Trebles™
Fluid Motion Specialists

Operation & Maintenance Manual

BoostBox

Cat5 Booster Set

UK CA | CE

5236-OM-2-3

CONTENTS

ABOUT THIS MANUAL

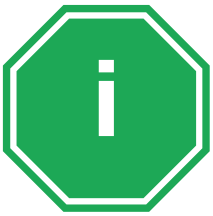
This manual provides essential technical guidance for the safe installation, commissioning, and maintenance of the Trebles BoostBox Cat5 Booster Set. It is designed to assist qualified engineers in ensuring the unit operates at peak efficiency while maintaining compliance with UK Water Regulations regarding Category 5 (AB Air Gap) back flow prevention.

Before proceeding, ensure all electrical and hydraulic connections adhere to the specifications outlined herein to guarantee system longevity and prevent unauthorised operation.

SYMBOLS USED

DANGER - Very Important safety information to prevent injury and damage to the equipment or system.

CAUTION - Important information to prevent any damage to the equipment or system.



IMPORTANT - Important information to help the equipment function correctly.

USEFUL - Information which is helpful but not critical to the operation of the unit.

FOR MORE INFORMATION

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EQUIPMENT OVERVIEW

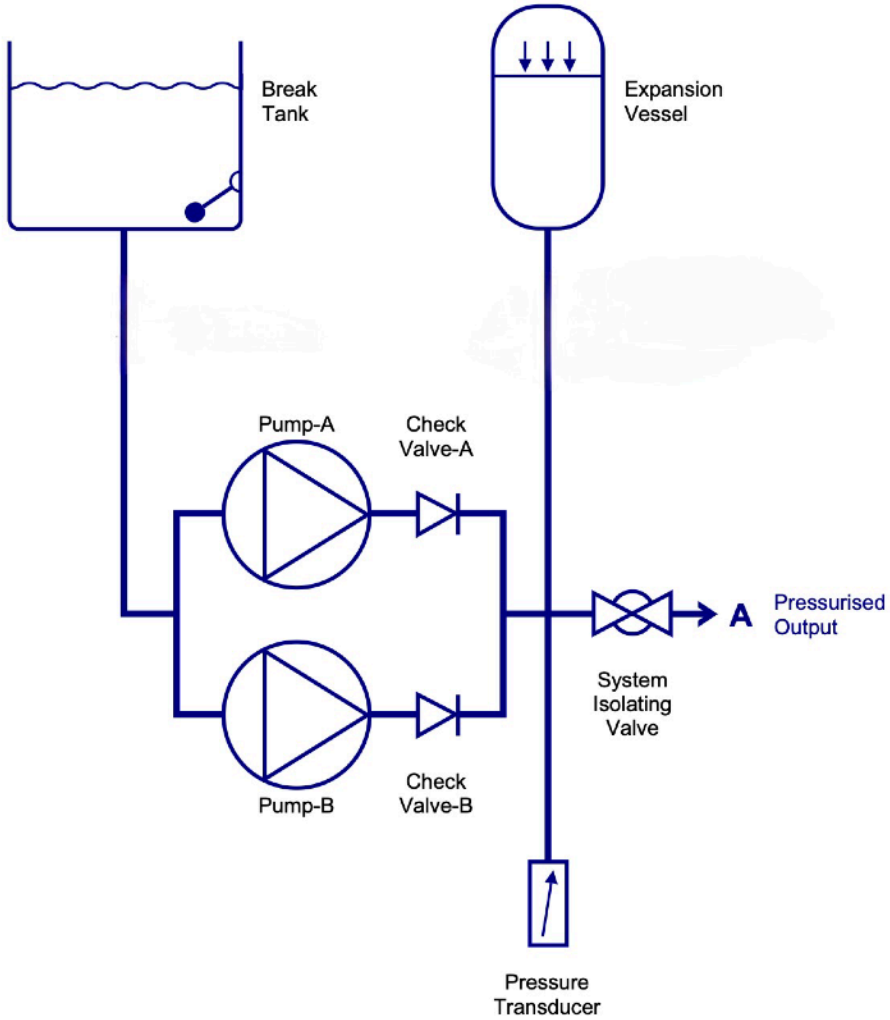
The Trebles BoostBox is a compact, versatile water pressure boosting solution designed for reliability and ease of installation. Featuring fixed speed pumps in single or twin configurations, the unit includes an integrated Cat5 AB Air Gap break tank to ensure full compliance with water safety regulations.

High-pressure variants are available across both configurations for demanding applications.

