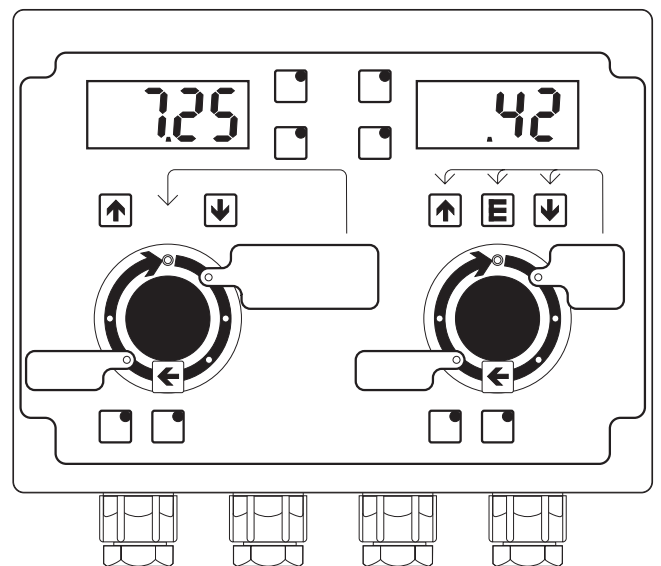
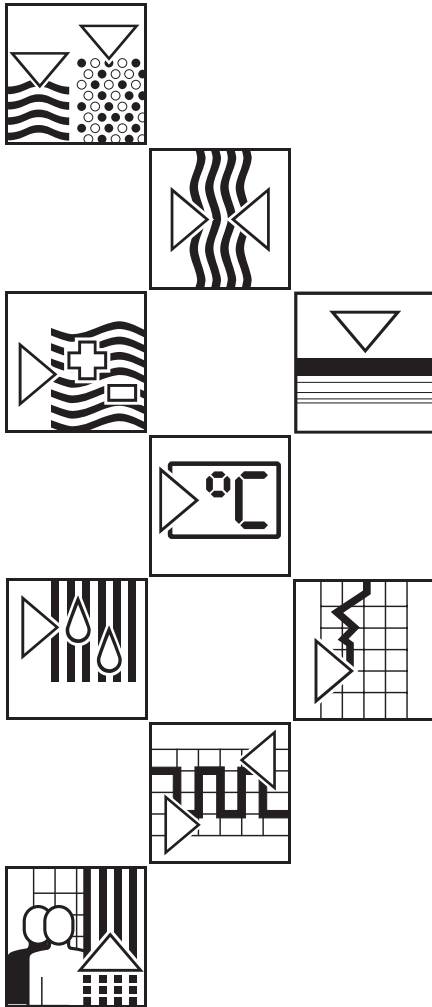


