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# Installation, Operation and Maintenance Instructions for Enhanced Electronically Controlled Pressurisation Units.

Models: EPS-ENH
EPT-ENH
EPS-ENH-HP (Single Pump High Pressure)
EPT-ENH-HP (Twin Pump High Pressure)

Please fulfil all listed requirements prior to and during installation and operation of all equipment to prevent invalidation of any warranty given. The installation and operation should also be in accordance with local regulations and accepted codes of good practice.

## General Installation

Introductory notes

These pressurisation units operate in a single pump, (duty) or two pump, (duty standby) format. These units together with the individually sized expansion vessel/s are employed to maintain the ambient cold fill pressure and accommodate the volume changes that occur in sealed heating and chilled water systems.

Each unit is individually supplied, any system alterations may require a design or setting change.

The full system should be pressure tested and flushed BEFORE connection to the unit or vessel to prevent any damage from metal particles, dirt etc., and to eliminate all leaks.

Under no circumstances must any treatment be introduced into the system via any part of the unit.

The unit can be used to fill the system using its' "FILL MODE" feature, although this may be slower than other usual means of manual filling. Please refer to "FILL MODE" later in the instructions.

Site Location

The unit location should be undercover, dry and freely ventilated. Protection from frost must be ensured.

Reasonable access to all parts of the set and adequate service work space must be provided. A minimum clearance of 500mm above the unit is required if placed back to a wall.

The floor base should be firm and level in all directions.

Base holes are provided if uni-strut structures or wall brackets are used to mount the brackets off the floor.

If unit is to be wall-mounted, refer to the diagrams on the following page for wall fixing dimensions.

Mechanical

Connect the cold water mains supply via a stop tap and union connector to the break tank ball valve (½" BSPM).

Arrange the overflow to discharge away to a suitably noticeable position (22mm compression).

Using the ½" BSPF outlet, link into the system on the return side of the boiler, and the suction side of the pump incorporating a minimum two metre anti-gravity loop fitted with automatic air vent. A branch should be taken off of the same part of the loop and piped to the expansion vessel or vessels ensuring that each is supplied with a lock shield valve, drain cock and a union connection for any future service work.

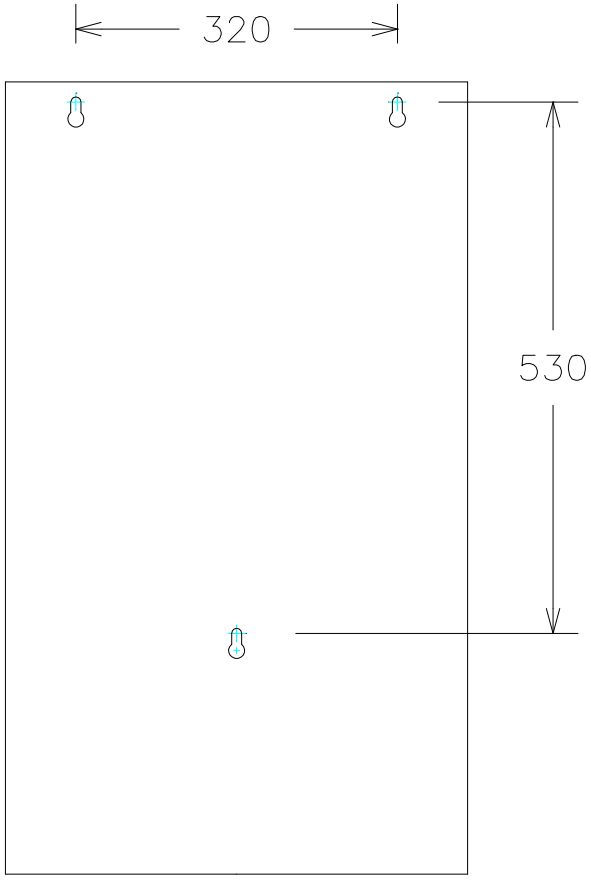
Please locate at least one vessel close the pressurisation unit (i.e. within 2 metres) to assist the controls of the unit.

All pipework links should be suitably sized with a minimum of 22 mm up to 6 metres, and 28 mm for up to 12 metre runs (larger sizes are required above 300 litre vessels or multiples).

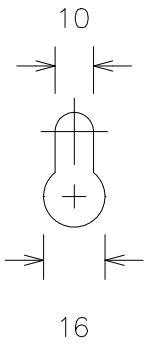
Please refer to schematic installation diagram.

