Gas detector series Industrial
Installation Manual

These instructions shall be used by qualified service personnel only, who have been duly trained to install and maintain Gas detection systems.

WARNINGS

Valid for all variants of IP and ATEX Gas detectors

- Do not install and connect the gas detector without carefully reading these instructions. All operations must be executed by skilled personnel who are aware of the regulations and has attended a technical training course on products included in this manual.
- The housing must be earthed (grounded).
- Keep the sensor away from gas substances or solvents such as silicone and derivatives, acetone, all types of paints, alcohol & derivatives, cleaning solvents, turpentine, bleach, etc. These agents could damage the sensitive part of the sensor or permanently change the original setting. Strictly avoid to test the sensors with lighters or generic spray cans.
- When the sensor is outdoor installed, it's necessary to put an adequate cover over the sensor to avoid being directly wet by rain or snow.
- Do not install the sensor closed to vents, high speed air or vortexes.
- During the installation or maintenance of ATEX gas detectors, before opening the housing, make sure that the power is OFF (either 24Vdc or current loop) and that the application area is safe. Otherwise it's forbidden to open the sensor and execute connections.
- Do not disconnect any connectors or plug-in cards when the sensor is powered up.
- When the installation is completed, it's necessary to execute the electrical tests on the sensors by using the proper software, working with the simulation functions, generating pre-alarm, alarm and fault conditions and checking the exact match in the control panel or in any other device connected to the sensors
- For ATEX gas detectors it's mandatory to read carefully the safety instructions contained in the package.
- The Gas detector must be installed vertically with its nose facing down (see pictures).

- Do not unplug the connector of the sensitive element when it's powered and do not power the sensor when the head is not available

- The installation height is determined by the type of gas to be detected. Here below there are some examples; in case the type of gas is not included in this list, please check the specific gravity to avoid installation errors.

- **Examples:**

- Heavy gases: about 30 cm from the ground (eg. Propane, gasoline vapors etc.)

- Light gases: about 30 cm from the ceiling (eg. Methane, Hydrogen, etc)

- The Oxygen and Carbon Monoxide gas detectors have to be installed mainly at ca. 1,60 cm from the ground.

NOTES NOT SUBJECT TO REVIEW

Gas detector Moon series - Overview

The new generation of gas detectors Moon series is available with 5 different sensing elements, in order to provide a very large range of Gas detection applications.
The sensor can be combined with 6 different Communication Interfaces that can be selected according to the installation needs. Details and diagrams in the next pages.
The detector has been designed to give to the installer the possibility to check the sensor parameters, set and change the sensor element, provide maintenance service directly on-site, through a dedicated software application (Level 1 and Level 2).

L1 visualization

- Production year and serial number, sensor type, sensor code, unit of measure, gas head FW version, base board FW version.
- Indication of alarm and prealarm status, fault status and fault type.
- Prealarm and alarm threshold
- Prealarm and alarm filters
- 4-20mA working range
- Initialization delay
- Sensor life (working hours)
- Alarms number (only real alarms occurred during sensor life are counted, not software simulation).

