www.firesprinkler.co.uk

# INSTALLATION & OPERATION INSTRUCTIONS

## SEP Alarm Valve Booster Pump, including:

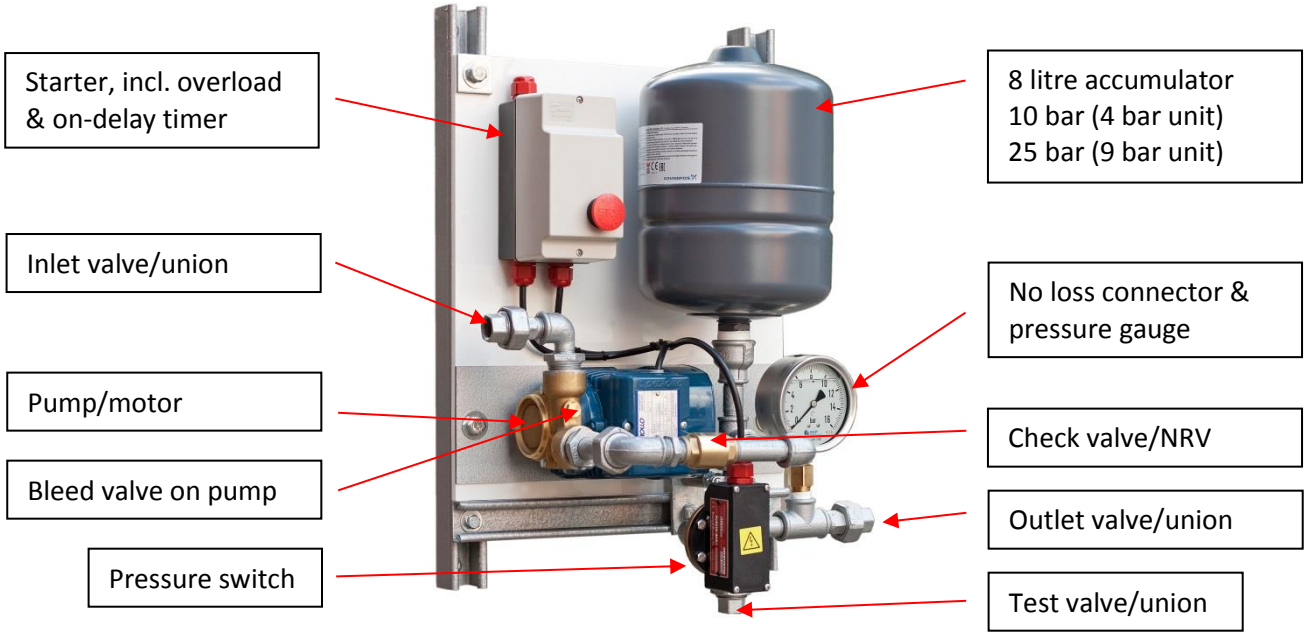
- 230v models: AVBP/S.AC/4BAR
  AVBP/S.AC/9BAR
- 400v models: AVBP/T.AC/4BAR
  AVBP/T.AC/9BAR
- *Includes* variations of above models (e.g. different pressure etc)

*BOOSTER PUMPS ONLY FOR FIRE SPRINKLER SYSTEMS.*
*THIS BOOKLET MUST BE KEPT WITH THE UNIT FOR REFERENCE PURPOSES.*

## GENERAL DESCRIPTION

The unit comprises a peripheral water pump, which is directly driven by a standard electric motor, mounted on a polypropylene panel with a Unistrut frame. The unit is fitted with an adjustable LPCB-approved differential pressure switch to enable automatic "stop/start" incorporating time delay & thermal overload. An accumulator helps with pressure regulation and prevents the water pump cutting in/out excessively.

A filtered ball valve is provided for the inlet, to prevent debris from entering the assembly.




### *** SAFETY ***

*THESE UNITS ARE DESIGNED AND BUILT ONLY FOR FIRE SPRINKLER SYSTEMS.*

*ELECTRICITY CAN BE DANGEROUS, AND POTENTIALLY LETHAL.*

DO NOT INSTALL this booster pump unless you are satisfied that you have the knowledge and experience to do so. If you are NOT SURE, ASK.

