

Sensigas® Gas detectors

IP65 Protection Degree

UR.40.I



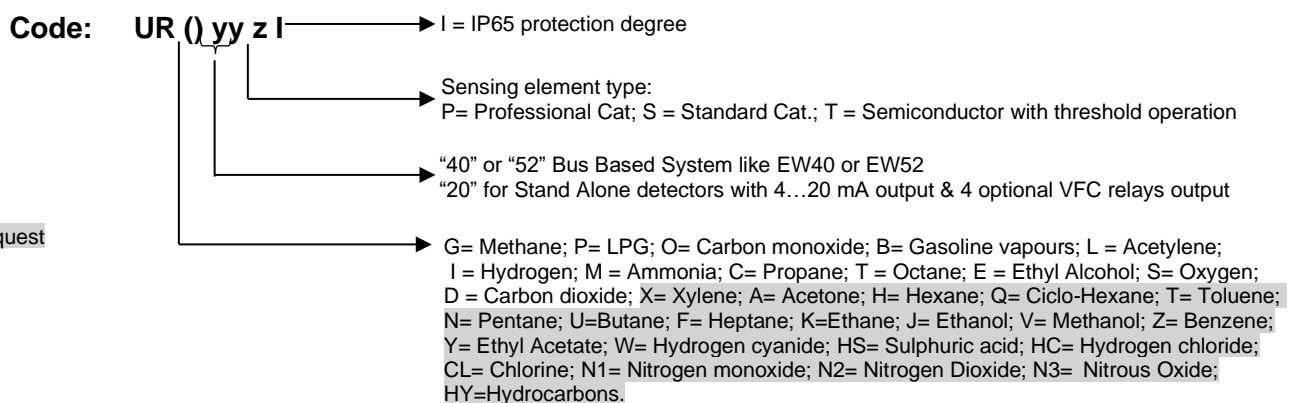
11...14Vdc power supply. Sensing element - catalytic (S version), pellistor (P version) or semiconductor (T version) for explosive gases, and electrochemical cell (S or P version) or semiconductor (T) for toxic gases. Up to three threshold limit values. LED on the sensing element for operating status indication. Automatic countdown of sensor lifetime.

Use UR.40.I detectors are used to detect the presence of methane, LPG, carbon monoxide (CO), gasoline vapours and on request, acetylene, hydrogen, ammonia, propane, octane and ethanol in industrial environments and thermal power stations. The UR.40.I 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 setpoints. 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 Simply indicate product code: please, refer to "available models".

Available Models



Models on request

For other gases, please contact Customer Service.

Technical characteristics

Type of sensor	Standard Catalytic, Pellistor or Semiconductor	Electrochemical Cell or Semiconductor
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
Precision (Standard Catalytic, Pellistor or Electrochemical Cell)	± 5% full scale, ± 10% readout	
Precision (Semiconductor)	± 10% full scale (on calibration point)	
Repeatability	± 5% full scale, ± 10% readout	
Measurement resolution	1% LEL	5 ppm
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 (S), < ±3 (P)	
Span (%LEL/year)	< ±6 (S), < ±3 (P)	
Average Sensor life of (in air)	255 weeks	255 weeks
Settable threshold limit values, default settings:		
Pre-alarm	10% LEL	30 ppm
1 st threshold alarm	20% LEL	100 ppm
2 nd 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 (KPa)	80 ÷ 110	
Air speed (m/s)	≤ 6	
Visual warnings	Red LED visible on sensor body The steady LED status can be forced by the Control Unit to identify the sensor on the plant	
Dimensions and weight	See dedicated section	
<u>Options & Accessories</u>		
TUL40.. Gas calibration Kit and	See installation and commissioning chapter in Control and Service Terminal Units manuals	
TUS40-40 Service Terminal Unit		
CRG40 Gas collecting cone	See dedicated data sheet	
PAP40 Powerful jets protection	See dedicated data sheet	
EC Conformity EMC Directives / Standards	Electromagnetic Compatibility Directive 2014/30/EU / EN50270 / EN 61326-1	
LVD Directives / Standards	Not applicable	

Sensors lifetime

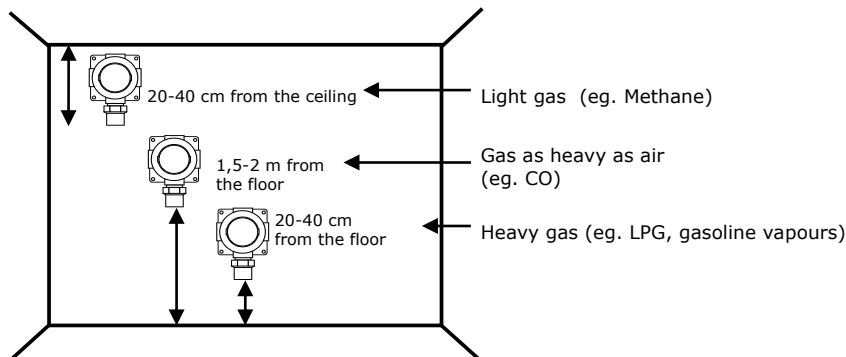
Sensor average lifetime (see technical characteristics) is referred to a typical usage in a pollution-free environment. Presence of a high concentration of pollutants can shorten the lifetime of the sensing element.

