

TFA Flowmeter for Saturated Steam Service

Installation and Maintenance Instructions

This guide must be read in conjunction with the Installation and Maintenance Instructions (IM-P193-02) supplied with product.

This guide highlights the minimum installation requirements to ensure that the product performs to user expectations.

Rotating the electronics enclosure

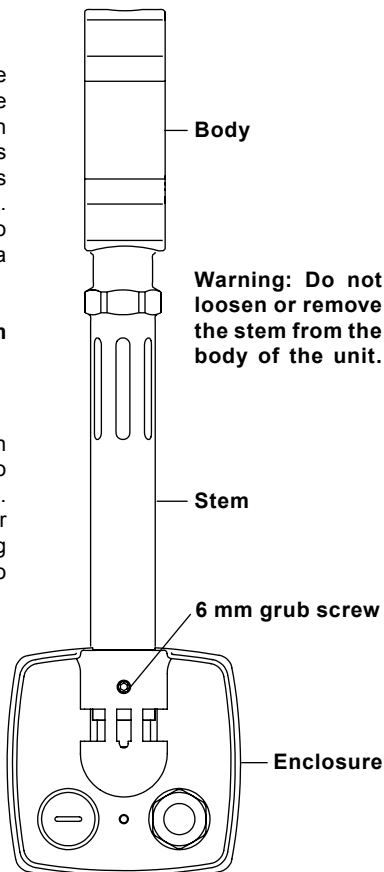
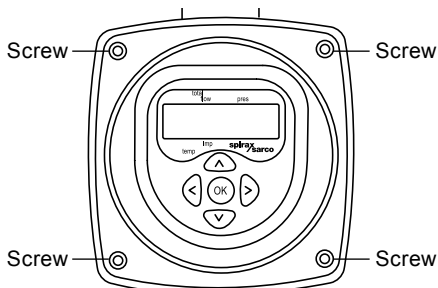
The electronics housing can be rotated 360° to enable sufficient clearance for installation. To rotate the electronics housing, loosen the 6 mm grub screw with a 3 mm allen key, situated on the rear of the electronics housing (see the adjacent illustration). The electronics housing can now be rotated to the required position. When the electronics housing has been located into the correct position retighten the grub screw to a torque of 1.3 Nm (11.5 lbf in).

Warning: Do not loosen/remove the stem from the main body of the unit.

Rotating the electronics display

The display panel can also be rotated within the electronics housing by 90°, 180° or 270° to ensure it is in the correct orientation to read. Loosen the 4 cover screws and reposition the cover to suit. Ensure that in doing so the internal wiring is not pulled or crushed. Retighten the 4 screws to 0.6 Nm (5.3 lbf in).

Note: The electronics display can only be fitted in one orientation when the RS485 board is fitted.



Warning: Do not loosen or remove the stem from the body of the unit.

Warning: Do not remove the enclosure from the stem as this could cause damage or break the internal wiring.

Recommended installation layout

The installation must be fabricated using pipework to ASME B36.10 Schedule 40 or equivalent.

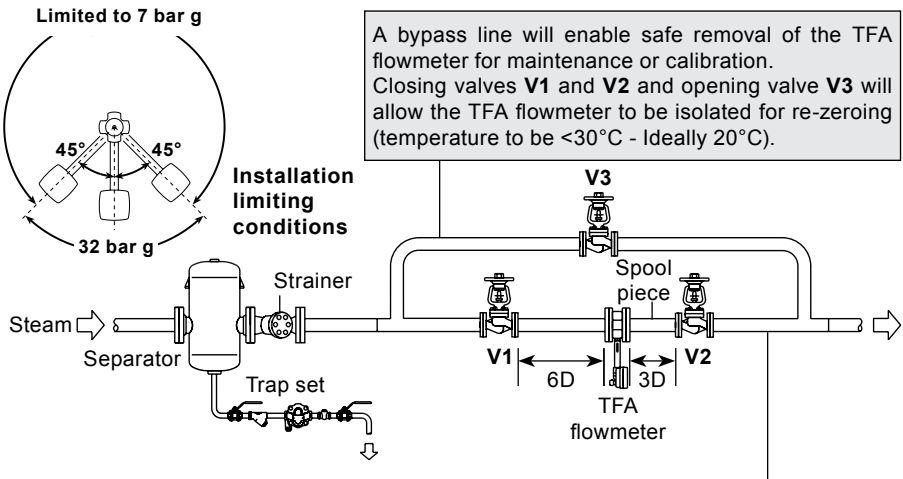
It must be properly trapped and fall in the direction of flow, to avoid measurement inaccuracies.

