flowtech®
WATER SOLUTIONS

flowpac

SS Wall Mounted Range CAT5 Packaged Booster Sets

OPERATION AND MAINTENANCE MANUAL

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OPERATION & MAINTENANCE
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BOOSTER SET INSTALLATION
FAQs

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Can I connect the booster set directly to the incoming cold water main?
Yes, the unit is designed for this application.

Are fixings supplied to mount the unit to the wall?
We do not supply fixings for the unit or the wall mounting brackets due to the unknown material of the wall type.

Can I connect hot water to the tank?
No, the tank and pump are designed for use with cold water normally circa 10°C however the tank and pump are suitable for temperatures from up to 30°C.

Can I reduce the size of the inlet pipework when connecting to the ball valve in the tank?
Yes, however the ball valve has been sized based on the flow capability of the pumps so this may or may not affect the refill rate of the tank.

Can I reduce the size of the discharge pipework when connecting to the system?
Yes, this is possible however care must be taken to ensure the booster set can overcome the resistance of the reduced bore pipework, care must also be taken to ensure the velocity noise is acceptable.

Do I need to put isolating valves on the discharge?
Yes, a valve with unions must be installed on the discharge manifolds to enable correct commissioning and service and maintenance of the unit, Valve kits are available from **flow**tech Water Solutions.

Do I need to support the suction and discharge pipework on the booster set?
The installer must support their pipework which is connected to the discharge pipework on the booster set adequately, failure to do so may cause undue stress on the fittings and cause leaks on the pipework.

Can I adjust the discharge pressure up or down on the controller/inverters?
It MAY be possible to increase or reduce the pressure generated by the booster set from the design pressure however this should not be carried without checking the performance curve of the pumps and confirmation of suitability from Flowtech Water Solutions Service Department. Failure to check above and proceed to reduce or increase the pressure beyond the pump capabilities may cause damage to person/s or property and WILL cause premature failure of the pump and or pump components which will not be covered by warranty.

What type of MCB should I use to protect the booster set?
A Type B MCB must be used on all FIXED SPEED booster sets to avoid nuisance tripping.
A Type C MCB must be used on all INVERTER DRIVEN booster sets to avoid nuisance tripping.

Can I connect the booster set to a generator?
No, the booster set must be connected to a stable power supply with a voltage of 230volts ±10% or 415volts ±10% depending on the model of booster set you have purchased.

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70 dB
DECIBEL LEVEL

COMPACT DESIGN

1~
SINGLE PHASE

CE MARKED

Available in two standard sizes

3 Bar
6 Bar

GENERAL INFORMATION

flowpac SS Wall Mounted Range
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These instructions are to assist in the installation of the CAT5 packaged cold water booster set, please follow them carefully.

If, having read this Operation & Maintenance Manual, there is any doubt about any aspect of the installation please don't hesitate to contact our technical team.

Definitions of Safety Warnings and Precautions

WARNING!

Indicates a potentially hazardous situation which, if not avoided, can result in serious injury or death.

CAUTION!

Indicates a potentially hazardous situation which, if not avoided. Can result in minor to moderate injury, or serious damage to the product.

SAFETY
INFORMATION

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It is essential that correct and safe working practices are adhered to at all times when installing, operating and/or maintaining any piece of equipment. Always consult safety data sheets, operating and maintenance manuals, Health & Safety legislation and recommendations and specific requirements of any equipment manufacturer, site controller, building manager or any other persons or organisation relating to the procurement, installation, operation and/or maintenance of any piece of equipment associated or in conjunction with any product provided by **flow**tech Water Solutions.

This document is intended for ALL installers, operators, users and persons carrying out maintenance of this equipment and must be kept with the equipment, for the life of the equipment and made available to all persons at all times. Prior to carrying out any work associated with the set it is essential that the following sheets are read, fully understood and adhered to at all times:

The packaged booster and tank must only be installed, operated, used, and/or maintained by a competent person; A competent person is someone who is technically competent and familiar with all safety practices and all of the hazards involved.

Tanks are designed to operate at atmospheric pressure only and must not be pressurised or be subjected to vacuum. **flow**store tanks are designed to operate within a specific temperature range between 0°c & 30°c. UNLESS SPECIFICALLY STATED OTHERWISE.