Take care because the units are heavy – ~25-30kg.

DO NOT OPERATE until you have read and understand the contents of these instructions, particularly with regard to stopping, starting and general safety. It is required that users employ safe working practices when using this equipment and your attention is drawn to the Health and Safety at Work Act 1974, the latest electrical and pressure equipment regulations and any other current or pending safety requirements.

This booklet must be kept with the unit for reference purposes. An electronic version is also available to download from our website if further copies are required.

The following safety signs and symbols may be used:


Read instructions before use


Automatic control – may start without warning


Dangerous voltage may be present


General safety information

## INSTALLATION - MECHANICAL

Before you start, CHECK for any damage in transit and advise the sender immediately if this is the case.

CHECK you have the correct unit, and the power supply required by the AVBP, and the power supply available, particularly a 3-phase supply which requires a neutral connection (i.e. 4-wire + earth).

1. Remove all packing materials, including the packing piece of polystyrene in the contactor box. Take care to install and operate the unit in a clean, dry and cool (ambient temperature 5-40$^{o}$C) to provide the best performance and reliability.
2. Use the four mounting holes in the Unistrut, securely bolting to the wall with M8 bolts. Use ALL four mounting holes, and ensure the bolts are tight.
3. The inlet, test and outlet valves should be linked with the system pipework using the ½"/15mm unions and valves provided. ENSURE that you use the filtered ball valve on the Inlet to prevent the ingress of debris.

## INSTALLATION - ELECTRICAL

4. This unit **must** be wired into an appropriate isolation device and protected by an appropriate circuit-breaking device, as per the requirements of the current version of BS EN 60204-1. A simple 'fused spur' without an isolation switch should not be used.
5. For electrical data, please refer to the product label and the table at the back of this manual.
6. Locate the compatible electrical supply, and connect in accordance with the enclosed wiring diagrams (for information only – the power cable from the top of the contactor box is prepared for direct connection to your power supply). This power cable, or an equivalent of at least the same rating, must be used.

*Dangerous, potentially lethal voltages are present within this equipment; therefore, care should be taken to ensure that all electrical connections remain firm and that cables do not wear, nor allowed to be in contact with excessive heat or vibration etc.*

## TO START THE PUMP

7. Check and ensure that all valves are installed and the pipework is connected.
8. Close the Outlet and Test valve, and open the Inlet valve fully.
9. Open bleed valve on the pump body until no more air is expelled, then close valve.
10. Turn on unit at the local isolator (the contactor box has emergency STOP button only). Please refer to the below section on the on-delay timer, because the pump will intentionally not start immediately.

## TO STOP THE PUMP

Push the STOP button on the contactor enclosure and turn clockwise to lock.

In an EMERGENCY, use the STOP button on the contactor enclosure, or the electrical isolation switch that the pump unit is wired into.

## ON DELAY TIMER

On-delay timers are fitted as standard unless we have been specifically requested not to install, although this is not recommended. The 400v supply for 3-phase connections must have a neutral connection.

During commissioning, the starter cover should be removed (CARE: live wires) and the timer should be adjusted to the minimum setting (both dials turned completely anticlockwise).

For normal standby, you should ensure that the timer is set to approximately 15-30 seconds.

The timer will only allow the pump to start after the time delay specified which prevents the pump from hunting and overheating. Refer to wiring diagram for further details.

