EsiWelma®
a Navim Group Company

Sensigas®

Gas detectors for car parks

IP55 Protection Degree

UR.40SP

11…14Vdc power supply

Pellistor sensing element for flammable gases, and Electrochemical Cell for toxic gases.

Up to three alarm threshold.

Automatic counting life time of sensors.

Use

The UR.40SP sensors, being specifically designed for car parks, are used primarily to detect the presence of Gasoline vapours and carbon monoxide (CO), but also methane gas, LPG and, on demand, nitrogen monoxide (NO) and nitrogen dioxide (NO_2).

The UR.40.L detectors transmit data from a local bus connected with their Control Unit, which acts as the master unit of the gas detection system.

Operation

If there is a gas leakage, the detector compares the measured concentration value with the threshold limit set points.

Alarm information is transmitted to the Control Unit, which energises its own internal relay module (MR0) and the remote Relay and Display modules depending on the associations.

Ordering

To order, simply state the part number: see “available models”.

Available models

Detectable Gas	Pellistor Standard	2 Terminal Electrochemical Cell	3 Terminal Electrochemical Cell
Methane	URG40SP	---	---
LPG	URP40SP	---	---
Carbon monoxide (CO)	---	URO40SP	---
Gasoline vapours	URB40SP	---	---
Nitrogen monoxide (NO)	---	---	URN140SP
Nitrogen dioxide (NO_2)	---	---	URN240SP

Model on request

For other Gases, on request, please contact Customer Service

Technical characteristics

Sensing Element	Standard Catalytic, Pellistor	Electrochemical Cell
Detectable Gas (see available models)	Explosive Gas	Toxic Gas
Power supply	11÷14Vdc	11÷14Vdc
Max power consumption	1.6W	0.7W
Measuring range	0…50% LEL	0..500 ppm (CO)
Precision (Standard Catalytic Pellistor or Electrochemical Cell)	± 5% full scale range, ± 10% readout	
Repeatability	± 5% full scale range, ± 10% readout	
Measurement resolution	1% LEL	5 ppm (CO)
Microprocessor resolution	1024 points (10 bit)	1024 points (10 bit)
Digital filter system	Kalman Filter	Kalman Filter
Watchdog	Internal	Internal
Warm-up time	< 2m	< 2m
Stabilization time	< 2m	< 2m
Response time	< 20s (T50), < 60s (T90)	
Long-term stability	< 5%/year (Electrochemical Cells)	
Offset (%LEL/year)	< ±6%	
Span (%LEL/year)	< ±6%	
Average Sensor life of (in air)	255 weeks (from installation)	255 weeks (from production)
Settable threshold limit values, default settings:		
Pre-alarm	10% LEL	30 ppm
1st threshold alarm	20% LEL	100 ppm
2nd threshold alarm	40% LEL	200 ppm
Operating Temperature	-20 ÷ 50 °C	
Storage Temperature	-20 ÷ 70 °C	
Relative Humidity (without condensing)		
- Operation	15 ÷ 90 %RH	
- Storage	45 ÷ 75 %RH	
Operating pressure)	80 ÷ 110 KPa	
Air speed	≤ 6 m/s	
Visual warnings	Red LED visible during installation The steady LED status can be forced by the Control Unit to identify the sensor on the plant	
Dimensions and weight	See dedicated section	
Options & Accessories		
TUS40-40 Handheld terminal for monitoring and setting UR.40..	See dedicated instruction manual	
TUL40.. Gas calibration Kit	See installation and commissioning chapter provided with Terminal Unit	
EC Conformity		
EMC Directives / Standards	Electromagnetic Compatibility Directive 2014/30/EU / EN50270 / EN 61326-1	
LVD Directives / Standards	Not applicable	

Sensors lifetime

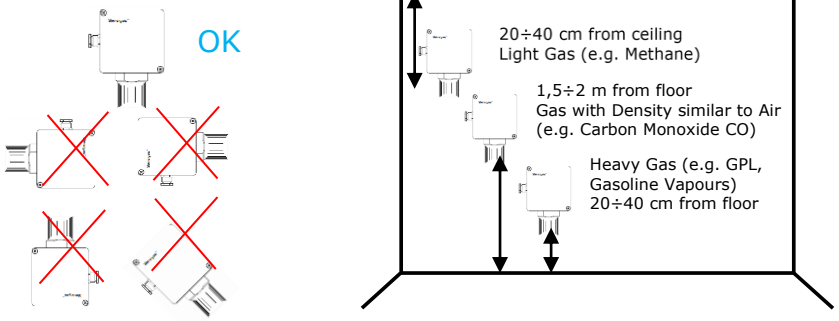
Sensor average lifetime (see technical characteristics) is referred to a typical usage in a pollution-free environment. Presence of a high concentration of pollutants can shorten the lifetime of the sensing element.

