



[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 057 X**

[4] **Equipment:** Explosion proof solenoids type OAM, OAM/WP, OZAM, OZAM-A/WP, MZAM-A and inductive transducer type ETHAM-4

[5] **Manufacturer:** **ATOS S.p.A.**

[6] **Address:** Via alla Piana, 57 – 21018 Sesto Calende (VA) - 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-A3/009577.

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

**EN 50014: 1997 + A1..A2 EN 50018: 2000 + 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:

**Ex I M 2 EEx d I**

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

**Date 18 March 2003 - Translation issued the 18 March 2003**

**Prepared**  
Enrico Radaelli

*Enrico Radaelli*

**Verified**  
Damiano Cavanna

*Damiano Cavanna*

**Approved**  
Ulisse Colombo

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

*Jl. Responsabile*

*Ulisse Colombo*

[13]

## Schedule

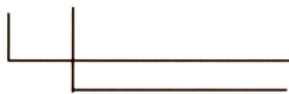
[14] **EC-TYPE EXAMINATION CERTIFICATE n. CESI 03 ATEX 057 X**

[15] **Description of equipment**

### EXPLOSION PROOF SOLENOIDS

The explosion proof solenoids subject of this certificate are use to drive direction control, flow control and pressure control valves; they are identified by a code as follows:

#### OAM - . .



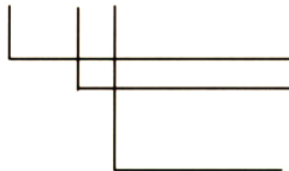
explosion proof ON/OFF solenoid  
options supply voltage

#### OAM/WP - . .



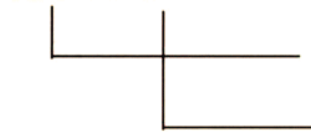
explosion proof ON/OFF solenoid with protected manual override  
options supply voltage

#### OZAM - . - .



explosion proof proportional solenoid  
A: for open loop application  
T: for closed loop application with position transducer type ETHAM-4  
option supply voltage for type A

#### OZAM -A/WP - .



explosion proof proportional solenoid with protected manual override for open loop application,  
options supply voltage

#### MZAM -A - .



explosion proof proportional solenoid without manual override  
options supply voltage

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## Schedule

[14] **EC-TYPE EXAMINATION CERTIFICATE n. CESI 03 ATEX 057 X**

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[15] **Description of equipment (follows)**

**INDUCTIVE TRANSDUCER type ETHAM-4**

The transducer may be used alone or coupled to a solenoid type OZAM-T.

The models available are the following:

<b>model</b>	<b>Resolution</b>
ETHAM-4/1	3,3 V/mm
ETHAM-4/2	2,5 V/mm
ETHAM-4/4	1,25 V/mm
ETHAM-4/8	0,6 V/mm
ETHAM-4/C	Current output 4-20 or 0-20 mA with conversion voltage/current

### Electrical characteristics

Solenoid type OAM and OAM/WP

- Rated voltage supply :              12 ÷ 220 Vdc ;              12 ÷ 220 Vca  
- Rated power:                              8 W                              8 W  
- Frequency:                                      50/60 Hz

Solenoid type OZAM, OZAM-A/WP and type MZAM-A

- Rated voltage supply:              12 Vdc ;              24 Vdc  
- Input current max:                      2.5 A;                      1.1 A  
- Rated power max:                              35 W

Power limitation is achieved by means of electronic regulator feeding the solenoid with a current of 2.5 A for the models supplied at 12 V and with a current of 1.1 A for the models supplied at 24 V.

The supply of the solenoid type OZA-T is made by means of electronic regulator type E-ME-T-0\*H (ATOS).

