

## SELF POWERED CONTENTS GAUGE

**MARINE  
INDUSTRIAL  
AND  
VEHICULAR  
LIQUID  
LEVEL  
APPLICATIONS**



### HYDROCARBONS

The 100 Series converts the hydrostatic head pressure of liquid in a vented tank to give accurate continuous remote contents gauging.

The gauge is completely self powered without the need of batteries, electrical or pneumatic supply. This makes it totally safe for use in flameproof/explosion proof and Zone 0 areas.

The principle of operation makes the 100 Series ideal for tanks or compartments with foaming, vaporising, or turbulent liquids. These are applications which result in significant errors for gauges using buoyancy, capacitance change or reflective principles. Hydrostatic head pressure operation greatly reduces indication errors caused by pitching and rolling of the tank, commonly experienced in marine and vehicular duties.

The gauge is supplied complete, only requiring site connection to the tank to provide accurate continuous reading, without need of additional services, site programming or calibration.

The 100 Series offers a choice of tank mounted

### CHEMICALS

sensors to suit the application, including versions to match the original KDG standard tank connections.

The sensor diaphragm balances the hydrostatic pressure of the liquid within the tank. This pressure is transmitted to a precision capsule operated indicator via a fine bore, inert gas charged, sealed and sheathed capillary. The indicator scale may be calibrated in any unit of mass, head or volume. The 100 Series can be used for any shape vessel, tank or compartment and provide full-scale indication for level change.

The use of an inert gas filled and sealed capillary reduces temperature effect errors, and allows the dial indicator to be positioned above, below or at the same level as the tank sensor.

The use of a stainless steel fully weatherproof indicator together with the options offered for sensor wetted parts and capillary enable compatible construction for a wide range of liquids and hostile environments, where accurate continuous gauging is required.

### WATER

# SPECIFICATION

## Accuracy

Maximum error  $\pm 1.0\%$  of range

## Overload

200% of range

## Optional Temperature

Sensor –  $-10^{\circ}\text{C}$  to  $+100^{\circ}\text{C}$

Indicator –  $-10^{\circ}\text{C}$  to  $+50^{\circ}\text{C}$

## Weatherproof Protection

Sensor – IP67

Indicator – IP65

## Indicators

100mm, 160mm and 250mm diameter stainless steel

## Capillary Length

3 metres (standard)

Up to 20 metres maximum (Code A or B)

## Calibration

Dial marked in customer specified mass, head or volume units, and tank reference.

## Measurement Range

Tank Depths 1 through 15 metres.

## Sensor

E All type 316 stainless steel welded body and diaphragm. Rear screwed capillary connection;  $3/4$ " BSP female running nut connection to tank.

EF All type 316 stainless steel welded flange and diaphragm. 4" Table E flanged connection to tank.

EFM As above but with Teflon<sup>®</sup> mask and gasket to process.

IF Type 316 stainless steel sensor welded to 20mm stainless steel support pole. Stainless steel 4" Table E flanged connection to tank.

IM Type 316 stainless steel sensor, stainless steel mounting bracket, stainless capillary to stainless steel top of tank bulkhead plate.

100	CODE	CONNECTION TO TANK			
	E	Stainless steel type 316, connection and all wetted parts, $3/4$ " BSP female running nut			
	EF	4" Table E stainless steel type 316 front flange and all wetted parts			
	EFM	Similar to EF above, but with teflon/mask & gasket.			
	IF	Stainless steel type 316 complete sensor and 20mm support pole, stainless steel 4" Table E flange			
	IM	Stainless steel type 316 complete sensor			
		CODE	INDICATOR		
		1	160mm stainless steel wall mounting (back flange)		
		2	160mm stainless steel panel mounting (U clamp)		
		3	100mm stainless steel wall mounting (back flange)		
		4	100mm stainless steel panel mounting (U clamp)		
	5	250mm stainless steel wall mounting (back flange)			
		CODE	INTERCONNECTING CAPILLARY		
		A	Fine bore heavy duty copper with outer sheath fire retardant grade plastic compound yellow colour.		
		B	Fine bore stainless steel within an outer of flexible stainless steel.		
			CODE	CAPILLARY LENGTH	
			3	3 metres	
			5	5 metres	
			10	10 metres	
			20	20 metres	
100	EF	1	A	10	TYPICAL ORDER CODE

