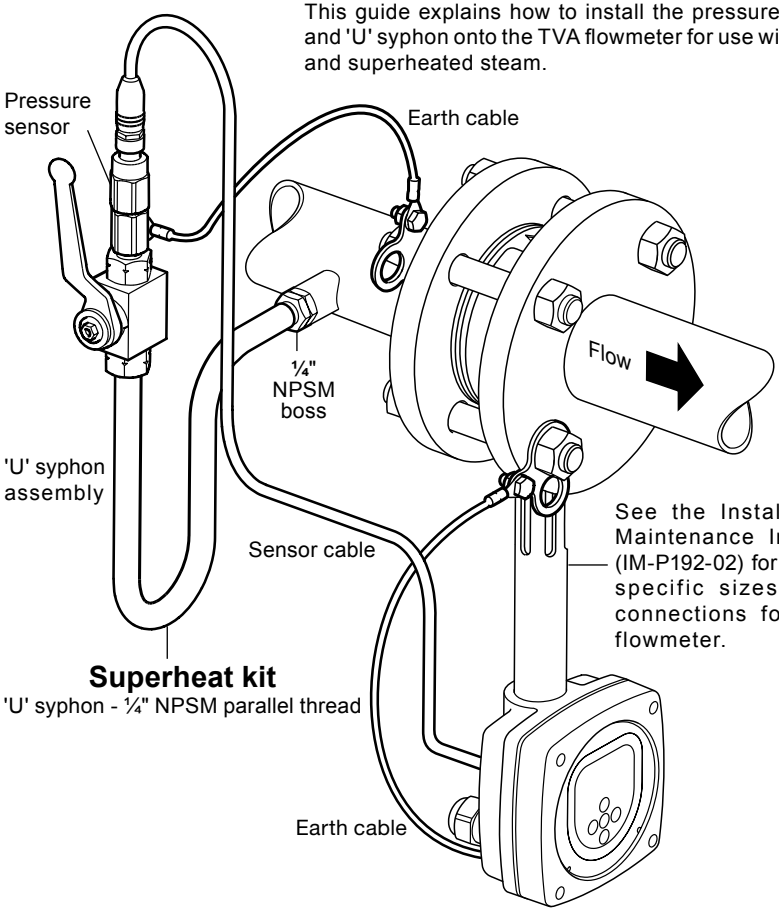
Superheat kit for TVA flowmeters

Essential Installation Guide

This guide must be read in conjunction with the Installation and Maintenance Instructions (IM-P192-02) supplied with the TVA flowmeter.

1. Sizes and pipe connections

This guide explains how to install the pressure sensing kit and 'U' syphon onto the TVA flowmeter for use with saturated and superheated steam.