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

To install the detectors, follow the instructions below:
about 20-40cm from the floor to detect gases heavier than air (LPG or Gasoline Vapours)
about 20-40cm from the ceiling to detect gases lighter than air (Methane)
about 1.5-2m from the floor to detect gases as heavy as air (CO)

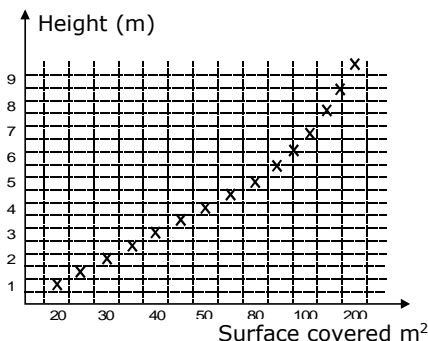


Take into consideration the following specific installation guidelines, as well as the above instructions, for location of the detectors.

The detectors must be installed:

1. where accidental gas leakages are possible
2. at least 1.5m away from heat sources or from vent holes
3. not in spaces where ventilation is poor and where gas pockets may form
4. away from hindrances to natural gas flow
5. away from equipment that may leak gas during normal operations
6. in environments with a temperature range of -20°C to 50°C and relative humidity below 90% (non-condensing)
7. Disconnect equipment from the power supply when mounting and dismantling detectors.

The number of detectors to be installed in an environment are proportionate to the height and area of the room itself. This parameter (see above) depends on a wide range of variables; the graph below should be seen as an aid and not as a rule for installation.



NOTE:

Approximate values.

The curve shows the volume (floor surface and ceiling height) covered by a Methane detector.

Environmental compatibility and disposal

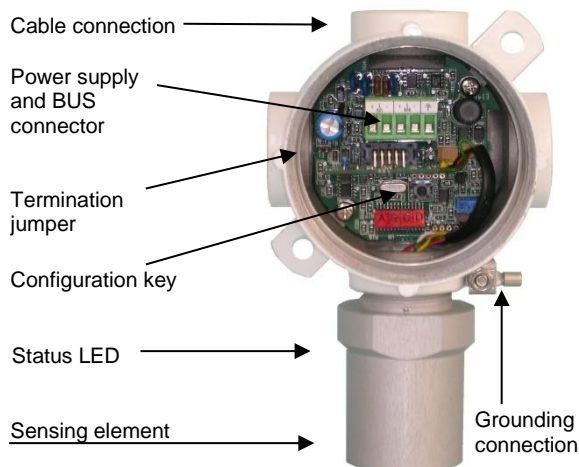
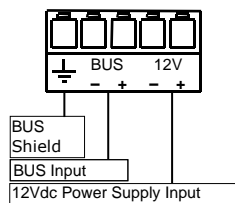


This product has been designed and constructed using materials and processes that take into account the environmental issue. Refer to the following notes for disposal of the product at the end of its working life, or when it is replaced:

- 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 EN 60079-14.
 ATEX certified 1" NPT cable glands provided for the housing.
 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 |

Maintenance

Every three-six months, check that:

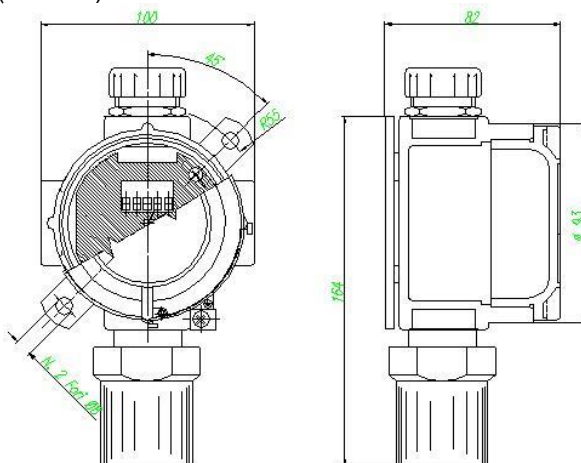
- in free air, the measurement value shown on the Control Unit is lower than 1% of the LEL for explosive gases or at 10 ppm
- after applying appropriate gas mixture via the **TUL40..** test kit, the measurement value shown on the Control Unit is between 45% and 55% of the LEL or between 450 and 550 ppm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

If any abnormalities are found during routine sensor maintenance, return the sensor concerned to the supplier / installer, who in turn will send it back to the manufacturer.

Dimensions and weight

Dimensions (HxWxD): 164x100x82mm.

Weight: 0.8Kg



Due to our policy of continuous product improvement, specifications are subject to change without notice.

EsiWelma® srl	EW052640_en - rev. A	Gas detectors - UR.40.I
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