Tanks are designed to contain clean, wholesome water only, and are not suitable to be in contact with water containing additives of any kind other than those included by any local water authority for the purposes of maintaining water hygiene and within standards and to concentrations allowing such water to remain as of a potable standard, being fit for drinking purposes.

Any damage caused to any equipment by misapplication, mishandling or misuse could lead to risk of Electrocution, Burns, Fire, Flooding, death or injury to people and/or damage to property dependent upon the circumstances involved. **flow**tech Water Solutions accepts no responsibility or liability for any damage, losses, injury, fatalities or consequences of any kind due to misapplication, mishandling or misuse of any equipment, or as a result of failure to comply with this manual.

Failure to install, operate, use or maintain the equipment in accordance with the information contained within this document could cause damage to the equipment and any other equipment subsequently connected to it, invalidating any warranties provided by **flow**tech Water Solutions to the buyer.

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SAFETY WARNINGS & PRECAUTIONS

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These instructions should be read and clearly understood before working on the system. Please read this manual carefully and all of the warning signs attached before installing or operating the equipment keep this manual handy for your reference. This equipment should be installed, adjusted and serviced by trained and qualified personnel. Failure to observe this precaution could result in bodily injury.

WARNING! - Install an emergency stop key separately from the isolator. Rotating shafts can be hazardous.

WARNING! - This equipment has a high leakage current and must be permanently fixed to earth.

WARNING! - Do not attach or remove wiring or connectors when the power is applied. Do not check signals during operation. When the power is turned on and the running command is on, the motor will start rotating. The stop key is only effective when the function is set. If there is a power failure and an operation instruction is given the unit may start automatically when the power is reinstated.

WARNING! - Make sure that the input voltage is correct. Be sure to install the unit in a room that is not exposed to direct sunlight and is well ventilated.

Avoid environments which have a high ambient temperature, high humidity or excessive condensation. Avoid dust. Corrosive gas, explosive gas, inflammable gas, grinding-fluid mist and salt damage, etc.

WARNING! - Do not connect the power source to any terminals except power connectors.

WARNING! - Motor control equipment and electronic controllers are connected to hazardous line voltages. When servicing drives and electronic controllers, you may be exposed to components at or above the line potential. Extreme care should he taken to protect against shock. Dangerous voltage may exist after the power light is off.

Wait more than 5 minutes after turning off the power supply before performing maintenance or inspection. Hazard of electric shock. Disconnect incoming power before working on this unit.

WARNING! - The inverter should be protected separately against ground fault.

Observe the regional regulations for electrical installation!

CAUTION! - It is strongly recommended that all electrical equipment conforms to National Electrical Codes and local regulations. Only qualified personnel should perform installation, alignment and maintenance. The manufacturer reserves the right to alter the technical data in order to make improvements or update information.

CAUTION! - Failure to observe these rules will render the guarantee invalid. The same applies to repair jobs and/or replacement. Your legal rights are not affected.

CAUTION! - The manufacturer declines all responsibility in the event of damage or injury caused as a result of tampering with the equipment.

CAUTION! - Do not switch on/off power supply to run/stop the motor/system! Start the unit only by using run button or external run command.

We strongly recommend that commissioning and service work is carried out by the manufacturer's personnel or appointed agents ~ please contact our technical sales department for information on our commissioning and service contract packages.

CUSTOMER / CONTRACTOR RESPONSIBILITIES

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It is the responsibility of the customer and/or the contractor:

- To ensure that anyone working on the equipment is wearing all necessary protective gear and/or clothing.
- Is aware of appropriate health & safety warnings.
- Has read the information in this section of the manual.

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OFFLOADING & HANDLING

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Do not lift the booster by any pipe work or control panels.

The set must be inspected upon delivery to site, and prior to any site positioning and/or installation. Any damage to, and/or unsuitability of the set must be identified prior to installation. Failure to do so may result in death or serious injury and/or structural failure of the booster or tank resulting in serious damage to equipment and/or property.

