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CESI-ATEX

Schema di certificazione

CERTIFICATE

[1] EU-TYPE EXAMINATION CERTIFICATE

[2] **Equipment or Protective System intended for use in potentially explosive atmospheres Directive 2014/34/EU**

[3] EU-Type Examination Certificate number:

CESI 17 ATEX 003 X

[4] Product: Gas detectors series **ST/*/*/***

[5] Manufacturer: **SENSITRON S.r.l.**

[6] Address: Via della Repubblica, 48 – 20010 Cornaredo - MI - Italy

[7] This product 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 17 of the Directive 2014/34/EU of the European Parliament and Council of 26 February 2014, certifies that this Product has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of Product 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-B7002905.

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

EN60079-0:2012+A11:2013 EN60079-1:2014 EN60079-28:2007 EN60079-31:2014

except in respect of those requirements listed at item 18 of the Schedule.

[10] If the sign "X" is placed after the certificate number, it indicates that the Product is subject to special conditions for safe use specified in the schedule to this certificate.

[11] This EU-TYPE EXAMINATION CERTIFICATE relates only to the design, examination and tests of the specified Product in accordance to the Directive 2014/34/EU. Further requirements of the Directive apply to the manufacturing process and supply of this Product. These are not covered by this certificate.

[12] The marking of the Product shall include the following:

Ex II 2G Ex db IIC T6 or T5 or T4 Gb
Ex II 2G Ex db op is IIC T6 or T5 or T4 Gb
Ex II 2GD Ex db IIC T6 or T5 Gb
Ex tb IIIC T85 °C or T100 °C Db

Date 10 February 2017 - Translation issued the 10 February 2017

Prepared	**Verified**	**Approved**
Enrico Radaelli	Mirko Balaz	Roberto Piccin

CESI S.p.A.
Testing & Certification Division
Business Area Certification
Il Responsabile
(Roberto Piccin)

[13] # Schedule

[14] **EU-TYPE EXAMINATION CERTIFICATE n. CESI 17 ATEX 003 X**

[15] **Description of Product**

The gas detectors series **ST/*/*/*** are devices used to detect the concentration of flammable and toxic gases or oxygen.
In the standard configuration the detectors are composed by a sensor head containing the sensitive element coupled with an enclosure with type of protection Ex-d containing the electronic circuits for the elaboration/memorisation of signals or the terminal block. Configurations with two sensor heads coupled to the main enclosure are also possible.
The flameproof enclosures and the different sensor heads are subject of a separate certification.
The sensor heads may be equipped with a device for the dust ingress protection. In this configuration the category 2GD is assigned to the gas detector.

The devices installed within the flameproof enclosure must comply with defined electrical/dimensional limits specified in the descriptive documents in order to ensure the maximum rise-temperature declared and the schedule of limitations assigned to the enclosure.

The gas detectors series ST/*/*/* are provided with a supplementary plate on which, in addition to the electrical parameters of circuits within the enclosure, is also specified the type of gas for which they are used.

The gas detectors series ST/*/*/* are identified by the following code:

ST/ * / * / *

- Main enclosure type: L; LD; LI; LA; LB; LW; 7B; 7W; 8B; 8W; 8K; 8Z
- Content of the enclosure:
  EG = general purpose electronics "Smart 3 G+"
  E3 = electronics "Smart 3; Smart 3GD"
  ES = electronics "Smart S-SS; Smart S-IR"
  EM = e electronics "Smart S-SM" and 2 heads sensor
  M = terminal block (without electronics inside the enclosure)
- Sensor head type:
  N1; N2; N3; S1; S2; S3;
  N2GD; N3GD; S2GD; S3GD; (sensor head with the dust ingress protection device)
  C1; C2; C3; C38; C9;
  C6; C8; (sensor head with type of protection "Ex db op is")
  C2GD; C3GD; C38GD (sensor head with the dust ingress protection device)

In case of detectors equipped with two sensor heads, the code field of the sensor head type contains the code of both heads.
The correspondence between the type of the main enclosure and the type of sensor head with the relevant certificates, as well as the complete code and detectors characteristics, are given in the descriptive documents annexed to the certificate.
The identification code is reported on the plate fixed on the enclosure containing the electronic circuits.

Electrical characteristics

- Maximum supply voltage:	28 Vdc
- Maximum absorbed current:	500 mA
- Maximum absorbed power [1]:	8.0 W
- Ambient temperature [2]:	-40 / -20 ÷ +40/ +45/ +50 / +55/ +60/ +65 / +70 / + 75 °C

[1] The actual power absorbed by the equipment is function of the power dissipated within the sensor head and of the power absorbed by the electric circuits inside of the enclosure.

