

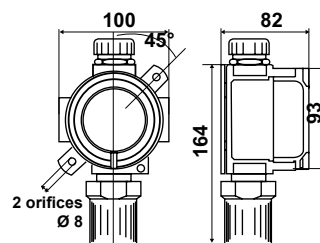
S84 - S85 - S86

Gas detection probes certified with ATEX, 4- 20mA, for control units P81 and P82

Combustible gas detection probes, certified with ATEX II 2G Ex d IIC T6, to be used with the electronic control units P81 and P82. The probes are available in 3 versions: S84 for methane gas and city gas, S85 for LPG and S86 for carbon monoxide.



Dimensions (mm)



	Gas type	Operating ambient temperature	Protection degree
S84	Methane gas, or other light gases	- 10 ÷ 50 °C	IP65
S85	LPG gas (cylinder liquid gas) or other heavy gases	- 10 ÷ 50 °C	IP65
S86	CO carbon monoxide	- 10 ÷ 50 °C	IP65

ELECTRICAL CHARACTERISTICS

Power supply: 11 ÷ 28Vdc.

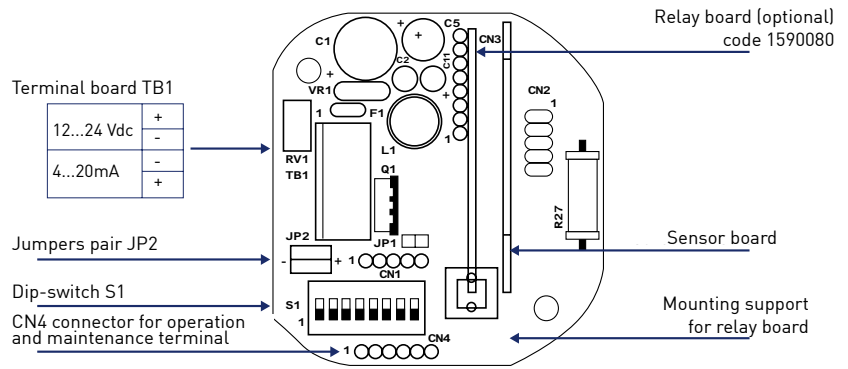
Absorption: maximum 3.2W.

Output logic 4...20mA:

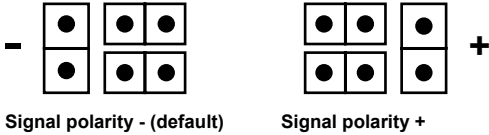
- proportional logic (default)
 - 4mA = 0% LEL; 0 ppm
 - 20mA = 100% LEL; 500 ppm
 - absorption logic (applications with 1 or 2 thresholds)
 - 0mA = no alarm
 - 10mA = 1st threshold alarm
 - 20mA = 2nd threshold alarm
 - reference selection of the signal 4...20mA
 - to 1/2 of jumpers with reference to power supply negative or positive signs
- 4...20mA output load resistance up to 200Ω at 12Vdc power supply and up to 200Ω, 700Ω at 24Vdc power supply

TERMINAL BOARD AND ELECTRICAL WIRING

The basic sensor is set to have as reference signal (4 ... 20mA) the negative sign of power supply; to change this setting move the set of three jumpers in the position JP2 as shown in the figure:



REFERENCE SIGNAL SELECTION 4...20mA



ATTENTION: if the basic settings are changed the indications on the terminal board TB1 will be reversed.