The flowpac SS wall mounted units are despatched on a wooden pallet and are covered in protective film, it is recommended that the unit be retianed in the protective packaging until the product is ready to be installed. The unit will arrive pre-packaged and wired ready for installation. This product has been fully tested at our works. The unit shoud be throughly checked for physical damage that may have been caused during transit. If the unit is found to have damage it must be reported immediatley and should not be installed.

SITING & POSITIONING THE BOOSTER SET

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The booster set must be installed in an area where in the event of any pipe work or component failure the resultant water leak can not cause any damage to surrounding property, if the unit is to be installed or stored prior to installation in an unheated room then adequate frost protection must be installed, the maximum ambient temperature should not exceed 35°c.

The unit should be sited in a dry frost free enviroment and wall mounted in a position that will allow adequate room for general maintenance and service.

The booster set is designed to be wall mounted.

It is essential that any wall or other supporting structure to which the unit and/or any associated equipment is to be positioned and/or attached is designed, engineered and fabricated to carry the entire mass of the equipment including the water that the tank will contain under worst-case fault conditions. For example, tank filled to maximum nominal capacity at

overflow condition. Failure to observe this may result in death or serious injury and/or serious damage to equipment and/or property.

A full bore isolating valve must be installed on the suction and the discharge to enable commissioning and maintenance to be carried out correctly.

Before switching on the booster set please ensure the pumps have been adequately primed.

INSTALLATION & CONNECTION

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- Position and secure the unit to the wall.
- Connect the inlet water supply (left hand side) via an isolating valve.
- If the pressure available at the ball valve is below 0.3 bar, a low-pressure orifice must be obtained and fitted.
- Connect the overflow pipework (left hand side) and ensure any discharge of water is to a safe place where an overflow will be noticed and rectified.

It is the responsibility of the installer to ensure that the overflow can keep up with the incoming water volume.

- Connect the discharge pipe to the system via an isolating valve.
- Connect the electrical supply cable.
- Vent the pump and fill the system.
- Test and commission.

It is the Installer's responsibility to ensure that the tank is correctly connected to all incoming, outgoing, drain and overflow and/or any other related pipe work and/or electrical equipment of any kind before the tank is filled.

The Break tank is constructed to have a weir slot as required by the water bylaws to prevent back flow contamination, if the inlet ball valve or NRV suffered a catastrophic failure the overflow may not be able to keep up with the inflow in which case excess water will be ejected through the weir slot and onto the plant room floor, if this is not acceptable then consideration should be given to fitting the unit with a drip tray with overflow to drain.

Flowcon VSD - B Inverter is an electronic control device for single phase electric pumps which enables automatic start-up and shutdown of the pump, protecting it in the event of adverse operating conditions (failure of water supply, motor overload, risk of ice).

The power supply wiring should be arranged such that it enters the enclosure through the cable gland and then enters the controller.

The cable used for the incoming supply must be of adequate size to carry the motor full load current. This is shown on the duty plate. All connections must be made using the appropriate wiring diagram for the equipment being installed.

Never operate this product with the Inverter or motor terminal cover removed.

It is essential that this unit is earthed to the building earth system.

WIRING DIAGRAM

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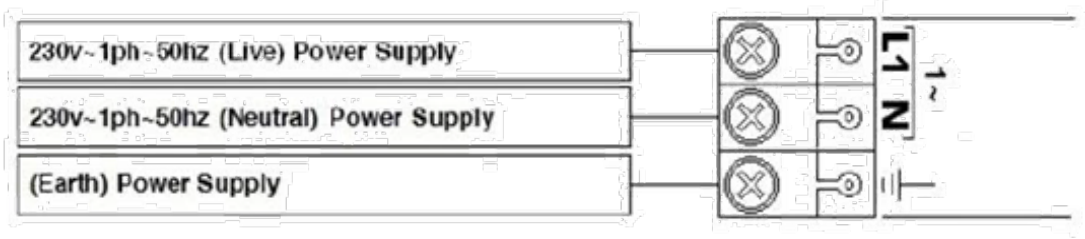
Flowpac SS40 Wall Mounted

Electrical supply: 230 volts + or – 10%
Motor 0.75kw
Full load current: 4.98 amps
Motor protection class: IP68

Flowpac SS60 Wall Mounted

Electrical supply: 230 volts + or – 10%
Motor 0.75kw
Full load current: 4.98 amps
Motor protection class: IP68

The electrical supply feed should be a dedicated line to minimise electromagnetic interference. A suitably rated MCB protected electrical connection should be made.



