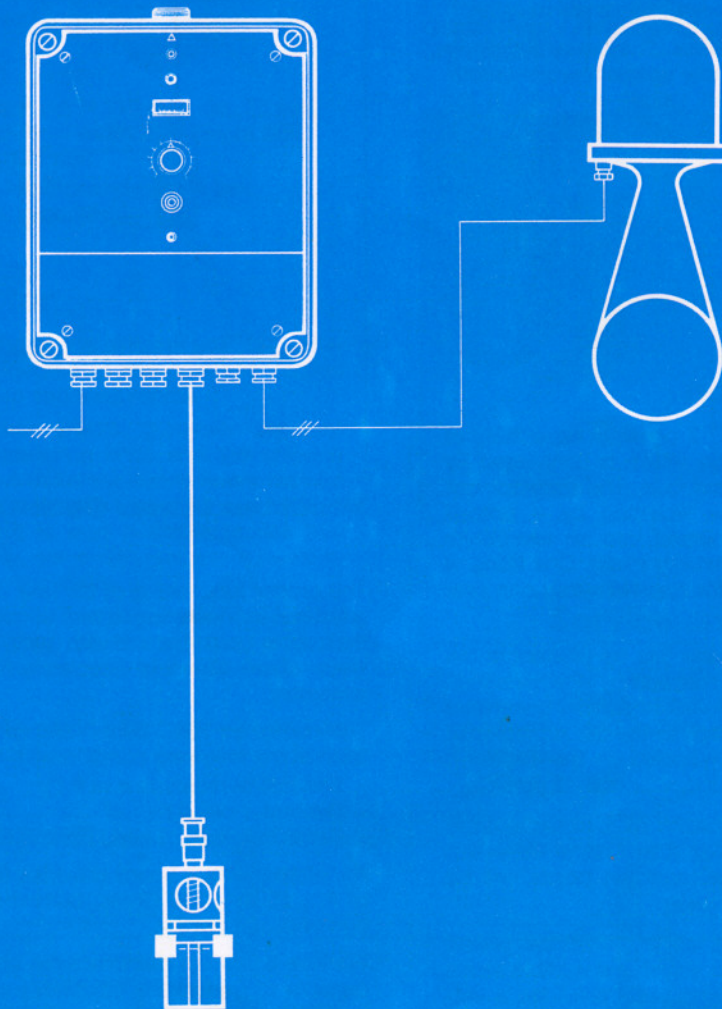


# CHLORATEKT<sup>®</sup> 2



# CHLORATEKT® 2

## General

Water treatment and many other technical processes frequently require the use of oxidising gases such as chlorine or chlorine dioxide. These gases are highly toxic and corrosive. Therefore special precautions have to be taken in areas where such gases are used.

Air contaminated with oxidising gases will endanger plant personnel and equipment. If employees are exposed to low concentrations of these gases for extended periods, the safety limit will be reached. Higher concentrations will affect the respiratory system of the personnel and corrode machines resulting in costly repairs.

The gas leak detector CHLORATEKT® 2 monitors the contents of oxidising gases in the air, indicates leaks and warns the personnel in plants where chlorine or chlorine dioxide are generated, stored or metered.

The unit will initiate a visual and audible alarm if the MAK value is exceeded. The MAK value is the maximum permissible gas concentration in the air of an area where people are working.

MAK values are toxicological limit values. They were laid down by law to protect people at their job site against certain chemicals. As of 1981, the following MAK values are valid in the Federal Republic of Germany:

Gas	Formula	cm <sup>3</sup> /m <sup>3</sup> = ppm	equivalent to mg/m <sup>3</sup>
Chlorine	Cl <sub>2</sub>	0.5	1.5
Chlorine Dioxide	ClO <sub>2</sub>	0.1	0.3

## Description of Operation

The gas leak detector CHLORATEKT® 2 consists essentially of two items; the detector cell assembly which is connected by means of a coaxial cable to a control box. The detector cell comprises two platinum electrodes wrapped by a porous wick. The electrode are partly immersed into an electrolyte reservoir attached and thus kept constantly moist. One filling of the electrolyte reservoir is sufficient for approximately one year of continuous operation.

