

LIQUID LEVEL TRANSMITTER

**LIQUID LEVEL &
CONTENTS
APPLICATION**

**INTEGRAL LINEARISATION
& TEMPERATURE
COMPENSATION**

**SMART/HART®
4-20mA**



**CALIBRATION WITHOUT TEST
PRESSURE**

HYDROSTATIC OPERATION

**MARINE I. S.
OPTIONS**

The 210 Series Transmitter measures liquid level directly by the hydrostatic head pressure principle. Not subject to the inherent limitations and errors of buoyancy, capacitance change, or reflecting type sensors when applied to duties with foaming, vaporizing, or turbulent liquids. Hydrostatic sensors also are ideally suited to marine and vehicular applications where the tank is subject to pitching and rolling.

The 210 are offered both as an integral unit for screwed/flanged connection to the side or bottom of the tank, or, in split architecture where the electronics are remote from the immersed sensor. Both versions allow in service calibration without removing the sensor from the process.

The sensor body is constructed in stainless steel incorporating a flush stainless steel diaphragm, which transmits liquid pressure on to a ceramic pressure cell. This arrangement provides a flush diaphragm with very high overload capability, high accuracy and eliminates the oil filling problems of other designs.

Changes in the ceramic pressure cells resistance is detected by the amplifier systems single chip to provide 4-20mA output with Hart® communications.

The 210 series integral electronics can be programmed to:

- Linearise its output typically used on tank gauging applications.
- Adjust output damping to 0-25 seconds
- Simulate 4-20mA output signal
- Reverse output 4-20mA record/display device information (tag date message)

The optional integral digital display were fitted can show:

- Temperature of the following alternate process variables
- Pressure being measured (metres, mm, kPa, bar, psi, inches)
- Percentage
- Current

SPECIFICATIONS

Accuracy

± 0.1% of adjusted span

Nominal Ranges

0 to 0.4 metres through 0 to 40 metres

Output Signal

4-20mA two wire with HART® comms

Operating Temperature

-10° to + 70°C

Temperature Coefficient

±0.015%/°C

Weight

Typical model SS with 10 metres of cable 4.5kg

Protection Rating

Sensor and cable IP68
Electronics housing IP66

Power Supply

12 to 40 volts V.D.C.

External Load

600 ohms @ 24 V.D.C.

1400 ohms @ 40 V.D.C

Construction

Sensor 316 St/St

Electronic housing 304 St/St

Cable polyethylene, see options

Electrical connection P.G. 9

Programming

Via push buttons on digital display model or via Hand Held Terminal (HHT) to HART®

ORDER CODE

210	CODE	CONNECTION TO TANK		
	SS	Submersible Sensor suspended by Cable		
	IF	Install through tank top via 20mm St/St pipe* and 2" 150lb ANSI St/St flange		
	E	Screwed connection 3/4" BSP running nut to side/bottom		
	EF	Flanged 2" 150 lb st/st ANSI		
		CODE	NOMINAL RANGE	MAX OVERLOAD
		4	0 – 0.4 through 0 – 4 metres	64 metres
		12	0 – 1.2 through 0 – 12 metres	100 metres
		40	0 – 10 through 0 – 40 metres	300 metres
			CODE	CABLE LENGTH
			X	Metres length
210	SS	4	10	Typical Order Code

* For code **IF** connection to tank, maximum length restricted to 3 metres because of crating and shipping limitations.

