



# DET NORSKE VERITAS

## TYPE APPROVAL CERTIFICATE

CERTIFICATE NO. **A-13395**

This is to certify that the  
**Gas Detector**

with type designation(s)  
**Open Path Gas detector Quasar 900**

Manufactured by  
**Spectrex Inc.**  
**Cedar Grove NJ, 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:**

<b>Temperature</b>	<b>D</b>
<b>Humidity</b>	<b>B</b>
<b>Vibration</b>	<b>B</b>
<b>EMC</b>	<b>B</b>
<b>Enclosure</b>	<b>C / IP66, D / IP68 (2m)</b>

This Certificate is valid until **2017-12-31**.

Issued at **Høvik** on **2013-10-22**

DNV local station: **Piraeus**

Approval Engineer: **Andrzej Gdaniec**

for **Det Norske Veritas AS**

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**Odd Magne Nesvåg**  
**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.

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.

## Product description

The Quasar 900 model uses wavelengths around 2.3µm spectral band to measure air flammability potential between the source and detector. At this wavelength, all hydrocarbon materials have an absorption peak.  
 The Quasar 900 detects hydrocarbon gases including methane, ethylene, propane, ethane, butane etc.

The Quasar 900 includes 4 models with the same detector and different source. That gives the ability to get detection at distances of 7-200m.

**Model Number and Installation Distance**

Model No.	Detector	Source	Min. Installation Distance	Max. Installation Distance
901	QR-X-11X	QT-X-11X	23 ft ( 7 m)	66 ft ( 20 m)
902	QR-X-11X	QT-X-21X	50 ft (15 m)	132 ft ( 40 m)
903	QR-X-11X	QT-X-31X	115 ft (35 m)	330 ft (100m)
904	QR-X-11X	QT-X-41X	265 ft (80 m)	660 ft (200 m)

## Application/Limitation

The Type Approval covers hardware listed under Type Designation/Product Description. In each case the hardware is used in application to be classed by DNV, 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 Rules for Ships Pt. 4 Ch. 9 - Control and Monitoring Systems.

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.

## Type Approval documentation

Document	Doc. Ref. No.	Rev. No.
Quasar 900 Open-Path Gas Detection System User's ans Maintenance Manual	TM 888200	G, August 2013
FM Approvals Approval Report	00003043518	2013-01-18
QualiTech EMC Test report	SPC 250612	2012-06-25
QualiTech Environmental&Mechanical Laboratory Test report	20130630-1500	2013-07-04
QualiTech EMC Test report	SPC 240613	2013-06-24
Carmel Environmental Tests Ltd. Environmental Test Report (IPX6 / IPX8)	2122A5588	-, 2013-03-27
Carmel Environmental Tests Ltd. Environmental Test Report (Salt mist)	2122A6493	2.1, 2013-10-07
Carmel Environmental Tests Ltd. Environmental Test Report (High temperature)	2122A6529	1.1, 2013-10-20

## Tests carried out

Applicable tests according to:

- DNV Standard for Certification No. 2.4 Edition April 2006.
- EN 50270: 2006
- IEC 60079-29-4: 2009 – Explosive atmospheres- Part 29-4: Gas detectors- Performance requirements of open path detectors for flammable gases. FM 6325: 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