

# HFS-FP Horizontally Mounted Hazardous Area Liquid Level Switch for use in Intrinsically Safe Systems

The Deeter HFS-FP is horizontal magnetic float switch for control and indication of a liquid level while in a potentially explosive atmosphere.

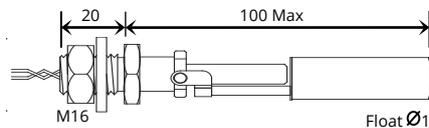
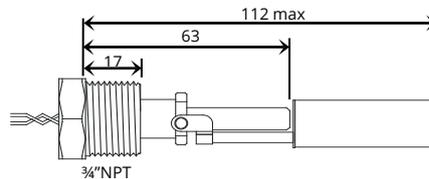
Certificate: ExVeritas 14ATEX0427X

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

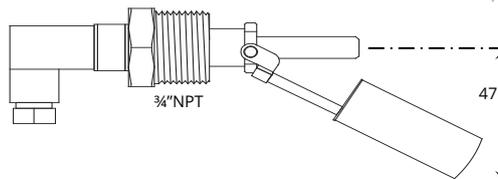
This switch must be used in conjunction with an intrinsically safe barrier when used in a potentially explosive atmosphere.



HFS FP-X-01 and HFS FP-X-02  
 Ex II 1G IIC T4/T6 Ga  
 Ex II 1D IIIC 135°C/85°C Da  
 -20°C ≤ Tamb ≤ +100°/+60°C



HFS FP-X-02DIN  
 Ex II 1G IIA T4/T6 Ga  
 Ex II 1D IIIA 135°C/85°C Da  
 -20°C ≤ Tamb ≤ +100°/+60°C



The HFS-FP is a small horizontally mounted liquid level sensor designed for high temperature/high pressure operation and sensing chemically aggressive liquids.

Features Include:

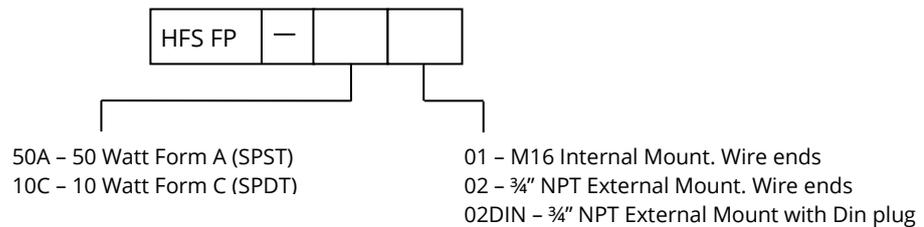
- ATEX Certified for use as simple apparatus in an intrinsically safe system.
- Temperature range of -20°C to +100°C.
- Internal and External Mounting Options Available.
- Available with Form A (SPST) or Form C (SPDT) contacts.
- A 1 meter cable is provided as standard, however custom lengths are available.

# HFS-FP Horizontally Mounted Hazardous Area Liquid Level Switch for use in Intrinsically Safe Systems

## Specification

<b>Minimum Liquid Specific Gravity</b>	0.9
<b>Maximum pressure</b>	350psi 24bar
<b>Ambient and liquid Temperature</b>	-20°C to +100°C -20°C to +60°C in GasT6 / DustT85°C environment
<b>Switch contact Rating</b>	FormA: <240V*, 1A*, 50Watts* MAX FormC: <175V*, 500mA*, 10Watts *MAX *Maximum safety barrier ratings apply when used in hazardous area
<b>Cable type</b>	1 Metre PTFE insulated 7/0.2mm 3 Metre on request
<b>Cable colours</b>	FormA: 2x Blue FormC: Violet: Common Yellow: Normally open Blue: Normally closed
<b>Mounting</b>	M16 internal mount 3/4" NPT external mount
<b>Wetted Materials</b>	316L Stainless Steel

## Ordering Code



Caution: NPT threads are specified in their reference size. This size does not refer to the physical thread diameter

**All electrical equipment should be installed by a qualified/certified electrician.**

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. **Intrinsic Safety System Certificate.**
2. **Equipment intended for use in potentially explosive atmospheres**
3. **Certificate Number:** ExVeritas 14ATEX0427X **Issue:** 1
4. **Equipment:** HFS FP Series Level Switches
5. **Customer:** 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 0427.**
8. **The equipment has been assessed against the requirements of the EN/IEC 60079-25 at the latest edition for intrinsically Safe Systems and found to comply.**
9. **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**
10. **System Suitability:** See system description

On behalf of ExVeritas

A handwritten signature in blue ink, appearing to read 'D'Henin', written over a large, faint, light-colored watermark of the ExVeritas logo.

