

# 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 e D.M. 27/9/2000

ATEX E C-02

# 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 03 ATEX 080**
- [4] Equipment: **Capacitive and inductive proximity sensors series DC, DCL, DF and NKS**
- [5] Manufacturer: **BDC Electronics S.r.l.**
- [6] Address: **Via Lidice 37/39 – 10095 Torino (TO) 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. EX-A3/013651.
- [9] Compliance with the Essential Health and Safety Requirements has been assured by compliance with:  
**EN 50014: 1997 + A1..A2 EN 50020 : 2002 EN 50284 : 1999 EN 50281-1-1 : 1998 + A1**
- [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 1GD | <b>EEx ia IIC T6 IP 67 T85°C</b> |
| II 1G  | <b>EEx ia IIC T6</b>             |

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

Date April 15, 2003 - Translation issued the April 15, 2003

Prepared  
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Approved  
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**CESI**  
CENTRO ELETTROTECNICO SPERIMENTALE ITALIANO  
Business Unit Certificazione

Il Responsabile

[13]

## Schedule

[14] **EC-TYPE EXAMINATION CERTIFICATE n. CESI 03 ATEX 080**

[15] **Description of equipment**

The non amplified sensors series **DC** .. / ....., **DCL** .. / ....., **DF** .. / ....., ed **NKS** .. / ....., are inductive and capacitive proximity sensors used to convert the position into an electrical signal.

The connection facilities are made by a permanently connected cable of suitable thickness to avoid the electrostatic charge, or made by connector, according to the type of sensor. The housing is made of stainless steel, nickel silver or dissipative plastic (with surface resistance  $< 10^9 \Omega$ ), and in case of very little sensor (surface  $< 4 \text{ cm}^2$ ), by PTB. The complete product code is described into the technical note enclosed to this certificate.

### Electrical characteristics

The parameters for the intrinsic safety circuits for the type of protection **EEx ia IIC** are the following:

Type 1	Type 2	Type 3	Type 4
DC, DF and NKS			DCL
Ui = 13,5 V	Ui = 13,5 V	Ui = 13,5 V	Ui = 30 V
Ii = 60 mA	Ii = 80 mA	Ii = 100 mA	Ii = 100 mA
Pi = 200 mW	Pi = 300 mW	Pi = 400 mW	Pi = 660 mW

The electrical characteristics, the temperature classes and the ambient temperature, are related according the following table:

Model	Type 1			Type 2			Type 3			Type 4		
	T6 T85°C	T5 T100°C	T4 T135°C	T6 T85°C	T5 T100°C	T4 T135°C	T6 T85°C	T5 T100°C	T4 T135°C	T6 T85°C	T5 T100°C	T4 T135°C
	Massima temperatura ambiente in °C											
DC,DF ed NKS	60	80	110	/	60	110	/	/	110	/	/	/
DCL	/	/	/	/	/	/	/	/	/	60	/	/

For all the sensors DC, DF and NKS, considering a cable length of 10 m, Ci and Li are the following:

Ci = 100 nF and Li = 100 uH

For the sensor DCL, Ci and Li considering a cable length of 10 m are the following:

Ci = 5 nF and Li = 750 uH

### Installation conditions

Provision must taken to the housing connection for protection against electrostatic discharge.

The sensors must be supplied by galvanically isolated barriers with linear output that respect the parameters above mentioned.

The connection facilities of the model with a permanently connected cable must be terminated into an enclosure with a degree of protection minimum IP 67, according to the standard EN 60529.

In case of ambient temperature 80°C or 100°C, cable with insulating class IEC 60085 at least 100°C and 130°C respectively, must be used.

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[13]

## Schedule

[14] **EC-TYPE EXAMINATION CERTIFICATE n. CESI 03 ATEX 080**

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[16] **Report n.**

CESI EX-A3/013651.

### Routine tests

The manufacture must carry out the routine tests prescribed by the clause 24 of the EN 50014 standard.

### Descriptive documents (prot. EX-A3/013655)

- n.	NT-B-003 Technical note	Rev.	0	dated	31.03.2003
- n.	File DC05	Rev.	0	dated	31.03.2003
- n.	File DC08	Rev.	0	dated	31.03.2003
- n.	File DC08S	Rev.	0	dated	31.03.2003
- n.	File DC12	Rev.	0	dated	31.03.2003
- n.	File DC12KS	Rev.	0	dated	31.03.2003
- n.	File DC18	Rev.	0	dated	31.03.2003
- n.	File DC18KS	Rev.	0	dated	31.03.2003
- n.	File NKS	Rev.	0	dated	31.03.2003
- n.	File DCL	Rev.	0	dated	31.03.2003
- n.	File DF5	Rev.	0	dated	31.03.2003
- n.	File DF15	Rev.	0	dated	31.03.2003
- n.	File C8B-C10	Rev.	0	dated	31.03.2003
- n.	DEC-CONF-1GD	Rev.	0	dated	31.03.2003
- n.	DEC-CONF-1G	Rev.	0	dated	31.03.2003
- n.	DEC-CONF-DCL	Rev.	0	dated	31.03.2003

One copy of all documents is kept in CESI files.

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

None.

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

Assured by the conformity to the standards.