

## HFS Ex Hazardous Area Horizontal Float Switch

The HFS Ex Hazardous Area Horizontal Float Switch is a float operated magnet arm on a reed switch sensor stem for control and indication of a liquid level while in a potentially explosive atmosphere.



Features include:

- ATEX and IECEx Ex d approved.
- Voltage free SPST or SPDT reed switch contacts.
- Stainless steel 316L housing and wetted components.
- Custom mounting options available.
- Suitable for high liquid temperatures.
- Suitable for gas and dust environments.
- IP68 Ingress protection.
- Suitable for low specific gravity liquids.
- M20 or ½" NPT cable entry.

ATEX Coding:



II 1/2G 2D

Ex db IIC (\*) Ga/Gb

Ex tb IIIC (\*) Db

-20°C ≤ Tamb ≤ +85°C

\* Temperature class options to suit the 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 ≤ 190°C

ATEX Certificate: ExVer 17ATEX0280X

IECEx Certificate: IECEx ExV 17.0016X

## HFS Ex Hazardous Area Horizontal Float Switch

Type	Specification	
Sensor technology	Reed switch operated by float on magnetic arm	
Sensor tube and wetted materials	Stainless steel 316L	
Connection head material	Stainless steel 316L	
IP rating with suitable cable gland	IP68	
Approximate weight	1.2Kg to 2.5Kg depending on mounting option selected	
Float Diameter	37.5mm	Other floats available
Specific gravity	Suitable for liquid specific gravity >0.4	
Maximum liquid temperature: For T5/100°C hazard environment For T4/135°C hazard environment For T3/200°C hazard environment	-20 to +85°C -20 to +125°C -20 to +190°C	
Maximum head temperature	-20 to +80°C	Note 1
Maximum operating pressure	150PSI / 10Bar standard 450PSI / 31Bar	Note 2
Thread connection-Sensor tube	½"-14 NPT	
Thread connection-Wiring port	½"-14 NPT or M20X1.5	
Voltage free contact switch rating: SPST Form A SPDT Form C	0 to 240Vac. 1Amp. 50Watts Max 0 to 50Vdc. 0.25Amp. 20Watts Max	

Note 1: 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 2: The HFS Ex sensor float and tube can withstand the stated pressure when sealed inside a tank. The connection head and resin seal to the sensor stem must not be pressurised. The pressure of the hazardous zone must not exceed normal atmospheric conditions (0.8 to 1.1bar).

The standard Zone 0 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.

## HFS Ex Hazardous Area Horizontal Float Switch

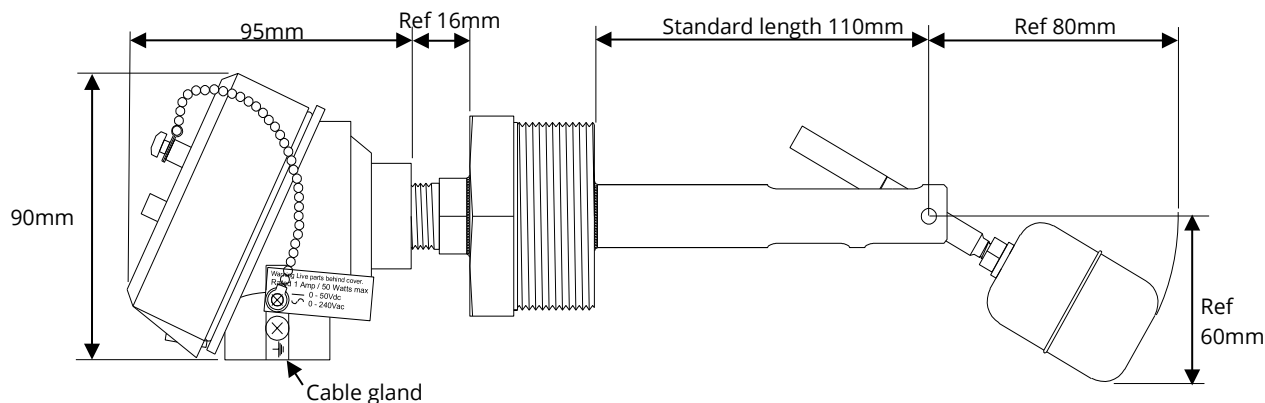
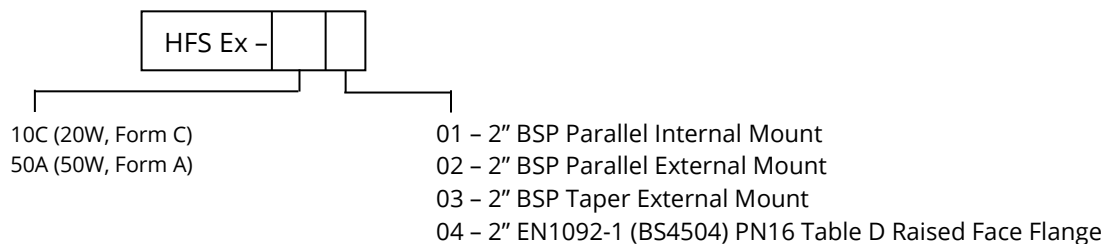


Diagram 1

### Ordering Code



Example: HFS Ex-10C01 = Hazardous Area Horizontal Float Switch Level Switch, 4 Watt Form C switch, 2" BSP Parallel Internal Mount.