Level 2

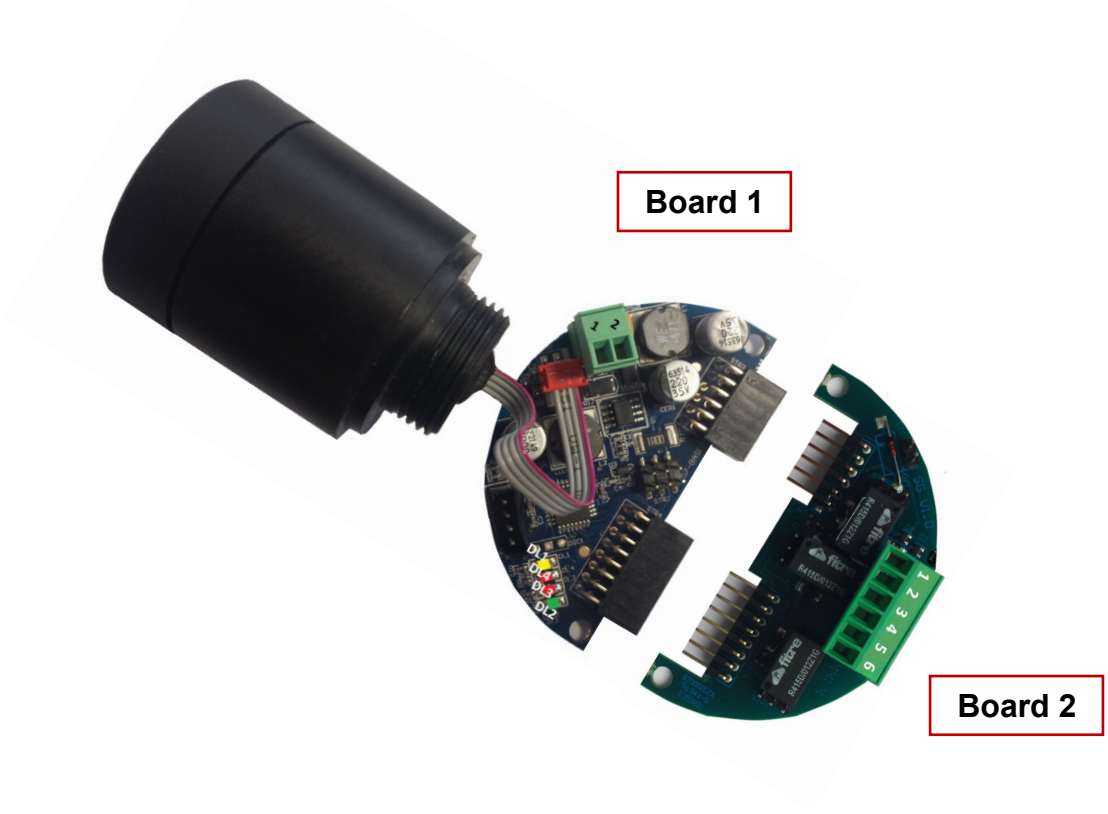
Password protected: it is possible set the sensor, with the support of calibrated gas cylinders, without any electronic adjustment trough trimmers or jumper, but easily trough the software interface. Moreover it is possible finalize the sensor element (head) substitution, even by software. This function is conform to the international technical norms in order to protect the detector from external sabotage or setting modification by not authorized personal.
The head substitution can be done only with a new one (same item). A different head will generate a failure into the detector.

L2 Parameters editing

- Prealarm and alarm threshold
- Prealarm and alarm filters
- 4-20mA working range
- Initialization delay
- Sensor element (head) substitution
- Calibration

Description

Industrial gas detectors, available with IP55 metal housing or **ATEX II 2G Ex-d IIC T6** housing. The detector is combined with two boards: the first card controls the sensing element, and depends to the detected Gas type; the second one controls the communication to the control device (see the table below) and it is available either for connection to specific panels or for connection to normal electrical cabinets and PLC.
Sensors for automatic gas detection are generally suitable for explosion risks, Hydrocarbons (L.I.E. detection), toxicity Ammonia, Carbon Monoxide (ppm detection) and Oxygen control (% detection).



Gas detector Moon series - Technical Features

General Features

Power Supply:	12/24Vdc
Semiconductor sensors:	Max 50/80 mA (StBy/Alarm)
Catalytic sensors:	Max 70/100 mA (StBy/Alarm)
Elettrochemical cell sensors:	Max 30/60 mA (StBy/Alarm)
Operating temperature:	0 to 40 °C with compensation measurement
Humidity	Up to 90% relative, non-condensing
Max air speed	10 m/sec

Standard Thresholds

L.I.E.:	15% prealarm and 30% alarm
P.P.M.:	100ppm prealarm and 200ppm alarm
Oxygen (defect):	18% prealarm and 15% alarm
Oxygen (excess):	24% prealarm and 27% alarm

Mechanical Features

G7 metal housing	IP55 ADFT Dim. (HxWxD) 141x100x60mm Weight 370gr
E7 explosion proof housing	ATEX II 2G Ex-d IIC T6 Dim. (HxWxD) 170x90x78,50 Weight 1Kg

