

Unger Control Unit Introduction

The Unger Control Unit provides leading control technology with simple ease of use. Use the unit to make high quality pure water for excellent cleaning results time after time with the 'RO FILLING' control.

Use the 'LEFT FLOW' and 'RIGHT FLOW' to give simple but accurate flow control from two powerful delivery pumps.

Control your pumps remotely using the radio fobs and set to 'wash' for cleaning or switch to 'rinse' for a boost. Press on/off to efficiently control your water use.

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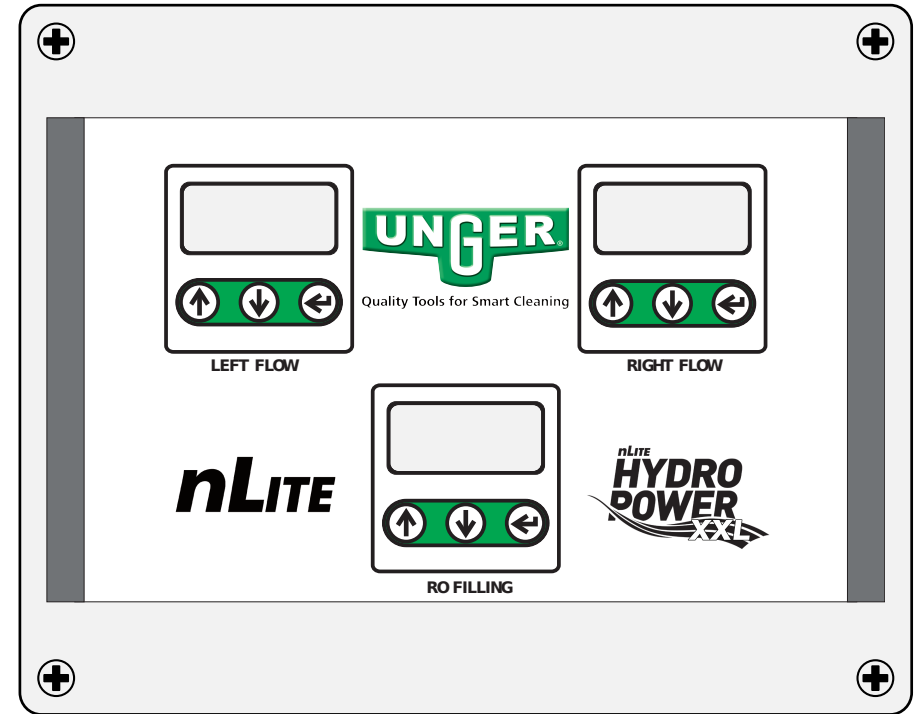
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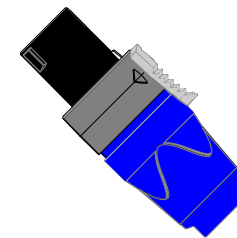
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Leading Control Technology



with simple plug and go connections...



...easy to use operation and labour saving features

Keyfob

Unger Control Unit Overview

The Unger Control Unit provides a number of functions:

LEFT FLOW - Controls the LEFT delivery pump functions. This includes a radio remote control.

RIGHT FLOW - Controls the RIGHT delivery pump functions. This includes a radio remote control.

RO FILLING - Controls the RO FILLING pump functions. This includes TDS cut-off should your resin run out.

Panel Viewed
from Front

LEFT FLOW

Pump 1

Water delivery control for the LEFT pump, hose reel and pole.

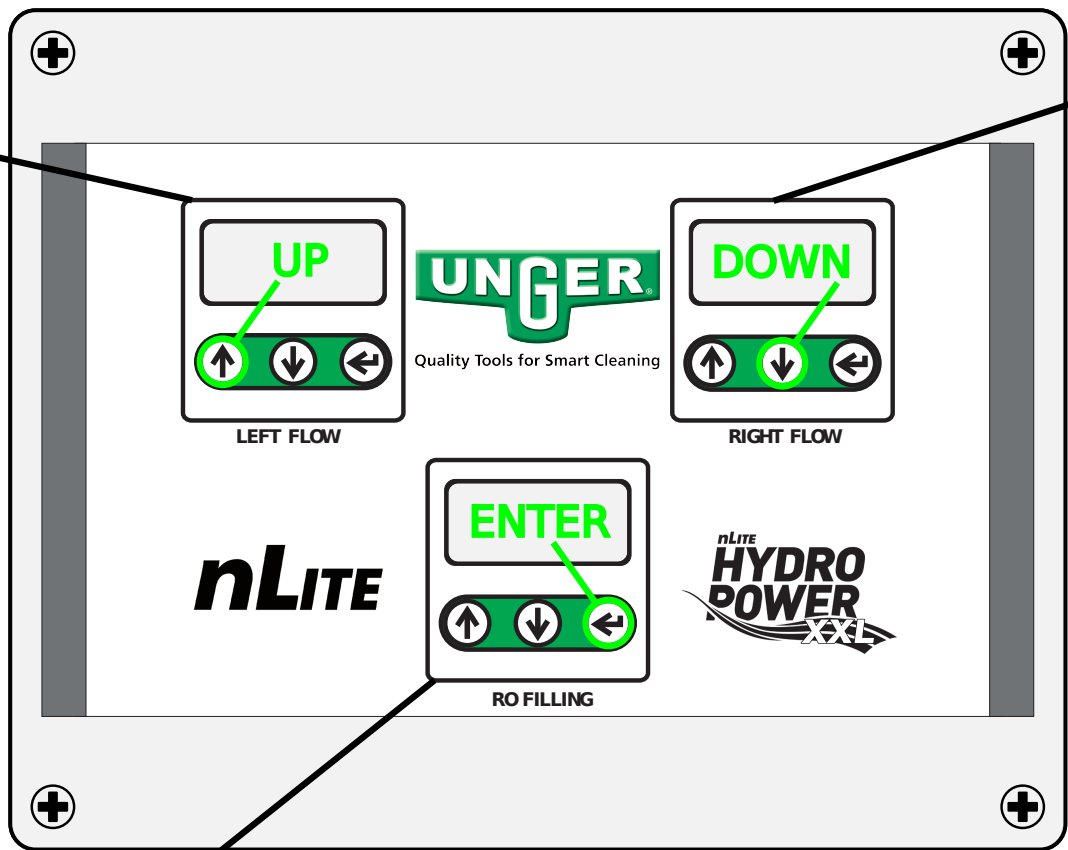
This control has a remote control which allows the user to set flowrate to 'wash' or a higher 'rinse' flowrate.

