# EN

**1. General data**

Device name: US-09 dual gas detector (CO and $H_2$)
Model / modification: US-09
Manufacturer / supplier: Bitas UAB
Address / contacts: Gaižiūnų 5, Kaunas, Lithuania; e-mail: email bitas@bitasuab.lt
Year of manufacture, serial number: 2025.10.14 _US09251014
Purpose: to monitor the concentration of carbon monoxide (CO) and hydrogen ($H_2$) in enclosed spaces, especially in battery charging, storage, laboratory environments

- Conformity standards / certificates: EN 50545-1, EN 61010-1, EN 50270, EN 61000

**2. Technical data**

Power supply: 230 V AC / 12 V DC, 1 A
Measurement ranges:
CO: 0 … 300 ppm
$H_2$: 0 … 50 % LEL
Alarm levels (alarm):
CO AL1: 35 ppm
CO AL2: 100 ppm
$H_2$ AL1: 5 % LEL
$H_2$ AL2: 10 % LEL
Measurement accuracy / error: ±5%
Preparation time (for lifting): 1 minute

- Operating environment: temperature −10 … +50 °C; humidity 5 … 95 % RH

Dimensions: 120 × 200 × 60 mm
Service area: up to 200 m²
Outputs / interfaces: 4 relay outputs (one for each AL level)
Display: OLED 2.4 inch (shows real-time gas concentrations)

**3. Design and operating principle**

Sensors: CO sensor and $H_2$ sensor integrated in the device
Control / alarm units: there are relay outputs that send signals to the ventilation system or other control devices
Display / indication: real-time gas concentration values are displayed on the OLED display
Operating principle: the device constantly measures CO and $H_2$ concentrations, compares them with the preset AL1 / AL2 limits, if exceeded - activates a signal (audio / visual / relay output

**4. Instructions for use**

- Preparation for operation: installation in the room, connection to power supply, wait ~1 minute until the device stabilizes

Switching on / off: connect to 230 V AC
Calibration: at the factory or in an accredited metrology company
Operating modes: full-time monitoring (continuous mode)
Indications:
On the OLED display – real-time gas concentrations
LED / visual signals
Audible signal
Data reading / transmission: via relay outputs to connect to control systems

**5. Safety requirements**

It is necessary to ensure that the device is installed in rooms where there is no risk of explosion, unless it has the appropriate certificate (not specified)
Ignore voltage surges, improper power supply
Use only recommended cables, protective elements

- The device must not be opened without qualified personnel
- Employees must have protective equipment if working in extreme gas concentrations

**6. Maintenance and service**

Periodic inspection / calibration frequency: applicable legislation, maintenance regulations and operating conditions. Recommended after 12 months of intensive operation.
Cleaning / maintenance recommendations: keep the device in clean air, do not wet, do not subject to trauma
Fault diagnostics: the device may show errors or discrepancies in readings - check sensors, power supply, relay outputs
Warranty: 24 months

**7. Transportation and storage**

Packaging type: Cardboard box
Storage conditions: −10 … +50 °C
Transportation restrictions: protect against shocks, moisture, electrical damage

**8. Disposal**

Waste management: dispose of the device in accordance with electronic waste management laws
Disposal of battery components: if the device contains batteries, dispose of them separately in accordance with waste management requirements

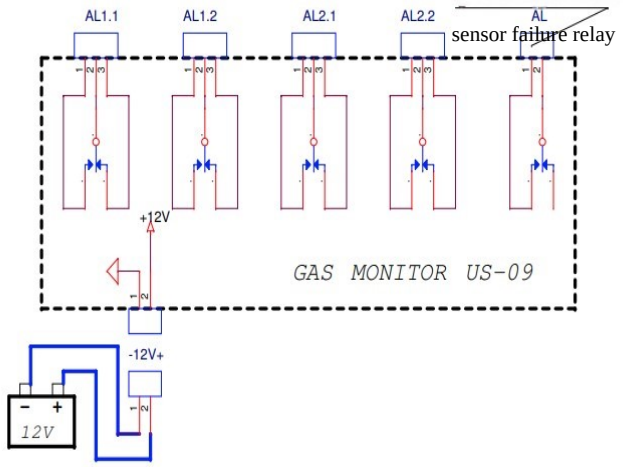
**• 9. Installation instructions**

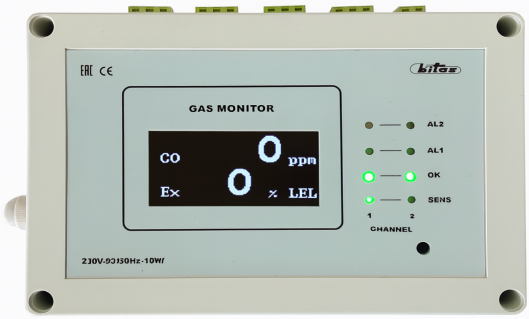
The device must be installed in a closed, well-ventilated room where battery charging, hydrogen generation or possible CO release takes place.
It is recommended to install it at a height of about 1.7–2.0 m from the floor,
Avoid installation:
in direct sunlight,
near heating or ventilation openings,
in places where there is dust, oil vapor or chemical solvents.
Mounting
The detector is mounted on the wall in a horizontal position.
Make sure that the housing is firmly attached to the surface and is not damaged.
Electrical connection
Supply voltage: 230 V AC
Connection is made according to the electrical connection diagram provided in Appendix No. 1.
Relay outputs (AL1, AL2) are used for external signaling or ventilation control.
Before applying voltage, it is necessary to check the polarity of the wires and the integrity of the insulation.
Starting the device
Check that all connections are correct and firmly inserted.
Switch on the device –
Wait for a 60-second countdown
Additional notes
Installation work must only be carried out by a qualified electrical technician.
All work must comply with local electrical safety requirements (e.g. LST EN 60204-1, LST HD 60364 or equivalent).
It is prohibited to change the wiring diagram or make unauthorized changes.

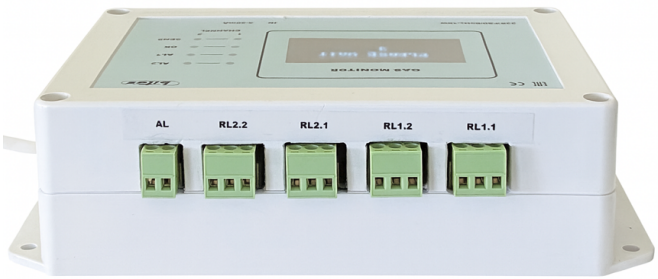
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**10. Accessories**

**Wiring diagram**







Device number Nr. _____
Date of manufacture _____

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