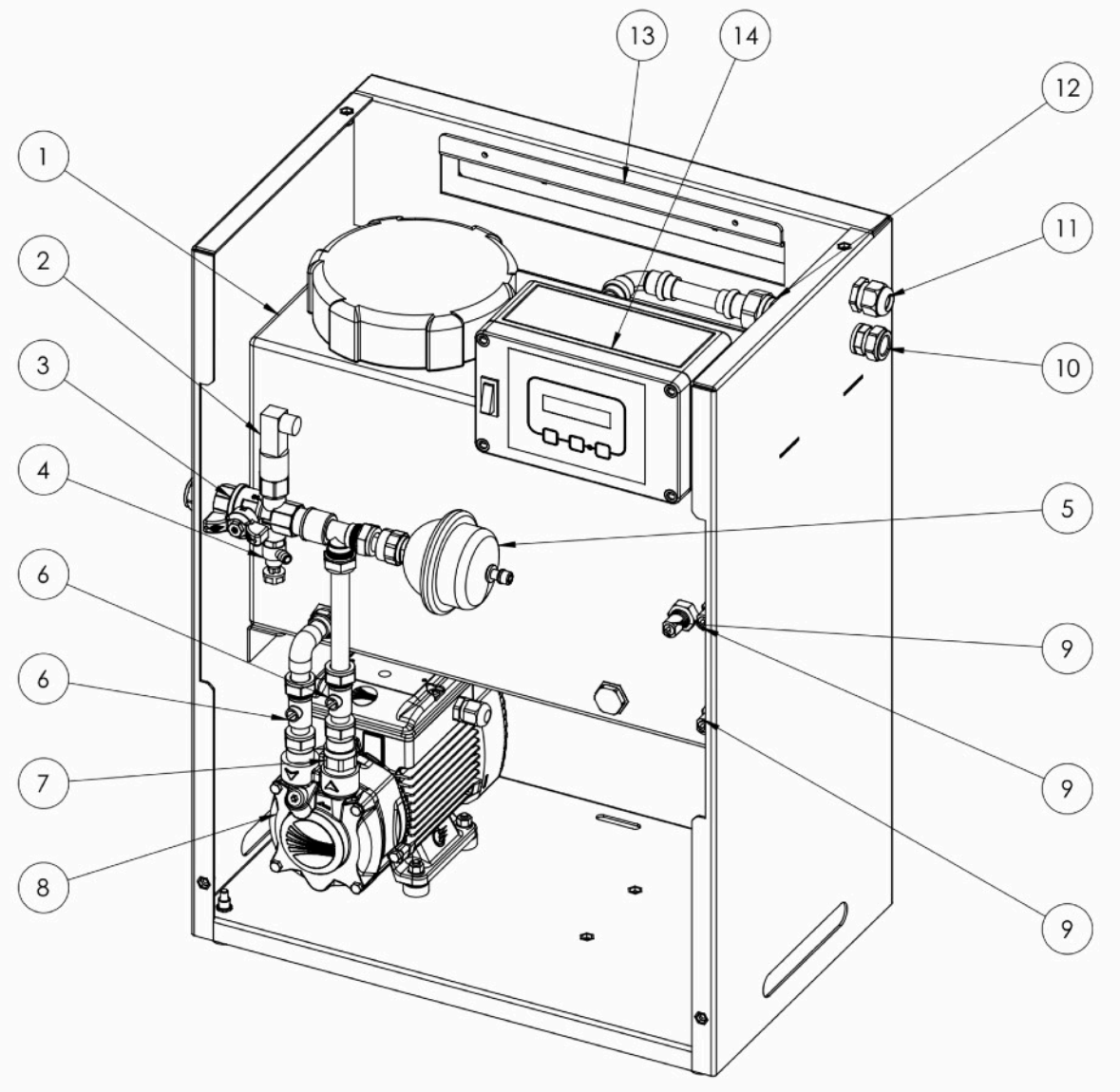
An Integrated 18L Cat5 AB Air Gap tank provides definitive back flow prevention to meet stringent water authority requirements whilst the solenoid valve inlet system is capable of filling at approximately 59 l/ min at 1 bar incoming pressure to ensure constant water supply.

Features two standard volt-free contacts, including a Common Alarm and a Programmable Alarm with the option to expand to a further 7 dedicated VFC.

Once installed, the unit can be left unattended for prolonged periods of time with minimal maintenance.