Inductive transducer type ETHAM-4

Supply voltage:                              ± 15 Vdc stabilized  
Electrical input max.:                      28 mA  
Power input max.:                              < 1 W

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## Schedule

[14] EC-TYPE EXAMINATION CERTIFICATE n. CESI 03 ATEX 057 X

[15] Description of equipment (follows)

### Temperature on the supply cables related to the ambient temperature

Supply cable to be used shall be suitable for the operating temperature reported in the following table:

model	ambient temperature max.	operating temperature of the cables
OAM - OAM/WP	70 °C	≥ 90 °C
OAM - OAM/WP	45 °C	--
OZAM-A - OZAM-A/WP	60 °C	≥ 110 °C
OZAM-A - OZAM-A/WP	40 °C	≥ 90 °C
MZAM-A	60 °C	≥ 110 °C
MZAM-A	40 °C	≥ 90 °C
OZAM-T	60 °C	≥ 110 °C
OZAM-T	40 °C	≥ 90 °C
ETHAM-4 <sup>[1]</sup>	40 °C	--
ETHAM-4 <sup>[1]</sup>	70 °C	≥ 90 °C
ETHAM-4 <sup>[2]</sup>	40 °C	≥ 90 °C
ETHAM-4 <sup>[2]</sup>	60 °C	≥ 110 °C

<sup>[1]</sup> Coupled to mechanical parts from which is not depending the assigned temperature class.

<sup>[2]</sup> Coupled to solenoid OZAM-T

A label shall be provided on the outside of the electrical apparatus as a guide for the selection of the cable by the user (par. 16.8 of EN 50014 Standard).

### Installation conditions

The accessories used for cable entries shall be suitable for the indicated cables temperature and shall be certified according to EN 50014 and EN 50018 Standards.

If cylindrical threads are used, the coupling between the cable gland and the terminal box shall be provided by block to prevent loosening.

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[13]

## Schedule

[14] **EC-TYPE EXAMINATION CERTIFICATE n. CESI 03 ATEX 057 X**

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[16] **Report n. EX-A3/009577**

### **Routine tests**

The manufacturer shall carry out the routine tests prescribed at paragraph 24 of the EN 50014 Standard.

### Explosion proof solenoids.

The manufacturer is exempted from the overpressure test since the solenoids in subject have been submitted to an overpressure test at 33 bar, corresponding to four times the reference pressure.

The actuators are submitted to an individual overpressure test to verify the functional suitability at the rated operating pressure.

### Inductive transducer

The manufacturer is exempted from the routine overpressure test since the transducer in subject has been submitted to an overpressure test at 38 bar, corresponding to four times the reference pressure.

### **Descriptive documents** (prot. EX-A3/009592)

- Document n. SAS – 222 –D/O	(pg. 6)	dated	20.01.2003
- Document n. t23	(pg. 5)	dated	20.01.2003
- Document n. 6-OAM-201000-I		dated	20.01.2003
- Document n. 6-OAM-202000-I		dated	20.01.2003
- Document n. 6-OZAM-101000-I		dated	20.01.2003
- Document n. 6-OZAM-102000-I		dated	20.01.2003
- Document n. 6-MZAM-220000-I		dated	20.01.2003
- Document n. 4-ETHAM-200000-I		dated	20.01.2003
- Document n. T-641/BT-I		dated	20.01.2003
- Document n. T-642/BT-I		dated	20.01.2003
- Document n. T-444/BT		dated	20.01.2003
- Document n. T-443/BT		dated	20.01.2003
- Document n. t33		dated	20.01.2003

One copy of all documents is kept in CESI files.

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

Do not expose to high risk of mechanical danger

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

Assured by compliance to the Standards.

