(1) # EU-Type-Examination Certificate

(2) Equipment and protective systems intended for use in potentially explosive atmospheres, **Directive 2014/34/EU**

(3)	**Certificate Number**	**TÜV CY 19 ATEX 0206210 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:	**TERMICS srl**
(6)	Address:	Via S. Predengo, 27/29 26022 Castelverde (CR) - Italy
	Order number:	0206210
	Date of issue:	2019-06-10

(7) The design of this equipment or protective system and any acceptable variation thereto are specified in the schedule to this EU-Type-Examination Certificate and the documents therein referred to.

(8) TÜV CYPRUS Ltd, notified body No. 2261 in accordance with Article 17 of the Council Directive of 2014/34/EU of February 26, 2014, 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. 19 0206210.

(9) Compliance with the Essential Health and Safety Requirements has been assured by compliance with:
EN 60079-0:2012 /A11:2013 EN 60079-11:2012 EN 60079-26:2015

(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 EU-Type-Examination Certificate relates only to the design, examination and tests of the specified equipment in accordance to the Directive 2014/34/EU. Further requirements of the Directive apply to the manufacturing process and supply of this equipment which 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 CYPRUS Ltd (TÜV NORD Group),

The head of the notified body,

D. Demosthenous

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(13) **SCHEDULE**

(14) **EU-Type-Examination Certificate No. TÜV CY 19 ATEX 0206210 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 Venturimentric 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.

Type key:

ICARUS Electronic gas volume conversion device
ICARUS DLC Volumetric Data-logger
ICARUS DLV Venturimetric Data-logger

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 = 15 V I_i = 100 mA P_i = 1.2 W Characteristic line of the supply circuit: rectangular Maximum values: U_o = 5 V I_o = 265 mA P_o = 330 mW Characteristic line of the supply circuit: linear Effective internal capacitance: negligible small Effective internal inductance: negligible small
Or/And **Supply (Internal battery)** (terminals JP2: 1+, 2- or U = 3.6 V, JP3: 1+, 2-)	1 pc. Lithium batteries type SL-2780, company TADIRAN U = 3.6 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 V maximum values: U_o = 6.4 V I_o = 9.3 mA P_o = 15 mW

	characteristic line of the RS232 Modem: linear Effective internal capacitance: negligible small Effective internal inductance: negligible small
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 V maximum values: U_o = 6.4 V I_o = 6.2 mA P_o = 10 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 V I_i = 1 A Maximum values: U_o = 5 V I_o = 10.6 mA P_o = 13.3 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 = 15 V I_o = 50.4 mA P_o = 189 mW Characteristic line of the M_HF: linear Effective internal capacitance: 0.58 µF Effective internal inductance: 30 mH

Header CHIAVE EXT (terminals JP8: 1(CHIAVE EXT), 2(GND)) **Header CHIAVE EXT 2** (terminals JP21: 1(CHIAVE EXT_2), 2(GND)) **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 V I_o = 10.6 mA P_o = 13.3 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 V maximum values: U_o = 5 V I_o = 2 mA P_o = 2.5 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 V I_i = 10 mA P_i = 100 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 V I_i = 10 mA P_i = 100 mW Effective internal capacitance: negligible small Effective internal inductance: negligible small

M_PRESSIONE (terminals JP15 or JP16: 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 V I_o = 650 mA (Spark) I_o = 170 mA (thermal) P_o = 900 mW characteristic line of the M_PRESSIONE: trapezoidal Effective internal capacitance: Ci = 28.2 µF Effective internal inductance: negligible small
M_DELTAP (terminals JP15 or 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 V I_o = 650 mA (Spark) I_o = 170 mA (thermal) P_o = 900 mW characteristic line of the M_PRESSIONE: trapezoidal Effective internal capacitance: Ci = 28.2 µF 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 V I_o = 650 mA (Spark) I_o = 170 mA (thermal) P_o = 900 mW characteristic line of the M_PRESSIONE: trapezoidal Effective internal capacitance: Ci = 28.2 µF Effective internal inductance: negligible small

Allowable ambient temperature range:

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

Marking

The brand FIMIGAS is added in the nameplate

(16) Test documents are listed in the test report No. 19 0206210

(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 TERMICS 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

This certificate covers only the Essential Health and Safety Requirements related to the Directive 2014/34/EU.