



1 **EU-TYPE EXAMINATION CERTIFICATE**

2 Equipment intended for use in Potentially Explosive Atmospheres Directive 2014/34/EU

3 Certificate Number: **Sira 11ATEX1104X** Issue: **4**

4 Equipment: **Range of Linear Position Transducers BTL5 and BTL7**

5 Applicant: **Balluff Inc.**

6 Address: 8125 Holton Drive Florence Kentucky  
41042 USA

7 This equipment and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

8 CSA Group Netherlands B.V., Notified Body Number 2813 in accordance with Articles 17 and 21 of Directive 2014/34/EU of the European Parliament and of the Council, dated 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 intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in the confidential reports listed in Section 14.2.

9 Compliance with the Essential Health and Safety Requirements, with the exception of those listed in the schedule to this certificate, has been assured by compliance with the following documents:

EN 60079-0:2012      EN 60079-1:2014      EN 60079-31:2014      EN 60079-26:2015

10 If the sign 'X' is placed after the certificate number, it indicates that the equipment is subject to Specific Conditions of Use identified in the schedule to this certificate.

11 This EU-Type Examination Certificate relates only to the design and construction of the specified equipment. If applicable, further requirements of this Directive apply to the manufacture and supply of this equipment.

12 The marking of the equipment shall include the following:

**BTL5**



II 1/2GD  
Ex d IIC T6 Ga/Gb  
Ex t IIIC T85°C Da IP68  
T<sub>amb</sub> -50°C to +65°C

or



II 1/2GD  
Ex d IIC T5 Ga/Gb  
Ex t IIIC T100°C Da IP68  
T<sub>amb</sub> -50°C to +80°C

**BTL7**



II 1/2GD  
Ex d IIC T6 Ga/Gb  
Ex t IIIC T85°C Da IP68  
T<sub>amb</sub> -50°C to +70°C

or



II 1/2GD  
Ex d IIC T5 Ga/Gb  
Ex t IIIC T100°C Da IP68  
T<sub>amb</sub> -50°C to +80°C

Project Number 1004

Signed:

Title: Director of Operations

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**CSA Group Netherlands B.V.**  
Utrechtseweg 310,  
6812 AR, Arnhem,  
Netherlands



## SCHEDULE

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#### 13 DESCRIPTION OF EQUIPMENT

The BTL Series Linear Position Transducers are used for linear position measurement feedback applications. The output signal may be a digital pulse output, an analogue voltage or current output that corresponds to measured position. The Linear Position Transducers consist of stainless steel pressure housing and threaded screw on cover, with internal electrical devices rated for voltages 24 Vdc  $\pm$ 20% or in the range 10 Vdc to 30 Vdc, 3 W max for the BTL5 and 10 Vdc to 30 Vdc, 5 W max for the BTL7. The model code breakdown for the BTL series Linear Position Transducers is as follows:

#### Key

- Q** = Quadrature output
- S** = SSI output
- T** = Profibus DP output
- H** = CANopen output
- V** = EtherCAT output
- x** = **5 or 7**
- a** = Digital pulse output: I, K, L, M, N, P or R.
- b** = Analog output: A, B, C, E or G.
- c** = Supply voltage: 1 or 5.
- d** = Analog output signal characteristic: 0, 1 or 7 for BTL5 or 00, 01, 02, 03, 04, 05, 06, 07, 10, 11, 70 for BTL7
- e** = Quadrature output signal frequency: 0, 1, 2 or 6.
- f** = Quadrature output resolution: 0, 1, 2, 3, 5, 6, 7 or 8.
- g** = Quadrature output mode/update rate: 0, 1, 2 or 4.
- h** = SSI output signal type, resolution and mode: Any alpha/numeric code (up to 3 digits) not effecting the Flameproof protection method)
- i** = BTL7 P/M Interface without DPI/IP interface: **10**. BTL7 P/M Interface with DPI/IP interface: **11**. Blank for BTL5.
- j** = Profibus output software configuration: 1, 2 or 3.
- k** = CANbus output software configuration: 1, 2 or 3.
- l** = CANbus output baud rate: 0, 1, 2, 3, 4, 5, 6, 7 or 8.
- m** = Stroke length in millimeters (Maximums: BTL5 = 5080 & BTL7 = 7620)
- n** = Interrogation method (if a = "R", otherwise blank): E or I.
- o** = Recirculation count (if a = "R", otherwise blank): 1 to 16.
- q** = Number of magnets or address setting (Any alpha/numeric code not effecting the Flameproof protection method)
- r** = Protocol type (Any alpha/numeric code not effecting the Flameproof protection method)
- \*** = S or M = Special electrical or internal mechanical modifications not affecting scheduled drawings or the Flame-proof Protection methods and not exceeding 3W for the BTL5 and 5W for the BTL7, followed by a 4 alpha/numeric combination (may also be left blank)
- \*\*** = Entry code: TA12 = one modified 1/2"-14NPT entry and Kp = Certified cable gland with Pre-wired profibus cable length (two digit code represented in meters): 00 to 50

