



PSM INSTRUMENTATION LTD

TANKWATCH SERIES 600 SELF POWERED CONTENTS GAUGE USER MANUAL

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General Description

The Tankwatch 600 series gauge comprises of two elements, a sensor assembly containing a pressure sensitive diaphragm and an indicator graduated to suit the tank capacity and content. Between these is a flexible seamless copper capillary with a heavy duty flame retardant Polymer sheathing. The system is sealed and filled with inert gas at atmospheric pressure which acts as the pressure transfer medium between the sensors diaphragm, and the indicator head mechanism. The system is normally supplied fully assembled, but can be specified with the sensor disconnected and for final connection during installation, this enables the capillary to be passed through bulkheads or walls. In these cases protective caps are fitted to the sensor and capillary connections to seal the inert gas into the unit.

Sensor Installation

There are several basic sensor mountings:

- * Type ES or EP 3/4" BSP female running nut
- * Type IS top entry flange (standard DN 125 with either rigid sensor support pole or suspension wire
- * Type IM internal bracket mount with bulkhead type capillary exit
- * Type SM external flanged connection (standard DN80)

Flange Dimensions:

Flange	OD	PCD	Holes
DN80 PN16	200 mm	160 mm	8
DN125 PN16	250 mm	210 mm	8

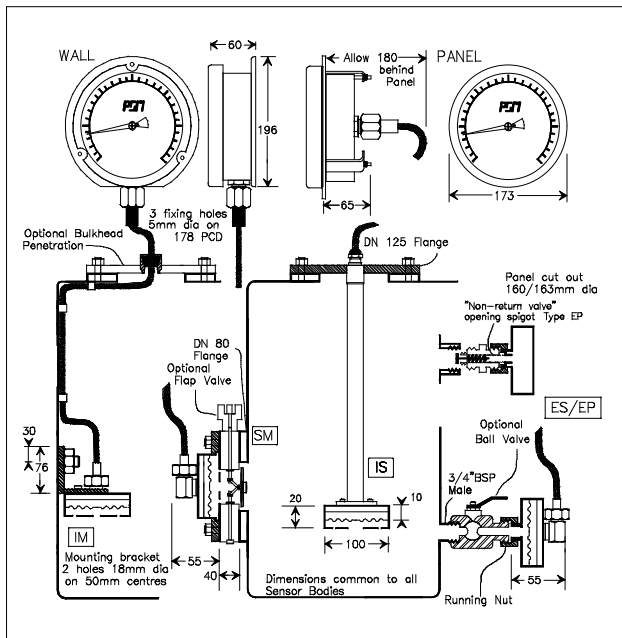
In general it is preferable that the tank is empty throughout the installation process. **THIS IS IN ANY EVENT ESSENTIAL WHERE THE CAPILLARY IS SUPPLIED DETACHED.** Attempting to connect the capillary when there is liquid pressure on the sensor will result in

displacement of the diaphragm and loss of the gas filling. This will cause a low reading or no reading at all.

It is recommended that for types ES/EP and SM sensors suitable tank isolation valves are fitted. For EP types which are designed to operated automatic non-return valves, ensure that the spigot piece which opens the valve is included as the sensor is mounted.

In general ensure that all joints are leak tight using sealant compatible with the process fluid as appropriate.

Refer to the following diagram for clarification of the mounting method for each sensor variant:



Indicator Installation

The indicator may be either surface or panel mounted dependant upon order requirements. A flange is provided for surface mounting and securing straps for panel mounting. Details are provided on the installation diagram on the previous page.

The indicator is not sensitive to its mounting position relative to the tank but in general it should be sited away from any extremes of temperature, vibration and constantly wet conditions.

Capillary

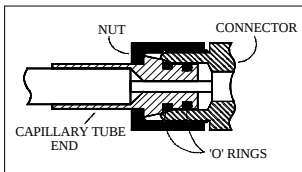
Capillary should be secured using propriety clips taking care not to crush it, and sited away from possible mechanical damage or where flexing might occur.

Any excess should be coiled and bends should have a minimum radius of 75mm. **On no account should the capillary be shortened.**

A variety of fittings are offered to enable passage of the capillary through bulkheads or walls. Where appropriate, supplementary drawings are available detailing these.

Where capillary is supplied disconnected, as previously stated the vessel must be empty during installation. Both sensor and indicator should be mounted with the protective caps in position. The last operation is to make the connection between sensor and capillary.

- * *Carefully remove the protective caps from both ends ensuring they are clean.*



- * *The capillary has a face/face cone seal with sensor and indicator head, this seal being backed up by two 'O' ring seals - check that the 'O' rings are correctly mounted in their respective grooves.*
- * *Insert capillary end into connector and screw together by hand using the running nut until finger tight.*
- * *Whilst holding the connector body, steady with a backup wrench, tighten the nut a further 1/4 turn.*

NOTE: WHILST THE SYSTEM EMPLOYS AN INERT GAS FILLING THIS IS NOT UNDER PRESSURE AND PROVIDED CONNECTION IS CARRIED OUT PROMPTLY

THIS WILL REMAIN IN PLACE.

Commissioning

Since all units are factory calibrated for a particular duty, no adjustment is necessary or possible. In the event that errors are suspected, it should first be established that the instrument has been ordered in accordance with the actual installation conditions, particularly with respect to the tank dimensions, sensor fitting position and liquid specific gravity.

Where a constant low reading is suspected, ie. the pointer drops below zero when the vessel is empty, it is possible to move the pointer position. Access is gained by removing the indicator bezel by rotating it approximately 1/4 turn anti-clockwise. Lift the bezel, glass and seal off.

The pointer is a push fit on the spindle and can be removed by pulling it directly away from the mechanism. ***Extreme care should be taken to avoid bending the spindle.*** The pointer may then be repositioned and pressed back onto the spindle by hand only. Once the correct position is achieved the bezel, glass and seal may be replaced using a reversal of the removal procedure.

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