

ICARUS DLC

VOLUME, PRESSURE AND TEMPERATURE DATA LOGGER



1. INTRODUCTION

ICARUS DLC is a volume, pressure and temperature data logger. It is designed to memorize operating pressure, temperature and uncorrected volumes when connected to a gas meter. According to norm UNI 9167, it is installed in a transport network, with the electronic converter for fiscal measuring. It can also be used to test gas tubes.

ICARUS DLC is a type 1 device, manufactured with integrated pressure and temperature sensors.

2. TECHNICAL SPECIFICATIONS

Pressure Measurement

ICARUS DLC is fitted with an external piezo-resistive absolute pressure sensor, connected to the processing unit by a cable whose typical length is 3m.

The connection is a G ¼", flat sealing.

- Available pressure range: 0÷ 2,5; 6; 10; 30; 81; 150; 250 bar A
- Accuracy: 0,1% of the full scale.



TERMICS s.r.l.

Via S.Predengo 27/29 - 26022 Castelverde (CR)

Email: termics@tecnosite.it

Website: www.termics.it



Email: info@fimigas.com

Website: www.fimigas.com

2.2 Temperature Measurement

ICARUS DLC is provided with a 4 wires CLASS A PT1000, compliant to European Norm EN IEC 60751 (its resistance at 0°C is 1000Ω). The 4 wires connection guarantees a high accuracy measurement regardless of cable length. The sensor is connected to the processing unit by a cable whose typical length is 3 meters. The measurement range of the transducer is -30°C÷+70°C.

2.3 Signal Inputs

- N.4 available digital signal inputs:
 - LF input
 - HF Namur input
 - Counter tamper input
 - Status input
- N.1 Pressure measurement input
- N.1 Relative pressure input
- N.1 PT1000 input

When connected to a LF pulse emitter, gas meter pulses are divided by a “pulse weight factor” [pulse/m³] which is set in the device. When it is connected through the HF input, the input must be set specifying:

- Impulse weight
- The frequency value of the pulse train, corresponding to the maximum flow rate

HF input can operate only if ICARUS DLC is powered by an external power supply.

2.4 Display

The display grants to:

- visualize gas data in real time
- visualize historical data
- visualize active alarms on the device
- visualize/modify the setup
- visualize/modify calibration value for pressure and temperature

2.5 Outputs

- N° 1 optical serial port to communicate with a local PC (programming, data download), to use in compliance with intrinsic safety regulations.
- N° 1 RS 232 serial port to connect with a PC or GSM modem, installed in a safe zone.
Communication takes place with CTE protocol.
- N° 3 impulse outputs of the open collector type, programmable for the repetition of the following values: correct volumes, non-correct volumes, alarms.
- N° 1 RS 485 serial port, used for communication, with MODBUS RTU protocol, with an external data logger, or with a device for Safe Area with multiple interface, ICA4
ICA4 device specifications at the end of the document.

2.6 Keypad

The keypad is composed by 5 buttons:

- Four buttons with arrows (Up, Down, Left, Right)
- A confirmation button (OK)

The directional buttons Up/Down:

- scroll menu voices Up/Down.
- move display cursor from an upper/lower row.

The directional buttons Left/Right:

- access a menu page
- move display cursor Left/Right

The OK button permit to:

- select a menu voice
- confirm a parameter configuration



2.7 Power

ICARUS DLC may be powered with:

- internal lithium battery (3,6 V)
- external power (15 Vdc max)
- solar panel

The internal battery, that satisfies ATEX requirement, guarantees a life autonomy of 5 years in normal user conditions.

In presence of external power, the battery works as a back-up.

