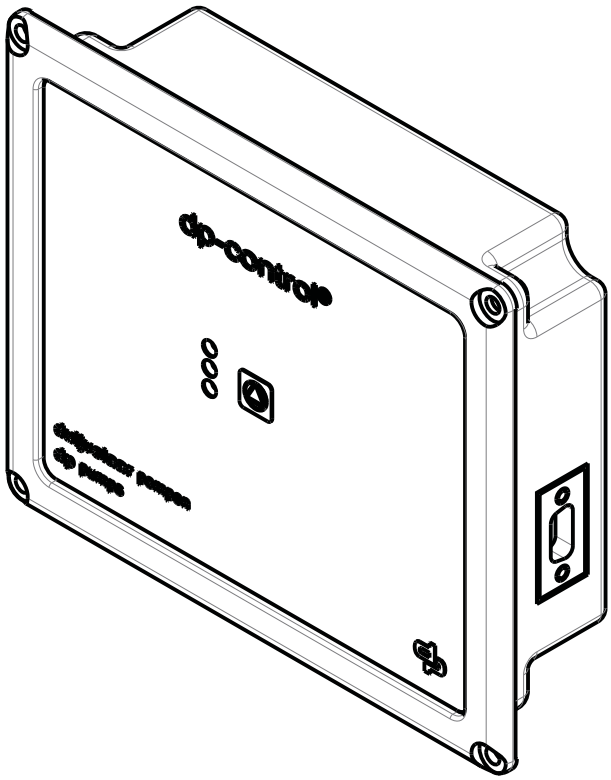
LENNTECH
WATER TREATMENT SOLUTIONS

Control units

Installation and operating instructions
Series: DP-Control



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1 Manual introduction

1.1 Preface

This manual contains important information for reliable, proper and efficient operation. Compliance with the operating instructions is of vital importance to ensure reliability and a long service life of the product and to avoid any risks.
The first chapters contain information about this manual and safety in general. The following chapters provide information about normal use, installation, maintenance and repairs of the product. The annex contains the declaration(s) of conformity.

- Make yourself familiar with the content.
- Accurately follow the directions and instructions.
- Never change the sequence of the operations to be carried out.
- Keep this manual or a copy of it together with the logbook in a fixed place near the product which can be accessed by all personnel.

1.2 Icons and symbols

In this manual and in all accompanying documentation the following icons and symbols are used.

WARNING
Danger of electric Voltage. Safety sign according to IEC 417 - 5036

WARNING
Operations or procedures, if carried out without caution, may cause personal injury or damage to the product. General hazard sign according to ISO 7000-0434

ATTENTION
Is used to introduce safety instructions whose non-observance may lead to damage to the product and its functions.

ENVIRONMENTAL INSTRUCTION
Remarks with respect to the environment.

READ THE (SUPPLEMENTARY) DOCUMENTATION
Read the user and operating instructions.

2 Identification, service and technical support

2.1 Identification, service and technical support

The system is identified based on the text “DP-Control ” as given on the front of the system.
Table 1: Control units

Indication	Meaning
DP-Control	Type of Control units

The following address data are available for service and technical support:
Table 2: Address service department

DP-Pumps Kalkovenweg 13 2401 LJ Alphen a/d Rijn The Netherlands	Tel: +31 172 488388 Fax: +31 172 468930 Internet: www.dp-pumps.com E-mail: dp@dp-pumps.com

2.2 Supplementary documentation

Apart from this manual, the documentation given below is also available:
Table 3: supplementary documentation

Document	Date/version	Code
General terms of delivery	10-1998	119 / 1998
Documentation		

See also: www.dp-pumps.com

3 Warranty

3.1 Terms of warranty

The warranty period is settled by the terms of your contract or at least by the general terms and conditions of sales.

ATTENTION
Modifications or alterations of the product supplied are only permitted after consultation with the manufacturer. Original spare parts and accessories authorized by the manufacturer ensure safety. The use of other parts can invalidate any liability of the manufacturer for consequential damage.

ATTENTION
The warranty relating to the operating reliability and safety of the product supplied is only valid if the product is used in accordance with its designated use as described in the following sections of this manual. The limits stated in the data sheet must not be exceeded under any circumstances.

The warranty becomes invalid if one or more of the points below occur.

- The buyer makes modifications himself.
- The buyer carries out repairs himself or has these carried out by a third party.
- The product has been handled or maintained improperly.
- The product has non original DP-Pumps spare parts fitted.

DP-Pumps repairs defects under warranty when:

- They are caused by flaws in the design, the material or the production.
- They are reported within the warranty period.

Other terms of warranty have been included in the general terms of delivery, which are available upon request.

4 Safety and environment

4.1 General

This DP-Pumps product has been developed using state-of-the-art technology and is manufactured with utmost care and is subject to continuous quality control.
DP-Pumps does not accept any liability for damage or injury caused by not following the directions and instructions in this manual or by carelessness during the installation, use or maintenance of the product.
Non-compliance with the safety instructions can jeopardize the safety of personnel, the environment and the product itself. Non-compliance with these safety instructions will also lead to forfeiture of any and all rights to claims for damages.
Non-compliance can result in:

- failure of important pump/system functions,
- failure of prescribed maintenance or service,
- injury caused by electrical, mechanical and chemical effects,
- leakage to the environment of hazardous substances,
- explosions.

Depending on the application, extra safety measures may be required. Contact DP-Pumps if a potential danger arises during use.

ATTENTION
The owner of the product is responsible for compliance with the local safety regulations and internal company guidelines.

