

ICARUS DLV

VENTURIMETRIC DATA LOGGER



1. INTRODUCTION

ICARUS DLV is a venturimetric data logger. It is designed to memorize gas temperature, absolute gas pressure and differential pressure. According to norm UNI 9167, it is installed in a transport network with a flow computer used for fiscal measuring. It can also be used to monitor gas tubes.

ICARUS DLV is a type 1 device, realized with integrated pressure sensors, differential sensors and temperature sensors.

2 TECHNICAL SPECIFICATIONS

2.1 Absolute Pressure Measurement

ICARUS DLV is equipped with an external absolute pressure transducer connected to the body with a cable 3 m long (standard version). Pressure connection is a 1/4" GAS M fitting.

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

2.2 Temperature Measurement

ICARUS DLV is equipped with a class A 4-wire PT 1000 transducer, compliant with the European Standard EN IEC 60751 (its resistance at 0 ° C is 1000Ω). The 4 wire connection guarantees high accuracy measurement independent from cable length. The sensor is connected to the computing unit from a cable typically long 3 meters. Transducer measuring range is of -30°C÷+70°C.

2.3 Differential Pressure Measurement

ICARUS DLV is equipped with an external pressure differential connected to the body with a 3 meters cable (standard version). Pressure connection is a ¼”GAS M fitting.

- Range: 0 ÷ 500 mba
- Precision: best of 0,2% of F.S. in range 30 – 100% of F.S (0,5% in range 0-30% of F.S.)

2.4 Impulse Output

ICARUS DLV is equipped with two impulse output that can be used to connect to externally installed devices in a safe zone. Both outputs can be used to identify active alarms.

2.5 Serial Port Communication

N° 1 optical serial port to communicate with a local PC (programming, data download)

N° 1 RS 232 serial port to connect with a PC or GSM modem, to communicate with an external modem type GSM/GPRS.

N° 1 RS 485 serial port, used for communication, with MODBUS RTU protocol, or alternatively with an external modem type GSM/GPRS.

The port can be converted to an Ethernet and/or place a disposition up to 4 configurable analogical output.

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:

- select a menu voice
- confirm a parameter configuration

2.7 Display

The display can:

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

2.8 Power

ICARUS DLV 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.

3 DATA READING

Memorized data can be remotely loaded with two methods:

- By remote reading of ICARUS DLV to the remote device.
- By local reading with a PC or LAN connection.

ICARUS DLV meets all the requirements set by UNI 9167 and the Snam Rete Gas Adjustment Plan in relation to the Aeeg ARG/gas resolution 184/09, and is prepared for the CTE communication protocol in accordance with UNI TS 11291: 2009.

