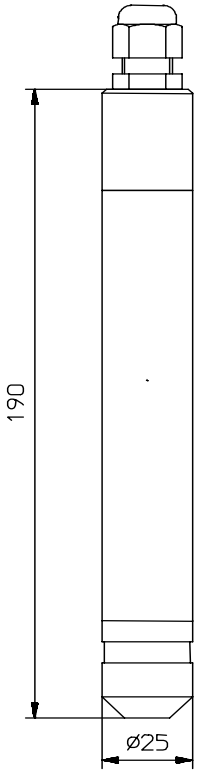
CHLORINE MEASURING SENSORS CL 4, CS 2, CP 2

06/04



Dimensions: mm

The chlorine amperometric sensors are housed in a rugged PVC body, and the sensors include a Teflon polarographic membrane. The sensor CL 4 measures the content of free oxidising chlorine as HOCl, which is produced by inorganic chlorine products (chlorine gas, sodium hypochlorite, calcium hypochlorite) in water. The pH-dependency of the equilibrium HOCl/OCl^- in water has an influence on the reading of the CL 4. For water with pH < 7 all free chlorine exists as HOCl. It is important to keep the pH value as constant as possible, because the content of free chlorine is correlated with the dissociation curve of HOCl in the pH range 6.8 to 8.0, so you will get different reading from the sensor, while the DPD method still delivers constant chlorine content. The use of organic chlorine species or stabilisers may cause differences between the reading and the DPD measurement.

Because of the special potentiostatic 3-electrode system the sensor CS 2 features measurement of free available chlorine (sum of Cl_2 + HOCl + OCl^-) and with isocyanuric acid connected chlorine as well as dramatically reduced pH dependence. Sensor CP 2 measures total chlorine in comparison with the photometric DPD method. Total chlorine is the sum of free chlorine and inorganic and organic combined chlorine. The reading from the CP 2 is nearly independent from the pH within the working range.

All chlorine sensors are equipped with a built-in pre-amplifier with automatic temperature compensation. A zero calibration is not required. The slope should be calibrated regularly in comparison with the photometry measurement (DPD method).

The sensors are available in two different output signal versions. Standard versions CL 4, CS 2 and CP 2 offer a two wire connection 4...20 mA (not isolated) with a power supply 15...30 V DC. Special versions CL 4S, CS 2S and CP 2S need a four wire connection and feature a 4 pins plug head (connection cable K 100 is required).

Specifications	Sensor CL 4	Sensor CS 2	Sensor CP 2
Applications	swimming pool, drinking, sea and process water	swimming pool, drinking, cooling and process water	swimming pool and drinking water (acc. DIN 19643-1)
Measuring range	Standard version: 0 ... 2 mg/l Special version CL 4S, CS 2S, CP 2S: 0 .... > 10 mg/l		
pH range	pH 6 ... 8	pH 4 ... 12	pH 4 …. 12
pH dependency	in correlation with the dissociation curve of HOCl; pH 7.2 ... 7.4 recommended	about 10 % slope reduction per pH unit	about 10 % slope reduction per pH unit
Temperature range	0 ... 45 °C (temperature compensated)		
Pressure	max. 2 bar	max. 0.5 bar	max. 0.5 bar
Flow through velocity	30 l/h recommended		
Material	PVC, polycarbonate	PVC, polycarbonate, stainless steel	PVC, polycarbonate, stainless steel
Dimensions	Standard version: Ø 25 mm (1"); length 220 mm Special version CL 4S, CS 2S, CP 2S: Ø 25 mm (1"); length 175 mm		
Cable connection	Standard version: 2 pins terminal; PG 7 cable gland Special version CL 4S, CS 2S, CP 2S: 4 pins plug head (a connection cable is required)		
Probe assembly	Flow through housing AD 2000 (acryl), hose connection DN 10 Flow-through housing AD 82/Cl (PVC), DN 15 glue port		

