

TYPE-EXAMINATION CERTIFICATE

1. **Type-examination Certificate (Module A)**
2. **Equipment or Protective System intended for use in potentially explosive atmospheres (Directive 2014/34/EU)**
3. **Type examination certificate Nr** **ITS09ATEX46246X R.1**



4. **Product:** VR Speed Sensors 70085-1010-216, 70085-1010-235, 70085-101023534, 70085-1010-245, 70085-1010-249, 70085-1010-392, 70085-1010-403, 70085-1010-404, 70085-1010-405, 70085-1010-406, 70085-101040630, 70085-1010-415, 70085-1010-416, 70085-1010-417, 70085-101041730, 70085-1010-420, 70085-101042030, 70085-1010-540, 70085-1010-541, 70085-1010-542, 70085-1010-543, 70085-1010-544, 70085-101040430
5. **Manufacturer:** AI-TEK INSTRUMENTS, LLC **Applicant:** AI-TEK INSTRUMENTS, LLC
6. **Address:** 152 Knotter Drive
Cheshire, CT 06410
USA **Address:** 152 Knotter Drive
Cheshire, CT 06410
USA

7. This product and any acceptable variation thereto are specified in the schedule to this certificate and therein referred to.
8. INTERTEK ITALIA S.p.A., certifies that the equipment or protective system has been found to comply with the essential Health and Safety Requirements relating to the design and construction of equipment and protective system intended for use in potentially explosive atmosphere, given in Annex II of the Directive.

The examination and tests results are recorded in confidential technical evaluation Intertek Report Nr. 3175070DAL-001 dated 13 April 2009, G101241016A dated August 2013, 102149272BOX-003 a-f dated 29-April-2016, 102733576BOX-001a, 102733576BOX-001b, and 102733576BOX-001c, dated 26 October 2016, 103481718CRT-005A, 103481718CRT-005B dated 26 April 2018 and 104722465DAL-008, dated 2022-03-24
9. Compliance with the Essential Health and Safety Requirements has been assured by compliance with EN IEC 60079-0:2018 and EN 60079-7:2015+A1:2018 except in respect of those requirements referred to at item 16 of the Schedule
10. If the sign X is placed after the certificate number, it indicates that the product is subject to Special Conditions for Safe Use specified in the schedule to this certificate.
11. This 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 3 G
Ex ec IIC T2 Gc
Tamb: -20°C to +220°C

26 April 2022

Certificate issue date

Todd L. Relyea
Certification Officer
Intertek Italia S.p.A.

This certificate has been issued by Intertek Italia S.p.A. on transfer from Intertek Testing & Certification Ltd. using the same issued original certificate number.



This Certificate is for the exclusive use of Intertek's client and is provided pursuant to the agreement between Intertek and its Client. Intertek's responsibility and liability are limited to the terms and conditions of the agreement. Intertek assumes no liability to any party, other than to the Client in accordance with the agreement, for any loss, expense or damage occasioned by the use of this Certificate. Only the Client is authorized to permit copying or distribution of this Certificate and then only in its entirety. Any use of the Intertek name or one of its marks for the sale or advertisement of the tested material, product or service must first be approved in writing by Intertek.

Intertek Italia S.p.A. Via Miglioli, 2/A - 20063 Cernusco sul Naviglio, Milano - Italy

LFT-EMEA-IT-ATEX-OP-23p (29 August 2019)



SCHEDULE

TYPE EXAMINATION CERTIFICATE NUMBER: ITS09ATEX46246X R.1

13. DESCRIPTION OF THE EQUIPMENT OR PROTECTIVE SYSTEM

The Variable Reluctance Speed Sensors, 70085-1010-XXX, 70085-1010XXX30, generate an alternating current with a frequency proportional to the speed of a target (gear) that is spinning in front of it. The amplitude of the output voltage is determined by the air-gap between the target and sensor face and the target velocity.

The product itself encompasses a hex nut-shaped enclosure with non-arcng coils and flying leads used to power up the device. The inner portion of the enclosure is fully encapsulated.

All models are similar in construction, except for the length of the threaded end of the housing, or the length of the cable, as follows:

70085-1010-XXX and 70085-1010XXX30

XXX = Length of threaded end of housing

(404 = 1.610", 406 = 2.80", 417 = 4.02", 420 = 6.02")

30 = 30' cable length (if not specified, cable length is 15')

Voltage output to be 13.4 Volts peak to peak minimum when sensing an 8 pitch, 12 tooth steel gear with a 10 kohm load, and air gap of 0.030" (0.762mm) and a surface speed of 500 IPS (12.7M/S)

Marking Label identifies different part numbers to different 'materials' but that is only referring to the different housings which are used for the different products. As explained above, the housings are all similar but have different lengths and diameters. Housing is made of 303 Stainless Steel per AMS 5640 / ASTM A582 / AMS-QQ-S-764

Model Similarity:

P/N	THREAD LENGTH (mm)	CABLE LENGTH (m)	OUTPUT CHARACTERISTICS
70085-1010-404	38.1	4.572	13.4V, 170-210ohms, 75mH max
70085-1010-406	69.85	4.572	13.4V, 170-210ohms, 75mH max
70085-101040630	69.85	9.144	13.4V, 170-210ohms, 75mH max
70085-1010-417	101.6	4.572	13.4V, 170-210ohms, 75mH max
70085-1010-420	152.4	4.572	13.4V, 170-210ohms, 75mH max
70085-101042030	152.4	9.144	13.4V, 170-210ohms, 75mH max
70085-1010-216	38.1	4.572	9.4V, 580-660ohms, 210mH max
70085-1010-235	38.1	4.572	13.4V, 170-210ohms, 75mH max
70085-101023534	38.1	10.16	13.4V, 170-210ohms, 75mH max
70085-1010-245	69.85	4.572	9.4V, 580-660ohms, 210mH max



SCHEDULE

TYPE EXAMINATION CERTIFICATE NUMBER: ITS09ATEX46246X R.1

70085-1010-249	38.1	4.572	13.4V, 170-210ohms, 75mH max
70085-1010-392	69.85	4.572	13.4V, 170-210ohms, 75mH max
70085-1010-403	38.1	4.572	9.4V, 580-660ohms, 210mH max
70085-1010-405	69.85	4.572	9.4V, 580-660ohms, 210mH max
70085-1010-415	101.6	4.572	9.4V, 580-660ohms, 210mH max
70085-1010-416	152.4	4.572	9.4V, 580-660ohms, 210mH max
70085-1010-540	101.6	4.572	13.4V, 170-210ohms, 75mH max
70085-1010-541	47.75	4.572	13.4V, 170-210ohms, 75mH max
70085-1010-542	69.85	4.572	13.4V, 170-210ohms, 75mH max
70085-1010-543	152.4	4.572	13.4V, 170-210ohms, 75mH max
70085-1010-544	47.75	4.572	13.4V, 170-210ohms, 75mH max
70085-101040430	38.1	9.144	13.4V, 170-210ohms, 75mH max
70085-101041730	101.6	9.144	13.4V, 170-210ohms, 75mH max

14. DRAWINGS AND DOCUMENTS

TITLE	DOCUMENT Nr	LEVEL	DATE
*HOUSING, MARKED FM / ATEX / IECEx ZONE 2	097-0939	N	08/20/21
cETLus / IECEx	70085-1010-404	K	4/27/16
SENSOR, SPEED, FM / ATEX / cETLus / IECEx	70085-1010-406	K	4/27/16
SENSOR, SPEED, FM / ATEX / cETLus / IECEx	70085-1010-417	K	4/27/16
SENSOR, SPEED, FM / ATEX / cETLus / IECEx	70085-1010-420	K	4/27/16
SENSOR, SPEED, FM / ATEX / cETLus / IECEx	70085-101040430	C	4/27/16
SENSOR, SPEED, FM / ATEX / cETLus / IECEx	70085-101040630	C	4/27/16
SENSOR, SPEED, FM / ATEX / cETLus / IECEx	70085-101041730	C	4/27/16
SENSOR, SPEED, FM / ATEX / cETLus / IECEx	70085-101042030	C	4/27/16



SCHEDULE

TYPE EXAMINATION CERTIFICATE NUMBER: ITS09ATEX46246X R.1

TITLE	DOCUMENT Nr	LEVEL	DATE
*DECLARATION OF CONFORMITY	960-0124-001	L	08/20/21
MAGNETIC PICKUP REQUIRED WIRING FOR INTRINSICALLY SAFE INSTALLATION	906-0547-001	E	6/21/16
*INSTALLATION INSTRUCTIONS SPEED SENSORS ATEX ZONE 2	960-0125-001	G	08/20/21
BOBBIN	017-0330	D	12/14/2017
*SENSOR, SPEED	700-0211	AA	03/03/17
*SENSOR, SPEED, FACTORY MUTUAL (FM)/ATEX	70085-1010-216	L	08/20/2021
*SENSOR, SPEED, FACTORY MUTUAL (FM)/ATEX	70085-1010-235	K	08/20/2021
*SENSOR, SPEED, ATEX	70085-101023534	D	08/20/2021
*SENSOR, SPEED, FACTORY MUTUAL (FM)/ATEX	70085-1010-245	K	08/20/2021
*SENSOR, SPEED, FACTORY MUTUAL (FM)/ATEX	70085-1010-249	K	08/20/2021
*SENSOR, SPEED, FACTORY MUTUAL (FM)/ATEX	70085-1010-392	K	08/20/2021
*SENSOR, SPEED, FACTORY MUTUAL (FM)/ATEX	70085-1010-403	J	08/20/2021
*SENSOR, SPEED, FACTORY MUTUAL (FM)/ATEX	70085-1010-405	J	08/20/2021
*SENSOR, SPEED, FACTORY MUTUAL (FM)/ATEX	70085-1010-415	J	08/20/2021
*SENSOR, SPEED, FACTORY MUTUAL (FM)/ATEX	70085-1010-416	J	08/20/2021
*SENSOR, SPEED, FM/ATEX/CE	70085-1010-540	C	08/20/2021
*SENSOR, SPEED, FM/ATEX/CE	70085-1010-541	C	08/20/2021
*SENSOR, SPEED, FM/ATEX/CE	70085-1010-542	C	08/20/2021
*SENSOR, SPEED, FM/ATEX/CE	70085-1010-543	C	08/20/2021
*SENSOR, SPEED, FM/ATEX/CE	70085-1010-544	C	08/20/2021

Copies of the above listed documents are kept at Intertek Italia S.p.A. archive.