ALL MUST BE LEFT UNLAGGED IF PRACTICAL TO PRESERVE VESSEL MEMBRANES FROM PREMATURE TEMPERATURE INDUCED AGEING

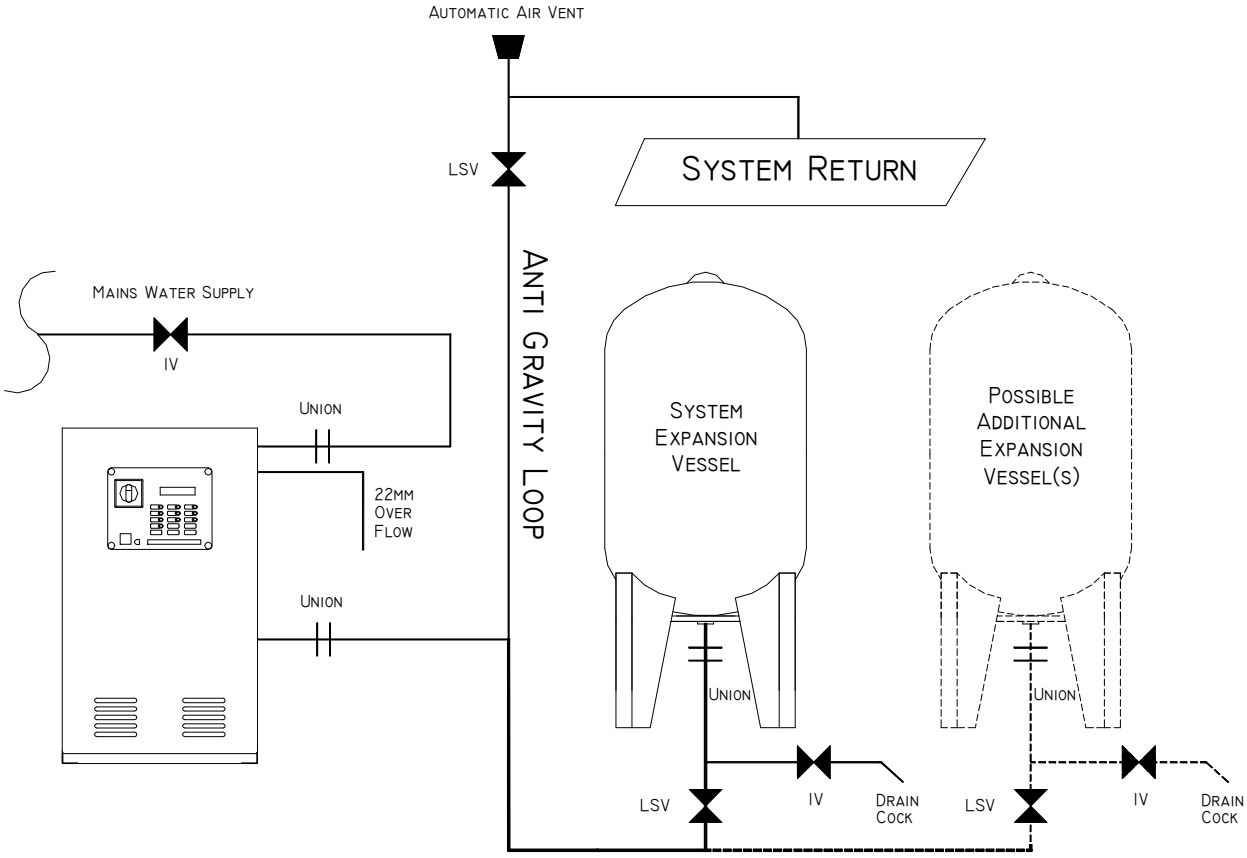
# WALL MOUNTED OPTION DIAGRAM




HANGING HOLES



# Schematic Installation Diagram
# Single System Pressurisation Unit & Vessel(s)




Notes:

If practical do not lag pipework from unit to system or vessel.
Ensure all isolation and drain valves are included in the installation to assist maintenance.
Follow wiring diagrams for electrical connections.

# Electrical

Connections to unit

The supply should be brought to the set with suitable trunking or armoured cable, with trunking we recommend that the final metre is converted to flexible conduit to avoid any undue stress or fatigue to the unit.

