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Registro Imprese di Milano
Sezione Ordinaria
N. R.E.A. 429222
P.I. IT00793580150

Schema di certificazione

CESI-ATEX

CERTIFICATE

[1] EC-TYPE EXAMINATION CERTIFICATE

[2] **Equipment or Protective System intended for use in potentially explosive atmospheres Directive 94/9/EC**

[3] EC-Type Examination Certificate number:

CESI 08 ATEX 013

[4] Equipment: **Incremental Encoder series XC77 and Absolute Encoder series XAC77**

[5] Manufacturer: **Lika Electronic s.n.c.**

[6] Address: **Via S. Lorenzo 25, 36010 Carrè (Vi) - Italy**

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

[8] CESI, notified body n. 0722 in accordance with Article 9 of the Council Directive 94/9/EC of 23 March 1994, certifies that this 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 systems intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in confidential report n. A8008869

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

EN 60079-0 :2004 EN 60079-1:2007 EN 61241-0 :2006 EN 61241-1 :2004

[10] If the sign "X" is placed after the certificate number, it indicates that the equipment or protective system is subject to special conditions for safe use specified in the schedule to this certificate.

[11] This EC-TYPE EXAMINATION CERTIFICATE relates only to the design, examination and tests of the specified equipment or protective system in accordance to the Directive 94/9/EC. Further requirements of the Directive apply to the manufacturing process and supply of this equipment or protective system. These are not covered by this certificate.

[12] The marking of the equipment or protective system shall include the following:

II 2GD Ex d IIC T6, Ex tD A21 IP65 T 85°C

Date 28.04.2008 - **Translation issued the** 28.04.2008

Prepared	**Verified**	**Approved**
Gaetano Baldini	Mirko Balaz	Fiorenzo Bregani

CESI S.p.A.
Energy Division
"Certification Technical Department"
The Manager

[13] **Schedule**

[14] **EC-TYPE EXAMINATION CERTIFICATE n. CESI 08 ATEX 013**

[15] **Description of equipment**

The encoder is a rotating transducer that converts an angular position of the shaft into a digital electric signal. This electro-mechanical equipment is able to detect angular displacements and to estimate rotating speeds and accelerations by dedicated electronic and/or mechanical interfaces. The translation from mechanical motion to digital signal is obtained by photo-electric reading from an infrared led joined to a light beam collimator: emitted light hits a glass disk supplied by dark and transparent marks; escaped light rays are then gathered by a phototransistor set. The obtained signal are digitalized by a comparator device.

XC77 Incremental Encoder

Position is determined by counting pulses relative to the zero track.

XAC77 Absolute Encoder

Position is evaluated by reading output code, that is unique for every shaft position. Such devices keep then effective position data in the case of power fail and they not need the zero mark search when restart is carried out, as incremental encoder has to search.

Bulk and flange of both the encoders are made of anticorodal (EN AW-6082 aluminium alloy), while shaft and ring nut are made of 1.4305 stainless steel. The flange is screwed to the bulk.

The identification mark of the encoders is detailed in the descriptive documents here enclosed.

Electrical and mechanical characteristics

XC77 Encoder

Supply voltage:	5 V dc, 5 Vdc -30 Vdc, 10 Vdc -30 Vdc
No load maximum current:	70 mA
Maximum output current for every channel	40 mA
Output:	NPN, Push-Pull, Line Driver, PP/LD

XAC77 Encoder

Supply voltage:	10Vdc - 30 Vdc
No load max current:	150 mA
Max output current for every channel	40 mA
Output/Code	NPN, Push-Pull, SSI / Binario, Gray

Max rotation speed:	6000 rpm
Electrical protection:	Polarity inversion and short circuit.
Max shaft load:	60 N (axial and radial)
Degree of protection:	IP65 (EN 60529:1997)
Temperature class:	T6
Max surface temperature:	T 85 °C
Ambient temperature:	-20 °C ≤ Ta ≤ +40 °C

Cables entries

The accessories used for cable entries and for unused holes shall be subject of separate certification: in the unit of category II 2GD shall be certified according to the Standards: EN 60079-0, EN 60079-1 and EN 61241-1 and shall guarantee a degree of protection IP65 according to EN 60529 Standard.

[13] **Schedule**

[14] **EC-TYPE EXAMINATION CERTIFICATE n. CESI 08 ATEX 013**

[16] **Report n.** A8008869

Routine tests

Manufacturer shall carry out the routine tests and checkouts prescribed at paragraph 27 of the EN 60079-0 and at paragraph 24 of the EN 61241-0 Standards. Manufacturer is not charged of overpressure test because the equipments have passed the overpressure test carried out by the static method using four times the reference pressure (28 bar).