ATTENTION
Not only must the general safety instructions laid down in this chapter on "Safety" be complied with, but also the safety instructions outlined under specific headings.

4.2 Users

All personnel involved in the operation, maintenance, inspection and installation of the product must be fully qualified to carry out the work involved and be aware of all applicable responsibilities, authorisations and supervisions. If the personnel in question is not in possession of the required know-how, appropriate training and instruction must be provided. The operator may require the manufacturer/supplier to provide sufficient training and/or instructions. The operator is responsible for ensuring that the contents of the operating instructions are fully understood by the responsible personnel.

4.3 Safety provisions

The product has been designed with the greatest possible care. Original parts and accessories meet the safety regulations. Modifications in the construction or the use of non-original parts may lead to a safety risk.

ATTENTION
Make sure that the product operates within its working range. Only then the product performance is guaranteed.

4.3.1 Labels on the product

The icons, warnings and instructions applied to the product are part of the safety provisions. The labels may not be removed or covered. Labels must remain legible during the entire life of the product. Replace damaged labels immediately.

4.4 Safety precautions

4.4.1 During normal use

- Contact the local electricity company for questions about the power supply.
- Shield parts that can become hot in such a way, that direct contact is not possible.
- Always close the switch box.

4.4.2 During installation, maintenance and repair

Only authorised personnel may install, maintain and inspect the system and repair electrical components. Observe the local safety regulations.

4.5 Environmental aspects

4.5.1 General

This product of DP-Pumps is designed to function in an environmentally friendly way during their entire life.

ENVIRONMENTAL INSTRUCTION
Always act according to the laws, by-laws regulations and instructions with respect to health, safety and the environment.

4.5.2 Dismantling

Dismantle the product and dispose of it in an environmentally friendly way. The owner is responsible for this.

ENVIRONMENTAL INSTRUCTION
Ask at the local government about the re-use or the environmentally friendly processing of discarded materials.

ENVIRONMENTAL INSTRUCTION
All components of the DP-Control are manufactured in accordance with RoHS II directive 2011/65/EU.

5 Introduction

5.1 General

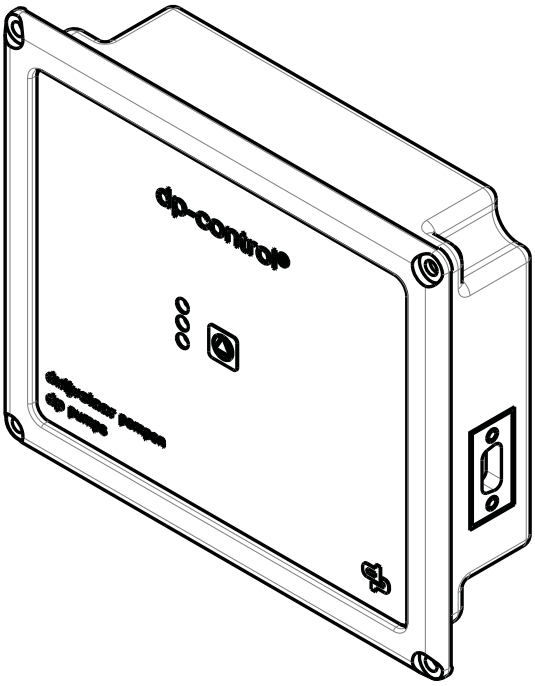

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Figure 1: Control units of the type DP-Control

Control units of the type DP-Control are manufactured by DP-Pumps.

5.2 Intended use

The control unit is suitable for controlling a Hydro-Unit consisting of DP-Control pumps within the indicated working range (see “Working range“).

Any other or further use of the control unit is not in conformity with its intended use. DP-Pumps does not accept any liability for any damage or injury resulting from this. The control unit has been produced in accordance with the current standards and guidelines. Use the control unit exclusively in a perfect technical state, in conformity with the intended use described below.

The *Intended use* as laid down in ISO 12100:2010 is the use for which the technical product is intended according to the specifications of the manufacturer. The use of the product has been described in the available documentation / information. Always observe the instructions given in the installation and operating instructions. When in doubt the product must be used as becomes evident from its construction, version and function.

5.3 Working range

The working range of the control unit can be summarized as follows:

Table 4: Working range of the DP-Control

Type	DP-Control
Maximum ambient temperature [°C]	50
Relative atmospheric humidity [%]	20 - 90 (no condensation)
Voltage [V]	1 x 230 (± 10%)
Frequency [Hz]	50 - 60 ± 5%

Table 5: Specific applications of the DP-Control

Type	Application area
DP-Control	Building possible in the installations listed below:
	• Hydro-Unit with 1, 2 or 3 pumps
	• Break-Unit with 1, 2 or 3 pumps
	• Fire-Unit with 1, 2 or 3 pumps

5.3.1 WSD-Sensor (option)

The working range of the WSD-Sensor can be summarized as follows:

Table 6: Working range of the WSD-Sensor

Type	WSD-Sensor
Maximum ambient temperature [°C]	30
Relative atmospheric humidity [%]	-
Voltage [V]	-
Frequency [Hz]	-
Medium temperature [°C]	5 - 30
Switching flow [l/min]	± 14

Table 7: Specific applications WSD-Sensor

Type	Applications
WSD-Sensor	Installations with a maximum of 3 membrane tanks.

5.4 Functioning

5.4.1 Standard operation

The required system pressure is sensed by a pressure sensor on the outlet side of the installation.

When as a result of a decreasing water volume the pressure drops below the switch-on pressure, a pump will be switched on. For fixing the pressure set point see: “Fixing the pressure set point”.