All supply cables should be sized according to accommodate any voltage drop due to long cable runs.

Voltage at the unit should be single phase, 230 volt, 50 Hz. A neutral supply is required.

The pump rating 0.37kW and 2.5amps FLC. On twin pumps allow for both to run together.
(high pressure versions (EPS-ENH-HP / EPT-ENH-HP) 0.37 kW and 3.41 amps FLC)

The volt free contacts are rated at 5 Amps, 230 volt.

It is strongly recommended that a local isolator is installed within one metre of the unit incorporating sufficient contacts to isolate both the mains supply and all control cables being used.

The supply fuses should be rated to run one pump or a pair in a duty standby unit.

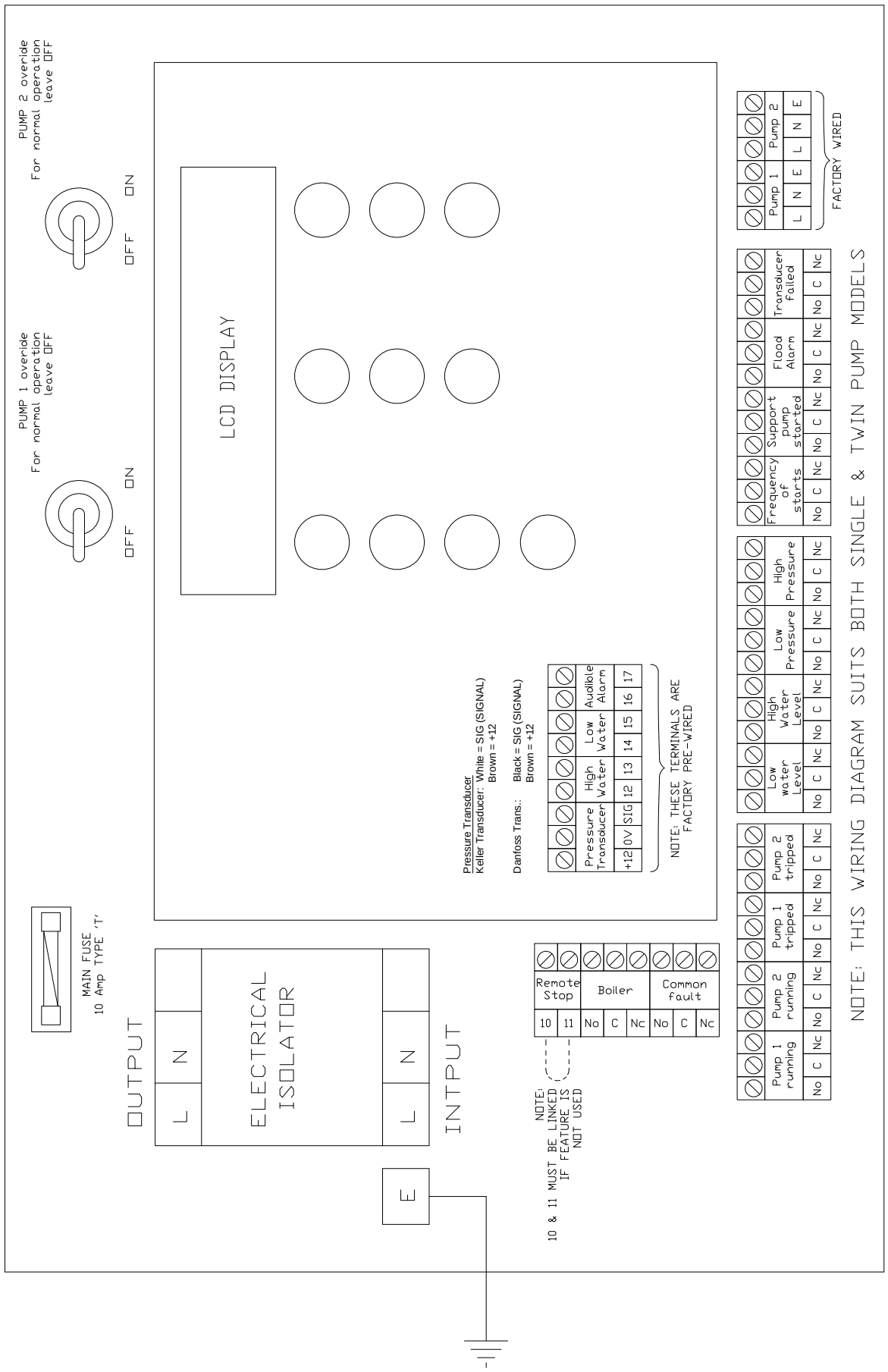
All equipment should be earthed.

