



LIQUID LEVEL SENSORS

The Gentech range of horizontal, vertical and right angle mounting liquid sensors offers the Design Engineer a combination of versatility and reed switch reliability. Available in UL listed glass filled Polypropylene and Nylon 6.6 materials to provide for use in most chemical and temperature environments, the design

allows for sensing high or low liquid level simply by rotating some models through 180°. There is a choice of switch options and fitting methods to satisfy the majority of signalling and control applications in the automotive, chemical, petroleum and food processing industries.

DESIGN FEATURES

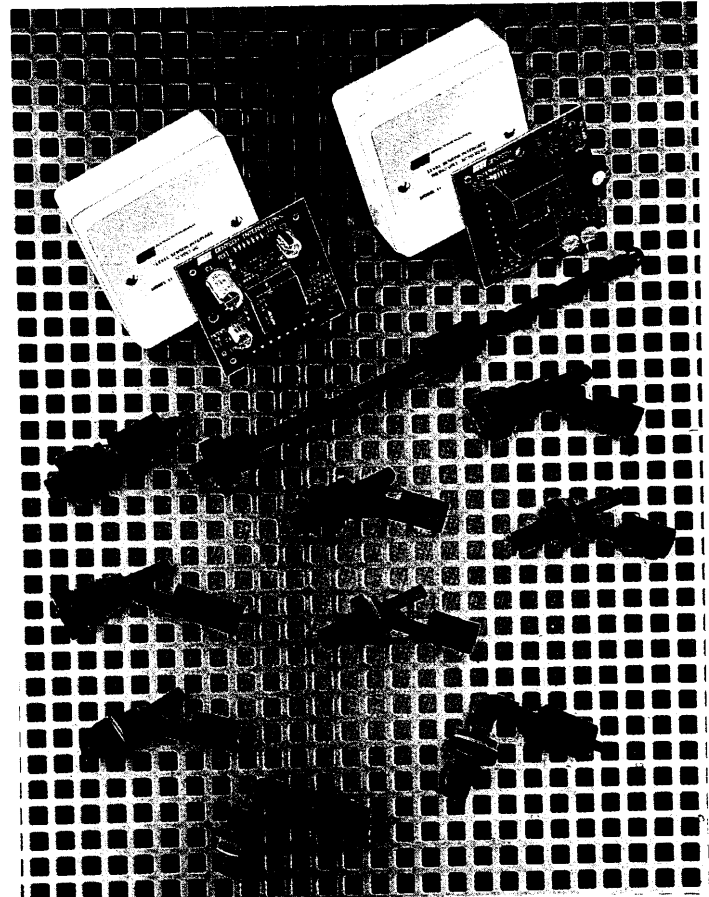
- High or low level sensing
- Normally open, normally closed or change over contact action
- Reed switch reliability, ratings up to 100va
- Glass filled Polypropylene or Nylon 6.6 material
- Horizontal models U.K. Water Research Council Approved for hot and cold water, Certificate No. 9209026. (See page 8, Environmental Specifications Note 3)
- Vertical models U.K. Water Research Council Approved for cold water, Certificate No. 9209026
- U.S. Underwriters Laboratories listed models, File No. E98428
- Operates in liquid down to S.G. of 0.65
- Internal or external fitting
- Internal 1/4" N.P.T., or external 1/2" N.P.T. fitting (horizontal models only). 1/2" N.P.T. version available with diecast metal body (fitted with nylon 6.6 float as standard).
- All models (except 1/4" and 1/2" N.P.T.) are available with universal kit suitable for choice of either internal or external fitting
- Extended models to suit most tank depths (details available on request)
- Interface control systems (See pages 11 & 12)
- Easy to install
- Cost effective

