Rego1

CA-CP-11

Installation & Operating Manual

Pump Station Control Panel

Rego1

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RG1-M-V4-01.21

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1.0 Rego1 overview

The Rego1 is a new generation pump station control panel. The replacement of analogue circuitry with digital technology enables various advantages from, improved time and efficiency of installation, smaller in size, less components for failure, Wi-Fi enabled allowing for remote monitoring via SideWinder Tech, local energy monitoring and a whole host more. The control panel has all the classic capabilities including the manual running of pumps (hand), automatic swapping of pumps and ability to set pumps offline.

CAUTION!
The Rego1 should only be installed by qualified personnel in accordance with the latest regulations.

2.0 Box contents

2.1 Cardboard box contents

- 1 x Rego1 Unit
- 1 x Installation & Operating Manual (this document)
- 6 x Large Cable Glands
- 3 x Large Blanking Plugs
- 8 x Large Nuts
- 2 x Small Cable Glands
- 2 x Small Nuts
- 2 x Small Blanking Plugs
- 1 x Lid Screw Pack
- 1 x Scratch Off Security Code Card

2.2 Rego1 unit contents

- 1 x 6V Battery

3.0 Technical information

Rego1 Specification	
Size (without cable glands)	W: 310mm x D: 170mm x H: 78mm
Weight (Rego1 unit)	1kg
Mains Supply	200-250V AC (50Hz)
Internal Battery	Pb 6V - 1.2Ah
Alarm Sound Level	100db @ 30cm
Visual Display	2 Displays: 2 x 7 Segments
Operating Temperature	5-40°C
IP Rating	IP2X
Pump Amp Rating	8A max. running current. 2 x 10A slow internal fuses.
Number of pumps	1 (single) or 2 (dual)

4.0 Health & Safety

In order to minimise the risk of ill health or accidents when installing and/or servicing pump chambers and associated accessories, workers must be fully trained and competent. The following guidelines will help safeguard matters:

- Assessing the risk and working in accordance with the control measures identified.
- Ensure electrical power to the equipment is isolated before carrying out installation or maintenance.
- A suitable first aid kit must be close to hand.
- The electrical installation must comply with the requirements of BS 7671:2008 'Requirements for Electrical Installations' incorporating amendment 3:2015.

5.0 Guarantee

Rego1 is offered with a 24 month component guarantee. This guarantee only covers any defects in workmanship, construction or material. This guarantee does not cover, defects caused by incorrect installation, installer error, abnormal working conditions, misuse or neglect.

6.0 Unit location

The Rego1 must be positioned in an area where the alarm can be clearly heard and is permanently accessible for servicing. The Rego1 must be positioned where there is sufficient air circulation to the front and base vents. The Rego1 must not be located further than 10m from the pump/s it is being used in conjunction with. If cable extensions are required, these must be selected in accordance with BS 7671:2008 'Requirements for Electrical Installations'. If using in conjunction with a battery backup, please ensure the units are no further than a 10m cable length from each other. **The Rego1 should be positioned in an area where there is a good Wi-Fi signal strength.**

CAUTION!
The Rego1 unit is not waterproof and must be installed indoors or inside a kiosk. The Rego1 must also be installed in a chemically neutral environment with a relative humidity of <80%.
Installations in these environments will void the manufacturers' guarantee.

7.0 Basic functions

Duty/Standby
The Rego1 is a **Duty/Standby** control panel. This implies that it can only run one pump at a time. The swap over logic is controlled by the processor in the unit, which allows for even wear on each pump.

Float Control
The Rego1 is controlled with three floats.
- HIGH - High Level Alarm (but will also run the pump)
- MID - Start
- LOW - This float ensures no dry pumping can occur - Stop

Overcurrent
The Rego1 has built in overcurrent protection (also knows as overloads). This protection is implemented in software and the thresholds are set by using the buttons on the front of the panel.

7.0 Basic functions cont.

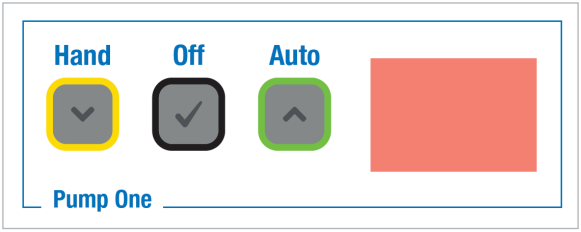
Undercurrent
The Rego1 monitors any undercurrent. This means that if a pump has broken down and draws no current, the pump is set offline (indicating undercurrent) and the other pump takes over.

Service Interval
The Rego1 has a built in service reminder which is disabled from factory. Using the buttons on the front of the panel, the service reminder can be enabled, the reminder can be reset and the service interval can be adjusted (0-24 months).

Intelligent Impellor Training
Every 10 days the Rego1 will turn on each pump in a rotational manner for 10 seconds or until the low float is in the down position. This is designed to avoid low cycle frequency pump stations from impellor seizing.