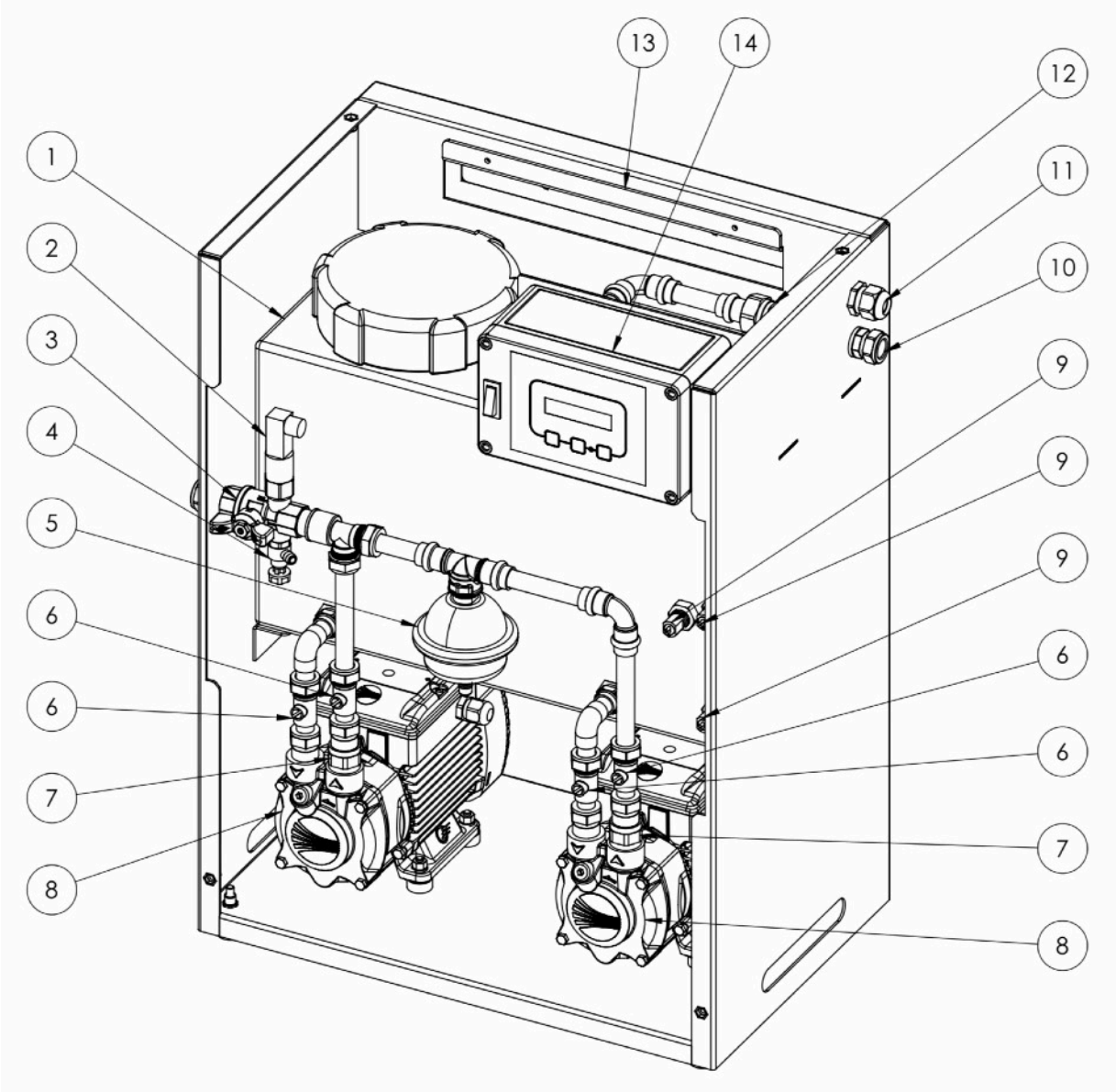


COMPONENT LAYOUT - 130/160



1	18L Tank	8	Pump
2	Pressure Sensor	9	Float Switch
3	System Isolation Valve	10	Inlet Connection
4	Drain Valve	11	Cable Gland
5	Pressure Vessel 0.16L	12	Inlet Solenoid Valve
6	Pump Isolation Valve	13	Wall Mounting Bracket
7	Check Valve	14	BoostBox Controller

COMPONENT LAYOUT - 230/260



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INSTALLATION

This unit is not designed to be installed outside and open to the elements. If there is no room inside the building it must be installed inside a suitable enclosure with necessary frost protection.

The BoostBox is fitted with a Category 5 Break Tank and as such has a 'spill over' weir. Do not install above other equipment that would fall into the water path should the water spill over.

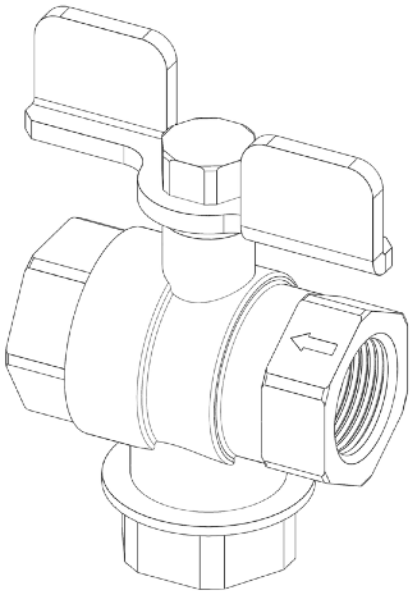
PIPE CONNECTIONS

Take care to ensure that all pipework is adequately supported to prevent any undue strain on the connections.

Any threaded pipe connections should incorporate a suitable joining compound or PTFE tape.

INLET FILTER VALVE

Every unit is supplied with a Combined Inlet Filter/Isolation Valve for the incoming mains into the tank. This prevents any potential debris making its way into the tank or solenoid valve.