BTLx- <b>aci</b> -Mm-J-DEXC- * - ** -no
BTLx- <b>bcd</b> -Mm-J-DEXC- * - **
BTLx- <b>Qcefg</b> -Mm-J-DEXC- * - **
BTLx- <b>Sch</b> -Mm-J-DEXC- * - **
BTLx- <b>Tcj0</b> -Mm-J-DEXC- * - **
BTLx- <b>Hckl</b> -Mm-J-DEXC- * - **
BTL7- <b>Vcqr</b> -Mm-J-DEXC- * - **

#### Note:

The IP68 rating includes a submersion rating of 167 ft (51 m) for 48 hours (TA model codes).

The IP68 rating includes a submersion rating of 167 ft (51 m) for 30 minutes (Kp model codes).



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**Variation 1** - This variation introduced the following changes:

- i. The introduction of a new model, the Series BTL7, the certification code applicable to this model is:  
Ex d IIC T6 Ga/Gb                                  or                                  Ex d IIC T5 Ga/Gb  
Ex t IIIC T85 Da IP68                              Ex t IIIC T100 Da IP68  
Tamb -50°C to +70°C                              Tamb -50°C to +80°C  
The description was amended to recognise the BTL7 and to revise the model coding.
- ii. Alternative cover materials were allowed to be used: Nitronic 60, SS316L, European equivalents 1.4404, 1.4571, and 14305
- iii. The lower ambient temperature limit of the Series BTL5 was reduced from -20°C to -50°C.
- iv. The cover o-ring was replaced; the new version is made from the same base material as the original, but can be used at lower temperatures.
- v. Following appropriate assessment to demonstrate compliance with the latest technical knowledge, EN 60079-0:2009, EN 60079-1:2007, EN 60079-31:2009 and EN 60079-26:2007 were replaced by EN 60079-0:2012, EN 60079-1:2014, EN 60079-31:2014 and EN 60079-26:2015.

**Variation 2** - This variation introduced the following changes:

- i. The recognition of minor drawing modifications; updated the locking screw, dimensional changes, introduction of tolerances and the updating of the approvals block; these amendments are administrative or involve changes to the design that do not affect the aspects of the product that are relevant to explosion safety.
- ii. The removal of Balluff GmbH Neuhausen Germany from the list of additional manufacturing locations.
- iii. The assessment standards were updated to reflect the standards update conducted on report R70025516 (Variation 1)

**Variation 3** - This variation introduced the following changes:

- i. The recognition of minor drawing modifications. These amendments are administrative or involve changes to the design that do not affect the aspects of the product that are relevant to explosion safety.

## 14 DESCRIPTIVE DOCUMENTS

### 14.1 Drawings

Refer to Certificate Annexe.



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#### 14.2 Associated Sira Reports and Certificate History

Issue	Date	Report number	Comment
0	20 July 11	R2388A/00	The release of the prime certificate.
1	23 December 2015	R70025516A	The introduction of Variation 1.
2	01 March 2017	R70100087A	This Issue covers the following changes: <ul style="list-style-type: none"><li>• EC Type-Examination Certificate in accordance with 94/9/EC updated to EU Type-Examination Certificate in accordance with Directive 2014/34/EU. <i>(In accordance with Article 41 of Directive 2014/34/EU, EC Type-Examination Certificates referring to 94/9/EC that were in existence prior to the date of application of 2014/34/EU (20 April 2016) may be referenced as if they were issued in accordance with Directive 2014/34/EU. Variations to such EC Type-Examination Certificates may continue to bear the original certificate number issued prior to 20 April 2016.)</i></li><li>• The introduction of Variation 2.</li></ul>
3	17 October 2019	R70221320A	The introduction of Variation 3.
4	31 October 2019	1004	Transfer of certificate Sira 11ATEX1104X from Sira Certification Service to CSA Group Netherlands B.V..

#### 15 **SPECIFIC CONDITIONS OF USE** (denoted by X after the certificate number)

- 15.1 When installed across a Zone 0 and Zone 1 boundary, the user/installer shall make sure that the equipment is installed in such a manner to ensure that the joint across the boundary is sufficiently tight in accordance with clause 4.6 of EN 60079-26.