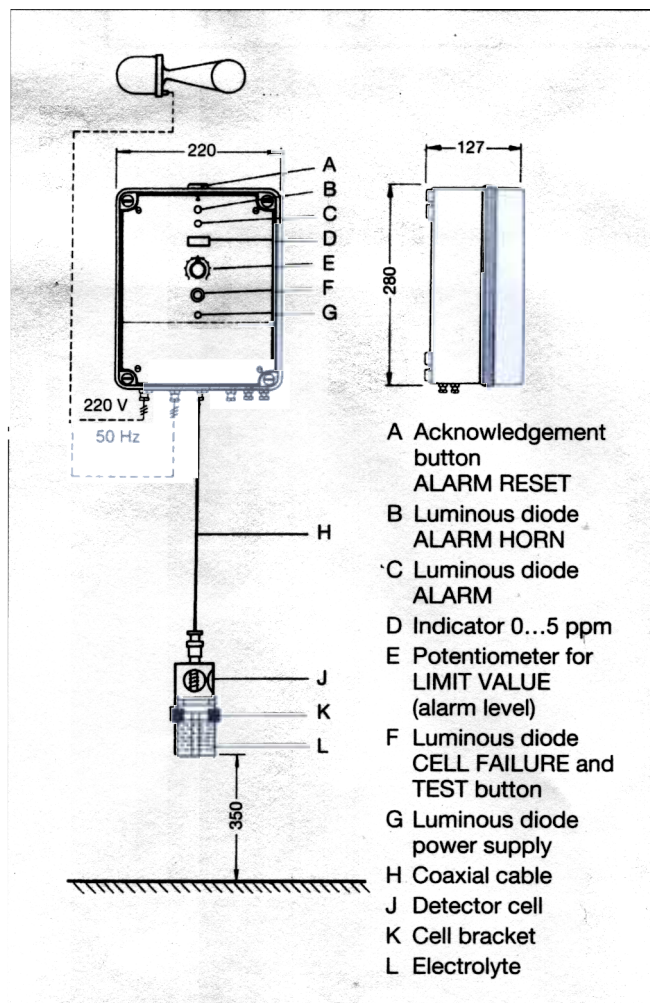
Should chlorine gas or chlorine dioxide gas be present in the surrounding air, an electro-chemical reaction by depolarisation will take place on the electrode; the electric current generated is proportional to the gas concentration in the air. An increase in the chlorine gas concentration is indicated on the electronic control box which is equipped with an indicator of 0...5 ppm Cl<sub>2</sub>.

The desired alarm level is set by means of a potentiometer having a range between 0...5 ppm Cl<sub>2</sub>. If two alarm levels are required an amplifier with two operational set points will be used.

When the gas concentration in the air exceeds the preset value, the leak detector will release a visual and audible alarm and operate an alarm relay. This alarm relay provides a voltage-free single pole double throw contact for use by the customer to actuate safety devices such as a solenoid valve in the gas line or a neutralisation system. When the gas concentration drops below the preset limit, the alarm contact will move back to its former position.

If the preset value is exceeded for more than 10 seconds, the light emitting diode ALARM HORN will light and a further relay will be energised. The alarm horn is connected to the potential free output of this relay. The relay will remain energised until it is reset either by means of the push button on the control box or by an external push button in the customer's control center. After having stopped the alarm and after the gas concentration has dropped below the preset limit, the contact will automatically be in operation condition again.

## Gas Leak Detector for Chlorine Gas and Chlorine Dioxide in the Air



Simplex Leak Detector CHLORATEKT® 2

The proper functioning of the leak detector may be checked at any time by operating a test button. The test button is provided as a push button with built-in light emitting diode. Its visual alarm allows to check the function of the detector cell assembly.

The combined TEST button and CELL FAILURE alarm light will flash at the following conditions:

- Electrolyte reservoir empty;
- Detector cell dry;
- Cable between cell and control box interrupted.

An internal circuit board provides for continuous output signal of 4 ... 20 mA, 300 Ohms, corresponding to a gas concentration of 0...5 ppm Cl<sub>2</sub>.