The light pattern for the on-delay timer is as follows:

| | |
|---|---|
| Both lights out | System at pressure (no circuit via pressure switch) or power off or faulty |
| Green light flashing | Pressure switch circuit closed (i.e. system at low pressure) and timer in 'delay' phase pending start-up of pump |
| Both lights on | Pressure switch circuit closed (i.e. system at low pressure) and timer in 'operation' phase, pump should now be running |

## PRESSURE SWITCH ADJUSTMENT

*The pressure switch should NOT be adjusted settings unless you have read and understood the instructions.*

1. Isolate from the electrical supply and remove the pressure switch cover.
2. Increase pressure setting by turning the small nut anticlockwise on the front of the switch body.
3. Close the Outlet and Test valves; reconnect power supply; pressure should be held within the unit.
4. Isolate from the electrical supply, then reduce pressure in the unit *slowly* by carefully opening the Test valve, close the valve at the required cut-out pressure, then slowly turn the adjustment nut clockwise until the micro switch operates. Note that the switch operates only quietly.
5. Replace pressure switch cover; do not overtighten the screws.
6. Reconnect to power and test for correct pressure by starting and operating in the normal manner.
7. The differential can also be adjusted by turning the wheel at the back of the switch – anticlockwise to increase, or clockwise to decrease.

**WARNING:** DO NOT attempt to increase the pressure beyond the specified maximum (10 bar, for mains +4 bar models; 14 bar, for the mains +9 bar models).

## MAINTENANCE

**SAFETY WARNING**: Before carrying out any maintenance, observe all standard safety factors:

1. Isolate the unit from the mains power supply. Electricity is dangerous, and potentially fatal.
2. Carefully release any water pressure by closing the Inlet/Outlet, and opening the Test, valves.
3. Attach "DO NOT OPERATE" signs to the unit and electrical isolator (if not immediately close by).

To ensure continued reliability and efficiency, it is important that regular maintenance is carried out. The general cleanliness of the machine and the prevention of the ingress of dirt or water into the working components are all important factors.

Electrical and pipework connections should be checked for security and damage.

The pump itself is continually rated and should require very little attention; however, the motor should be protected against continual stop-start operation (assisted by the on-delay timer and accumulator) by ensuring that the pipework, unit and connections will hold pressure for at least 30 minutes.

Continual stop-start will result in the electrical insulation breaking down and eventual failure. It is recommended that fewer than 10 starts should take place hourly.