2. Installation limiting conditions

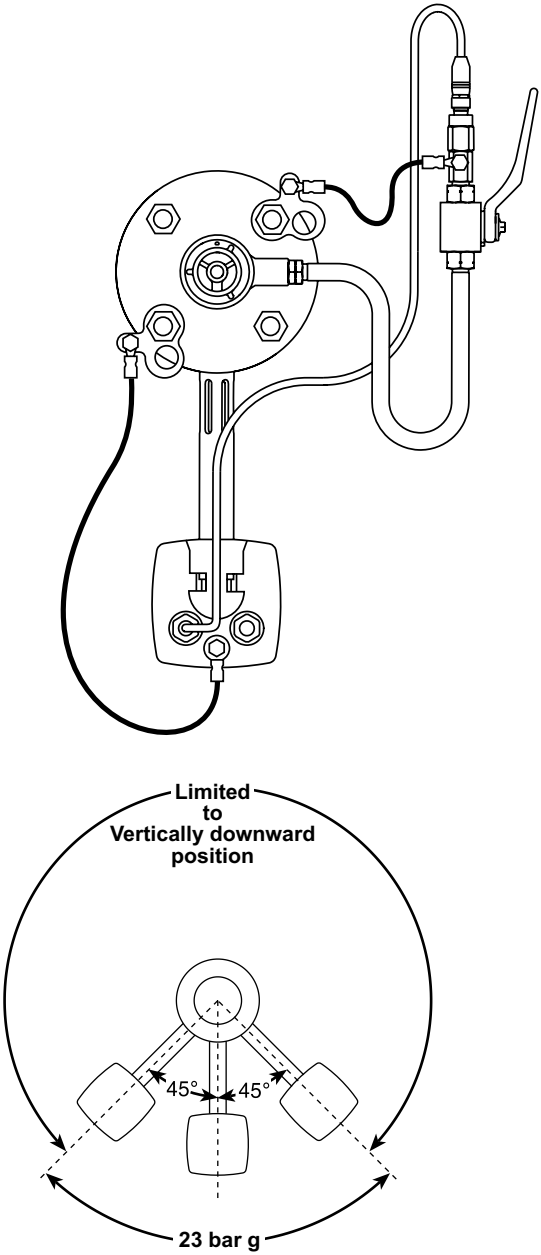


Fig. 2 Superheated steam 23 bar g (333.5 psi g)

Caution: Installations requiring superheat functionality must be installed on horizontal pipework only with the electronics vertically down, limited to 23 bar g (333.5 psi g). **Vertical pipeline installations are not suitable for the superheat flowmeter**.

3. Installation

3.1 General description

The TVA flowmeter must be installed as per the product specific Installation and Maintenance Instructions, IM-P192-02, that are supplied with the unit.

3.2 Mechanical installation

Please observe the limiting conditions for superheat installations as stated in Section 2.4 of the product specific Installation and Maintenance Instructions - IM-P192-02.

Fit the 'U' syphon assembly (**1**, **2** and **3**) to the pipeline pressure tapping (¼" NPT), located upstream of the TVA flowmeter. The recommended distance upstream of the flowmeter is 300 mm.

Connect the adapter and sensor assembly (**4** and **5**) to the valve (**3**) using PTFE tape and tighten until an appropriate seal is achieved on the tapered thread.

Fit the earth cable (**10**) onto the adapter (**4**) and terminate on an appropriate earth location e.g. flange bolt.

Connect the pressure input plug (**8**) to the TVA flowmeter as specified in Section 3.3 (below) before connecting the sensor plug (**6**) to the sensor (**5**).

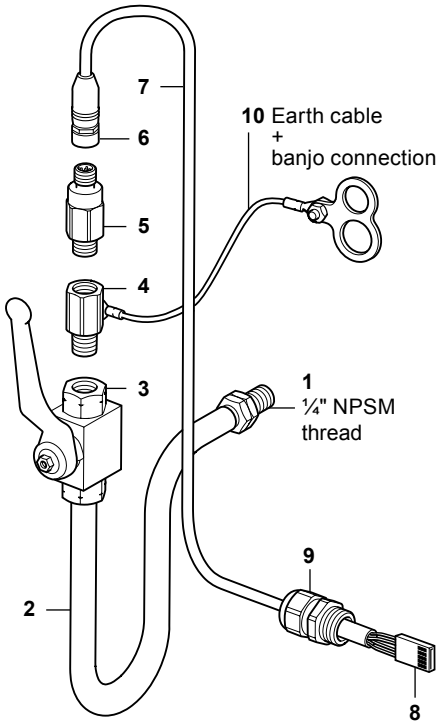


Fig. 3

Ensure that the cables (7 and 10) do not touch any hot surfaces during or after installation.

3.3 Electrical installation

For TVA electrical installation, please refer to IM-P192-02.

To install the pressure sensing kit, please follow the steps below.

Ensure that the power to the flowmeter has been disconnected. **Power to the flowmeter should not be reconnected until the following steps have been completed:**

The wiring terminals can be accessed by removing the front enclosure of the TVA.