Once set up simply use the up and down arrows to increase or decrease flowrate.

The controller also provides an indication of flowrate (0-99) and battery voltage (press enter to see these).

Turn on with up or down arrow.

Turn off by pressing and holding enter.



RIGHT FLOW

Pump 2

Water delivery control for the RIGHT pump, hose reel and pole.

This control has a remote control which allows the user to set flowrate to 'wash' or a higher 'rinse' flowrate.

Once set up simply use the up and down arrows to increase or decrease flowrate.

The controller also provides an indication of flowrate (0-99) and battery voltage (press enter to see these).

Turn on with up or down arrow.

Turn off by pressing and holding enter.

RO FILLING

Pump 3 - Control for making pure water.

This control powers the RO booster pump. Press up and down arrows to start a fill operation.

The unit will open the Autofill solenoid valve and drive the booster pump until the tanks are full.

The unit monitors water purity in TDS (Total Dissolved Solids) in ppm (parts per million). For a good clean this should be 5ppm or below. The unit can be configured with a TDS cut-off if this value gets too high.

The controller also provides an indication of battery voltage and current TDS (press enter to see these).

Turn on with up or down arrow. Turn off by pressing and holding enter.

Connection Overview

The Unger Control Unit is supplied with a set of pre-made cables. These cables are tested and ready to use. Follow the diagram below when making connections to the controller.

LEFT FLOW
Pump 1
Output
Connection

RIGHT FLOW
Pump 2
Output
Connection

RO FILLING
Pump 3
Output
Connection

Autofill
Solenoid
Valve
Connection

12V Flush

L R RO

Float Fill

Autofill
Solenoid
Valve
Connection

POWER IN
Connect the power
lead to this socket.

CAUTION:

- OBSERVE CORRECT POLARITY AT BATTERY
- +VE (Positive) = RED
- -VE (Negative) = BLACK
- ALWAYS FIT A FUSE IN +VE CONNECTION FROM BATTERY
- FUSE RATING 25-30A

