

Gas leak detection system

for heating rooms

Sensigas® UCE13.5 - UR.13/A - EXT6.5



UCE13.5



UR..13/A



EXT6.5

Microprocessor electronic gas leak detection system for heating rooms. Central unit UCE13.5 can control up to three remote sensors (also for different types of gas), and the system can be expanded with the use of one or more EXT6.5. Each expander can control up to six additional remote sensors. Dedicated output for normally closed (delivery condition) or normally open 12V solenoid valve. 230VAC power supply with optional battery charger card UZY-13CB for a 12V back-up battery. Input for optional relay card to drive auxiliary devices as fans, lamps or additional 230VAC solenoid valve. Remote sensors for the detection of methane, LPG and carbon monoxide with tin dioxide semiconductor sensing element.

Use

The UCE13.5 Central Unit, with one or more remote sensors, is used for optical and acoustical signalling and for command a solenoid valve for shutting the gas flow in case of dangerous concentrations of:

- Methane (CH₄)
- LPG
- Carbon monoxide (CO)

The UCE13.5 and expander EXT6.5 can control simultaneously different types of remote sensors for a complete gas monitoring of a heating plant.

Available models

Description	Type
Central Unit	UCE13.5
Remote sensor for Methane IP44	URG13/A
Remote sensor for LPG IP44	URG13.P/A
Remote sensor for Carbon monoxide (CO) IP44	URO13/A

Accessories

Description	Type
Expander to connect additional remote sensors	EXT6.5
Relay card	UZY20-R
Battery charger card for back-up battery	UZY-13CB

Operation

Central Unit UCE13.5

When the Central Unit is supplied with 230VAC, it runs a preheating phase for about 60s (green LED slow flashing 1Hz) during which the Central Unit and remote sensors are inactive. After the preheating phase a test phase starts (green LED fast flashing 2Hz) in which the operation of Central Unit and remote sensors can be checked with the use of test gas. After 3 min the system enters in normal operation. In case of a gas leak or CO presence, where the gas concentration in the air exceed the preset threshold, the UCE13.5 signals the alarm condition:

- closing the manual reset solenoid valve
- flashing the respective alarm red LED
- activating the optional UZY20-R relay card and external buzzer (if present)

When the cause of alarm has been removed is necessary to push the reset button on the front cover to return to normal operation. After reset:

- red LED changes from flashing to steady on
- UZY20-R relay card and external buzzer (if present) deactivate
- solenoid valve remain closed and has to be open manually in order to re-establish the normal gas supply condition

Green LED (Power supply)	Yellow LED (Fault)	Red LEDs (3) (Alarms)	FUNCTIONS
OFF	OFF	OFF	Out of order
Flashing (1Hz)	ON	ON	Preheating
Flashing (2Hz)	ON	ON	TEST
ON	ON	ON	Normal operation
ON	ON	Flashing (1Hz) (1)	Sensor alarm
ON	OFF	OFF (2)	Sensor failed or not connected

(1) LED relevant to sensor in alarm condition

(2) LED relevant to sensor in fault condition

It is possible to restart TEST phase in any moment by pushing RESET button for at least 10 s.

Note: In case of damage for one or more sensors the central unit enter in alarm condition closing the solenoid valve and activating the auxiliary devices if connected.

EXT6.5

Expander EXT6.5 is used to increase the number of sensors connectable to UCE13.5. Alarm condition, coming from one or more sensors connected to EXT6.5, is sent to UCE13.5 in order to close solenoid valve and to activate the auxiliary devices if present.

Green LED (power supply)	Red LED (fault)	Red LEDs (6) (Alarms)	FUNCTIONS
OFF	OFF	OFF	Out of order
Dim light	ON	Dim light	Preheating
ON	ON	Dim light	Normal operation
ON	ON	ON (1)	Sensor alarm
ON	OFF	ON	Fault
ON	OFF	OFF (2)	Sensor failed or not connected

(1) LED relevant to sensor in alarm condition

(2) LED relevant to sensor in fault condition.

Mounting instruction

UCE13.5 / EXT6.5

Installation has to be made respecting the temperature and humidity conditions indicated in 'Technical Data', and in an accessible place to facilitate inspections and verifications.

UR..13. sensors

in an appropriate position in which natural circulation of air is assured, never near cookers, sinks (water sprays) ventilation grills or windows.

URG13/A

20 - 30 cm from ceiling for the detection of light gases as methane gas, town gas etc.

URG13.P/A

20 - 30 cm from floor for the detection of heavy gases as LPG (butane, propane, etc.).

