

## Allegato A: Certificato ATEX

(1) **EC-Type-Examination Certificate**

- (2) Equipment and protective systems intended for use in potentially explosive atmospheres, **Directive 94/9/EC**



(3) **Certificate Number** TÜV 11 ATEX 556245 X

(4) for the equipment: Electronic gas volume conversion device ICARUS  
Volumetric Data-logger ICARUS DLC  
Venturimetric Data-logger ICARUS DLV


(5) of the manufacturer: FIMIGAS S.p.A.

(6) Address: Via Goldoni 3  
20063 Cernusco Sul Naviglio  
Italia

Order number: 8000556245

Date of issue: 2012-01-27

- (7) The design of this equipment or protective system and any acceptable variation thereto are specified in the schedule to this EC-Type-Examination Certificate and the documents therein referred to.
- (8) The TÜV NORD CERT GmbH, notified body No. 0044 in accordance with Article 9 of the Council Directive of the EC of March 23, 1994 (94/9/EC), 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 the confidential report No. 11 203 556245.
- (9) Compliance with the Essential Health and Safety Requirements has been assured by compliance with:  
**EN 60079-0:2009                      EN 60079-11:2007                      EN 60079-26:2007**
- (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 in accordance to the Directive 94/9/EC. Further requirements of the Directive apply to the manufacturing process and supply of this equipment. These are not covered by this certificate.
- (12) The marking of the equipment or protective system must include the following:

 **II 1 G Ex ia IIC T4 Ga**  
**II (1) G [Ex ia Ga] IIC**

TÜV NORD CERT GmbH, Langemarckstraße 20, 45141 Essen, notified by the central office of the countries for safety engineering (ZLS), Ident. Nr. 0044, legal successor of the TÜV NORD CERT GmbH & Co. KG Ident. Nr. 0032

The head of the notified body



Schwedt

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(13) **SCHEDULE**

(14) **EC-Type-Examination Certificate No. TÜV 11 ATEX 556245 X**

(15) **Description of equipment**

The ICARUS is a type 1 electronic gas volume conversion device. ICARUS DLC is a Volumetric Data-logger. The ICARUS DLV is a Venturimetric Data-logger. The devices are intended to be connected to a gas meter from which it receives an electrical signal associated to the measured gas volume. The ICARUS performs the calculation of gas „base volume“ from the gas meters measured gas volume considering the pressure and the temperature of the measured gas.

Technical data

**Supply circuit**

(terminals JP1: 1-, 2+)

in type of protection intrinsic safety Ex ia IIC  
only for connection to certified intrinsically safe circuits

maximum values:  $U_i = 10 \text{ V}$   
 $I_i = 100 \text{ mA}$   
 $P_i = 1 \text{ W}$

characteristic line of the supply circuit: rectangular

maximum values:  $U_o = 5 \text{ V}$   
 $I_o = 265 \text{ mA}$   
 $P_o = 330 \text{ mW}$

characteristic line of the supply circuit: linear

Effective internal capacitance:  $C_i = 28.2 \text{ }\mu\text{F}$   
Effective internal inductance: negligible small

**Or/And**

**Supply (Internal battery)**

(terminals JP2: 1+, 2- or  
JP3: 1+, 2-)

1 pc. Lithium batteries type SL-2780, company TADIRAN  
 $U = 3.6 \text{ V}$ , modified accumulator pack of the manufacturer.

**RS232 Modem**

(terminals JP4: 1(RX), 2(TX),  
3(CTS), 4(GND))

in type of protection intrinsic safety Ex ia IIC  
only for connection to certified intrinsically safe circuits

maximum values:  $U_i = 10 \text{ V}$

maximum values:  $U_o = 6.4 \text{ V}$   
 $I_o = 9.3 \text{ mA}$   
 $P_o = 15 \text{ mW}$

characteristic line of the RS232 Modem: linear

Effective internal capacitance: negligible small  
Effective internal inductance: negligible small



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**RS232 Service**

(terminals JP5: 1(RX S), 2(TX S), 3(GND))

in type of protection intrinsic safety Ex ia IIC  
only for connection to certified intrinsically safe circuits

maximum values:  $U_i = 10 \text{ V}$

maximum values:  $U_o = 6.4 \text{ V}$   
 $I_o = 6.2 \text{ mA}$   
 $P_o = 10 \text{ mW}$

characteristic line of the RS232 Service: linear

Effective internal capacitance: negligible small  
Effective internal inductance: negligible small

**RS485**

(terminals JP6: 1(RS485A), 2(RS485B), 3(GND))

in type of protection intrinsic safety Ex ia IIC  
only for connection to certified intrinsically safe circuits

maximum values:  $U_i = 5 \text{ V}$

maximum values:  $U_o = 5 \text{ V}$   
 $I_o = 10.6 \text{ mA}$   
 $P_o = 13.3 \text{ mW}$

characteristic line of the RS485: linear

Effective internal capacitance: negligible small  
Effective internal inductance: negligible small

**M\_HF**

(terminals JP7: 1(HF IN Ex), 2(GND))

in type of protection intrinsic safety Ex ia IIC  
only for connection to certified intrinsically safe circuits

maximum values:  $U_o = 10 \text{ V}$   
 $I_o = 8.5 \text{ mA}$   
 $P_o = 15 \text{ mW}$

characteristic line of the M\_HF: linear

Effective internal capacitance: negligible small  
Effective internal inductance: negligible small

