



DET NORSKE VERITAS

TYPE APPROVAL CERTIFICATE

CERTIFICATE NO. A-12711

This is to certify that the
Gas Detector

with type designation(s)
OPECL (DET-TRONICS), HC600 (Autronica Autropath)

Manufactured by
DET-TRONICS Detector Electronics Corp.
MINNEAPOLIS MN, United States

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:

Type	Temperature	Humidity	Vibration	EMC	Enclosure
OPECL (DET-TRONICS)	D	B	A	B	C
HC600 (Autronica Autropath)	D	B	A	B	C

Høvik, 2012-04-23
for Det Norske Veritas AS



This Certificate is valid until
2016-06-30



Odd Magne Nesvåg
Head of Section

DNV local office:
New York



Andrzej Gdaniec
Surveyor

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.



Certificate No.: A-12711
 File No.: 473.30
 Job Id.: 262.1-011761-1

Product description

The open path eclipse model OPECL is an open path infrared gas detection system that provides 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 HART communication and RS-485 MODBUS communication.

OPECL is capable of detecting most hydrocarbon gases and vapors including methane, ethane, propane, butane, and propylene. The factory calibrated setting is methane.

Application/Limitation

The Type Approval covers hardware listed under Product description.

Ex installations 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.

Ex-certification is not covered by this certificate and the following paragraph, which is for information only, is based on information received from the manufacturer, but not verified by DNV.

Information on Ex-Certification received from manufacturer – Not verified by DNV		
Equipment	Certified	Certificate No.
Open Path Eclipse Model OPECL & HC600 Autropath	Ex II 2 G Ex d IIC T5 Gb IP66/67 EN 50241-1 or Ex de IIC T5 Gb IP66/67 EN 50241-1 or Ex II 2 G Ex d [ib] IIC T5 Gb IP66/67 EN 50241-1 or Ex de [ib] IIC T5 Gb IP66/67 EN 50241-1	DEMKO 06 ATEX 141002X Rev.1

Location of detectors to be in accordance with relevant parts of the Rules.

When the units are used in applications to be classed by DNV, documentation for the actual application is to be submitted for approval by the manufacturer of the application system in each case. Reference is made to DNV Rules for Ships Pt.4 Ch.9 Control and Monitoring Systems.

Type Approval documentation

Document	Doc. Ref. No.	Dated
Drawing Model Matrix, OPECL	007777-001 Rev.J	
Drawing design reference, OPECL	007901-002 Rev.A	
Instructions for model OPECL	95-8556	
UL,LLC Laboratory Test Report acc. to IEC 60079-29-4	12CA04556	2012-04-06
High Temp. Exposure Test Report	44958-1	2011-06-27
Det-tronics Test Report	DEC-3025-10	2011-08-03
Environ Lab. Electromagnetic Interference Test Report	44772-6 Rev.2	2011-08-08
Environ Lab. Salt Mist Test Report	44772-2	2011-08-05
Environ Lab. Vibration Test Report	44772-1 Rev.2	2011-08-08

Tests carried out

Applicable tests according to:

- DNV Standard for Certification No. 2.4 Edition April 2006.
- IEC 60079-29-4 Edition 1.0, 2009-11 – Explosive atmospheres- Part 29-4: Gas detectors- Performance requirements of open path detectors for flammable gases.

Certificate Retention Survey

The scope of the retention/renewal survey 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 survey 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



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- 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

Retention survey is to be performed at least every second year and at renewal of this certificate.

END OF CERTIFICATE