



**POWERDRAIN**



# **PACKAGED PUMP STATIONS**

O&M MANUAL



[powerdrain.co.uk](http://powerdrain.co.uk)

*From Pedrollo Distribution*

# Table of Contents

General	3
Connection Diagrams	4
Pump Specification	5
Commissioning	6
Alarms & Panels	12

# General

## Delivery and Handling

The weight and size of the Powerdrain may require the aid of lifting equipment and must be handled in a safe manner.

## Inspection

On delivery, the Powerdrain should be inspected thoroughly and any damage reported to the supplier as soon as possible. This should be confirmed in writing within 48 hours.

## Applications

The Powerdrain pump station is designed to remove rain, ground, or waste water when it is not possible to gravity feed to a drainage system. A packaged pump station will collect the water and pump it to the sewage drain. These are commonly used in basements and property extensions.

The Powerdrain should not be installed in areas that are classified as hazardous or where there is a risk of an explosion or harm to people. The manufacturer does not accept responsibility if the Powerdrain is used to pump liquids other than recommended unless suitability has previously been agreed in writing.

## Warranty

All mechanical components of the Powerdrain are covered by a 12 month warranty against manufacturing defects. In case of failure please contact the Technical Department on 01543 415200.

## Site Storage

Should a Powerdrain need to be stored before installation it should be in a safe place away from moisture, dust and frost.

# Connection Diagrams



## Mini Basement - 140ltr Sump Chamber

- 1. Cable Duct Pipework - 50mm tank seal for cable duct
- 2. Discharge Connection - 1.5" BSP male 16 Bar (optional 40mm waste adaptor supplied)

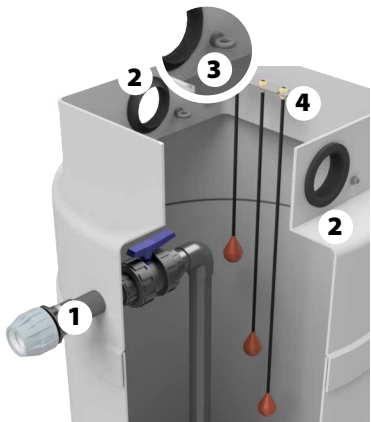
Inlet must be drilled.



## 240ltr Sump Chamber

- 1. Discharge Connection - 2" BSP male 16 Bar
- 2. Cable Duct Pipework - 1.5" BSP Male 16 Bar fitting (optional 40mm waste adaptor supplied)
- 3. 4 possible inlet positions to be drilled out during installation. 110mm EPDM tank gasket supplier.

Inlet must be drilled.



## 900ltr & 1350ltr Sump Chamber

- 1. 2" (50mm) Outlet with 63mm compression fitting
- 2. 110 Grommets for vent/cable duct
- 3. M12 EYEBOLT for lifting chains

Inlet must be drilled.

# Pump Specification

## Maximum Operating Conditions

	TOP2	VX
Liquid Temperature	+40°C	+40°C
Maximum Pressures	0.98 Bar	0.98 Bar
Passage of solids	up to Ø 10mm	up to Ø 50mm
Noise level of the Powerdrain system	≥48-55dB	≥48-55dB

Pump Types specifications

Pump Option	Power		Q	m³/hr	0	1.2	2.4	3.6	4.8	6.0	7.2	8.4	9.6	10.8	12	13.2
	kW	HP		l/min	0	20	40	60	80	100	120	140	160	180	200	220
TOP 2 Auto	0.37	0.5	Head (M)		9	8	7.5	6.5	6	5.5	4.5	4	3	2.5	1.8	1

Pump Option	Power		Q	m³/hr	0	1.5	3.0	4.5	6.0	9.0	12.0	15.0	18.0	21.0	24.0
	kW	HP		l/min	0	25	50	75	100	150	200	250	300	350	400
ZXm1A/40	0.6	0.85	Head (M)		11	10.5	10	9.5	9.2	8.2	7	5.7	4.3	2.8	1.5