When the required system pressure has been reached, the pumps are switched off one at a time. The switch-off delay is optimized constantly, which results in a considerable energy saving.

5.4.2 Number of operating hours per pump

The current number of operating hours of a pump determines which pump will be switched on or off next. The pump with the fewest operating hours will be switched on first and the pump with the most operating hours will be switched off first. This makes sure that all pumps have an equal number of operating hours, including the backup pump.

5.4.3 Test run

In order to prevent pumps from standing still for a longer period of time, an automatic test run procedure is provided as a standard.

5.4.4 Custom made settings

The service port provides access to the parameters of the program which can be used to optimize the functionality of the installation, (see: “manual DP-Control”).

WARNING
For access to the parameters of the program using the service port, always use the special service port cable!

The special service port cable (Art. nr. 6147117698) can by ordered separately.

5.4.5 Functioning WSD-Sensor (option)

In combination with the DP-Control, the WSD-Sensor can generate a failure message when, during a (adjustable) period of time, insufficient refreshment of the membrane switch vessel occurs.

The failure message is generated when:
- Insufficient refreshment occurs;
- The membrane of the membrane switch vessel is defective;
- There is no air left in the membrane switch vessel;
- The installation is not set / installed correctly.

5.4.6 Temperature-sensor (option)

When the DP-Control is fitted with a temperature sensor, it can generate a temperature-dependent failure message.

6 Transport

6.1 Transport and storage

1. Transport the control unit in the position as indicated on the pallet or packaging.
2. Check if the control unit is stable.
3. Observe the instructions on the packaging (if present).

ATTENTION
Store the control unit in a dry and dust-free place.

7 Installation

7.1 Mechanical installation

ATTENTION
Contact the supplier if parts are missing or damaged.

Build in the control unit using suitable fastening material. Consult the annex “Built-in diagram" for the correct overall dimensions.

7.2 Electrical installation

WARNING
Only authorized personnel is allowed to connect the control unit electrically in accordance with the local regulations.

Electrical connections

- Make sure that the electric control unit specifications correspond with the power supply to which is connected.
- Consult the annex "Electrical diagram" for a list of all electrical power points.

7.3 Commissioning

The control unit is fully programmed and preset with factory default settings, (see: “Factory default settings”).

The service port provides access to the parameters of the program which can be used to optimize the functionality of the installation, (see: “Parameter list”).

8 Operation

8.1 Basic operation

The basic operation of the DP-Control is controlled by one multi functional button . The status traffic light (three vertical LED lights) gives the actual operation- and failure information.

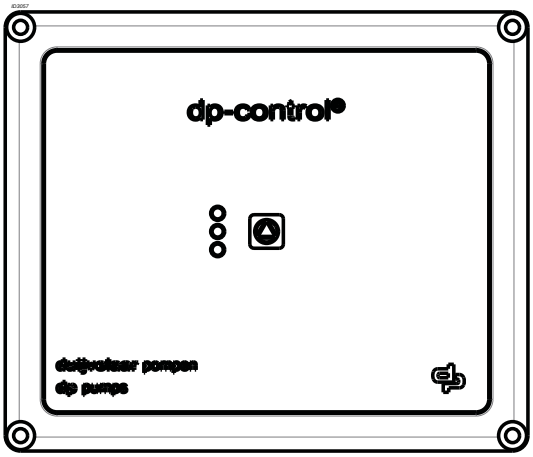

Figure 2: Front DP-Control

WARNING
When the installation is switched on using the main switch, all LED's will simultaneously light up for 2 seconds (LED test).

8.1.1 Multi functional button

- Manual operation of the pumps.
- Acknowledgement of pending failures.
- Fixing the pressure set point.

8.1.2 Status traffic light

The status traffic light shows the operating status:

- Red, for urgent alarms.
- Orange, for non urgent alarms.
- Green, for normal operation.

The LED's will blink several times to indicate the operating status or failure type.

For explanation of the blinking pattern see "Failure table".

8.2 Manual operation of the pumps

Pump 1, 2 and 3 can be started manually by pushing button 1, 2, or 3 times and to keep button pressed. The pump will run as long as the button is pressed. The green LED is blinking respectively 1, 2 or 3 times during manual operation.

This function is only active when the green operation light is on continuously (panel alive / no failures).

8.3 Record the pressure set point

When the main power supply is switched on and the multi functional button is pressed simultaneously, the actual pressure in the system will be set as pressure set point.

To set or change the pressure set point (S) proceed in the following sequence:

- Start a pump manually until the system pressure is above the required set point (read from the pressure gauge)
- Isolate the pressure sensor and gauge from the main header by closing the shut-off valve located between the sensor and the header.
- Drain-off some water until the required set point is reached (read from the pressure gauge).
- Switch-off the main power supply.
- Push the multi functional button and switch-on the main power supply simultaneously.
- The pressure set point is now programmed.

8.3.1 Pressure set points

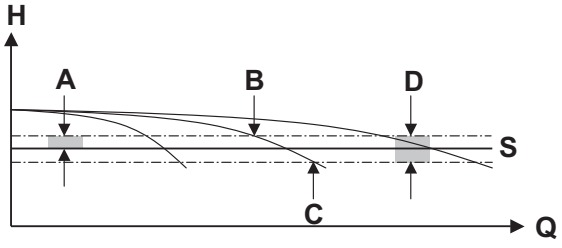

Figure 3: bandwidth

Table 8: Pressure set points

ID	Parameters
S	Set point
A	Hysteresis[1] (see:”Factory default settings”)
B	Cut-out
C	Cut-in
D	Pressure differential

1. Bandwidth

8.4 Acknowledgement of pending failures

When a failure occurs the multi functional button can be pressed to acknowledge the pending failure, and to deactivate the failure output. When the failure is not solved the LED will still light-up until the failure is resolved completely.

