

# VFS-SA Hazardous Area Liquid Level Switch for use in Intrinsically Safe Systems

The VFS-SA is a vertically mounted magnetic float switch for the control and indication of a liquid level while in a potentially explosive atmosphere. It is certified for use as Simple Apparatus in Intrinsically Safe systems.



Certificate: ExVeritas 19SYS2152X

Refer to certificate for clarification of system suitability and conditions for safe use.

This switch must be used in conjunction with an intrinsically safe barrier when used in a potentially explosive atmosphere.

The VFS-SA can be considered for the following systems:

#### Gas Atmospheres:

II 1 G IIC T3 Ga	T <sub>amb</sub> -20°C to +190°C
II 1 G IIC T4 Ga	T <sub>amb</sub> -20°C to +125°C
II 1 G IIC T5 Ga	T <sub>amb</sub> -20°C to +90°C
II 1 G IIC T6 Ga	T <sub>amb</sub> -20°C to +75°C

#### Dust Atmospheres:

II 1 D IIIC T200°C Da	T <sub>amb</sub> -20°C to +190°C
II 1 D IIIC T135°C Da	T <sub>amb</sub> -20°C to +125°C
II 1 D IIIC T100°C Da	T <sub>amb</sub> -20°C to +90°C
II 1 D IIIC T85°C Da	T <sub>amb</sub> -20°C to +75°C

The VFS-SA is a small vertically mounted liquid level sensor which has been certified for use as Simple Apparatus in Intrinsically Safe systems. Its wide ranging certification allows for custom lengths and switching positions depending on your bespoke requirements.

#### Features Include:

- ATEX Certified for use as simple apparatus in an intrinsically safe system.
- Temperature range of -20°C to 120°C, with temperatures up to 190°C available.
- Up to 7 switching positions.
- Stem lengths of up to 6 metres.
- Available with Form A (SPST) or Form C (SPDT) contacts.
- A 1 meter cable is provided as standard, however custom lengths are available.

# VFS-SA Hazardous Area Liquid Level Switch for use in Intrinsically Safe Systems

## Technical Data

	VFS-SA-(XXX)01/02/03	VFS-SA-(XXX)04	Non-Standard Options Available
<b>Reference Float Specific Gravity</b>	0.71	0.66	0.49
<b>Maximum Pressure</b>	10 Bar	10 Bar	45 Bar
<b>Operating temperatures</b>	-20°C to +120°C	-20°C to +120°C	-20°C to +190°C

## Switch Contact Ratings

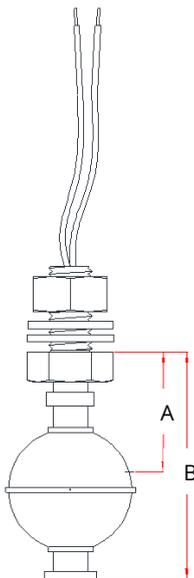
Form A switches are rated at 240v AC/DC, 50 Watts, 1.0 Amp resistive load only.

Form C switches are rated at 50v AC/ DC, 10 Watts, 0.25 Amp resistive load only.

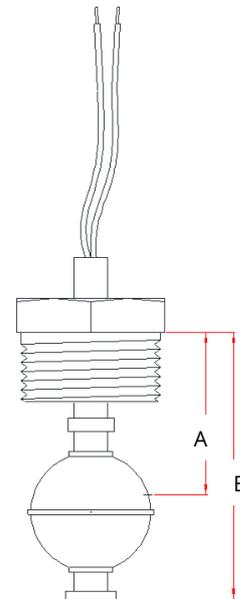
All variations have 24AWG, 7/0.2 PTFE insulated wires.