**IT IS STRONGLY RECOMMENDED THAT ANY SUPPLY FEEDING THE VOLT FREE CONTACTS FOR ALARMS OR CUT OUTS, IS DISCONNECTED BY THE INDEPENDENT ISOLATOR.**

All connections should be performed by a competent electrician conversant with the wiring diagram provided and all current regulations. Care should be taken when connecting to terminals on the circuit board and excess pressure should be avoided on terminals.

# WIRING DIAGRAM

## Models: EPS-ENH, EPT-ENH, EPS-ENH-HP, EPT-ENH-HP



# Commissioning

These notes are guide lines to engineers who are conversant with sealed systems and pressurisation units. Flow Mech Products can provide a commissioning service for customers where required.

If the unit has been factory set, no adjustments after pump priming should be necessary.

NOTE: All pump(s) must be vented prior to any running using the vent plug situated adjacent to the discharge valve. If water is not present, check the filters are clean in the tank and try again, replace the vent plug and tighten after venting.

## Settings

We base our setting on the following:-

1) The cold fill pressure is worked as:-

   The static height of the system in metres + 4 metres = cold fill pressure
   e.g. 9 metres static + 4 metres = 1.3bar (10 metres = 1 bar approx.)

   The minimum setting should be 1.0 bar, this allows up to 6 metres of pipework height.

2) The low pressure setting is to be set 0.4 below cold fill pressure
   e.g. cold fill 1.5 bar, LP = 1.1 bar.

3) The high pressure setting should be set at 0.3 bar below the system safety valve setting
   e.g. safety valve set at 4.0 bar, HP = 3.7 bar.

To program the unit if it has not been factory set, proceed using the control instructions on the following pages.

## Vessel Air Pressure

If not factory set, the vessel air pressure must be set to 0.1 bar below the cold fill pressure
(e.g. cold fill of 1.0 bar, vessel pressure 0.9 bar).

All vessels have to be empty of all water prior to setting the air pressure.

The air valve for the vessel is located below the black cap, which should be replaced after checking/adjusting the air pressure.

Note: We are able to provide a full commissioning service if you require this.

# IMPORTANT: VENT PUMPS BEFORE PROGRAMMING

**Initial Procedure**

1) Fill with water
2) Vent pumps
3) Turn power on
4) 'PUMP OFF' lamp(s) should be lit. Display should be lit with manufacturers details.
5) After 5 seconds a high/low pressure fault may indicate – if so mute with the red 'ALARM MUTE' button

**To Access Parameters:-**

Press the red button alongside ↑(+) or ↓(-) **for 3 seconds**

View parameters ↑ (+) *(if selecting, hold the button for 3 seconds)*
Set parameters ↓ (-) *(if selecting, hold the button for 3 seconds)*

Setting Parameters
Enter Customer Password **(your password is: 2852)** as follows:-

- Use the **red button(s)** alongside the arrows (↑↓) to reach the 1st figure on the LCD display
- Press the **red button** alongside ↵ **(ALARM MUTE)** to 'Enter'
- The LCD display will indicate it is ready for the 2nd figure to be entered
- Repeat the same method to enter the 2nd, 3rd and 4th figures
  (note: Use ↓ button if figure is too high).

*Next Screen:* Cold Fill Pressure
1.0 Bar

Use the arrow buttons (↑↓) to adjust the pressure
Enter with ↵ **(ALARM MUTE)**

*Next Screen:* Duty Pump Delay
2 seconds (Range 2 – 180 secs) Factory Set 2 Seconds

(Use feature with large chilled water circulators)
Adjust time using ↑↓ buttons and enter with ↵ **(ALARM MUTE)**

*Next Screen:* Support Pump Delay
(Only applicable in twin pumps selected)
Factory set at 20 seconds (Range 15 – 180 secs)

Adjust with ↑↓ to required time
Enter with ↵ **(ALARM MUTE)**

*Next Screen:* Low Pressure
0.6 bar
(Factory setting 0.6 bar)
Alter range in conjunction with cold fill setting.
Minimum differential setting 0.4 Bar below cold fill setting

Adjust with ↑↓ to required setting
Enter with ↵ **(ALARM MUTE)**

*(continued overleaf)*

*Next Screen:* Low Pressure Delay
5 secs
(Factory setting is 5 secs)
Range 5 – 240 secs

Note: If system goes to low pressure, the fault is not shown for 5 secs.