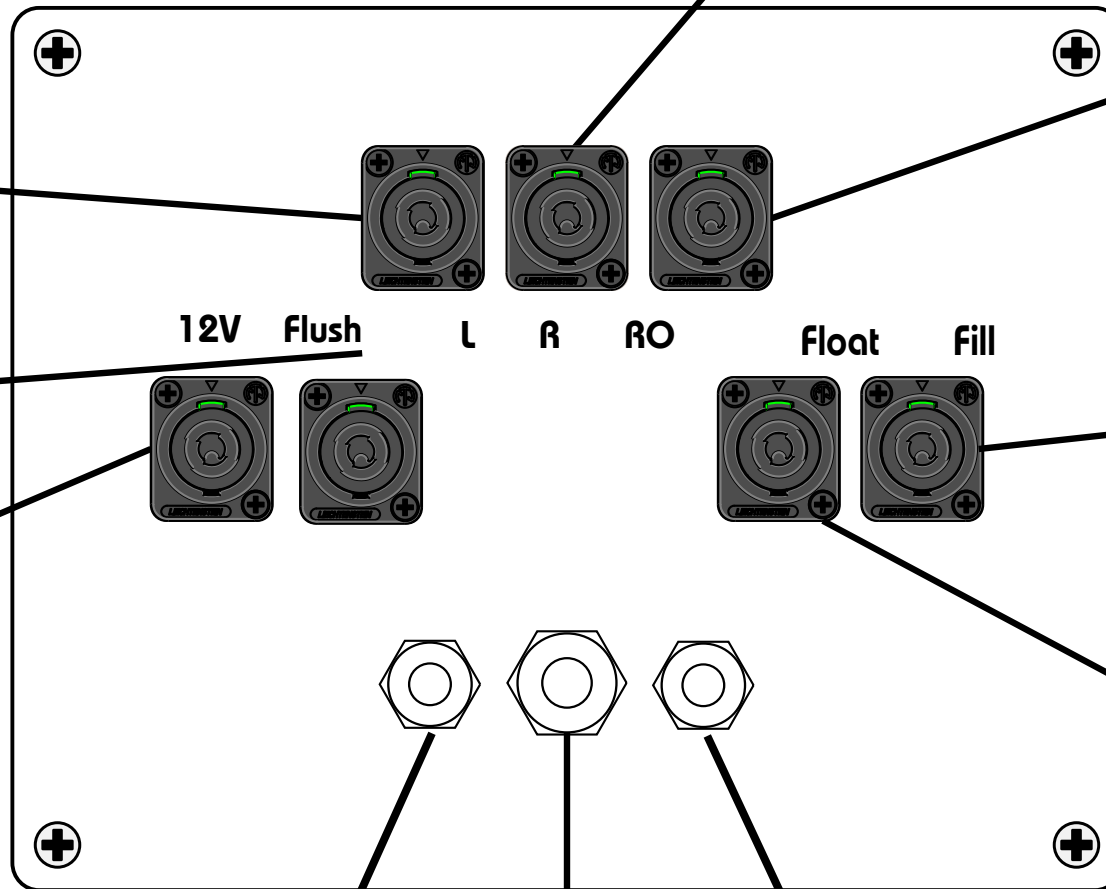
Float Switch
Connection

RIGHT FLOW
Pump 2
Antenna
Connection

RO TDS Probe
Connection

LEFT FLOW
Pump 1
Antenna
Connection

Panel Viewed
from Rear





Operating Warnings

Adjust your flow settings carefully. Repeated false dead-end detection indicates that the Cal value should be increased (less sensitive).

For absolute safety always wire through the pump pressure switch. (The pressure switch can be bypassed if absolutely necessary - the unit will protect itself under normal conditions.)

This is a WATER PUMP controller: it will not work with air in the system. Always prime your system before starting work. If air in the system causes false dead-end detection, increase Cal value (less sensitive).

Do not set the Cal value too high. Setting it higher than necessary places extra strain on both the pump and the controller in a dead end situation. This can result in damage to both the pump and your controller.

Specification	Value
Supply Voltage	11 - 14 VDC
Maximum Current	10A
Typical Drive Current	4-5A
Voltmeter Accuracy	+ - 100mV
Enclosure Material	ABS
Water Resistance	IP65
Dimensions	240 x 191 x 107(mm)
Working Temperature	0 to 40 Deg C

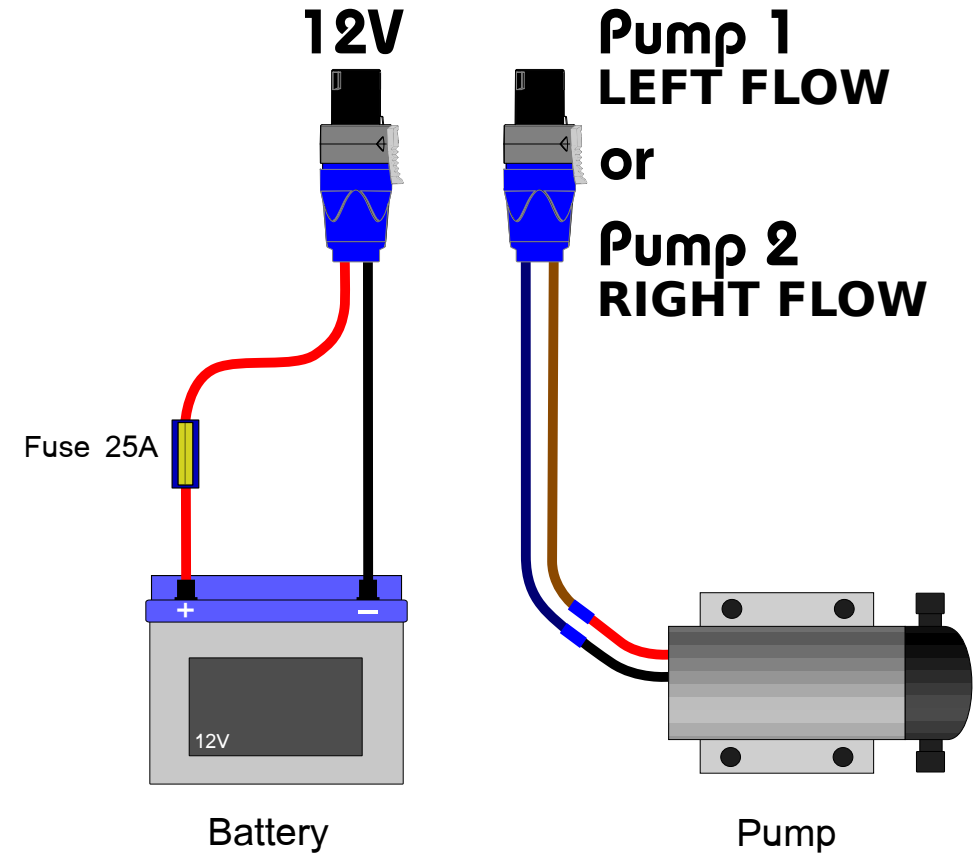
* Your battery is at risk of permanent damage if you disable low battery cutoff and continue to use your controller for long periods when the battery voltage has fallen below +10.5V