Descriptive documents (prot. A8008877)

-	Encoder Technical File series XC77 - XAC77		2 sheets	19/03/2008
-	Absolute Encoder series XAC77 – ROTACOD Description		2 sheets	
-	LKM 1362 XA77 Bulk – Radial	rev. 3	1 sheet	26/07/2007
-	LKM 1367 XA77 Bulk – Axial	rev. 3	1 sheet	26/07/2007
-	Incremental Encoder XC77 – ROTAPLUS Description		2 sheets	
-	LKM 1368 XC77 Bulk	rev. 3	1 sheet	25/07/2007
-	Sez. 4300 XC77 + XAC77 (radial and axial cable) Hollow shaft Φ14	rev. 3	3 sheets	26/07/2007
-	LKM 1363 XC77 and XAC77 Empty Axis	rev. 3	1 sheet	26/07/2007
-	LKM 1361 XC77 e XAC77 Flange	rev. 3	1 sheet	25/07/2007
-	LKM 1481 XC77 e XAC77 Ring nut	rev. 1	1 sheet	14/02/2006
-	LKM 1364 XC77 e XAC77 Blocked Axis Ring nut	rev. 2	1 sheet	14/02/2006
-	Technical data sheet FKM		1 sheet	19/05/2006
-	Technical data sheet FKM 75.16-01 O-ring		2 sheets	25/10/2005
-	LKM 1551 XC77-XAC77 Plate	rev. 3	1 sheet	28/04/2008
-	Technical data sheet metalized polyester label (Brady)		3 sheets	
-	XC77 e XAC77 Safety Instructions		2 sheets	19/03/2008
-	CE Conformity Declaration	N. 4	1 sheet	19/03/2008

One copy of all documents is kept in CESI files.

[17] **Special conditions for safe use**

None.

[18] **Essential Health and Safety Requirements**

Guaranteed by the compliance to the mentioned Standards.

CESI

EXTENSION n. 01/15

to Type Examination Certificate CESI 08 ATEX 013

Equipment: Incremental encoder series XC77 and absolute encoder series XAC77

Manufacturer: Lika Electronic Srl

Address: Via San Lorenzo, 25
36010 Carrè (VI)
Italy

Admitted variation

- *Changing of the company name:*

from:	**Lika Electronic Snc**	*to:*	**Lika Electronic Srl**

- *Updating to the following reference standards:*
  EN 60079-0: 2012+A11:2013,
  EN 60079-1: 2007,
  EN 60079-31: 2009.

- *Addition of the possibility to mark for* gas group IIB.

- *Constructive changes:*
  Addition of the possibility of using stainless steel enclosures,
  Addition of the possibility of having absolute encoders with reduced length enclosures,
  Addition of external mounting kits and other small changes not influencing the type of protection.

- *Updating of the ATEX marking on the plate:*

  II 2G Ex d IIC T6 Gb
  Or
  II 2G Ex d IIB T6 Gb

  II 2D Ex tb IIIC T85°C Db

This extension and annexed descriptive documents must be annexed to the Type Examination Certificate CESI 08 ATEX 013.

This document may only be reproduced in its entirety and without any change.

Date 1/04/2015 - translation issued on 1st April 2015

Prepared	**Verified**	**Approved**
Tiziano COLA	Mirko BALAŽ	Roberto PICCIN

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P.I. IT00793580150
N. R.E.A. 429222

EXTENSION n. 01/15

to Type Examination Certificate CESI 08 ATEX 013

Description of equipment

With this extension it is added the possibility of making the enclosure in stainless steel besides aluminium which was foreseen in the original certificate. The apparatus, without any constructive variation, can be marked IIB in order to simplify the selection of the cable gland. It is also added the possibility, as shown in the annexed documents, of making the enclosures of the absolute encoders a little shorter than in the original certificate.
The possibility, added with this extension, of supplying together with the encoder two mounting kits, does not affect the adopted type of protection.

The equipment mounting stainless steel enclosures are identified by a code ("S613") which is appended at the end of the apparatus encoding:

XC77 *dddd*	Incremental encoder having an aluminium enclosure
XC77 *dddd* **/S613**	Incremental encoder having a stainless steel enclosure
XAC77 *dddd*	Absolute encoder having an aluminium enclosure
XAC77 *dddd* **/S613**	Absolute encoder having a stainless steel enclosure

The fields identified by the characters "dddd" locate the part of the code containing information useful for the type of application but irrelevant for the protection of the apparatus.

