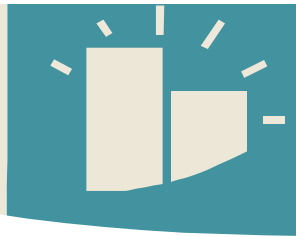


# cargo overpressure monitoring system



A cost effective and simple system for cargo tankers

Recent amendments to SOLAS regulation 59 and in particular paragraph 1.2.3 require that “a secondary means of allowing full flow of vapour, air, or inert gas is provided in the event that the primary arrangement fails”

## Benefits at a glance

**Designed to comply with SOLAS 59.1**

**Simple to include in new designs, Simple as a retrofit**

**Sensors feature full positive / negative overload protection**

**Marine Society type approved transmitters**

**suitable for hazardous area application**

**Simple integration into other shipboard systems**

**Available as a complete kit on short delivery for rapid installation**

The comprehensive features of this package provide an “out of the box” solution to the SOLAS requirement for most installations. However, if your application needs special consideration, PSM can draw upon 20 years experience and application knowledge of Shipboard instrumentation and will be pleased to help.

## Solution

More cost effectively (particularly where retrofit is required) the regulation allows that “pressure sensors may be fitted to each tank and their outputs routed to a monitoring system in the Cargo control room which will provide an alarm in the event of over / under pressure condition.”

The amendment also states “Ships constructed before 1st July 1998 shall comply with these requirements by the date of the first scheduled dry docking after July 1st 1998, but no later than 1st July 2001”

PSM has produced a complete package based on proven and approved equipment which contains all that is needed to fully meet the above requirements.

## Application

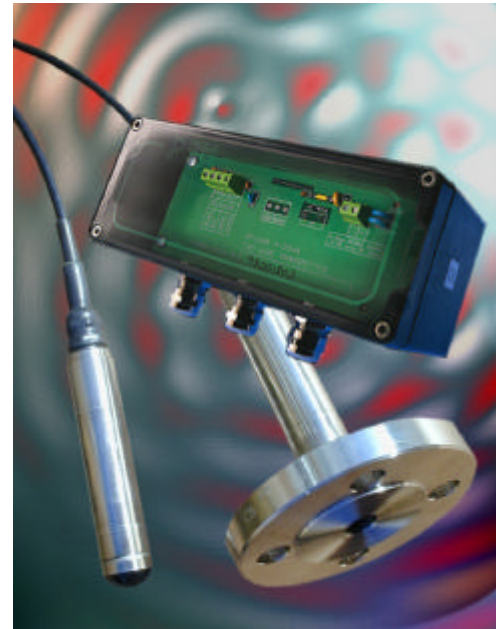
Just as important, it is easy and cost effective to install, and simple to use. The pressure sensors are developed from our widely used Type Approved level transmitters. They are also approved for use in Hazardous areas, (with appropriate safety barriers).

The Cargo Control Room enclosure contains a monitoring station which provides an indication of normal / alarm status for each tank, and by operator selection, the actual pressure. Up to 4 alarm setpoints may be assigned for each tank. The unit’s standard configuration will suit most applications, but changes to setpoints, acceptance delays and hysteresis settings are easily made.

## Function

Under alarm, the monitoring station outputs a signal to drive a remote visual and /or audible annunciator. The alarm condition may be observed and acknowledged at the monitoring station.

Where some or all of the pressure transmitters (or cabling) are within a Hazardous Area the Cargo Control Room enclosure can also contain Zener Safety Barriers to comply with I.S. regulations.



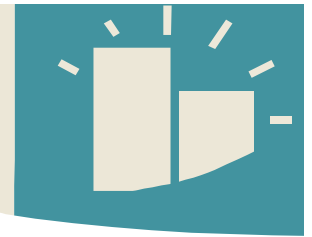
## Construction

The pressure transmitter is in two parts, sensor and electronics module. The sensor is threaded or flanged directly to the deck or tank vent lines, and is fully protected against positive / negative overload, or submersion.

The electronics module is protected to IP 65 or IP67 and can be mounted at a point convenient for the installation cabling and routine calibration checks.