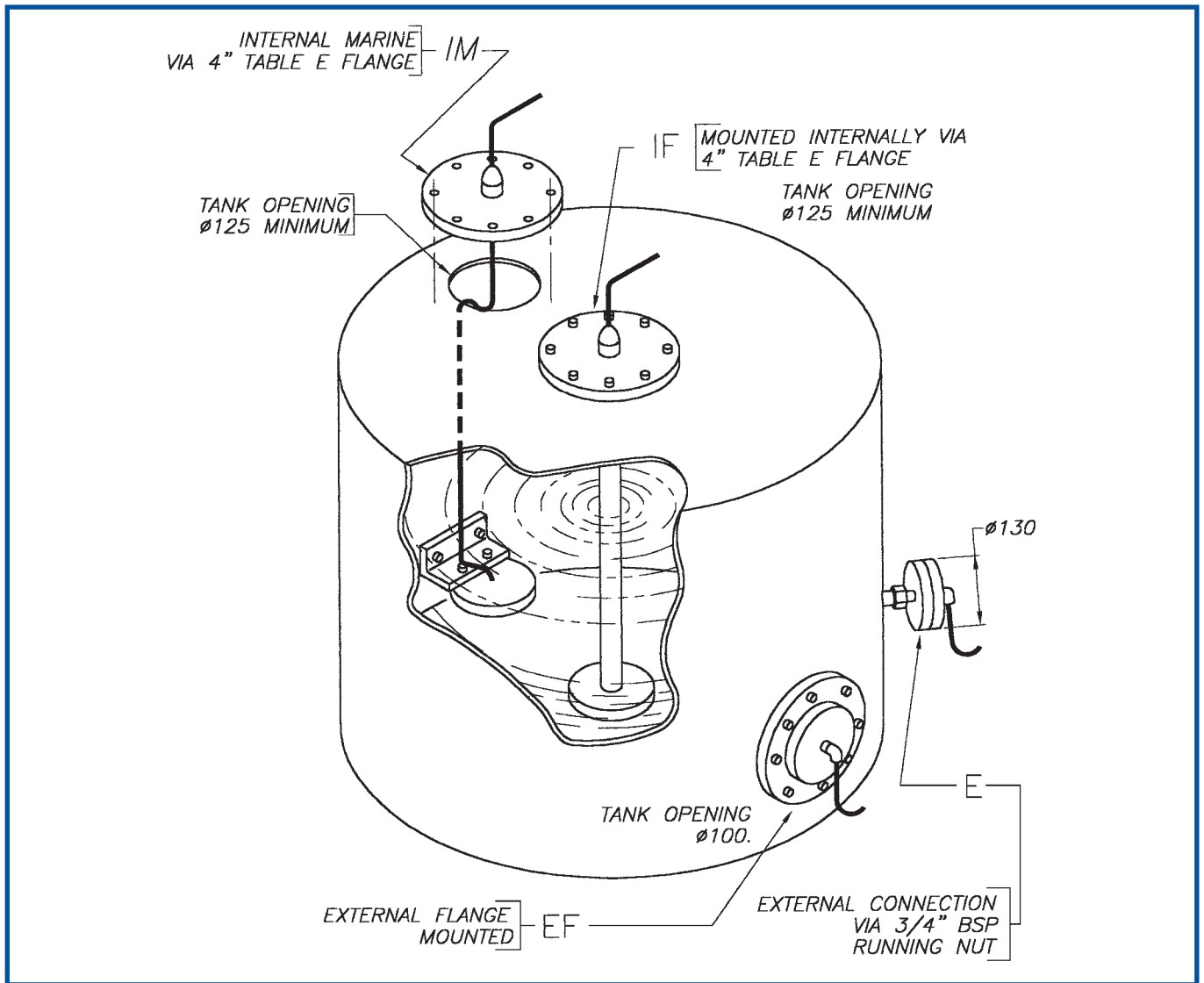
**ALSO ADVISE DETAILS OF TANK SHAPE AND SIZE, LIQUID AND CALIBRATION UNITS. AT TIME OF ORDER OR COMPLETE OUR QUESTIONNAIRE FORM.**

## OPTIONAL EXTRAS:

- Indicator dial with two scales (eg Litres/Kgs)
- For shallow tank with high overloads (Typically marine double bottom tanks), additional overload protection)
- Special tank connection flanges and fittings
- High temperature liquid calibration
- Two remote indicators from one tank sensor
- Tank isolation valve for E sensors
- Special calibration to maximum error  $\pm 0.5\%$  of range

Teflon<sup>®</sup> is a registered trademark of Dupont.