## Fixing

	Length A	Length B	Float Type
<b>M10</b>	28mm	54mm	1" Ball Float
<b>M16</b>	32mm	57mm	1" Ball Float
<b>1" BSP</b>	39mm	64mm	1" Ball Float
<b>1" NPT</b>	39mm	64mm	1" Cylinder Float



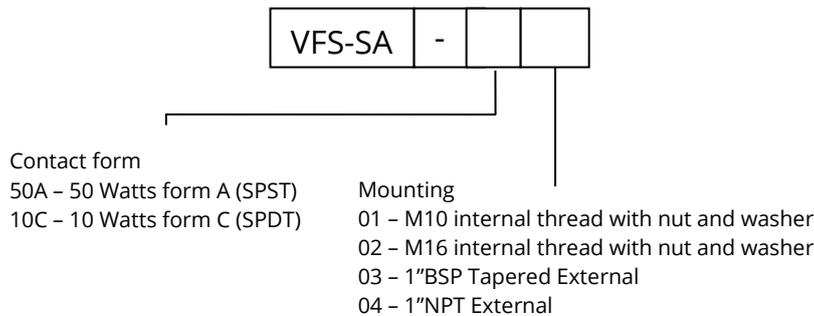
M10 and M16 Internally Mounted Versions



1" BSP and 1" NPT Externally Mounted Versions

# VFS-SA Hazardous Area Liquid Level Switch for use in Intrinsically Safe Systems

## Ordering Code



Example: VFS-SA-50A01 describes a sensor with an M10 thread, Form A switch rated at 50 watts.

**Custom stem lengths and switching points are available. Please contact the sales office for more information.**

**All electrical equipment should be installed by a qualified/certified electrician. Please check the Conditions of Certification before Installation.**

\* When integrating the VFS-SA into the intrinsically safe system, it's the user's responsibility to produce a Descriptive System Document (DSD) in accordance with BS EN 60079-25 which considers the Intrinsically Safe Barrier and Cable parameters to ensure the system is compliant with BS EN 60079-25.

\* The Deeter Group follows a policy of continual development of its products and reserves the right to change specifications and/or features without notice.

1 **Simple Apparatus System ATEX Conformity Certificate**

2 Equipment intended for use in Potentially Explosive Atmospheres Directive 2014/34/EU

3 Certificate Number: ExVeritas 19SYS2152X Issue: 0

4 Equipment: VFS SA Multi Point Liquid Level Float Switch

5 Manufacturer: Deeter Electronics Limited

6 Address: Deeter House, Valley Road, Hughenden Valley, Bucks. HP14 4LW

7 This equipment and any acceptable variation thereto are specified in the schedule to this certificate and the documents therein referred to. The assessments are recorded in ExVeritas project file number EXV2151.

8 The equipment has been assessed against the following Standard and found to comply:

BS EN 60079-25: 2010

9 If the sign "X" is placed after the certificate number, it indicates that the equipment is subject to special conditions for safe use specified in the schedule to this certificate.

10 ExVeritas takes no responsibility for the validity of any information or data supplied by the manufacturer on which parts of the assessment may be based upon.

11 System Suitability:

See the Schedule for the System Description.



No. 8613

On behalf of ExVeritas  
A red circular stamp with the text 'ATEX Notified Body 2585' around the top edge and 'UKAS' on the left. In the center is the ExVeritas logo. A signature is written across the stamp. Below the stamp, the text 'D Henin' and 'Certification Manager' is printed.  
D Henin  
Certification Manager

This certificate may only be reproduced in its entirety and without any change, schedule included.  
The certificate is only valid when it carries an original signature.  
For help or assistance relating to this certificate, contact [info@exveritas.com](mailto:info@exveritas.com) or view [www.exveritas.com](http://www.exveritas.com).  
ExVeritas, Units 16-18, Abenbury Way, Wrexham Industrial Estate, Wrexham, United Kingdom LL13 9UZ.  
ExVeritas® is a registered trademark, unauthorised use will lead to prosecution.

## Schedule

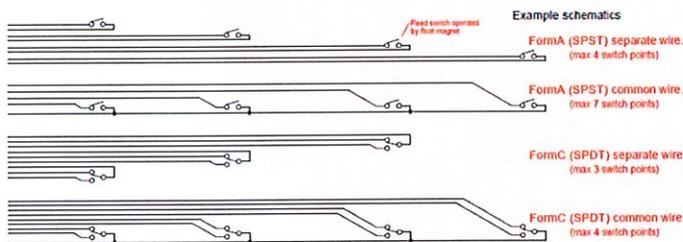
### 12 System Description

This certificate covers the VFS SA Multi Point Liquid Level Float Switch as Simple Apparatus when coupled with a suitably certified Intrinsically Safe Barrier.