The TFA requires a minimum of 6 pipe diameters (6D) upstream and 3 pipe diameters (3D) downstream of straight uninterrupted line size pipe for accurate flow measurement.

Where the TFA is fitted downstream of two or more bends in different planes, the upstream requirement increases to 12 pipe diameters (12D). When installed downstream of actuated valves or safety valves, a minimum of 25 pipe diameters (25D) is recommended.

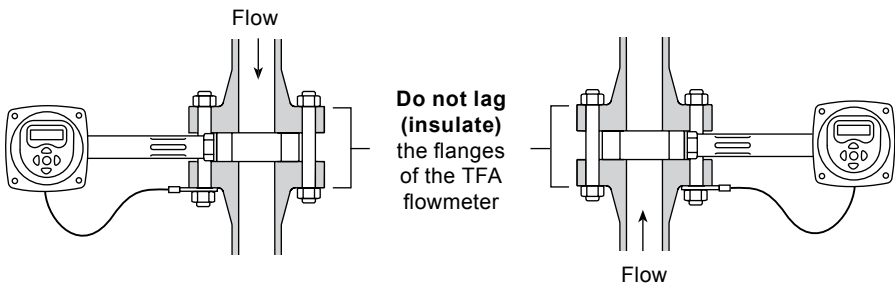
In all cases the downstream requirement stays at 3D.

Horizontal installation

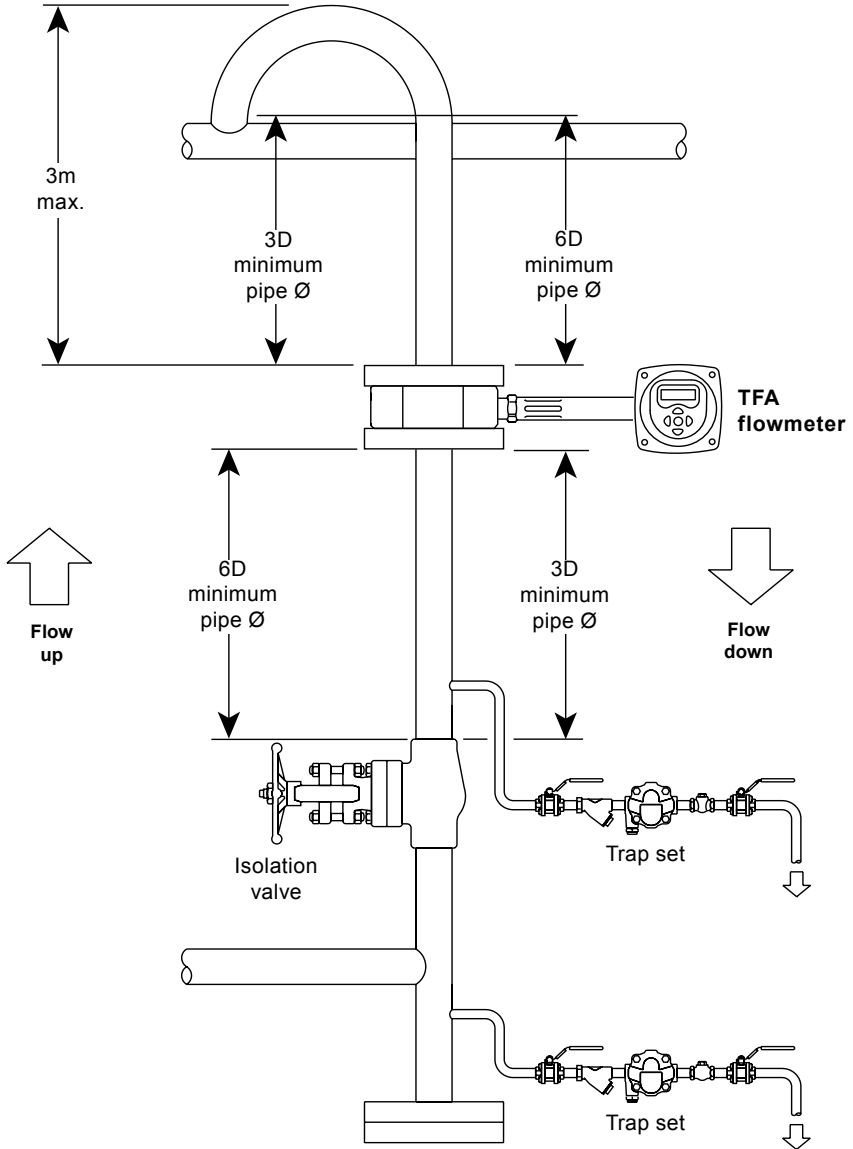


Note: That the steam pipeline should fall in the direction of flow by a minimum rate of 1 in 100.