PROGRAMMING &
OPPERATION

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After making all the electrical connections and ensuring the correct condition of all components, close the unit cover and power up the system.

The Inverter will start up the pump automatically to enable circuit filling.

If the pump does not start, or anomalous vibrations are detected, ensure correct connection of the pump and relative capacitor.

When a draw off point connected to the system is opened the pressure will start to fall and the pump will start to pressurise the system

The pump will continue to run until the demand ceases completely and the flow has stopped.

CAUTION! When the pump stops the pipes might be still under pressure; therefore, before any intervention, it is advisable to discharge the system by opening a tap.

1. Display with digital pressure indicator, error display, configuration menus.
2. Programming keys
3. Green mains power ON indicator light (LINE)
4. Red error indicator light (FAILURE)
5. Yellow "pump running" indicator light (PUMP ON)

Key Description
Arrow/reset: scrolls forward through menus and performs unit reset in the event of alarms and/or errors

"+" key: increments the parameter value currently on display; enables device operation override (starts pump as an override command and temporarily disables the dry-running protection to facilitate loading on initial start-up).

"-" key: decreases the parameter value currently on display; shows the absorbed current (optional)

The menu is divided into two levels: the user level and the installer level. The user level is usually visible during normal operation and enables the user to control the system operating status, reset any errors and modify the language.

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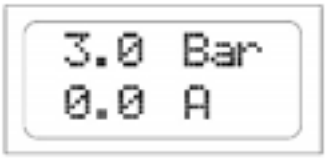
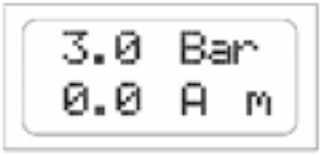
USER PARAMETERS

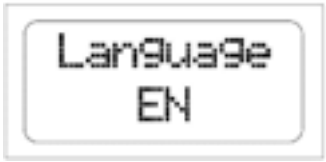


These parameters are normally accessible when the device is powered.



Main screen: during normal operation of the inverter, the display shows the device status. The top line displays the pressure measured in the system, while the bottom line shows the motor current absorption. In this screen, press and hold the key “+” to override pump operation also when there is no water, temporarily disabling the dry-running protection to enable the pump to be filled.

When the device is configured to operate as part of an alternating twin pumping unit, the bottom line shows the "master" or "slave" status by means of the letter "m" or "s".



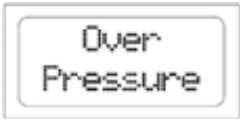
Language: the language of the menus and alarm messages can be personalised as required. Use keys + and – to modify the parameter value.

ALARMS

Dry running: this message appears when the system is shut down following absence of water on pump intake. If the auto-reset function is enabled, the inverter automatically attempts to restart and check for renewed availability of water. To remove the error message from the display immediately, simply press the central key “reset”.

Current Overload: this alarm is displayed when electric pump absorption exceeds the maximum set current as entered in the parameter Imax; this may occur following intensive use of the electric pump, continuous restarts at close intervals, problems with the motor windings, seizure of the pump rotor or following problems with the electrical connection between the motor and inverter. If this alarm trips frequently, arrange for the system to be checked by the installer. To remove the error message from the display immediately, simply press the central key “reset”.

Overpressure: when this alarm trips, this means that the inverter has detected a system pressure value over the value set in the parameter “Plimit”. This may occur in applications with the pump under load conditions, i.e. when the pump pressure is added to the filling pressure on inlet. If the error occurs frequently, try to increase the parameter Plimit or contact the installer for assistance. To remove the error message from the display immediately, simply press the central key “reset”.



