

CESI

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

Schema di certificazione

CEI-A1-TEX

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

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 02 ATEX 084
- [4] **Equipment:** Gas detector for methane (CH₄) type NET//E
- [5] **Manufacturer:** SENSITRON S.r.l.
- [6] **Address:** Via A. Manzoni, 19 – 20010 Pogliano Milanese (MI) – 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-A2/028823.
- [9] Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN 50014: 1997 + A1..A2 EN 50018: 2000 EN 61779-1: 2000 EN 61779-4: 2000
- [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 2 G EEx d IIC T6

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

Date 16 September 2002 – Translation issued the 16 September 2002

Prepared
Enrico Radaelli

Verified
Mirko Balaz

Approved
Ulisse Colombo

CESI

CENTRO ELETTROTECNICO SPERIMENTALE ITALIANO
Business Unit Certificazione

Il Responsabile

[13]

Schedule

[14] **EC-TYPE EXAMINATION CERTIFICATE n. CESI 02 ATEX 084**

[15] **Description of equipment**

Gas detectors type NET//E are used in atmospheres mainly composed by air to detect methane (CH₄) which concentration is expressed as a % LEL (Lower Explosion Limit). The detectors are composed by an industrial catalytic sensor and an electronic circuit contained in an flameproof enclosure. The catalytic sensors are subject of the component certificate CESI 01 ATEX 013U, whereas the detectors complete (sensor, electronic circuit and flameproof enclosure) are subject of certificate CESI 01 ATEX 053.

In the identification code there is a letter to identify the manufacturer of the enclosure (F, C, I).

The identification code is reported on the label fixed on the sensor and on the enclosure.

This certificate covers the essential health and safety requirements of the detectors NET//E as regards the explosion protection and the functional performances requirements (according to EN 61779-1 and EN 61779-4 standard) of the detector used with methane (CH₄).

The accessories used for cable entries shall be certified according to EN 50014 and EN 50018 Standard.

If cylindrical threads are used, the coupling between the cable gland and the enclosure shall be made according to the requirements indicated in the documents annexed to this certificate.

Electrical and functional characteristics

Voltage supply:	12 ÷ 24 V -20% +15%
Maximum input current:	500 mA
Maximum power dissipated:	6 W
Measurement range:	0 + 100 % LEL (Lower Explosion Limit)
Proportional output:	4 ÷ 20 mA (on 200 Ω)
Warm-up time:	5 min.
Stabilization time:	< 1 min.
Time of response t(50):	< 20 s
Time of response t(90):	< 60 s
Precision:	±5% of the range or ±10% of the reading
Operating temperature:	-10 ÷ +60 °C
Relative humidity:	20 ÷ 90 % Rh / 40 °C
Operating pressure:	80 ÷ 110 kPa
Alarms:	non latching type

For other functional characteristics see the documents annexed to this certificate.

Warning label

"Do not open when energized"

Schedule

[13]

[14] **EC-TYPE EXAMINATION CERTIFICATE n. CESI 02 ATEX 084**

[16] **Report n. CESI EX-A2/028823**

Routine tests

For all models of the detectors the manufacturer shall carry out the routine tests prescribed at paragraph 24 of EN 50014 standard and for the model NET/I/E the routine tests prescribed at paragraph 16 of EN 50018 Standard.

The manufacturer is exempted from the overpressure test on the models NET/F/E and NET/C/E since the relative enclosures have been submitted, with favourable result, to a routine overpressure test with the static method at a value corresponding to four times the reference pressure.

On the model NET/I/E the routine overpressure test shall be carried out at 13,5 bar with the static method (par. 15.1.3.1 of EN 50018 Standard).

The manufacturer shall carried out the routine test described in the documents annexed to this certificate to verify the detectors functional performances.

Descriptive documents (prot. EX-A2/028828)

- n. ST1013 Rev. 3	(40 pg.)	dated	12.09.2002
- n. MT1014 Rev. 0	(15 pg.)	dated	06.05.2002
- n. IS896 Rev. 0	(5 pg.)	dated	12.09.2002
- n. ME1119 Rev. 0	(3 pg.)	dated	12.09.2002
- n. NETPEL Rev. 2	(5 pg.)	dated	04.06.2002
- Dichiarazione di conformità		dated	12.09.2002

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 compliance to the Standards.



EXTENSION n. 01/08

to EC-Type Examination Certificate CESI 02 ATEX 084

Equipment: Gas detectors series ST

Manufacturer: SENSITRON S.r.l.

Address: Via della Repubblica 48 – 20100 Cornaredo - MI - Italy

Admitted variation

- change of identification code from NET/ in ST/;
- change of the manufacturer address from *Via A. Manzoni 19 – Pogliano Milanese (MI) ITALY* to *Viale della Repubblica 48 – Cornaredo (MI) ITALY*;
- constructional modification;
- conformity to EN60079-0 (2006), EN60079-1 (2004), EN61241-0 (2006), EN61241-1 (2004), EN60079-29-1 (2007) Standards.