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

## EXTENSION n. 01/08



to EC-Type Examination Certificate CESI 03 ATEX 057X

Equipment: Explosion proof solenoids type OAM, OAM/WP, OZAM, OZAM-A/WP, MZAM-A and inductive transducer type ETHAM-4

Manufacturer: **ATOS S.p.A.**

Address: Via alla Piana, 57 – 21018 Sesto Calende (Varese) - Italy

### Admitted variation

- Constructional modifications and updating of the documentation for conformity to EN60079-0 (2006), EN60079-1 (2004) Standards.
- Change of the code and new electrical characteristics for the types **OAM-220** and **OAM/WP-220** in the new code **OAM-230** and **OAM/WP-230**

### Marking


The equipment shall be marked as follows:

 **I M2 Ex d I**

This extension and annexed descriptive documents must be annexed to the EC-Type Examination Certificate CESI 03 ATEX 057X.

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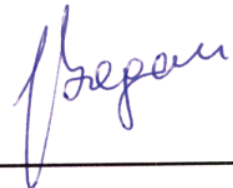
**date** 22 January 2008 - translation issued the 22<sup>nd</sup> January 2008

**prepared** Enrico Radaelli 

**verified** Mirko Balaz 

**approved** Fiorenzo Bregani

**CESI** S.p.A.  
Divisione Energia  
"Area Tecnica Certificazione"  
Il Responsabile



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## EXTENSION n. 01/08

to EC-Type Examination Certificate CESI 03 ATEX 057X

### Electrical characteristics

#### *Solenoid type OAM-230 and OAM/WP230*

- Rated voltage supply:	230 Vac	240 Vac
- Rated power:	8 W	8 W
- Frequency:	50 Hz	60 Hz

The electrical characteristics of the others types and model of solenoid remain unchanged.

The detail of the electrical characteristics for each model of solenoid is reported in the descriptive document annexed to the certificate.

### Installation conditions

- The solenoids shall be installed on a metallic base with a volume of minimum 0.2 dm<sup>3</sup> for each valve.
- The characteristics of the cables and of the accessories used for cable entries shall be suitable for the use in the ambient/operating temperature of the solenoid. The accessories used for cable entries shall be certified according to EN60079-0 and EN60079-1 Standards.
- If cylindrical threads are used, the coupling between the cable gland and the enclosure shall be provided by block to prevent loosening.

Report n. EX-A8001919

### Routine tests

The manufacturer shall carry out the routine tests prescribed at paragraph 27 of the EN60079-0 and at paragraph 16 of the EN60079-1 Standard.

### Explosion proof solenoids.

The manufacturer is exempted from the overpressure test since the solenoids in subject have been submitted to an overpressure test at 33 bar, corresponding to four times the reference pressure.  
The actuators are submitted to an individual overpressure test to verify the functionally suitability at the rated operating pressure.

### Inductive transducer

The manufacturer is exempted from the routine overpressure test since the transducer in subject has been submitted to an overpressure test at 38 bar, corresponding to four times the reference pressure.

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## EXTENSION n. 01/08

to EC-Type Examination Certificate CESI 03 ATEX 057X

### Descriptive documents (prot. EX-A8001926)

- n. SAS-430-D/0	(pg. 1)	dated	29.08.2007
- n. TT23/2	(pg. 5)	dated	30.08.2007
- n. 6-OAM-201000-I rev.1		dated	05.09.2007
- n. 6-OAM-2020 J-I rev.2		dated	05.09.2007
- n. 6-OZAM-101000-I rev.1		dated	06.09.2007
- n. 6-OZAM-102000-I rev.2		dated	06.09.2007
- n. 6-MZAM-220000-I rev.1		dated	05.09.2007
- n. 4-ETHAM-200000-I rev.1		dated	05.09.2007
- n. T-641/BT-I rev.2		dated	06.09.2007
- n. T-642/BT-I rev.2		dated	06.09.2007
- Declaration of Conformity TT33/2		dated	30.08.2007

One copy of all documents is kept in CESI files.

### Special conditions for safe use

Do not expose to high risk of mechanical danger

### Essential Health and Safety Requirements

The Essential Health and Safety Requirements are assured by compliance to the following standards:

- EN 60079-0: 2006 – Electrical apparatus for explosive gas atmosphere -General requirements.
- EN 60079-1: 2004 – Flameproof enclosure “d”.