8.5 Failure outputs

Optionally the control panel can be equipped with two potential free contacts for the failure messages "urgent" and "Non Urgent". The red (urgent) or orange (Non Urgent) failure LED will light up at each failure message. For details see “Failure table”.

9 Hydro-Unit configuration

9.1 Default configuration

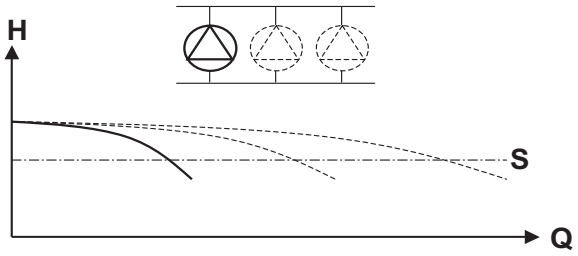

Figure 4: 1 pump in operation

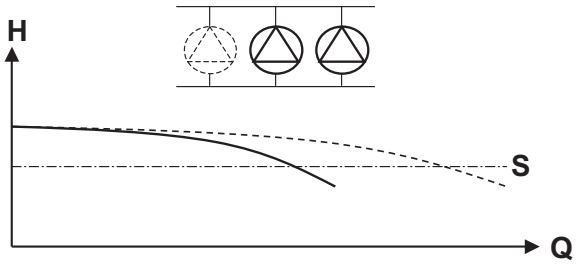

Figure 5: 2 pumps in operation

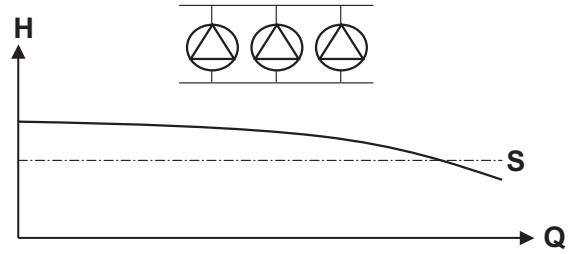

Figure 6: 3 pumps in operation

9.2 Jockey pump operation

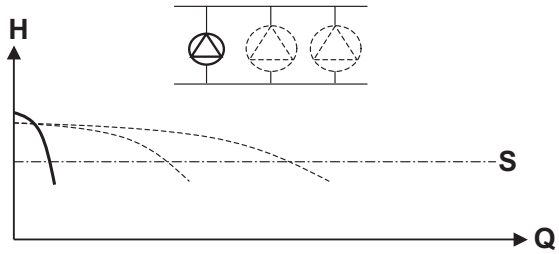

Figure 7: 1 jockey pump operation

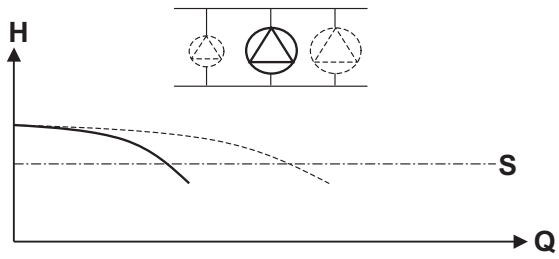

Figure 8: 1 main pump operation

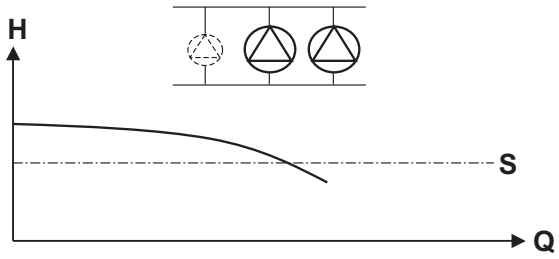

Figure 9: 2 main pumps operation

9.3 Explanation parameters

9.3.1 Pressure set points

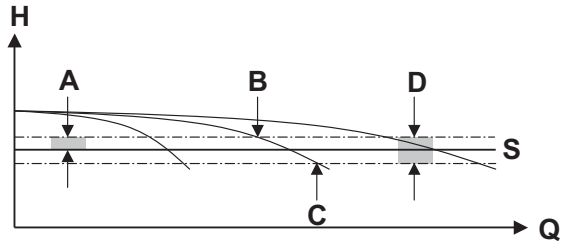

Figure 10: Pressure set points

Table 9: Parameters pressure set points

ID	Parameter
S	Set point
A	Bandwidth
B	Switch-off pressure
C	Switch-on pressure
D	2 x bandwidth