Vertical installation - Limited to 7 bar g



Vertical installation

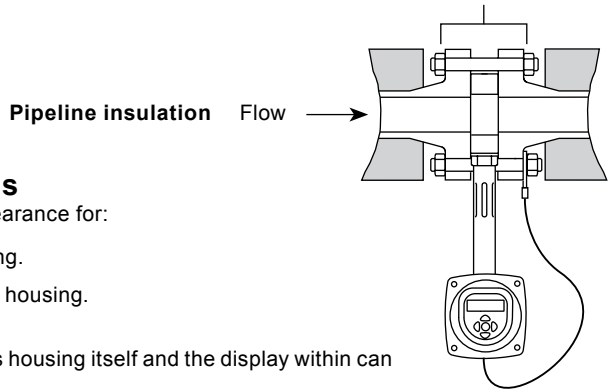


Environmental conditions

The TFA flowmeter should be located in an environment that minimises the effects of heat, vibration, shock and electrical interference - See Section 2.4, 'Pressure / temperature limits' within IM-P193-02 for full details regarding the product limitations.

CAUTION: Do not lag (insulate) the TFA flowmeter or mating flanges as this may result in excessive temperatures in the electronics. Exceeding specified temperature limits will invalidate the warranty, adversely effect the performance and may damage the TFA flowmeter, see 'Pipeline insulation' below.

Do not lag (insulate) the flanges of the TFA flowmeter



Other considerations

Be sure to allow sufficient clearance for:

- Installation of conduit/wiring.
- Removal of the electronics housing.
- Viewing of the display.
Note 1: that the electronics housing itself and the display within can be independently rotated.
Fitting the TFA with the electronics housing below the pipe when the RS485 board is fitted ensures that the display can be read easily.
- Where applicable the installation requires that 2 x Centralising bushes be fitted over the lower two bolts of the flange connection to keep the flowmeter centralised for optimum performance. Refer to IM-P193-02 for full details.
- The flowmeter must be earthed as specified in IM-P193-02. Failure to do so may impair EMC performance and possible reduction in flowmeter accuracy.

Warning: Do not install the flowmeter outdoors without additional weather protection to prevent damage due to freezing.

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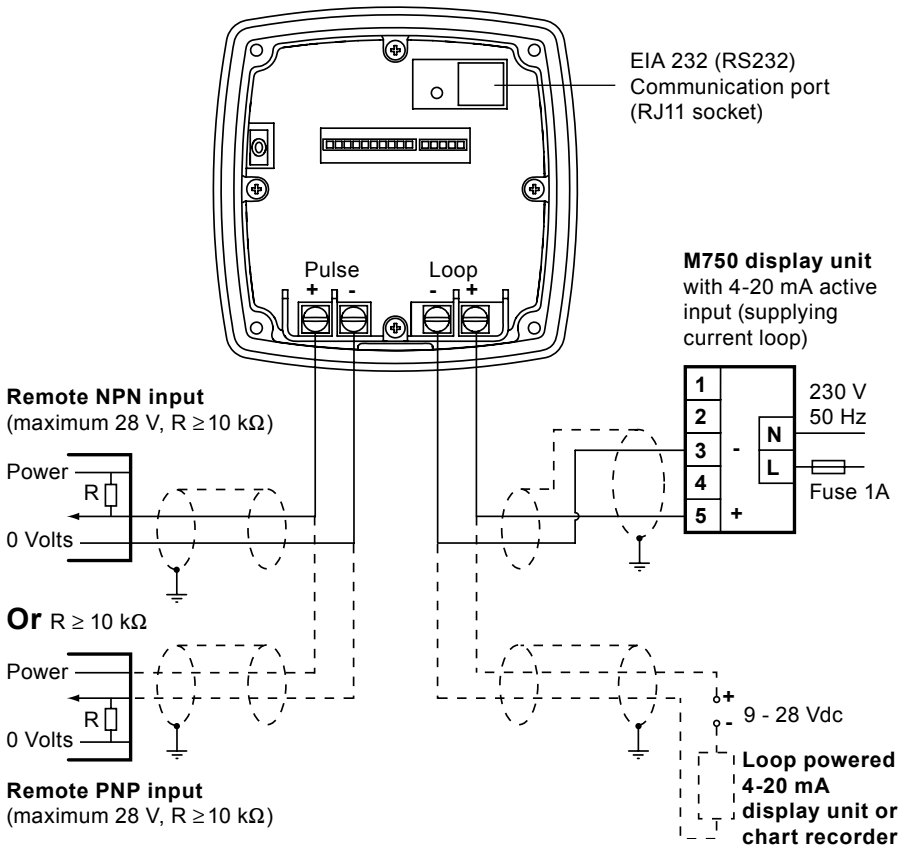
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Electrical installations - with standard EIA 232 (RS 232) communications