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Left/Right Pump Controller - Quick Start v11

Step 1. Wiring

Connect the pump controller following this diagram.
NOTE only fit the fuse once all connections are made.



Make sure correct fuse is fitted inline. Failure to do so will result in damage to the unit.

Observe correct battery polarity. Failure to do so will result in damage to the unit.

Step 2. Set Up - AutoCal

Connect your hose and brush to the pump.

Turn on the controller by pressing the up or down button. Keep the button held until the display lights up.

Press up until the display shows 30.



Press and hold up and enter to go into calibration.



Press down to select AutoCal, then enter to start.



After several moments the calculated Cal value will be displayed and the controller is ready to use.

Press enter to exit calibration.



The Cal value can be adjusted manually by following these steps and adjusting the Cal value using up and down, instead of using AutoCal.

To enable or disable the low battery cutoff (when battery is below 10.5V):



Step 3. Use

Press up or down to set a suitable flow of water.



Press enter to display the current battery voltage.



Press enter again to return to the current flow rate.



To turn the controller off, press and hold enter.

Message	Description
888	An error has occurred while using AutoCal. This will happen when the motor is not connected or the enter button has been pressed to cancel it.
885	Pressure switch activated or motor disconnected.
88E	A dead end has been detected. If this is not the case, try increasing the Cal value.
88E	This message will start to flash when the battery is low (<11.0V). If battery is below 10.5V the pump will be disabled to protect the battery. (Unless low battery cutoff is disabled*)



Operating Warnings

Fit your Receiver unit carefully. Take care to fit the unit to the diagram and follow these instructions carefully*.

Step 2. Operation:

'Wake Up'

If the controller is off, press and hold the fob On/Off button. The controller will start pumping at the last rate set when it was powered off (by pressing and holding the far right hand arrow button).

Control

If the pump is off press the fob ON/OFF button once to activate the pump. The pump will start. The controller will indicate a normal running operation.

To stop the pump press the fob ON/OFF once to de-activate the pump. The controller will display the message 'FOB StP'.

Wash

To set the controller to the normal wash flowrate press the fob 'Wash' button.

Rinse

To set the controller to the higher rinse flowrate press the fob 'Rinse' button. The flowrate will increase (by the 'rin' value entered in Settings).

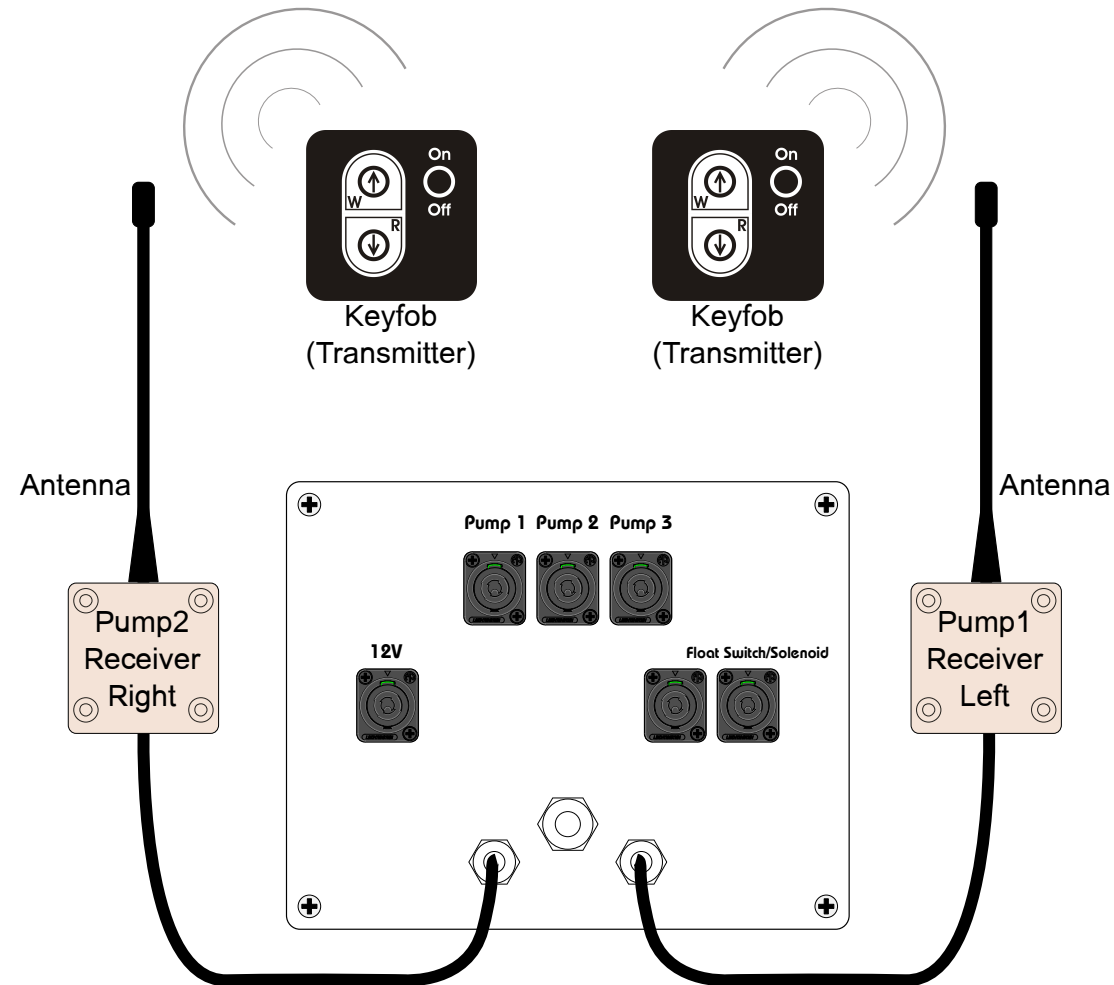
* Unit must be installed by a competent electrician or electrical engineer. Failure to comply with these instructions could invalidate your warranty.

