PM_PulseMul	Pulse Mode Pulse Multiplier	Adjust		1	1	100
9	PENT	2	PM_PulseCnt	Pulse Mode Pulse Number	Adjust		1	1	999
10	PSTC	2	PM_PulseDosage	Pulse Mode Dosage Amount	Adjust		10	1	999
11	PSTM	2	PM_DosageMem	Pulse Mode Dosage Memory	Select	disA: Passive EnAb: Active	Disabled		
12	PEQS	2	PM_EqSpc	Pulse Mode Equal Interval	Select	disA: Passive EnAb: Active	Disabled		
13	AN 4	3	AM_Set4mAStrokeRate	Analogue Mode 4mA Stroke Rate	Adjust	%	0	0	100
14	AN20	3	AM_Set20mAStrokeRate	Analogue Mode 20mA Stroke Rate	Adjust	%	100	0	100
15	CSL	4*	CM_SetL	Control Mode Low Set	Adjust		550	0	CM_Set High
16	CSH	4*	CM_SetH	Control Mode High Set	Adjust		650	CM_Set Low	1500

Operation

17	CSLR	4*	CM_SetLowDosageVal	Control Mode Low Set Dosage Rate	Adjust	%	100	0	100
18	ESHR	4*	CM_SetHighDosageVal	Control Mode High Set Dosage Rate	Adjust	%	0	0	100
19	ESDL	4*	CM_StartupDelay	Control Mode Start Delay	Adjust	Minute	5	0	60
20	STYP	4*	MeasSensorType	Sensor Type	Select	pH : pH Sensor orp : ORP Sensor	ORP		
21	CTYP	4*	MeasCalType	Calibration Type	Select	SnGl : Single Point Dual : Double Point	Dual Point		
22	BUF1	4*	MeasCalBuf1	Buffer Solution 1 Value	Adjust		225	0	1500
23	BUF2	4*	MeasCalBuf2	Buffer Solution 2 Value	Adjust		475	0	1500
24	SCAL	4*	Calibration	Sensor Calibration Function	Function	Sensor Calibration			
25	DLL		DosageLimLo	Dosage Amount Minimum limit	Adjust		0	0	Pump Cap.
26	DLH		DosageLimHi	Dosage Amount Maximum Limit	Adjust		Pump Cap.	0	Pump Cap.
27	LF1T		LevelFlowSensType1	1st Level / Flow Sensor Type	Select	Pas : Passive no : Normally Open nc : Normally Closed Puls: Pulse Type	NO		
28	LF2T		LevelFlowSensType2	2nd Level / Flow Sensor Type	Select		NO		
29	LF3T		LevelFlowSensType3	3rd Level / Flow Sensor Type	Select		NO		
30	PRIT		PrimingTime	Priming time	Adjust	Second	30	0	600
31	PCAP	0	Pump Capacity	Pump Capacity Calibration	Adjust	Nominal Pump Capacity 50% - 150%	Pump Cap.	PompKa p x0.5	PompKa p x1.5
32	FACT		Factory Default	Reset to Factory Settings	Function	Reset all parameters to factory settings			
33	PASS		Password	User Password	Adjust		0	0	9999

Numbers in "see" column show in which mode the relevant parameters will be shown. In other modes, such parameters will be hidden. (:1:Timer, 2:Pulse, 3:Analogue, 4:Control)

*: Only for PR model pumps.

Service

12 Service



WARNING

Disconnect the power before any service action on the device.

Use 5x20 mm mini cartridge fuse.

If there is a failure in power cable, have it replaced by authorized service.

12.1 Maintenance



WARNING

Mechanical Malfunctions!

Possible Result: Material damage that might cause device to be damaged.

Make sure that there is no clogging, adhesion or hose stiffening inside the pump hose before operating the pump after a long break.

Approximately/Every Three-Six Months

- Check whether suction line filter is clogged or not.
- Check whether suction and pumping hose unions have loosened or not.
- Check whether pump hose leaks or not.