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

Marking

The gas detectors type ST/ shall be marked as follows:

II 2G Ex d IIC T6

II 2GD Ex d IIC T6 Ex tD A21 IP65 T85°C

The different marking, in function of the detectors constructional characteristics, is detailed in the descriptive documents annexed to this extension.

This extension and annexed descriptive documents must be annexed to the EC-Type Examination Certificate CESI 02 ATEX 084.

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

date 23 October 2008 - translation issued the 23rd October 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 02ATEX 084

Description and identification of the equipment

The gas detectors series ST are composed by a gas sensor containing the sensitive element coupled with a flameproof enclosure containing electronic circuits.

The sensors are subject of the component certificates CESI 01ATEX013U, CESI 01ATEX066U and relevant extensions, whereas the complete detectors (sensor, electronic circuits and flameproof enclosure) are subject of certificate CESI 01ATEX053 and relevant extensions.

The gas detectors series ST, besides to detect methane (CH₄), are also suitable to detect other type of gas. In the following the representatives gas of the gas groups referred to this extension are reported:

Acetylene, Acetone, Ethyl alcohol, Ammonia, Ammonia (20000 ppmv full scale), Diethyl ether, Ethylene, Hydrogen, Propane, Propylene.

The complete list of the gas related to the detectors subject of this extension is detailed in the annexed descriptive documents.

The type of gas is specified on the equipment identification label.

The gas detectors series ST are identified by the following code that replaces the previous code at the date of the present extension:

ST/ * / E

Code of the manufacturer/type of the enclosure:

F ; C ; CD ; L ; LD ; LI

The complete code and the detectors characteristics are reported in the annexed documents.

This extension covers the essential health and safety requirements of the detectors series ST as regards the explosion protection and the functional performances requirements (according to the standards in page 1) for the use with the types of gas specified in the annexed documents..

Electrical an functional characteristics

Unchanged.

Cable entries

The accessories used for the cable entries and to close the unused holes, shall be certified according to the EN60079-0 and EN60079-1 and shall be used according to the instructions reported in the relevant certificate. For the detectors installed in zones with presence of combustible dust the accessories used for the cable entries and to close the unused holes shall be marked 2GD and guarantee a minimum degree of protection IP65 according to the EN60529 Standard.

EXTENSION n. 01/08

to EC-Type Examination Certificate CESI 02ATEX 084

Report n. EX-A8030481.

Routine tests

The manufacturer shall carried out the routine tests prescribed at par. 27 of EN 60079-0 Standard and at par. 24 of EN 61241-0 Standard.

Descriptive documents (prot. EX-A8030485)

- Technical Note NTEX 1732	(pg. 13)	dated	22.10.2008
- Safety Instructions ISEX 896 rev.2	(pg. 6)	dated	08.10.2008
- MEEEX1736 rev. 4		dated	08.10.2008
- MTEX2080	(pg. 14)	dated	14.10.2008
- MTEX2082	(pg. 13)	dated	15.10.2008
- ST58 rev. 1	(pg. 15)	dated	07.04.2008
- Declaration of Conformity 02ATEX0084 rev.02		dated	22.10.2008

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: 2006 – Electrical apparatus for explosive gas atmosphere -General requirements.
- EN 60079-1: 2004 – Electrical apparatus for explosive gas atmosphere - Flameproof enclosure “d”.
- EN 61241-0: 2006 - Electrical apparatus for use in the presence of combustible dust -General requirements
- EN 61241-1: 2004 - Electrical apparatus for use in the presence of combustible dust - Protection by enclosures “tD”.
- EN 60079-29-1: 2007 – Performance requirements of detectors for flammable gases.

EXTENSION n. 02/13

to EC-Type Examination Certificate CESI 02ATEX084

Equipment: Gas detectors series ST/
Manufacturer: SENSITRON S.r.l.
Address: Via della Repubblica 48 – 20010 Cornaredo - MI - Italy

Admitted variation

- Updating to EN 60079-0 (2009), EN 60079-1 (2007), CEI EN 60079-1 (2008-11 Annex1), EN 60079-31 (2009) and EN60079-29-1 (2007) Standards.
- Constructional modifications: new enclosures and new heads sensor.
- Updating to electrical and functional characteristics.
- New identification codes of sensing elements.
- New sensing elements.

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

Marking

The gas detectors series ST/ shall be marked as follows:

 II 2G Ex d IIC T6 or T5 Gb

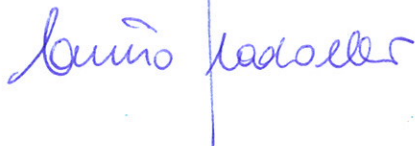
 II 2GD Ex d IIC T6 or T5 Gb
 Ex tb IIIC T85°C Db IP65

This extension and annexed descriptive documents must be annexed to the EC-Type Examination Certificate CESI 02ATEX084.