URO13/A

1.5 - 1.8m from the floor for the detection of Carbon Monoxide (CO).

IN GENERAL:

Current local regulation must be observed. The devices must be directly connected to the mains and kept it **permanently supplied**.

Check that UR.13./A sensors are suitable for the type of gas being measured and verify that the valve is suitable for the system characteristics.

Commissioning

The enclosed instructions must be read carefully and should be kept together with the apparatus.

Do not touch the detectors or the internal electronic circuitry for any reason. The Sensigas® sensors are electronic devices and therefore should not be tampered.

UCE13.5 is provided with 3 resistances on terminals C.. and S.. Leave the resistance only if the relevant terminals are used to connect the sensor .

Warnings

The central unit and its detectors have been developed for use in clean air in which should be occasionally present concentration of flammable, poisoning or toxic gas or vapours.

Gas or vapours of substances such as alcohol, silicone, solvents present in some home application detergents, smokes generated from food cooking or, more in general oxidizing substances, could cause unwanted intervention of the detector and, in the long term, influences the apparatus reliability and reduce the detectors lifetime.

Gas Alarm

If an alarm signals a gas leak or the presence of carbon monoxide, proceed as follows:

- put out flames and switch off all gas equipment
- do not for any reason switch on or off lights or any electrical equipment
- open doors and windows to air the environment
- look for and eliminate the cause of the alarm.
If this is not possible, leave the building and contact emergency services from outside.

Maintenance

The appliances do not require any maintenance, except for periodic checks on operation.

It is recommended to carry out a functional check at least once a year, after long periods of inactivity and each time the sensors are replaced.

Sensors must be replaced before the end of the 5th year of use.