**Header CHIAVE EXT**

(terminals JP8: 1(CHIAVE EXT), 2(GND))

in type of protection intrinsic safety Ex ia IIC  
only for connection to certified intrinsically safe circuits

maximum values:  $U_o = 5 \text{ V}$   
 $I_o = 10.6 \text{ mA}$   
 $P_o = 13.3 \text{ mW}$

characteristic line of the Header: linear

Effective internal capacitance: negligible small  
Effective internal inductance: negligible small



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**Header LF\_IN\_EX**  
(terminals JP8: 2(GND),  
3(LF\_IN\_EX))

in type of protection intrinsic safety Ex ia IIC  
only for connection to certified intrinsically safe circuits

maximum values:  $U_o = 5 \text{ V}$   
 $I_o = 10.6 \text{ mA}$   
 $P_o = 13.3 \text{ mW}$

characteristic line of the Header: linear

Effective internal capacitance: negligible small  
Effective internal inductance: negligible small

**M D&D**  
(terminals JP9: 1(LINK D&D),  
2(GND))

in type of protection intrinsic safety Ex ia IIC  
only for connection to certified intrinsically safe circuits

maximum values:  $U_i = 10 \text{ V}$

maximum values:  $U_o = 5 \text{ V}$   
 $I_o = 2 \text{ mA}$   
 $P_o = 2.5 \text{ mW}$

characteristic line of the M D&D: linear

Effective internal capacitance: negligible small  
Effective internal inductance: negligible small

**M\_DIG\_OUT**  
(terminals JP10: 1-, 2+; 3-, 4+)

in type of protection intrinsic safety Ex ia IIC  
only for connection to certified intrinsically safe circuits

maximum values:  $U_i = 10 \text{ V}$   
 $I_i = 10 \text{ mA}$   
 $P_i = 100 \text{ mW}$

Effective internal capacitance: negligible small  
Effective internal inductance: negligible small

**PWM OUT**  
(terminals JP11: 1-, 2+)

in type of protection intrinsic safety Ex ia IIC  
only for connection to certified intrinsically safe circuits

maximum values:  $U_i = 10 \text{ V}$   
 $I_i = 10 \text{ mA}$   
 $P_i = 100 \text{ mW}$

Effective internal capacitance: negligible small  
Effective internal inductance: negligible small



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**M\_PRESSIONE**

(terminals JP15: 1(E P1), 2(E P2),  
3(E P3), 4(E P4);  
terminals JP18: 1(GND), 2(GND))

in type of protection intrinsic safety Ex ia IIC  
only for connection to certified intrinsically safe circuits

maximum values:  $U_o = 5 \text{ V}$   
 $I_o = 650 \text{ mA (Spark)}$   
 $I_o = 170 \text{ mA (thermal)}$   
 $P_o = 900 \text{ mW}$

characteristic line of the M\_PRESSIONE: trapezoidal

Effective internal capacitance:  $C_i = 28.2 \text{ } \mu\text{F}$   
Effective internal inductance: negligible small

**M\_DELTAP**

(terminals JP16: 1(E DP1), 2(E DP2),  
3(E DP3), 4(E DP4);  
terminals JP19: 1(GND), 2(GND))

in type of protection intrinsic safety Ex ia IIC  
only for connection to certified intrinsically safe circuits

maximum values:  $U_o = 5 \text{ V}$   
 $I_o = 650 \text{ mA (Spark)}$   
 $I_o = 170 \text{ mA (thermal)}$   
 $P_o = 900 \text{ mW}$

characteristic line of the M\_PRESSIONE: trapezoidal

Effective internal capacitance:  $C_i = 28.2 \text{ } \mu\text{F}$   
Effective internal inductance: negligible small

**M\_PT1000**

(terminals JP17: 1(E PT1), 2(E PT2),  
3(E PT3);  
terminals JP20: 1(E PT4), 2(GND))

in type of protection intrinsic safety Ex ia IIC  
only for connection to certified intrinsically safe circuits

maximum values:  $U_o = 5 \text{ V}$   
 $I_o = 650 \text{ mA (Spark)}$   
 $I_o = 170 \text{ mA (thermal)}$   
 $P_o = 900 \text{ mW}$

characteristic line of the M\_PRESSIONE: trapezoidal

Effective internal capacitance:  $C_i = 28.2 \text{ } \mu\text{F}$   
Effective internal inductance: negligible small

Permitted range of the ambient temperature	-30 °C to +55 °C *
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\* but see point 6 of "Special conditions for safe use"

(16) Test documents are listed in the test report No. 11 203 556245



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(17) Special conditions for safe use

1. For the supply of the device by battery the following shall be considered: It is not permitted to operate the device with two batteries connected. For the change of the batteries it shall be guaranteed that no explosive hazardous atmosphere is present.
2. Only batteries supplied by Fimigas shall be used in the device.
3. All electrical conductive parts of the enclosures and of the connected probes shall be bonded to the equipotential bonding.
4. Do not install the apparatus in areas where electrostatic discharges may be caused by e.g. electrostatic fields or fast separation of charge processes.
5. If the apparatus is installed in a potential explosive atmosphere the device shall only be cleaned by using a damp cloth to prevent the build-up of static charge.
6. For zone 0 use the standard atmospheric conditions (relating to the explosion characteristics of the atmosphere) under which it may be assumed that electrical equipment can be operated are:
  - temperature -20 °C to +55 °C;
  - pressure 80 kPa (0,8 bar) to 110 kPa (1,1 bar); and
  - air with normal oxygen content, typically 21 % v/v.

(18) Essential Health and Safety Requirements

no additional ones