

## Type Approval Certificate

This is to certify that the undernoted product(s) has/have been tested with satisfactory results in accordance with the relevant requirements of the Lloyd's Register Type Approval System.

<b>Manufacturer</b>	<b>Baumer A/S</b>
<b>Address</b>	Runetoften 19, Århus, 8210, Denmark
<b>Place of Production</b>	Baumer A/S Runetoften 19, Århus, 8210, Denmark
<b>Type</b>	Switches - Level
<b>Description</b>	Level measurement – Point level detection based on frequency sweep technology  For detailed product description, pls. refer to appendix.
<b>Trade Name</b>	CleverLevel® LBFS
<b>Application</b>	Marine, Offshore and Industrial applications for use in power distribution zones in environmental categories ENV1, ENV2, ENV3, ENV4 and ENV5 <sup>(1)</sup> , as defined in Lloyd's Register Type Approval System, Test Specification Number 1 – December 2020. (1) Only for LBFS casing material stainless steel 1.4404 (AISI 316L)
<b>Specified Standard</b>	Manufacturer's specification IACS E10 Rev. 8 / 2021

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<b>Ratings</b>	Rated power supply voltage: 24 VDC Material: stainless steel
<b>Additional Tests</b>	Dry heat test (85 °C / 16 h) Low temperature test (-40 °C / 16 h) Ingress protection: IP67 (30 min, 1000 mm) IP 69K (80 °C, 100 bar) with special cable plug Shock (pulse half-sine, 5 g, 30 ms)
<b>Other Conditions</b>	Final functional arrangements are to comply with appropriate Lloyd's Register Rules and Regulation and will be subject to the project related Plan Approval Process.  Specific Conditions of Use as stated in applicable Ex-certificates shall be observed when installed in hazardous areas. The Ex-certification does not form part of this certificate. When installed in gas hazardous zones 0 or 1, the sensors must be protected by Baumer isolation barriers (PNP output) or Zener barriers (NPN output) located in safe areas.  Type Approval does not eliminate the need for normal inspection and survey procedures required by the Rules and Regulations.  If the specified standards are amended during the validity of this certificate, the product is to be re- approved prior to it being supplied to vessels to which the amended standards apply.

This certificate is not valid for equipment, the design, ratings or operating parameters of which have been varied from the specimen tested. The manufacturer should notify Lloyd's Register EMEA of any modification or changes to the equipment in order to obtain a valid Certificate.

The Design Appraisal Document HTS/ETS 41878-21/MK and its supplementary Type Approval Terms and Conditions form part of this Certificate.

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## Appendix

### DESCRIPTION

Level measurement – Point level detection based on frequency sweep technology

Types:

LBFS-① ② ③ ④ ⑤ . ⑥

① Compliance and approvals

0 Standard

1 ATEX II 1G Ex ia IIC T5/T4 Ga (gas version)

2 ATEX II 1D Ex ta IIIC T100°C Da (dust version)

3 ATEX II 3G Ex nA IIC T5/T4 Gc

4 ATEX II 1G Ex ia IIC T5/T4 Ga / ATEX II 1D Ex ta IIIC T100°C Da (combined gas and dust version)

A cUL listed, E365692

B EAC (TR CU 020/2011)

② Electrical connection

1 M12-A, 4-pin, polycarbonate (with LED)

2 Cable outlet 5 m, 4-wire, PVC

3 M12-A, 4-pin, stainless steel (without LED)

③ Process connection

1 G ½" A - ISO 228-1 (G07)

2 G ¾" A - ISO 228-1 (G10)

3 G 1" A - ISO 228-1 (G11)

4 G ½" A - hygienic (A03)

5 G ½" A - ISO 228-1 for reverse assembly (in-shell thread) (T10)

6 ¾" -14 NPT (N03)

7 M18x1 (M11)

A G ½" A - DIN 3852 form E, NBR gasket (G51)

B G ½" A - DIN 3852 form E, FKM (Viton©) gasket (G51)

N ½"-14 NPT (N02)

④ Process connection material

1 Stainless Steel 1.4301 - AISI 304

2 Stainless Steel 1.4404 - AISI 316L

⑤ Output Configuration

1 PNP output

2 NPN output

⑥ Configuration

1 Factory settings

2 Customer-specific settings