



CARBON MONOXIDE OPTICAL GAS DETECTOR GO3-CO

TECHNICAL INFORMATION

Features

- electronic microprocessor control
- accuracy of the measurement
- repeatability of values
- rapid response
- automatic reset to the disappearance of the gas
- good chemical resistance
- excellent selectivity to CO

Applications

- atmosphere monitoring in road tunnels
- atmosphere monitoring in industrial environments

The optical detector gas GO3-CO is been designed for use in road tunnels , industrial environments and in all those places where a leak or an abnormal concentration of Carbon Monoxide CO may constitute a hazard to people and things .

GO3- CO use an advanced detection technique based on optical spectral analysis of the monitored gas.

The detector consists of an analysis optical chamber connected to a control unit and signal processing with protection index IP65 .

A dual-channel measurement within the analysis chamber (dual optical beam - one reference and one measurement) are the basis of the operation of the detector ensuring accuracy and reliability.

The elements of respiration of the detector are protected with a stainless steel filter, which prevents dust dissemination within the measurement chamber .

The advantages of this type of detector are mainly:

stability, repeatability of values and excellent selectivity to Carbon Monoxide CO.



The electronics of GO3-CO uses a microprocessor control, which provides:

- the continuous monitoring of various parameters
- automatic adjustment of the zero measurement
- signal the need for maintenance
- the possible indication of a Fault

GO3-CO can withstand exposure to high concentrations of CO gas without suffering consequences. It also has excellent corrosion resistance and is not affected by temperature changes and the humidity because it is offset by the internal automatic control. The detector is very efficient and has excellent performance for long periods of time.

Carbon Monoxide – Effects on Man and the Environment

Due to its characteristics, the Carbon Monoxide is a very insidious pollutant, especially in confined areas where it can accumulate in lethal concentrations. Since the CO is colorless, tasteless, odorless and non-irritating, it can cause accidental deaths without that victims are aware of what is happening to them. Frequent are also suicides caused by the exhaust gases of cars in the local non-ventilated areas. Once inhaled, CO binds to hemoglobin with an affinity that is 220 times higher than that of Oxygen, and forming a physiologically inactive compound that is called Carboxyhemoglobin. This substance, on the contrary hemoglobin, is not able to guarantee oxygenation to the tissues, in particular to the brain and heart. Death occurs therefore asphyxiation. The effect of CO is higher in altitude, for the reduced percentage of Oxygen in the air. In case of poisoning should immediately bring the outdoors persons affected, because breathing oxygen-enriched air helps in the elimination of CO from Carboxyhemoglobin.

A concentration of CO in the air equal to 2000-4000 ppm (0.2% -

0.4%) causes death in about 15 minutes, after provoking loss of consciousness. In the presence of 1000 ppm survives about 90 minutes. The first symptoms of poisoning are headache and a sense of vertigo, unfortunately, the gas also causes drowsiness and this often prevents victims to warn the danger and ventilate the room.

Because of the traffic, the urban population is often subject to long-term exposure to low concentrations. The slow poisoning by Carbon Monoxide takes the name of Oxycarbonism and is manifested by respiratory and nervous symptoms. In the blood, there is a percentage of Carboxyhemoglobin that depends on the concentration of CO at which a person is exposed: for each ppm of CO present in the air, 0.16% of Hemoglobin is transformed into Carboxyhemoglobin; are necessary, however, a few hours because it reaches maximum saturation. Proportionally exposure periods shorter form less Carboxyhemoglobin. Are considered physiological concentrations Carboxyhemoglobin less than 1% of hemoglobin circulating in the blood. When the CO concentration in the air is 12 - 31 ppm, you get 2-5% Carboxyhemoglobin and occur with the first signs of increased heart rate, increased respiratory rate and

psychomotor disturbances (in car drivers stretch so dangerous reaction times). At 100 ppm exposure for several hours (as in the case of long stops in road tunnels), vertigo, headache, and a general sense of fatigue, which may be followed by collapse. Exposure to Carbon Monoxide involves also the aggravation of cardiovascular disease, a deterioration in the state of health in healthy people and a worsening of the condition circulation in general.

TECHNICAL DATA

- power supply: 12 - 24VDC (+ / -15%)
- power dissipation max.: 1.5 W
- average power dissipation. 0.8 W
- measuring range: 0 - 200 ppm of CO
- dual optical beam: one measurement channel and one reference channel
- analog output signal: 0,5-5V and 4-20mA
- signal output "Service" for maintenance request (Open Collector)
- signal output "Fault" fault (Open Collector)
- repeatability: + / - 2% concentration of the gas
- temperature: -25 to +50 ° C
- humidity: 15-90% RH
- pressure limit: 800 - 1200 mbar
- deviation in the long term: <2% / year
- response time: 10-30 sec. about
- initial stabilization time: 30 '
- average life: approximately 8 years
- enclosure: aluminum alloy
- protection index: IP65 (IP63 analysis chamber)
- construction conforms to standards: UNI CEI 4 - EN50054
- dimensions: 160x100x80 mm (control unit) - 1.200x50 mm (analysis chamber)