#### 16 **ESSENTIAL HEALTH AND SAFETY REQUIREMENTS OF ANNEX II** (EHSRs)

The relevant EHSRs that are not addressed by the standards listed in this certificate have been identified and individually assessed in the reports listed in Section 14.2.

# Certificate Annexe



**Certificate Number:** Sira 11ATEX1104X  
**Equipment:** Range of Linear Position Transducers BTL5 and BTL7  
**Applicant:** Balluf Inc.

## Issue 0

Drawing	Sheets	Rev.	Date(Sira stamp)	Title
833107	1 of 1	3	06 Jun 11	COVER, ANALOG/DIGITAL EXPLOSION PROOF BTL
833124	1 of 1	2	06 Jun 11	FLANSCH BTL5-J-TA12 EXPLOSION PROOF BTL
833145	1 of 1	3	06 Jun 11	DECKEL BTL5-J-DECX-TA BUS COVER, PROFIBUS
833146	1 of 1	1	06 Jun 11	GROUND CLAMP, ANGLED EXPLOSION PROOF BTL
833147	1 of 1	1	06 Jun 11	GROUND CLAMP, FLAT EXPLOSION PROOF BTL
833149	1 of 1	1	06 Jun 11	BTL5 LINEAR POSITION TRANSDUCER TYPE BTL-J-DEXC-TA12
834394	1 of 1	1	06 Jun 11	HOUSING BTL5-J-TA12 WELDING DWG EXPLOSION PROOF BTL
834611	1 of 2	3	27 Jun 11	NAMEPLATE BTL5-J-TA12 EXPLOSION PROOF BTL
834611	2 of 2	3	06 Jun 11	NAMEPLATE BTL5-J-TA12 EXPLOSION PROOF BTL
834640	1 of 1	1	06 Jun 11	O-RING, 56.87 X 1.78 EXPLOSION PROOF BTL
835679	1 of 1	1	06 Jun 11	TS, SCREW, M4 X 10, DIN 912, A2 EXPLOSION PROOF BTL
838251	1 of 1	1	06 Jun 11	BTL5 LINEAR POSITION TRANSDUCER CANBUS/PROFIBUS
839145	1 of 1	1	06 Jun 11	WI, LOCKING SCREW BTL-5 DECX EXPLOSION PROOF BTL
839146	1 of 1	1	06 Jun 11	CAP, LOCKING SCREW EXPLOSION PROOF BTL
839532	1 of 1	1	06 Jun 11	SCREW, M6 X 25, DIN 912, A2 EXPLOSION PROOF BTL
861571	1 of 1	1	06 Jun 11	Li18C11Y_3GO,75+Li18Y(1x2x0,64AWG24/19)
861590	1 of 1	1	06 Jun 11	Cable Gland
863888	1 of 2	1	27 Jun 11	Name plate BTL5-J-KXX
863888	2 of 2	1	27 Jun 11	Name plate BTL5-J-KXX
863947	-	-	27 Jun 11	User Manual Addendum BLT5-T1_0-M_-J-DEXC-K_ _
863680	-	-	27 Jun 11	User guide BTL5-_-M_-J-DEXC-TA12
T01408	1 of 1	9	06 Jun 11	BTL-Z/5-WAVEGUIDE-TUBE-EXP EXPLOSION PROOF BTL
T01565	1 of 1	5	06 Jun 11	BTL-Z/5-END-PLUG-EXP-PROOF EXPLOSION PROOF BTL

## Issue 1

Drawing	Sheets	Rev.	Date(Sira stamp)	Title
922614	1 of 1	0	21 Dec 15	DECKEL BTL-J-DECX-TA Bus 'AO' (Tall Cover)
922681	1 of 1	0	21 Dec 15	FLANSCH BTL-J-TA12 'AO' (Enclosure)
922613	1 of 1	0	21 Dec 15	DECKEL BTL-J-DECX-TA ANA/DIG 'AO' (Short Cover)
833146	1 of 1	2	21 Dec 15	HALTEBUEGEL BTL-J-DEX-TA 'AO'
922594	1 of 1	0	21 Dec 15	HALTEPLATTE BTL J-DEX-TA 'AO'
922742	1 to 2	0	21 Dec 15	NAMEPLATE BTL-J-TA12 'AO'
922550	1 of 1	0	21 Dec 15	O-Ring, 56.87 X 1.78 FKM/FPM 72 BK 'AO'
922601	1 of 1	0	21 Dec 15	ZYLSHR M4x10-A4-70 AEHNL. DIN912 'AO'
838251	1 of 1	2	21 Dec 15	ASSY DWG BTL-J-DEXC-TA12-BUS 'AO'
922528	1 of 1	0	21 Dec 15	SCREW, M6 X 20, MOD 'AO'
899015	1 of 1	0	21 Dec 15	BTL WAVEGUIDE-TUBE-EXP 'AO'
899014	1 of 1	0	21 Dec 15	BTL END-PLUG-EXP-PROOF 'AO'
833149	1 of 1	2	21 Dec 15	ASSY DWG BTL-J-DEXC-TA12-ANA/DIG 'AO'
834394	1 of 1	2	21 Dec 15	Housing BTL-J-TA12 welding dwg 'AO'
863888	1 to 2	3	21 Dec 15	NAMEPLATE BTL-J-KP 'AO'

