



# The DEETER Group<sup>®</sup>

## Flameproof LVCS FP

'Liquid Vertical Continuous Sensor'



The Deeter LVCS FP is a magnetic float on a reed switch or Hall Effect sensor stem for control and indication of a liquid level while in a potentially explosive atmosphere.

 II 1/2G 2D  
Ex d IIC (\*) Ga/Gb  
Ex t IIIC (\*) Db IP68  
-20°C ≤ Ta ≤ +85°C

 II 2GD  
Ex d IIC (\*) Gb  
Ex t IIIC (\*) Db IP68  
-20°C ≤ Ta ≤ +85°C



\* Temperature class options to suit environment and process temperatures  
T5 / T100°C for process temperatures ≤ 85°C  
T4 / T135°C for process temperatures ≤ 125°C  
T3 / T200°C for process temperatures ≤ 180°C

Atex Certificate: Sira 11ATEX1365  
IECEX Certificate: IECEX SIR 11.0159  
Refer to certificate for clarification of directive code and equipment protection level.

### Features include:

- Standard lengths or custom length sensor stems up to 4 Metres.
- Stainless steel 316L housing and wetted components.
- Atex and IECEX approved.
- Suitable for gas and dust environments.
- IP68 Ingress protection.
- Reed switch or Hall Effect sensing technology.
- Voltage and current loop analogue output.
- Programmable set point triggers.
- M20 and 1/2" NPT cable connections.
- Custom mounting options available.
- Narrow sensor stem and mounting for tanks without internal access.
- Suitable for high liquid temperatures.

All electrical equipment should be installed by a qualified/certified electrician.  
Deeter Electronics Ltd follows a policy of continual development of its products and reserves the right to change specifications and / or features without notice

**DEETER ELECTRONICS LTD**

**T&D THORNE & DERRICK UK**

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Type	Specification	
Sensor technology	Magnetic float with reed switch or Hall Effect	Note 1
Reed switch sensing resolution Ø12mm stem Ø8mm stem	5mm 6.5mm	
Hall Effect sensing resolution	15mm	
Interface options: 4-20mA 0-2V 0-4V 0-10V 4-20mA Loop powered Multi interface	4 to 20mA for 10Ω to 1.2KΩ load 0 to 2.048V @ 5mA 0 to 4.096V @ 5mA 0 to 10.0V @ 5mA 4 to 20mA for 10Ω to 1.2KΩ load 4 to 20mA for 10Ω to 1.2KΩ load and 0 - 10V @ 5mA and 2 X open collector transistor	
Sensor tube and wetted materials	Stainless steel 316L	
Connection head material	Stainless steel 316L	
IP rating with suitable cable gland	IP68	
Approximate weight Ø12mm stem Ø8mm stem	1Kg+process connector + 0.5Kg/Metre 1Kg+process connector + 0.3Kg/Metre	
Float Diameter: Specific gravity Ø12mm stem Ø8mm stem	53mm : 0.65 30mm : 0.75	Other floats available
Maximum liquid temperature Reed switch Hall Effect	-20 to +180°C -10 to +45°C	Note 2
Maximum head temperature	-20 to +80°C	Note 3
Maximum operating pressure	150PSI / 10Bar standard 450PSI / 31Bar	Note 4
Thread connection-Sensor tube	½"-14 NPT	
Thread connection-Wiring port	½"-14 NPT or M20X1.5	
Connection head height	95mm	
Power supply: 4-20mA 0 to 2V 0 to 4V 0 to 10V 4-20mA Loop powered Multi interface	15 to 28Volts. Typical 24V@0.6Watts 5 to 28Volts. Typical 12V@0.25Watts 7 to 28Volts. Typical 12V@0.25Watts 14 to 28Volts. Typical 24V@0.5Watts 17 to 25Volts via current loop 8 to 25Volts. Typical 24V@0.6Watts	
Current loop output. R <sub>Load</sub>	10Ω to 1.2KΩ	Note 5
Multi interface - open collector transistor	28Vdc Max. 50mA Max	

Note 1: Due to the variability of components, the output may be non-monotonic. If this could cause a problem in your application, please call our technical sales department.