9.3.2 Delta P + correction

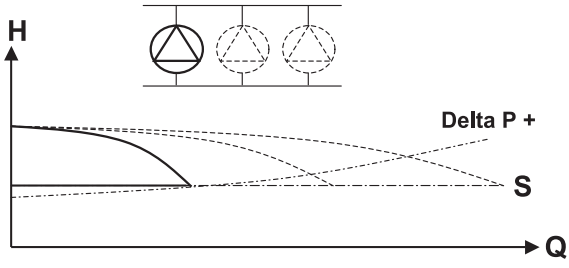

Figure 11: 1 pump operation

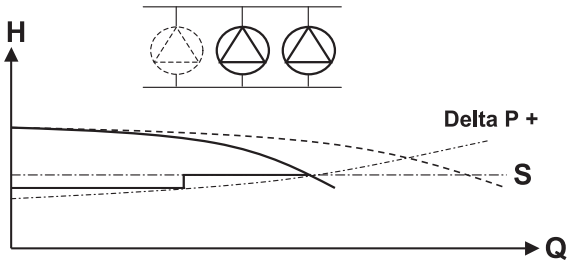

Figure 12: 2 pump operation

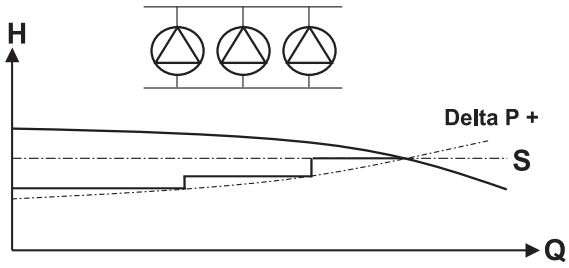

Figure 13: 3 pump operation

Table 10: Parameters pressure set points

ID	Parameter
S	Set point
+	Delta P

Delta P +

$$y = \frac{\Delta p}{(n^2-1)} x^2 + SP - \frac{\Delta p}{(n^2-1)}$$

Figure 14: Delta P+

SP = Set point

y = New set point

Δp = Delta P (always positive)

n = Total number of pumps of the installation

x = Number of pumps switched on

9.3.3 Delta P - correction

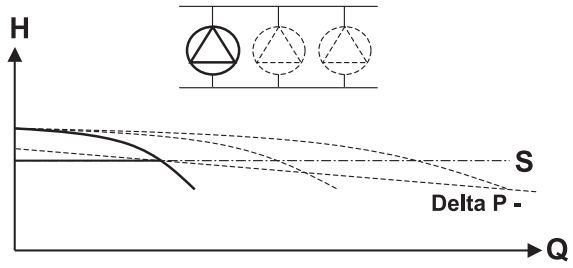

Figure 15: 1 pump operation

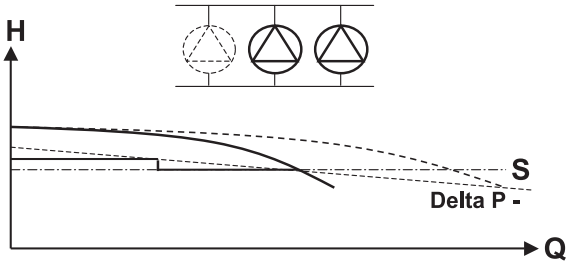

Figure 16: 2 pump operation

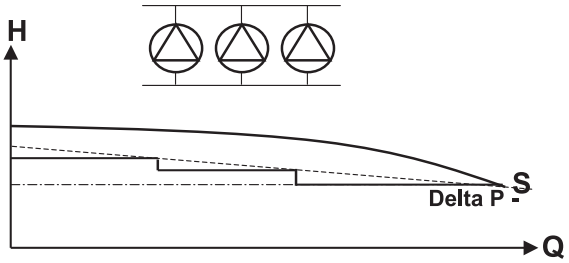

Figure 17: 3 pump operation

Table 11: Parameters pressure set points

ID	Parameter
S	Set point
-	Delta P

Delta P -

$$y = \frac{\Delta p}{(1\text{-}n)} x + SP - \frac{\Delta p}{(1\text{-}n)}$$

Figure 18: Delta P-

SP = Set point
y = New set point
Δp = Delta P (always positive)
n = Total number of pumps of the installation
x = Number of pumps switched on

10 Failures

10.1 Failure table DP-Control

Description of the failure	Pulses / continuous	Failure output
Start-up / LED test	All LED's short ON	
Red LED		
Pump(s) thermal failure (no stand-by pump left).	Continuous ON	Urgent
No refreshment on WSD channel 1	1 pulse, 2 s OFF	Urgent
No refreshment on WSD channel 2.	2 pulses, 2 s OFF	Urgent
No refreshment on WSD channel 3.	3 pulses, 2 s OFF	Urgent
No water supply (manual reset required).	4 pulses, 2 s OFF	Urgent
Average room temperature too high.	5 pulses, 2 s OFF	Urgent
Sensor failure discharge side out of range.	6 pulses, 2 s OFF	Urgent
System pressure. too high (system shut down).	7 pulses, 2 s OFF	Urgent
System pressure. too low (system shut down).	8 pulses, 2 s OFF	Urgent
Broken wire sensor discharge	9 pulses, 2 s OFF	Urgent
Other failure.	ON, short OFF, ON	Urgent
Orange LED		
Pump 1 thermal failure (stand-by pump left).	1 pulse, 2 s OFF	Non Urgent
Pump 2 thermal failure (stand-by pump left).	2 pulses, 2 s OFF	Non Urgent
Pump 3 thermal failure (stand-by pump left).	3 pulses, 2 s OFF	Non Urgent
Current room temperature too high.	5 pulses, 2 s OFF	Non Urgent
Temperature sensor failure.	6 pulses, 2 s OFF	Non Urgent
System pressure. too high (warning only).	7 pulses, 2 s OFF	Non Urgent
System pressure. too low (warning only).	8 pulses, 2 s OFF	Non Urgent
Inspection required.	Continuous pulses	Non Urgent
Green LED		
Panel alive / no failures	Continuous ON	
Pump 1 manual operation / Check-run	1 pulse, 2 s OFF	
Pump 2 manual operation / Check-run	2 pulses, 2 s OFF	
Pump 3 manual operation / Check-run	3 pulses, 2 s OFF	
Panel alive / no failures (refreshment tank 1)	1 pulse, 2 s OFF, then normal operation	
Panel alive / no failures (refreshment tank 2)	2 pulses, 2 s OFF, then normal operation	
Panel alive / no failures (refreshment tank 3)	3 pulses, 2 s OFF, then normal operation	
Panel alive / no failures (refreshment tank 1+2)	1 pulse, 2 s OFF, 2 pulses, 2 s OFF, then normal operation	
Panel alive / no failures (refreshment tank 2+3)	2 pulses, 2 s OFF, 3 pulses, 2 s OFF, then normal operation	
Panel alive / no failures (refreshment tank 1+3)	1 pulse, 2 s OFF, 3 pulses, 2 s OFF, then normal operation	
Panel alive / no failures (refreshment tank 1, 2 + 3)	1 pulse, 2 s OFF, 2 pulses, 2 s OFF, 3 pulses, then normal operation	