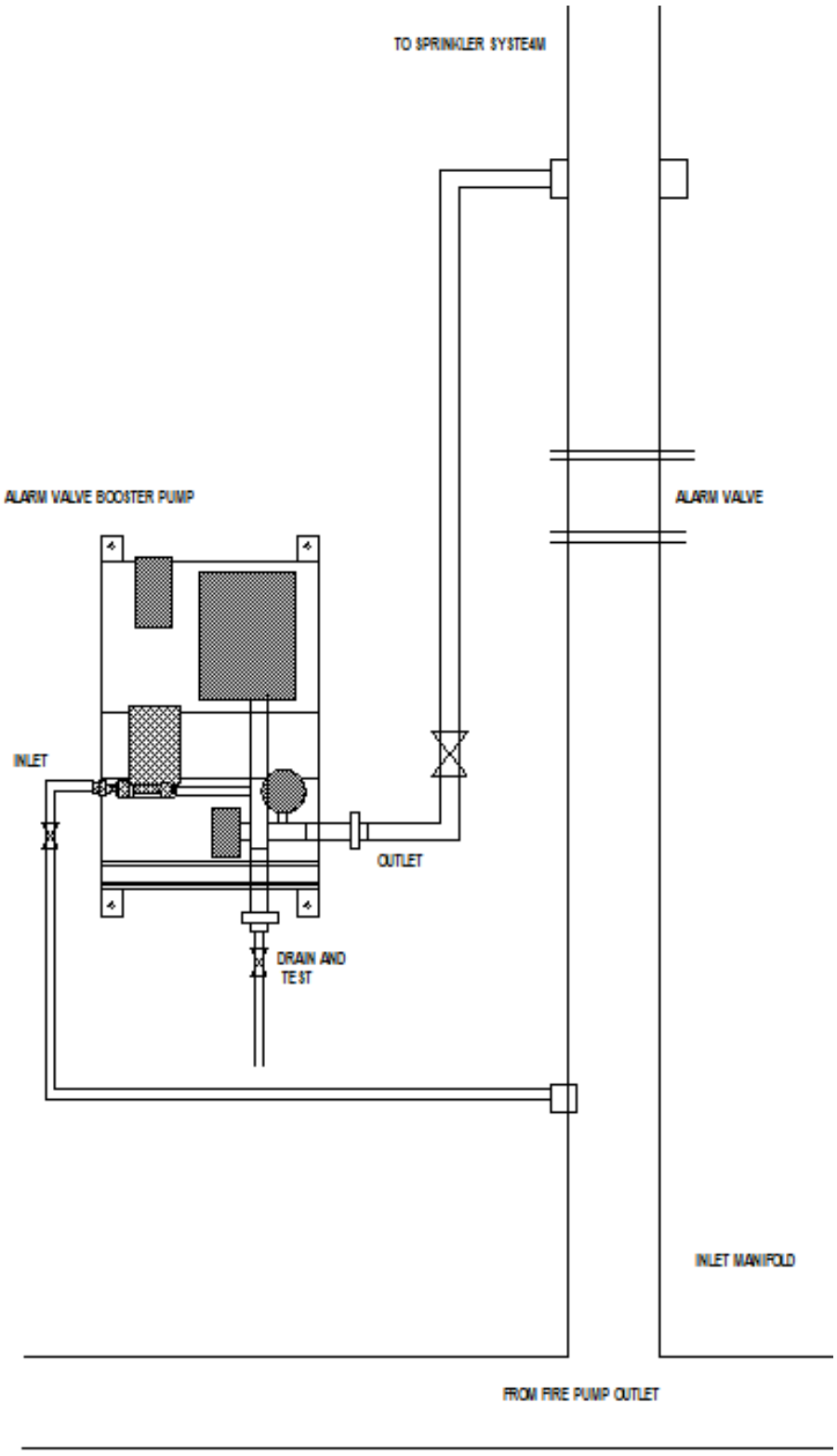
## SPARE PARTS

Only use genuine spare parts or service kits purchased from SEP or your maintainer. The use of non-genuine spare parts may affect the reliability and service life of