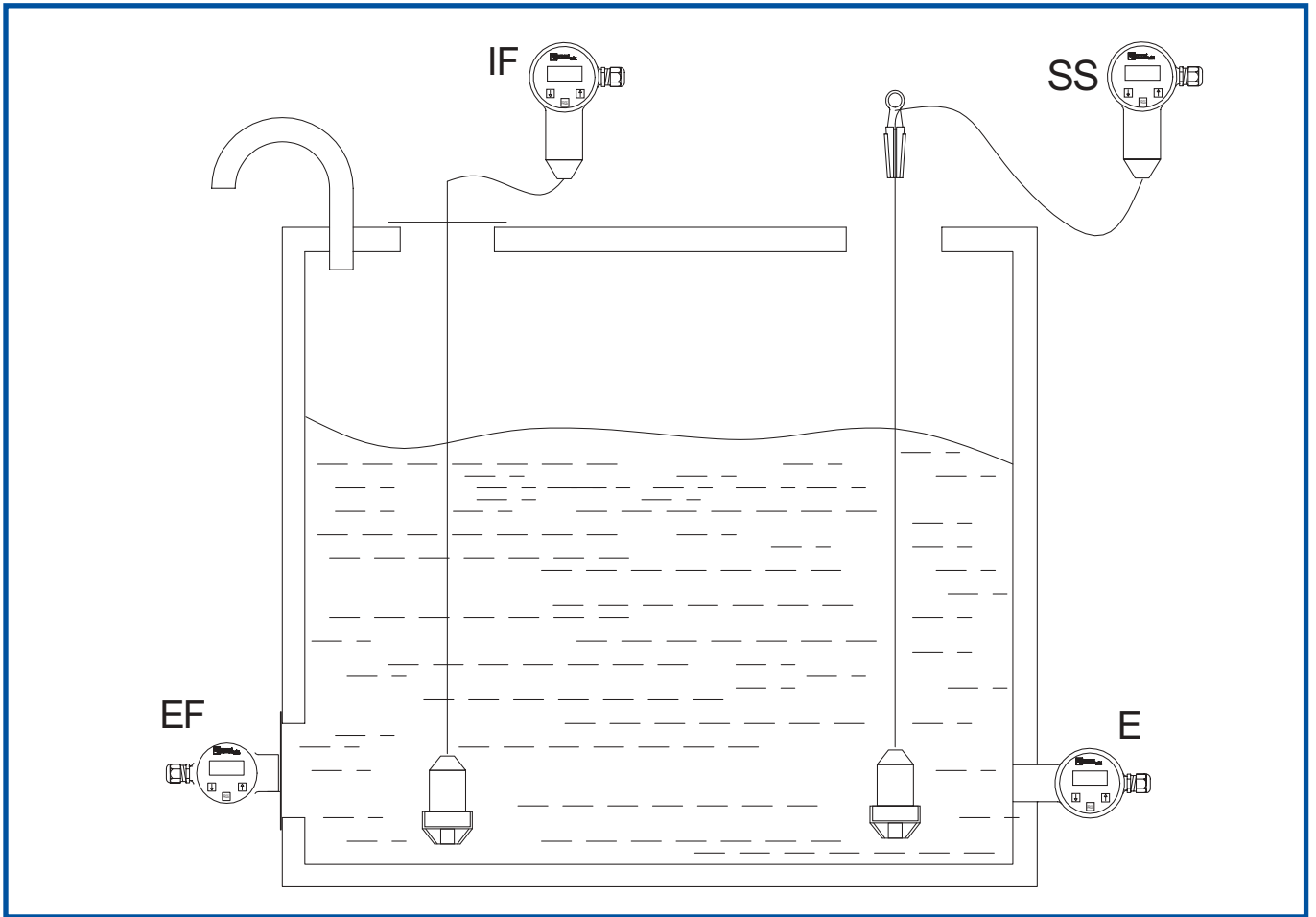
OPTIONAL EXTRAS

- Cable clamp – AKL2 to support **SS** Submersible suspended sensor.
- Alternative cable materials TEFLON® or P.V.C.
- Alternative screwed and flanged process connections.
- Spring-loaded dry break (Non-Return Valve) St/St to suit **E** screwed sensor.
- Remote display monitors with pump control and audible/visual alarms.
- Surge and Intrinsically Safe barriers.
- PROFIBUS-PA output.

