



IECEx Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification Scheme for Explosive Atmospheres

for rules and details of the IECEx Scheme visit www.iecex.com

Certificate No.: IECEx CES 12.0007X issue No.:0

Certificate history:

Status: **Current**

Date of Issue: **2012-10-29** Page 1 of 3

Applicant: **ATOS S.p.A.**
Via alla Piana, 57
I - 21018 Sesto Calende (VA)
Italy

Electrical Apparatus: **Explosion proof solenoids type OAMI, OZAMI, OAMI/WP, OZAMI-A/WP, MZAMI-A and inductive position transducer type ETHAMI-4/***
Optional accessory:

Type of Protection: **Flameproof enclosures 'd'**

Marking: **Ex d I Mb**

*Approved for issue on behalf of the IECEx
Certification Body:*

Mirko Balaz

Position:

Head of IECEx CB

*Signature:
(for printed version)*

Date:

1. This certificate and schedule may only be reproduced in full.
2. This certificate is not transferable and remains the property of the issuing body.
3. The Status and authenticity of this certificate may be verified by visiting the [Official IECEx Website](http://www.iecex.com).

Certificate issued by:

CESI
Centro Elettrotecnico
Sperimentale Italiano S.p.A.
Via Rubattino 54
20134 Milano
Italy



IECEx Certificate of Conformity

Certificate No.: IECEx CES 12.0007X

Date of Issue:

2012-10-29

Issue No.: 0

Page 2 of 3

Manufacturer:

ATOS S.p.A.

Via alla Piana, 57

I - 21018 Sesto Calende (VA)

Italy

Additional Manufacturing location(s):

This certificate is issued as verification that a sample(s), representative of production, was assessed and tested and found to comply with the IEC Standard list below and that the manufacturer's quality system, relating to the Ex products covered by this certificate, was assessed and found to comply with the IECEx Quality system requirements. This certificate is granted subject to the conditions as set out in IECEx Scheme Rules, IECEx 02 and Operational Documents as amended.

STANDARDS:

The electrical apparatus and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards:

IEC 60079-0 : 2007-10 Explosive atmospheres - Part 0: Equipment - General requirements
Edition: 5

IEC 60079-1 : 2007-04 Explosive atmospheres - Part 1: Equipment protection by flameproof enclosures "d"
Edition: 6

*This Certificate **does not** indicate compliance with electrical safety and performance requirements other than those expressly included in the Standards listed above.*

TEST & ASSESSMENT REPORTS:

A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in

Test Report:

[IT/CES/ExTR12.0003/00](#)

Quality Assessment Report:

[IT/CES/QAR10.0003/01](#)



IECEx Certificate of Conformity

Certificate No.: IECEx CES 12.0007X

Date of Issue: 2012-10-29

Issue No.: 0

Page 3 of 3

Schedule

EQUIPMENT:

Equipment and systems covered by this certificate are as follows:

On-off and proportional solenoids are used for the command of directional, flow or pressure control valves, operating in hazardous areas with explosive or flammable environment.

The following versions with the relevant model code are available:

Version	Model Code	Description
Solenoids	OAMI-*	ON-OFF solenoid
	OZAMI-A-*	Proportional solenoid without position transducer
	MZAMI-A-*	Proportional solenoid without position transducer and without manual override
	OZAMI-T-*	Proportional solenoid with position transducer ETHAMI-4/*
Solenoids with protected manual override	OAMI/WP-*	ON-OFF solenoid
	OZAMI-A-*/WP	Proportional solenoid without position transducer
Transducers	E-THAMI-4/**	Inductive LVDT transducer used coupled with proportional solenoid or as single parts

* solenoids nominal power supply voltages,

** transducer versions,

For further information see Annex.

CONDITIONS OF CERTIFICATION: YES as shown below:

Do not expose to high risk of mechanical danger.

The flamepaths are specified in the manufacturer drawings; for information regarding the dimensions of the flameproof joints the manufacturer shall be contacted.

The conditions of the installation of the equipment are included within the safety instructions. For a safe use these assembling instructions are to be followed precisely.