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

Date 26 February 2013 - Translation issued the 26 February 2013

Prepared
 Enrico Radaelli



Verified
 Mirko Balaz



Approved
 Fiorenzo Bregani

CESI S.p.A.
 Testing & Certification Division
 Business Area Certification
 Il Responsabile
 Fiorenzo Bregani
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EXTENSION n. 02/13

to EC-Type Examination Certificate CESI 02ATEX084

Identification and description of the equipment

The gas detectors series ST/ are composed by a gas sensor containing the sensing element coupled with a flameproof enclosure containing electronic circuits and/or the terminal block. The enclosure may be coupled with an adapter device for the connection of 2 sensor heads.

The sensors used are explosion-proof Ex-d; when they are equipped with the device for the dust ingress protection of the sintered element (GD adapter) have also type of protection "tb".

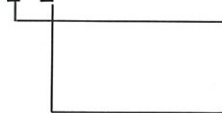
All the sensor heads and all the flameproof enclosures are subject of a separate certification.

The complete equipment realized by the sensor heads and enclosure is subject of the certificate CESI 01ATEX053 and subsequent extensions.

The complete list of the gas related to the detectors subject of this extension is detailed in the annexed descriptive documents.

The gas detectors series ST/ subject of this extension are identified by the following code:

ST/ * / *



Code of the manufacturer/type of the enclosure:

F ; C ; CD ; L ; LD ; LI ; LA ; LB ; LW ; 7B ; 7W ; 8B ; 8W

E3 = with electronic circuit "Smart 3"

ES = with electronic circuit "Smart S"

EM = with electronic circuit "Smart S" and double heads adapter

M = with terminal block for "Cyber OTH"

This extension covers the essential health and safety requirements of the detectors series ST as regards the explosion protection and the functional performances requirements (according to the standards in page 1) for the use with the types of gas specified in the annexed documents.

The type of gas for which the functional performances of the equipment are guaranteed is reported on the label.

Electrical and functional characteristics

Voltage supply:	12 ÷ 24 V -20%+15%
Maximum input current:	500 mA
Maximum power dissipated:	5.5 W
Measurement range:	0 ÷ 100 % LEL (Lower Explosion Limit)
Proportional output:	4 ÷ 20 mA (on 200 Ω)
Warm-up time:	< 5 min.
Time of response t(50):	< 20 s
Time of response t(90):	< 60 s
Precision:	±5% of the range or ±10% of the reading
Operating temperature:	-40/ -20 ÷ +50/ +55/ +60/ +65 °C [*]
Relative humidity:	20 ÷ 90 % Rh / 40 °C
Operating pressure:	80 ÷ 110 kPa
Alarms:	non latching type

[*] function of the sensing element characteristics within the head sensor.

The electrical characteristics and functional specifications of the various devices are detailed in the documents supplied with the equipment.

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

EXTENSION n. 02/13

to EC-Type Examination Certificate CESI 02ATEX084

Warning label

Do not open when energized.

Cable entries

The accessories used for the cable entries and to close the unused holes, shall be subject of a separate certification, shall be used according to the instructions reported in the relevant certificate and shall guarantee the same type/degree of protection assigned to the equipment. Moreover the accessories shall be suitable to be use in the ambient temperature range assigned to the equipment.

If cylindrical threads are used, the coupling between the accessories and the enclosure shall be provided by block to prevent loosening.

Report n. EX-B005373.

Descriptive documents (prot. B3005387)

- Technical Note NTEX 1732-6	(pg. 16)	dated	27.12.2012
- Safety Instructions MTCX3263	(pg. 8)	dated	10.10.2012
- MEEX 3259	(pg. 3)	dated	27.12.2012
- Technical File n. FT3339	(pg. 144)	dated	27.12.2012
- Technical File n. FT3370	(pg. 20)	dated	27.12.2012
- Declaration of Conformity 02ATEX084 rev.03 (fac-simile)			

One copy of all documents is kept in CESI files.

Special conditions for safe use (X)

None.

Note:

the installation, the operating, the maintenance and the repair of the ST equipment shall be in according to the safety instructions supplied by the Manufacturer.

Essential Health and Safety Requirements

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

- EN 60079-0: 2009 – Explosive atmospheres – Equipment -General requirements.
- EN 60079-1: 2007 – Explosive atmospheres – Equipment protection by flameproof enclosures “d”.
- CEI EN 60079-1: 2008 (annex 1) – Explosive atmospheres – Equipment protection by flameproof enclosures “d”.
- EN 60079-31: 2009 – Explosive atmospheres – Equipment dust ignition protection by enclosures “t”.
- EN 60079-29-1: 2007 – Explosive atmospheres – Gas detectors – Performance requirements of detectors for flammable gases.