**EXTENSION n. 02/12**

to EC-Type Examination Certificate CESI 03ATEX057X

Equipment: Explosion proof solenoid series OA-; OZA; MZA-A-

Manufacturer: ATOS S.p.A.

Address: Via alla Piana, 57 – 21018 Sesto Calende (Varese) - Italy

**Admitted variation**

- Standard EN 60079-0: 2009, EN 60079-1:2007 upgrade.

**Marking**

The equipment shall be marked as follows:

 **I M2 Ex d I Mb**

Tamb: -20°C / +40°C/+45°C/+60°C/+70°C.

This extension and annexed descriptive documents must be annexed to the EC-Type Examination Certificate CESI 03ATEX057X.

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Date 15<sup>th</sup> March 2012- translation issued the 15th March 2012

prepared

M. T.



verified

Mirko Balaz



approved

Fiorenzo Bregani

**CESI S.p.A.**  
Testing & Certification Division  
Business Area Certification  
Il Responsabile



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## EXTENSION n. 02/12

to EC-Type Examination Certificate CESI 03ATEX057X

### Electrical characteristics

All electrical characteristics are unchanged.

### *Maximum surface temperature and temperature on the supply cables related to the maximum ambient temperature*

Solenoid type	T amb. Max ambient temperature (°C)	Max surface temperature (°C)	Cable temperature (°C)
OAM OAM/WP	70	150	≥ 90
OAM OAM/WP	45	150	--
OZAM-A OZAM-A/WP	60	150	≥ 110
OZAM-A OZAM-A/WP	40	150	≥ 90
MZAM-A	60	150	≥ 110
MZAM-A	40	150	≥ 90
OZAM-T	60	150	≥ 110
OZAM-T	40	150	≥ 90

Transducer type	T amb. Max ambient temperature (°C)	Max surface temperature (°C)	Cable temperature (°C)	notes
ETHAM-4	70	150	≥ 90	1
	40	150	--	1
	60	150	≥ 110	2
	40	150	≥ 90	2

Note 1: when connected to mechanical parts from which the max surface temperature is not influenced

Note 2: information shown only if the transducer is connected to the solenoid type OZAM-T

A label shall be provided on the outside of the electrical apparatus as a guide for cable selection by the user (par. 16.5 of EN 60079-0 Standard).

### Installation conditions

- The solenoids shall be installed on a metallic base with a volume of minimum 0.2 dm<sup>3</sup> for each valve.
- The characteristics of the cables and of the accessories used for cable entries shall be suitable for the use in the ambient/operating temperature of the solenoid. The accessories used for cable entries shall be certified according to EN60079-0 and EN60079-1 Standards.
- If cylindrical threads are used, the coupling between the cable gland and the enclosure shall be provided by block to prevent loosening.

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## EXTENSION n. 02/12

to EC-Type Examination Certificate CESI 03ATEX057X

### **Routine test**

The manufacturer shall carry out the routine tests prescribed at paragraph 27 of the EN60079-0 and at paragraph 16 of the EN60079-1 Standard.

### Explosion proof solenoids.

The manufacturer is exempted from the overpressure test since the solenoids have been submitted to an overpressure test at 33 bar, corresponding to four times the reference pressure.

The actuators are submitted to an individual overpressure test to verify the functional suitability at the rated operating pressure.

### Inductive transducer

The manufacturer is exempted from the routine overpressure test since the transducers have been submitted to an overpressure test at 38 bar, corresponding to four times the reference pressure.

### **Report n. EX-B2008531**

#### **Descriptive documents (prot. EX-B2008547)**

- n. SAS-528-D/0		dated	14.02.2012
- n. TT23/3	(pages 5)	dated	16.02.2012
- n. T-641/BT-I		dated	15.02.2012
- n. T-642/BT-I		dated	15.02.2012
- Declaration of conformity TT33/3		dated	15.02.2012

One copy of all documents is kept in CESI files.