Electrical characteristics

Electrical data are unchanged respect to the original certificate. According to the new reference standards the marking to be put on the plate has been modified:

ATEX marking:	II 2GD		
Marking for the gas protection:	Ex d IIC T6 Gb	or	Ex d IIB T6 Gb
Marking for the combustible dusts:	Ex tb IIIC T85°C Db		

Cable entries

Accessories used for the cables entry shall be subject of independent certification according to the standard EN 60079-0, EN 60079-1 and EN 60079-31 and guarantee a minimum protection level IP65 according to the standard EN 60529. For the selection of the cable gland follow the prescription of the standard EN 60079-14 and keep into account the marking of the encoder (gas group IIB or IIC).

Warning labels

None.

Report n. EX-B5006802

Routine tests

The manufacturer is exempted from carrying out the routine overpressure tests on the enclosures as they have overcome the type tests carried out with the static method at 28 bar, equal to 4 times the reference pressure.

EXTENSION n. 01/15

to Type Examination Certificate CESI 08 ATEX 013

Descriptive documents (prot. EX-B5006808)

Technical note encoder series XC77-XAC77 (2 pages)	dated	2015/03/30
Safety instructions encoder series XC77-XAC77 (2 pages)	dated	2015/03/30
Drawing n. KIT_LKM1520 rev. A (mounting kit 1: flange)	dated	2014/12/15
Drawing n. KIT_LKM-1758 rev. A (mounting kit 2: shaft)	dated	2014/12/15
Drawing n. LKM_001363 rev. A	dated	2014/12/01
Drawing n. LKM_001363_MO rev. A	dated	2014/12/02
Drawing plate n. LKM_1551 rev. 5	dated	2015/03/30
Drawing n. SEZ_4300 rev. A (3 pages)	dated	2014/03/03
Drawing n. PF_4300 rev. A	dated	2014/12/10
Drawing n. PF_4301 rev. A	dated	2014/12/10
Drawing n. PF_4302 rev. A	dated	2014/12/10
Data sheet ROTACOD absolute encoder XAC77 (3 pages)		
Data sheet ROTAPULS incremental encoder XC77 (2 pages)		
Data sheets shaft sealing ring (9 pages)		
Facsimile EC declaration of conformity		

One copy of all the descriptive documents mentioned above is kept in CESI files.

Special conditions for safe use

None.

Essential Health and Safety Requirements

Essential health and safety requirements are covered by compliance to the following standards:

- EN 60079-0: 2012 + A11: 2013 Explosive atmospheres
  Part 0: Equipment - General requirements;
- EN 60079-1 : 2007 Explosive atmospheres
  Part 1: Equipment protection by flameproof enclosures "d";
- EN 60079-31 : 2009 Explosive atmospheres
  Part 31: Equipment dust ignition protection by enclosure “t”.

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NOTIFICATION

[1] NOTIFICATION OF CONFORMITY TO TYPE BASED ON PRODUCT QUALITY ASSURANCE

[2] **Directive 2014/34/EU: "Equipment, Components and Protective Systems intended for use in potentially explosive atmospheres"**

[3] Notification number: **CESI 16 ATEX 005 Q**

[4] Equipment or component type: Shaft encoders

Protection concepts: Flameproof enclosures "d"
Dust ignition protection by enclosure "t"

List of product groups (equipment, components and protective systems) covered by this notification is included as a separate list under the responsibility of the Notified Body – with reference to this Notification.

[5] Manufacturer: LIKA Electronic s.r.l.
via San Lorenzo n° 25
36010 Carrè - VI

[6] Manufacturing location(s): LIKA Electronic s.r.l.
via San Lorenzo n° 25
36010 Carrè - VI

[7] CESI, notified body n. 0722 in accordance with Articles 19 and 21 of the Directive 2014/34/EU of the European Parliament and of the Council of the 26 February 2014, notifies that the Manufacturer has a production quality system which complies with Module E, Annex VII of the Directive.

[8] This Notification is based on Audit Report no. EX-C5000795 issued the 22/01/2025.

Results of periodical re-assessment of the quality system are a part of this Notification.

[9] **This Notification is valid until 17/02/2028**

This Notification can be withdrawn if the manufacturer no longer satisfies the requirements of Module E, Annex VII of the Directive.

Results of periodical assessments of the quality system are a part of this Notification.

[10] According to Article 16 [3] of the Directive 2014/34/EU the CE marking shall be followed by the identification n. 0722 identifying the Notified Body involved in the production control stage.

Date of first issue	Date of renewal
17th February 2016	17th February 2025

Translation issued on 17th February 2025

Prepared	Verified	Approved
Sergio G. Giugno	Alessandro Fedato	Giacomo Chiarini