

EC-TYPE EXAMINATION CERTIFICATE (MODULE B)

Application of: Directive 2014/90/EU of 23 July 2014 on marine equipment (MED), issued as "Forskrift om Skipsutstyr" by the Norwegian Maritime Authority. This Certificate is issued by DNV GL AS under the authority of the Government of the Kingdom of Norway.

This is to certify:

That the Fixed oxygen analysis and gas detection equipment

with type designation(s)

PIRECL/AutroPoint HC200 and HC300PL - IR Hydrocarbon Gas Detector and PIRTB - Terminal Box

Issued to

**Detector Electronics Corporation (Det-Tronics)
Minneapolis MN, United States**

is found to comply with the requirements in the following Regulations/Standards:

Regulation **(EU) 2017/306,**

item No. MED/3.54. SOLAS 74 as amended, Regulation II-2/4 & VI/3 and FSS Code 15

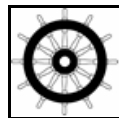
Further details of the equipment and conditions for certification are given overleaf.

This Certificate is valid until **2022-09-19.**

Issued at **Høvik** on **2017-09-20**

DNV GL local station:
New York

Approval Engineer:
Nils Jarem



Notified Body
No.: **0575**

for **DNV GL AS**

Vidar Dolonen
Head of Notified Body



The mark of conformity may only be affixed to the above type approved equipment and a Manufacturer's Declaration of Conformity issued when the production-surveillance module (D, E or F) of Annex B of the MED is fully complied with and controlled by a written inspection agreement with a Notified Body. The product liability rests with the manufacturer or his representative in accordance with Directive 2014/90/EU.

This certificate is valid for equipment, which is conform to the approved type. The manufacturer shall inform DNV GL AS of any changes to the approved equipment. This certificate remains valid unless suspended, withdrawn, recalled or cancelled.

Should the specified regulations or standards be amended during the validity of this certificate, the product is to be re-approved before being placed on board a vessel to which the amended regulations or standards apply.



Product description

The PointWatch Eclipse® Hydrocarbon Infrared Gas Detector model PIRECL/HC200/HC300PL AutoPoint is an infrared hydrocarbon gas detector which provides continuous monitoring of combustible gas concentrations in the range of 100% LEL.

The enclosure is constructed of stainless steel and utilising sapphire optics and is suited for use in harsh environments. The detector provides an isolated 4-20mA signal output supporting HART communication protocol, an optional intrinsic safety port for hand-held HART communications, 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 "d".

The type approval covers the following variants: Detector PIRECL/HC200/HC300PL a b c d e f and Termination Box PIRTB a b c d e

Detector		
Key to type number designations		
HC200/HC300		Autronica Fire and Security AS
PIRECL		Detector Electronics Corp.
a	A	3/4 NPT
	B	M25
	C	1/2 - 14 NPT
	D	M20
b	1	4-20mA w/Hart Protocol & RS-485: 0-100% LFL Full Scale Range
	3	4-20mA w/Hart Protocol & RS-485: CO2 detection only, 0-2% FS
	4	Eagle Quantum Premier (EQP) Compatible, 0-100% LFL Full Scale Range
	7	Power Loop
	11	4-20mA w/Hart Protocol & RS-485: 0-100% LFL Full Scale Range, Fast Response
	14	Eagle Quantum Premier (EQP) : 0-100% LFL Full Scale Range, Fast Response
c	A	HART Communication Port
	B	HART Communication Port and Relay Board (Not compatible with EQP), Ex d only
	C	Third Party Addressable Module, Ex d only
	D	No Optional Outputs
	E	Relay Board (Not compatible with EQP), Ex d only
d	1	Weather shield with hydrophobic filter
	2	Weather shield without hydrophobic filter
	3	1/16" NPT Thread with hydrophobic filter
	4	1/16" NPT Thread without hydrophobic filter
	5	No weather protection installed
e	B	INMETRO (Brazil)
	BT	SIL/INMETRO (Brazil)
	R	VNIIFTRI (Russia)
	S	SIL
	T	SIL/FM/CSA/ATEX/IECEX
	U	Ukraine

	W	FM/CSA/ATEX/IECEX
	Y	CCCF (China)
f	1	Division / Zone Ex d e
	2	Division / Zone Ex d

Note: Type 'Approvals' can use one or more letters to designate the Approvals of the product.