Remove the blanking plug from the M20 socket on the TVA back enclosure.

Thread the cable from the pressure sensing kit through the M20 socket on the TVA back enclosure.

Plug the connector into the pin header, making sure the blanking pin is aligned correctly with the missing pin on the plug.

Re-install the front enclosure being careful not to crush any wires.

To ensure an IP65 seal **tighten the M20 cable gland** (**9**) to 12 Nm (8.85 lbf ft) on the crown nut and 13 Nm (9.58 lbf ft) on the gland hex.

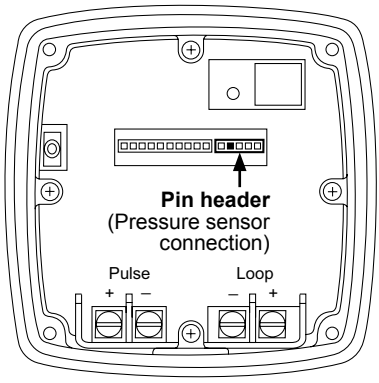
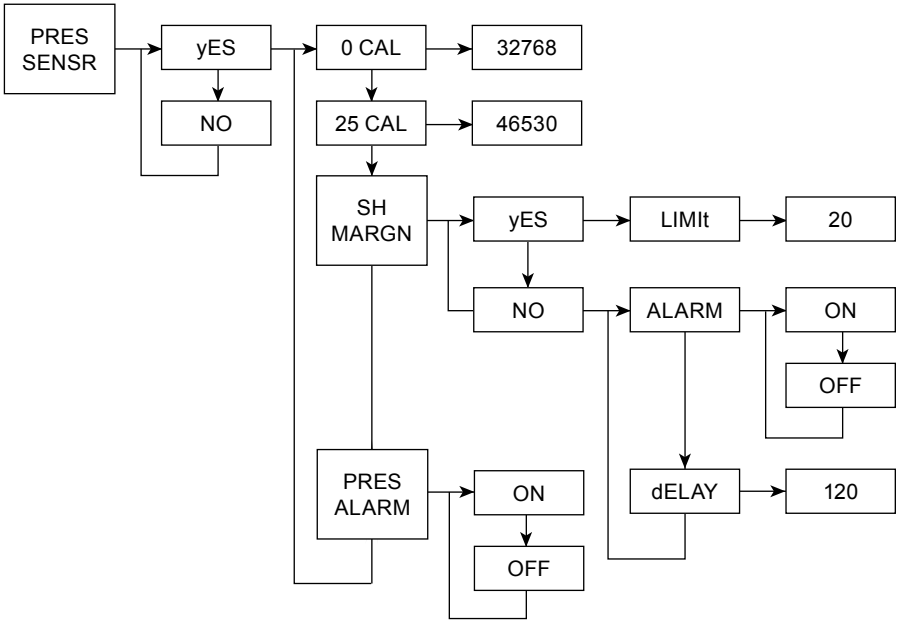


Fig. 4

4. Commissioning



4.1

To enter the commissioning mode press and hold down the 'OK' key for 3 seconds. The display then shows:

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- Press the down arrow button until PRES SENSR is displayed.
- Press the right arrow button until yES is displayed then press the OK button.
- When the 0CAL message is displayed, press the right arrow button to display the factory default 0 CAL figure.
- Change the displayed value of 32768 to the 0CAL value displayed on the pressure sensor calibration certificate. Then press the OK button.
- When the 25CAL message is displayed, press the right arrow button to display the factory default value for 25CAL.
- Change the displayed value of 46530 to the 25CAL value displayed on the pressure sensor calibration certificate. Then press the OK button.
- When the display shows SH MARGN press the left arrow key and the TVA will display a WAIT message. After 5 seconds when the display shows tESt message has gone press the left arrow key and the TVA will be ready to use on superheated steam.

Note: Details of alarm settings can be found in the Installation and Maintenance document IM-P192-02.