EsiWelma®
a Navim Group Company

Sensigas®
Gas detectors
IP44 Protection Rating

UR.20SW

Use	The UR.20SW detectors can be used to monitor the presence of Methane gas, LPG and Carbon Monoxide (CO) in unclassified areas such as boiler rooms, garages, etc..
Operation	The UR.20SW detectors are designed to interface with the UCE1 and UCE4 control units and, more generally, with any 4...20mA control unit or data acquisition system.
Ordering	To order, simply state the part number as follows: **URG20SW** for Methane gas **URP20SW** for LPG **URO20SW** for Carbon Monoxide.

Technical specifications			
	Type of sensor	Standard Catalytic	Electrochemical cell
	Detectable Gas	LPG and CH4 gas	CO Gas
	Power supply	11÷28Vdc	11÷28Vdc
	Max power consumption	2.4W	0.8W
	Measuring range (default)	0÷100% LEL	0÷500 ppm
	selectable at 1/2 jumper	0 ÷ 50% LEL	0÷250 ppm
	Precision and repeatability	$\pm$ 5% full scale, $\pm$ 10% readout	
	Measurement resolution	1% LEL	5 ppm
	Microprocessor resolution	1024 points (10 bit)	1024 points (10 bit)
	Digital filtering technique	Kalman Filter	Kalman Filter
	Watchdog	Internal	Internal
	Warm-up time	< 2m	< 2m
	Stabilization time	< 2m	< 2m
	Response time	< 20s (T50), < 60s (T90)	
	Average operational life of Sensor (in air)	255 weeks	255 weeks
	4..20mA Output		
	Measuring range (default)	- 4mA = 0% LEL; 0 ppm - 20mA = 100% LEL; 500 ppm	
	Measuring range (reduced)	- 4mA = 0% LEL; 0 ppm - 20mA = 50% LEL; 250 ppm	
	4…20mA output load resistor	- up to 200Ω at 12Vdc power supply - 200Ω ÷ 700Ω at 24Vdc power supply	

	Ambient Temperature (°C)
	    - Operating
	    - Storage
		
		-20 ÷ 50
		-20 ÷ 70	

	Ambient Humidity (%RH) (non condensing) - Operating - Storage	 15 ÷ 90 45 ÷ 75	
	Operating pressure (KPa)	80 ÷ 110	
	Air speed (m/s)	$\leq$ 6	
	Dimensions and weight	See dedicated section	
	Options & Accessories Gas calibration Kit **TUL40..**	 See installation and commissioning chapter	
	CE Conformity EMC Directives / Standards LVD Directives / Standards	 EMC 2014/30/EU / EN50270 Not applicable	

Mechanical installation

To install the detectors, follow the instructions below:
about 20-40cm from the floor to detect gases heavier than air (LPG)
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.
8.   The number of detectors to be installed in an environment are proportionate to the height and area of the room itself.

Electrical Installation

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.
Install a PG7 to PG11 cable gland entry in the terminal board housing.

Terminal board and electrical connections

Note: for connections to Control units UCE1 and UCE4, see relative instructions and technical data sheets.

Jumpers JP3…JP5

Terminal Board TB1

| 12…24Vdc	+
	-
4…20mA	-
	+
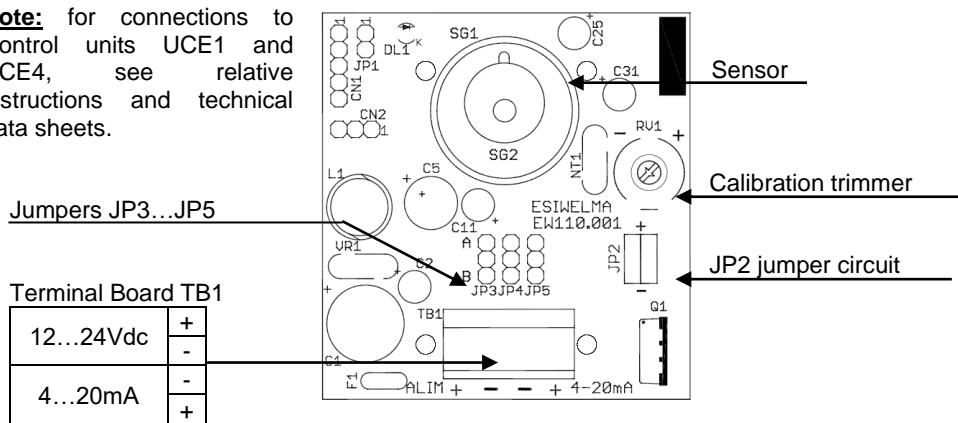
Cabling:

Depending on the connecting distance, use at least 3-core cable, min. diameter $0.75mm^2$ up to 100m, $1mm^2$ up to 200m, $1.5mm^2$ up to 500m.
Use shielded cable where there is a risk of electromagnetic interference.

