

1 **EU - TYPE EXAMINATION CERTIFICATE**

2 **Equipment or Protective System Intended for use in Potentially Explosive Atmospheres
Directive 2014/34/EU**

3 EU - Type Examination Certificate **BAS01ATEX2301X – Issue 4**
Number:

3.1 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. Supplementary Certificates to such EC-Type Examination Certificates, and new issues of such certificates, may continue to bear the original certificate number issued prior to 20 April 2016.

4 Product: **Advent Hand Tachometer Type A2109**

5 Manufacturer: **Compact Instruments Limited**

6 Address: **61-65 Lever Street, Bolton, Lancashire, BL3 2AB**

7 This re-issued certificate extends EC Type Examination Certificate No. **BAS01ATEX2301X** to apply to product designed and constructed in accordance with the specification set out in the Schedule of the said certificate but having any variations specified in the Schedule attached to this certificate and the documents therein referred to.

8 SGS Fimko Oy, Notified Body number 0598, in accordance with Article 17 of Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, certifies that this product has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of products intended for use in potentially explosive atmospheres given in Annex II to the Directive.

8.1 The original certificate was issued by The Electrical Equipment Certification Service (UK Notified Body 0600). It, and any supplements previously issued by SGS Baseefa Ltd (UK Notified Body 1180) have been transferred to the supervision of SGS Fimko Oy (EU Notified Body 0598). The original certificate number is retained.

The examination and test results are recorded in confidential Report No. **See Certificate History**

9 Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN IEC 60079-0: 2018 EN 60079-11: 2012 EN 60079-28: 2015

except in respect of those requirements listed at item 18 of the Schedule.

10 If the sign “X” is placed after the certificate number, it indicates that the product is subject to the Specific Conditions of Use specified in the schedule to this certificate.

11 This EU - TYPE EXAMINATION CERTIFICATE relates only to the design and construction of the specified product. Further requirements of the Directive apply to the manufacturing process and supply of this product. These are not covered by this certificate.

12 The marking of the product shall include the following:

Ⓢ II 2 G Ex ia op is IIC T4 Gb

SGS Fimko Oy Customer Reference No. **4099**


Project File No. **21/0354**

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Schedule

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Certificate Number BAS01ATEX2301X – Issue 4

15 Description of Product

The Advent Hand Tachometer Type A2109 is a hand held instrument designed to measure the speed of rotating shafts. It produces either an optical beam using photo diodes or a laser beam using laser diodes. The reflection of the beam from a reflective surface on a rotating shaft is detected by a sensor in the Tachometer. The Tachometer may be used with a contact adapter fitted to the front which is held against a rotating shaft. The contact adapter has a permanent magnet that rotates to produce a rotating field which is sensed by the instrument.

The Tachometer contains electronic components and an LCD display mounted on a printed circuit board (PCB). The instrument is internally powered using 4 x Duracell size AAA alkaline cells. The electrical components are enclosed in a chrome plated plastic housing with separate compartments for the PCB and the battery. The instrument has a transparent window for the display and the battery compartment is fitted with a cover which is secured using fixing. The Tachometer has an optional Rear Plug to which external diagnostic instruments may be connected.

The Type number may be suffixed with various characters to signify the following variants:

A2109/LSR/*** Laser output

A2019/LED/*** LED output

*** is replaced by 002 when Tachometer fitted with a 5-pin rear plug

*** is left blank when Tachometer not fitted with a rear plug

Input Parameters

At the Rear Plug: Pin 4 w.r.t. Pin 3:

$$U_i = 10.1V$$

Output Parameters

At the Rear Plug: Pin 4 w.r.t. Pin 3:

$$U_o = 6.6 V$$

$$I_o = 0.3 mA$$

$$P_o = 0.43 mW$$

$$L_o = 700 mH$$

$$C_o = 22 \mu F$$

$$L_o/R_o = 68mH/\Omega$$

$$L_i = 0$$

$$C_i = 0$$

At the Rear Plug: Pin 1 w.r.t. Pin 2:

$$U_o = 6.6 V$$

$$I_o = 463 mA$$

$$P_o = 0.63 mW$$

$$L_o = 0.17 mH$$

$$C_o = 22 \mu F$$

$$L_o/R_o = 49mH/\Omega$$

$$L_i = 0$$

$$C_i = 2.245\mu F$$

16 Report Number

21(C)0354

17 Specific Conditions of Use

1. The Tachometer fitted with a contact adapter presents a potential risk of frictional ignition and must not be used continuously for more than 10 seconds.

18 Essential Health and Safety Requirements

In addition to the Essential Health and Safety Requirements (EHSRs) covered by the standards listed at item 9, the following are considered relevant to this product, and conformity is demonstrated in the report:

Clause	Subject
1.2.7	LVD type requirements
1.2.8	Overloading of equipment (protection relays, etc.)
1.4.1	External effects
1.4.2	Aggressive substances, etc.

19 Drawings and Documents

New drawings submitted for this issue of certificate:

Number	Sheet	Issue	Date	Description
001284	1 of 1	1.5	28-09-21	A2109 Label Details
P0478	1 of 1	1.5	28-09-21	A2109 Case Label Details

Current drawings which remain unaffected by this issue:

Number	Sheet	Issue	Date	Description
P0477	1 of 1	1.3	24.11.09	Contact Adapter
P0475	1 of 1	1.3	08.03.10	Chrome masking base details
P0476	1 of 1	1.3	08.03.10	Chrome masking top details
P0479	1 of 1	1.2	24.11.09	PCB Sub assembly with LED
P0472	1 of 1	1.3	24.11.09	PCB Sub assembly with LSR
P0473	1 of 1	1.2	07.08.01	PCB Component layout
001285	1 of 1	1.2	02.07.13	A2109/LSR PCB Artwork
P0474	1 of 1	1.4	12.02.14	A2109 Advent Assembly
C001015	1 of 1	1.3	8-Jul-2013	A2109 I.S. Tachometer Circuit

20 Certificate History

Certificate No.	Date	Comments
BAS01ATEX2301X	10 September 2001	The release of the prime certificate. The associated test and assessment against the requirements of EN 50014:1997 + Amds 1 & 2 and EN 50020:1994 is documented in Test Report No. 99(C)0950.
BAS01ATEX2301X/1	22 March 2010	This issue of the certificate incorporates the use of a static-dissipative coating on the enclosure, an alternative plastic for the enclosure which is static-dissipative and minor drawing changes which do not affect the original assessment.
BAS01ATEX2301X Issue 2	30 April 2014	This issue of the certificate incorporates previously issued primary & supplementary certificates into one certificate and confirms the current design meets the requirements of EN 60079-0:2012, EN 60079-11:2012 and EN 60079-28:2007 including the revision of the equipment marking in accordance with these standards.
BAS01ATEX2301X Issue 3	9 July 2015	This issue of the certificate incorporates the use of an alternative Industrial by Duracell Alkaline, Model: LR03, 1.5V, Size AAA batteries. The associated test and assessment is documented in Test Report No: 15(C)0406.
BAS01ATEX2301X Issue 4	11 February 2022	This issue confirms the current design meets the requirements of EN IEC 60079-0: 2018 and EN 60079-28: 2015 including the revision of the equipment marking in accordance with these standards. The variation permits a minor label update to incorporate additional certification marks. The test and assessment are recorded in certification report 21(C)0354 and held with Project No. 21/0354.
For drawings applicable to each issue, see original of that issue.		