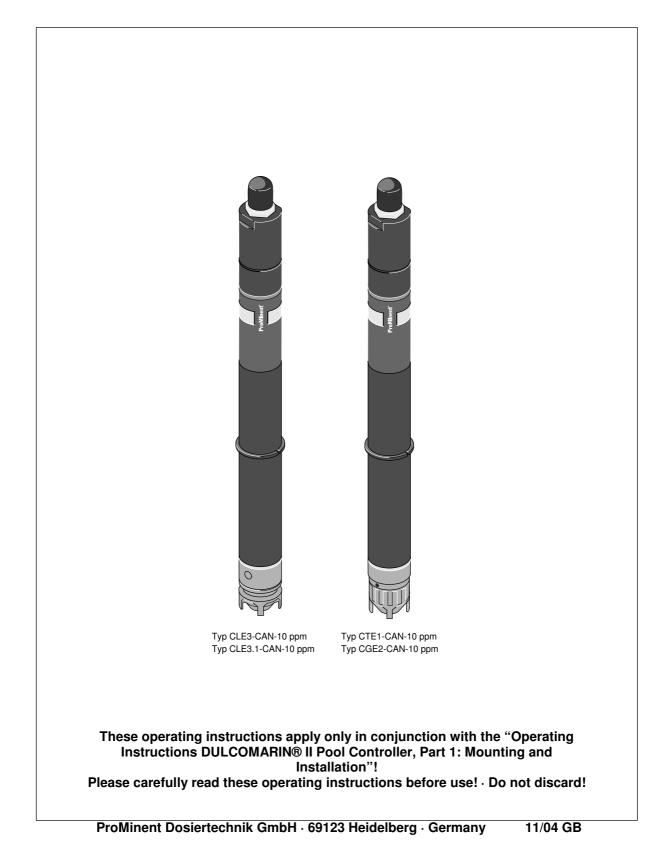**Supplementary operating manual**
for DULCOTEST® measuring cells with CAN interface
Type CLE 3-CAN-10 ppm
Type CLE 3.1-CAN-10 ppm
Type CTE 1-CAN-10 ppm
Type CGE 2-CAN-10 ppm



Typ CLE3-CAN-10 ppm    Typ CTE1-CAN-10 ppm
Typ CLE3.1-CAN-10 ppm  Typ CGE2-CAN-10 ppm

**These operating instructions apply only in conjunction with the "Operating Instructions DULCOMARIN® II Pool Controller, Part 1: Mounting and Installation"!**
**Please carefully read these operating instructions before use! · Do not discard!**

This supplementary manual supplies CAN-specific information on the operation manuals for DULCOTEST® chlorine sensors. In case of doubt, the information from this supplementary manual will be valid. The information is arranged according to the corresponding chapters.

## Application

The sensors with CAN interface may only be connected to the CANopen-Bus of the DULCOMARIN II.

## Safety

Do not try to open the adaptor!
The electronic in its interior may get damaged!

## Design and Function

Embedded in a plastic paste, in the upper part of the shaft, there is a multiplier electronics that transforms the primary sensor current in a CAN-Bus-signal for the DULCOMARIN II. The sensor is supplied electrically via the CAN-Bus-cable.
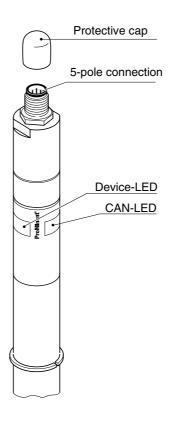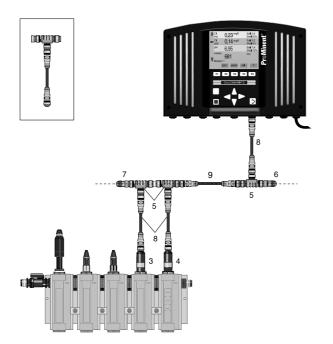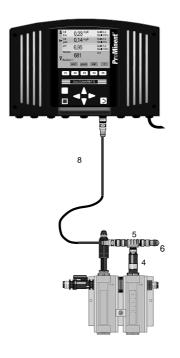


Abb. 1: Sensor design

# Installation

Installing electrically:

Plug the CAN-male connector into the plug socket (for details, please see "Operating instructions DULCOMARIN® II Pool Controller Part 1: Mounting and Installation").