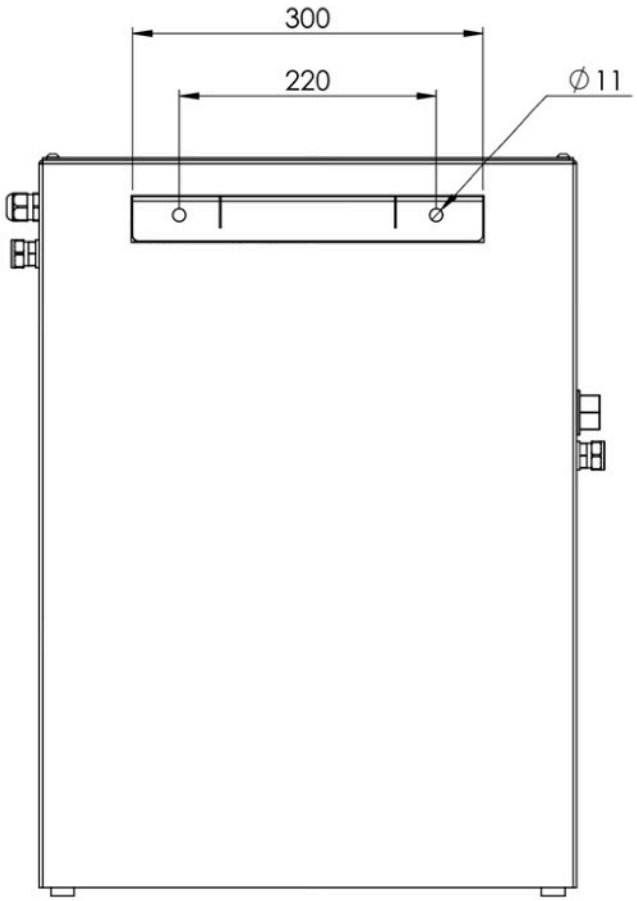
Although usually fed by clean water, this is highly recommended to be fitted as it prevents any potential debris holding the Solenoid valve open and overfilling the tank.

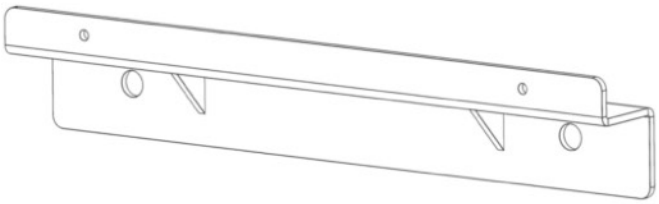
If any debris finds its way into the Solenoid Valve, this will not be covered under warranty.

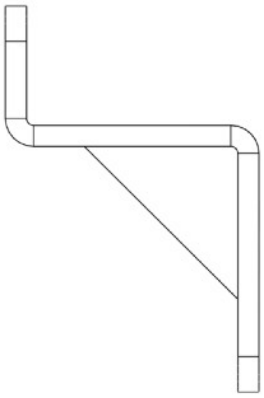
WALL FIXING

Ensure that the wall onto which the BoostBox unit is being installed is suitable for bearing the load and that suitable fixings are used. Failure to do so may result in the unit falling and causing damage.

- ✓ Remove the front cover of the BoostBox unit.
- ✓ Remove the 2 x M4 securing screws from the rear of the enclosure to free the wall bracket.
- ✓ Level, mark and drill the wall to match the wall bracket.
- ✓ Secure the wall bracket to the wall with suitable wall fixings.
- ✓ Hook the BoostBox unit onto the wall bracket and replace the M4 screws to secure.







ELECTRICAL SUPPLY

All electrical work must only be carried out by a qualified electrician, engineer or competent person.

The unit must be completely electrically isolated before removing any covers. Cables connected to any volt-free contacts may be supplied from another source and remain live; these must be isolated elsewhere.

- ✓ **1ph ~ 230V AC ~ 50Hz electrical supply and earth should be connected to the live, neutral and earth terminals respectively in the controller, fed from a fused isolator.**
- ✓ **Idling power consumption is approximately 3.5W.**
- ✓ **The power supply should not be interrupted by any time clock which may be used to control the boiler or chiller.**
- ✓ **The two VOLT-FREE Relay Terminals are labelled STOP and REMOTE. Each contact is mains (230V AC) rated up to 10A (resistive). They're change-over contacts with a COMMON (C), NORMALLY OPEN (NO), and NORMALLY CLOSED (NC) terminal. These states occur when the relay is de-energised; normally open becomes closed when energised.**

COMMISSIONING

It is recommended that this equipment is commissioned by competent personnel only. Any damage incurred through incorrect commissioning / set-up will not be covered under warranty.

1 - TANK FILLING

Once all pipe connections have been made, with the system isolation valve closed, switch on power to the unit. This will open the solenoid valve and allow the tank to fill with water.

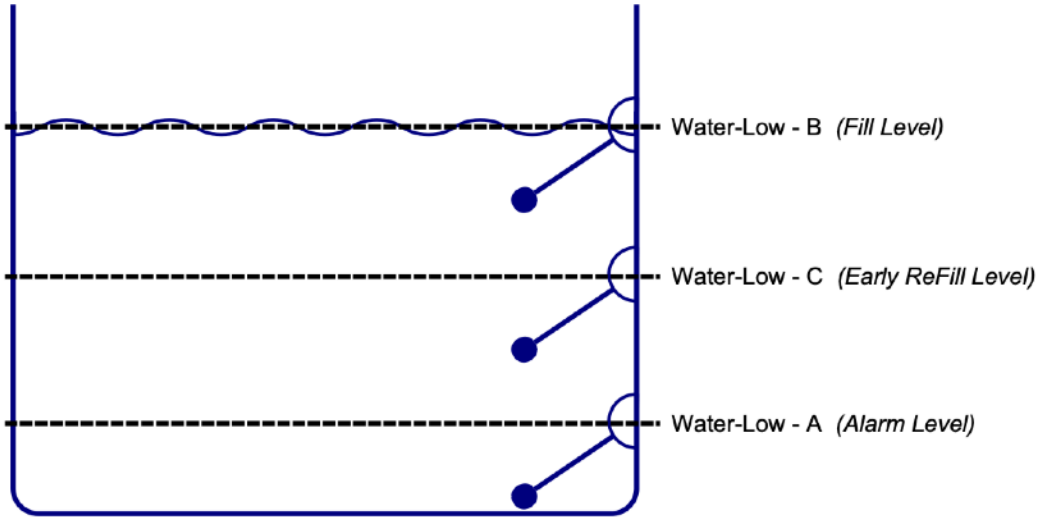
The BoostBox will show ‘Water Refilling’ during this process.

