DNV·GL

TYPE APPROVAL CERTIFICATE

Certificate No:
TAA0000121
Revision No:
2

This is to certify:

That the Automatic Gas Detection System

with type designation(s)
Eagle Quantum Premier Fire and Gas Detection / Releasing System (EQP System)

Issued to
Detector Electronics Corporation (Det-Tronics)
Minneapolis, MN, USA

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	**A**
EMC	**B**
Enclosure	**A**

Issued at **Hamburg** on **2019-06-21**

This Certificate is valid until **2021-06-20**.
DNV GL local station: **New York**

Approval Engineer: **Jens Dietrich**

Digitally Signed By: Rinkel, Marco
for **DNV GL**
Location: Hamburg, on behalf of

Joannis Papanuskas
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.

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Product description

EQ3XXX Controller
EQ3xxxPxxx Controller
EQ3XXX Panel mount only, installed inside Rittal cabinet or equivalent NEMA 12 enclosure in controller environments; NEMA 4X enclosure for open area installations.
EQ3LTM LON Termination Module
Optional module used in the controller redundancy configuration, installed inside Rittal cabinet or equivalent NEMA 12 enclosure in controller environments; NEMA 4X enclosure for open area installations
EQ3710 AIM Analog Input Module
EQ3710D(P) W, T, installed inside Rittal cabinet or equivalent NEMA 12 enclosure in controller environments; NEMA 4X enclosure for open area installations; EMC components and enclosure change; (T for SIL Model)
EQ3720 RM Relay Module
EQ3720D(P) W, installed inside Rittal cabinet or equivalent NEMA 12 enclosure in controller environments; NEMA 4X enclosure for open area installations.
EQ3730 EDIO Enhanced Discrete Input/Output Module
EQ3730D(P) W,T, installed inside Rittal cabinet or equivalent NEMA 12 enclosure in controller environments; NEMA 4X enclosure for open area installations. EMC components and enclosure change. (T for SIL Model)
EQ3750ASH/EQ3760ASM Addressable Smoke and Heat
EQ3750ASHP W, installed inside Rittal cabinet or equivalent NEMA 12 enclosure in controller environments; NEMA 4X enclosure for open area installations. New PC boards.
EQ3780HSDM 12-Channel High Speed Deluge Module
6 configurable input channels for detectors (heat, smoke, flame, manual)
6 configurabe output channels for solenoids to initiate pilot-actuated deluge valves
EQ24xxNE Network Extender Module
EQ245(6) 3NE; Enclosure material: 5 – Aluminum, 6 –SS.
EQ22xxDCUEX Digital Communication Unit, Combustible
EQ225(6)3DCUEX, enclosure material: 5-Aluminum, 6-SS. (Uses CGS Gas Sensor.
EQ2230 RSP RS485 Module -New Product for EQP cable filtering
CGS Combustible Gas Sensor CGSS1A6C2R1X, used with DCUEX
PIRECLAx4 PointWatch Hydrocarbon gas detector
PIRECLA (1) 4A (B) 1 (2) W (T) 1 (2)
PIRECLAx4 PointWatch Hydrocarbon gas detector "Duct Mount"
PIRECLA (1) 4A (B) 1 (2) W (T) 1 (2)
With DEC Q900C1001 Duct mount kit.
GT3000 Toxic Gas Detector
Model GTX
with Model GTS O2
or Model GTS H2S
or Model GTS CO
UD10 Universal Display
UD10A (S) 5N (5M) 15 (28) W 2
X3301 Mulitspectrum Flame Detector
X3301A with Q9033AL (Q9033B SS) swivel
X3302 Mulitspectrum Flame Detector
X3302A with Q9033AL (Q9033B SS) swivel
STB Sensor Termination Box
STB4
EQ2220GFM Ground Fault Monitor
EQ2220GFM is installed in the same enclosure with EQ3XXX Controller.
EQP2120PS-B Power Supply
Model HD, Heat Detector
Based on Kidde Fenwall DAF Heat Detector
EQP2410PS-P Converter
QUINT-DIODE/40Diode Redundancy Module

DAF Vertical Heat Detector
THD-7052 Heat Detector
CPD-7054 Ionization Type Smoke Detector
PSD-7157 and PSD-7157D Photoelectric Type Smoke Detectors
MT-12/24-R Horn
MTWP-2475W – FR Horn/Strobe
Manual Call Stations Series 3300
RA-911 Remote Indicator
Manual Fire Alarm Call Point PB Range
CCH ETH 2416 Horn
SL-2000-P Duct Smoke Detector
Discovery Ionization Smoke Detetctor (Apollo)
Discovery Optical Smoke Detetctor (Apollo)
Discovery Multisensor Smoke Detetctor (Apollo)
Discovery Heat Detetctor (Apollo)
XP95A Sounder Control Module (Apollo)
Mini Switch Monitor (Apollo)
Priority Mini Switch Monitor (Apollo)

Marking of product

The products to be marked with:

- Model name
- Manufacturer name
- Serial number

Application/Limitation

System arrangment and application to be in accordance with relevant parts of DNV GL Rules.

Connected gas detectors shall be approved according to relevant performance standards (this normally implies type approval or MED approval).

Product certificate

If specified in DNV GL Rules for Ships or Offshore Standards, the control and monitoring system in which the above listed hardware is used shall be delivered with a product certificate. For each such delivery the certification test is to be performed at the manufacturer of the application system before the system is shipped to the yard. The test shall be done according to an approved test program.

As long as the units are covered by the Type Approval, a product certificate according to Pt.4 Ch.9 Sec.1 will not be required. Correct configuration and set up for each delivery to be tested during commissioning after installation.