10.2 Failure table WSD-Sensor in combination with membrane switch vessel (option)

WARNING
Observe the general safety precautions for installation, maintenance and repair.

Problem	Possible cause	Possible solution	Checkpoints
There is no input signal when a pump is started.	Shut-off valve to the WSD-Sensor is closed.	Open the shut-off valve.	Shut-off valve should always be opened.
	Pump is operating against the maximum pressure of the unit and does not deliver.	Adjust the switch-on pressure of the pump to at least 80 kPa below the maximum pressure of the unit.	Adjust the pressure set point.
	Pressure in the membrane switch vessel(s) is too high.	Adjust the air pressure.	Make sure maintenance is performed regularly.
	Pressure in the membrane switch vessel(s) is too low, or there is no pressure at all.	Adjust the air pressure.	Check if the membrane switch vessel is not leaking, if so, replace the membrane switch vessel.
	Reed contact on the WSD-Sensor defective.	Replace the reed contact.	Adjust the reed contact.
	Magnet in the WSD-Sensor is stuck.	Replace / clean the interior of the WSD-Sensor.	Deposits / dirt.
Input signal remains active.	Magnet in the WSD-Sensor is stuck.	Replace / clean the interior of the WSD-Sensor.	Deposits / dirt.
	Short circuit on the input signal.		Check the wiring.
	Reed contact defective.	Replace the Reed contact.	
Nothing responds	There is no voltage on the DP-Control.	Fuse defective.	Check the correct voltage.

11 Annexes

11.1 DP-Control

Table 12: Technical data

Item	Value
Type of control	DP-Control
Article number	77870040
Dimensions HxWxD [mm]	157 x 187 x 51
Connecting voltage [V]	1 x 230 ± 10%
Frequency [Hz]	50 - 60 ± 5%
Relay outputs [A]	5 max.
Protection class[1]	IP55
Ambient temperature [°C]	50 max.
Atmospheric humidity [%]	20 - 90 (no condensation)
Maximum height	1000 m above sea level
Fuse [mA]	500 (250V)

