

# CESI

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iscrizione CCIAA 00793580150

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

Schema di certificazione

# CESI-ATEX

Il CESI è stato autorizzato dal governo italiano ad operare quale organismo di certificazione di apparecchi e sistemi destinati a essere utilizzati in atmosfera potenzialmente esplosiva con D.M. 1/3/1983, D.M. 19/6/1990, D.M. 20/7/1998, D.M. 27/9/2000 e D.M. 02/02/2006

ATEX E C-02 - 1

# CERTIFICATE



## EC-TYPE EXAMINATION 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**

This certificate may only be reproduced in its entirety and without any change, schedule included.

Date 28.04.2008 - Translation issued the 28.04.2008

Prepared  
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Verified  
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Approved  
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.

This certificate may only be reproduced in its entirety and without any change, schedule included.



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## 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 $\Phi$ 14 |        |          |            |
|  | 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.

# DECLARATION OF CONFORMITY



1. Certificate N° 4
2. Manufacturer            LIKA ELECTRONIC Srl  
Via S. Lorenzo, 25  
36010 Carrè (VI) • Italy  
VAT 00817760242
3. The scope of the certificate:  
incremental encoder: XC77  
absolute encoder: XAC77
4. The certificate has been issued under the responsibility of the manufacturer indicated in point 2
5. The scope of the certificate, indicated in point 3, is in conformity with the legislative regulations of the directives:  
**94/9/CE "ATEX"**  
**2004/108/CE "Electromagnetic compatibility" (ex 89/336/CE)**
6. Compliance with the essential Health and Safety requirements has been assured by compliance with:  
EN 60079-0: 2004-03  
EN 60079-1: 2007  
EN 61241-0: 2006  
EN 61241-1: 2004  
EN 61000-6-4  
EN 61000-6-2  
EN 5501 Class A
7. Cesi, the notified body in accordance with article 9 of the Council Directive 94/9/EC, has issued the Certificate number:  
CESI 08 ATEX 013
8. The marking of the equipment or protective system shall include the following:  
 **II 2 GD Ex d IIC T6, Ex tD A21 IP65 T 85°C**
9. Notified body N°. xxxx            Notification XXXXxx ATEX nnnQ

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