DNV·GL

Certificate No:
TAA00002N8

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Level Switches

with type designation(s)
LBFS

Issued to
Baumer A/S
Aarhus V, Denmark

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	**D**
Humidity	**B**
Vibration	**B**
EMC	**B**
Enclosure	**B / IP67,** **C / IP67.** **See page 2.**

Issued at **Høvik** on **2020-03-30**
This Certificate is valid until **2025-03-12**.
DNV GL local station: **Denmark CMC**

Approval Engineer: **Ståle Sneen**

for **DNV GL**

Marta Alonso Pontes
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

Baumer Level Switch model LBFS, including the following variants:

Type designation:		LBFS abcd e (f)
Safety		
a =	**0**	Standard
	1	Ex ia IIC T5, ATEX II 1G (gas)
	2	Ex ta IIIC T100 Da, ATEX II 1D (dust)
	3	Ex nA II T5, ATEX II 3G
	4	Ex ia IIC T5 / Ex ta IIIC T100 da (combined)
	A	Standard, UL listed, E365692
	B	EAC (TR CU 020/2011)
	C	cUL listed & Ex ia / Ex ta
Electrical connection		
b =	**1**	Plug, M12, plastic, with LED
	2	Cable 5 m
	3	Plug, M12, stainless steel, without LED
Process connection		
c =	**1**	G1/2”
	2	G3/4”
	3	G1”
	4	G1/2” hygienic (for Accessories Universal) 3A / EHEDG
	5	G1/2” for reverse assembly
	6	3/4"NPT
	7	M18x1
	A	G1/2, DIN 3852 form E, NBR gasket
	B	G1/2, DIN 3852 form E, FKM (Viton©) gasket
	N	½" NPT nipple
Process connection material		
d =	**1**	Stainless Steel 1.4301 – AISI 304 (DNV GL Enclosure class B)
	2	Stainless Steel 1.4404 – AISI 316 (DNV GL Enclosure class C)
Output configuration		
e =	**1**	PNP output
	2	NPN output
Configuration		
f =	**0**	Factory settings
	C	Configuration according to customer specifications

Power supply: 24 Vdc

The switch has no movable parts due to electromagnetic detection principle and solid state outputs.

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

LBFS casing material Stainless Steel 1.4404 (AISI 316) is required for use on open deck (DNV GL Enclosure class C).

The detection principle of the level switches is based on electromagnetic radiation in the range 100 MHz – 180 MHz. The switches are to be applied for level detection in metallic enclosures (tanks, pipes, etc.) in order to satisfy the class requirements for electromagnetic radiation.

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

Tests carried out
Applicable tests according to class guideline DNVGL-CG-0339, December 2019.

Marking of product
Baumer
Type designation as listed under Product description
Unique serial number
Power 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