1. When build into a IP55 control panel.

11.2 Build-in diagram

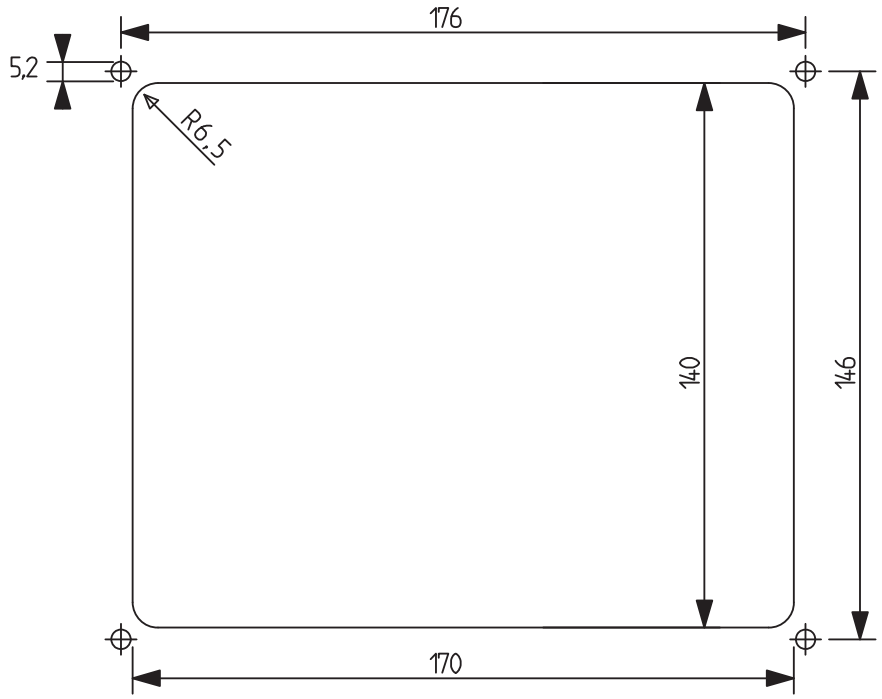

Figure 19: Build-in diagram

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11.3 Electrical connections

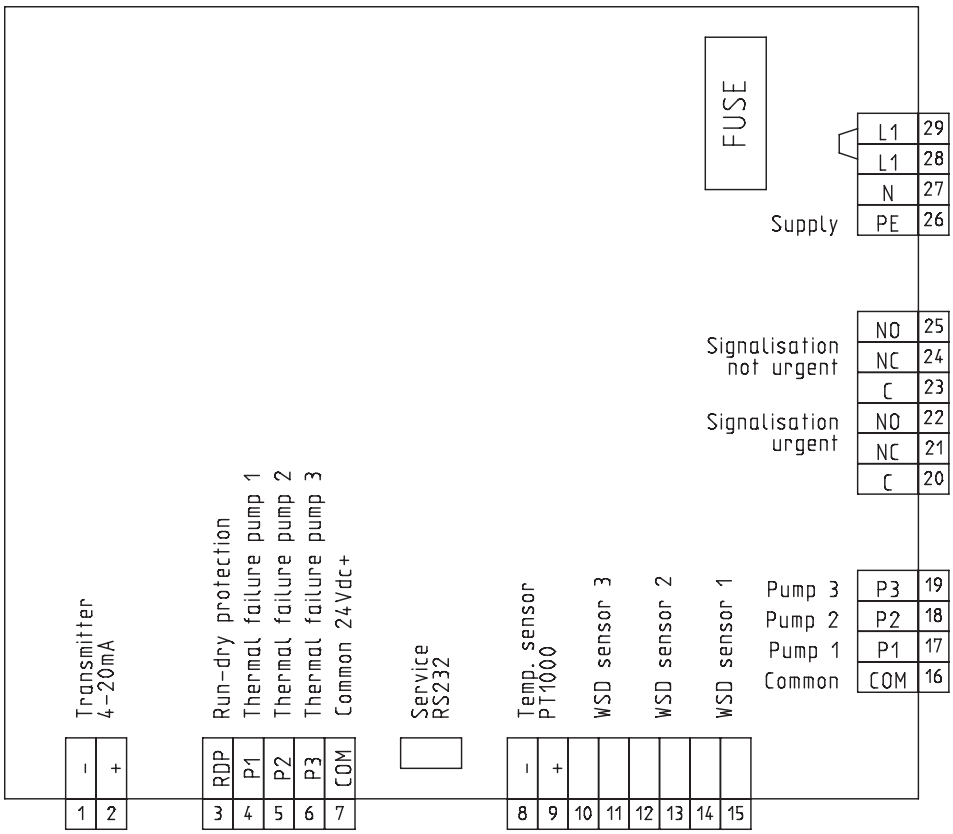

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Figure 20: Electrical connections DP-Control II

Table 13: Electrical connections

Nr:	Code:	Connection:
1	-	Pressure transmitter 4-20 mA
2	+	
3	RDP	Run-dry protection
4	P1	Thermal failure pump 1
5	P2	Thermal failure pump 2
6	P3	Thermal failure pump 3
7	COM	Common 24V dc+
		Service port
8	-	Temp. sensor PT100
9	+	
10		WSD sensor 3
11		
12		WSD sensor 2
13		
14		WSD sensor 1
15		

Nr:	Code:	Connection:
16	COM	Common
17	P1	Pump relay 1
18	P2	Pump relay 2
19	P3	Pump relay 3
20	C	"Urgent" failure messages
21	NC	
22	NO	
23	C	"Non Urgent" failure messages
24	NC	
25	NO	
26	PE	Power supply
27	N	
28	L1	
29	L1	
	FUSE	Fuse

11.4 Parameter list

ATTENTION
The parameters below are only visible and/or can be adjusted using the DP-Control service tool.

ATTENTION
Standard (default) values of the DP-Control are given in bold in the tables below. For unit-specific values see: 'Factory settings'.

11.4.1 Settings

Parameter	Value: (default)	Description:	Level (read)	Level (write)
Configuration				
Number of pumps	1. 1 Pump 2. 2 Pumps **3. 3 Pumps**	Total number of pumps in the system.	All	Service
Inlet	**1. Switch** 2. Flow switch	Setting of the configuration used on the supply side (suction side of the installation).	All	Service
Discharge	**1. Fixed speed**	Setting of the applicable configuration at the discharge connection (pressure side of the system)	All	Service
WSD	**1. OFF** 2. 1 tank 3. 2 tanks 4. 3 tanks 5. 1 tank + temp. 6. 2 tanks + temp. 7. 3 tanks + temp. 8. Temperature	Setting of the applicable configuration of the WSD: (membrane tank refreshments and ambient temp.)	All	Service
System settings				
Automatic RDP reset	0. Manual **1. Automatic**	Automatic or manual reset after run-dry protection shut down (pressure or level)	All	User
System pressure				
Sensor press. 4 mA	**0**	Measured value at 4 mA	All	Service
Sensor press. 20 mA	**1000**	Measured value at 20 mA	All	Service
Pumps ON sensor fail	**0**	Number of pumps that is started in case of a failure of the pressure sensor on the discharge side.	All	Service
Max power	**300**	Limitation of the maximum power / maximum system load (1 pump is 100%)	All	Service
WSD settings				
Nbr of refreshments	**30**	Numbers of refreshments of the membrane tank. (water entering the tank)	All	Service
Refresh time span	**24**	Time span of the numbers of refreshments	All	Service
Average room temp.	**25.0**	Average (pump) room temperature.	All	Service
Room temp. time span	**24**	Time span of the average (pump) room temperature.	All	Service
Pressure settings				
Set point	**400**	System pressure set point	All	User
Hysteresis[1]	**30**	Pressure differential above and below the set pressure at which the pump's) are respectively switched off and on.	All	User