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Note 2: LVCS FP for liquids with temperature between 120°C and 180°C are available, Call Deeter for assistance.

Note 3: When this equipment is intended to be used in a liquid with a process temperature above 85°C it is an essential requirement that the sensor head temperature is measured to determine if the ambient air cooling is sufficient to keep the head below 80°C. See installation manual for detail.

Note 4: The LVCS FP sensor float and tube can withstand the stated pressure when sealed inside a tank. The connection head and resin seal inside the sensor stem must not be pressurised.

The standard zone0 fittings are rated at 10bar, these fittings are not part of the certified flameproof seal and should not be considered as part of an explosion proof containment. Please call our technical sales department regarding sensors for liquid pressures up to 31bar.

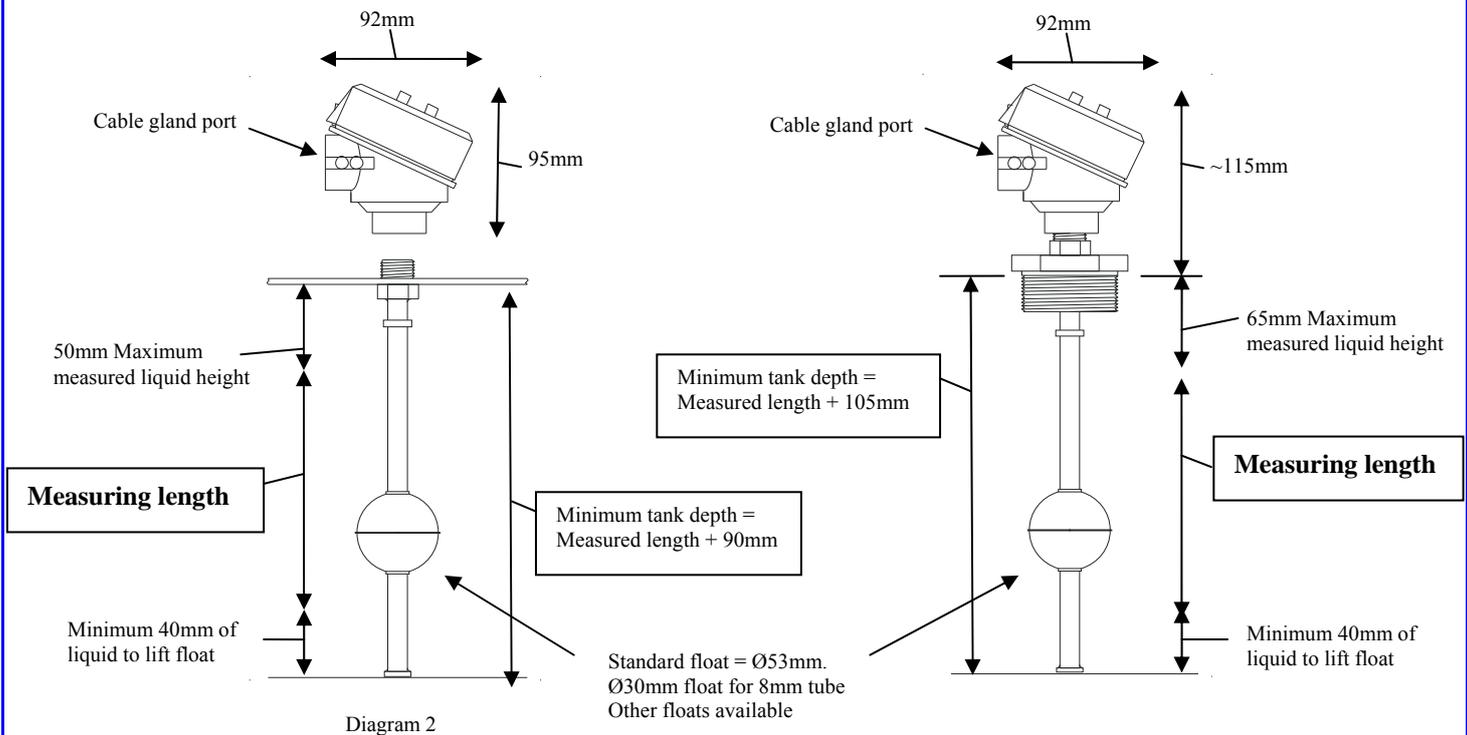
Note 5: Maximum load resistance is determined by the formula:

$$R_{load(max)} = (\text{supply Voltage} - 2V) / 20mA.$$

At maximum specified voltage and temperature, the minimum load resistance increases to approximately 500Ω