Termination Box		
PIRTB	Key to type number designations	
a	A	= Aluminium
	S	= Stainless Steel
b	2M	= 2 Port, Metric M20/25
	2N	= 2 Port, 3/4" NPT
	3M	= 3 Port, Metric M20/25
	3N	= 3 Port, 3/4" NPT
	5L	= 5 Port, Metric M25
	5N	= 5 Port, 3/4" NPT
c	E	= ATEX/CE
	W	= FM/CSA/ATEX/CE
d	1	= Short without window
	3	= Tall with window
e	L, I, T, V	= Cable entries orientation

Application/Limitation

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.

The equipment are found to comply with following location/application dependent requirements (for definition of each of the location classes, see below the table):

MODEL	TEMPERATURE	VIBRATION	EMC	ENCLOSURE
PIRECL HC-200, HC-300 PL	TEM-D (*)	VIB-B	EMC-B	ENC-C IP66/67

(*) Performance test carried out at -55°C to +75°C

Definition of the location classes with reference to relevant standards:

Temperature

TEM-D Location (-25°C ÷ +70°C) (ref. IEC 60092-504 (2016) table 1 item 6-7)

Vibration

VIB-B For eq. on reciprocating machines etc. (ref. IEC 60092-504 (2016) table 1 item 10)

EMC

EMC-B Bridge and open deck zone (ref. IEC 60092-504 (2016) table 1 item 19-20)

Enclosure

ENC-C Open deck (IP56) (ref. IEC 60092-201 table 5)

Job Id: **344.1-001922-5**
 Certificate No: **MEDB00002YG**

Type Examination documentation

Documentation	Documentation Reference Number
Detector Design Reference Drwgs ECLIPSE (PIRECL) "DEMKO"	007263-001, Rev. T, dtd. 2009-03-13 (8 sheets) 007263-002, Rev. N, dtd. 2017-04-18 (11 sheets)
Schematic, Interface board	007117-002, Rev T, dtd. 2016-06-29
Data sheets.	See Specifications in the Instruction Manuals.
Termination Box Design Reference Drwgs.	007007-001, Rev M, dtd. 2015-08-26
Instruction Manuals	Infrared Hydrocarbon Gas Detector, PointWatch Eclipse Model PIRECL, No. 95-8526-19.4, issue 3/17 Infrared Carbon Dioxide Gas Detector, PointWatch Eclipse Model PIRECL, No. 95-8676-3.1. issue 3/17 Duct Mount Kit for Marine Applications Q900C1001, No. 95-8640-4.2 issue 10/12 AutroPoint: 116-P-HC200/IGB No. 95-8593-19.1 issue 3/17 AutroPoint: 116-P-HC300 PL/DE No. 95-8587-1.1 2010-08-03
Test reports	Environ Lab. vibration test No. 41225-1 Rev.1, dtd. October 21, 2009 Det-Tronics Internal Test Report, vibration test, October 15, 2009 UL International Demko A/S No. 129485-13, dtd. 2005-06-08 DNV No. 2004-3221, dtd. 2004-03-11 DNV No. 2003-3221, dtd. 2004-03-11 DEMKO report 129485-20/9CA39156 dated 2009-11-26 Det-Tronics Gas Performance Additions: Methane, dtd April 12, 2011 Det-Tronics Gas Performance Additions: Propane, dtd May 3, 2011 Det-Tronics Gas Performance Additions: Ethylene, dtd May 4, 2011 Det-Tronics Gas Performance: Buthane, dtd August 25, 2011 DEMKO report 4786319694 dated 2014-06-10 US/UL/ExTR16.0182/01 dated 2017-06-22 (includes 60079-29-1)

Tests carried out

- IEC 60092-504 (2016)
 - IEC 60533 (2015)
 - EN 60079-0 (2012) incl A11 (2013)
 - EN 60079-29-1 (2007)
- PIRECL, HC200 and HC300PL tested with additional gases (Methane, Propane, Butane and Ethylene)

Marking of product

For identification to this type examination certificate the products shall be marked with:

- Manufacturer's name or trade mark
- Type designation
- Mark of Conformity (see front page)