Once the detection system starts up, it has to be supplied with energy during all the lifetime of its sensors.

Seasonal use of the detection system is not recommended.

Installation

For Sensors installation, follow the rules as in the diagram:

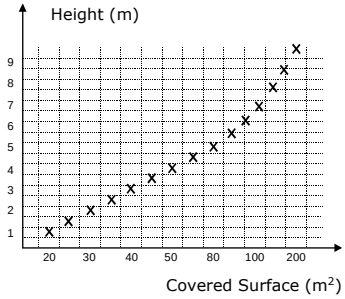


The following rules to install the detectors are strictly recommended:

1. where accidental gas leakages are possible
2. at least 1.5m far from any source of heat or point of heavy ventilation
3. not in spaces where ventilation is poor and gas-pocket can form
4. far from whatever can hinder the gas to flow naturally
5. far from appliances that throughout their normal working can have functional gas leakage
6. in spaces where temperature is between -20°C and 50°C and relative humidity lower than 90% (no dew)
7. assemble and dismantle detector only when there is no voltage.

The quantities of detectors to be installed in a room are proportional to the height and the surface of the room itself.

This parameter depends on a great range of variables, which is why **the following graph is not a rule, but a simple help for installation for light gas detectors**



Media Coverage in m²	Areas with normal geometry		Areas with particular geometry (beams, ceilings, wells, barriers to gas diffusion)	
Sensor Type	Light Gas	Heavy Gas	Light Gas	Heavy Gas
Standard Pellistor	80…100	50…80	50…80	30…50
Electrochemical Cell	100…300		60…150	

Environmental compatibility and disposal

This product has been designed and constructed using materials and processes that take into account the environmental issue. Refer to the following notes for disposal of the product at the end of its working life, or when it is replaced:

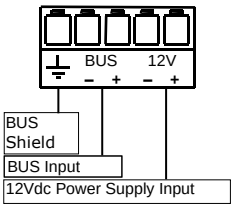
- for disposal purposes, this product is classified as an electric and electronic device: do not dispose of it with normal household waste, in particular as regards the printed circuit
- comply with all local laws in force
- as far as possible reuse basic materials to keep environmental impact to a minimum
- use local depots and waste recycling companies, or contact the supplier or manufacturer to return used products or to ask for information on environmental compatibility and waste disposal
- the product packaging can be reused. Keep it for future use or to return the product to the supplier.

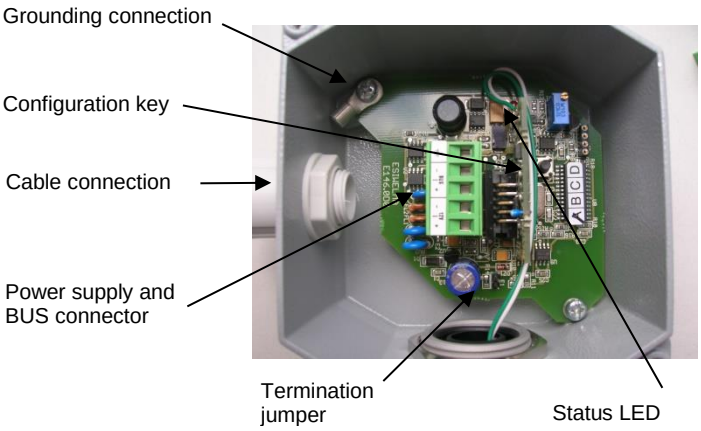
Electrical installation and configuration

CAUTION: **Make the area safe and ensure that the device power supply is off before cabling and configuration operations.**

Install the sensor in compliance with laws in force.
The cable gland provided on the housing is used for cable entry.
Ground the sensor using the internal grounding system.

Refer to the Control Unit manual for all cabling information (cable type and specifications, bus topology, length of connections etc.) and configuration.





Checklist after mechanical and electrical installation

Before using the sensor it must be recognised by the Control Unit through an assignment operation (refer to the manual of the aforesaid Control Unit for correct execution).

The sensors are factory calibrated so they normally do not require any other calibration once installed. Still, after installation, an operational check of the sensors is recommended.

The status LED means the following:

- Flashing at 2Hz — NOT ASSIGNED
- Flashing about every 10 sec — ASSIGNED AND WORKING
- Steady — ALARM or FAULT

Maintenance

Every three-six months, check that:

- in free air, the measurement value shown on the Control Unit is lower than 1% of the LEL for explosive gases or at 10 ppm for Carbon Monoxide.
- after applying appropriate gas mixture via the **TUL40..** test kit, the measurement value shown on the Control Unit is between 45% and 55% of the LEL or between 450 and 550 ppm of Carbon Monoxide and the status LED is steady on.

Dimensions and weight

Dimensions (HxWxD): 130x100x60mm. Weight: 0,5Kg