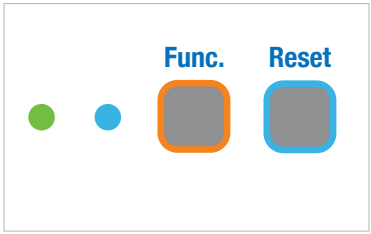
8.0 Rego1 pump buttons

Each pump has three buttons as detailed below.



Button	Function	Display
Hand	This button starts a pump manually. Both pumps must be set offline for hand to work on either pump. The button must be held down whilst pumping. The pump will stop when the button is released.	Shows the current that the pump is drawing whilst running.
Off	This button takes the pump offline and disables it from pumping.	Shows '--'
Auto	This button puts a pump online and enables it to be controlled by the floats. If both pumps are set to auto, the pumps swap with each cycle.	Not pumping - display is blank Pumping - cycling motion

9.0 Rego1 common buttons



Button	Function
Func.	This button is used to access the service routines (U-Menu). The button must be held down (for approx. 7 seconds) until the desired service routine number is displayed and released to access. U0 - Shows the position of the three floats (see section 17.0) U1 - Shows the current being drawn in real time U2 - Enters service reset routine (see section 22.0) U3 - Changes the service interval (see section 22.0) U4 - Enters service lock (see section 33.0) U5 - Shows total amount of pump cycles (see section 35.0) U7 - Single or dual pump setup (see section 16.0) U8 - Enters WPS Wi-Fi setup (see seperate Wi-Fi activation guide) U9 - Enters Wi-Fi setup (see seperate Wi-Fi activation guide) Pressing the button for selected periods of time will enter various other functions (detailed below). 3 seconds - Shows kWh/day usage (see section 20.0) 5 seconds - Tests the high level alarm sounder 7 seconds - Enters the U-Menu
Reset	This button is used to reset/mute the high level alarm (mute for 6 hours) and to leave various service routines (as above). This button is also used to mute the service reminder and silence the overcurrent/undercurrent alarm.

10.0 Mounting the Rego1 unit

1. Remove the screws from the front of the Rego1 that secures the front fascia (the internal ribbon cable will be disconnected on supply).
2. Using the 4 mounting holes provided, mark, drill and fit suitable wall plugs into the chosen wall for installation (ensure correct wall plugs are used for the wall type).
3. Secure the Rego1 unit to the wall using appropriate screws for the wall plugs used.

PLEASE NOTE
When securing the unit to the wall, avoid over tightening the screws as this may cause the box to crack.

11.0 Typical wiring diagram

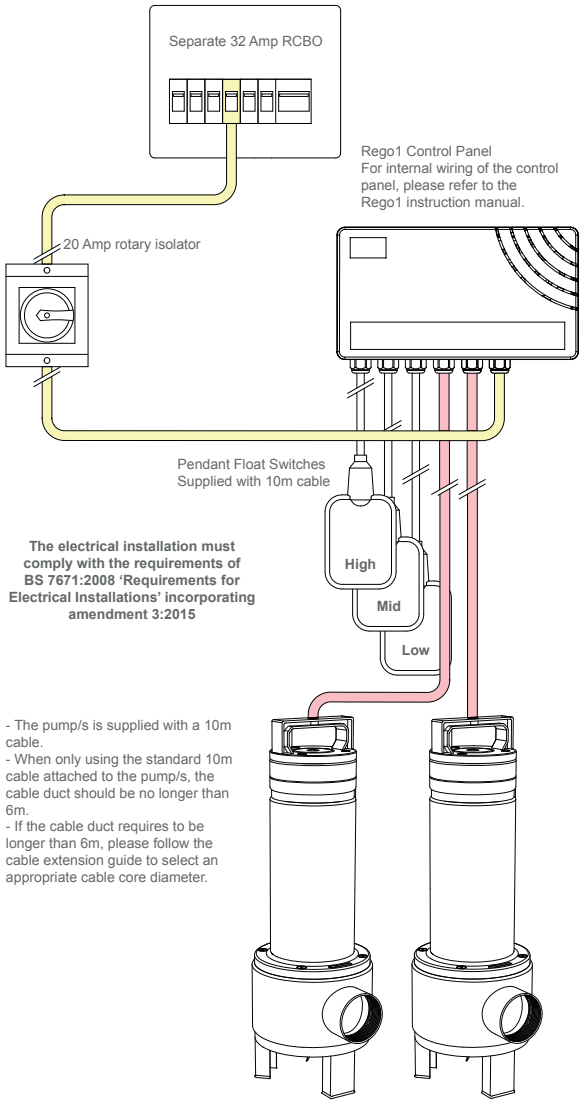
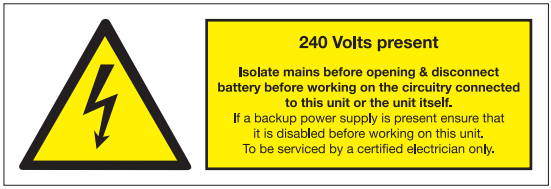


Figure 1. Rego1 typical wiring schematic

12.0 Connecting 240V mains

When the Rego1 is installed there is 240V present, this is indicated by the sticker below and on the front of the panel. Before working on the circuitry connected to the unit or the unit itself, please isolate the mains and disconnect the internal battery. If a backup power supply is present, please ensure that it is disabled before working on this unit. The Rego1 is to be installed and serviced by qualified personnel in accordance with the latest regulations.

