Technical Specifications and User Guide for GSU2 Sensor

GSU2 sensor is an electronic device designed to sense the concentration of carbon monoxide in the air. Its main use is in areas where continuous measurement of the gas concentration is required, such as parking houses, technological businesses and boiler rooms. Their output is a current signal that corresponds with the industrial standard - 4-20 mA current loop. GSU2 sensor is connected to a higher-level system (computer, central unit, etc.), where it transmits a signal proportional to the sensed concentration. The device is connected via two wires, the output signal corresponds to the current supplied to the sensor. There are two setting elements on the circuit board that allow setting the output current idle mode and the appropriate current corresponding to the measured gas concentration.
Sensor electronics is placed in a plastic box for mounting on a solid surface using two screws.

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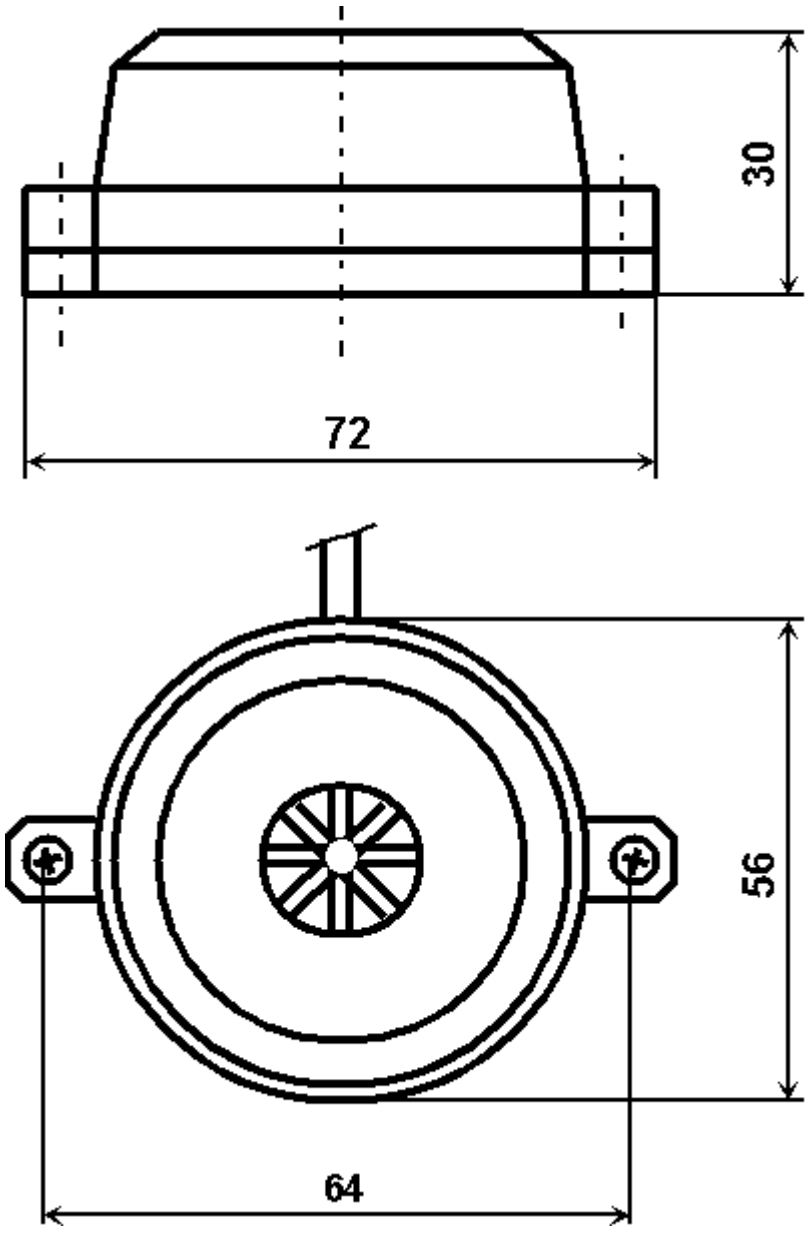


Technical Specifications

Detected gas	carbon monoxide (CO)
Standard detection range	0 - 300 ppm
Output signal	4 - 20 mA
Setting accuracy	5 %
Sensing instability	+/- 20 ppm / 3 months
Warm-up time	max. 60 sec
Response time T90	max. 60 sec
Recovery time	max. 60 sec
Connection	2-wire
Work environment	non hazardous area
Temperature range	-5 to 40 °C
Ambient humidity range	20 - 90% RH
Electronics protection	IP20
Weight	about 100 g
Dimensions without fixture	ø56 x 30 mm
Supply voltage	12 Vdc - 30 Vdc
Storage temperature	10 - 30 °C/ non condensing
Max. storage duration	1 year
Connection	2-core cable, for a distance longer than 5 m use shielded cable
Constructed according to	ČSN EN 45544
The tests performed in the laboratory	AZL No. 1025