Wallace & Tiernan manufactures also a chlorine gas generator capable of generating adjustable chlorine gas concentrations in the air. This unit is a very practical accessory item for the physico-chemical calibration of the leak detector.

The detector cell is installed close to the place where the air is to be monitored. As chlorine is heavier than air, the cell is mounted approximately 350 mm from the floor. The ambient temperature should be in the range between -10°C and +50°C. The control box containing the electronic amplifier, the alarm horn and other alarm devices connected to the alarm output should preferably be installed in a chlorine-free room.

The distance between detector cell and control box may be adapted to the local requirements. When using a screened cable this distance may be up to 100 m. For distances of more than 2 m between cell and control box, a connection box must be used.

## Technical Data

<b>Measuring range:</b>	indicator 0...5 ppm Cl <sub>2</sub>
<b>Sensitivity:</b>	0,1 ppm Cl <sub>2</sub>
<b>Response time:</b>	≤ 1 second
<b>Alarm level</b>	adjustable between 0...5 ppm Cl <sub>2</sub>
<b>Alarm contacts at:</b>	<ul style="list-style-type: none"> <li>- Gas leak (cell alarm)</li> <li>- General alarm (10 sec. after cell alarm, stays until Reset button is pressed)</li> <li>- Cell failure (dry electrode, rupture of connecting cable)</li> </ul>
<b>Alarm, type of:</b>	visual by LED audible by horn
<b>Analoge output:</b>	0/4...20 mA of 300 Ohm
<b>Working contacts:</b>	voltage-free, single pole double throw, rated at 220 V, A.C., 4 A resistive
<b>Power supply:</b>	220 V, A.C., 50/60 Hz, ±20 % 110 V, A.C., 50/60 Hz, ±20 % (optional)
<b>Power consumption</b>	8 VA
<b>Cable</b>	2 m coaxial cable with BNC plug (for longer cables connection box required)
<b>Enclosure</b>	IP 65
<b>Ambient temperature:</b>	-10°C ... +50°C
<b>Dimensions:</b>	Detector cell H 110 mm, dia. 35 mm Control box: width 220, height 280, depth 127 mm
<b>Shipping weight:</b>	3 kg (detector and control box including packing)

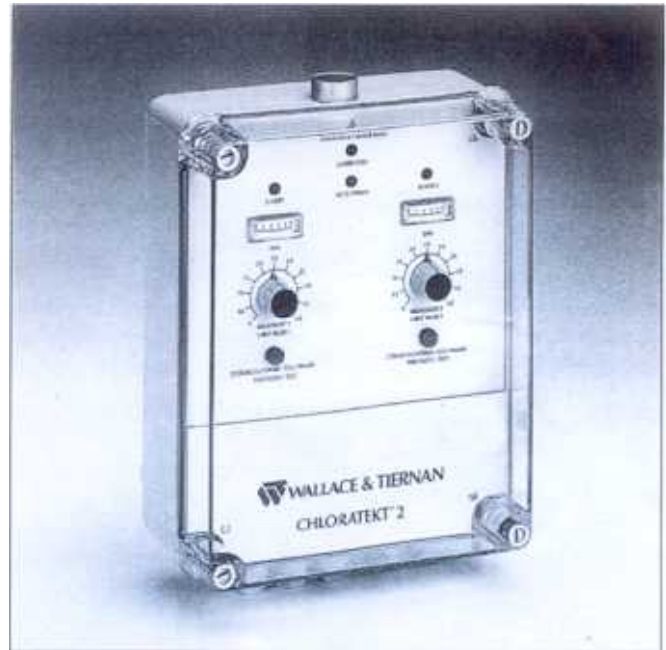
## Duplex Leak Detector

This unit is essentially the same as the simplex unit, but comprising two detector cells connected to one common control box; it can monitor the air in two separate rooms.

In the case of big chlorination plants, generally separate rooms are used for the gas metering units and the chlorine cylinders or drums. If required, different alarm levels can be set for the different rooms, for example 1 ppm for room No. 1 and 5 ppm for room No. 2. It is also possible to use two detector cells for one room only, set at different alarm levels to provide for a pre-alarm and a main alarm.