The Rego1 should **always** have a supply disconnecting device connected to the incoming power supply, this is normally by means of a 32A RCBO and a 20A rotary isolator (figure 1).



WARNING!
Ensure mains power is isolated before connecting and wiring to the Rego1 unit.

1. Insert 1 x large cable gland into the third from right hole of the Rego1 unit.
2. Using the wiring schematic (figure 1), feed the mains power cable through the cable gland and connect the power cable to the corresponding terminal block on the main PCB (figure 2). Follow the internal sticker for wiring guidance.

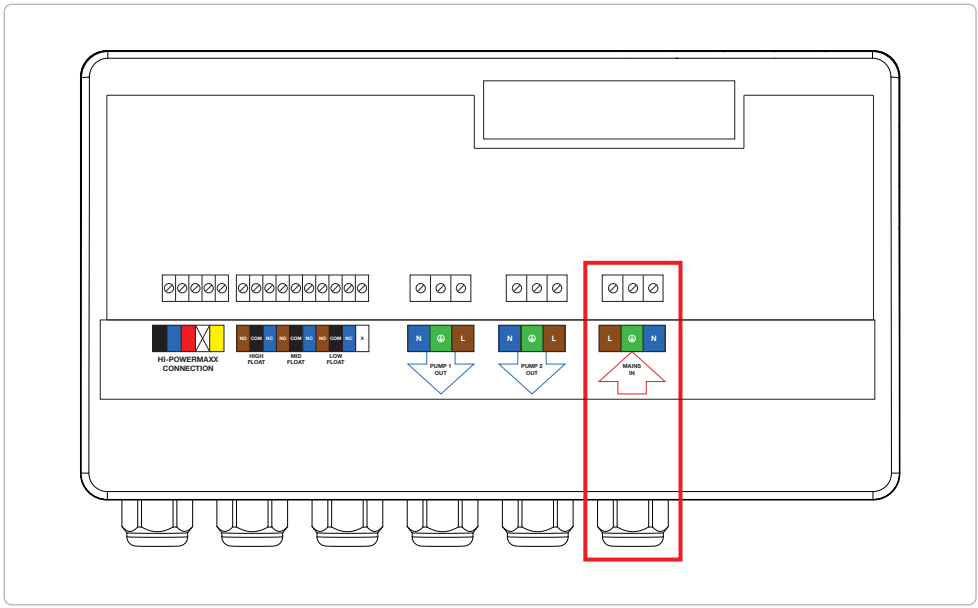


Figure 2. Connecting mains power

13.0 Connecting pump/s

1. If you are installing **2 pumps**, insert 2 x large cable glands into the fourth and fifth holes from the right hand side of the Rego1 unit.
2. If you are installing **1 pump**, insert 1 x large cable gland into the forth from right hole of the Rego1 unit.
3. Using the cable glands previously installed, feed the pump cable/s through the glands and connect to the corresponding terminal blocks on the main PCB (figure 3).

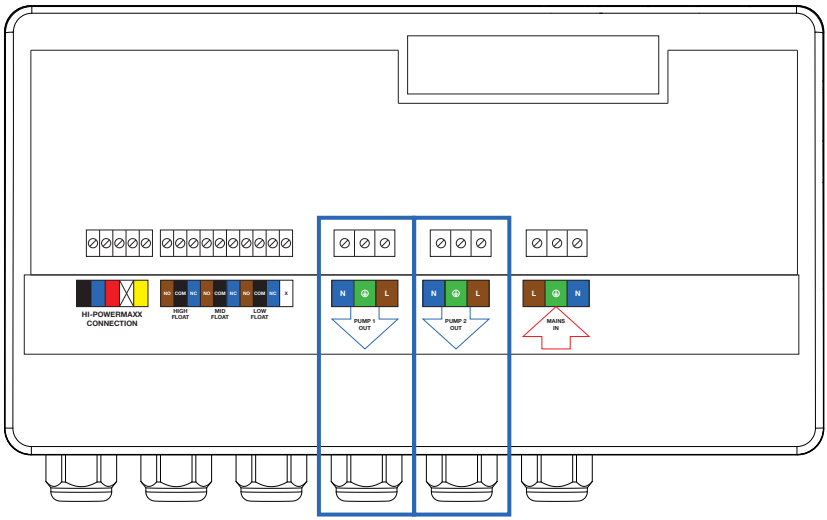


Figure 3. Connecting pump/s

PLEASE NOTE
If you are only connecting one pump to the Rego1, the **PUMP 1 OUT** must be used and the control panel must be configured correctly using the U7 menu (see section 16.0).

14.0 Connecting the floats

1. Insert 3 x large cable glands into the far left holes of the Rego1 unit.
2. Pull the float cables through the cable glands on the Rego1 unit.
3. Connect all three cables from each float switch cable to the terminal blocks (figure 4). **Use the internal wiring sticker for further guidance.**

PLEASE NOTE
If the cable supplied with the float switch is too short, the cable can be extended using a cable with a minimum core cross sectional area of 1mm².