** All range distances are line of site and approximate. Working distances may vary depending on obstacles, environmental conditions and individual installation.

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Step 1. Wiring and fitting

Your radio remote unit is line of sight, so if fitted inside a van or vehicle then the aerial will need to be mounted through the van roof for best results.





Operating Warnings

The RO Filling Controller has a flow setting of '99'. This cannot be adjusted by the up and down arrows. However the flow rate can be adjusted from the Power-Up Menu. Repeated false dead-end detection indicates that the Cal value should be increased (less sensitive).

For absolute safety always wire through the pump pressure switch. (The pressure switch can be bypassed if absolutely necessary - the unit will protect itself under normal conditions.)

This is a WATER PUMP controller: it will not work with air in the system. Always prime your system before starting work. If air in the system causes false dead-end detection, increase Cal value (less sensitive).

Do not set the Cal value too high. Setting it higher than necessary places extra strain on both the pump and the controller in a dead end situation. This can result in damage to both the pump and your controller.

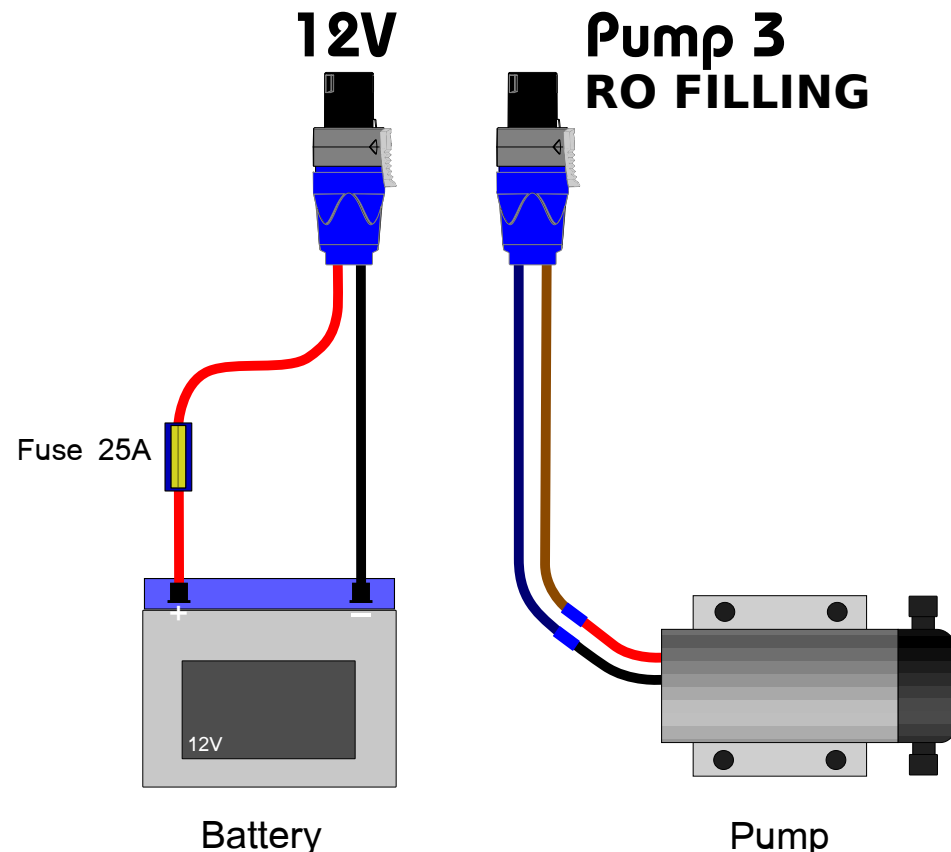
Specification	Value
Supply Voltage	11 - 14 VDC
Maximum Current	10A
Typical Drive Current	4-5A
Voltmeter Accuracy	+ - 100mV
Enclosure Material	ABS
Water Resistance	IP65
Working Temperature	0 to 40 Deg C