By means of the working contacts it is possible to operate all kinds of ancillary equipment such as alarm horns, exhaust fans, automatic gas shut-off valves, sprinkler systems or air scrubbers.

The dimensions of the duplex control box are identical to those of the simplex control box.



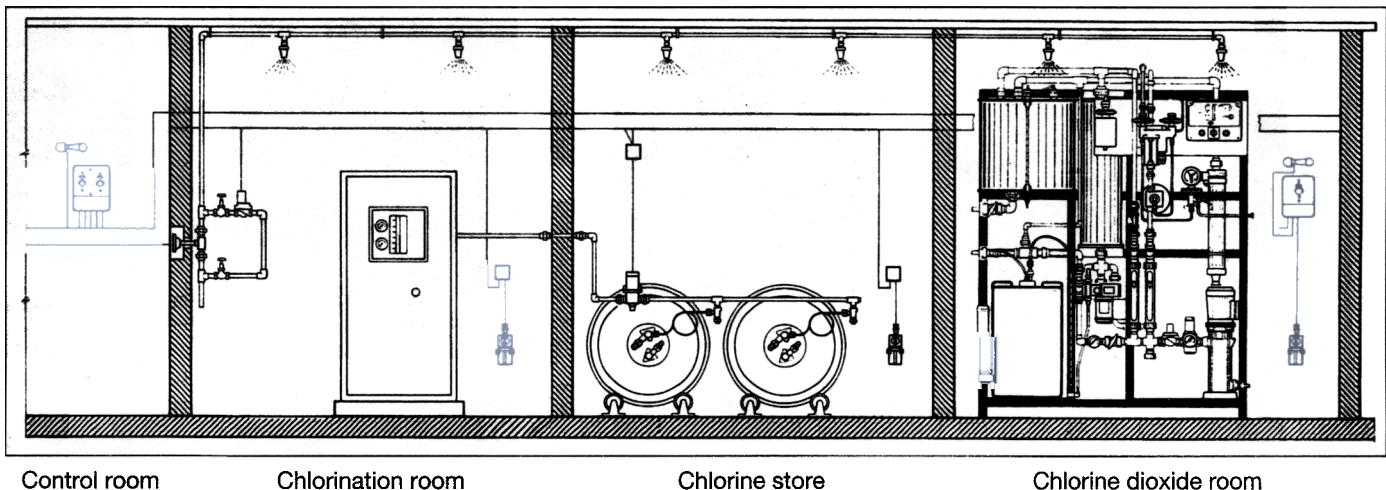
Control box / amplifier of gas leak detector type CHLORATEKT® 2



Detector cell with electrolyte reservoir and connection for BNC plug.  
20 ml electrolyte supply sufficient for 12 months continuous operation.

## Service and References

Prompt service is available from our headquarters in Mumbai. Additional data, such as dimension sheets, typical arrangements and auxiliary controls are available in other publications.



Typical installation of a duplex leak detector (chlorination room and chlorine store) and of a simplex leak detector (chlorine dioxide room).

## OTHER PRODUCTS AVAILABLE

- S 10 K CHLORINATOR ..... from 20 gms/hr to 10 Kgs/hr
- V 10 K CHLORINATOR ..... from 60 gms/hr to 10 Kgs/hr
- V2000 CHLORINATOR ..... From 1 Kg/hr to 56.5 Kgs/hr
- V2100 CHLORINATOR ..... From 1000 lbs to 10000 lbs/day
- 50-200 EVAPORATOR ..... from 120 Kgs/hr to 200 Kgs/hr
- DEPOLOX RESIDUAL ANALYSER ..... Upto 19.99 ppm
- A 790 AMPEROMETRIC TITRATOR ..... Minimum 0.01 ppm or 0.001 ppm
- CHLORINE LEAK ABSORPTION SYSTEM ..... 1000 Kgs/hr of chlorine
- CHLORINATION SYSTEM ACCESSORIES

*MANKIND DEMANDS WATER*

Manufactured based on the technology acquired from



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