the unit and will invalidate the warranty.

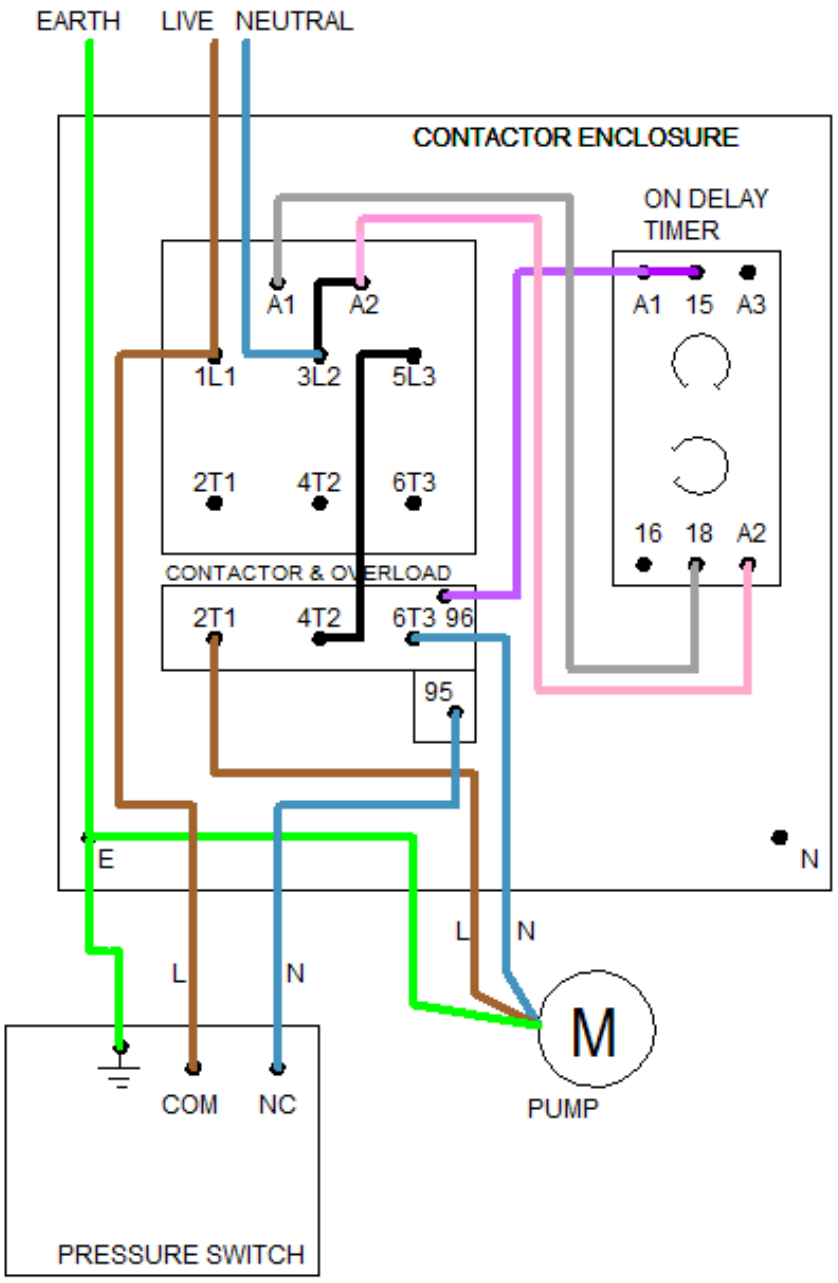
In the event of any difficulty understanding these instructions, or operating the unit, contact your installer or maintainer immediately.