Approximately/ Every Year

1. Replace pump dosage hose.

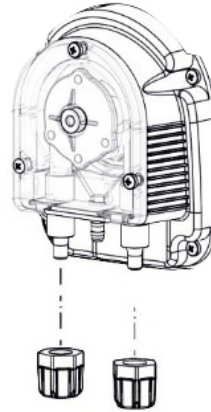


CAUTION

The intervals of maintenance and hose replacement may vary based on the chemical to be dosed.

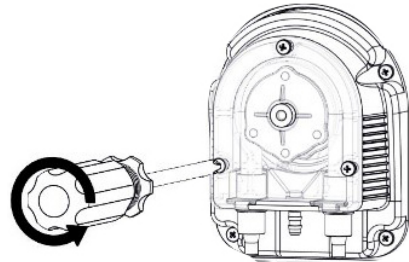
12.2 Repair

12.2.1 Replacing Pump Hose

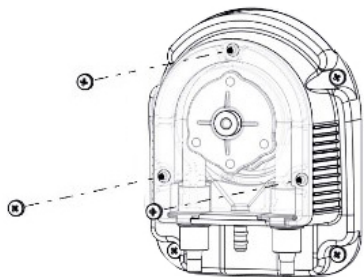


Picture 19 Replacing Pump Hose

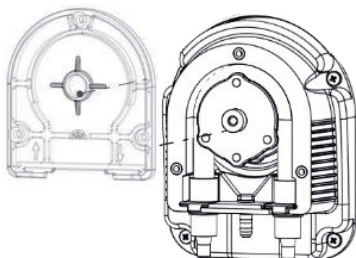
Dismount hose unions.



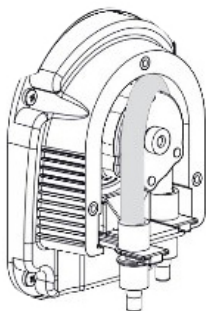
Dismount the screws on protective lid by screwdriver.



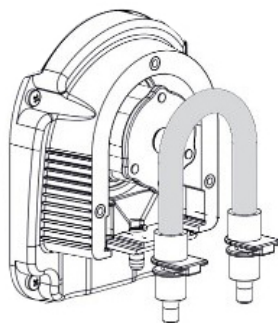
Dismount 3 screws on the protective lid.



Take out the protective lid.



Pull and take out the pump hose passage union on suction side.



Pull and take out the pump hose passage union on pumping side.

To fix the pump hose in place.

1. Bring the pump to lowest flow setting.
2. Place the hose passage union on suction side.
3. Power the pump. In the meanwhile, direct the pump hose on reels and turn off the pump after 1 round.

Place the hose passage union on pumping side.

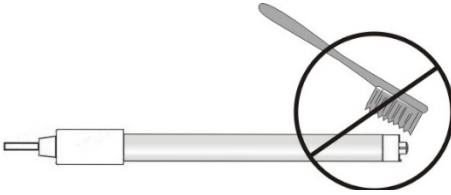


CAUTION

Oil with silicon grease while placing the pump hose in place.

Service

12.3 Electrode Maintenance



Picture 20 Electrode Maintenance

Use soft cloth when cleaning the electrode. Do not use brush or similar hard materials.

Please keep the electrode inside electrode protection liquid when not in use. Do not leave it dry.

Cleaning with sodium hypochloride (most frequent):

Dismantle stroke line pipe from pumping line.

Remove the suction pipe from liquid tank with the drain and place into clean water.

Operate the pump for 5-10 minutes.

Turn off the pump and dip the filter into hydrochloric acid and wait until acid cleans it.

Restart the pump and operate it for 5 minutes while keeping the suction filter and pumping union in the same tank.

Repeat the process with water.

Reconnect the pump.

13 Malfunction Cases

13.1 Mechanical Malfunctions

If the system is fully silent, probably there is an electrical or electronic failure rather than a mechanical one.

If there is loss of dosage liquid in fixed interval, union covers might be loose and there might be crack in stroke line pipe;

If there is air formation when pump is not in use, then check all check valves in the system and replace if necessary.