**Custom sensor lengths and mounting options are available. Please contact our sales office for more information.**

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

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

## 1 EU - Type Examination Certificate

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

3 Certificate Number: ExVeritas 17 ATEX 0280X Issue: 0

4 Equipment: HFS Ex Horizontal Level Switch

5 Manufacturer: Deeter Electronics Ltd.

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

7 This equipment and any acceptable variation thereto are specified in the schedule to this certificate and the documents therein referred to.

8 ExVeritas, Notified Body number 2585 in accordance with Article 9 of the Council Directive 2014/34/EU of 26 February 2014, certifies that this equipment or protective system has been found to comply with the Essential Health and Safety Requirements relating to design and construction of equipment and protective systems for use in potentially explosive atmospheres given in Annex II to the Directive


9 Compliance with the applicable Essential Health and Safety Requirements has been assured by compliance with the following Standards and section 16 of this certificate:

EN 60079-0: 2012+A11:2013      EN 60079-1:2014      EN 60079-26:2015  
EN60079-31:2014

10 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.

11 This EU-Type Examination Certificate relates only to the design, construction, examination and tests of the specified equipment or protective system in accordance to the Directive 2014/34/EU. Further requirements of the Directive apply to the manufacturing process and supply of this equipment or protective system. These are not covered by this certificate.

12 The marking of the equipment shall include the following:

 II 1/2 G Ex db IIC T\* Ga/Gb  
II 2 D Ex tb IIIC T\*°C Db



No. 8613

On behalf of ExVeritas

  
S Clarke CEng MSc MIEET  
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).

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 Description of Equipment or Protective System

The Deeter HFS Ex is a liquid level switch with volt free terminals for use in a potentially explosive atmosphere. The liquid level is detected when the float arm is raised and aligns a magnet with a SPST or SPDT reed switch sealed inside a stainless steel housing.

The switch can be mounted horizontally in the side of a vessel via a flange or threaded plug and has the option to fit floats of different materials, sizes and specific gravity. The length between the mounting face and float can be varied dependent upon the application. An optional extension bar may be added between the mounting and the terminal head.

The following temperature classes are applicable based on the process temperature which the equipment is connected to:

Process Temperature	Temperature class for gas	Temperature class for dust
≤85°C	T5	T100°C
≤125°C	T4	T135°C
≤190°C	T3	T200°C

Rating:

0 to 240Vac. 1A 50W Max

0 to 50Vdc. 0.25A 20W Max

### 14 Descriptive Documents

#### 14.1 Associated Report and Certificate History:

Report Number	Cert Issue Date	Issue	Comment
R1154/A/1	07/09/17	0	Initial issue of the Prime Certificate

#### 14.2 Compliance Drawings:

##### Issue 0

Number	Date	Issue	Description
D600798	2017/02/21	Rev 1	HFS-Ex all versions – Sheet 1 of 3
D600798	2017/02/21	Rev 1	HFS-Ex all versions – Sheet 2 of 3
D600798	2017/02/21	Rev 1	HFS-Ex all versions – Sheet 3 of 3
Dwg 950553	2017/08/11	Rev 2	Adaptor ½"NPT long thread to 12mm – Sheet 1 of 2
HFS Ex Manual	2017/07/10	-	HFS Ex Manual – Sheets 1 to 10

Certificate: ExVeritas 17 ATEX 0280X Issue 0

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## **Schedule**

15 Conditions of Certification

15.1 Special Conditions for Safe Use

- When intended to be operating with process temperatures above 85°C, the sensor head shall be sufficiently cooled to keep it below 80°C. See installation manual for details.

15.2 Conditions for Use

- Routine tests on production in accordance with clause 16 of EN/IEC 60079-1 to a pressure of at least 64.8 Bar.
- The equipment covered under this certificate incorporates previously certified components, it is therefore the responsibility of the manufacturer to monitor the status of the certification of these components and inform ExVeritas of any changes that may affect the explosion safety design of their products.

16 Essential Health and Safety Requirements

Essential Health and Safety Requirements are addressed by the standards listed in section 9 and where required the report listed in section 14.1

The manufacturer shall inform the Notified Body of any modifications to the design of the product described by this schedule.