When the water level reaches each float switch, the logic is as follows:

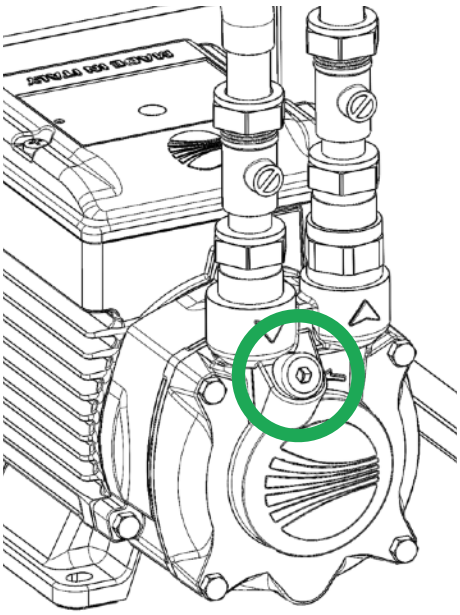
✓ Level Switch A - Low Water Alarm is triggered, pumps are prevented from running.

✓ Float Switch B - Closes Solenoid, maximum tank water level.

✓ Level Switch C - Opens Solenoid, allowing tank to refill. Pumps can continue to run.



2 - VENTING PUMPS



- ✓ Ensure the system isolation valve is closed.
- ✓ Ensure Pump Isolation Valves are open.
- ✓ Open the bleed screw located on the pump body.
- ✓ Once some water seeps from the bleed screw, tighten and wipe away any excess water.
- ✓ After allowing the tank to fill, check the solenoid valve has closed and water level is at the highest float switch.
- ✓ The pump should now be primed.

It is important to check pumps are fully vented and rotating correctly before leaving the equipment.

3 - INITIAL START UP

- ✓ Open the system isolation valve, thus allowing the transducer to read the system pressure.
- ✓ After a few seconds the pump will begin to run. The system pressure will be displayed on the controller.
- ✓ When demand ceases and the system is up to pressure, the unit will stop running.
- ✓ The unit is now in normal operation.

All BoostBox units are fixed speed units and as such will operate on the pump curve, ceasing to run just below their closed valve pressure.

OPERATION

NORMAL RUNNING

The BoostBox unit should always be left powered and supplied with water; it can then operate at any time to ensure that any water demand is always boosted within the mechanical limits of the pump. When the system pressure drops below the differential (1.0 Bar default), the unit will run until the set pressure is reached - which is based upon the closed valve of the installed pump.

Any errors will be displayed on the screen along with a red LED light. If the Volt-Free Relays are utilised, these errors can also be communicated to the BMS. Both relays can be fully customised and standard set up can be found later in this manual.

Twin pump units alternate pump operation to ensure even wear and minimise the risk of seizure. They also offer a standby function so if one pump fails the other automatically takes over until the faulty pump can be repaired or replaced.

Twin pump BoostBox units can only operate as a duty/standby.