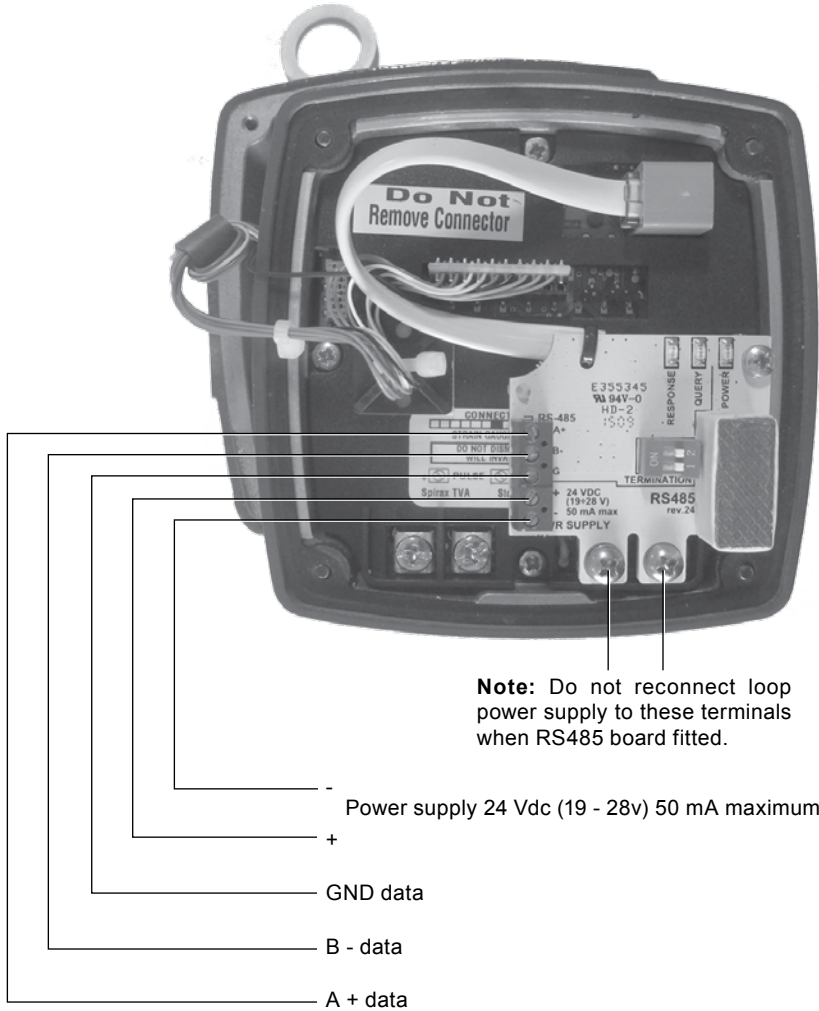
See IM-P193-02, page 16 for further details



Cable size: 0.5 mm²
Maximum length: 300 m
Voltage: 9 - 28 Vdc

Now proceed to Commissioning mode, Section 4.2 in IM-P193-02

Electrical installations - with EIA 485 (RS485) communication



Note: Do not reconnect loop power supply to these terminals when RS485 board fitted.

- Power supply 24 Vdc (19 - 28v) 50 mA maximum

+

GND data

B - data

A + data