* Your battery is at risk of permanent damage if you disable low battery cutoff and continue to use your controller for long periods when the battery voltage has fallen below +10.5V

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Step 1. Wiring

Connect the pump controller following this diagram.
NOTE only fit the fuse once all connections are made.



Make sure correct fuse is fitted inline. Failure to do so will result in damage to the unit.

Observe correct battery polarity. Failure to do so will result in damage to the unit.

Step 2. Set Up - AutoCal

The RO Booster pump (pump 3) should already be connected to the RO.

Turn on the controller by pressing the up or down button. Keep the button held until the display lights up.

The RO controller is set to maximum pump power (as set in the Power-Up Menu).

Press and hold up and enter to go into calibration.



Press down to select AutoCal, then enter to start.



After several moments the calculated Cal value will be displayed and the controller is ready to use.

Press enter to exit calibration.



The Cal value can be adjusted manually by following these steps and adjusting the Cal value using up and down, instead of using AutoCal.

To enable or disable the low battery cutoff (when battery is below 10.5V):



Step 3. Use

The controller powers up showing the battery voltage.

Press enter to display the current water temperature.



Press enter to display the current water TDS value.



Press enter again to return to the current battery voltage.



To turn the controller off, press and hold enter.

Message	Description
888	An error has occurred while using AutoCal. This will happen when the motor is not connected or the enter button has been pressed to cancel it.
885	Pressure switch activated or motor disconnected.
88E	A dead end has been detected. If this is not the case, try increasing the Cal value.
88E	This message will start to flash when the battery is low (<11.0V). If battery is below 10.5V the pump will be disabled to protect the battery. (Unless low battery cutoff is disabled*)

Set Up - Tank Filling

To start filling the tank simply press and hold the up and down buttons together, then release as soon as the display says 'FIL'. This will activate the solenoid valve, allowing water to fill the tank, until the float switch detects that the tank is full.



The tank can only be filled when the unit is on, turning the unit off will stop the fill. While the solenoid valve is on and the tank is filling, the display will flash the message FIL.



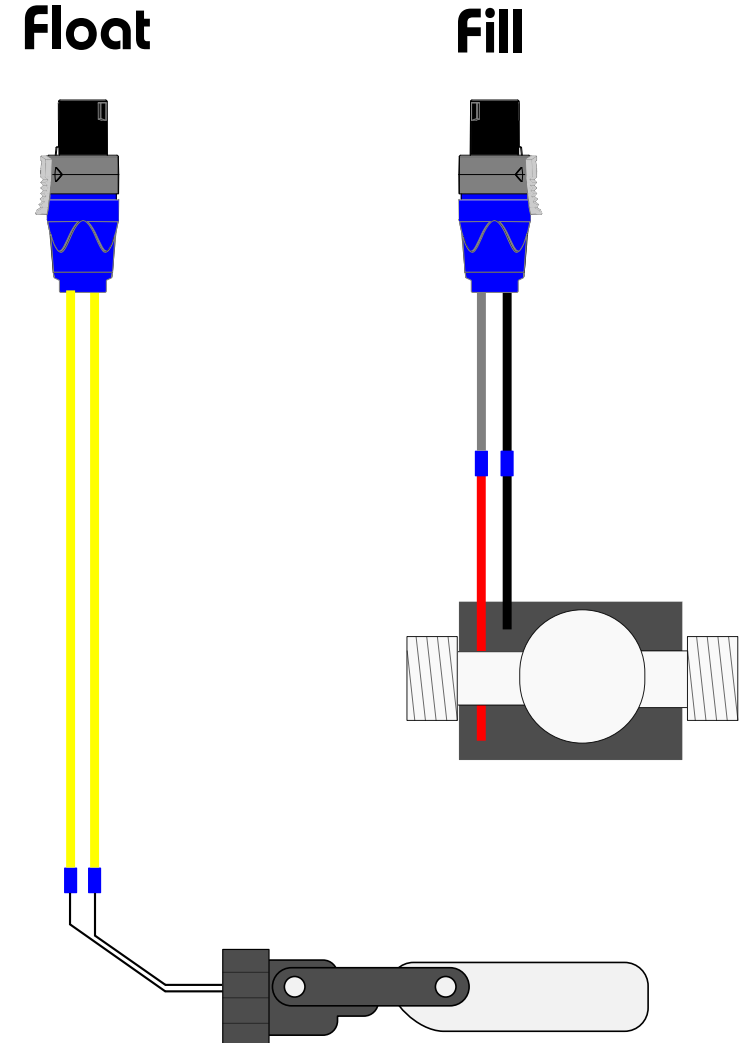
To manually stop the tank filling, press and briefly hold the up and down buttons again. The display will stop showing the FIL message.