Parameter	Value: (default)	Description:	Level (read)	Level (write)
Max.set point	**1000**	Upper limit for the setpoint value to be set by the customer	All	Service
High pressure alarm.	**1000**	Selection parameter to define the action at system over-pressure (shut down or signal only)	All	User
High pressure action	**1. Pumps switched off** 2. Notification only	Selection parameter to define the action at system over-pressure (shut down or signal only)	All	User
Low pressure alarm	**0**	Under limit value for the system pressure to shut down or notification only (signal)	All	User
Low pressure action	**1. Pumps switched off** 2. Notification only	Selection parameter to define the action at system under-pressure (shut down or signal only)	All	User
Press. Flow Control	100	Failure no water available gets active if setpoint - adjusted pressure is exceeded	All	Service
Time settings				
Opt. pump starts /h	**10**	The optimum nrs of pump starts per hour. The minimum run time will be automatically corrected.	All	Service
Min. run time	**180**	The minimum time of the pump to run. (the run time correction will not drop below this value)	All	Service
Min. run-time corr.	**10**	Adapting the Minimum run time to optimize the required number of pump starts per hour.	All	Service
Max. run-time	**21600**	Maximum continuous run time of the pump. After this time the pump will be forced to change over.	All	Service
Start delay	**1.0**	Start delay to switch the pumps on when pressure remains low	All	Service
Stop delay	**1.0**	Stop delay to switch the pumps off when pressure remains high.	All	Service
RDP delay	**10**	Delay time after run-dry protection to shut down the system	All	Service
High/low alarm delay	**60**	Permitted time of setpoint pressure deviation > too high or too low system pressure.	All	User
WSD 1 puls length	**0**	Length in time of the water flow detection device (flow position) digital input 1	All	Service
WSD 2 pulse length	**2**	Length in time of the water flow detection device (flow position) digital input 2	All	Service
WSD 3 pulse length	**2**	Length in time of the water flow detection device (flow position) digital input 3	All	Service
Date and time				
Check run mode	1. OFF **2. Interval based**	Select how and when a checkrun should be performed. (check run only on pumps which did not run)	All	User
Check run interval	**604800**	The interval between the check runs Applicable for pumps not operation for 24h.	All	User
Check run duration	**30**	The check-run time per pump. (one at the time and alternating)	None	None
Maintenance interval	**0**	Setting the service / maintenance intervals for the system hours, minutes, seconds	All	Service

1. Bandwidth

11.5 Factory default settings

Table 14: Factory settings

Installation type	Parameter												
	Number of pumps	WSD mode	Pumps ON sensor fail	Max. power	Set point	Bandwidth	Opt. pump starts / h	Min. run time	Min. run time corr.	RDP delay	WSD 1 pulse length	Check run interval	Maintenance note in hours
HU2	2	1	1	200	380	30	10	90	10	30		86400	13140
HU3	3	1	2	300	380	30	10	90	10	30		86400	13140
HU2 PLUS/HR	2	1	1	200	380	50	30	1	1	30		86400	13140
HU3 PLUS/HR	3	1	2	300	380	50	30	1	1	30		86400	13140
HU2 + 1 WSD + TEMP	2	5	1	200	380	30	10	90	10	30	0	86400	13140
HU3 + 1 WSD + TEMP	3	5	2	300	380	30	10	90	10	30	0	86400	13140
HU2 PLUS + 3 WSD + TEMP	2	7	1	200	380	50	30	1	1	30	0	86400	13140
HU3 PLUS + 3 WSD + TEMP	3	7	2	300	380	50	30	1	1	30	0	86400	13140
HU2 + 1 WSD	2	2	1	200	380	30	10	90	10	30	0	86400	13140
HU3 + 1 WSD	3	2	2	300	380	30	10	90	10	30	0	86400	13140
HU2 PLUS + 3 WSD	2	4	1	200	380	50	30	1	1	30	0	86400	13140
HU3 PLUS + 3 WSD	3	4	2	300	380	50	30	1	1	30	0	86400	13140
HU2 + TEMP	2	8	1	200	380	30	10	90	10	30		86400	13140
HU3 + TEMP	3	8	2	300	380	30	10	90	10	30		86400	13140
HU2 PLUS/HR + TEMP	2	8	1	200	380	50	30	1	1	30		86400	13140
HU3 PLUS/HR + TEMP	3	8	2	300	380	50	30	1	1	30		86400	13140
HU2 HR + 1 WSD + TEMP	2	5	1	200	380	50	30	1	1	30	4	86400	13140
HU3 HR + 1 WSD + TEMP	3	5	2	300	380	50	30	1	1	30	4	86400	13140
HU2 HR + 1 WSD	2	2	1	200	380	50	30	1	1	30	4	86400	13140
HU3 HR + 1 WSD	3	2	2	300	380	50	30	1	1	30	4	86400	13140
mo-iw-536 07012016													

11.6 EC declaration of conformity

Undersigned:

DP-Pumps
Kalkovenweg 13
2401 LJ Alphen aan den Rijn, The Netherlands
Tel: (+31)(0)-172-48 83 88

Declares as manufacturer entirely on his own responsibility, that the product(s):

Product: Control units
Type: DP-Control

to which this declaration refers, is in accordance with the following standards:

- EN 61000-6-1
- EN 61000-6-3
- EN 61000-6-4

according to the provisions of (when applicable):

- Low voltage directive 2014/35/EU
- EMC directive 2014/30/EU
- RoHS II 2011/65/EU

If the control unit is used as a stand-alone product, it is subject to this declaration of conformity.

If the control unit is built in an appliance or is assembled together with other equipment in certain installations, then it should not be put into operation until a declaration has been given with respect to the appliance concerned that it complies with the directives listed above.

Alphen aan den Rijn,

Responsible person:
W. Ouwehand, technical director

dp pumps

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Original instructions