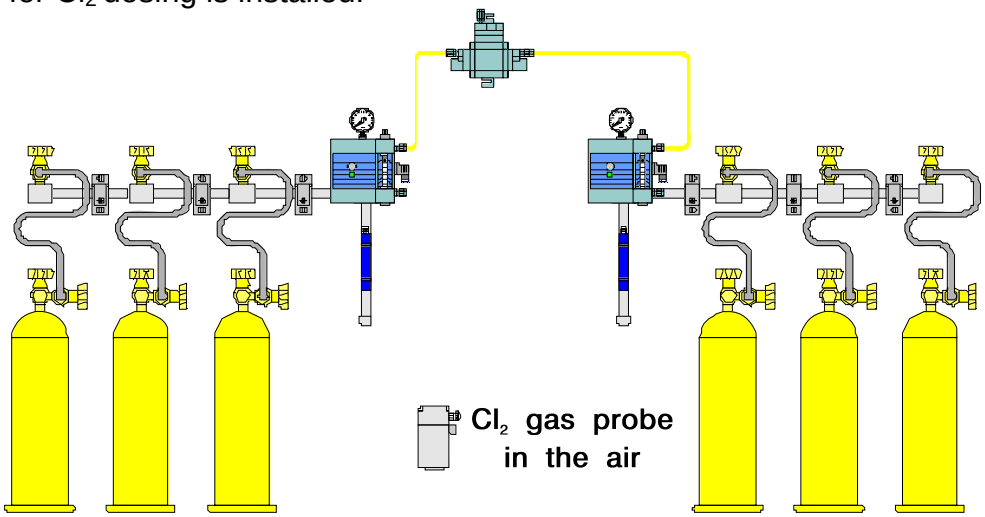
INSTRUCTION MANUAL FOR

Chlorine gas in the air detection sensor

type M 2103 C

General description:

Probe for detection of Chlorine gas in the air is mainly used for security of the staff, especially in chlorine gas cylinders and containers storage places and rooms where equipment for Cl_2 dosing is installed.



Typical use of chlorine gas in the air probe

The Sensor

The sensor and electronics are closed in a sealed casing resistant to aggressive gases and liquids. The sensor operates on the basis of a chemical cell and a diffuse capillary membrane, which has plenty of advantages:

- chemical additives are not necessary
- the hydrochloric acid concentrate based in chemical cell is regenerating during the chemical reaction, as well free oxygen is being released
- concentration of gas and signal are being proportional
- very stable measurement in a long period of time
- a long duration period (minimum 2 years)
- minimal maintenance costs
- temperature range : -20 -+55
- repeatability :2
- working area of pressure (mbar):900-1100
- working area of relative dampness – continuance(%):15-90
- working area of relative dampness-momentarily(%):0-99

Supply and transmission of the signal are flowing through shielded cable. The probe can be a part of chlorine gas in the air leek detector series M 4510 C or can be connected to the Aquaprocesor series M 5700 or directly on PLC.

- supply voltage :+22V
- current output :4-20 mA
- measurement loop resistance :500Ohm

The probe can be connected as well on the old type of units for signal representation M 2000 C, M 2010 C and M 4503 C

- supply voltage :+12V
- current output :4-20mA
- measurement loop resistance: 500Ohm

Gas in the air is measured in units (**in 1m3 of air=1cm3 of chlorine=1ppm**), those can be shown on the unit for signal evaluation of the leek detector. Two alarms can be placed which serve for switching the horn on, signal lights or neutralization of the instrument. Sensor of Cl_2 in the air has two years of lifetime. Lifetime can be even longer if the sensor is placed where the moisture is relatively normal, the sensor should not be constantly exposed to the concentration of Cl_2. Sensor activities should be checked once per year. For simple check we can use powdered chlorine. We take a (100ml) plastic bottle than pour 50 ml of powdered chlorine in and as well so many drops of water until chlorine gets wet. We close the plastic bottle and shake it well. After one hour open the bottle and put it under the sensor. The gas that comes out should raise the sensor to maximal value (20ppm) in couple of seconds. If we remove the bottle for 2-3cm the concentration will be lower and the sensor will rise only for some PPM. When the concentration is lower we can notice if the sensor is still sensitive. Otherwise we have to change the sensor. Its lifetime can be shorter than two years if the sensor is damaged because of omission of the whole cylinder or container of chlorine.

CONNECTION SCHEME