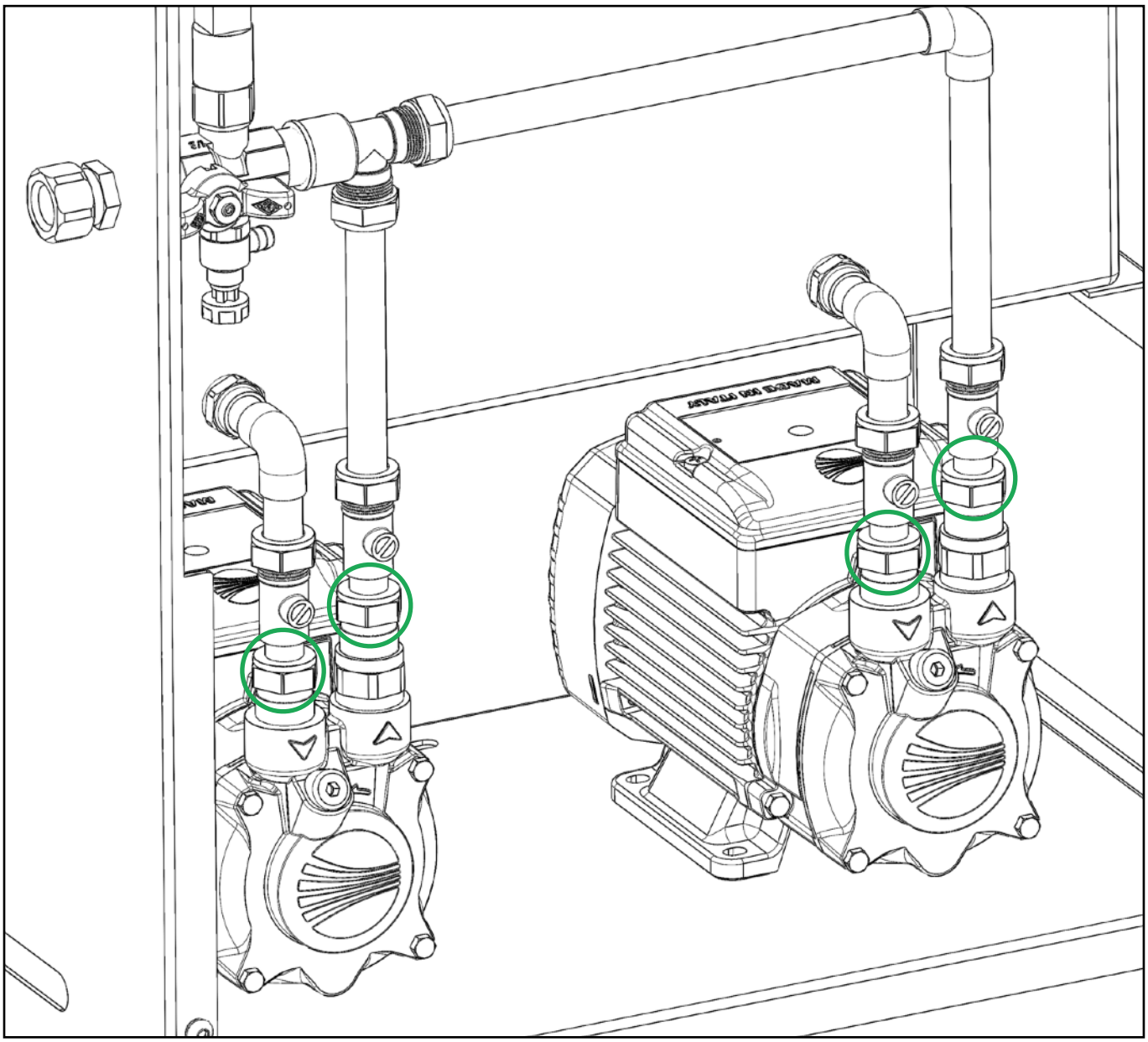
Assist operation is disabled as the tank would empty too quickly.

The BoostBox features a Category 5 AB Air Gap within the tank. This ensures maximum back flow protection to the mains water in case of a tank overflow. If a tank filling issue arises, water will first flow out of the overflow and spill over the weir if the overflow becomes overwhelmed.