After the certification the clause for application software control will be put into force.
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 Excertificate issued by a notified/recognized Certification Body.

The following documentation of the actual application is to be submitted for approval in each case:

- Project-specific functional description including reference to this Type approval certificate
- System block diagram, incl. power supply arrangement
- Software version and list of components/quantities, incl. reference to type approval certificate
- Test program for certification test

Clause for application software control

All changes in software are to be recorded as long as the system is in use on board.
Documentation of major changes is to be forwarded to DNV GL for evaluation and approval before implemented on board.

Type Approval documentation

Test Reports:

DET 11-06-064 R002 Version V1 Revision R6	dated 23-09-2016
FM 3032248	dated 04-12-2008
FM 3043221	dated 08-03-2012
FM 3041739	dated 04-10-2011
FM 3048692	dated 05-08-2015
FM 3052269	dated 06-01-2016
DK/ULD/ExTR10.0012/04	dated 07-09-2015
DK/ULD/ExTR10.0004/01	dated 01-12-2010
EMC Test Report element #DETE0060	dated 19-09-2018
Vibration Test Report element 58015-1,	dated 31-08-2018
Official Project Record, CDOC 3607. Rev. E.	dated 21-09-2018
TE 243131 Technical Evaluation of X3301, X2200, X5200 and X9800 infra-red, ultra-violet flame detectors against the requirements of EN 54-10:2002 and EN 54-17:2005	dated 23-07-2010
TE 246976 Technical Evaluation of the Eagle Quantum premier EQ5400 series of panels to EN 54-2:1997 + A1:2006 and EN 12094-1:2003	dated 28-06-2010
TE 254097 Technical evaluation of EDIO, AIM, SAM, IDCSC and RM modules to EN 54-17:2005 and EN 54-18:2005	dated 14-06-2010

Test Reports Software:

TE 243131-SWA Software Evaluation of sensor firmware used in the model X3301 flame detectors against the requirements of clause 4.9 in EN 54-10 & EN 54-17	dated 23-07-2010
TE 243131-SWB Software Evaluation of NUVIR sensor Firmware used in the models X2200, X9800 & X5200NP flame detectors against the requirements of clause 4.9 in EN 54-10 & EN 54-17	dated 23-07-2010
TE 243131-SWC Software Evaluation of NFP LON Interface used in the model X3301, X2200, X9800 & X5200 flame detectors against the requirements of clause 4.9 in EN 54-10 & EN 54-17	dated 23-07-2010
TE 246976-SW-A Software Evaluation of the EQP300X controller used in the EQP series of addressable extinguishing ECD/CIE panels against the requirements of EN 54-2 Clause 13 and EN 12094-1 Clause 6	dated 22-07-2010
TE 246976-SW-B Software Evaluation of Detection & Releasing panels used in the EQP series of addressable extinguishing ECD/CIE panels against the requirements of EN 54-2 Clause 13 and EN 12094-1 Clause 6	dated 22-07-2010
TE 254097-SW-A Software evaluation of 8 channel EIDO module against the requirements of EN 54-18 Clause 4.5 & EN 54-17 Clause 4.9	dated 15-07-2010
TE 254097-SW-B Software evaluation of Analogue Input Module (AIM) against the requirements of EN 54-18 Clause 4.5 & EN 54-17 Clause 4.9	dated 15-07-2010
TE 254097-SW-C Software evaluation of Signal Audible Module (SAM) against the requirements of EN 54-18 Clause 4.5 & EN 54-17 Clause 4.9	dated 19-07-2010
TE 254097-SW-D Software evaluation of initiating Device circuit short circuit module (IDCSC) against the requirements of EN 54-18 Clause 4.5 & EN 54-17 Clause 4.9	dated 21-07-2010
TE 254097-SW-E Software evaluation of EQ3720 relay module against the requirements of EN 54-18 Clause 4.5 & EN 54-17 Clause 4.9	dated 21-07-2010

Software Version:
EQP controller Software Compatibility and
Release Specification 300145 Revision R dated 12-02-2017
Eagle Quantum Premier Controller
Software Design Specification Revision G
Firmware Version 15.xx dated 19-09-2016

Drawing:
013830-001 Revision B (EQP System Drawing, with excess) dated 22-08-2016
007547-001 Revision K dated 08-02-2017
Manuals:
95-8533-19.1 (EQP, also describing excess components) dated Rev. 10/18

Certificates:
DET 1106064 C01 IEC 61508:2010 SIL 2 Revision 1.9 dated 03-10-2016
IEC Ex ULD 10.0004X dated 26-10-2015
IEC Ex ULD 10.0010X dated 07-09-2015
DEMKO 02 ATEX 133867X Rev.6 dated 09-12-2015
DEMKO 02 ATEX 131321X Rev.2 dated 07-09-2015
Coast Guard Approval 1 61.002/49/0 dated 13-08-2012
Specification Data: 90-1150 dated 04/2006

Extension June 2019:
Official Project Record Eagle Quantum Premier MODEL EQ3780HSDM, DEC5002-42 CDOC 3607, rev. E;
Official Project Record, DEC5002-42, Appendix E;
EMC test report element #DETE0061;
Instructions EQP System, 95-8533-20.1, rev. 3/19;
Instructions HSDM, 95-8782-1.1, 05/21/2019.

Tests carried out
Applicable tests according to DNV GL Class Guideline 0339, November 2016.

Marking of product
The products to be marked with:
- Manufacturer name
- Model name
- Serial number

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 renewal of the certificate.

Job Id: **262.1-024043-4**
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END OF CERTIFICATE