## Issue 2

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 Netherlands

# Certificate Annexe



**Certificate Number:** Sira 11ATEX1104X  
**Equipment:** Range of Linear Position Transducers BTL5 and BTL7  
**Applicant:** Balluf Inc.

Drawing	Sheets	Rev.	Date(Sira stamp)	Title
833146	1 of 1	3	27 Jan 17	HALTEBUEGEL BTL-J-DEX-TA 'AO'
833149	1 of 1	3	27 Jan 17	ASSY DWG BTL-J DEXC-TA12-ANA/DIG 'AO'
834394	1 of 1	3	27 Jan 17	Housing BTL-J-TA12 welding dwg 'AO'
838251	1 of 1	3	27 Jan 17	ASSY DWG BTL-J DEC-TA12-BUS 'AO'
899014	1 of 1	1	27 Jan 17	BTL END-PLUG-EXP-PROOF 'AO'
899015	1 of 1	1	27 Jan 17	BTL WAVEGUIDE-TUBE-EXP 'AO'
922528	1 of 1	1	27 Jan 17	Screw, M6 X 20 MOD 'AO'
922550	1 of 1	1	27 Jan 17	O-Ring, 56.87 X 1.78 FMK/FPM 72 BK 'AO'
922594	1 of 1	1	27 Jan 17	HALTEPLATTE BTL J-DE-TA 'AO'
922601	1 of 1	1	27 Jan 17	ZYLSHR M4x10-A4-70 AEHNL. DIN912 'AO'
922613	1 of 1	1	27 Jan 17	DECKEL BTL-J-DEXC-TA ANA/DIG 'AO'
922614	1 of 1	1	27 Jan 17	DECKEL BTL-J-DEXC-TA BUS 'AO'
922681	1 of 1	1	27 Jan 17	FLANSCH BTL-J-TA12 'AO'
922742	1 of 2	1	27 Jan 17	NAMEPLATE BTL-J-TA12 'AO'
922742	2 of 2	1	27 Jan 17	NAMEPLATE BTL-J-TA12 'AO'
924216	1 of 2	1	27 Jan 17	NAMEPLATE BTL-J-Kp 'AO'
924216	2 of 2	1	27 Jan 17	NAMEPLATE BTL-J-Kp 'AO'

## Issue 3

Drawing	Sheets	Rev.	Date(Sira stamp)	Title
833146	1 of 1	4	23 Sep 2019	HALTEBUEGEL BTL-J-DEX-TA 'AO'
833149	1 of 1	4	23 Sep 2019	ASSY DWG BTL-J-DEXC-TA12-ANA/DIG 'AO'
834394	1 of 1	5	23 Sep 2019	Housing BTL-J-TA12 welding dwg 'AO'
838251	1 of 1	4	23 Sep 2019	ASSY DWG BTL-J-DEXC-TA12-BUS 'AO'
899014	1 of 1	2	23 Sep 2019	BTL END-PLUG-EXP-PROOF 'AO'
899015	1 of 1	3	23 Sep 2019	BTL WAVEGUIDE-TUBE-EXP 'AO'
922528	1 of 1	2	23 Sep 2019	Screw, M6 X 20 MOD 'AO'
922550	1 of 1	2	23 Sep 2019	O-Ring, 56.87 X 1.78 FKM/FPM 72 BK 'AO'
922594	1 of 1	2	23 Sep 2019	HALTEPLATTE BTL J-DEX-TA 'AO'
922601	1 of 1	3	23 Sep 2019	ZYLSHR M4x10-A4-70 AEHNL. DIN912 'AO'
922613	1 of 1	2	23 Sep 2019	DECKEL BTL-J-DEXC-TA ANA/DIG 'AO'
922614	1 of 1	2	23 Sep 2019	DECKEL BTL-J-DEXC-TA BUS 'AO'
922681	1 of 1	2	23 Sep 2019	FLANSCH BTL-J-TA12 'AO'
922742	1 to 2	2	23 Sep 2019	NAMEPLATE BTL-J-TA12 'AO'
924216	1 to 2	2	23 Sep 2019	NAMEPLATE BTL-J-KXX 'AO'

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