### **Essential Health and Safety Requirements**

The Essential Health and Safety Requirements are assured by compliance to the following standards:

- EN 60079-0: 2009 - Electrical apparatus for explosive atmospheres - Part 0: general requirements.
- EN 60079-1: 2007 - Explosive atmosphere - Part 1: equipment protection by explosion proof "d".



*fac simile*

La Ditta / The Company

**ATOS s.p.a.**  
**21018 Sesto Calende / Italia**  
**via alla Piana 57**

Dichiara con la presente la conformità al Prodotto / herewith declares conformity of the Products

Prodotto / Product	Tipo / Type
<b>SOLENOIDI ANTIDEFLAGRANTI EXPLOSION-PROOF SOLENOIDS</b>	<b>OAM OAM/WP OZAM OZAM-A/WP MZAM-A</b>
<b>TRASDUTTORE INDUTTIVO INDUCTIVE TRANSDUCER</b>	<b>ETHAM-4/*</b>

Modo di protezione / Protection mode

 **I M2 Ex d I Mb**

**CERTIFICATO CESI 03 ATEX 057 X**

In accordo alle norme sottostanti / in accordance with the below applicable regulations

Direttive CEE applicabili / applicable EC Directive

**2004/108/CE**

**94/9/CE**

In quanto conforme alle Norme Europee Armonizzate / As in accordance to the European Armonized Standards

**EN 61000-6-1**

**EN 60079-0 (2009)**

**EN 61000-6-3**

**EN 60079-1 (2007)**

**Organismo Notificato / Notified body n° 0722**  
**Notifica / Notification CESI 02 ATEX 034 Q**

<b>CESI</b> 	
protocollo <b>B2008547</b>	firma 
allegato al certificato <b>CESI 03 ATEX 057 X</b>	data <b>15/03/2012</b>

Data  
Date: .....

Firma  
Signature: .....



**EXTENSION n. 03/15**

to EC-Type Examination Certificate CESI 03ATEX057X

**Equipment:** Explosion proof solenoids type OAM, OAM/WP, OZAM, OZAM-A/WP, MZAM-A and Inductive transducer type ETHAM-4

**Manufacturer:** ATOS S.p.A.

**Address:** Via alla Piana, 57 – 21018 Sesto Calende (Varese) - Italy


**Admitted variation**

- Updating to EN60079-0 (2012) and EN60079-1 (2014) standards.
- Updating nameplate for multi-certification ATEX / IEC EX
- Updating of the documentation.

The details of the admitted variations are specified in the descriptive documents annexed to this extension.

**Marking**

The equipment shall be marked as follows:

 I M2 Ex db I Mb

Tamb: -20°C ÷ +40°C/+45°C/+60°C/+70°C.

**Description and identification of the equipment**

Unchanged.

**Electrical characteristics**

All the electrical characteristics remain unchanged.

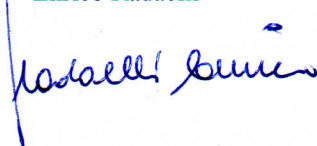
The characteristics for each model are detailed in the descriptive documents annexed to the certificate.

This extension and annexed descriptive documents must be annexed to the EC-Type Examination Certificate CESI 03ATEX057X.

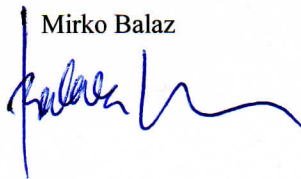
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**Date** 13 October 2015 - Translation issued the 13 October 2015

**Prepared**  
Enrico Radaelli



**Verified**  
Mirko Balaz



**Approved**  
Roberto Piccin

**CESI S.p.A.**  
Testing & Certification Division  
Business Area Certification  
Il Responsabile Page 1/2  
  
(Roberto Piccin)



PRD N. 018B  
Membro degli Accordi di Mutuo Riconoscimento EA, IAF e ILAC  
Signatory of EA, IAF and ILAC Mutual Recognition Agreements

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Capitale sociale € 8.550.000 interamente versato  
C.F. e numero iscrizione Reg. Imprese di Milano 00793580150  
P.I. IT00793580150  
N. R.E.A. 429222

**EXTENSION n. 03/15**

to EC-Type Examination Certificate CESI 03ATEX057X

Report n. EX-B5020934.