APPLICATIONS

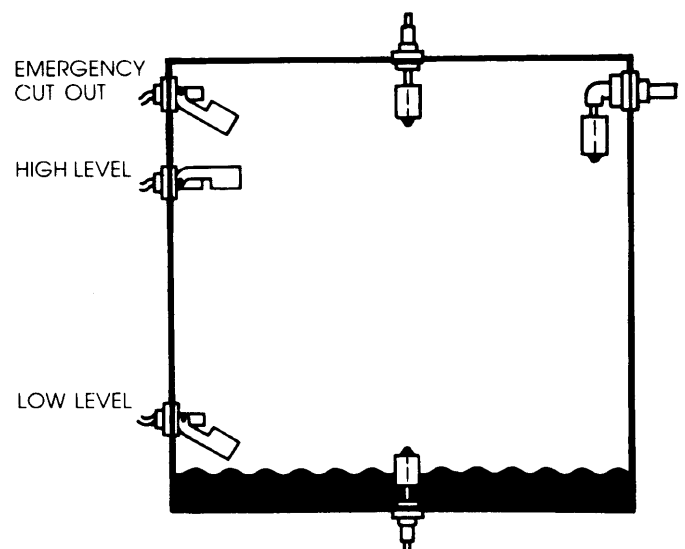
- Low coolant level sensing
- Fuel or oil level sensing
- Boiler level warning
- Solution monitoring
- Flood control
- Reservoir high or low level sensing

INDUSTRIES

- Automobile
- Automobile, plant and equipment
- Catering, vending machines
- Petroleum, chemical, plating, process engineering
- Domestic appliances
- Automobile, medical equipment