Pump Option	Power		Q	m³/hr	0	3	6	12	18	21	24	27	30	33	36	39	42	48	51
	kW	HP		l/min	0	50	100	200	300	350	400	450	500	550	600	650	700	800	850
VXm8/50	0.55	0.75	Head (M)		6.5	6	5.8	5	4	3.3	2.5	1.5	-	-	-	-	-	-	-
VXm10/50	0.75	1			9	8.5	8.2	7.5	6.5	5.8	5	3.8	2.5	1.5	-	-	-	-	-
VXm15/50	1.1	1.5			11.5	11	10.5	9.8	8.7	8	7.5	6.5	5.5	4.5	3.5	2	-	-	-
VXCm15/50	1.1	1.5			11.5	-	10.5	9.5	8.2	7.2	6.5	5	4.5	3.5	2	-	-	-	-
VXCm20/50	1.5	2			13	-	12	11	9.5	9	8	7	6.5	5.5	4.5	3	2	-	-
VXCm30/50	2.2	3			16	-	15	14	13	12.3	11.5	11	10	9	8	7	5.9	3.3	2
Grix 32-2/090MG	0.9	1.2			22	17	12	1	-	-	-	-	-	-	-	-	-	-	-

Pump Option	Power		Q	m³/hr	0	3	6	12	18	21	24	27	30	33	36	39
	kW	HP		l/min	0	50	100	200	300	350	400	450	500	550	600	650
VXm8/50-ST	0.55	0.75	Head (M)		7.5	7	6.6	5.7	4.2	3.5	2.5	1.5	-	-	-	-
VXm10/50-ST	0.75	1			10	9.5	9.2	.5	7	6	5	3.8	2.7	1.5	-	-
VXm15/50-ST	1.1	1.5			13.5	13	12.5	11.5	10	9	8	7	6	4.7	3.3	2

Pump Option	Power		Q	m³/hr	0	6	12	18	21	24	30	36	42	48	51
	kW	HP		l/min	0	100	200	300	350	400	500	600	700	800	850
VXCm15/50-F	1.1	1.5	Head (M)		11.5	10.5	9.5	8.5	7.2	6.5	4.5	2	-	-	-
VXCm20/50-F	1.5	2			13	12	11	9.5	9	8	6.5	4.5	2	-	-
VXCm30/50-F	2.2	3			16	15	14	13	12.3	11.5	10	8	5.9	3.3	2

Pump Option	Power		Q	m³/hr	0	1.2	2.4	3.6	4.8	6.0	7.5	8.4	10.2	12	13.2
	kW	HP		l/min	0	20	40	60	80	100	125	140	170	200	220
Tritus TRm1.3	1.3	1.75	Head (M)		23.5	22.5	21.2	19.8	18.4	17	14.8	13.4	10.2	6.2	2

## Installation Instructions 140ltr & 240ltr Powerdrain Systems

1. Excavate hole large enough to fit the chamber.
2. Choose one (or several if you wish) of the 110mm diameter inlets you want to use to feed into the chamber. (Powerdrain Foul only)
3. Use a suitable lubricant on the black rubber tank gasket and 110mm diameter inlet pipe. Ensure the inlet pipe has a chamfer at the end to prevent damage to the tank gasket.
4. If using a smaller inlet pipe such as 38mm/40mm or 50mm, use a Wavin 110mm blanking plate with a boss, Wavin/Osma part number 4D296 using their solvent weld boss with the plug 32mm - part number 2S298B, 40mm - part number 2S299B and 50mm - part number 2S403B
5. For the discharge pipe for the pump/s, use either solvent weld waste pipe and the white adapter supplied, or fit directly onto the tank connector BSP thread. Always use solvent weld pipe and fittings and never use push fit fittings. The discharge pipe is under significant pressure. Use high pressure cement and not waste pipe cement.
6. For the cable duct use the same options as in stage 7. Fit a draw cord to ease the installation of the cables through the duct.
7. Choose an inspection chamber lid that suits you. Clarke Drain lids and risers fit directly onto the top of our product. Part numbers CD452, CD456, CD450SR and CD450SR/SL you can also use their riser to extend out chamber riser if required by using the Clarke Drain 450mm riser CD U455. Most other commercially available 450mm chamber lids also fit our product.
8. When all pipes (inlet, outlet and cable ducts) are installed fill the chamber full of water. This is to prevent the chamber from floating when concreting the chamber into the ground. Don't use too wet a mix as very wet concrete can still make a full chamber float. It is safer to concrete in stages or use a reasonably dry mix if possible. Using a pre bagged fence post product is often the safest way to ensure the chamber doesn't float during installation.
11. NOTE: The chamber must be concreted into the ground. If water should become present (a rising water table for example) around the chamber it can float up out of the ground.
12. Electrical - Note - you should always use a qualified electrician or registered competent person to carry out the electrical connections.
13. It is generally accepted that sump pumps are wired directly to the consumer unit and to an unprotected supply. High integrity boards can achieve this. Each pump should have its own supply and a suitable breaker for motors.