Stephen D'Henin  
Certification Manager

**Issue Date: 11/05/2015**

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11. **Schedule**

12. **Certificate Number**

ExVeritas 14ATEX0427X

Issue: 1

13. **System Description**

This certificate covers the HFS FP Series Float Switches as Simple Apparatus when coupled with a suitably certified Intrinsically Safe Barrier.

Models HFS FP 50A01, HFS FP 50A02, HFS FP 10C01 and HFS FP 10C02 (without DIN plugs) can be considered for the following systems:

II 1 G IIC T4 Ga	Tamb -20°C to +100°C
II 1 G IIC T6 Ga	Tamb -20°C to +60°C
II 1 D IIIC T135°C	Tamb -20°C to +100°C
II 1 D IIIC T85°C Da	Tamb -20°C to +60°C

Models HFS FP 50A02Din and HFS FP 10C02Din can be considered for the following systems:

II 1 G IIA T4 Ga	Tamb -20°C to +100°C
II 1 G IIA T6 Ga	Tamb -20°C to +60°C
II 1 D IIIA T135°C	Tamb -20°C to +100°C
II 1 D IIIA T85°C Da	Tamb -20°C to +60°C

The simple apparatus assessment of the HFS FP Series Switches can be found in ExVeritas report EVR0427/A. The equipment conformed to all relevant requirements of BS EN 60079-11:2012 for IIA/IIC T4/T6 and IIIA/IIIC T135°C/T85°C use and has the following parameters for consideration when integrated into a system:

Capacitance of the switch 1pF MAX  
Resistance of the switch 250 mΩ MAX

14. **Example system**

MTL 7767+ Zener Barrier having the following parameters for IIC/IIIC applications:  
Uo = 15V, Io = 150mA, Po = 0.56W, Co = 0.58µF and Lo = 1.45 mH

Coupled with BS5308 Pt 1 Type B cable allows a maximum cable length of 2900m

II 1 G IIC T6 Ga	Tamb -20°C to +60°C
II 1 D IIIC T85°C Da	Tamb -20°C to +60°C

11. **Schedule (continued)**

12. **Certificate Number**

ExVeritas 14ATEX0427X

Issue: 1

15. **Descriptive Documents**

Issue 0

<b>Title</b>	<b>Number</b>	<b>Date</b>	<b>Rev</b>
HFS FP 50A01 Sheets 1 to 2	Dwg631642	14 <sup>th</sup> July 2014	1
HFS FP 50A02 Sheets 1 to 2	Dwg631643	14 <sup>th</sup> July 2014	1
HFS FP 50A02Din Sheets 1 to 2	Dwg631644	14 <sup>th</sup> July 2014	1
HFS FP 10C01 Sheets 1 to 2	Dwg631645	14 <sup>th</sup> July 2014	1
HFS FP 10C02 Sheets 1 to 2	Dwg631646	14 <sup>th</sup> July 2014	1
HFS FP 10C02Din Sheets 1 to 2	Dwg631647	14 <sup>th</sup> July 2014	1

Issue 1

<b>Title</b>	<b>Number</b>	<b>Date</b>	<b>Rev</b>
HFS FP 50A01 Sheets 1 to 2	Dwg631642	11 <sup>th</sup> May 2015	2
HFS FP 50A02 Sheets 1 to 2	Dwg631643	11 <sup>th</sup> May 2015	2
HFS FP 50A02Din Sheets 1 to 2	Dwg631644	11 <sup>th</sup> May 2015	2
HFS FP 10C01 Sheets 1 to 2	Dwg631645	11 <sup>th</sup> May 2015	2
HFS FP 10C02 Sheets 1 to 2	Dwg631646	11 <sup>th</sup> May 2015	2
HFS FP 10C02Din Sheets 1 to 2	Dwg631647	11 <sup>th</sup> May 2015	2

**16. Special Conditions of System Certification**

- i. The barrier shall be mounted in the safe area and the enclosure shall bear the marking "Warning – Contains intrinsically safe circuits".
- ii. Any cable terminations within the hazardous area shall be made in suitable enclosures providing a degree of protection of at least IP54 and shall bear the marking "Warning – Contains intrinsically safe circuits".
- iii. Terminations shall be made in compliance with the requirements of EN 60079-11. If non-intrinsically safe circuits are also within the enclosure minimum of 50mm clearance shall be employed between the intrinsically safe and non-intrinsically safe circuits.
- iv. 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.
- v. The temperature of the process medium shall be considered as part of the ambient temperature range

**17. Certificate Revision History**

Project File No.	Cert Issue Date	Issue	Comment
0427	21/01/2015	0	Initial issue of the Prime Certificate
0608	11/05/2015	1	Company name changed from 'Deeter Engineering Services Ltd' to 'Deeter Electronics Ltd'. Drawings revised to Rev 2 to amend the drawing templates to show the name change. No change to the technical content.