

HYPERBARIC FLAME SENSOR

DESCRIPTION:

Proudly presenting the innovative **Drass HUF (Hyperbaric Ultraviolet Flame) Sensor**, the **only flame sensor on the market to receive DNV Type Approval for use in a hyperbaric environment**.

Pressure tested up to 50 bar and able to detect a flame at 10 times the distance of standard flame detectors, its fine tuned configuration ensures the detection of small flame inside a DDC or TUP within a few milliseconds. This product thereby provides ultimate reassurance for those working in safety-critical environments.

The Drass HUF Sensor "sees" UV radiation within such a narrow band width that a single flame is detected before it is visible to the naked eye (see graph below). What is more, the fine precision of this UV band range prevents sun or artificial lights from creating false alerts. Upon fire recognition, the HUF Sensor signals a change in state from normal operation (green light) to fire alert (red light) thereby activating the alarm and fire extinguishing system, in accordance with company and HSE regulation.

The HUF sensor is compatible with standard fire alarm panels including Consilium which are commonly part of Drass installations and bear the DNV Type Approval Certificate. Such an integration also ensures the immediate detection of short-circuit or cable break, thereby optimizing the system's safety performance.

As a natural complement to the HUF Sensors, Drass provides smoke alarms that are DNV Type Approved, and validated by Drass under DNV supervision for hyperbaric use. They can also be connected to the Consilium Fire Alarm Panel, making the whole arrangement a single-stop solution against flame/ smoke risks.

The HUF sensor comes in a red anodized aluminium housing with a splash proof 10-way connector on the back of the unit. Internal electronics are encapsulated in resin thereby securing these from environment factors including temperature variations, moisture and dust.



A standard installation includes two Flame Sensors for each chamber, each one installed on the upper part of opposite chamber walls thereby ensuring all angles are covered.

Commonly the sensors are managed from the control room and additional panels can be easily installed where required, making it possible to obtain a system which is tailored to customer needs.

Sensors include a password protected RS232 service connection in order to check configuration and reconfigure desired parameters in terms of threshold, delay, latency.

Sensors are supplied with cable connectors and with connection cable.

HYPERBARIC FLAME SENSOR

Technical Data

Total Weight	900 gr
Overall Diameter	64 mm
Total Length	110 mm
Operating Maximum Pressure	40 bar
Environmental Conditions	Temperature A Humidity B Vibration A EMC A Enclosure B

Power Supply

Voltage	24 Vdc
Current	50 mA @ 24V

Signal Output

RS 232 Serial Communication (optional) : for diagnostic and setting

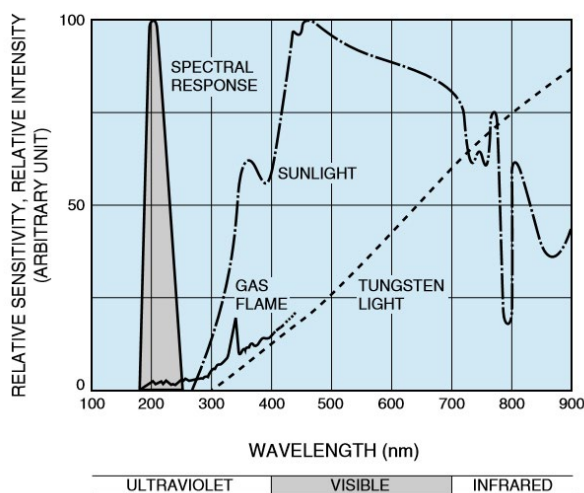
Alarm relay : 1 NC Contact rated for 1A@ 30VDC or 0.3A @ 125VAC + safety output for Fire Alarm Panel

Angle of view (horizontal)	120°
Angle of view (vertical)	120°

Certification

DNV Type Approval Certificate A-13517

CE marking (including both EMC and RoHS conformity)



COMMERCIAL CODE	DESCRIPTION
97CE-06-01-01-00-00	Hyperbaric Ultraviolet Flame sensor

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DET NORSKE VERITAS

TYPE APPROVAL CERTIFICATE

CERTIFICATE NO. **A-13517**

This is to certify that the
Flame Detector

with type designation(s)
Hyperbaric Flame Sensor

Issued to

Drass Galeazzi Underwater Technology srl
LIVORNO, LI, Italy

is found to comply with
Det Norske Veritas' Rules for Classification of Ships, High Speed & Light Craft and Det Norske Veritas' Offshore Standards

Application
Location classes:

Temperature	A
Humidity	B
Vibration	A
EMC	A
Enclosure	B

This Certificate is valid until **2017-12-31**.