An approximate formula is:

$$R_{load(min)} = (\text{Supply voltage}) / 20mA - (150C - (\text{Ambient temperature})) / 0.04C/\Omega$$



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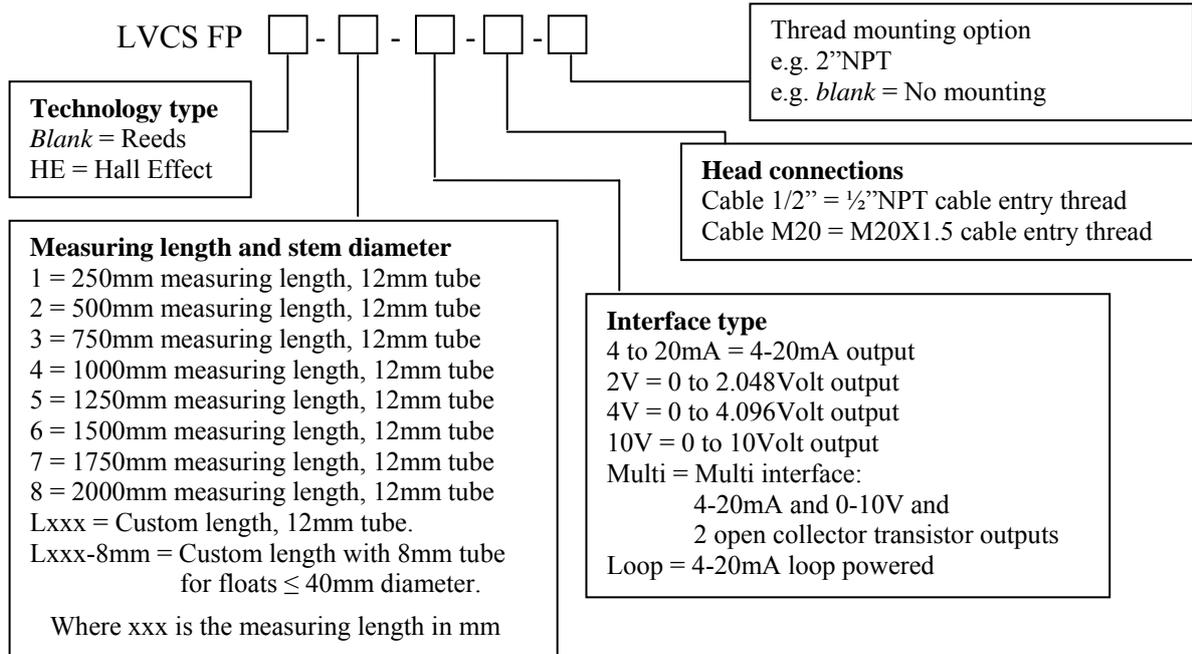
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### Ordering information

Due to the various options available please call our sales office to discuss your requirements.

Options include: Probe length, interface board, Threaded mounting/seal options, Reed/Hall Effect technology, float sizes, 8 or 12mm sensor tube, cable entry thread.



Upon receipt of the above information a drawing and Deeter part No. will be issued to identify the options selected. This part No. will be required when making your order.

Don't forget: Tank depth must be at least 90mm longer than the measuring length.

Example: LVCS FP HE-L635-loop-cable1/2"-2"BSP is a Flame proof liquid level sensor using Hall Effect technology. Measuring length =635mm, Overall sensor length =740mm using a 12mm tube. Interface is a loop powered 4-20mA board housed in a thermocouple head with 1/2"NPT port for a cable gland, and a 2"BSP pipe fitting welded to the top of the stem for mounting the sensor into a tank of liquid.

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