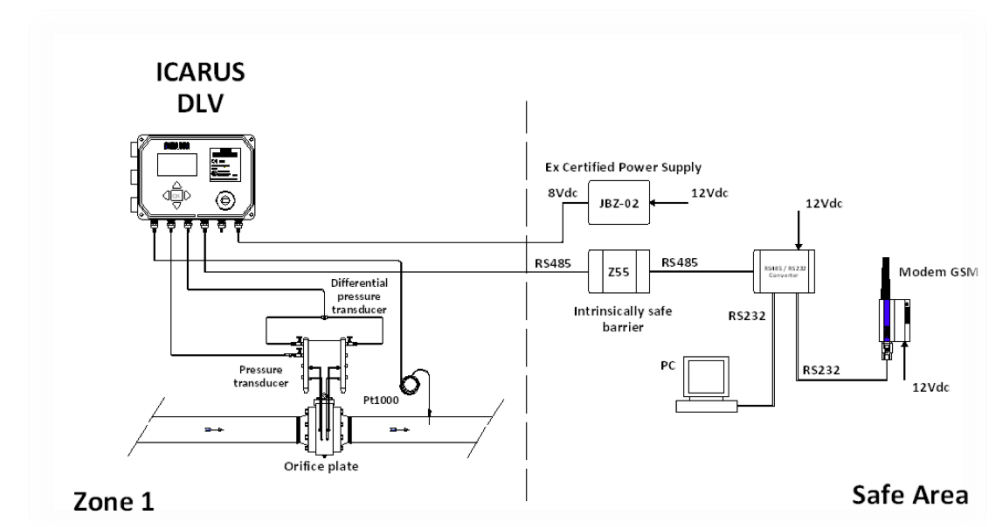
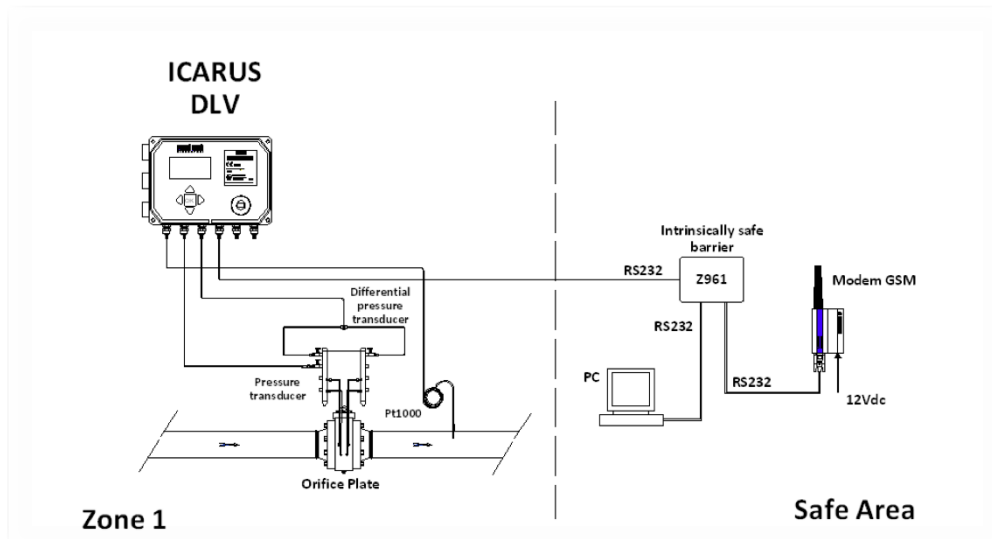
The connection of the PC to the optical port must take place in compliance with the INTRINSIC SAFETY standards, and therefore in an environment and in conditions that comply with the requirements of the same.

4 INSTALLATION

ICARUS DLV 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, the modem is installed in a safe area and is connected to ICARUS DLV by barriers of intrinsic safety. Typical installation diagrams are shown below.

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 can be both wall-fixed and plate-fixed using M4 screws.



5 ATEX CERTIFICATION

ICARUS DLV is an electrical device of INTRINSIC SAFETY.

ATEX certificate: TUV CY 19 ATEX 0206210 X

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

6 WEIGHT AND DIMENSIONS

Plastic storage material, ideal for wall and pipe mounting.

- Dimensions: 210 x 150 x 95 mm
- Protection Grade: IP 66
- Weight: 2 Kgs circa

7 ENVIRONMENT CONDITIONS

ICARUS DLV is designed to operate in the following environment conditions:

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

8 DIRECTIVES AND REFERENCE STANDARDS

Directives

- European Directive 2014/34 / EU relating to equipment and protection systems intended for use in potentially explosive atmospheres (ATEX).
- European Directive 2014/30 / EU relating to electromagnetic compatibility (EMC).
- European Directive 2011/65 / EU relating to the use of hazardous substances in electrical and electronic equipment (RoHs).
- European Directive 2012/19 / EU relating to the collection and recycling of electrical and electronic equipment (WEEE).

Standards

- Italian standard UNI 9167-2009 relating to the design, construction and verification of natural gas measurement systems.
- EN-IEC 60079-0, Explosive atmospheres - Part 0: General requirements, 2007.
- EN-IEC 60079-11, Explosive atmospheres - Part 11: Intrinsically safe protective equipment.
- IEC 60079-14, Explosive atmospheres - Part 14: Design, selection and construction of electrical installations.
- IEC 60079-17: Explosive atmospheres - Part 17: Inspection & Maintenance of installations in hazardous areas.
- EN-IEC 60079-28, Explosive atmospheres - Part 28: Protection of transmission equipment and systems using optical radiation, 2006.
- EN-IEC 60079-26, Explosive atmospheres - Part 26: Equipment with EPL (Equipment Protection Level) GA, 2007.
- EN-IEC 62056-21, Electrical equipment for measurement - Data exchange for remote reading, tariff and control - Part 21: Direct exchange of data from local, 2002.
- International Standard IEC 60529, Degree of protection ensured by enclosures (IP Code), 2001.



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