Issued at **Høvik** on **2013-11-04**

DNV local station: **Genoa**

Approval Engineer: **Jan Aksel Nilsen**

for **Det Norske Veritas AS**
Digitally Signed By: Sneen, Ståle
Location: DNV Høvik, Norway
Signing Date: 2013-11-04, on behalf of

Odd Magne Nesvåg
Head of Section

This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid. The validity date relates to the Type Approval Certificate and not to the approval of equipment/systems installed. If any person suffers loss or damage which is proved to have been caused by any negligent act or omission of Det Norske Veritas, then Det Norske Veritas shall pay compensation to such person for his proved direct loss or damage. However, the compensation shall not exceed an amount equal to ten times the fee charged for the service in question, provided that the maximum compensation shall never exceed USD 2 million. In this provision "Det Norske Veritas" shall mean the Foundation Det Norske Veritas as well as all its subsidiaries, directors, officers, employees, agents and any other acting on behalf of Det Norske Veritas.

DET NORSKE VERITAS AS, Veritasveien 1, NO-1322 Høvik, Norway, Tel.: +47 67 57 99 00, Org.No. NO 945 748 931 MVA.
Form No.: TA 1411a Issue: 2013-10

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HYPERBARIC FLAME SENSOR

Certificate No.: A-13517
File No.: 891.40
Job Id.: 262.1-004892-2

Product description

Drass Galeazzi model Hyperbaric UV flame Sensor p/n F2801-550 for use in Diving systems.

Manufacturer

Drass Galeazzi Underwater Technology srl
Via Nicola Magri, 112
Livorno
Italy

Application/Limitation

As long as the units are covered by the Type Approval, a product certificate according to Pt.4 Ch.9 Sec.1 A 202 will not be required. Correct configuration and set up for each delivery to be tested during commissioning after installation.

Ex-certification is not covered by this certificate. Application in hazardous area to be approved in each case according to the Rules and Ex-Certification/ Special Condition for Safe Use listed in valid Ex-certificate issued by a notified/recognized Certification Body.

When the type approved software is revised (affecting all future deliveries) DNV is to be informed by forwarding updated software version documentation. If the changes are judged to affect functionality for which rule requirements apply a new functional type test may be required and the certificate may have to be renewed to identify the new software version.

Type Approval documentation

Doc. name	Doc. no.	Doc. version
Hyperbaric UV Flame Sensor Test, UNI EN 54-10	RELJob04/11	Rev.0, 15/01/2009
Hyperbaric UV Flame Sensor, Environmental Test	TesLab 094061F	12/11/2009

Type Approval Periodical Assessment Report, TAC No. A-11584, dated 2013-10-02.

Tests carried out

Applicable tests according to Standard for Certification No. 2.4, April 2006.

Relevant tests of application functions in accordance with EN54-10, for use in diving applications (chamber).

Periodical assessment

The scope of the periodical assessment is to verify that the conditions stipulated for the type are complied with, and that no alterations are made to the product design or choice of systems, software versions, components and/or materials.

The main elements of the assessment are:

- Ensure that type approved documentation is available
- Inspection of factory samples, selected at random from the production line (where practicable)
- Review of production and inspection routines, including test records from product sample tests and control routines
- Ensuring that systems, software versions, components and/or materials used comply with type approved documents and/or referenced system, software, component and material specifications
- Review of possible changes in design of systems, software versions, components, materials and/or performance, and make sure that such changes do not affect the type approval given
- Ensuring traceability between manufacturer's product type marking and the type approval certificate

Periodical assessment is to be performed at least every second year and at renewal of this certificate.

END OF CERTIFICATE