[1] # EU-TYPE EXAMINATION CERTIFICATE

[2] **Equipment or Protective System intended for use in Potentially Explosive Atmospheres Directive 2014/34/EU**

[3] EU-Type Examination Certificate Number: **DEMKO 15 ATEX 1386X Rev. 8**

[4] Product: **FlexSight™ LS2000 Line-of-Sight Infrared Gas Detector, AutroPath HC800 Line-of-Sight Infrared Gas Detector**

[5] Manufacturer: **Detector Electronics Corporation**

[6] Address: **6901 West 110th Street, Minneapolis, MN 55438 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 Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, certifies that this product has been found to comply with the Essential Health and Safety Requirements relating to the 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 the confidential report no. **US/UL/ExTR15.0043/08.**

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

**EN IEC 60079-0:2018** **EN 60079-1:2014** **EN IEC 60079-7:2015/A1:2018**
**EN 60079-29-4:2010** **EN 50271:2018**

Where additional criteria beyond those given here have been used, they are listed at item 18 in the Schedule.

[10] If the sign "**X**" is placed after the certificate number, it indicates that the product is subject to the “Specific Conditions of Use” listed under item 17 of this certificate.

[11] This EU-Type Examination Certificate relates only to the technical design of the specified product in accordance to the Directive 2014/34/EU. 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 (marking is provided in the Schedule as a part of item 15, if applicable):

**Ex II 2 G Ex db IIC T4 Gb EN60079-29-4 IP66/67 or**

**Ex II 2 G Ex db eb IIC T4 Gb EN60079-29-4 IP66/67**

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**Certification Manager**
Thomas Wilson

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:** 2015-07-22
**Re-issued:** 2024-08-30

**Notified Body** UL International Demko A/S, Borupvang 5A, 2750 Ballerup, Denmark
Tel. +45 44 85 65 65, info.dk@ul.com, www.ul.com

[13] [14]

# Schedule
# EU-TYPE EXAMINATION CERTIFICATE No.
## DEMKO 15 ATEX 1386X Rev. 8

[15] Description of Product

The Models LS2000 and HC800 are line of sight infrared gas detection systems that provide continuous monitoring of combustible hydrocarbon gas concentrations in the range of 0 to 5 LFL-meters, over a distance of 5 to 120 meters. Standard system outputs include an electrically isolated/non-isolated 4-20 mA DC current output with the ability to go below 4 mA to indicate fault conditions, and also HART and RS-485 MODBUS communication. Alarm and fault relays are available. LON Output option for EQP is for LS2000 only.

The systems consist of two stainless steel modules – a transmitter and a receiver, along with mounting and alignment bracket. The receiver provides the measurement signal outputs and is furnished with on board “status indication” LEDs and in internal magnetic calibration switch. The transmitter houses a flash lamp and “status indication” LEDs. Both modules are powered from an external 24 VDC supply and are equipped with microprocessor controlled heated optics to increase resistance to moisture and ice.

Models LS2000 and HC800, Line of Sight Infrared Gas Detectors are infrared hydrocarbon gas detectors which provide continuous monitoring of combustible gas concentrations in the range of 0 to 5 LFL-meters. The IP66/IP67 rated enclosure is constructed of stainless steel and utilizes electro-optical components.

The detectors provide an isolated 4-20 mA signal output supporting HART communication protocol and an RS-485 output supporting MODBUS protocol. In addition, optional relay contact alarm outputs can be installed in the terminal compartment in type of explosion protection flameproof enclosure “db”.

Nomenclature for type LS2000 and HC800 a b c d e f g h, where:

| | |
|---|---|
| a – Material: | S = Stainless Steel |
| b – Conduit Entry: | N = 3/4-inch NPT, 4 Port Receiver, 2 Port Transmitter<br>M = Metric M25, 4 Port Receiver, 2 Port Transmitter<br>E = 1/2-inch NPT, 4 Port Receiver, 2 Port Transmitter<br>F = Metric M20, 4 Port Receiver, 2 Port Transmitter |
| c – Output: | 00 = None (Transmitter Only)<br>14 = Eagle Quantum Premier (EQP)<br>18 = 4-20mA, RS485, HART (Receiver or Kit)<br>25 = 4-20mA, RS485, HART w/Optional Relays (Receiver or Kit) – Ex d only |
| d – Range: | N = None (Transmitter Only)<br>S = Short Range, 5-60 Meters (Receiver or Kit)<br>L = Long Range, 30-120 Meters (Receiver or Kit) |
| e – Factory Set Gas: | N = None (Transmitter Only)<br>M = Methane (Receiver or Kit)<br>P = Propane (Receiver or Kit)<br>B = Butane (Receiver or Kit) |
| f – Approvals: | S = SIL*<br>A = FM/CSA*<br>E = ATEX/IECEx<br>B = INMETRO |
| g – Classification: | 1 = Division* and/or Ex db eb<br>2 = Division* and/or Ex db |
| h – Configuration: | S = Transmitter/Receiver/Mounting Hardware<br>T = Transmitter Only<br>R = Receiver Only<br>TM = Spare Transmitter Electronics Module<br>RM = Spare Receiver Electronics Module |

Notes:
1. The *-marked options are stated for information only and are not covered within this certificate.
2. “Approval” can use one or more letters to designate the approvals of the product.
3. “Kit” is a complete system consisting of a Transmitter, Receiver, Aperture and Mounting Hardware.

Performance testing

The measuring function of the Line of Sight Infrared Gas Detector LS2000 and HC800 for explosion protection, according to Annex II clause 1.5.5, 1.5.6 and 1.5.7 of the Directive 2014/34/EU, for methane, butane and propane is covered in this Certificate.

The optical radiation output of the apparatus with respect to explosion protection, according to Annex II clause 1.3.1 of the Directive 2014/34/EU is not covered in this certificate.

[13] [14]

# Schedule
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Temperature range
The relation between ambient temperature and the assigned temperature class is as follows:

| Ambient temperature range | Temperature class |
|---|---|
| -50°C to +75°C (for Ex db eb Version) | T4 |
| -55°C to +75°C (for Ex db Version) | T4 |

Electrical data
Supply Specifications

| Transmitter: | Receiver: |
|---|---|
| Rated Voltage – 18-30 VDC | Rated Voltage – 18-30 VDC |
| Power Consumption – 16 Watts Max | Power Consumption – 10 Watts Max |

Routine tests
Routine tests according to EN 60079-1 cl. 16 are not required, as the enclosures have been successfully tested at four times the reference pressure.

All Line of Sight Infrared Gas Detector LS2000 and HC800 assemblies with a terminal compartment constructed as increased safety “eb” shall be tested with a dielectric strength test at a minimum of 500 VAC or 700 VDC for 1 minute or 600 VAC or 840 VDC for 100 ms in accordance with EN IEC 60079-7 cl. 7.1.

[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:

- The Line of Sight Infrared Gas Detector LS2000 and HC800 Receiver and Transmitter shall be installed in places where there is a low risk of mechanical damage.
- The field wiring terminal connections are certified for a single wire in size from 0.2mm$^2$ to 2.5mm$^2$ (or two conductors with the same cross section 0.2 to 0.75mm$^2$). The screws must be tightened down with a torque of 0.4 Nm to 0.5 Nm.
- The metal housing of the Model LS2000and HC800 must be electrically connected to earth ground.
- Flammable joints are not user serviceable; contact Det-Tronics Service.
- Potential electrostatic charging hazard on the brow. Use caution when servicing in an explosive environment.
- Special fasteners are used on the Transmitter Electronics Module, M8 bolts per ISO 965 with M6 head. Stainless steel bolts with a yield strength of 483 N/mm$^2$ (70,000 psi).
- Only suitable certified Ex db or Ex eb (as applicable) cable entries, adapters and blanking elements are to be used with a minimum IP66/67 rating.

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

Additional information
The Line of Sight Infrared Gas Detector LS2000 and HC800 has in addition passed the tests for Ingress Protection to IP 66/67 in accordance with EN60529:1991+A1:2000+A2:2013.

The trademark DET-TRONICS (LS2000) or AUTRONICA (HC800) 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.