

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Flame Detector

with type designation(s)

X3301 / X33AF - Multispectrum IR Flame Detector with Mounting Arm Q9033B/Q9033A with optional Q9033 Collar Attachment

Issued to

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

is found to comply with

DNV GL rules for classification – Ships, offshore units, and high speed and light craft

Application :

Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV GL.

Temperature	D
Humidity	B
Vibration	B
EMC	B
Enclosure	C

This Certificate is valid until **2021-12-15**.

Issued at **Hamburg** on **2016-12-16**

DNV GL local station: **New York**

for **DNV GL**

Approval Engineer: **Andrea Grün**

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Duy Nam Le
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.

Product description

The type approval covers the following variants: X3301 / X33AF a b c d e

- a = Material
- b = THREAD TYPE
- c = Outputs
- d = Approvals
- e = Classification

Key to type number designation		
X3301 / X33AF abcde, where		
X3301		Multispectrum IR Flame Detector (Det-Tronics)
X33AF		Multispectrum IR Flame Detector (Autronica)
a=	A	Aluminum
	S	Stainless Steel
b=	2E	2 PORT 1/2" NPT
	2F	2 PORT, METRIC M20
	2N	2 PORT 3/4" NPT
	2M	2 PORT, METRIC M25
	4E	4 PORT 1/2" NPT
	4F	4 PORT, METRIC M20
	4M	4 PORT, METRIC M25
	4N	4 PORT 3/4" NPT
c=	11	Relay
	13	Relay & 0-20 mA
	14	LON - Eagle Quantum Premier (EQP)
	15	Relay & Pulse
	16	Autronica addressable module BNB 300/32
	19	Autronica PowerLoop
	21	Relay-Automotive
	22	LON EQP-Automotive
	23	Relay/0-20 mA & HART
d=	A	FM/CSA
	B	INMETRO (BRAZIL)
	C	CSA
	E	ATEX/IECEX
	F	FM
	K	KAZAKHSTAN
	R	VNIPO/VNIIFTRI (RUSSIA)
	S	SIL
	T	SIL/FM/CSA/ATEX/IECEX/VdS**
	U	UKRAINE
	W	FM/CSA/ATEX/IECEX/VdS**
	Y	CHINA
e=	1	Division/Zone Ex de
	2	Division/Zone Ex d

Note: Multiple letters may be used for "d" to designate the approvals on the product

** VdS applies only to the output types 11, 13 and 14

Job Id:
Certificate No: **TAA00000V2**

Application/Limitation

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 GL.

Information on Ex-Certification received from manufacturer – Not verified by DNV GL		
Equipment	Certified	Certificate No.
X3301	Ex II 2 G Ex db IIC T6...T4 Ex db eb IIC T6...T5	DEMKO 01 ATEX130204X
X33AF	Ex II 2 D Ex tb IIIC T130C Db IP66/IP67	IECEx ULD 06.0017X

The Type Approval covers hardware listed under Product Description. In each case the hardware is used in application to be classed by DNV GL, documentation for the actual application is to be submitted for approval by the manufacturer of the application system. Reference to applied hardware as listed above, as well as reference to this certificate is to be made through the instrument and equipment list covering the application system in question.

Reference is made to DNV GL Rules for Ships Pt.4 Ch.9 - Control and Monitoring Systems.

Type Approval documentation

Documentation	Docum. reference number
Design reference dwg	007264-001, sheet 1-14 Rev. AM
Q9033B/Q9033A Mounting Arm, SS and AL	007290-000, Rev. P
Q9033 Collar Attachment, SS	011385-001, Rev. D
Instruction Manual for: - X3301 - X33AF	95-8527 dated 1/16 or 95-8704 dated 1/16 95-8713 dated 1/16
Test reports	VdS No. 02073, BMA dated 2002-12-12 VdS no. SW-2002202 ITS No. J20048651.012 dated 2001-07-11 with supplementary report ITS No. 3030895.011 dated 2002-09-04 FM Id. 3011126 dated 2001-11-21 with supplementary report FM Id. 3012419 dated 2002-02-07 FM Id. 3014814 dated 2002-09-12 FM Id. 3016955 dated 2003-05-29 FM Id. 3017881 dated 2003-06-25 FM Id. 3021592 dated 2005-02-25 Intertec ETL SEMKO No. 3076372.001 dated April 28, 2005 DNV No. 2003-3177 dated 2003-06-04 DNV No. 2005-3452- Rev 01 dated 2005-10-10 Sinusoidal vibration test report 31167-1 dated 5/5/2004 Approval report from FM Approvals, project id 3020383 IECEx 11CA57798-ULD06.0017X dated 2012-07-10 Detector Electronics Internal Test Report, X3301-DNV-PE dated 2008-06-08 Detector Electronics Internal Test Report DEC 1207-13, X3301/X33AF with Q9033 Collar Attachment, Vibration Testing dated 2012-05-23 DK/ULD/ExTR07.0003/07 4786552854 dated 06-07-2016
Model#Matrix, X-series dwg	007306-001, Rev.AE

Job Id:
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Official Project Record for
X3301, X33AF (Test Report)

CDOC 3607, Rev.A dated 2014-08-19

Tests carried out

Applicable tests according to Class Guideline DNVGL CG-0339, November 2015.
Tested according to EN54-10: 2002 + A1: 2005.

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