



TYPE APPROVAL CERTIFICATE

Certificate No:
TAA00001A1
Revision No:
2

This is to certify:

That the Automatic Gas Detection System

with type designation(s)
BS-420MG

Issued to

Autronica Fire and Security AS
Stavanger, Norway

is found to comply with
DNV 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.

Location classes:

Temperature	D
Humidity	B
Vibration	A
EMC	B
Enclosure	A

Issued at **Høvik** on **2022-10-21**

for **DNV**

This Certificate is valid until **2027-06-27**.

DNV local station: **Trondheim**

Approval Engineer: **Ståle Sneen**

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Frederik Tore Elter
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.

LEGAL DISCLAIMER: Unless otherwise stated in the applicable contract with the holder of this document, or following from mandatory law, the liability of DNV AS, its parent companies and their subsidiaries as well as their officers, directors and employees ("DNV") arising from or in connection with the services rendered for the purpose of the issuance of this document or reliance thereon, whether in contract or in tort (including negligence), shall be limited to direct losses and under any circumstance be limited to 300,000 USD.



Product description

BS-420MG, BSD-340/xx and Autopoint Maritime Gas detector constitute the core hydrocarbon gas detection system.

The gas detection control panel 420MG supports maximum 30 modules, of which maximum 12 can be loop driver modules. Utilizing a redundant Ethernet network, AutoNet, the control panel can communicate with other system units. A maximum number of 64 system units can be connected to each AutoNet.

The fixed hydrocarbon gas detection panel type BS-420MG communicates with the gas detectors through the Power Loop Driver type BSD-340/Ex, BSD-340/1 or BSD-340/2.

The Autopoint Maritime Gas detector communicates with BS-420MG via the Power Loop.

Other type approved gas detectors with 4-20 mA output signalling can be connected through BN-342/Ex, BN-342/1 or BN-342/2 Power Loop 4-20 mA Input Unit.

BS-420MG main panel consists of the following parts:

- Panel front BSV-420M
- Cabinet UEA-400
- Power supply module BSS-310A
- Communication module BSL-310
- Text foils E-2879

The system consists of the following parts:

- BS-420MG main control panel
- AutoPoint Maritime Gas Detector Power Loop
- BSD-340/xx PowerLoop Driver
- BN-342/xx Powerloop 4-20 mA Input Unit

where xx can be EX, 1 or 2.

Approval conditions

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

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.

Type Approval documentation

Equipment	Scope	Document	No.
BS-420MG	Product data	116-P-BS420MG/CGB, rev. C, 2019-06-18	8
	Wall chart (user man.)	P-116-ASAFEGAS-WALLCHA/LGB, rev. 2016-01-25	3
	System description and operation	116-P-BS420MG/XGB, rev. E, 2019-12-10	23
	EN 60079-29-1	FTZU Test Report 15.0415-84, 2016-02-03	16
	EN 60079-29-1	FTZU Test Report 20.0027-84, 2020-03-20	24
	IEC 60092-504, 60533	DNV Test Report 2009-3691, rev. 6	14
	IEC 60092-504, 60533	Applica Test Report 21439, rev. 0, 2018-11-12	25
	IEC 60092-504 (cold test)	Applica Test Report 20887, rev. 8, 2018-05-04	26
BSD-340/xx	Product data	116-P-BSD340/EX/CGB, rev. D, 2022-01-31	12
	Product data	116-P-BSD340/2/CGB, rev. D, 2017-12-06	11
	Product data	116-P-BSD340/1/CGB, rev. D, 2017-12-06	10
	System description and operation	116-P-BS420MG/XGB, rev. E, 2019-12-10	23
	EN 60079-29-1	FTZU Test Report 15.0415-84, 2016-02-03	16
	EN 60079-29-1	FTZU Test Report 20.0027-84, 2020-03-20	24
	IEC 60092-504, 60533	DNV Test Report 2003-3169, rev. 2	19
	IEC 60092-504, 60533	Applica Test Report 21439, rev. 0, 2018-11-12	25
BN-342/xx	Product data	116-P-BN342EX/CGB, rev. D, 2020-08-19	7
	Product data	116-P-BN342/2/CGB, rev. A, 2014-03-11	6
	Product data	116-P-BN342/1/CGB, rev. A, 2014-03-11	5
	System description and operation	116-P-BS420MG/XGB, rev. E, 2019-12-10	23
	EN 60079-29-1	FTZU Test Report 15.0415-84, 2016-02-03	16
	EN 60079-29-1	FTZU Test Report 20.0027-84, 2020-03-20	24

Equipment	Scope	Document	No.
Autopoint Maritime Gas Detector	IEC 60092-504, 60533	DNV Test Report 2003-3169, rev. 2	19
	IEC 60092-504, 60533	Applica Test Report 21439, rev. 0, 2018-11-12	25
	Product data	116-P-MARGASDET/CGB, rev. C, 2015-09-03	18
	System description and operation	116-P-BS420MG/XGB, rev. E, 2019-12-10	23
	EN 60079-29-1	FTZU Test Report 15.0415-84, 2016-02-03	16
	EN 60079-29-1	FTZU Test Report 20.0027-84, 2020-03-20	24
	IEC 60092-504, 60533	DNV Test Report 2005-3105, rev. 5	20
	MED B cert.	MEDB00002YG (for equivalent unit HC-300PL)	-

Type approval periodical assessment report, DNV Trondheim 2022-07-07.

Tests carried out

Applicable tests according to class guideline DNV-CG-0339, August 2021.
 Performance testing according to EN 60079-29-1:2016 / IEC 60079-29-1:2016+AMD1:2020.

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