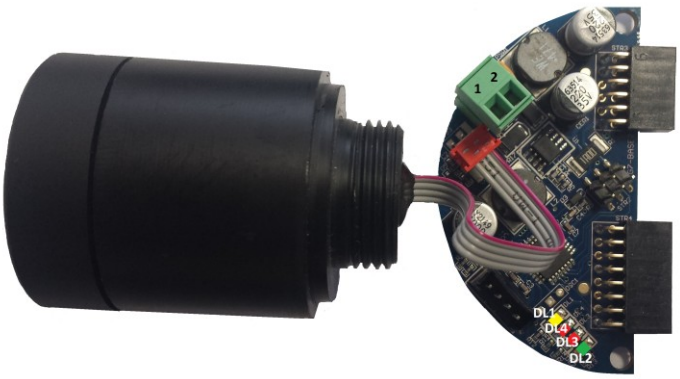
Electronic Base Board

LEDs Description

LD1 yellow color, failure.
LD2 green color, power supply presence.
LD3 red color, prealarm, Gas presence equal or higher to the prealarm threshold.
LD4 red color, alarm, Gas presence equal or higher to the alarm threshold

J1 Terminal board

1 Negative
2 Positive 12/24 Vdc



LIFE OF THE SENSORS

The average life of the sensors:

- Catalytic: in a clean environment the life can be of 3/4 years. In presence of pollution, the average life is reduced and as well the sensitivity.
- Electrochemical cell: in a clean environment, the life can be of 2/3 years. In presence of pollution, the average life of the sensor rapidly decreases.
- Semiconductor: in a clean environment the life can be of 3/4 years. In presence of pollution, the average life rapidly decreases and the values reading is altered.
- Infrared: in a clean environment the life can be of 5 years.

MAINTENANCE

- The Gas detectors maintenance is mandatory and it ensures the proper functioning of the sensor.
- The maintenance has to be planned according to the installation site and to the deterioration experienced by the sensors in the various environments, at least every 6 months.
- All operations must be executed in compliance with the relevant regulations in force.

G7-RL 3 Relais interface

Description

The 3 relays interface provide a free of voltage relay for each single event: alarm, prealarm and detector fault.
It is possible to set each single relay contact as NO or NC, trough the jumpers on board.
Power supply can be set to 12Vdc or 24Vdc opening or closing the dedicate jumper.

J1 Terminal board

1 Alarm output
2 Alarm output
3 Prealarm output
4 Prealarm output
5 Failure output
6 Failure output

Settings

STR3 Opened **24Vdc** - Closed **12Vdc**
STR4 Prealarm position 1-2 NC, 2-3 NO
STR5 Alarm position 1-2 NC, 2-3 NO
STR6 Failure position 1-2 NC, 2-3 NO

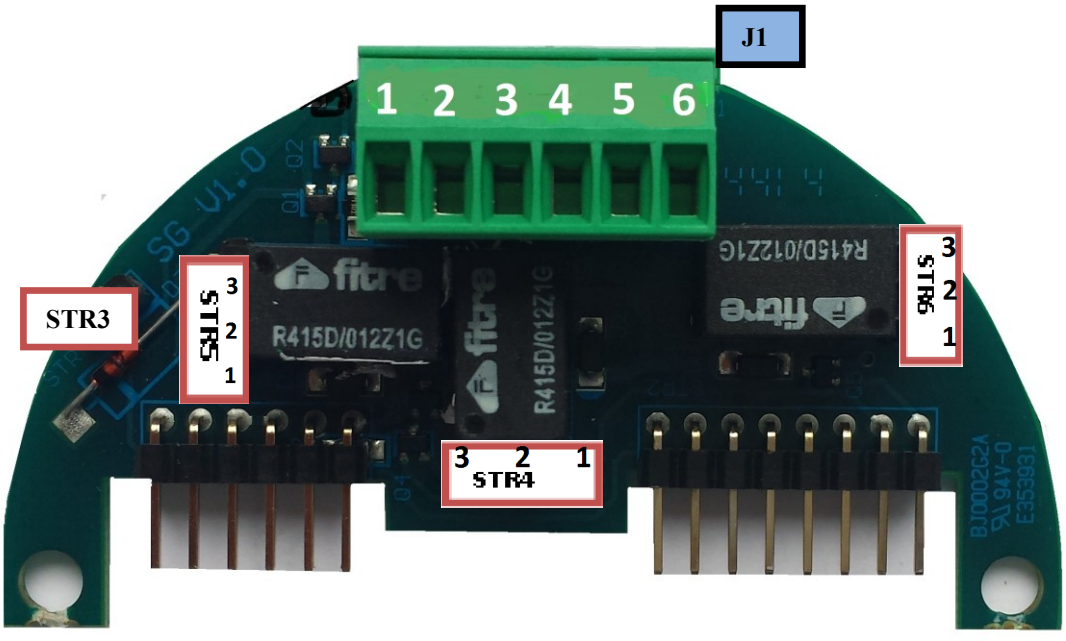
Technical Features

Power Supply 12/24 Vdc
Relay contacts current max 1A @ 30Vdc
Relay contacts current max 0,5A @ 12Vdc

Warning

Using relays interface, it's mandatory to have a power supply of at least 10 Vdc when working at 12Vdc, or at least 22 Vdc when working at 24 Vdc.