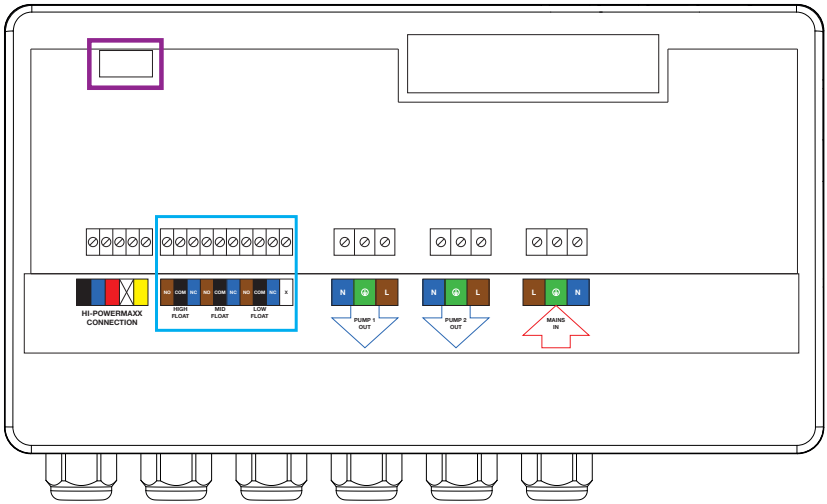


Figure 4. Wiring a float switches

PLEASE NOTE
All three cores from the floats MUST be connected.

PLEASE NOTE
The NC indicator applies when the float is in DOWN position.

15.0 Starting the Rego1

Before starting the Rego1, ensure the mains power to the unit is isolated.

15.1 Connecting the ribbon cable

On supply, the ribbon cable that is used to pass communication between the PCB on the fascia and the motherboard is disconnected from the terminal on the motherboard.

This must be connected before proceeding to section 15.2

See the highlighted area in PURPLE on figure 4 (page 11) for terminal block location.

15.2 Turning on the Rego1 unit for the first time

1. Ensure the small black switch on the main PCB is set to the **NO-SEU** position.
2. Remove the plastic covers on the battery terminals and connect the red and black leads from the PCB to the battery, red to red and black to black.
3. Once the battery has been connected, the display will pulse in a left to right startup sequence. The software release will then be shown on the left display for approx. 2 seconds and **2P** in the right display.
4. After approximately 20-60 seconds, the right hand display will flash a **PF** error code.
5. Refit the front fascia. **Do not turn on the mains.**

PLEASE NOTE
The Rego1 requires a fully charged battery in order to operate correctly.

CAUTION!
If the battery is misconnected to the Rego1 (i.e. black to red), this will destroy the unit. This can be detected by the manufacturer and will void the guarantee.

16.0 Single/dual setup

The Rego1 can be used with either 1 or 2 pumps (single or dual). The unit is configured from the factory for 2 pumps - if you are using the Rego1 in a dual setup, please move to section 17.0. If you are using the Rego1 in a single setup, please proceed with step 1 below.

1. Enter the pump setup service routine - **U7**. Press and hold ***'Func'*** (approx. 7 seconds) until **U7** is displayed, then release.
2. **1P** will be displayed in the right hand display.
3. Press ***'Func'*** for approx. 1 second and release. The Rego1 will signal a **1P** in the left hand display and **OK** in the right hand display. The unit will then beep and restart.

17.0 Float inspection

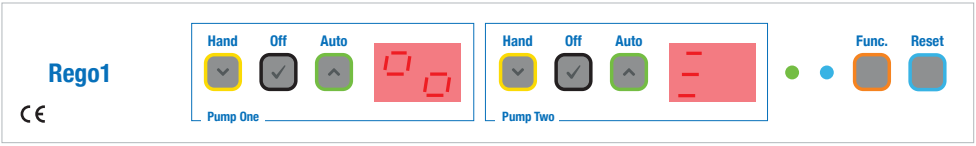
1. Enter the float inspection service routine - **U0**. Press and hold ***'Func'*** until **U0** is displayed, then release.
2. On the displays, you will see symbols that represent the floats 'o' as pictured below.

- Left display / Left section - HIGH float
- Left display / Right section - MID float
- Right display / Left section - LOW float

3. Manipulate each float inside the chamber to ensure they are functioning correctly.

- When the float is **up** the 'o' will be displayed in the up position (pictured in the left section of the left display below).
- When the float is **down** the 'o' will be displayed in the down position (pictured in the right section of the left display below).
- If the displays show three bars, this indicates a short circuit (pictured in the left section of the right display below).
- If the displays show a large 'O', this indicates an open circuit (not pictured).