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# IECEx Certificate of Conformity

## INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification Scheme for Explosive Atmospheres

for rules and details of the IECEx Scheme visit [www.iecex.com](http://www.iecex.com)

Certificate No.: IECEx EXV 17.0016X

Issue No: 0

Certificate history:

[Issue No. 0 \(2017-09-07\)](#)

Status: **Current**

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Date of Issue: **2017-09-07**

Applicant: **Deeter Electronics Ltd**

Deeter House, Valley Road, Hughenden Valley, High Wycombe, Bucks, HP14 4LW

**United Kingdom**

Equipment: **HFS Ex Horizontal Level Switch**

*Optional accessory:*

Type of Protection: **Equipment protection by flameproof enclosure "d", Equipment with EPL Ga and Equipment dust ignition protection by enclosure "t"**

Marking:

Ex db IIC T\* Ga/Gb

Ex tb IIIC T\*°C Db

*Approved for issue on behalf of the IECEx  
Certification Body:*

Sean Clarke CEng MSc MIET

*Position:*

Certification Manager

*Signature:  
(for printed version)*

*Date:*

1. This certificate and schedule may only be reproduced in full.
2. This certificate is not transferable and remains the property of the issuing body.
3. The Status and authenticity of this certificate may be verified by visiting the [Official IECEx Website](#).

Certificate issued by:

**ExVeritas Limited**  
Units 16-18 Abenbury Way  
Wrexham Ind. Est.  
Wrexham LL 139UZ  
United Kingdom





# IECEx Certificate of Conformity

Certificate No: IECEx EXV 17.0016X

Issue No: 0

Date of Issue: 2017-09-07

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Manufacturer: **Deeter Electronics Ltd**  
Deeter House, Valley Road, Hughenden Valley, High Wycombe, Bucks, HP14 4LW  
**United Kingdom**

Additional Manufacturing location(s):

This certificate is issued as verification that a sample(s), representative of production, was assessed and tested and found to comply with the IEC Standard list below and that the manufacturer's quality system, relating to the Ex products covered by this certificate, was assessed and found to comply with the IECEx Quality system requirements. This certificate is granted subject to the conditions as set out in IECEx Scheme Rules, IECEx 02 and Operational Documents as amended.

## STANDARDS:

The electrical apparatus and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards:

<b>IEC 60079-0 : 2011</b> Edition:6.0	Explosive atmospheres - Part 0: General requirements
<b>IEC 60079-1 : 2014-06</b> Edition:7.0	Explosive atmospheres - Part 1: Equipment protection by flameproof enclosures "d"
<b>IEC 60079-26 : 2014-10</b> Edition:3.0	Explosive atmospheres – Part 26: Equipment with Equipment Protection Level (EPL) Ga
<b>IEC 60079-31 : 2013</b> Edition:2	Explosive atmospheres - Part 31: Equipment dust ignition protection by enclosure "t"

*This Certificate **does not** indicate compliance with electrical safety and performance requirements other than those expressly included in the Standards listed above.*

## TEST & ASSESSMENT REPORTS:

*A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in*

Test Report:

[GB/EXV/ExTR17.0014/00](#)

Quality Assessment Report:

[GB/SIR/QAR12.0004/05](#)





# IECEx Certificate of Conformity

Certificate No: IECEx EXV 17.0016X

Issue No: 0

Date of Issue: 2017-09-07

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## Schedule

### EQUIPMENT:

*Equipment and systems covered by this certificate are as follows:*

The Deeter HFS Ex is a liquid level switch with volt free terminals for use in a potentially explosive atmosphere. The liquid level is detected when the float arm is raised and aligns a magnet with a SPST or SPDT reed switch sealed inside a stainless steel housing.

The switch can be mounted horizontally in the side of a vessel via a flange or threaded plug and has the option to fit floats of different materials, sizes and specific gravity. The length between the mounting face and float can be varied dependent upon the application. An optional extension bar may be added between the mounting and the terminal head.

The following temperature classes are applicable based on the process temperature which the equipment is connected to:

Process Temperature	Temperature class for gas	Temperature class for dust
≤85°C	T5	T100°C
≤125°C	T4	T135°C
≤190°C	T3	T200°C

Rating:

0 to 240Vac. 1A 50W Max

0 to 50Vdc. 0.25A 20W Max

### SPECIFIC CONDITIONS OF USE: YES as shown below:

- When intended to be operating with process temperatures above 85°C, the sensor head shall be sufficiently cooled to keep it below 80°C. See installation manual for details.



# IECEx Certificate of Conformity

Certificate No: IECEx EXV 17.0016X

Issue No: 0

Date of Issue: 2017-09-07

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## Additional information:

### Routine tests:

1. Routine tests on production in accordance with clause 16 of IEC 60079-1 to a pressure of at least 64.8 Bar.
2. The equipment covered under this certificate incorporates previously certified components, it is therefore the responsibility of the manufacturer to monitor the status of the certification of these components and inform ExVeritas of any changes that may affect the explosion safety design of their products.

### Technical Documents:

Title:	Drawing No.:	Rev. Level:	Date:
HFS-Ex all versions – Sheet 1 of 3	D600798	Rev 1	2017/02/21
HFS-Ex all versions – Sheet 2 of 3	D600798	Rev 1	2017/02/21
HFS-Ex all versions – Sheet 3 of 3	D600798	Rev 1	2017/02/21
Adaptor ½"NPT long thread to 12mm – Sheet 1 of 2	Dwg 950553	Rev 2	2017/08/11
HFS Ex Manual – Sheets 1 to 10	HFS Ex Manual	-	2017/7/10