## TYPICAL SENSOR INSTALLATION



Order Code: 100EF1A3



Order Code: 100E1B3

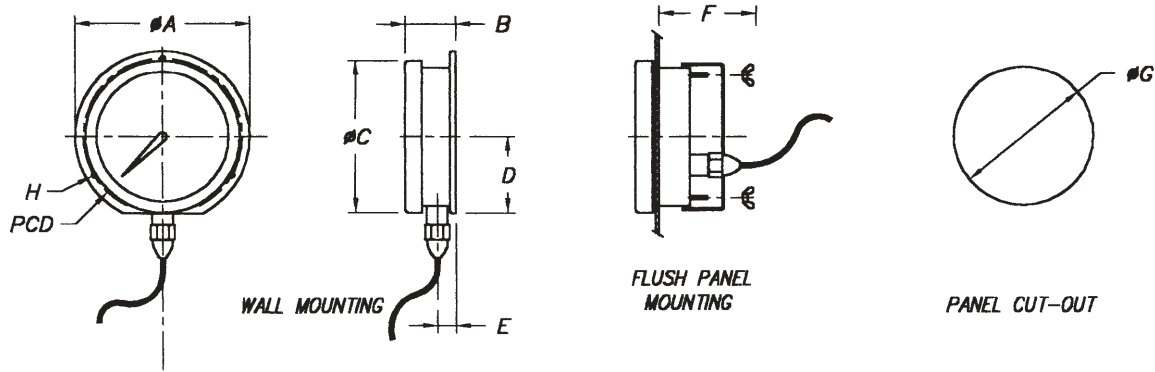


## SENSOR APPLICATIONS

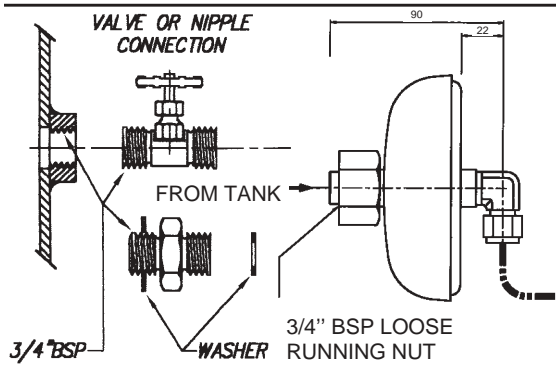
- IF Normally used on 'in-ground' and existing tanks or situations where tank connection is required above liquid level. Suitable for light and viscous liquids. Sensor bolts to tank top.
- E Most widely used; suitable for all but hygienic and viscous duties. Sensor screws onto male tank or valve 3/4" BSP connection.
- EF Suitable for viscous and hygienic duties where flush process contact is required.
- EFM Similar to EF but with Teflon® mask and gasket in contact with process fluid for corrosive applications.
- IM Mainly used in ship tanks or compartments where no external access is possible; and also solves limited head room problems. When using IM installation specify length between sensor and bulkhead plate and total length.

# GENERAL OUTLINE

(Dimensions mm)

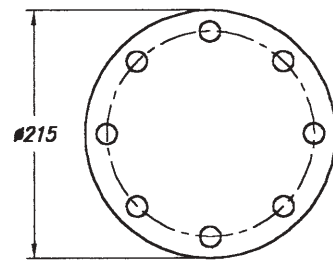


100 Series	DIMENSIONS IN mm								
	$\varnothing A$	B	$\varnothing C$	D	E	F	$\varnothing G$	$\varnothing H$	PCD
100 NOM. DIA.	133	52	112	55	18	80	100	5	117
160 NOM. DIA.	196	61	173	86	20	80	158	5	178
250 NOM. DIA.	285	58	250	142.5	20	—	—	6	270



4" FLANGE,  
TABLE E, AS2129

(8) M16 BOLTS  
ON 178 P.C.D.



## ALTERNATIVE LEVEL TRANSMITTERS AND INDICATORS

Measurement Resources provide an extensive range of 2 wire 4-20mA Hydrostatic and Ultrasonic Level Transmitters.



Magnetic Level Indicators with local and international approvals covering intrinsically safe marine applications.



33 – 37 College Street  
 P.O. Box 145 Gladesville NSW 2111 Australia  
 Telephone: (61-2) 9816 3377 Fax: (61-2) 9816 3806  
 Email: [sydney@measurement-resources.com.au](mailto:sydney@measurement-resources.com.au)  
 Website: [www.measurement-resources.com.au](http://www.measurement-resources.com.au)