4. When the float inspection is satisfactory, press ***'Reset'***.



18.0 Pump setup

1. Turn on the mains feed supplying the Rego1 unit, within 20 seconds the **PF** code will disappear and the green LED will flash once every second.
2. Set both pumps offline by pressing ***'Off'***, both displays will show **'--'**.
3. Press ***'Hand'*** for pump 1 **(when submerged)** and let it run for approx. 5-10 seconds. Record the current (A) reading shown on the display.
4. Check that the current reading is suitable for the pump installed, see table on page 18 for common pump types.
5. The overcurrent limiter must now be set. Add 30% to the value obtained in step 3 (example - 5A running current - 5x1.30=6.5A limit value).
6. Press all three buttons on Pump 1 at the same time (***Hand, Off, Auto***) - the value shown should be 6.5A from the factory.
7. Adjust the value according to the calculation in step 5. Ensure you hold the buttons down to scroll through the values.

- ***Hand*** - decrease the value
- ***Off*** - set as the limit value
- ***Auto*** - increase the value
- ***Reset*** - abort setting of the value

8. Press the ***'Off'*** button to set the limit.
9. Repeat for pump 2 if installed.
10. Press ***'Auto'*** for both pumps, both displays will go blank and the green LED will flash once every 2 seconds.
11. Setup is now complete.

*Overcurrent detection is disabled when running a pump in ***'Hand'***.

PLEASE NOTE

In some instances, you may need to set the overcurrent limiter above 9.9. When exceeding 9.9 the display will show A.X. 'A' = 10. **The highest overcurrent limit setting is 10.9 (A.9).**

19.0 Connecting external devices

The Rego1 has volt free contacts to connect external devices such as an alarm or beacon. When the high level alarm is activated, the relay sends a signal continuously.

The volt free relay is designed to accept devices with a maximum load of 0.5A and voltage up to 30V. If external devices fall outside these parameters, the device must be powered by an external power supply.

You can use the Rego1 to power external devices with a maximum voltage of 6-7V.

Typically you will need to link out the IN & +6V terminals as pictured below (figure 5). The device will then have to be wired into NO & GND.

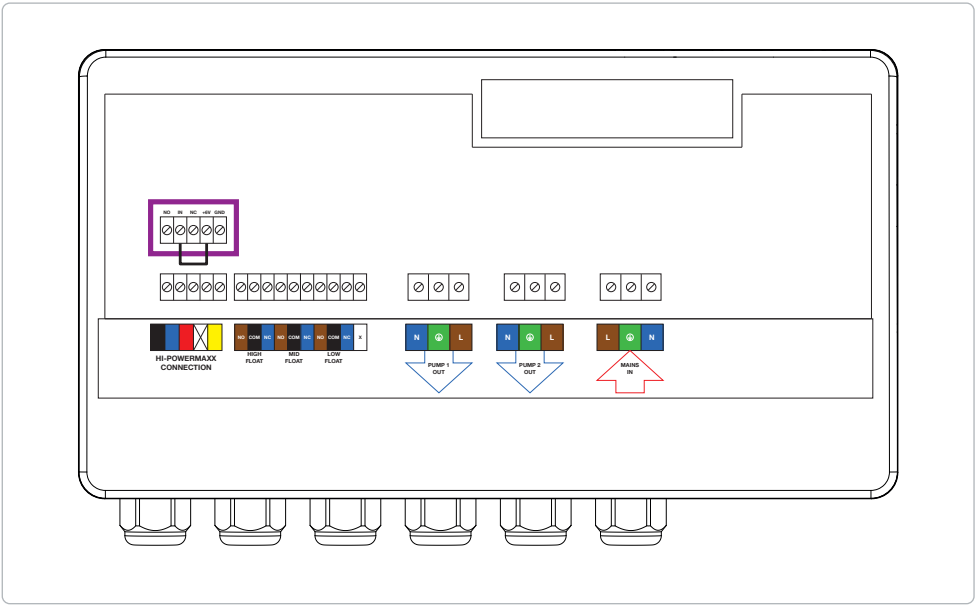


Figure 5. Typical Volt Free Relay (VFR) connection link

20.0 Energy monitoring

The Rego1 monitors energy consumption from the pumps. This is measured in kWh/day and is viewable by pressing the ***'Func'*** button for 3 seconds. The value shown is a combined value of both pumps.

21.0 Servicing

The Rego1 will signal when the pump station requires servicing. This is indicated by an **S1** code followed by one beep every minute. The beep can be muted by pressing the ***'Reset'*** button (the code will remain illuminated). The beep will return 7 days from pressing the ***'Reset'*** button until a service technician resets the service indicator.

The service indicator is disabled from factory, to enable this function please refer to section 22.0.

Code	Fault	Action
S1	Pump Station Service Required	Your pump station requires a service. The Rego1 will beep every minute. Please contact PPS to arrange a service visit.

22.0 Service Reset

To activate the service indicator, press and hold ***'Func'*** until **U3** is displayed, then release. Press and hold ***'Func'***, the display will now scroll through from 00 to 24. Release ***'Func'*** on your chosen monthly interval (i.e. 06) - this value is shown in months. Press and hold ***'Func'*** to confirm your chosen interval. Now, press and hold ***'Func'*** until **U2** is displayed, then release. Press ***'Func'*** again for 1 second, the unit will beep and show **OK** on the display. The service reminder has now been set to your chosen interval.