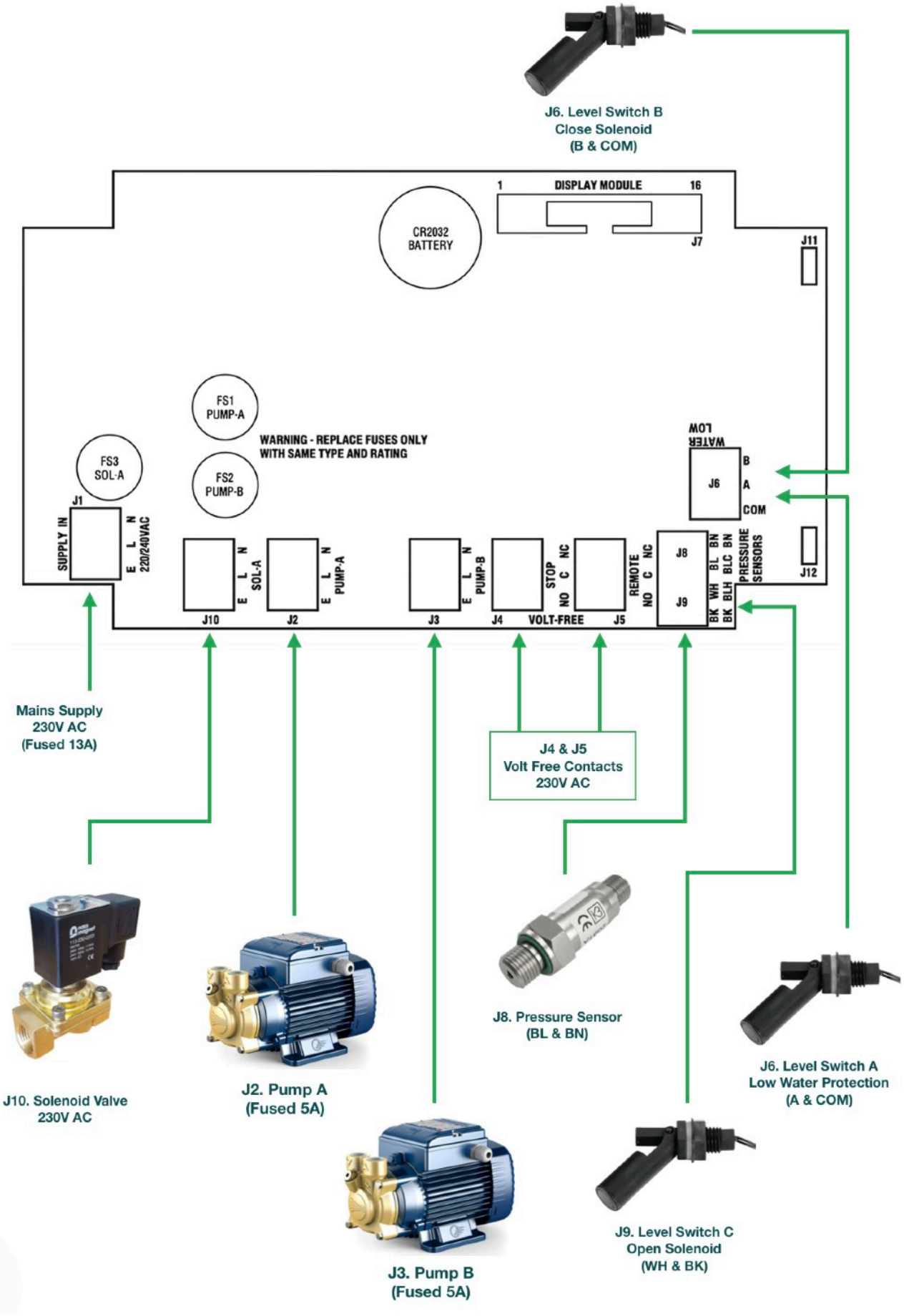
PUMP REPLACEMENT

The pumps within the BoostBox unit have a isolation valve installed on both the inlet and outlet.

- ✓ Using a screwdriver, isolate the inlet/outlet service valves.
- ✓ Remove pump bolts that secure the pump to the enclosure base.
- ✓ Loosen the union at the bottom of the service valve.
- ✓ Remove / replace pump.

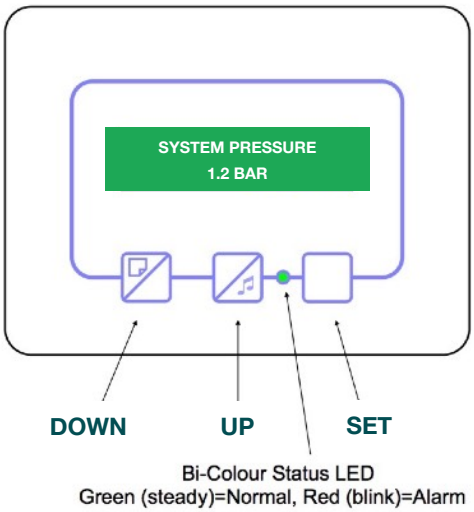


WIRING DIAGRAM



CONTROLLER

NAVIGATION / BUTTONS



During normal operation the display will show ‘Trebles’ along with the current system pressure.

Use the up and down arrow keys to navigate the menus and use the set key to select or as an ‘enter’ key.

When operating normally, if you press and hold any of the keys the controller will respond as follows:

DOWN Key

With no auxiliary alarm latched, holding the down key will show the history log. The last 32 error events are stored here along with the time and date of occurrence. If multiple errors occurred simultaneously they will scroll across in sequence. The most recent event is numbered as 1.

UP Key

Mute Alarm - Holding the up key will mute the audible alarm.

SET Key

Setup Entry - Press and release within 1 second will cause the controller to prompt for the PIN in order to access the setup menus.

Standby Mode Toggle - Press and hold for 5 seconds and the controller will switch off and display ‘standby mode’. This mode prevents the unit from operating.

Upon accessing the controller you will be asked for a passcode: 1111

This allows for maintenance user settings.

For more advanced setting / programming please contact our office.

ERROR MESSAGES

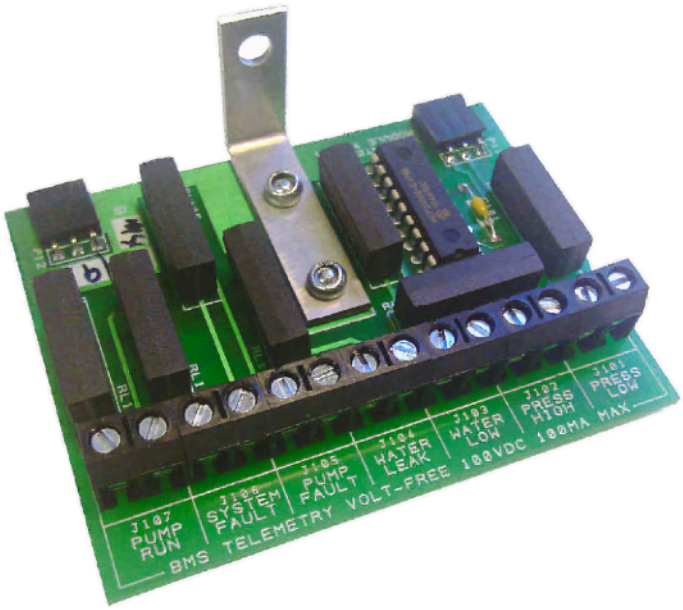
If any errors or conditions out of normal operation are detected, the following error messages will appear on lower line of the display. If there is more than one error they will scroll across so be sure to wait for a moment to check you've seen all the errors.