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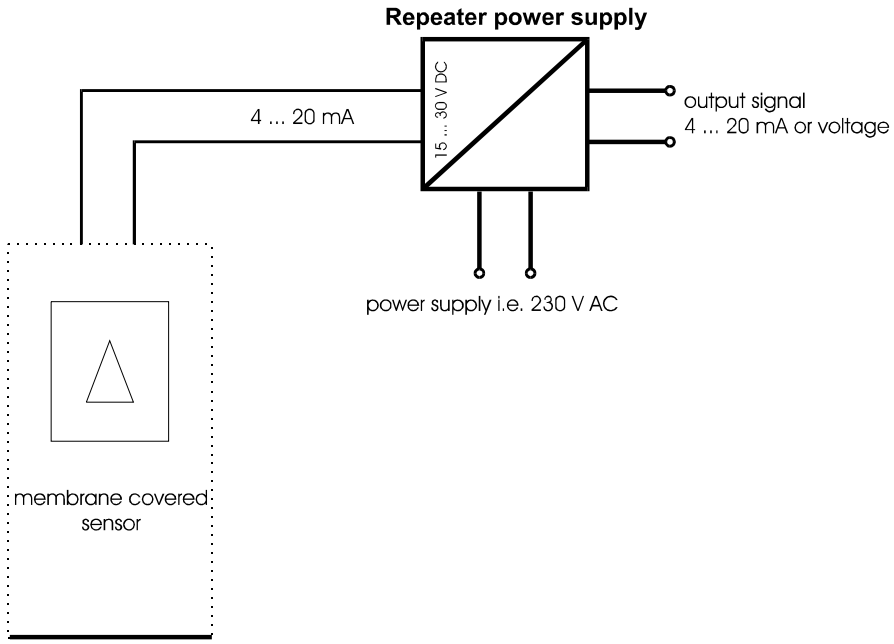
Wiring diagram for the standard versions CL 4, CS 2 and CP 2



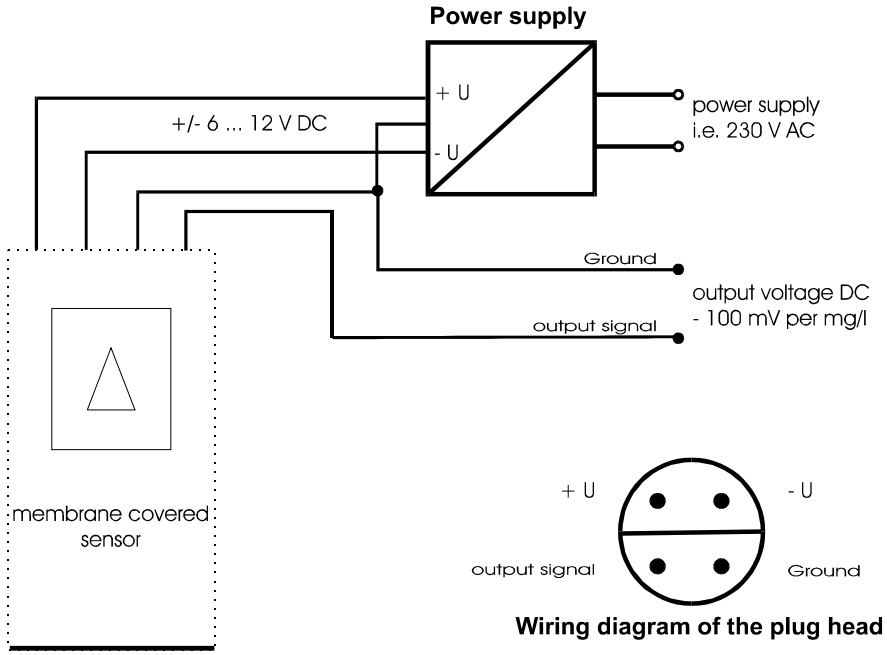
voltage supply:

minimal: 13 V DC
maximal: 30 V DC

maximal load R_L :
$R_L = (U - 11.6\ V)/20\ mA$
U: power supply

max. power consumption: 0,6 W

Wiring diagram for the special versions CL 4S, CS 2S and CP 2S



Wiring diagram of the plug head

voltage supply:

stabilised ± 6...± 12 V DC
current consumption: about 15 mA

output signal:

about -100 mV per mg/l chlorine
R_i about 1 kΩ

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