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TEFLON® is a registered trademark of Dupont

SENSOR INSTALLATION



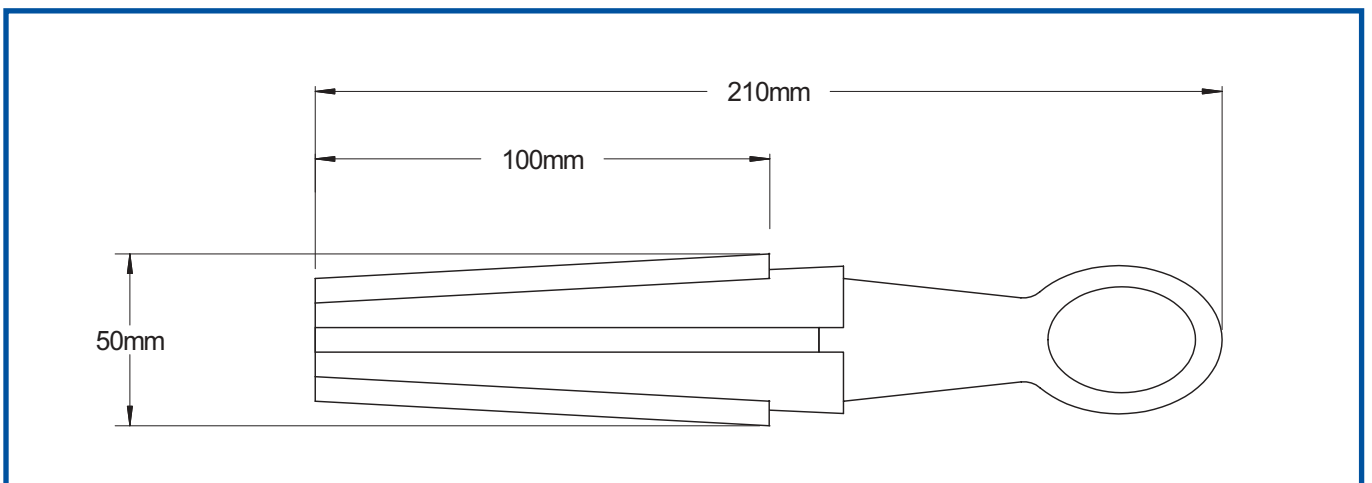
SS Tank connections are widely used in water distribution and treatment tank reservoirs, wet wells & pits. Existing fuel and chemical storage tanks are often retrofitted with the SS as it's 48mm diameter can utilize existing top of tank fitting with significant installation savings.

IF Tank connections are often used on bulk hydrocarbons/chemicals/water storage tanks in turbulent pump pits on board ships and vehicles. The flush diaphragm to the process makes it suitable for paper pulp and viscous slurries. For code IF connection to tank, maximum length restricted to 3 metres because of crating and shipping limitations.