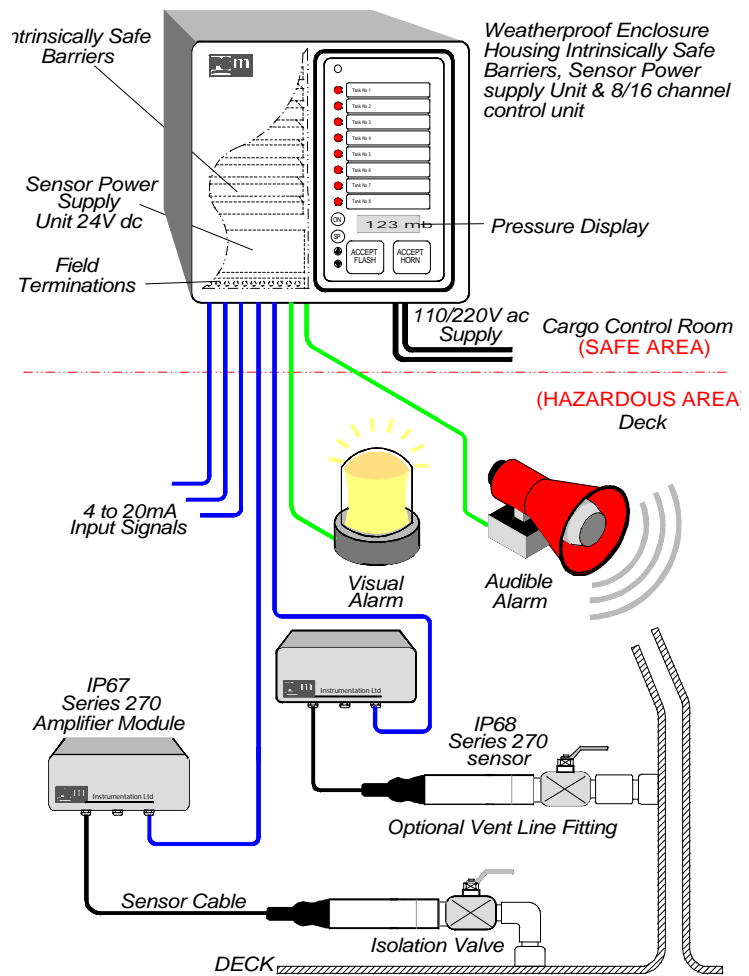


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## TRANSMITTER GENERAL SPECIFICATIONS

<b>Sensor Body:</b>	316 Stainless Steel
<b>Sensing Diaphragm:</b>	Hastelloy C276
<b>Process Connection :</b>	Threaded or Flanged as required
<b>Electronics module enclosure:</b>	GRP with internal RFI screen to IP65 (IP67) optional
<b>Sensor Cable:</b>	Hytel Sheathed 4 core with integral atmospheric reference tube max length 100m
<b>Electrical Connection:</b>	PG9 Cable glands or other to suit Shipboard cabling
<b>Power Supply:</b>	12 to 30 V d.c. (from Monitoring Station)
<b>Signal output:</b>	4 to 20 mA d.c 2 wire
<b>Range Adjustment:</b>	30% to 100% of nominal range
<b>Zero Adjustment:</b>	+/- 20% of nominal range
<b>Operating Temp:</b>	-25 to +80 °C
<b>Maximum Error:</b>	+/- 0.25% of calibrated range
<b>Temperature effect:</b>	BSL Better than 0.05% /° C
<b>Calibration:</b>	As required with 4 to 20mA output anywhere in the range -1 to +10 Bar.
<b>Overload protection:</b>	No effect on calibration for full vacuum or 10 bar applied pressure



## MONITORING STATION GENERAL SPECIFICATIONS

<b>Power Supply :</b>	24 V DC
<b>Display size :</b>	144 x 72 mm format
<b>Inputs:</b>	Each module will accept up to 8 x 4-20mA (as many modules as needed are fitted)
<b>Outputs :</b>	Each input has up to 4 outputs
<b>Trigger delay :</b>	Adjustable 0 to 99 seconds.
<b>Housing:</b>	Overall enclosure size depends upon number of channels and if I.S. barriers are required
<b>Electrical Connection:</b>	PG9 Cable glands or other to suit Shipboard cabling
<b>Remote annunciators :</b>	Choice of visual and audible units depending upon required location

# PSM

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