Configuration:

Default settings of the sensor are shown in the "Technical Specifications" chapter.
In order to change the default settings, switch off the power supply, input the new settings at the JP2 jumper circuit or the JP3…JP5 jumper as shown in the diagram, then power-up again; in particular:

4…20mA Output reference selection:

The default setting for the 4-20mA signal is the negative power signal. Output reference selection should be made by JP2 triple of jumpers; to change this setting, operator has to move **JP2** jumpers as shown in the figure:

Ref.: -- (default)   **Ref.: +**
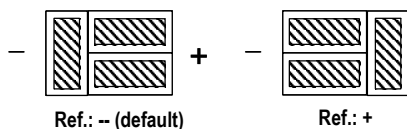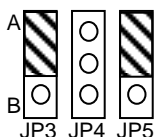
Caution: if the default settings are changed, the connections on the **TB1** terminal board (4...20mA side), will be inverted.
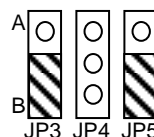
Selecting the measuring range

Select the measuring range (FSR) by the **JP3 (CO)** or **JP5 (CH₄ and LPG)** jumpers; in particular:

Default setting:
0÷100 LEL
(CH4 and LPG)
0÷500 ppm (CO)

Reduced FSR:
0÷50 LEL
(CH4 and LPG)
0÷250 ppm (CO)

Checklist after mechanical and electrical installation	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 detector will enter a 2-minute warm-up phase after power-up.

After this time, the sensor will switch to normal operating mode, but it will take about 2 hours before it reaches top performance level.

When the detector is operating, a gas response check should be carried out using the **TUL40..** gas calibration kit. This kit contains:

- 1 calibrated gas cylinder: 50% of LEL for flammable gases or at 500ppm of CO; (see kit part numbers on the specific technical data sheet)
- pressure valve and flow regulator (optional)
- sensor body adapter
- about 2 metres of hose between cylinder and adapter.

During the test, check the output current and the mode of the LED inside the enclosure; they have the following meaning:

Sensor status	Output 4…20mA	Status LED
WARM-UP	2mA	Flashing at 2 Hz
OPERATING	4…20mA	1 flash about every 10 sec.
SENSOR FAILURE	22mA	Fixed ON

Use the test kit to apply the gas mixture at 50% of the LEL of the detected gas (or at 500 ppm of CO); make sure the 4...20mA output is between 10.5 and 13.5mA (between18.5 and 21mA for CO).

Maintenance

A sensor functional test should be carried out every three-six months.

Routine

Routine maintenance involves repeating the same tests as set forth in "checklist after mechanical and electrical installation".

Corrective

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.

Sensors may need to be re-calibrated; the **TUL40..** test kit can be used for this purpose

For the re-calibration procedure, see the instructions supplied with the test kit

Decommissioning

Remove power from the detector, disconnect all wiring and conduits and dismount the housing from all the blocking systems.

Environmental Compatibility and Disposal

This product has been developed and built 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 life, or in case of its replacement:

- for the purpose of disposal, this product is classified as an electrical and electronic device: do not dispose of it as household waste, in particular as regards the printed circuit
- comply with all local laws in force
- facilitate the reuse of basic materials as much as possible in order to minimize the environmental impact
- use local depots and waste recycling companies, or refer to the supplier or manufacturer, to return used products or to obtain further information on environmental compatibility and waste disposal

The product packaging is reusable. Keep it for possible future use or in case of returning the product to the supplier.


Warranty

Warranty on EsiWelma products is valid for 12 months from installation date and no longer than 24 months from manufacturing date on the product. Installation data, stamp and signature on the data sheet filled in by the installer will be considered proof for warranty.

A copy of the warranty data sheet must be sent when returning the product under warranty.

Dimensions and weight

Dimensions (HxWxD): 90x66x45mm

Weight: 0.12 Kg

66 | 45 | Drilling mask

Sensigas CE
URG20SW
CH4   IP44

90

46

70
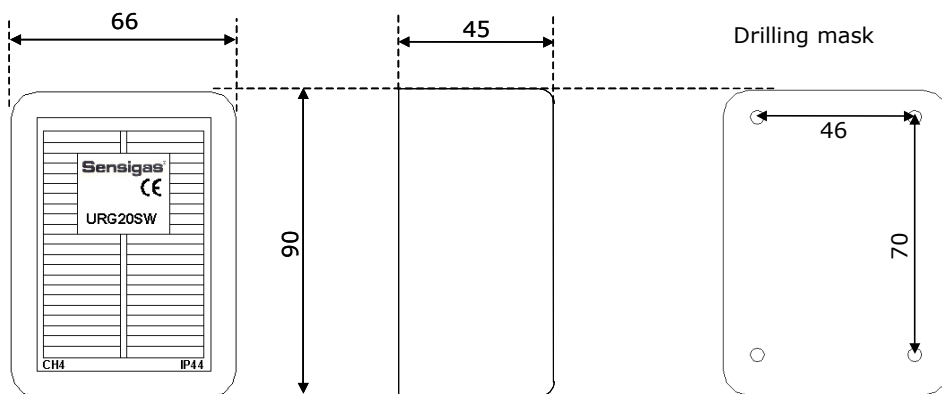
Installation data

To be filled in by Installer		Installer's stamp and signature
Installation site:		
Part number:	Manufacturing date:	
Installation date:	Replacement date:	

Routine checks

To be filled in by Installer / Service Personnel	Signature

Remarks

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