13.2 Electrical Malfunctions



CAUTION

If the problem is due to electrical problems or if there is a different problem, contact the pump dealer

Chemical Resistance List

14 Chemical Resistance List

Chemical	Formula	Glass	PVDF	PP	PVC	SS316	PMMA	Hastelloy	PTFE	FPM	EPDM	NBR	PE	Neoprene	Silicone
Acetic Acid, Max 75%	CH ₃ COOH	2	1	1	1	1	3	1	1	3	1	3	1	3	1
Aluminium Sulphate	Al ₂ (SO ₄) ₃	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Amines	R-NH ₂	1	2	1	3	1	---	1	1	3	2	4	1	---	---
Calcium Hydroxide	Ca(OH) ₂	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Calcium Hypochlorite	Ca(OCl) ₂	1	1	1	1	3	1	1	1	1	1	3	1	2	2
Copper Sulphate	CuSO ₄	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Ferric Chloride	FeCl ₃	1	1	1	1	3	1	1	1	1	1	1	1	1	2
Hydrofluoric Acid 40%	HF	3	1	1	2	3	3	2	1	1	3	3	1	3	3
Hydrochloric Acid	HCl	1	1	1	1	3	1	1	1	1	3	3	1	2	2
Hydrogen Peroxide 30%	H ₂ O ₂	1	1	1	1	1	3	1	1	1	2	3	1	2	1
Nitric Acid 65%	HNO ₃	1	1	2	3	2	3	1	1	1	3	3	2	3	3
Phosphoric Acid 50%	H ₃ PO ₄	1	1	1	1	2	1	1	1	1	1	3	1	2	1
Potassium Permanganate 10%	KMnO ₄	1	1	1	1	1	1	1	1	1	1	3	1	---	---
Sodium Bisulphate	NaHSO ₃	1	1	1	1	2	1	1	1	1	1	1	1	1	1
Sodium Carbonate	Na ₂ CO ₃	2	1	1	1	1	1	1	1	2	1	1	1	1	1
Sodium Hydroxide	NaOH	2	1	1	1	1	1	1	1	2	1	2	1	1	2
Sodium Hypochlorite 12,5%	NaOCl + NaCl	1	1	2	1	3	1	1	1	1	1	2	1	1	2
Sulphuric Acid -85%	H ₂ SO ₄	1	1	1	1	2	3	1	1	1	3	3	1	3	3
Sulphuric Acid -98,5%	H ₂ SO ₄	1	1	3	3	3	3	1	1	1	3	3	3	3	3

1 :Resistant

2 :Good

3 :Non-Resistant

15 Model List / Flow Pressure Graphic

15.1 Model List

MODEL	Min/Lt	Max/Lt	Max/P	Supply Voltage	Watt	Product Weight	Body	Max Ambient Temperature	Max Chemical Temperature
	Lt/h	Lt/h	Bar	Volt	W	gr	IP	°C	°C
ASPENDOSE PR	1	1.0	3	12-28V DC	4	825	X5	0-45	0-45
	1	1.6	0.5	12-28V DC	4				
	1	2.5	3	100-240 V AC 50-60 Hz	6-8				
	1	4.3	0.5	100-240 V AC 50-60 Hz	6-8				
ASPENDOSE DMS	1	1.0	3	12-28V DC	4				
	1	1.6	0.5	12-28V DC	4				
	1	2.5	3	100-240 V AC 50-60 Hz	6-8				
	1	4.3	0.5	100-240 V AC 50-60 Hz	6-8				

16 Warranty / Standards

16.1 Warranty

Dosage Pump is under warranty for 2 years against damages arising from material and manufacturing faults according to legal regulations.

Damages arising from normal wear, overloading or undue usage are not covered by warranty.

Damages from material or manufacturing faults shall be compensated by repairing or replacing faulty part or the device completely.

Claims of warranty shall be accepted only if device is returned to the supplier or authorized service in full shape **without disassembly**.



CAUTION

Warranty Certificate should be filled and approved by the dealer where you buy the device. Please have the certificate stamped by the dealer and keep it.

16.2 Standards