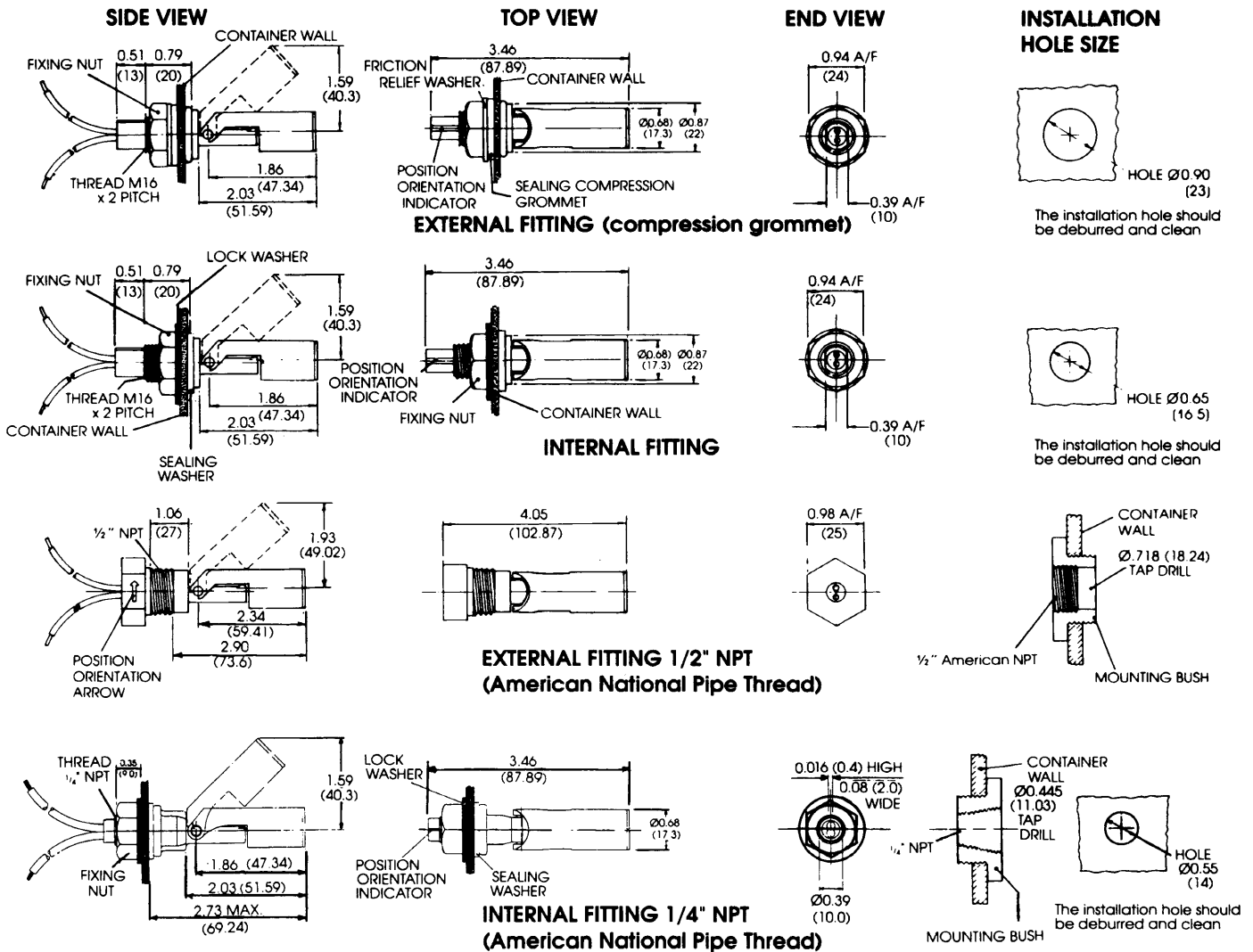


TYPICAL APPLICATION

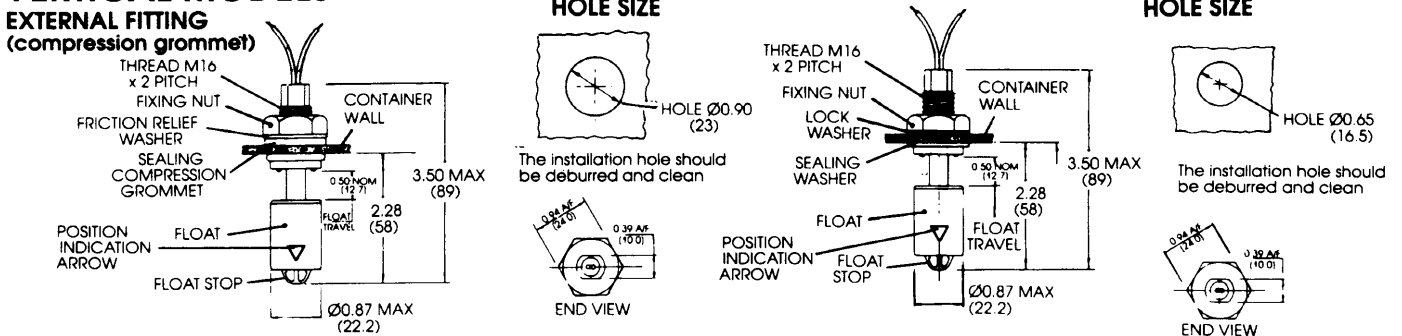


DIMENSIONAL CHARACTERISTICS

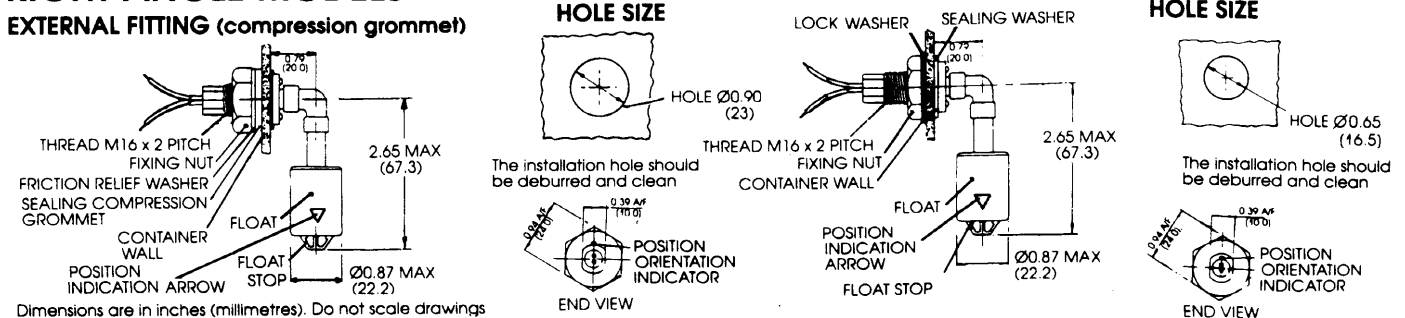
HORIZONTAL MODELS



VERTICAL MODELS



RIGHT ANGLE MODELS



Dimensions are in inches (millimetres). Do not scale drawings.
See page 9 for installation and application notes.