**Routine test**

Unchanged.

**Descriptive documents (prot. EX-B5020945)**

- Technical Note n. SAS-569-D/0	(pg. 7)	dated	23.09.2015
- Safety Instructions n. TT354	(pg. 4)	dated	23.09.2015
- n. 6 -OAM-210000-I		dated	07.07.2015
- n. 6 -OZAM-110000-I		dated	20.07.2015
- n. 6 -MZAM-230000-I		dated	20.07.2015
- n. 4 -ETHAM-210000-I		dated	09.07.2015
- n. 6 -OZATM-110000-I		dated	22.07.2015
- n. 6 -OAM-100050		dated	28.07.2015
- n. 6 -ETHAM-100050		dated	27.07.2015
- Declaration of Conformity TT352 ( <i>fac simile</i> )		dated	23.09.2015

One copy of all documents is kept in CESI files.

**Special conditions for safe use (X)**

- Do not expose to high risk of mechanical danger.
- The solenoids shall be installed on a metallic base with a volume of minimum 0.2 dm<sup>3</sup> for each valve.
- The flamepaths characteristics are specified in the manufacturer drawings annexed to the certificate. For information regarding the dimensions of the flameproof joints the manufacturer shall be contacted.
- The characteristics of the connecting cables and of the accessories used for cable entries shall be suitable for the use in the ambient/operating temperature of the equipment. For the selection of the operating temperature of the cable, depending on the model of the equipment and the relevant installation and / or operation temperatures, refer to the Safety Instructions provided by the Manufacturer. The accessories used for cable entries shall be certified separately and suitable for the installation hazardous area.
- Information relating to use, installation, repair and maintenance of the equipment are included within the safety instructions.

**Essential Health and Safety Requirements**

The Essential Health and Safety Requirements are assured by compliance to the following standards:

- EN 60079-0: 2012 – Explosive atmospheres - Equipment - General requirements.
- EN 60079-1: 2014 – Explosive atmospheres - Equipment protection by flameproof enclosures “d”.
- CEI EN 60079-1: 2008 (annex 1) – Explosive atmospheres – Equipment protection by flameproof enclosures “d”.

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*fac simile*


The Company

**ATOS s.p.a.**  
**21018 Sesto Calende / Italia**  
**via alla Piana 57**

herewith declares conformity of the Products

Product	Type
<b>EXPLOSION-PROOF SOLENOIDS</b>	<b>OAM OAM/WP</b> <b>OZAM OZAM-A/WP</b> <b>MZAM-A</b>
<b>INDUCTIVE POSITION TRANSDUCER</b>	<b>ETHAM-4/*</b>

Protection mode

 **I M2 Ex db I Mb**  
**IP 66/67**

CERTIFICATE N° **CESI 03 ATEX 057 X**

in accordance with the below applicable regulations

applicable EC Directive

**2004/108/CE**

**94/9/CE**

As in accordance to the European Harmonised Standards

**EN 61000-6-1**

**EN 60079-0 (2012)**

**EN 61000-6-3**

**EN 60079-1 (2014)**

Notified body	<b>n° 0722</b>
Notification	<b>CESI 02 ATEX 034 Q</b>

	
protocollo	firma
<b>B5020945</b>	<i>[Signature]</i>
allegato al certificato	data
<b>CESI 03 ATEX 057 X</b>	<b>13/10/2015</b>