The solenoid valve will be turned off if the unit detects a dead battery situation (below 10.5V).

Additional Wiring

Wire the solenoid valve and float switch following this diagram.



Set Up - Autoflush

To start filling the tank simply press and hold the up and down buttons briefly. This will activate the solenoid valve, allowing water to fill the tank, until the float switch detects that the tank is full. (See separate Tank Filling quick start guide).



For the initial period of the filling operation the Autoflush solenoid valve will operate and thereafter every hour.

This 'Autoflush' operation will keep the RO filter clean and in good condition. It removes the need for the user to complete an RO flush manually.

To manually stop the tank filling, press and briefly hold the up and down buttons again. The display will stop showing the FIL message.

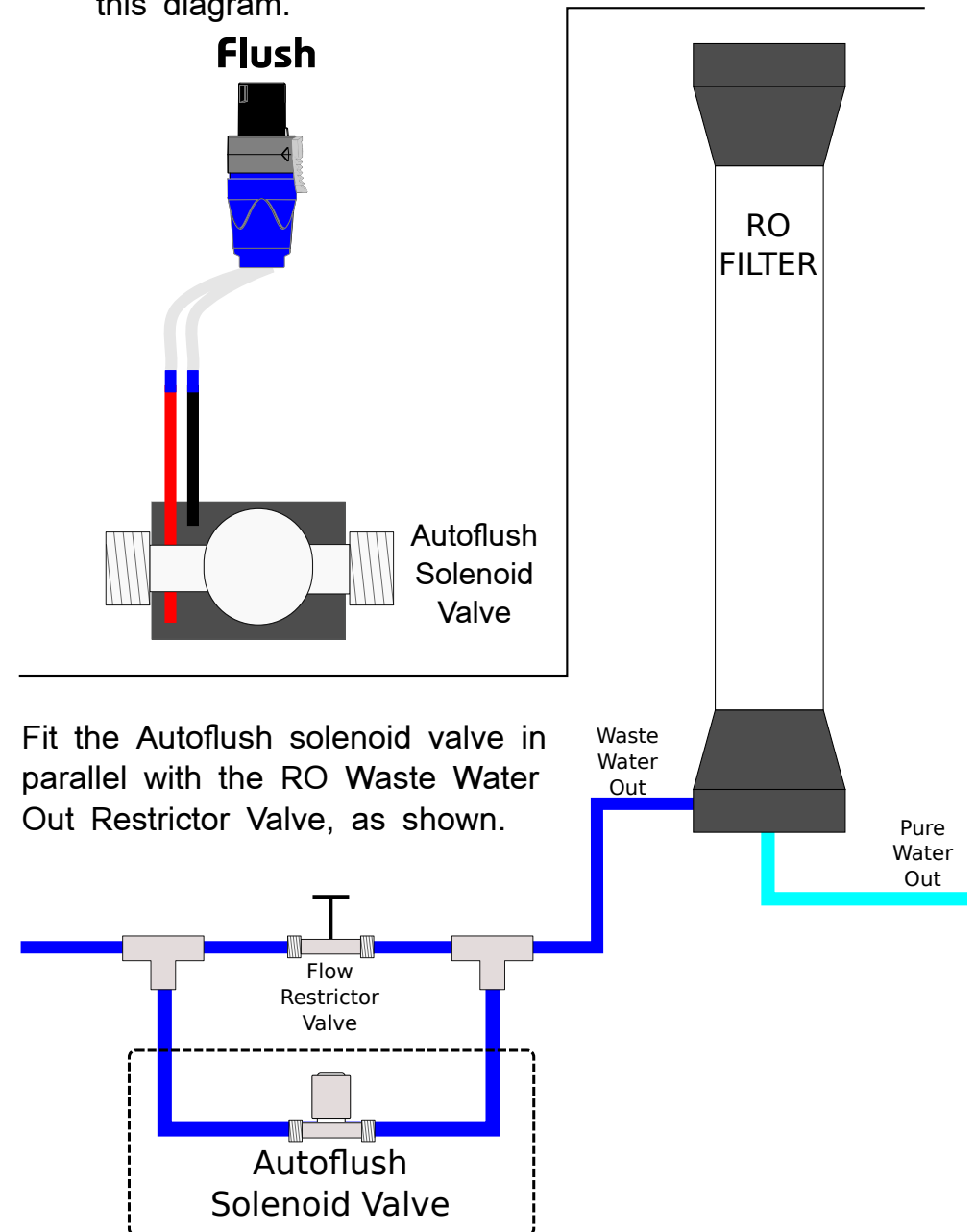


The Autoflush operation will cease as soon as the tank filling is stopped (either by a full tank or the user completing a manual stop).

The Autoflush solenoid valve will be turned off if the unit detects a dead battery situation (below 10.5V).

Additional Wiring

Wire the Autoflush solenoid valve following this diagram.