SPECIFICATIONS

SWITCHING OPTIONS

	01	03	04	06	07	08
Switch Action (Reed Switch)	SPST	SPST	SPDT	SPST	SPST (solid state triac)	SPST
Maximum Switching Voltage (VDC) (VRMS)	100 120	100 250	100 70	100 120	- 250	- 250
Maximum Switching Current (Amps)	1.0	1.0	0.50	3.0	3.0	1.0
DC Contact Rating (Watts)	†15	†15	†3	†100	-	-
Minimum Breakdown Voltage (VDC)	300	800	200	400	600	400
Initial Contact Resistance (Ohms)	0.25	0.25	0.25	0.75	-	-
Fitting Option	All	All	All	All	1/2" NPT ONLY	All

† The switching performance can be drastically affected if switch ratings are exceeded. For inductive, capacitive and tungsten filament lamp loads, derate by 50%. Contact circuit protection information is available (see page 19). All switch ratings are at DC resistive loads.

MECHANICAL SPECIFICATION

Mounting Position (vertical & right angle models)	Stem position must be vertical $\pm 15^\circ$
Mounting Position (horizontal models)	$\pm 30^\circ$ from horizontal
Minimum operate angle (horizontal models)	5° from mounting angle
Maximum release angle (horizontal models)	40° from mounting angle
Operate window (vertical & right angle models)	within 5mm (0.196") from float stop
Shock *	50g for 11 milliseconds duration
Vibration *	35g up to 500Hz
Nominal Cable Length	0.5 metre

* Reed Switch Only

ENVIRONMENTAL SPECIFICATIONS

	Float and Housing Materials Nylon 6.6	Glass filled Polypropylene
Operating Temperature Range	-30°C to +130°C (See Note 2)	-30°C to +110°C (See Note 3)
Minimum SG of Liquid	0.85	0.65
Minimum Viscosity of Liquid (centipoise)	100	100
Plastic Housing Water absorption of equilibrium at 20°C and 100% RH at 100°C and 100% RH	5.6% 5.6%	<0.09% <0.09%
Heat distortion temperature 4.5Kg/cm ² (67.6 psig)	245°C	154°C

Notes:

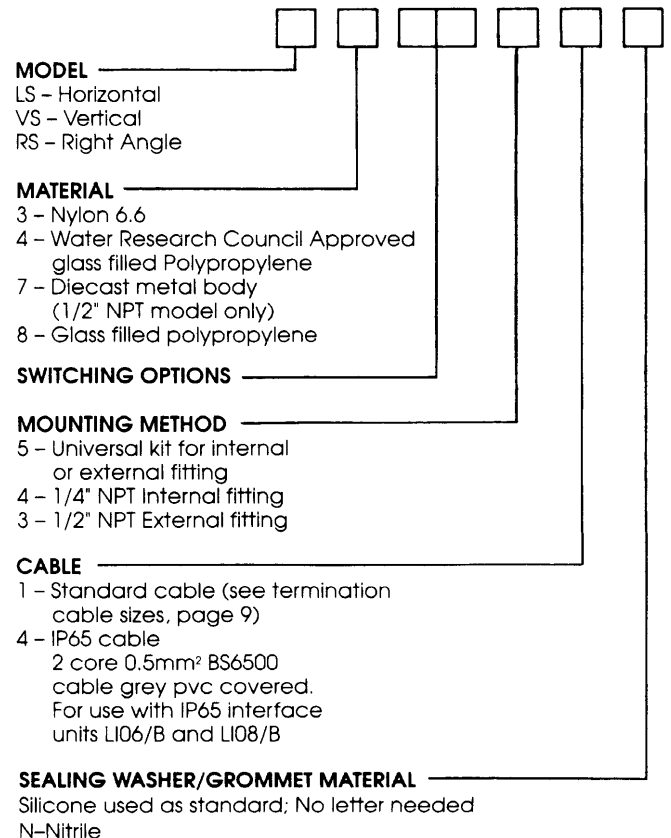
1. Diecast metal model is fitted with Nylon 6.6 float as standard.
2. Higher temperature range units available.
3. For boiling water applications the maximum operating temperature limits are:-
Continuous boiling water 80°C
Non continuous boiling water 100°C