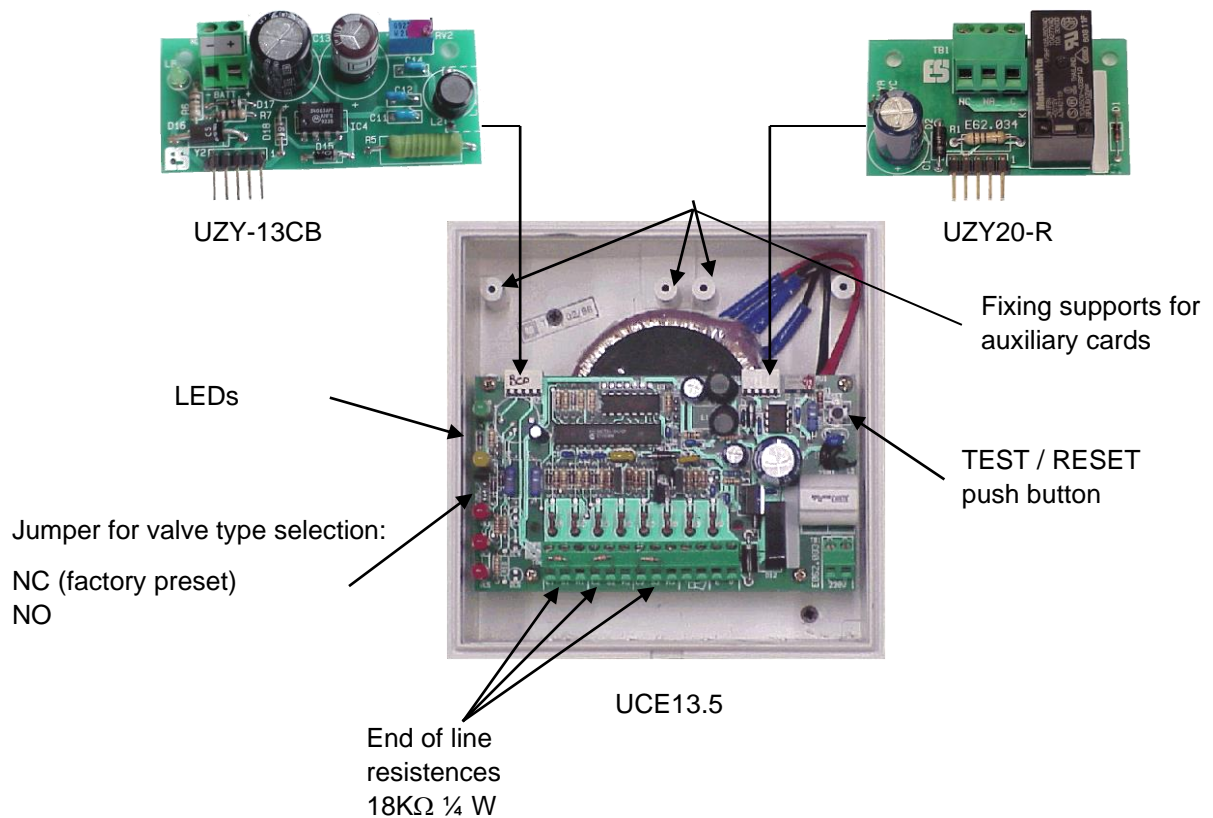
Layout

UCE13.5

UCE13.5 housing has standard DIN dimension (144 x 144 mm) used for wall mounting or front panel mounting. For wirings the underside of the unit are provided with 5 knockout holes for cable entry glands PG11 or rubber grommets. On front cover there are:

- 3 LEDs (red) sensors state
- 2 LEDs (1 green e 1 yellow) central unit state
- 1 push button for alarm RESET

Positive logic operation (factory preset) causes, in case of sensor failure or sensor cable breakdown, the valve shut off and the activation of the auxiliary devices if present.



Ordering

When ordering please specify the quantity, product name and type code (see below).

UCE13.5	Central unit for gas detection up to 3 sensors
EXT6.5	Expander module for 6 more sensors
URG13/A	IP44 sensor for Methane detection (CH ₄)
URG13.P/A	IP44 sensor for LPG detection
URO13/A	IP44 sensor for Carbon monoxide detection (CO)
UZY-13CB	Battery charger card
UZY20-R	Relay card

Technical data**Central unit UCE13.5**

Power supply	230VAC +10/-15%
Frequency	50/60 Hz
Power consumption	12VA (without solenoid valve) 30VA (with solenoid valve)
Output	12VDC (13W max) for NO or NC valve type 12VDC (300mA max) for external piezoelectric buzzer
Valve type	Normally Closed type (factory preset) or Normally Open type
Auxiliary cards	- UZY-13CB - UZY20-R
Length of connections	80m max (sensors and valve) 30m max (external buzzer)
Size of connection	1mm ² min (sensors and buzzer) 1.5mm ² min (valve)
Number of sensors	3 max
End of line resistances (x 3)	18K Ω ¼ W
Optical signalling	Green LED (power ON / TEST) Yellow LED (central unit fail) Red LED (sensor alarm or fail)
Acoustic signalling	Piezoelectric buzzer 12VDC 300mA Max (if connected)
Time delay	3s between alarm acquisition and valve, relay card and buzzer triggering.
Ambient condition	
temperature	0...+50°C (Operation) - 20...+70°C (Transport)
humidity	20...90% R.H.. without condensation
Housing	Self extinguising ABS
Protection degree	IP54
Dimensions	144 x 144 x 72 mm

External equipments

(not supplied by EsiWelma) 12VDC 5...8Ah battery
12VDC 300mA max for piezoelectric buzzer

Sensors UR.13.

Power supply From UCE13.5
Sensing element Tin dioxide semiconductor
Housing Self extinguishing ABS
Protection degree IP44
Ambient condition
 temperature 0...+50°C (Operation) - 20...+70°C (Transport)
 humidity 30...90% R.H.. without condensation
Intervention thresholds URG13/A= 10000ppm of methane (20% LEL)
URO13/A= 3700ppm of LPG (20% LEL)
URO13/A= 200ppm of CO
(* LEL = Lower Explosivity Limit
Expected lifetime (average) 5 years from installation date

Expander EXT6.5

Power supply 230VAC +10/-15%
Frequency 50/60 Hz
Power consumption 30VA
Optional card UZY-13CB
Optical signalling Green LED (power on)
Red LED (failure)
Red LEDs (3) sensor fail or in alarm condition
max 80m (1.5mm² min)
Connection lenght with UCE13.5
Other data as for UCE13.5
Sensors UR.13. connectable max 6

Relay card UZY20-R

Operating Positive logic (normally switch on).
In case of gas alarm contact switches off.
Contact rating Potentially free change over contact
5(3)A 250VAC

Battery charger card UZY-13CB

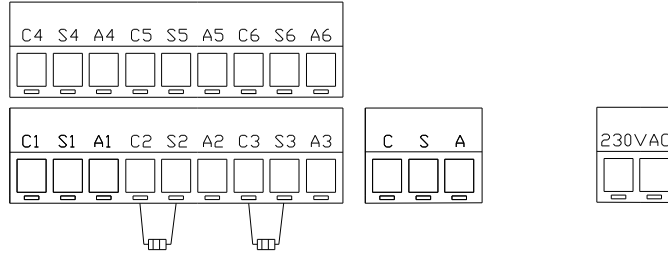
Voltage output 13,8VDC
Charge current 0.5A max
Battery (not supplied by EsiWelma) 12VDC 5...8Ah
Back up charge with current limiter