Set Up - RO TDS (Total Dissolved Solids)

The TDS function provides an indication of the water purity. The TDS values displayed are in ppm* (impurities in parts per million). The TDS meter is intended to check pure water and has a maximum reading of 50ppm.

To monitor water temperature (in degrees centigrade) press enter repeatedly until it displays tp.



Press enter again to monitor TDS reading (in ppm).



A TDS reading greater than 50ppm will display high.



When the TDS value rises above the TDS cut-off setting the pump will be stopped. The controller will display the following alternating message:



Indicating a high TDS level has stopped the controller.

The controller will resume pumping if the TDS level drops below the TDS cut-off value. Please see 'Settings' sheet for details.

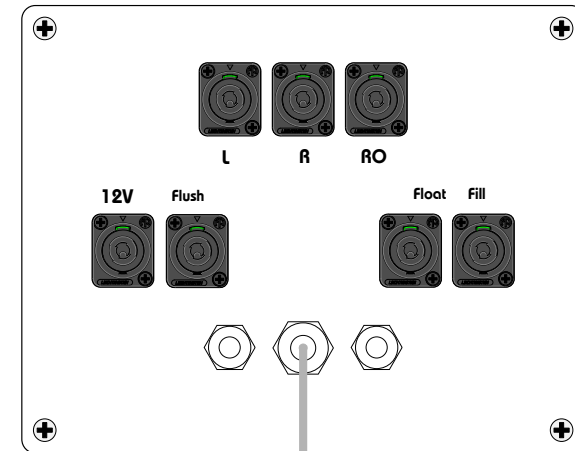
Note: When RO Controller is first turned on the TDS cutoff is disabled for approximately 60 seconds to allow any dirty water (above TDS cut-off value) to be pumped out.

* Probe must be undamaged, clean and free from dirt. Readings are only accurate to +/-2.5% of displayed value when dissolved solid is NaCl.

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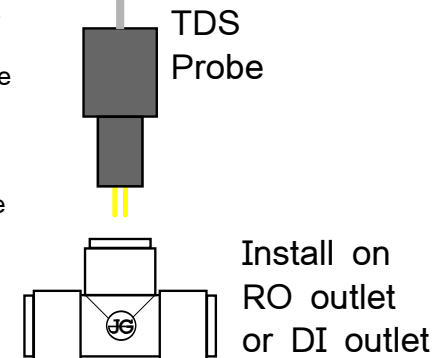
Additional Wiring

Fit the TDS probes in John Guest 12mm equal tee (not supplied) as shown on the diagram.



For single TDS installations we recommend the TDS probe be fitted after the DI, (de-ionising) vessels and for dual TDS installations we recommend the second TDS probe be fitted after the RO (reverse osmosis) filter.

For good cleaning a TDS of value below 5ppm after the DI is recommended.



Take care when handling TDS probes. Do not damage gold plated contacts as this will affect TDS accuracy. Ensure gold plated contacts are clean before use. Clean with ISOPROPANOL alcohol (IPA) and a soft cloth. Dirty contacts will affect TDS accuracy. Clean with IPA if readings appear to deviate over time. .

Step 1. Power-Up Configuration

The controller may have some additional settings only available from the Power-Up Menu.

Press and hold up, down and enter then apply power. The controller will start the Power-Up Menu:

 +  +  300, 884

Where '3on' is the month 1-12 of manufacture, e.g. 4=April.

Press enter again to see year of manufacture.

 988, 884

Press enter again to see firmware version.

 088, 2.30

Step 2. Select Flow Limit

If enabled the next parameter is Flow Limit (FLt). This is the max flow rate

 888, 899

e.g. Set to 50. This halves normal flowrate by 50% so when controller displays flow as 99 actual output is 50.

 OR  TO ADJUST THEN PRESS ENTER 

Step 3. Pressure Switch Disable

If enabled the next parameter is Pressure Switch Disable (PS)

 889, 800/088

This allows the user to enable or disable the controller's response to the pressure switch activating.

 OR  TO ADJUST THEN PRESS ENTER  TO 588

The controller will then move into the normal operational menu seen on a normal power up when the controller is turned on by pressing and holding the up or down button.

Step 1. Select Delay Configuration

The Left, Right and RO controllers may have some additional settings.

Press and hold up and down to enter 'Configuration'. The RO Filing Controller will display 'FIL'. Do not release the buttons, continue to hold:

If enabled the first parameter is delay (dLY):



dLY is the time delay for the pump to start pumping again after the level switch (LS) is de-activated. It can be set from 0-10 minutes with the up and down buttons.



Step 2. Select TDS cut-off

If enabled the next parameter is TDS cut-off (tdS).



If the TDS goes above this value the pump will be stopped. It can be set from 1-40 ppm. Setting to 'HI' disables the TDS cut-off.



Step 3. Rinse Boost

If enabled the third parameter is RINSE Boost (rin).



This is the amount of extra flow in 'RINSE' above 'WASH'. It can be set from to give extra flowrate from 10-50.