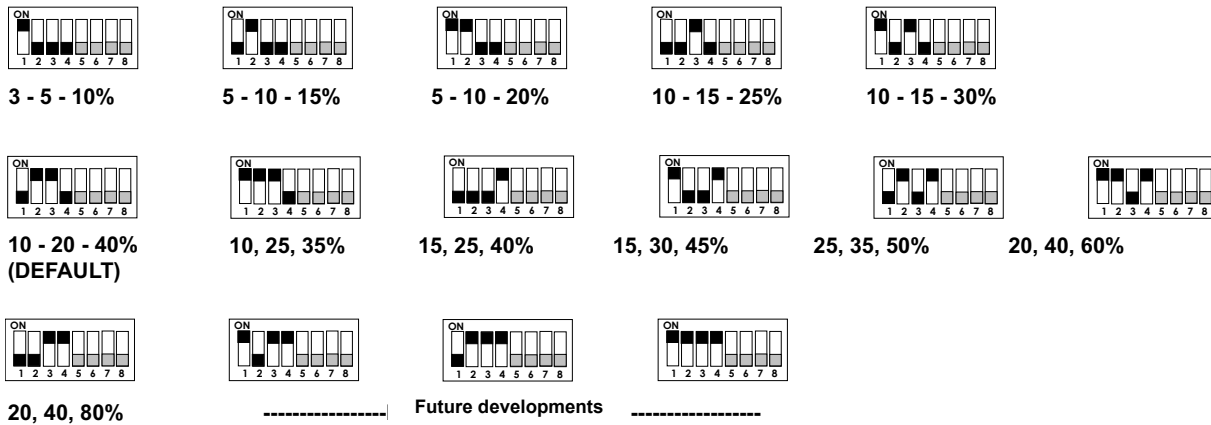
LOGIC OPERATING SETTING OF THE SIGNAL 4 ... 20MA

To realize the operation logic setting of the signal 4...20mA, act on the 5th dip-switch selector in the position S1, in particular:



INTERVENTION THRESHOLDS SETTING

To realize the intervention thresholds setting of the optional relay board, or 4...20mA output threshold operation, act on the first four selectors of the dip-switch, in the position S1; in particular the thresholds, expressed in percentage of the bottom scale, will be:



STANDARDS AND APPROVALS

Complies with the directives/norms EMC 89/336/CEE, norm EN 50270.
Certified with ATEX II 2G Ex d IIC T6.



INSTALLATION

Sensor installation must be done in accordance with EN 60079-14 standard. As cable entry use the cable gland nipple of 1" NPT certified with ATEX and complies with the standards EN 60079-0 and EN 60079-1 (Ex d protection type).
The sensor must be connected to earth through the appropriate system (provided).

The installation depends of the gas type that must be detected:

- approximately 20 ÷ 40 cm from the floor for gases heavier than air (LPG or gasoline fumes);
- approximately 20 ÷ 40 cm from ceiling for gases lighter than air (METHANE)
- approximately 1,5 ÷ 2 m above the floor for gases with the density similar to air (CO).

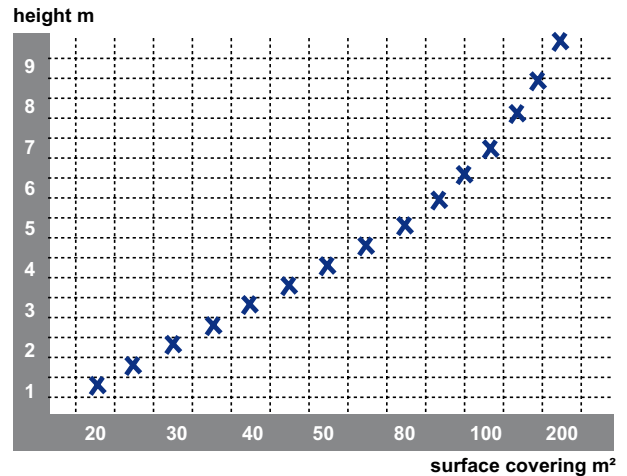
The positioning of the probes must be taken into consideration, in addition to the above-mentioned general rules, including the following rules of installation. The probes must be installed:

- close to gas leaks possible areas;
- at least 1,5 m from heat sources and ventilation openings;
- never in poorly ventilated areas where may be detected the gas;
- far from obstacles that can impede natural circulation of the gas;
- not in the immediate vicinity of machines that during normal operation can produce functional losses;
- in environments where the atmospheric conditions are between -20°C and 50°C and the relative humidity is less than 90% without condensation;
- probes mounting and dismantling must be done when the unit is not powered.

