DNV·GL

Certificate No:
TAA00001SH

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Gas Detector

with type designation(s)
ST350EX, ST650EX

Issued to
Buveco Gasdetection B.V.
Bleiswijk, Zuid-Holland, Netherlands

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.

Location classes:

Temperature	**A**
Humidity	**B**
Vibration	**A**
EMC	**B**
Enclosure	**B (IP66)**

Issued at **Høvik** on **2018-06-06**
This Certificate is valid until **2023-06-05**.
DNV GL local station: **Rotterdam, Offshore & Newbuilding**

Approval Engineer: **Nils Jarem**

for **DNV GL**

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.

© DNV GL 2014. DNV GL and the Horizon Graphic are trademarks of DNV GL AS.

Job Id: **262.1-028183-1**
Certificate No: **TAA00001SH**

Product description

Gas detectors ST650EX and ST350EX

The **ST650EX** is an all-round gas detector. The heart of the detector is a replaceable BUSENS_D gas sensor. This sensor is available in various versions, such as a catalytic flammable gas sensor, Infrared (NDIR) and a Thermal Conductivity sensor (TCD).
The ST650EX is available with or without a graphic display. The version with a graphic display, shows the measured value and various status notifications locally.

Type	Application	Sensor type	Range
ST650EX-3	Standard	Catalytic	0-100 %LEL
ST650EX-HT Remote	High Temp.	Catalytic	0-100 %LEL
ST650EX-25	Vapours	Catalytic	0-100 %LEL
ST650EX-41	Kerosene	Catalytic	0-100 %LEL Kerosene
	Gasoline	Catalytic	0-100 %LEL Gasoline
	Diesel	Catalytic	0-100 %LEL Diesel
ST650EX-IRs CH4	Methane	NDIR	0-100 %LEL CH4
ST650EX-IRs C3H8	Propane	NDIR	0-100 %LEL C3H8

The **ST350EX** is an all-round gas detector and useful for many applications. The heart of the detector is a replaceable BUSENS_D gas sensor. This sensor is available in various versions, such as a SCV and a SCF sensor.
The SCV sensor is suitable for the detection of Aromatic Hydrocarbons at ppm level (for example Toluene or Xylene) and also gases present in the chemical industry such as Carbon disulphide (CS2).
The SCF sensor is suitable for the detection of synthetic refrigerants (H)CFK's and HFK's.
The BUTOX ST350EX is available with or without a graphic display. The version with a graphic display, shows the measured value and various status notifications locally.

Type	Application	Sensor type	Range
ST350EX-SCV	Hydrocarbons	MOS	Ref datasheet
ST350EX-SCF	Freons	MOS	Ref datasheet

Approval conditions

The Type Approval covers hardware listed under Product description. When the hardware is used in applications to be classed by DNV GL, 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 GL rules for classification of ships Pt.4 Ch.9 Control and monitoring systems.

Application/Limitation

The units are to be installed connected to a power supply of approved type.

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.
BUCOM ST650EX	Ex d IIC T6 Gb (Ta -20°C to +60°C)	KIWA 16 ATEX0008 X
Remote F1 gas sensor	Ex d IIC T3 Gb (Ta -20°C to +120°C)	

Type Approval documentation

Tests carried out

Applicable tests according to class guideline DNVGL-CG-0339, November 2016.
Performance tests according to EN60079-29-1: 2016

Marking of product

The products to be marked with:
- manufacturer name
- model name
- serial number
- power supply ratings

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 after 2 years and after 3.5 years. A renewal assessment will be performed at renewal of the certificate.

END OF CERTIFICATE