IECEx Certificate of Conformity



Prot: B2036032

Annex to certificate: IECEx CES 12.0007X Issue No.0 of 2012-10-29

Applicant: ATOS S.p.A.
via alla Piana, 57; I - 21018 Sesto Calende (VA), Italy

Electrical Apparatus: Explosion proof solenoids type OAMI, OZAMI, OAMI/WP, OZAMI-A/WP, MZAMI-A and inductive position transducer type ETHAMI-4/*

Description of equipment

On-off and proportional solenoids are used for the command of directional, flow or pressure control valves, operating in hazardous areas with explosive or flammable environment; following versions with the relevant model code are available:

Tab A

Version	Model Code	Description
Solenoids	OAMI-*	ON-OFF solenoid
	OZAMI-A-*	Proportional solenoid without position transducer
	MZAMI-A-*	Proportional solenoid without position transducer and without manual override
	OZAMI-T-*	Proportional solenoid with position transducer ETHAMI-4/*
Solenoids with protected manual override	OAMI/WP-*	ON-OFF solenoid
	OZAMI-A-*/WP	Proportional solenoid without position transducer
Transducers	E-THAMI-4/**	Inductive LVDT transducer used coupled with proportional solenoid or as single parts

* solenoids nominal power supply voltages, see Tab. IIa

** transducer versions, see Tab. B

Electrical characteristics

Available solenoids power supply

Rated voltage: 12 ÷ 220 Vdc , 12÷ 240 Vac (depending of the models)

Rated power: 3,5 ÷ 35 W (depending of the models)

The conditions of power supply of the equipment are included within the safety instructions.

Transducer supply

Power supply (VDC stabilized): ±15

Max power consumption: <1 W

Max current consumption: 28 mA

Ambient temperature range:

-20 ÷ +40 °C

-20 ÷ +45 °C

-20 ÷ +60 °C

-20 ÷ +70 °C

Prot: B2036032

Annex to certificate: IECEx CES 12.0007X Issue No.0 of 2012-10-29

Applicant: ATOS S.p.A.
via alla Piana, 57; I - 21018 Sesto Calende (VA), Italy

Electrical Apparatus: Explosion proof solenoids type OAMI, OZAMI, OAMI/WP, OZAMI-A/WP, MZAMI-A and inductive position transducer type ETHAMI-4/*

Description of equipment (follows)

The inductive transducers type ETHAMI-4/* are used separately for detect a position or coupling with explosion proof solenoids type OZAMI-T for detect the positions of the spools of directional or flow control proportional valves.

Tab. B - Transducers versions

Transducer	Power supply	Power (W)	Description
ETHAMI-4/1	± 15 VDC	<1	With voltages output, voltage resolution 3,3 V/mm
ETHAMI-4/2			With voltages output, voltage resolution 2,5 V/mm
ETHAMI-4/4			With voltages output, voltage resolution 1,25 V/mm
ETHAMI-4/8			With voltages output, voltage resolution 0,6 V/mm
ETHAMI-4/C			With current output 4÷20 mA or 0÷20 mA, a voltages to current converter circuit is used

Tab. C: max ambient temperature, connecting cable, temperature class, surface temperature

Tab C.1 - Solenoids

Solenoid Type	Max ambient temperature (°C)	Max surface temperature (°C)	Connecting cable temperature (°C)
OAMI OAMI/WP	70	150	≥ 90
OAMI OAMI/WP	45	150	--
OZAMI-A OZAMI-A-*/WP	60	150	≥ 110
OZAMI-A OZAMI-A-*/WP	40	150	≥ 90
MIZAMI-A	60	150	≥ 110
MIZAMI-A	40	150	≥ 90
OZAMI-T	60	150	≥ 110
OZAMI-T	40	150	≥ 90



IECEX Certificate of Conformity



Prot: B2036032

Annex to certificate: IECEx CES 12.0007X Issue No.0 of 2012-10-29

Applicant: ATOS S.p.A.
via alla Piana, 57; I - 21018 Sesto Calende (VA), Italy

Electrical Apparatus: Explosion proof solenoids type OAMI, OZAMI, OAMI/WP, OZAMI-A/WP, MZAMI-A and inductive position transducer type ETHAMI-4/*

Tab. C: max ambient temperature, connecting cable, temperature class, surface temperature (*follows*)

Tab C.2 - Transducers

Transducer Type	Max ambient temperature (°C)	Max surface temperature (°C)	Connecting cable temperature (°C)	note
ETHAMI-4/*	70	150	≥ 90	(1)
	40	150	- -	(1)
	60	150	≥ 110	(2)
	40	150	≥ 90	(2)

Nota 1: when connected to mechanical parts that not influencing the surface temperature

Nota 2: if used together with the proportional solenoid, solenoid type OZAMI-T

Cable entries

The cable entry devices used on the enclosure shall be suitably certified according to the applicable standards and shall guarantee the degree of protection IP66 according to IEC 60529 standard .

Warning label

“Warning – do not open when energized”

“Use only cables suitable for temperature > XXX °C” . (*see table C, above*)