

# EU-TYPE EXAMINATION CERTIFICATE



[1]

[2]

**Product intended for use  
in Potentially Explosive Atmospheres  
Directive 2014/34/EU**

[3]

EU-Type Examination Certificate Number: **DEMKO 15 ATEX 1477X Rev. 1**

[4]

Product: **Oxidant Sensor, EX-P-HT4**

[5]

Manufacturer: **Halogen Systems Inc**

[6]

Address: **919 Incline Way, Unit 11, Incline Village, NV 89451 USA**

[7]

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

[8]

UL International Demko A/S, notified body number 0539 in accordance with Article 17 of the Council Directive 2014/34/EU of 26 February 2014, certifies that this product has been found to comply with the Essential Health and Safety Requirements relating to design and construction of products intended for use in potentially explosive atmospheres given in Annex II to the Directive.  
The examination and test results are recorded in confidential report no. **4787357028**

[9]

Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

**EN 60079-0:2012+A11:2013**

**EN 60079-1:2014**

**EN 60079-11:2012**

[10] If the sign "X" is placed after the certificate number, it indicates that the product 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 and construction of the specified product. Further requirements of the Directive apply to the manufacturing process and supply of this product. These are not covered by the certificate.

[12] The marking of the product shall include the following:

 **II 2 G Ex db ib IIB T5 Gb**

**Certification Manager**  
Jan-Erik Storgaard

This is to certify that the sample(s) of the Product described herein ("Certified Product") has been investigated and found in compliance with the Standard(s) indicated on this Certificate, in accordance with the ATEX Product Certification Program Requirements. This certificate and test results obtained apply only to the product sample(s) submitted by the Manufacturer. UL did not select the sample(s) or determine whether the sample(s) provided were representative of other manufactured product. UL has not established Follow-Up Service or other surveillance of the product. The Manufacturer is solely and fully responsible for conformity of all product to all applicable Standards, specifications, requirements or Directives. The test results may not be used, in whole or in part, in any other document without UL's prior written approval.

**Date of issue:** 2015-12-22

**Re-issued:** 2016-10-04



**Notified Body**

UL International Demko A/S, Borupvang 5A, 2750 Ballerup, Denmark  
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[13]

## Schedule

[14]

# EU-TYPE EXAMINATION CERTIFICATE No. DEMKO 15 ATEX 1477X Rev. 1

[15] Description of Product  
 The device is an oxidant sensor rated 24 V, 350 mA, made with a 316 stainless steel flameproof enclosure. It is intended to detect total oxidants, temperature, and conductivity in water. The flameproof enclosure houses nearly all the circuitry and the 12 V motor in the sensor head end. This motor is powered by a non-intrinsically safe circuit (both the motor and circuit are fully contained within the flameproof enclosure) and is used to control the magnetically coupled impeller located in the sensor cap on top of the sensor head. The three electrodes under the sensor cap are the only electrical parts (except supply wires) that exit the flameproof enclosure, and they are intrinsically safe "ib" based on protective circuitry inside the flameproof enclosure. There are no other external intrinsically safe circuits provided, and there are no intrinsically safe circuits that need to be connected or adjusted in the field. Factory-sealed flying leads exit the other end of the enclosure for supply connection in the field.

The optical radiation output of the apparatus with respect to flameproof protection, according to Annex II clause 1.3.1 of the Directive 2014/34/EU is covered in this certificate based on Exception 5 to the scope of EN 60079-28:2015.

Temperature range  
 The ambient temperature range is -20°C to +55°C.

Process Temperature:  
 The sensor head end of the device is intended to be installed such that a process fluid flows across the sensors. The maximum process fluid temperature allowed is +40°C.

Electrical data  
 Supply Connection Operational Ratings:  
 24 VDC, 350 mA

Intrinsically safe specifications:  
 U<sub>m</sub> : 250 V

Routine tests  
 Routine overpressure tests are only required for models using epoxy catalyst #30 (e.g., see drawing number EX-30-000, Rev. A-19). Routine overpressure tests in accordance with EN 60079-1:2014 shall be conducted in accordance with Clause 16, at a pressure of 9 bar for a duration of not less than 10 seconds. The tests shall be conducted either on every production unit or on a sample size (batch testing per Clause 16.6 of EN 60079-1:2014). There shall be no sign of damage, deformation or rupture that will invalidate the concept of protection.

Routine dielectric strength tests according to EN 60079-11 Clause 11.2 are required for infallible transformer T1 as follows:

Test Potential Applied Between	Test Potential, V and Min. Time, s	Alternate Test Potential, V and Min. Time, s
Input and Output Windings	1500 V for 60 s	1800 V for 1 s
All Windings and Core*	500 V for 60 s	600 V for 1 s

\*NOTE: If the transformer core is grounded in the end-product, the routine dielectric strength test between all pins and core is not required.

[16] Descriptive Documents  
 The scheduled drawings are listed in the report no. provided under item no. [ 8 ] on page 1 of this EU-Type Examination Certificate.

[17] Specific conditions of use:

- Adjacent wiring compartment shall be ATEX certified complying with the connection facility and termination compartment requirements of EN 60079-0. It shall be made of metal in order to provide external grounding for the sensor.
- Flameproof joints are not intended to be repaired.
- The device shall be installed such that the epoxy at the supply wiring side and the non-metallic parts at the sensor head end are protected from ultraviolet (UV) light exposure.
- Do not open when an explosive atmosphere is present.
- Apparatus shall be supplied by a circuit of Overvoltage category II.

[18] Essential Health and Safety Requirements  
 The Essential Health and Safety Requirements (EHSRs) covered by the standards listed at item 9

Additional information  
 The Model EX-P-HT4 has in addition passed the tests for Ingress Protection to IP 56 in accordance with EN60529:1991+A1:2000+A2:2013.



The trademark, s y s t e m s i n c will be used as the company identifier on the marking label.

The manufacturer shall inform the notified body concerning all modifications to the technical documentation as described in Annex III to Directive 2014/34/EU of the European Parliament and the Council of 26 February 2014.