[2] The ambient temperature values above reported represent the upper and lower limits of the applicable temperature range, taking into account the constructional and functional characteristics of the gas detectors, as specified in the descriptive documents annexed to the certificate.

[13] **Schedule**

[14] **EU-TYPE EXAMINATION CERTIFICATE n. CESI 17 ATEX 003 X**

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

II 2G Ex db IIC T6 *or* T5 *or* T4 Gb

II 2G Ex db op is IIC T6 *or* T5 *or* T4 Gb *(detectors with sensor head type C6 or C8)*

II 2GD Ex db IIC T6 *or* T5 Gb
Ex tb IIIC T85 °C *or* T100 °C Db
IP65
(detectors with sensor head equipped by the device for the dust ingress protection)

The temperature class and/or the maximum surface temperature assigned to the complete detector essentially depend on the temperature rise of the sensor head.

In the following table are reported the temperature class (for EPL Gb) and the maximum surface temperature (for EPL Db) in function of the maximum ambient temperature, of the type and of the power dissipated within the sensor head.

head sensor type	maximum power dissipated inside the sensor head [W]	maximum ambient temperature [°C]	temperature class (Gb)	maximum surface temperature (Db) [*]
N1; S1	0.7	60	T6	--
		65	T5	--
		70	T5	--
		75	T5	--
N2; S2; [*] N2GD [*] S2GD	0.7	50	T6	T85 °C
		55	T6	T85 °C
		60	T5	T100 °C
		65	T5	--
		70	T5	--
		75	T4	--
N3; S3; [*] N3GD [*] S3GD	1.4	50	T6	T85 °C
		55	T6	T85 °C
		60	T5	T100 °C
		65	T5	--
		70	T5	--
		75	T4	--
C1	0.7	60	T6	--
C2 [*] C2GD	0.7	50	T6	T85 °C
		55	T6	T85 °C
		60	T5	T100 °C
C3 [*] C3GD	1.4	50	T6	T 85 °C
		55	T6	T85 °C
		60	T5	T100 °C

[13] **Schedule**

[14] **EU-TYPE EXAMINATION CERTIFICATE n. CESI 17 ATEX 003 X**

head sensor type	maximum power dissipated inside the sensor head [W]	maximum ambient temperature [°C]	temperature class (Gb)	maximum surface temperature (Db) [*]
C38 (C3 long version) [*] C38GD	2.5	45	T6	T85 °C
		50	T5	T85°C
		60	T5	--
C6 (IR lamp)	0.9	60	T6	--
C6 (IR source)	0.9	60	T4	--
C8	2.5	40	T6	--
		50	T5	--
		60	T4	--
C9	2.5	60	T5	--

Warning label
"Warning - Do not open when energized"

Furthermore, for detectors with ambient temperature ≥ 70 ° C:
"Cable with an operating temperature >80 °C must be used"

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 made according to the requirements indicated in the documents annexed to this certificate.

[16] **Report n.** EX-B7002905

Routine tests
The Manufacturer shall carried out the routine tests prescribed at par. 27 of EN 60079-0 Standard.

[13] # Schedule

[14] **EU-TYPE EXAMINATION CERTIFICATE n. CESI 17 ATEX 003 X**

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

- 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.
- The gas detectors shall be accompanied by a suitable documentation reporting the limit values of the operating temperature for the devices installed inside them.
- Only the version with the dust ingress protection device mounted on the sensor head are suitable to be installed in zone 21 or 22.
- Membrane filter of device for the dust ingress protection must not be damaged, drilled or removed. Moreover it must never be touched with bare hands in order to avoid to damage of the filter.
- For the gas detectors type ST/7W/* and ST/8W/*, with enclosures in epoxy coated aluminium, the risk of electrostatic charges has to be considered: the cleaning of the equipment must be done only with a damp cloth or antistatic products.

[18] **Essential Health and Safety Requirements**
The Essential Health and Safety Requirements (EHSRs) are covered by the standards listed at item 9

[19] **Descriptive documents** (Prot. EX-B7002911)

- Technical note NTEX 3556	(pg. 12)	dated	16.11.2016
- Technical note NTEX 3723	(pg. 8)	dated	12.09.2016
- Safety instructions MTEX 3687	(pg. 8)	dated	17.11.2016
- n. MEEX3694	(pg. 4)	dated	01.06.2016
- n. MEEX3695	(pg. 4)	dated	01.06.2016
- n. ASEX3696	(pg. 3)	dated	01.06.2016
- UE Declaration of Conformity DCEX 3697 *(fac simile)*	(pg. 2)	dated	17.11.2016

One copy of all documents is kept in CESI files.