## Commissioning

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14. Each pump in the chamber should have a non switched fused spur supply as close as possible. This makes it easier if the pumps needs to be replaced in the future for pulling the pump cable back through. Neon lit will help to visually see that power is available. Switched fused spurs can be accidentally turned off leading to flooding.
15. Turn the pump power supply on and using a hose pipe to fill the chamber, adjust the float switch on the live pump till you have it turning on at an acceptable height. It isn't good practice to have the pump empty the chamber completely. The fluid in the chamber helps to keep the motor/s cool and avoids air locks. Make sure the orientation of the pump/s doesn't cause the float switch to be jammed on any pipes or valves.
16. If you have a second pump supplied in the chamber, turn off the supply to the first pump and repeat step 15 for the second pump.
17. On completion of step 15 and 16, run the hosepipe for at least 5 cycles to ensure proper function of the pumps.

## Installation Instructions 900ltr & 1350ltr Powerdrain Systems

Care has to be given on selecting the right location for the pumping station and how the final effluent is discharged. The contractor should ensure the pump(s) and associated equipment have not been damaged during transport. The contractor is responsible for offloading all items of equipment with due regard to the following:

- DO NOT lift the tank if it contains water.
- DO NOT subject the unit to sharp impacts.

The lifting procedures outlined above have been developed to ensure the safe handling of the unit. Failure to comply may result in damage to the unit and/or injury to personnel. When working in deep excavations, ensure all necessary safety precautions are taken to provide safe working conditions for site personnel. The only time anyone needs to be working at the bottom of the excavation is when levelling the base and ensuring that the first back-fill is correctly placed.

- NEVER wholly fill the sump with water before surrounding it in concrete.
- NEVER partly or wholly surround the sump with concrete before filling it.

Do not use vibrating pokers to compact the concrete. Facility must be provided for cable entry into the unit, through the cable grommets which will be already in place. The electrician responsible for the wiring should be consulted, to ensure a correctly sized duct is provided.

The installer is responsible for determining the concrete thickness and strength required for the actual ground conditions; taking into account water table level and traffic loadings.

The installation should be carried out in accordance with the requirements of the Construction and Building Regulations along with the United Kingdom Health and Safety at Work Act (HASAWA) 1974.

## Tank Installation

During the course of the installation, the following minimum equipment will be required:

- Normal Construction equipment and systems.
- Concrete to 20 N/mm and 30-50mm slump
- An Adequate supply of fresh water to fill the chamber at the same rate as backfilling.
- De-watering equipment as necessary.
- Lifting straps or ropes of the correct length and adequate safe working load.

The following instructions are offered for guidance only. It remains the responsibility of the contractor to ensure the correct installation of the plant.

- Check the drain invert depth and mark up the pump tank the orientation and position that the inlet grommet needs to be installed in the pump tank.
- Before drilling the inlet into the tank, please review our separate inlet installation sheet and ensure the position is in line with the drain invert.
- Inspect the tank for damage before installation.



## Commissioning

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- Excavate at least 400mm wider than the tank with additional allowance for planking, strutting and hard-core bed. Form a well point for pumping ground water if necessary.
- Lay at least 150mm of hard-core over the bottom of the hole and line excavation with polyethylene sheet.
- Bed tank on wet concrete and haunch up, ensuring at least 150mm is left below tank base.
- Line up tank connections. Ensure that the tank is upright and that the inlet connection is in the correct position.
- Backfill to invert depth with concrete and fill the tank with water to keep pace with backfill. Work evenly all around the tank. Do not use vibrating pokers. Do not discharge concrete directly onto the tank.
- Align and connect all pipework and cable ducting. Build concrete around the neck to 150mm-200mm thickness before completing back-filling with suitable material.
- Construct concrete biscuit / brick form above the manway opening for cover and frame installation.
- Ensure the debris is removed from the pump tank.