CE Conformity

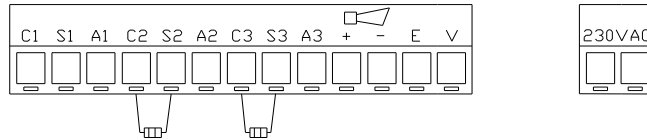
Regulations
 Low Voltage 2014/35/UE
 Electromagnetic Compatibility 2014/30/UE
Standards EN50194
EN50270

Terminals

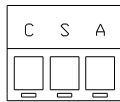
EXT6.5



UCE13.5



UR.13/A



Connection diagram

Diagram 1: Central unit UCE13.5 with 1...3 UR..13/A sensors with 12VDC external buzzer and 12VDC solenoid valve.

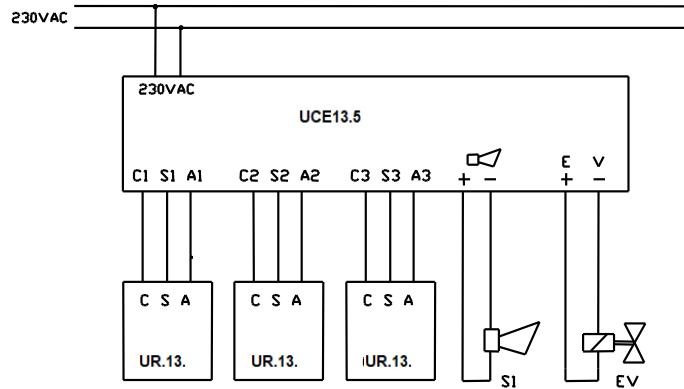


Diagram 2: Central unit UCE13.5 with 1...3 UR..13/A sensors with 12VDC external buzzer and 12VDC solenoid valve. Auxiliary cards UZY-13CB and UZY20-R.