TROUBLESHOOTING

When one of the system valves is opened the pump does not start or starts only after a few seconds.
The set Pmin value is too low, or a check valve has been fitted downline of the device. Check the setting of the parameter Pmin.
If the parameter “Aux. Con.” is set to “2” or “3” and an electric float is used, check to ensure correct operation. If no electric float is used, check that the jumper is wired on the relative terminals.
Ensure correct connection between the inverter and the electric pump

The pump does not stop
The check valve inside the inverter may be blocked in the open position; ensure correct valve movement and remove any foreign bodies by means of compressed air if necessary.
The sensor reading the valve position is faulty; arrange for the device to be checked by the manufacturer.
On closure of the valves, the pump stops but restarts after a few seconds without any leaks from the system.
The difference between the values Pmin and Pmax is too small, and the pressure drop that occurs on pump shutdown is sufficient to enable restart. Increase the value Pmax or reduce the value Pmin. Increase the size of the expansion vessel installed.

The pump starts and stops continuously.
There are leaks from the system. Check the various hydraulic connections. Check on display if there are any pressure drops when the valves are closed. Check for the possible presence of dirt in the check valve of the inverter preventing total closure, and if necessary clean by means of a compressed air jet. Install a small expansion vessel on outlet from the inverter.

The device frequently signals dry running conditions.
The pump intake hose, during periods of system disuse, drains preventing pump filling and subsequent restart. Check sealing efficiency of the base valve (if fitted).

With very low water flow rates, pump operation is irregular.
The water flow rate is too low, and is thus not detected by the device, with consequent pump shutdown. Install a small expansion vessel (1-2 litres) to enhance system flexibility and reduce the number of restarts.

The system pressure has risen above the set value in Pmax.
If the ice protection or mechanical seizure protection devices have triggered, pressure may increase over the set values as the pump is operated in override for 15 seconds, regardless of the values set in Pmax and Pmin.

The device does not turn on
The electronic board may be damaged; arrange for the device to be checked by the manufacturer.

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ROUTINE USER MAINTENANCE & SERVICING

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The **flow**pac Compact has been designed to keep maintenance to a minimum. It is recommended that the user is to make routine visual checks of the product during use.

Weekly Checks

- Inspect for leaks, etc.
- Inspect the running of the unit and note any unusual noises or vibration.

Monthly Checks

- Inspect for leaks, etc.
- Inspect the running of the unit and note any unusual noises or vibration.
- Clear of dust and any other obstructions.
- Switch of and visually check hydraulic and electrical connections.

6 Monthly Checks

- Inspect for leaks, etc.
- Inspect the running of the unit and note any unusual noises or vibration.
- Clear of dust and any other obstructions.
- Switch of and visually check hydraulic and electrical connections.
- Pressure Vessel to be drained and pre charge pressure checked.
- Check cleanliness of the pump and internal tank.

Annual Servicing

Before attempting to open any unit or service a pump: Familiarise yourself with the contents of this manual. Installation, maintenance and repair work must only be carried out by trained, skilled and suitably qualified personnel.

- Disconnect or lock-out the power source to ensure that the pump(s) will remain inoperative. Locking out the equipment by switching off the release mechanism or set value WILL NOT prevent accidental starting of the motor.
- Allow the pump(s) to cool if over-heated.
- CLOSE the isolating valves on the suction and discharge connections of the affected pump(s).
- VENT the pump(s) slowly and cautiously
- DRAIN the pump(s).

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flowzone©
MEMBERS AREA

This section of the **flow**tech© website holds information exclusively for members. Members will need to log in to gain access to these pages.

Our member's will be granted exclusive access to our technical resource library. Within this resource is a wide range of product information including data sheets, technical drawings, O&M Manuals and training videos

flowcare©
AFTER SALES SERVICE

At **flow**tech© we operate a network of Service Engineers located throughout the UK who are supported by our offices located in Cumbria and Greater Manchester. The distribution of engineers means that in the majority of cases we are less than 4 hours away from attending a customer call out.

We place great emphasis on providing technical back up to support our Service Engineers in resolving some difficult operational and technical issues. We pride ourselves on completing a project on time, within budget and never leaving a problem unresolved, or a customer waiting. This quality of service has made us the first choice for our customers.

FOR FURTHER INFORMATION OR ASSISTANCE

contact us

Flowtech Water Solutions are experts in water services and water booster sets. We have continuously supplied a wide range of standard and custom products since being founded in 1996.

MANUFACTURE & SUPPLY

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SERVICE & MAINTENANCE

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The PUMP BPMA industry association
Membership No. 700106

QMS ISO 9001 : 2015 REGISTERED
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