Display Message	Description
PRESSURE LOW / HIGH	The current pressure is outside the limits of the High and Low pressure alarm settings.
PUMP FAULT (PUMP FAULT A / PUMP FAULT B)	These messages reflect the status of the respective pump fuses. If this message occurs, check the respective fuse.
SENSOR ERROR	The controller is detecting a problem with the signal from the transducer. Check the transducer and its connections for any signs of damage.
WATER LOW	The float switch is indicating the water level in the tank is low and therefore stops the pumps operating to prevent dry running. Check water level. If the water level is fine check float switch for damage or disorientation.
WATER REFILLING	The refill timer is running to allow the tank to amass a suitable amount of water before the pumps are switched back on. This prevents pumps cycling on and off when the water level is hovering at the bottom of the tank.
SYSTEM LOCK	Displayed when the BoostBox has been locked out from use, usually only done for safety reasons.
SERVICE DUE	The preset time period within the setup parameters has elapsed.
WATER LEAK	Normally disabled on the BoostBox. Indicates that the pump has been running continuously for longer than the pre-determined time within the setup parameters.

FACTORY SETTINGS

Parameter	130	230	160	260
Set Pressure	4.0 Bar		8.0 Bar	
Differential	1.0 Bar			
P-Low Alarm On	0 (Disabled)			
P-Low Alarm Off	0 (Disabled)			
P-High Alarm On	5.0 Bar		9.0 Bar	
P-High Alarm Off	4.5 Bar		8.5 Bar	
User PIN	1111			
Pump-A Control	AUTO			
Pump-B Control	OFF	AUTO	OFF	AUTO
Water-Low Mode	A+B+C			
Invert Water A	N			
Invert Water B	N			
Invert Water C	Y			
Water-Low Reset Timer (secs)	60			
Leak Alarm (Minutes)	0 (Disabled)			
AUX Input Port	Disabled			
STOP Relay Activation				
Pressure Low	Y			
Pressure High	Y			
Water Low	N			
Water Leak	N			
Pump Fault	N			
Service Due	N			
System Fault	Y			
Failsafe	Y			
REMOTE Relay Activation				
Pressure Low	Y			
Pressure High	Y			
Water Low	Y			
Water Leak	Y			
Pump Fault	Y			
Service Due	Y			
System Fault	Y			
Failsafe	N			

OPTIONAL EXPANSION BOARD

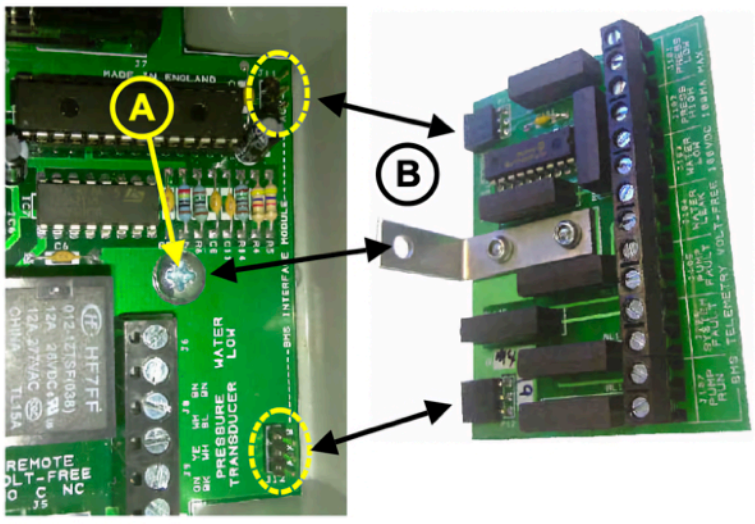


7 Independent Volt-Free Contacts

- Pressure Low
- Pressure High
- Water Low
- Water Leak
- Pump Fault (any Pump)
- System Fault
- Pump Run (any Pump)

Each contact independent of others
(normally OPEN - CLOSED on event)
Each contact rated at 100v 100mA (DC maximum - *non-inductive*)*
Contact life expectancy (@1v, 1mA) 1 x10_6 operations
True Plug & Play - seats directly into controller mainboard (no menu setup required)

INSTALLATION



1. Remove Screw at ‘A’

2. For ease and comfort of wiring, connect any required cabling to Accessory Board Terminal Blocks.

3. Carefully plug Accessory Board into the two sets of vertical Header Pins located on the Mainboard (see ‘B’) ensuring all pins mate accordingly.

4. Replace Screw at ‘A’ to secure Accessory Board.

WARRANTY

Congratulations and thank you for purchasing a Trebles product.

At Trebles we pride ourself on the quality of all our products, ensuring they are manufactured to the highest standard and designed to provide a long service life.

The BoostBox Cat5 Booster Set is guaranteed by us to be free from defects in materials or workmanship for 2 years from the date of purchase.

We will repair or replace the unit free of charge within this 2 year period, if identified to be a direct result of faulty material or workmanship. This guarantee does not cover any damage from incorrect installation, improper use or normal wear and tear.

Proof of purchase, or the product serial number, must be provided in the event of a claim in order to identify that the unit is within this warranty period.

Model	Serial No.	Date Purchased

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