PoolPAC CCM 360 Chlorine, pH, Redox and Temperature Transmitter, Controller

Operating Instructions



Quality made by
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ISO 9001

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Nothing beats know-how



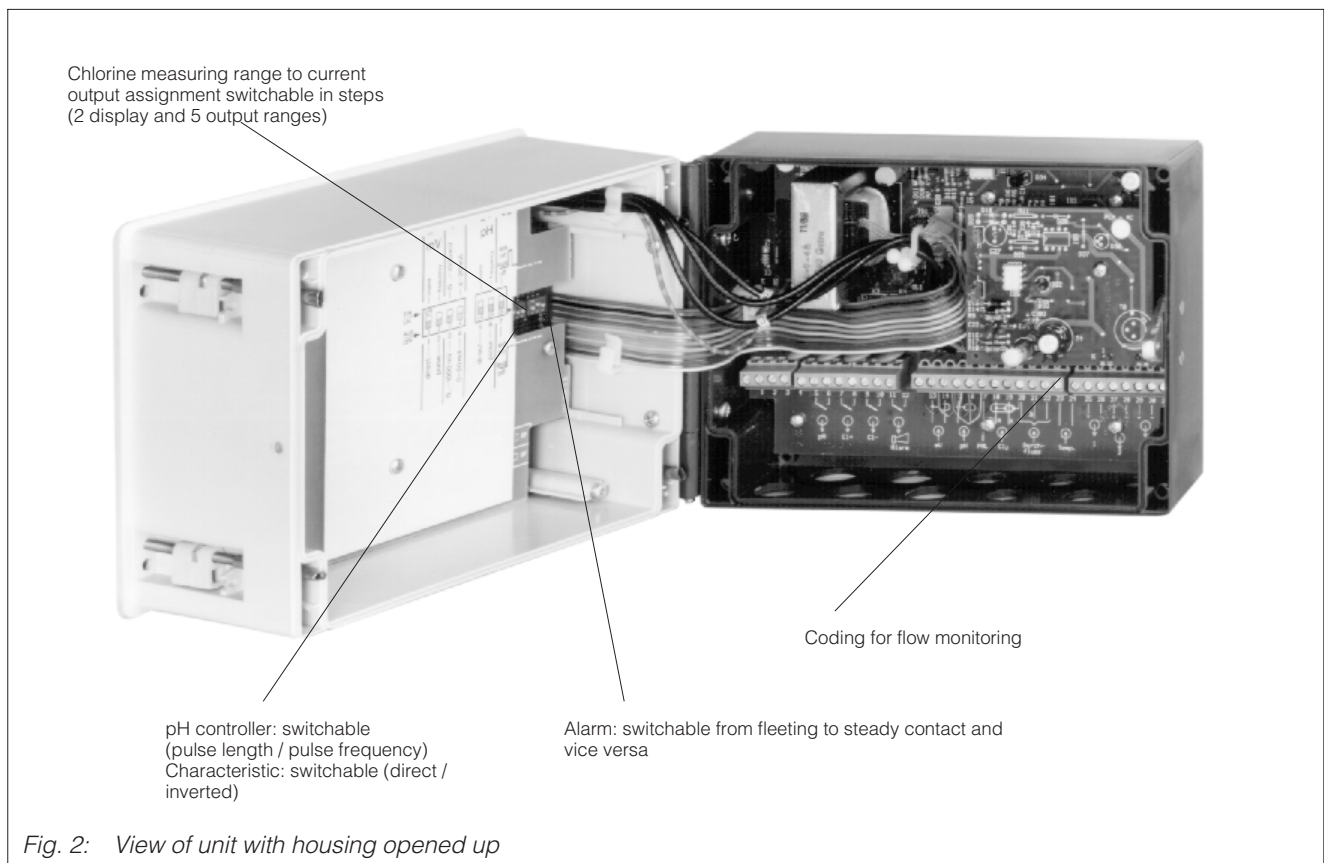
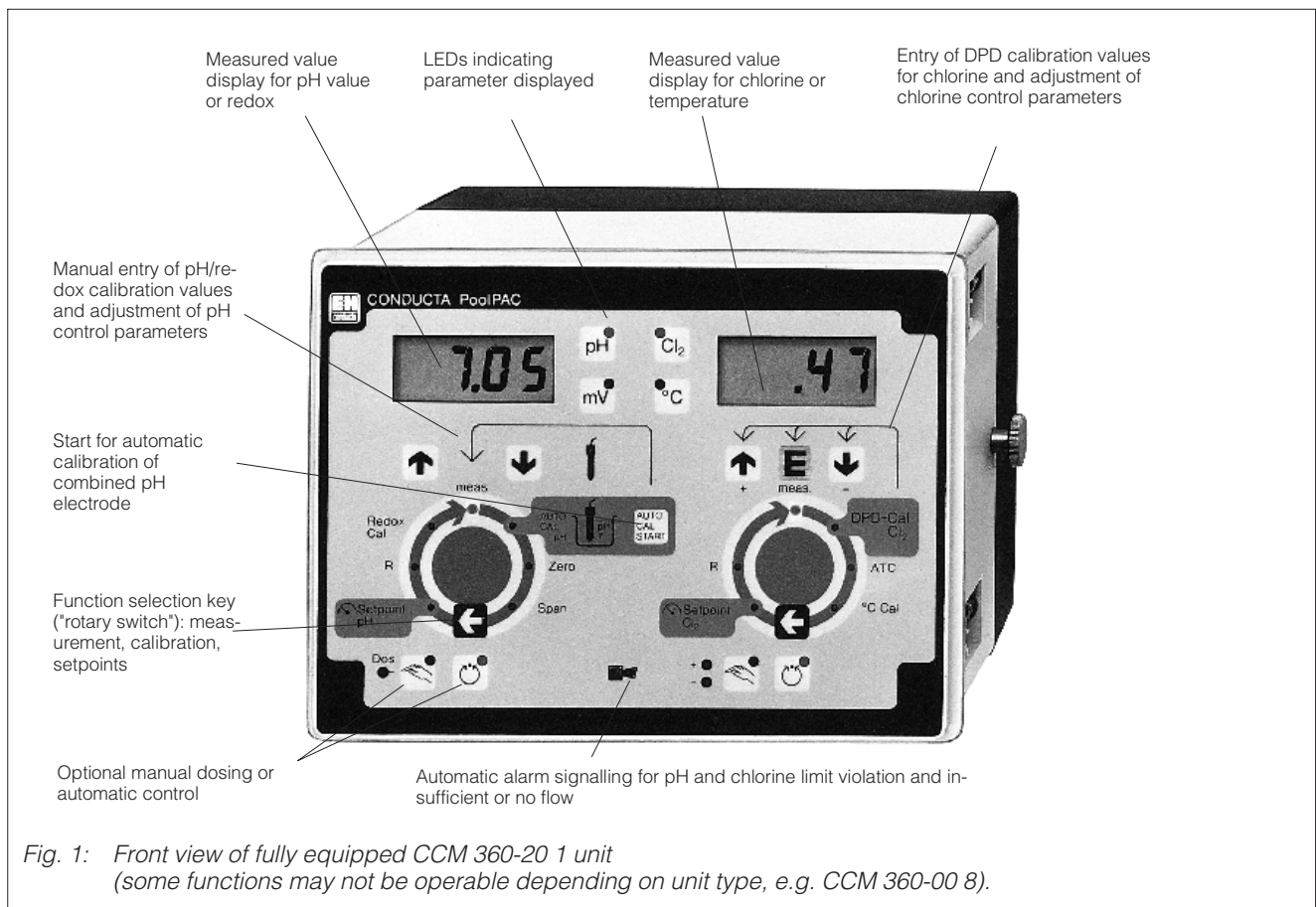