Adjust using ↑↓ buttons and enter with ↵ **(ALARM MUTE)**

*Next Screen:* High Pressure
2.5 bar
(Factory setting is 2.5 bar)
Range 0.4 bar above cold up to 10 bar

Adjust using ↑↓ buttons and enter with ↵ **(ALARM MUTE)**

*Next Screen:* High Pressure Delay
0.0 secs
(Factory setting is 5 secs)
Range 5 – 240 secs

Note: If system goes to high pressure, the fault is not shown for 5 secs.

Adjust using ↑↓ buttons and enter with ↵ **(ALARM MUTE)**

*Next Screen:* Frequency of Starts
ON or OFF
Select using ↑↓ and confirm with ↵ **(ALARM MUTE)**

**Note: The frequency of starts alarm is provided to give early indication of a system leak. It does this by counting how many times the pump(s) start in a 10 minute period. If the unit starts 20 times in 10 minutes or runs continuously to 2 minutes the frequency of starts alarm is activated.**

*Next Screen:* Support Pump Started
ON or OFF

Note: If only one pump is present, screen reads "support pump alarm OFF".

Use this for selecting the alarm feature if required. **(Only available on twin pump units)**
Factory set to ON
Select with ↑↓ and confirm with ↵ **(ALARM MUTE)**

*Next Screen:* Flood Protection
ON or OFF
Select using ↑↓ and confirm with ↵ **(ALARM MUTE)**

**Note: The flood alarm works in the same way as the frequency of starts alarm but is activated after 40 starts in 10 minutes. If the alarm is activated the unit switches off both pumps and its boiler relay in order to protect the system. This alarm may only be reset by switching off the unit waiting 10 seconds then switching the unit back on**

*Next Screen:* Pump 1 Hours Run
Shows hours – mins – secs
To reset press ↑ or skip with ↓
(Leave to change to next screen)

*Next Screen:* Pump 2 Hours Run
Shows hours – mins – secs
To reset press ↑ or skip with ↓

Note: ONLY ON TWIN PUMP MODELS.

**PROGRAM COMPLETE – THE UNIT WILL NOW RETURN TO NORMAL OPERATION**
**PUT THE PUMP(S) INTO AUTO POSITION**

## FILL MODE

Hold ALARM MUTE button for 3 seconds

*Next Screen:* Service Reminder
Use ↑ to reset
Use ↓ to skip

*Next Screen:* Fill Mode
OFF or ON

Press ↑ to enter fill mode and enter with ↵ **(ALARM MUTE).**

**Press pump No.1 and No.2 (if applicable) into Auto position.**

Fill mode overrides all features with the exception of low water & pump trip.

After filling press ALARM RESET button to return to standard pressurisation mode.

IMPORTANT NOTE:
ONLY USE THE PUMP HAND POSITION FOR TESTING. NEVER LEAVE PUMPS IN HAND POSITION, ONLY LEAVE PUMPS IN THE OFF OR AUTO POSITION.

## Maintenance

Six monthly checks should be made on the expansion vessels. The air charge should be checked after the vessel is isolated and drained using the local valve and drain cock.
Note: You cannot check these vessels unless drained. Use an oil free compressor or foot pump to inflate and check with a good quality gauge for the air pressure.

Yearly checks should proceed as above followed by running the pumps to check operation, mechanical seals and electronic controls. This can be performed by isolating the system with the unit isolation valve, connecting a hose from the unit drain cock and placing the other hose end back into the units water tank. As you open the drain cock the pressure should fall and start a pump, this can be run for 5-10 minutes after which you should close the drain cock allowing the unit to build pressure and stop and then repeat the operation for the second pump if fitted. **After maintenance, ensure you open the unit back up to the system.**

Other checks consist of testing for noisy bearings, faulty ball valve or float, float switch operation, electrical connections and general operation and condition of the unit.

All maintenance should be carried out by a competent person conversant with sealed system pressurisation units.

**A full maintenance programme is available on request –**
**Please contact our Service Department (details on front page)**