## Electrical Installation

Powerdrain Pump Stations requires a single phase electrical supply for the electrical equipment's. The electrical installation of the equipment is dependent on which product you have selected. Please see the following:

### **Powerdrain 900ltr:**

The Powerdrain 900ltr pump station range will be supplied with either 1 or 2 pumps. The pumps will be freestanding and already supplied and fitted within the pump chamber. Each pump will come with 10 meters of cable as standard (3 core 1mm<sup>2</sup>). The different options of setting up the pumps are as follows:

- A qualified electrician can wire a standard 3 pin plug to each pump cable. The 3 pin plug can then be plugged directly into a socket (either inside a building or a suitable external plug).
- A qualified electrician can wire each pump into a 13 Amp Fused Spur.
- If an optional high level alarm or full control panel was purchased, then please refer to the high level alarm and full control panel section below.

### **Powerdrain 1350ltr:**

The Powerdrain 1350ltr pump station range will be supplied with either 1 or 2 pumps. The pump(s) will be pedestal mounted and supplied loose. Once the tank has been correctly installed, each pump should be lowered down their guide-rails and into position; using the lifting chain to aid this process. Each pump will come with 10 meters of cable as standard (3 core 1mm<sup>2</sup>). The different options of setting up the pumps are as follows:

- A qualified electrician can wire a standard 3 pin plug to each pump cable. The 3 pin plug can then be plugged directly into a socket (either inside a building or a suitable external plug).
- A qualified electrician can wire each pump into a 13 Amp Fused Spur.
- If an optional high level alarm or full control panel was purchased, then please refer to the high level alarm and full control panel section below.

## **Optional Premium High Level Alarm:**

- The supplied float switch will need to wire into the high level alarm panel (again by a qualified electrician).
- A single phase electrical supply will need to feed the high level alarm panel.
- The high level alarm will need to be housed in a weather proof building / kiosk.
- Please refer to Alarm installation section on page 13.

## **Optional Full Control Panel:**

- The pump(s) and all float switches will need to wire into the control panel (again by a qualified electrician).
- A single phase electrical supply will need to feed the control panel.
- Using the supplied cable ties, tie up the pump(s) in built float switches in a vertical position.
- The high level alarm will need to be housed in a weather proof building / kiosk.
- Please refer to Alarm installation section on page 14.

### Basic Alarm Package

Coding of remote key fob and wireless float switch.

1. The wireless float switch and key fob must be coded to the siren in order for the alarm to function properly.
2. Insert the 23A - 12v battery into the wireless float switch by removing the rear cover.
3. Plug in the siren power adaptor. Either via a USB socket or using the UK adaptor supplied.
4. Press the set button on the siren for about 1 second until the siren beeps and flashes ONCE then instantly release the set button. The siren LED will flash rapidly.
5. You now have 10 seconds between coding each component or the siren will revert back to normal state.
6. Activate the float switch and the siren will sound a long and short alert tone to indicate it has successfully received the signal.
7. Within 10 seconds of pairing the float switch press the SOS button on the key fob to pair it to the siren. Again the siren will sound a long and short alert tone.
8. After 10 seconds have passed without receiving a wireless signal the siren will automatically exit the set mode.



### Deleting all paired devices

1. Press and hold the set button until the siren sounds 3 times and the LED flashes rapidly then release the set key.
2. If the deletion was successful the siren will sound one short tone and two long tones.

Installation & Operation

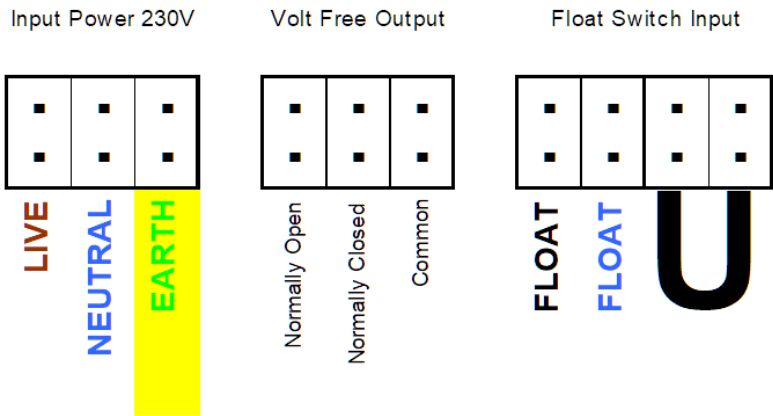
- 1. Before the float switch or siren are permanently installed test that the wireless signal from the float switch can be detected by the siren. If not move the siren closer to the wireless float switch transmitter.
- 2. It is possible to extend the distance of the wireless transmitter to move it closer to the siren by extending the cable between the float switch and transmitter.
- 3. Once the final positions are identified, fix the siren to a wall using the siren locking ring back plate and the float switch transmitter by using the self adhesive pad.
- 4. Connect the siren to a permanent mains AC supply using the cables/adaptor supplied.
- 5. Select the 'ON' switch on the siren to enable the internal backup battery.
- 6. To activate the alarm on press the padlock 'LOCK' button on the key fob.
- 7. To de activate the alarm press the padlock 'UNLOCK' button on the key fob.