When the service interval times out, an **S1** code is shown on the right hand display followed by one beep every minute.

To reset the service indicator to the set amount of months shown in **U3**, press and hold ***'Func'*** until **U2** is displayed, then release. Press ***'Func'*** again for 1 second, the unit will beep and show **OK** on the display. The service reminder has now been reset. To change the service interval to a new value, please follow the setup as written in the 1st paragraph of section 22.0.

23.0 Spares

Part No.	Description
CAS-B6V-01	Rechargeable 6V battery
CAS-SEU-02	SEU including five year subscription to the SideWinder Tech monitoring system
CAS-ISO-01	20A Rotary Isolator - 2 Pole (Enclosed IP65)
CAS-BEA-01	LED Beacon (Red) Wall Mount - 6V DC
CAS-SIR-01	AwareMaxx Siren (120db)

24.0 Error codes

Code	Fault	Reason/Action
F1	Flood - the Rego1 will sound a continuous alarm	There is a high level in the pump station. Contact PPS urgently.
F3	Flood has occurred	There has been a high level in the pump station which has returned back to normal. If this problem arises again, contact PPS.
PF	Mains Failure - the Rego1 will beep once per minute	There is a power failure to all pumps. If you have had a power cut, this will return to normal when power returns. **If you have no battery backup in place, there is the potential for flooding.** Rego1 will run on battery power for 2 days. If you haven't had a power cut, try to restore power and if the problem persists, contact PPS as soon as possible.
XX% PF	Mains Failure - **a battery backup has been detected and is operational -** the Rego1 will beep once per minute	There is a power failure. If you have had a power cut, this will return to normal when power returns. The battery backup will remain operational until the power returns or the battery backup is depleted.
E1	Float cabling error	There is an error with the float cabling which will need to be rectified. Please refer to the section 'float errors' on page 20 and check the float code or contact PPS.
E2	Cannot find the SEU card	Please contact PPS to rectify.
E3	Problem with the SEU card	Please contact PPS to rectify.
E4	No response from server	Please contact PPS to rectify. Can occur intermittently.
E5	Cannot find battery backup	The Rego1 cannot communicate with the battery backup, the units will continue to work correctly, but data will not be transmitted. Please contact PPS to rectify the cabling.
E7	No internal battery connected	Connect a battery or contact PPS to rectify. If the battery is depleted, it will usually take 30 minutes of charging before the Rego1 will start. It will take 6 hours to charge to 80%.
E8	Software error	There is a software error on the Rego1 and this will need to be updated. Please contact PPS to update.
E9	Software error (panel cannot talk to the motherboard)	There is a software error on the Rego1 and this will need to be updated. Please contact PPS to update.
EC	Error in configuration (Wi-Fi)	The SEU card has lost connection to the gateway. Please follow the Wi-Fi activation guide to reconfigure.
UC	Undercurrent - the Rego1 will sound a continuous alarm	An undercurrent has occurred on one of the pumps. Please contact PPS to rectify.
OC	Overcurrent - the Rego1 will sound a continuous alarm	An overcurrent has occurred on one of the pumps. Please contact PPS to rectify.
OP	Set by Op-Centre	A pump has been set offline by the SideWinder. No action required.

25.0 Special error codes

Code	Fault	Action
CA	Call PPS	If you see this code, please contact PPS at your earliest convenience.
PA	PPS is aware of your situation and will be in contact	If you see this code, it means PPS are aware of the situation at your property. PPS will be in contact.

26.0 LED codes

LED	Meaning
GREEN slow flash	All systems OK
BLUE slow flash	Wi-Fi OK - connected to Gateway OK
BLUE fast flash	Wi-Fi transmitting
BLUE fixed	Wi-Fi in setup mode
BLUE No light	Wi-Fi not installed or not functioning

27.0 Troubleshooting

Fault	Cause
The Rego1 does not turn on.	The battery is flat - charge the battery by connecting mains to the unit. If the unit still doesn't turn on after 3 minutes - alarm unit or internal battery is faulty.
The decimal points on the displays jump from left to right.	Low battery - charge the battery by connecting mains to the alarm unit.

28.0 PPS Technical Department

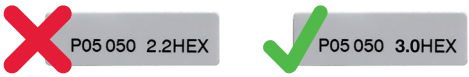
If you are experiencing any technical issues, please contact the PPS Technical Department on **0330 9000 999** from 9:00am - 5:00pm or email **info@ppspumps.com**.

29.0 Battery backup

The Rego1 can be connected to a PowerMaxx, PowerMaxx+ or Hi-PowerMaxx to provide additional battery backup and if connected via Wi-Fi, battery backup capacity and condition is fed directly to the SideWinder.

The PowerMaxx, PowerMaxx+ and Hi-PowerMaxx are supplied with 3m of 4 core MaxxConnect family cable.

The Rego1 can only be connected to PowerMaxx, PowerMaxx+ and Hi-PowerMaxx which is running the software version 3.0 or higher. This can be identified by the software identification sticker on the back of the battery backup units.