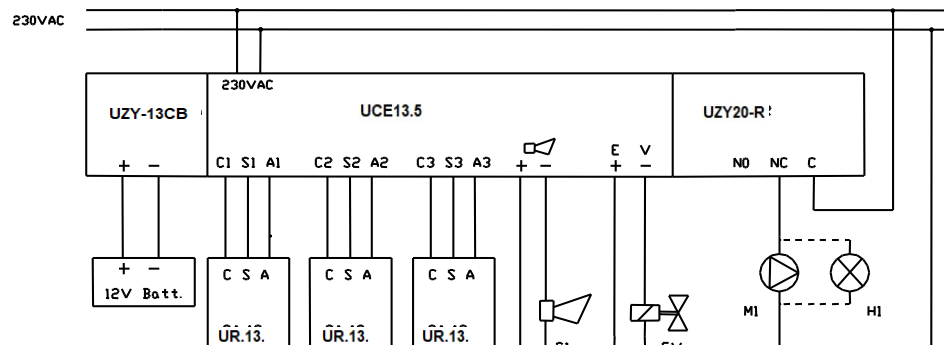
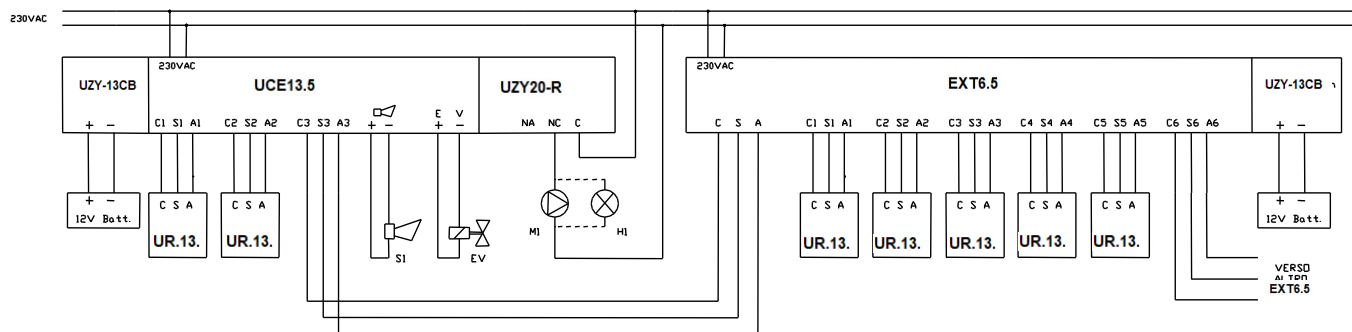
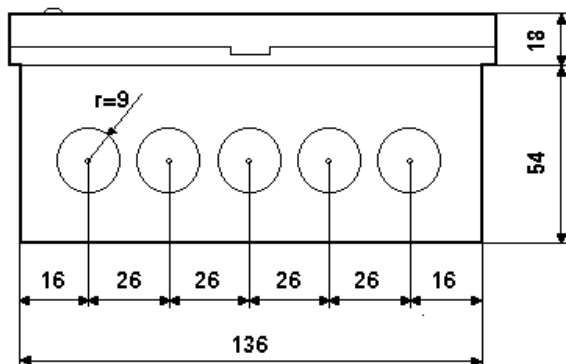
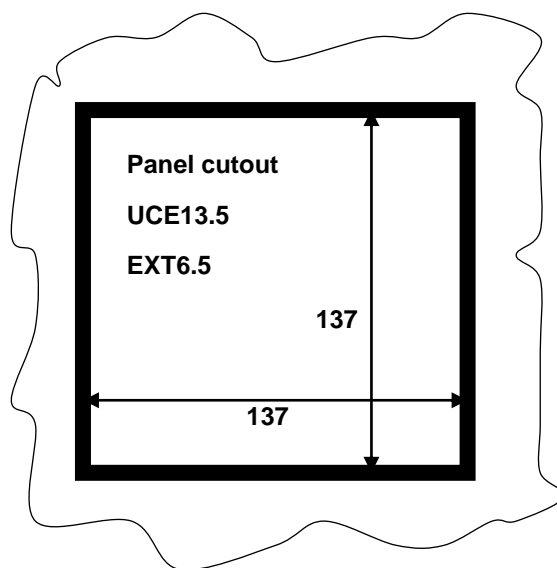
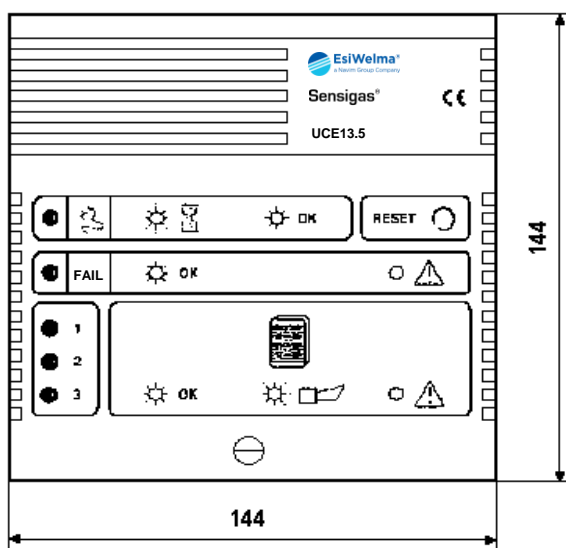


Diagram 3: Central unit UCE13.5 with one or more EXT6.5 for connecting UR..13/A, 12VDC solenoid valve and 12VDC external buzzer.

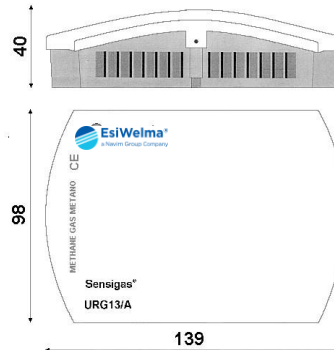


Dimensions

UCE13.5 / EXT6.5



Sensors UR..13/A



Dimensions in mm

Environmental compatibility and disposal



This product was developed and manufactured using materials and processes which take full account of environmental issues and which comply with our environmental standards. Please note the following for disposal at the end of the product life, or in the event of its replacement:

- For disposal, this product is defined as waste from electrical and electronic equipment ("electronic waste"); **do not dispose of it as household waste.** This applies particularly to the PCB assembly.
- **Observe all current local laws and regulations.**
- Always aim for maximum re-use of the basic materials at minimum environmental stress. Observe any notes on materials and disposal that may be attached to individual components.
- Use local depots and waste management companies, or refer to your supplier or manufacturer to return used products or to obtain further information on environmental compatibility and waste disposal.



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