Alternatively, please contact SEP directly: +44 161 428 1180 or info@saleengineering.co.uk

## INSTALLATION SKETCH – ALL MODELS

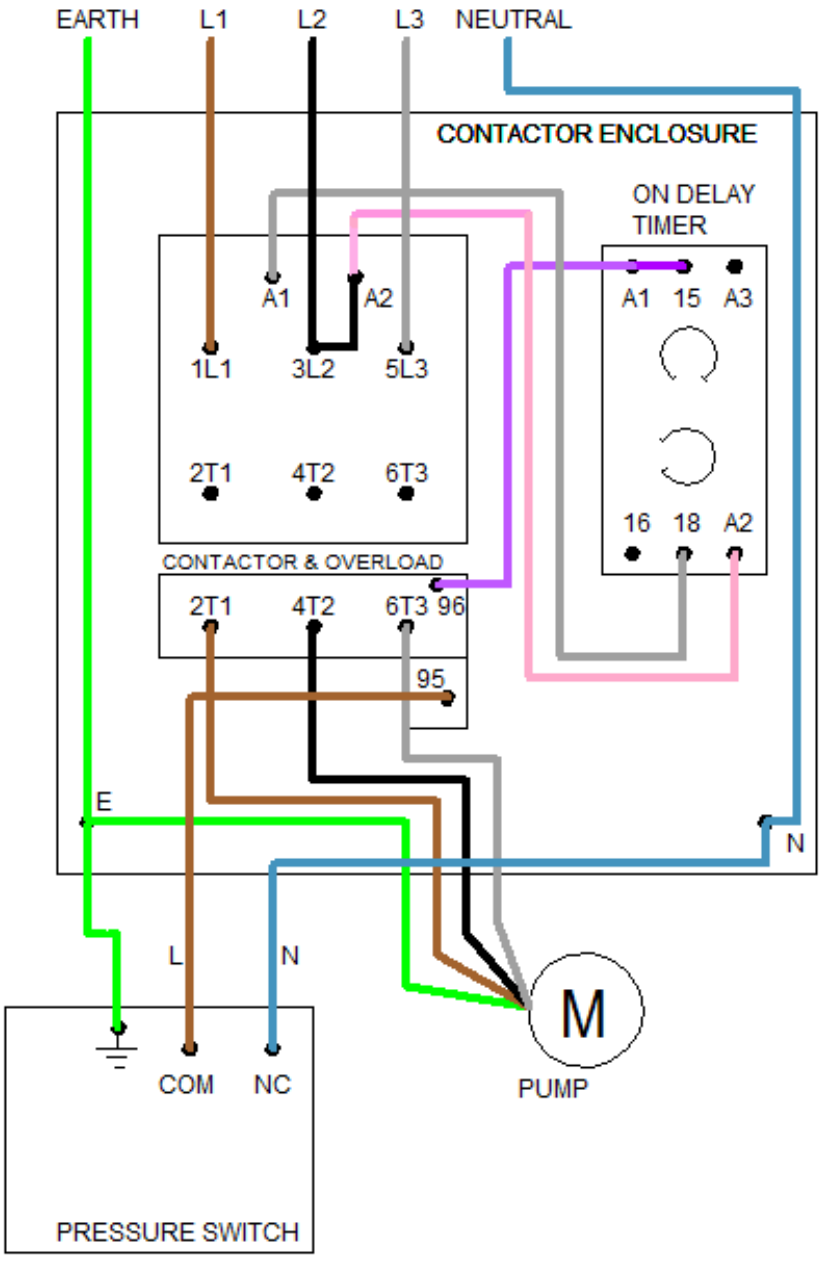


**WIRING DIAGRAM – 230v MODELS**




**Note**: Wiring colours may be different from those shown

**WIRING DIAGRAM – 400v MODELS**




**Note**: Wiring colours may be different from those shown

## TROUBLESHOOTING

The following is provided as a guide to possible problems that may be encountered at any time; it cannot be comprehensive BUT please consider these matters before calling your maintainer for assistance.

| Problem | Possible Cause/s | Possible Resolution/s |
|---|---|---|
| Nothing at all is happening | • Power supply missing or faulty, or fuse blown | • Check external power supply; check each phase if 3-phase; check neutral circuit |
| | • External isolator switched off | • Trace back external power feed, ensure switched on |
| | • Emergency stop on contactor box pressed | • Check contactor box and ensure that stop button is out |
| | • Pressure above cut-in pressure | • Pressure can be reduced by opening Test valve, to check pump then operates |
| | • Loose wiring connection | • Check loose wires; check wiring diagram |
| Pump running (very quiet or noisy) but no pressure | • Pump shaft may be broken due to seizure | • Pump may be disconnected, removed, and the head removed for inspection |
| | • Impellor may be worn, damaged or jammed | • As above |
| | • Pump not purged | • Open bleed valve to release trapped air |
| | • Inlet valve is closed or filter blocked | • Check valve is open, or close valve and remove/check filter |
| Pump won't stop | • Pressure rising? Problem with pressure switch or blocked orifice | • Pressure switch setting incorrect, or orifice blocked; remove switch/elbow, check orifices |
| | • Pressure stable? Pump may be at maximum pressure ability | • Check pump ability and pressure switch settings |

| Specifications | AVBP/S.AC/4BAR | AVBP/S.AC/9BAR | AVBP/T.AC/4BAR | AVBP/T.AC/9BAR |
|---|---|---|---|---|
| **Power (V AC)** | 230 | 230 | 400 | 400 |
| **Phases/Hz** | 1/50 | 1/50 | 3/50 | 3/50 |
| **Motor (kW)** | 0.4 | 0.5 | 0.4 | 0.5 |
| **Amps (RLC/FLC)** | 2.6/3 | 3.4/4 | 1.2/2 | 1.3/2 |
| **Pump Max flow (lpm)** | 40 | 18 | 40 | 18 |
| **Pump Max pressure (bar)** | 4 | 9 | 4 | 9 |
| **Unit Max pressure (bar)** | 10 | 14 | 10 | 14 |
| **Height (cm)** | 60 | 60 | 60 | 60 |
| **Width (cm)** | 40 | 40 | 40 | 40 |
| **Depth (cm)** | 30 | 30 | 30 | 30 |
| **Net/Packed weight (kg)** | 21/23 | 23/25 | 21/23 | 23/25 |

*All information in this table is provided in good faith and may be estimated or approximate, and only correct at the time of publication. Exact specifications may change at any time for any reason without liability.*

*If any data is critical to your application then please check with us before installation.*

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