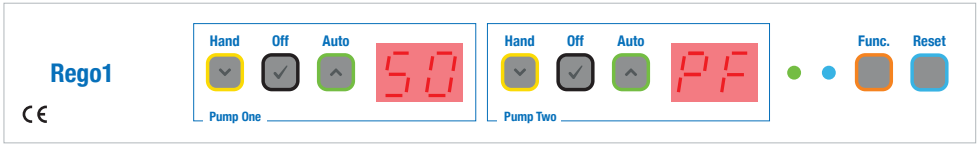


Please refer to the battery backup instruction manual for final connections. See overleaf (figure 6) for a typical wiring schematic.

PLEASE NOTE
For a list of compatible pumps and wiring guidance, please refer to the battery backup manual.

The Rego1 must be installed in series to the battery backup - this means the Rego1 must be installed in between the battery backup & the pump/s.

When the Rego1 is connected to a battery backup and the power fails, the Rego1 will show a **PF** in the right hand display, a figure in the left hand display and beep once per minute. This figure indicates the percentage of battery remaining in the battery backup. An example is shown below with a battery backup of 50% remaining life.



30.0 Common overcurrent limits

The table below shows common pump types with their normal running current when fully submerged - this figure will differ from a dry running pump. The overcurrent value that requires to be set on the Rego1 unit is 30% above the normal running current.

Pump	Discharge	Normal Running Current (Submerged)	Overcurrent Value
D10	2”	5.7A	7.4A
2501/612	2”	5.0A	6.5A
2601/712	2.5”	5.5A	7.2A

31.0 Typical wiring diagram (inc. battery backup)

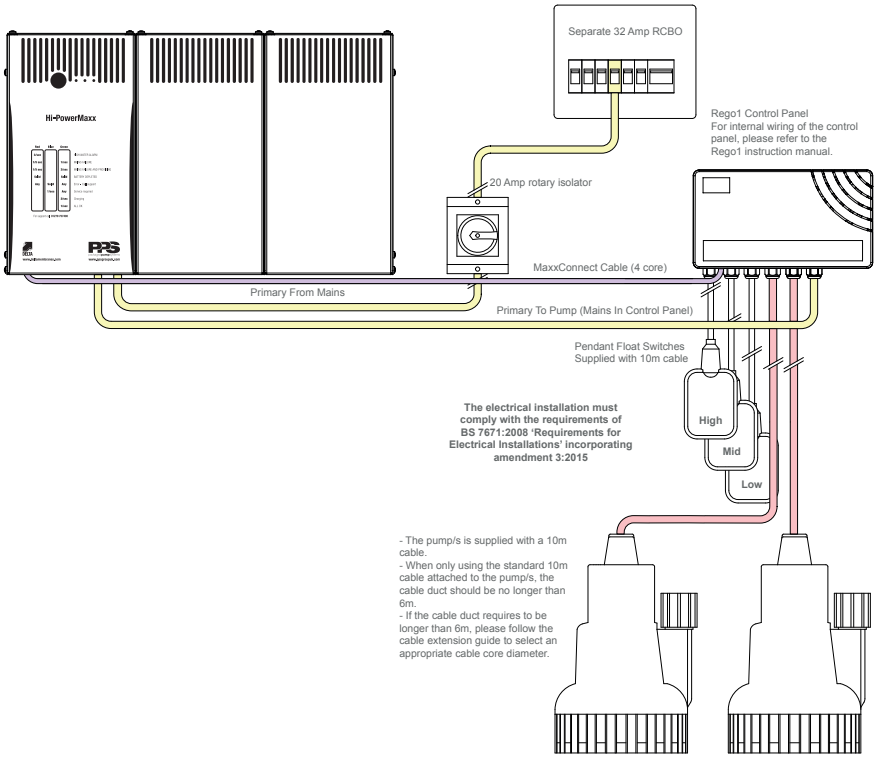


Figure 6. Rego1 typical wiring schematic (inc. battery backup)

32.0 Float errors

The Rego1 is controlled with three floats.

- HIGH - High Level Alarm (but can also run the pump)
- MID - Start/Stop
- LOW - This float ensures no dry pumping can occur

When wiring the floats, all three cores must be used. This way of connectivity allows the Rego1 to monitor not only UP and DOWN positions but also sense for OPEN and SHORT. The floats are evaluated every second to establish their current state.

The OPEN and SHORT positions are considered fault conditions (also known as ambiguous). When the floats are evaluated their state at that moment is communicated and an action decided. Some of these actions work the control panel as normal, some indicate error codes. Each float error code is shown below with the configuration.