Layout



Description

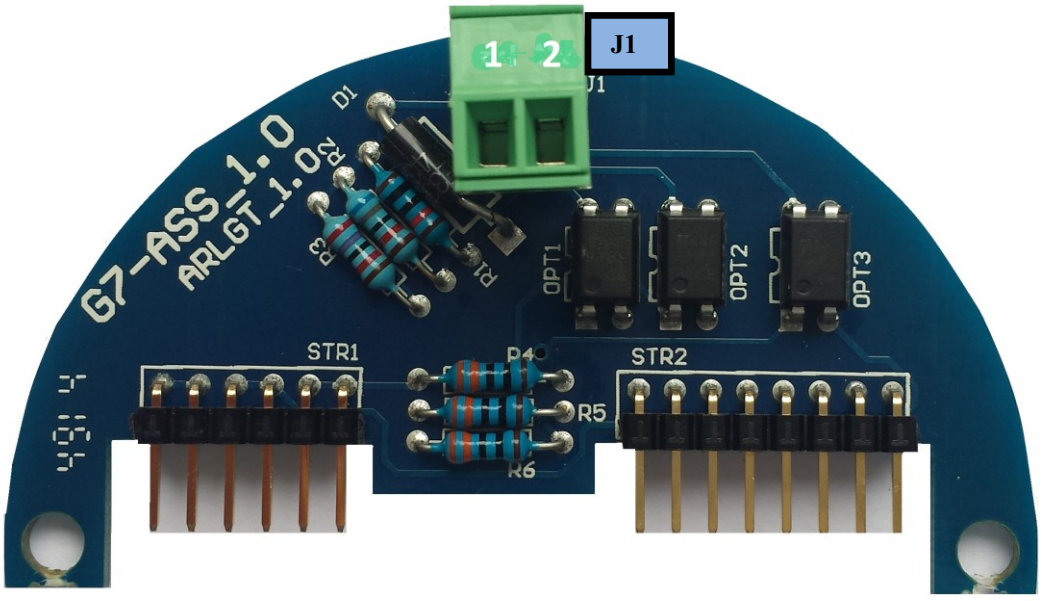
The interface is developed to keep simple.
The connection to input modules, or to conventional panels, requires this interface has to be ordered with the specific resistors, for the specific panel/modules.
The resistors have to be pre-configured in manufacturer laboratories.
The interface allows a 2 wires connection without any balancing resistor.

Electronic Board type G7-AS

J1 Terminal board

1 Zone positive
2 Zone negative

Layout



Note
Before connecting the interface to the module or to the panel, verify that the balancing resistors are correct for the module/panel it self.

G7-42 4-20mA Interface

Description

The G7-42 interface manages a 4-20mA output in the following way:

1. Active output with positive signal (Default)
2. Active output with negative signal
3. Passive output with positive signal
4. Passive output with negative signal