Probes number to be installed in an environment is proportional to its surface and its height.

Considering the multitude of variables that determine this parameter (see the figure at the right), the diagram that follows should be considered as simple help and not as rule for installation.

Depending on the distance, use as connection a cable with at least 3 conductors with minimum section of 0,75mm² up to 100m, 1mm² up to 200m, 1,5mm² up to 500m. In the presence of electromagnetic disturbances use shielded cable. If is present the relay board, use a multipole cable suitable for number of connections. Cable sheath should not exceed the diameter provided for the cable gland.



ATTENTION: the safety is guaranteed, provided that the cover is properly screwed and fastened.

Screw the cover in clockwise direction making sure that, at the end of operation, remains a space between housing and cover, not more than 0,5 mm. This ensures the perfect closure. Remember to tighten the hexagonal head fitting pin placed on the circumference of the same cover.

The indication «DO NOT OPEN UNDER TENSION», clearly indicated on the cover, must be absolutely respected.

Is necessary to open the windows or the doors for room aeration before opening the cover of the sensor.

OPERATION

S84-85-86 probes are used to detect the presence of methane gas, LPG, carbon monoxide (CO), gasoline fumes and upon request, acetylene, hydrogen, ammonia, propane, octane and ethyl alcohol in areas classified in industrial environments and heating plants. S84-85-86 probes shall be provided for a stand-alone operation with 4 ... 20mA output, and optionally, with no 4 relay outputs with voltage free changeover contacts, respectively for:

- previous warning (pre-alarm),
- 1st alarm threshold,
- 2nd alarm threshold,
- faulty sensor.

In case of gas leak the probe compares the value of the measured concentration with the intervention thresholds, set by activating the relays associated with them. The information about the value of the measured concentration is always present on the output 4 ... 20mA.

The average life time of the probes is calculated taking into consideration a typical use in a normally free of contaminants environment. A more frequent presence and in higher concentrations of these substances can accelerate the normal oxidation process of the sensing element, resulting with its life time decrease.

The system, once put into operation, must be left in working condition until the sensors life time has ended.

It is not recommended the seasonal work.

Up to three intervention thresholds.

Led on the sensing element to indicate the operation status.

Automatic counting of the sensors life time.

Device power supply is realized during sensor preheating phase, that has a duration of about 2 minutes. After this time has ended, the sensor will pass in normal operation status, however the best performance you can get after a period of approximately 2 hours.

TECHNICAL FEATURES

Sensor type: catalytic, standard.

Measurement range 0...100% LEL.

Sensor precision $\pm 5\%$ of the probe scale, $\pm 10\%$ of reading.

Precision (semiconductor) $\pm 10\%$ of full scale (the calibration point).

Repeatability $\pm 5\%$ of full scale, $\pm 10\%$ of reading.

Measurement resolution 1% LEL.

Digital processing of Kalman filter measurement.

Preheating time $< 2m$.

Stabilization time $< 2m$.

Maximum response time $< 20s$ (T50), $< 60s$ (T90).

Average life time of the sensor in air 255 weeks.

Environment temperatures:

■ operating $-20 \div 50$ °C;

■ storage $-20 \div 70$ °C.

Environment humidity without condensation:

■ operating $15 \div 90$ %UR;

■ storage $45 \div 75$ %UR.

Operating pressure (KPa) $80 \div 110$.

Air speed (m/s): ± 6 .

Optical signals - red LED visible on the powered probe.

Dimensions: 164 x 100 x 82 mm.

Unit weight 0.8 Kg.

ACCESSORIES



1590080
4-relay board



S80
Emergency signaling device
with fixed light and continuous
sound.