Detailed chemical resistance information for specific liquids is available on request.

SEALING WASHER/GROMMET MATERIALS:

Operating Temperature Range	Silicone -54°C to +150°C	Nitrile -55°C to +107°C
------------------------------------	------------------------------------	-----------------------------------

ORDERING INFORMATION





IMPORTANT INSTALLATION AND APPLICATION NOTES

1 Care must be taken to ensure that the product is not damaged due to excessive tightening of the fixing nut or threaded bush. The torque must not exceed the maximum limits shown below.

Model	Torque Limit	Maximum Container Wall Thickness
External Fitting (compression grommet) See Note 1.1	2.0 lb ft (2.67Nm)	0.16ins (4mm)
External Fitting (1/2" NPT) See Note 1.2	5.0 lb ft (6.75Nm)	1.00ins (25mm)
Internal Fitting Internal Fitting (1/4" NPT) into tapered bush	3.0 lb ft (4.0Nm)	0.394ins (10mm)
through tank wall with nut & washer See Note 1.3	5.0 lb ft (6.75Nm) 3.0 lb ft (4.0Nm)	0.50ins (12.7mm) 0.12ins (3mm)

Notes

1.1 The **compression grommet** is suitable for a seal pressure of 70 p.s.i. There is a choice of silicone rubber and nitrile materials, suitable for a wide range of applications and chemicals.

1.2 When using a **1/2" NPT** (American National Pipe Thread) **Adaptor** fitting, the container wall thickness must not exceed the length of the male thread section of the adaptor. (See dimensional characteristics). The 1/2" NPT model float assembly is designed to pass through 1/2" NPT tap drill 0.718" diameter. A number of pipe fittings have a smaller diameter outside the thread area which will restrict entry. Because the 1/2" NPT tapered mounting bush is usually metal and the Gentech liquid level sensor is usually moulded plastic, it is essential that due care is taken not to overtighten which will cause damage to the sensor. A sealant such as P.T.F.E. tape should always be used on the threaded section of the sensor. Care must be taken to ensure that the position orientation arrow is vertical.

1.3 The **1/4" NPT** (American National Pipe Thread) is also suitable for mounting into a tapered bush (see dimensional characteristics). Because the 1/4" N.P.T. tapered mounting bush is usually metal and the Gentech liquid level sensor is moulded plastic, it is essential that due care is taken not to overtighten which will cause damage to the sensor. A sealant such as P.T.F.E. tape should always be used on the threaded section of the sensor.

2 Under no circumstances should the **float assembly** on horizontal models be removed for ease of installation as the operation characteristics can be impaired.

3 To reverse **switching action** on **horizontal models** simply rotate through 180° observing orientation indicator (arrow on 1/2" NPT model, bar on all other models).

4 On **vertical and right angle models** the **switch function** can be changed from normally open to normally closed contact by simply compressing the float stop arms, removing and reversing the float and reassembling. (Movement in the direction of the position indication arrow on the float closes the switch contacts at the end of float travel).

5 Termination Cable Sizes

Sensor Type	Switch Option	AWG	Cable Size Stranding	Insulation	Approvals
LS	01, 03, 06 & 07	18	32/0.2mm	P.V.C.	UL/CSA/BS6231
LS	04	24	7/0.2mm	P.V.C.	—
VS & RS	01, 03, 06 & 08	22	16/0.2mm	P.V.C.	UL/CSA/B6231
VS & RS	04	24	7/0.2mm	P.V.C.	—