Electronic Board type G7-42

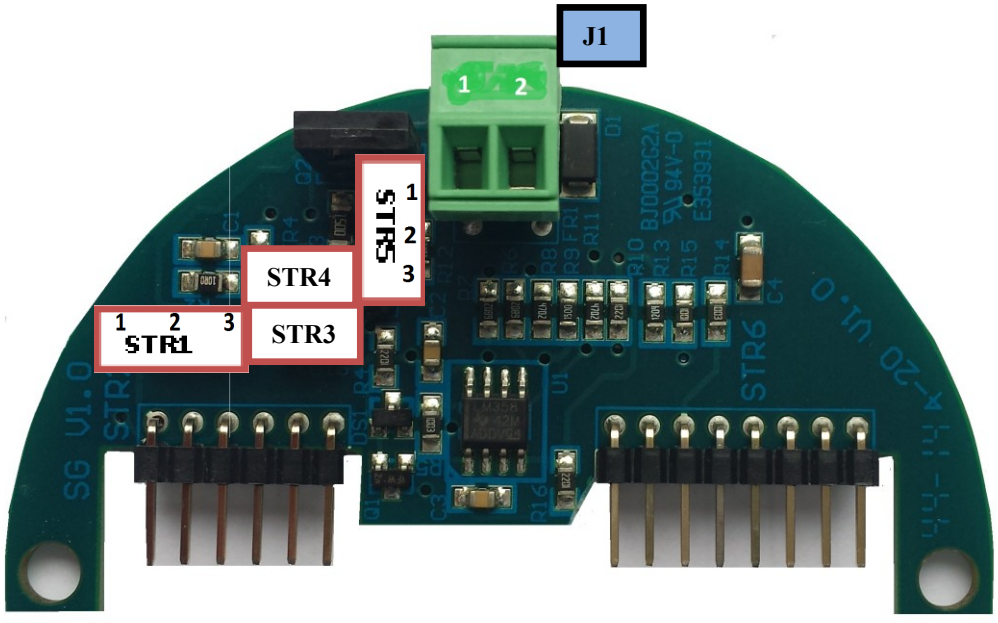
Settings

Type	Board G7-42				Base Board 1
	Str1	Str3	Str4	Str5	Str5
1	Close 2-3	Open	Close	Close 2-3	Open
2	Close 1-2	Close	Open	Close 1-2	Open
3	Open	Open	Close	Close 2-3	Close
4	Open	Close	Open	Close 1-2	Close

J1 Terminal board

Terminal	Type 1	Type 2	Type 3	Type 4
1	Positive	Negative	Positive	Negative
2	Negative	Positive	Negative	Positive

Layout



Note

Jumpers can be only moved with the board is switched off (without power supply).
Verify very well the right output type required, before power on.
A wrong setting may damage the interface.

G7-LE ENEA protocol Interface

Description

The interface has been developed in order to be connected directly to control panels with ENEA (INIM) protocol Loop lines. The communication support the different sensor types (Methane, Hydrogen, Propane, etc) and the real time analog value with three types of measurement units: **L.E.L, P.P.M, %**

Sensor addressing

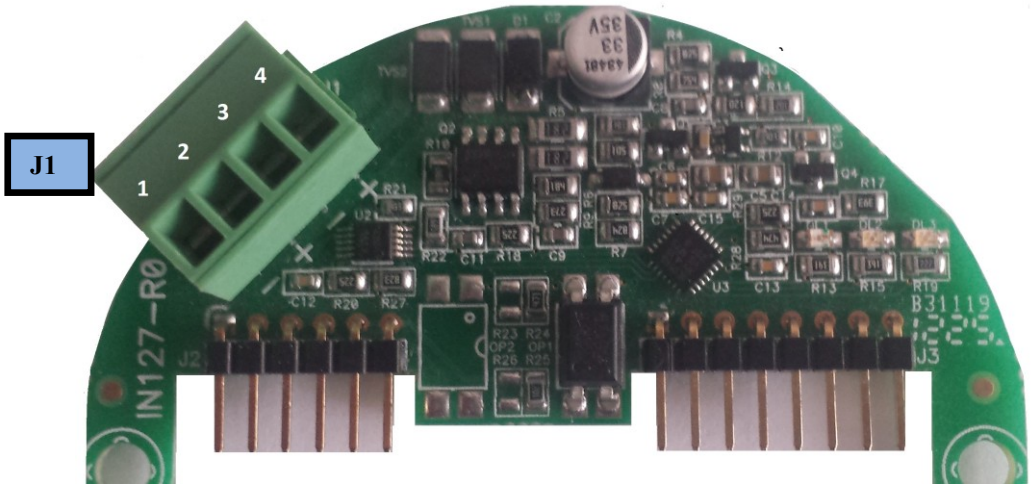
As other ENEA devices, G7-LE interface has a serial-number address on board.
To assign to the control panel, refer to ENEA manuals and documentation.

Electronic Board type G7-LE

J1 Terminal board

1 - Loop IN
2 + Loop IN
3 - Loop OUT
4 + Loop OUT

Layout



NOTE

IMPORTANT NOTE. Use a properly shielded cables size,conforming installation features, and connected the shield.

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