

EU - Type Examination Certificate

(1)

(2) Equipment and protective systems intended for use in potentially explosive atmospheres – **Directive 2014/34/EU**

(3) EU - Type Examination Certificate Number

EPS 13 ATEX 1 547 X

Revision 6

(4) Equipment: Scintillation measuring unit Type LB 4700

(5) Manufacturer: Berthold Technologies GmbH & Co. KG

(6) Address: Calmbacher Str. 22, 75323 Bad Wildbad, Germany

(7) This equipment and any acceptable variation thereto are specified in the annex to this certificate and the documentation therein referred to.

(8) Bureau Veritas Consumer Products Services Germany GmbH, notified body No. 2004 in accordance with Article 21 given in the Directive 2014/34/EU of the European Parliament and of the Council of 26 February 2014, certifies that this equipment has been found to comply with the essential health and safety requirements relating to the design and construction of equipment and protective systems intended for use in potentially explosive atmospheres, given in Annex II of the Directive. The examination and test results are recorded in the confidential documentation under the reference number 12TH0493

(9) Compliance with the essential health and safety requirements has been assured by compliance with:

EN IEC 60079-0:2018

EN 60079-1:2014

EN 60079-31:2014

EN 60079-7:2015/A1:2018

EN 60079-11:2012

(10) If the sign "X" is placed after the certificate number, it indicates that the equipment is subject to special conditions for safe use specified in the annex to this certificate.

(11) This EU - Type Examination Certificate relates only to the design and examination of the specified equipment in accordance with Directive 2014/34/EU. Further requirements of this Directive apply to the manufacture of this equipment and its placing on the market. Those requirements are not covered by this certificate.

(12) The marking of the equipment shall include the following:

II 2G Ex db eb IIC T1-T6 Gb



II 2D Ex tb IIC T80°C / T85°C Db

II 2G Ex db [ib] IIB / IIC T1-T6 Gb

II 2D Ex tb [ib] IIC T85°C Db



Certification department of explosion protection

H. Schaffer



Hamburg, 2020-11-20

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Certificates without signature and seal are void. This certificate is allowed to be distributed only if not modified. Extracts or modifications must be authorized by Bureau Veritas Consumer Products Services Germany GmbH. EPS 13 ATEX 1 547 X, Revision 6.

(13)

Annex

(14) **EU - Type Examination Certificate EPS 13 ATEX 1 547 X**

Revision 6

(15) Description of equipment:

The scintillation measuring unit of the LB 4700 series is part of a measuring system for monitoring industrial processes. It is used for continuously measuring the level in tanks or bins that contain liquid, granular, viscous or encrustation-forming media, and/or measuring conveyor belt charges and the density of liquids, suspensions, slurries and bulk solids. It is also used for continuously measuring level, weight per unit area, ash, sulphur, hydrogen and other specific application. The measuring principle is based on the absorption of gamma rays. The radiation source does not form part of the measuring unit and is therefore not included in the above type approval either. The field of application is the installation in zone 1 or 2 (dust: 21 or 22, resp.). The unit consists of a scintillation detector with the required analyzing electronics, which is housed in flameproof enclosure with connection terminal in increases safety room. The enclosure can be provided with a water-cooling system to be able to cool the electronics system.

Additional options with glass feed through separate enclosure: SuperSENS: LB 4700-3x-., TowerSENS: LB 4700-4x-., InlineSENS: LB 4700-5x-.

Electrical data:

$U_{\max} = 16.8 \text{ V}$

$P_{\max} = 5.0 \text{ W}$

For devices Type LB 4700 - xx - 1B with xx = 11-16,1A,1B, 2A to 2L. 31, 32, 41 to 44

Intrinsic safe type (ib), electrical ratings:

For devices Type LB 4700 – xx - IC with xx = 11-16,1A,1B, 2A to 2L. 31, 32, 41 to 44

Power supply (FSK)

IIB: $U_i = 17.64 \text{ V}$, $I_i = 118 \text{ mA}$, $P_i = 2.0 \text{ W}$, $L_i = 2.7 \mu\text{H}$, $C_i = 2.42 \text{ nF}$

IIC: $U_i = 17.64 \text{ V}$, $I_i = 81 \text{ mA}$, $P_i = 1.4 \text{ W}$, $L_i = 2.7 \mu\text{H}$, $C_i = 2.42 \text{ nF}$

Pt100 circuit

IIB and IIC: $U_o = 16.8 \text{ V}$, $I_o = 33 \text{ mA}$, $P_o = 139 \text{ mW}$, $L_i = 2.7 \mu\text{H}$, $C_i = 2.42 \text{ nF}$

Highest permissible values for outer reactances:

combined	IIB					IIC				
$L_o [\text{mH}]$	5.000	1.000	0.500	0.100	0.010	5.000	1.000	0.500	0.100	0.010
$C_o [\mu\text{F}]$	1.600	2.000	2.000	2.100	2.290	0.290	0.320	0.320	0.340	0.390

(16) Reference number: 12TH0493

(17) Special conditions for safe use:

Only certified components defined by manufacturer can be used.

Repair of flameproof joints is not allowed according to table values of IEC 60079-1.

The ambient temperature range is given by the following table:

Ambient temperature range	Temperature class
$-40\text{ °C} \leq T_a \leq +75\text{ °C}$	T6 / T80 °C
$-40\text{ °C} \leq T_a \leq +80\text{ °C}$	T1-T5 / T85 °C
$-20\text{ °C} \leq T_a \leq +60\text{ °C}$	T1-T6 / T80 °C when using non metallic cable glands

For dust Ex applications high electrostatic charge generating processes shall be excluded.

(18) Essential health and safety requirements:

Met by compliance with standards.



Hamburg, 2020-11-20