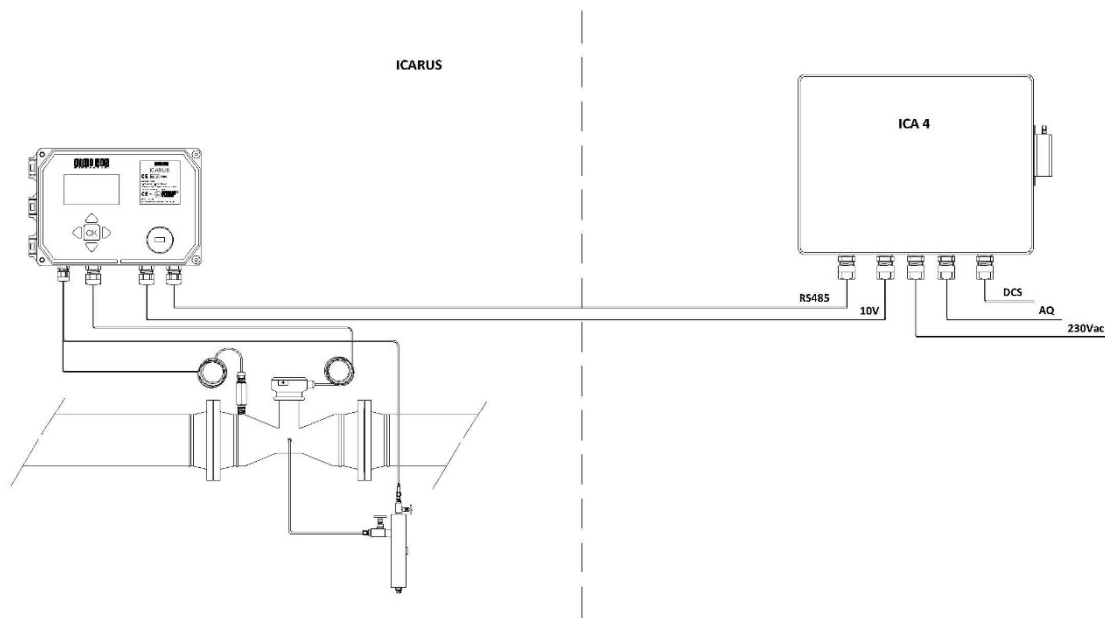
WARNING: HF input is powered only from external power. To avoid the risk of interruption of impulse gathering it is suggested to have a UPS unit on the network that guarantees continuous power.

3. INSTALLATION SITE

ICARUS DLC is generally installed in classified “Zone 1” hazardous area, next to gas pipelines. In its function of reserve measurement, it’s always connected to the communication device to transfer gas consume data. In fixed measurement points of the Gas Transport Network, ICA4 device interface is installed in a safe area and is connected to ICARUS DLC by barriers of intrinsic safety.

The enclosure is provided with 4 fixing threaded holes positioned at the corners. The internal diameter of the holes is 4mm. By these holes, ICARUS DLC can be both wall-fixed and plate-fixed using 4M screws.

Note: the installer must always control that the enclosure is electrically connected to the ground. When necessary, it will connect the ground cable between the fixing screws and the ground of the electrical system.



EXAMPLE OF A TYPICAL INSTALLATION



4. ICA4 DEVICE

The data logger ICARUS DLC can communicate, for its interface on ICA4 safe zone, that works also as remote power supply.

The communication between ICARUS DLC and ICA4 works using Modbus protocol with a serial connection RS485.

ICA4 consists of:

- Input:
 - N.1 RS485 to communicate with ICARUS
 - N.4 digital inputs of optional status (through interposed safety barriers)
- Output:
 - N.1 RS485 to communicate with quality analyzer
 - N.1 RS485 to communicate with SNAM NETWORK GAS
 - N.1 RS232 to communicate with a GSM external optional modem
 - N.1 service micro USB
 - N.3 analogical outputs 4.20 mA
 - N.1 digital output Relè type
 - N.3 digital exits open collector type
 - N.2 12v power output

ICA4 device is powered by 230Vac/24Vdc



5. ENVIRONMENT CONDITIONS

- Environment temperature: -25°C - +55°C
- Storage temperature: -40°C - +80°C
- Relative humidity: 0% - 100%

ATEX CERTIFICATION

ICARUS DLC is an electrical device of INTRINSIC SAFETY. Certified ATEX: TUV CY 19 ATEX 0206210 X

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