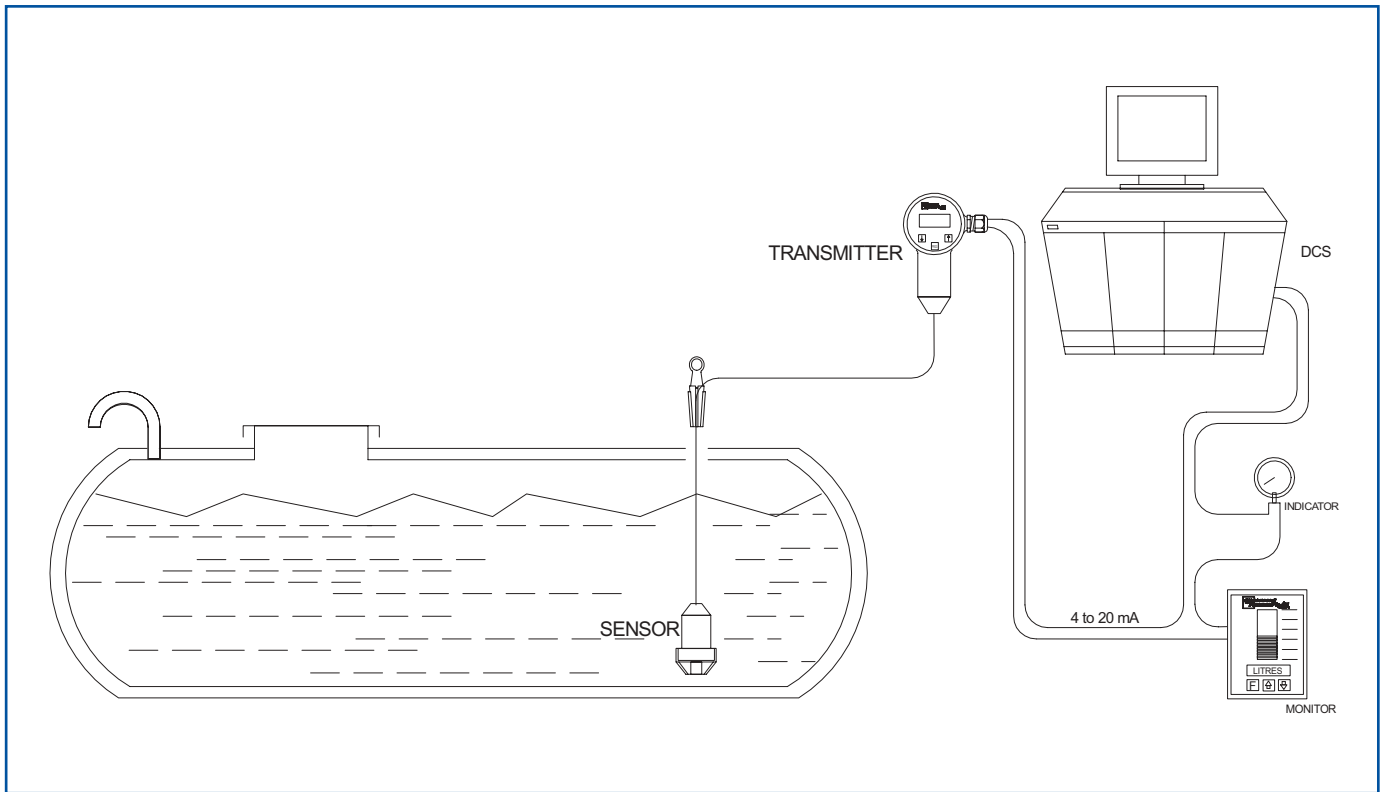
E Tank connections is the most widely used variant for most small tanks containing non-viscous fluids, and pipeline duties. The connection interchanges with a number of older proprietary instruments.

EF Tank connection used on viscous and food and beverage storage and process tanks and vessels.

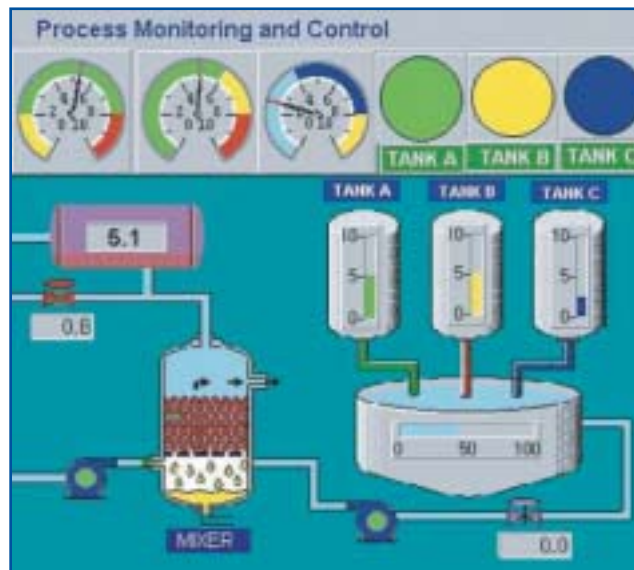
OPTIONAL INSULATED CABLE CLAMP CODE AKL2



SCHEMATIC ARRANGEMENT



TYPICAL LEVEL MONITORS AND SYSTEMS



THE COMPANY RESERVES THE RIGHT TO MODIFY THIS DESIGN WITHOUT NOTIFICATION

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