Premium Alarm Package

The Float Switch should be connected to the left hand pair of the four terminals on the right hand side of the circuit board using a normally open circuit. In the case of the T80 float switch this means using the Black and the Blue wire. When the float is lifted it will then close the circuit and trigger the high level alarm.



Wiring Diagram.



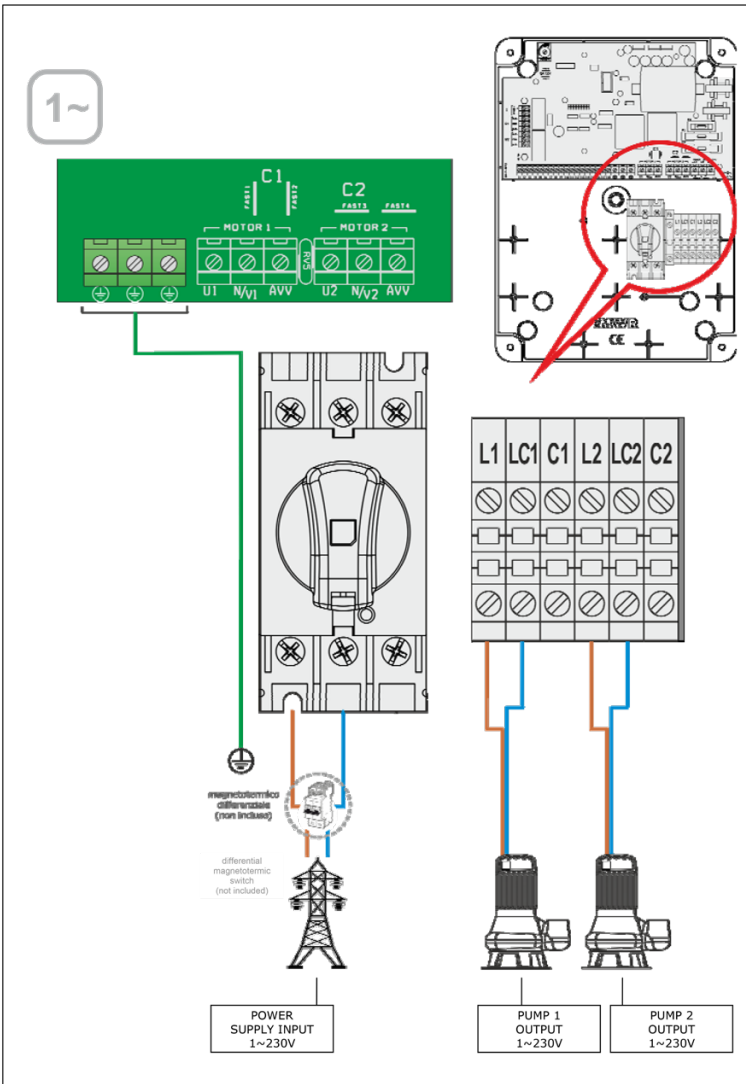
## 2 Pump Control Panel Package Installation

### Internal Capacitor Power Wiring

Please follow this guide for Powerdrain systems with the following pump models:

**VXm8/50, VXm10/50, VXm15/50**

**VXm8/50-ST, VXm10/50-ST, VXm15/50-ST**



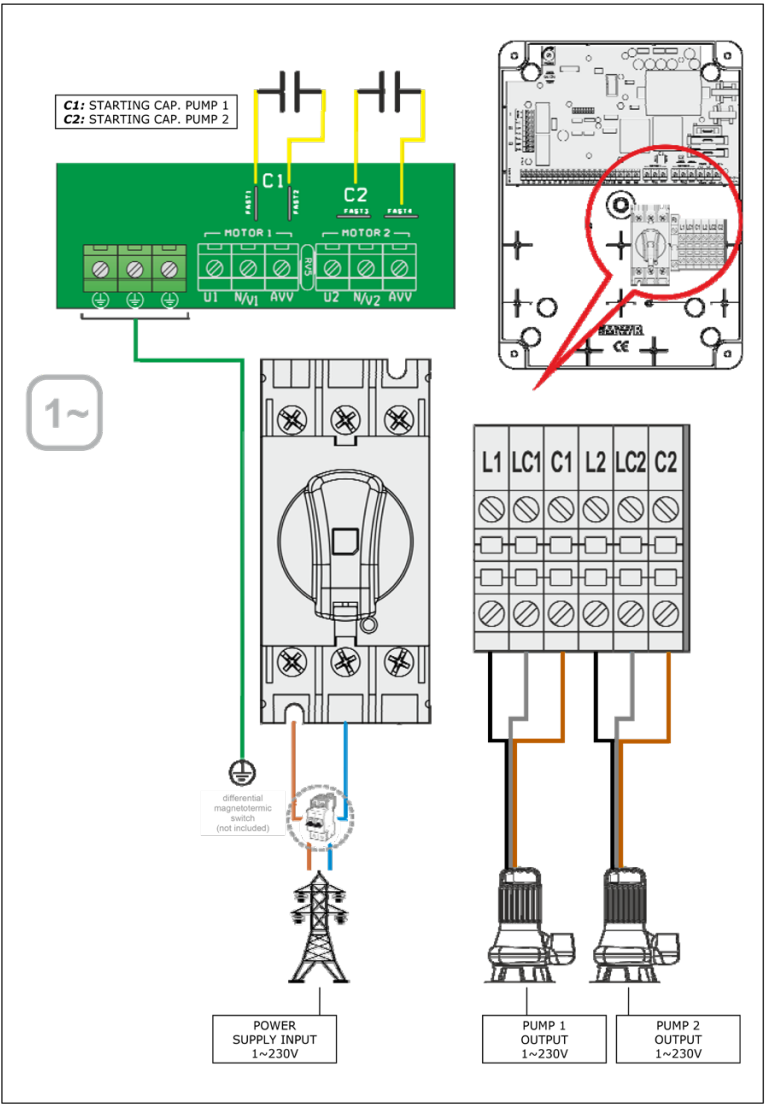
## External Capacitor Power Wiring

Please follow this guide for Powerdrain systems with the following pump models:

VXCm15/50, VXCm20/50, VXCm30/50

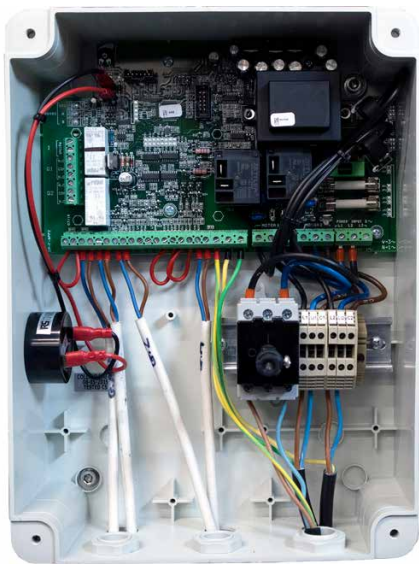
VXCm15/50-F, VXCm20/50-F, VXCm30/50-F

Tritus TRm1.3

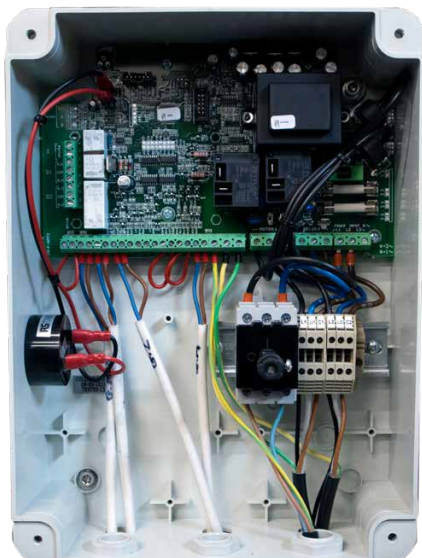


# Alarms & Panels

## Internal Capacitor Power Wiring



## External Capacitor Power Wiring





# Alarms & Panels

## Setting Pumps to Dark Mode

**func. DARK**  
**[emptying]**

together x5 sec

Password

0000

General settings

x2 times

Operating Programs

MAN

Program DARK

MAN

Operating mode Empty/Fill 0

Enable DARK

save

Enable DARK

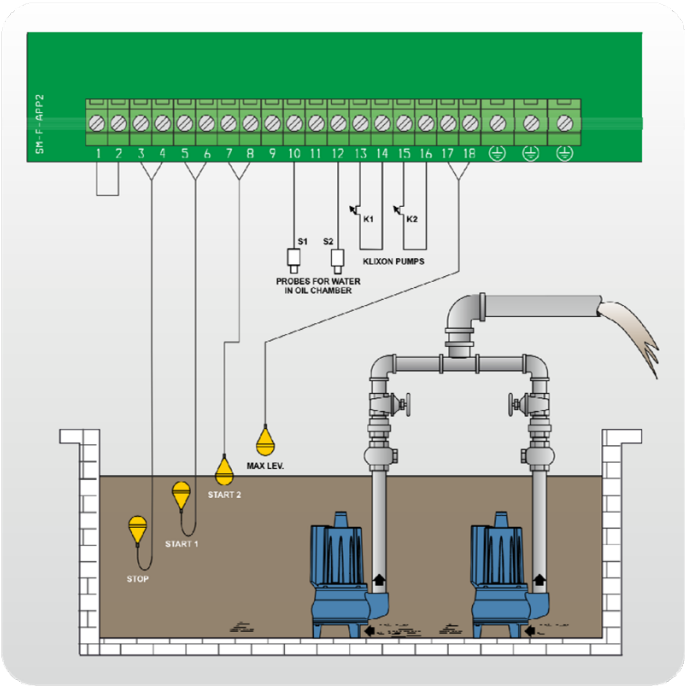
AUT

x2 times

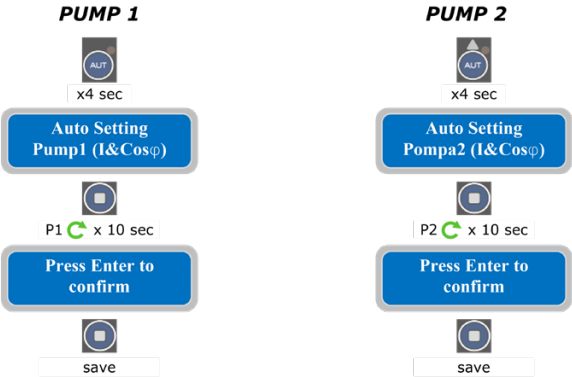
Operating Programs

x4 times

Press Enter to Set-up Exit

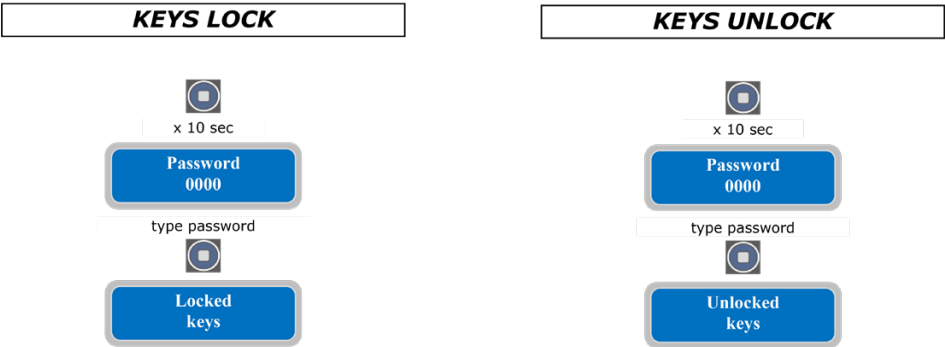


Teach Pumps to Control Panel



**WARNING:** the auto setting of the pump is executed independently from the conditions of the system (pump flow closed, consents of operation whether active or not, etc ...).


To avoid damage to the pump and the electrical parameters erroneous readings, before making the auto setting make sure that the working conditions of the pump are the best ones.



**ATTENTION:** IT IS NECESSARY TO KNOW THE SET PASSWORD TO ACTIVATE AND DEACTIVATE THE KEY LOCK.

With the active key lock, the pump control keys have no functionality.





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