The mechanical parts of the VFS SA do not contain any ignition sources even under a rare malfunction and the material of construction meet the requirements for ATEX CAT 1 use. Therefore, the non-electrical requirements of ATEX do not apply.

The VFS SA comprises of a stainless steel tube into which switch reed switches are mounted and external stainless steel hollow floats fitted with magnets are arranged around the tube.

#### Example Schematic.



#### The Reed Switch Ratings are:

Form A: 240V ac/dc, 1 Amp, 50 Watt

Form B: 50V ac/dc, 0.25 Amp, 10 Watt

#### The VFS SA can be consider for the following systems

##### Gas Atmospheres:

II 1 G IIC T3 Ga Tamb -20°C to +190°C

II 1 G IIC T4 Ga Tamb -20°C to +125°C

II 1 G IIC T5 Ga Tamb -20°C to +90°C

II 1 G IIC T6 Ga Tamb -20°C to +75°C

##### Dust Atmospheres:

II 1 D IIIC T200°C Da Tamb -20°C to +190°C

II 1 D IIIC T135°C Da Tamb -20°C to +125°C

II 1 D IIIC T100°C Da Tamb -20°C to +90°C

II 1 D IIIC T85°C Da Tamb -20°C to +75°C

Certificate: ExVeritas 19SYS2151X Issue 0

This certificate may only be reproduced in its entirety and without any change, schedule included.

For help or assistance relating to this certificate, contact [info@exveritas.com](mailto:info@exveritas.com).

ExVeritas, Units 16-18, Abenbury Way, Wrexham Industrial Estate, Wrexham, United Kingdom LL13 9UZ.

ExVeritas® is a registered trademark, unauthorised use will lead to prosecution.

## Schedule

### 13 Descriptive Documents

#### 13.1 Associated Report and Certificate History:

Report Number	Cert Issue Date	Issue	Comment
R2151/A/2	2019.07.19	0	Initial issue of the Prime Certificate

#### 13.2 Compliance Drawings:

##### Issue 0

Title:	Drawing No	Issue	Sheets	Date
VFS SA (all versions)	D600803	Rev 1	1	2019.05.03

### 14 Conditions of Certification

#### 14.1 Special Conditions for Safe Use

When integrating the VFS SA into the intrinsically safe system It's the user's responsibility to produce a Descriptive System Document (DSD) in accordance with BS EN 60079-25 which considers the Intrinsically Safe Barrier and Cable parameters to ensure the system is compliant with BS EN 60079-25.

Cabling shall be selected in accordance to BS EN60079-14 (Clause 16.2.2) and also be suitable for the required service temperature.

The system shall be installed in accordance with the requirement of BS EN 60079-14.

Any cable terminations within the hazardous area shall be made in enclosures complying with EN60079-0 and providing a degree of protection of at least IP54 and shall bear the marking "Warning – Contains intrinsically safe circuits".

Terminations shall be made in compliance with the requirements of EN 60079-11. If non-intrinsically safe circuits are also within the enclosure a minimum of 50 mm clearance shall be employed between the intrinsically safe and non-intrinsically safe circuits.

The equipment and barrier shall be suitably bonded to a safety earth connection with a resistance of less than 1 ohm. The system installation shall be such that the circuit is bonded to a single reference point only.

The temperature of the process medium shall be considered as part of the ambient temperature range.

#### 14.2 Conditions of Manufacture

None

Certificate: ExVeritas 19SYS2151X Issue 0

This certificate may only be reproduced in its entirety and without any change, schedule included.

For help or assistance relating to this certificate, contact [info@exveritas.com](mailto:info@exveritas.com).

ExVeritas, Units 16-18, Abenbury Way, Wrexham Industrial Estate, Wrexham, United Kingdom LL13 9UZ.

ExVeritas® is a registered trademark, unauthorised use will lead to prosecution.