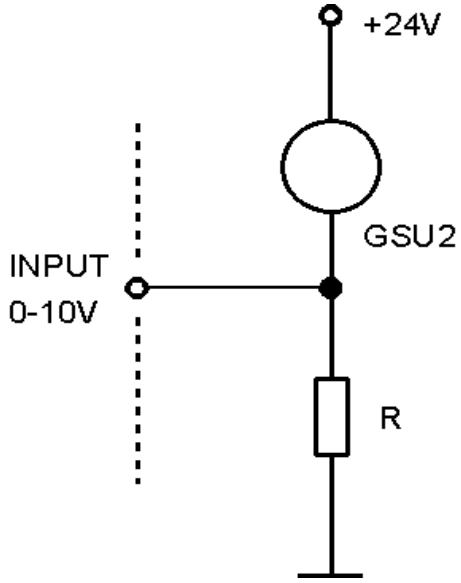
Function Description

To detect carbon monoxide GSU2 sensor uses electrochemical sensing element. When working in the clean air the sensor electronics demands a current of 4 mA from an external source. If there is a CO concentration in the ambient air, the current consumption from the power supply increases. The control system connected to the sensor can evaluate the concentration level at the given site depending on the power demand.
The sensor does not respond to a steep change in concentration immediately. The output current value is stabilized after a certain time, during which the gas is able to filter into the sensor electrolyte.

Sensor Connection

The sensor is connected to the system as a conventional two-wire 4-20 mA transmitter. It can be usually connected directly to a control system with inputs prepared for current sensors.

In case the control system only has voltage inputs, it is possible to use a GSU2 sensor after the circuit is supplemented with a suitable resistor.



The resistor resistance value needs to be determined using Ohm's law. E.g. 500 Ohm resistor is suitable for 0-10 V voltage inputs (it can be connected in parallel of two 1 kOhm pcs). When using an optional resistor, it is necessary to take into account the voltage drop on this resistor.

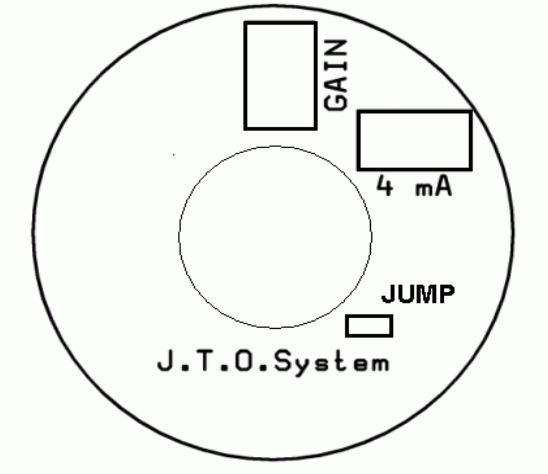
Sensor Outputs and Power Supply

The power supply polarity of the output connecting wires is not specified. The positive pole can be connected to either of the two conductors.

When connected to the control system, it is necessary to keep the electronics voltage range. At higher or lower supply voltage the current may not be adequate and the electronics can be damaged.

Controlling and Signaling Elements

For operating the detector functions and signaling its state, the circuit board contains several controls.



"4 mA" trimmer	Setting the idle mode of the output current in clean air.
"GAIN" trimmer	Setting the corresponding output current in the air with the CO concentration.
"JUMP" jumper	A jumper for output current test. The jumper can be connected to a monitoring mA-meter.

Sensor Location

We recommend installing the sensor at a height corresponding to the purpose of installation. If the sensor is installed in order to protect human health, it should be mounted approximately at the same height as the people in the building are moving and breathing.

Gas Concentration

When exceeding the maximum gas concentration, the current is limited to approximately 25 mA. After the exposure to a higher gas concentration it is necessary to take into account a longer delay for the stabilization of values corresponding to the clean air.
In the presence of other gases in the air, the response can be induced even if CO is not present. A cross sensitivity to hydrogen and acetylene occurs (on a smaller scale also ethanol and nitrogen oxides).

Usage Limitations

GSU2 sensor is designed to detect the CO presence in a standard atmosphere. We do not guarantee correct detection at low or high oxygen concentration. The use of the device in an environment where there may be special chemical substances can lead to the so-called sensor "poisoning". Possible applications in such environment must be consulted with the manufacturer.
The device is designed for normal non-aggressive environment.

Sensor Accessories

- Screw anchor Ø6 - 2 pcs
- Wood screw 3x25 - 2 pcs

Service

Any repairs or technical assistance can be provided at:
J.T.O. System, s.r.o., 1. máje 823, 756 61 Rožnov pod Radhoštěm, CZ, tel. +420 571 843 343

If the device is taken out of service, it must be disposed in environmentally friendly way - i.e. brought to the designated collection point for disposal of electronic waste.