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1. Application

Oxidizing agents such as chlorine, anorganic chlorine compounds or ozone are used to disinfect pool, drinking and service water. Measurement and control of the chlorine concentration, redox potential and pH value are prerequisites for monitoring and guaranteeing the desired level of disinfection.

The PoolPAC is a microprocessor-controlled combination instrument for simultaneous and continuous measurement of pH value, redox voltage (mV) and free effective chlorine in water (mg Cl₂/l) that is also used to control the pH value and chlorine concentration.

The instrument provides the technical functions necessary to meet the requirements of DIN 19643 and the German federal statutes for control of epidemics.

Other typical areas of application

Continuous monitoring and chemical metering

- in process waters,
- in the foodstuffs industry, and
- in drinking water treatment.

1.1 Instrument variants

Table 1 shows the expansion levels of the PoolPAC types.

These operating instructions describe the version CCM 360-201 equipped with all the options. The connection diagrams also reflect the fully equipped instrument. The input and output terminals of empty card positions have no function.

Additional safety functions as of software version 8.94:

- pH proportional band switching
- Display of software version number (see 8.4.3, Control parameter adjustment)
- Dosing shutoff in the event of a flow alarm (see 8.9)
- Safety shutdown to prevent overdosing (see 8.10)

Instrument	Type designation	Parameters	Variant
PoolPAC	CCM 360-00 8	Cl ₂ , °C	—
PoolPAC	CCM 360-10 0	Cl ₂ , pH, °C	—
PoolPAC	CCM 360-20 1	Cl ₂ , pH, mV, °C	—
PoolPAC	CCM 360-20 1 RD	Cl ₂ , pH, mV, °C	w. 3-pt. step controller (chlorine)

Table 1: PoolPAC instrument types

2. Measuring system

The complete measuring and control system for water disinfection comprises the following components:

- PoolPAC combination instrument, e.g. fully equipped type CCM 360-201 with all parameters
- Membrane-covered chlorine measuring cell type CCS 140 or CCS 140-N
- Combined pH electrode CPS31-1EC2GSA
- Combined redox electrode CPS32-0PB2GSA
- Chlorine flow assembly type CCA 250-A1
- Chlorine metering device; e.g. solenoid-operated piston pump with external control or stroke adjustment via a three-point step controller (-Rd)
- Metering device for acid or base for pH value control; e.g. solenoid valve or externally controlled solenoid-operated piston metering pump

3. Function

The PoolPAC instrument provides the following functions:

- Simultaneous measurement of parameters pH, mV, chlorine and temperature
- Automatic temperature compensation (ATC) can be enabled for chlorine
- Adjustable current output range for chlorine
- Concurrent, continuous display of two parameters measured
- Two independent control loops for dosing:
 1. for pH value control,
 2. for chlorine concentration adjustment
- Menu-driven functions for instrument operation and adjustment
- Chlorine and acid/base can be dosed in automatic or manual mode
- Parameter monitoring and alarm output
- Automatic flow monitoring

4. Order code

Combination measuring instruments PoolPAC CCM 360

Measuring ranges

- 00 0 ... 1.0 mg Cl₂/l / 0 ... 50 °C
- 01 0 ... 0.5 mg Cl₂/l / 0 ... 50 °C
- 02 0 ... 2.0 mg Cl₂/l / 0 ... 50 °C
- 03 0 ... 5 mg Cl₂/l / 0 ... 50 °C
- 04 0 ... 10 mg Cl₂/l / 0 ... 50 °C
- 10 0 ... 1.0 mg Cl₂/l / 0 ... 50 °C / 5 ... 10 pH
- 11 0 ... 0.5 mg Cl₂/l / 0 ... 50 °C / 5 ... 10 pH
- 12 0 ... 2.0 mg Cl₂/l / 0 ... 50 °C / 5 ... 10 pH
- 13 0 ... 5 mg Cl₂/l / 0 ... 50 °C / 5 ... 10 pH
- 14 0 ... 10 mg Cl₂/l / 0 ... 50 °C / 5 ... 10 pH
- 20 0 ... 1.0 mg Cl₂/l / 0 ... 50 °C / 5 ... 10 pH / 0 ... 1000 mV
- 21 0 ... 0.5 mg Cl₂/l / 0 ... 50 °C / 5 ... 10 pH / 0 ... 1000 mV
- 22 0 ... 2.0 mg Cl₂/l / 0 ... 50 °C / 5 ... 10 pH / 0 ... 1000 mV
- 23 0 ... 5 mg Cl₂/l / 0 ... 50 °C / 5 ... 10 pH / 0 ... 1000 mV
- 24 0 ... 10 mg Cl₂/l / 0 ... 50 °C / 5 ... 10 pH / 0 ... 1000 mV
- 36 1 ... 13 pH / 0 ± 1000 mV (for redox/pH)
- 99 Special version according to customer specifications

pH/redox measuring range

- 0 Display 2 ... 12 pH; instrument output 5 ... 10 pH with Cl₂
- 1 Display 2 ... 12 pH; instrument output 5 ... 10 pH and 0 ... 1000 mV with Cl₂
- 3 Display range and instrument output 1 ... 13 pH and 0 ... 1000 mV without Cl₂
- 8 Without pH/redox measurement

Controller

- IF Pulse length / pulse frequency for chlorine/pH
- RA Pulse length / pulse frequency for redox/pH
- RD 3-point controller for Cl, pulse length / pulse frequency for pH
- RE Three-point step controller for chlorine
- YY Special version according to customer specifications

Power supply

- 0 230 V, 50 / 60 Hz AC
- 1 110 V, 50 / 60 Hz AC
- 6 127 V, 50 / 60 Hz AC
- 7 240 V, 50 / 60 Hz AC
- 9 Special version according to customer specifications

Output

- 0 0 ... 20 mA
- 2 4 ... 20 mA
- 9 Special version according to customer specifications

CCM 360 -

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← complete order code

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