Float Code	Float Positions	Run Pump	High Level Alarm	Float Error Indicated with E1
2	? ↑ ↑	Yes	No	Yes
3	↑ ↓ ↑	Yes	Yes	Yes
5	? ↓ ↑	No	No	Yes
6	↑ ? ↑	Yes	Yes	Yes
8	? ? ↑	No	No	Yes
9	↑ ↑ ↓	Yes	Yes	Yes
10	↓ ↑ ↓	No	No	Yes
11	? ↑ ↓	Yes	No	Yes
12	↑ ↓ ↓	Yes	Yes	Yes
14	? ↓ ↓	No	No	Yes

32.0 Float errors cont.

Float Code	Float Positions	Run Pump	High Level Alarm	Float Error Indicated with E1
15	↑ ? ↓	Yes	Yes	Yes
17	? ? ↓	No	No	Yes
18	↑ ↑ ?	Yes	Yes	Yes
20	? ↑ ?	Yes	No	Yes
21	↑ ↓ ?	Yes	Yes	Yes
23	? ↓ ?	No	No	Yes
24	↑ ? ?	Yes	Yes	Yes
25	↓ ? ?	No	No	Yes
26	? ? ?	No	No	Yes
27	x x x	No	No	Yes

33.0 Service Lock

For health and safety, the Rego1 has a built in service lock which puts the unit into sleep mode. When the Rego1 is connected to the Wi-Fi via SideWinder Tech, the service lock blocks all incoming remote commands. This function is designed to allow the engineer to work safely on the pump station. It is strongly advised to isolate the mains before opening the Rego1 unit or working on the connected pumps.

To access the service lock, follow the steps below.

1. Press and hold ***'Func'*** until **U4** is displayed, then release.
2. Press the ***'Func'*** button for 2 seconds until **SE LO** appears on the displays.
3. To exit the service lock, there are three options as detailed below.

- Option 1 - Press and hold ***'Reset'*** for 4 seconds, the unit will restart.
- Option 2 - The service lock will automatically time out after 2 hours. This will be initiated by a continuous warning beep for 20-30 seconds before exiting.
- Option 3 - Sending a 'Deactivate Service Lock' command from the SideWinder.

34.0 SideWinder Tech (Wi-Fi) Remote Monitoring

The Rego1 can be connected to the SideWinder Tech remote monitoring software via Wi-Fi. This enables various 'smart' functionality and remote monitoring capabilities to allow for predictive maintenance.

To activate SideWinder remote monitoring, an SEU card must be purchased with a 5 year subscription to the service (see spare parts). Once purchased, the SEU can be installed and the Rego1 commissioned to the SideWinder. Initial registration is required (free of charge) at the time of setting up your first Rego1 unit.

When the Rego1 is commissioned to the SideWinder, it enables the installer to set up the owners details for SMS/Email alerts, such as High Level Alarm, Mains Failure, etc.. These notifications can be sent to up to 5 contacts.

Having a Rego1 commissioned to your company 'island', enables you (the installer) to remotely control the Rego1 from anywhere in the world. Forgotten to set the overload limits? This can be easily adjusted remotely. Notice a pump has been left offline? This can be set back to AUTO via one simple remote command.

The SideWinder functionality also enables the installer to view the running conditions of their commissioned sites pumps, from the steady state current of each pump to the cycles per hour and even the position of the floats at any one time. The SideWinder automatically sends the installers registered sites a monthly health report to one nominated email address.

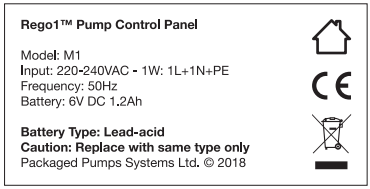
Interested in setting up your Rego1 with the SideWinder monitoring system? Purchase a subscription from PPS and get started straight away.

35.0 Internal Battery

The Rego1 internal 6V battery has a nominal life span of 3 years. This life span is shortened by the following:

- Temperatures above 25°C.
- The number of discharges (the number of times the Rego1 has been used without mains power).
- The depletion level when discharging and the number of times the battery is used. Extended periods providing backup power will impact battery life.

Replacement of the battery should be done every 2-3 years to ensure maximum backup time. In some cases, the battery might need earlier replacement. Servicing of the battery pack should be performed by a qualified service person with knowledge about batteries and the required precautions. The battery should be replaced with the same type the Rego1 is installed with, this information can be found within the unit or below.



WARNING!
Do not dispose of batteries in a fire. The batteries may explode.
Do not dispose of batteries in a landfill. Please recycle safely at your local recycling plant.
Do not open or damage batteries. Released electrolyte is harmful to the skin and eyes and may be toxic.

PLEASE NOTE
If the internal battery has been completely depleted, it should to be replaced to ensure optimum performance.

If the battery has been fully depleted and mains is applied, it can take up to 30 minutes before the Rego1 turns on and operates correctly.

36.0 Pump Cycle Counter

The Rego1 has a function that counts and logs the total amount of pump cycles each pump has performed. To access this pump cycle counter, follow the steps below.

1. Press and hold ***'Func'*** until **U5** is displayed, then release.

The example below uses 2678 cycles for pump 1.

When **U5** is entered, **P1** will be shown on the left hand display and a single digit will appear on the right hand display. This initial number is the first digit of the total number of cycles for pump 1, i.e. **P1 _0**

The display then changes to show up to 4 further digits, these numbers are the digits after the initial digit, they will complete the figure of the total cycles for pump 1, i.e. **2678**. When you put the first digit and the sequential digits together, you will get the total number of pump cycles for pump 1 i.e. **02678**. The process then repeats for the second pump, displaying 2P with the initial digit. Press ***'Reset'*** to leave the pump cycle counter.

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