3 Chlorine sensor CLE
4 Chlorine sensor CTE
5 T-distributor
6 M12 load resistor coupling
7 M12 load resistor plug
8 CAN connecting cable
(spur line 0.3 or 0.5 m)
9 CAN connecting cable

Abb. 2: CAN connection of two (more) chlorine sensors

4 Chlorine sensor CLE
5 T-distributor
6 M12 load resistor coupling
8 CAN connecting

Abb. 3: CAN connection of an individual chlorine sensor

# Troubleshooting

**Left LED**
(Device LED)

| Colour | Flash code | Cause | Result | Remedies |
|--------|-----------|-------|--------|----------|
| **red** | **illuminated** | Electronics error | Sensor faulty | Return chlorine sensor or contact customer service |
| **red** | **flashing\*** | Start-up phase | no measuring value communication | wait briefly |
| **red** | **slowly flashing\*\*** | Calibration incorrect | Measuring value incorrect | Re-calibrate |
| **red** | **double flashing\*\*\*** | 0 ppm > measuring value > 10 ppm | Measuring value too high / too low | Check chlorine contentof sample water |
| | | Measuring value =l limit value | Violation of limit value | Clarify cause; if required, re-set values |
| | | no correction value pH transmitted | Correction value pH missing | Check parameters and configuration. Check pH sensor |
| **green** | **illuminated** | no device defect present | Standard operation Sensor | - |
| **-** | **dark** | no supply voltage | Sensor not functioning | Check cable connections |

\*  ⎍ ⎍ ⎍    \*\* ⎍   ⎍   \*

**Right LED**
(CAN-open LED)

| Colour | Flash code | Cause | Result | Remedies |
|--------|-----------|-------|--------|----------|
| **red** | **arbitrary** | Bus error | no measuring value communication | Contact customer service |
| **green** | **illuminated** | Bus status OPERATIONAL | standard operation bus | - |
| **green** | **flashing** | Bus status PRE-OPERATIONAL | presently no measuring value communication | wait briefly |

Ignore the flash codes for approx. 2 min. (acknowledge any alarm, if any) after connecting the chlorine sensor.

If the LEDs repeatedly start to send one and the same sequence of flash codes, the bus has to supply too many devices.
In this case, loop a (further) N module into the bus (see operating instructions DULCOMARIN® II).

In case of all other flash codes, contact the customer service!

Table: Flash code for LEDs

## Ordering guidelines

| **Complete set** | **order no.** |
|---|---|
| Chlorine sensor CLE 3-CAN-10 ppm** | 1023425 |
| Chlorine sensor CLE 3.1-CAN-10 ppm** | 1023426 |
| Chlorine sensor CTE 1-CAN-10 ppm** | 1023427 |
| Chlorine sensor CGE 2-CAN-10 ppm** | 1024420 |

**For diaphragm caps and electrolytes for chlorine sensors see the product catalogue

| **Accessories** | **order no.** |
|---|---|
| T-distributor M12 5P CAN | 1022155 |
| M12 load resistor coupling | 1022154 |
| M12 load resistor plug | 1022592 |
| Connecting cable - CAN, M12, 5P, 0.3 | 1024568 |
| Connecting cable - CAN, M12, 5P, 0.5m | 1022137 |
| Connecting cable - CAN, M12, 5P, 1 m | 1022139 |
| Connecting cable - CAN, M12, 5P, 2 m | 1022140 |
| Connecting cable - CAN, M12, 5P, 5 m | 1022141 |
| Connecting cable - CAN, sold by the meter | 1022160 |
| Plug-CAN M12 5P, screw terminal | 1022156 |
| Coupling-CAN M12 5P, screw terminal | 1022157 |

## Technical Data

| | |
|---|---|
| Measurement range: | chlorine 0.01...10 mg/l |
| Resolution: | 0.01 mg/l |

## CAN standards and specifications complied with

The controller meets the standardised CAN specification for hardware 2.0 (ISO99-1, ISO99-2). This includes the CAN protocol (ISO 11898-1) and details about the physical application layer in accordance with ISO 11898-2 (high speed CAN to 1Mbit/sec.) and ISO 11898-3 (low speed CAN to 125kBit/sec.).
The device complies with the CAN-Open specification CIA-DS401, the basis of the European Standard EN50325-4.
It complies with the controller device profile CiA-404.