15. SPECIAL CONDITIONS FOR SAFE USE

- A suitable conduit and fitting or cable gland, Ex certified to IP54 or better, must be used for the exit of the cable from the sensor
- The flying leads shall be terminated in a suitable Ex approved terminal enclosure when terminated in a classified (Zoned) area.



SCHEDULE

TYPE EXAMINATION CERTIFICATE NUMBER: ITS09ATEX46246X R.1

- These devices shall only be installed in applications where the operating temperature is between -20°C and +220°C
- These sensors are considered to be inherently benign in the context of the EMC Directive 2004/108/EC, Article 1 (3).

16. ESSENTIAL HEALTH AND SAFETY REQUIREMENTS

The relevant essential Health and Safety Requirements have been identified and assessed in Intertek Report Nr. 3175070DAL-001 dated 13 April 2009, G101241016A dated August 2013, 102149272BOX-003 a-f dated 29-April-2016, 102733576BOX-001a, 102733576BOX-001b, and 102733576BOX-001c, dated 26 October 2016, 103481718CRT-005A, 103481718CRT-005B dated 26 April 2018 and 104722465DAL-008, dated 2022-03-24

17. ROUTINE (FACTORY) TESTS

Electric Strength Test via EN 60079-7 Clause 6.1:

- 500 Vrms (850 Vdc), 60 seconds, from coil to case, or
- 600 Vrms (1020 Vdc), 100ms, from coil to case

18. DETAIL OF CERTIFICATE CHANGES

- Updated item 4 Product from “VR Speed Sensors, 70085-1010-404, 70085-101-406, 70085-101-417, 70085-101-420, 70085-10140430, 70085-10140630, 70085-10141630, 70085-10142030” to “VR Speed Sensors 70085-1010-216, 70085-1010-235, 70085-101023534, 70085-1010-245, 70085-1010-249, 70085-1010-392, 70085-1010-403, 70085-1010-404, 70085-1010-405, 70085-1010-406, 70085-101040630, 70085-1010-415, 70085-1010-416, 70085-1010-417, 70085-101041730, 70085-1010-420, 70085-101042030, 70085-1010-540, 70085-1010-541, 70085-1010-542, 70085-1010-543, 70085-1010-544, 70085-101040430”
- Updated item 9 Standard from “EN 60079-0:2012+A11: 2013 and EN 60079-15: 2010” to “EN IEC 60079-0:2018 and EN 60079-7:2015+A1:2018”
- Updated item 12 Marking from “II 3G Ex nA IIC T2 Gc” to “II 3G Ex ec IIC T2 Gc”
- Added Model Similarity in Item 13 DESCRIPTION OF THE EQUIPMENT OR PROTECTIVE SYSTEM
- Updated item 17 from “EN 60079-15 Clause 6.5” to “EN 60079-7 Clause 6.1”
- Updated drawings in Item 14:
 - 097-0939 from “Rev L Date 06/22/16” to “Rev N Date 08/20/21”
 - 960-0124-001 from “Rev H Date 04/27/16” to “Rev L Date 08/20/21”
 - 960-0125-001 from “Rev G Date 06/22/16” to “Rev J Date 08/20/21”
 - 700-0211 from “Rev Y Date 04/27/16” to “Rev AA Date 03/03/17”
- Added new drawings in Item 14:
 - 70085-1010216 Rev L Date 08/20/2021
 - 70085-1010-235 Rev K Date 08/20/2021
 - 70085-101023534 Rev D Date 08/20/2021
 - 70085-1010-245 Rev K Date 08/20/2021
 - 70085-1010-249 Rev K Date 08/20/2021
 - 70085-1010-392 Rev K Date 08/20/2021
 - 70085-1010-403 Rev J Date 08/20/2021
 - 70085-1010-405 Rev J Date 08/20/2021
 - 70085-1010-415 Rev J Date 08/20/2021
 - 70085-1010-416 Rev J Date 08/20/2021
 - 70085-1010-540 Rev C Date 08/20/2021



SCHEDULE

TYPE EXAMINATION CERTIFICATE NUMBER: ITS09ATEX46246X R.1

- 70085-1010-541 Rev C Date 08/20/2021
- 70085-1010-542 Rev C Date 08/20/2021
- 70085-1010-543 Rev C Date 08/20/2021
- 70085-1010-544 Rev C Date 08/20/2021