

# Controller DULCOMETER diaLog DACb

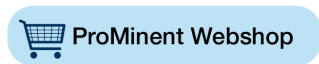
Water parameter analysis made easy – with the DULCOMETER diaLog DACb



Do you wish for a simple controller for water analysis? One that is easy to operate and with which you can freely select between all common measured variables per channel? There is one: our all-rounder DULCOMETER diaLog DACb! What is more, it is Ethernet-/LAN-capable and can be ideally integrated into existing networks.

## Technical Details

- Measured variables: pH, ORP, chlorine, chlorine dioxide, chlorite, bromine, conductivity, peracetic acid, hydrogen peroxide, ozone, dissolved oxygen and fluoride
- Installation, degree of protection: Combination housing (wall mounting, control panel mounting, pillar assembly) IP 67 and IP 66
- Control: three measuring and control channels, each with independent monodirectional PID controller (optional: two bidirectional PID controllers)
- 24 V DC protective low voltage supply e.g. by means of solar system or in the wet area of waterworks
- Temperature compensation for pH and for chlorine dioxide process sensor CDP, pH compensation for chlorine
- Digital inputs for the processing of control signals, e.g. of sample water limit contacts, remote stop control and to monitor the liquid levels in chemical storage tanks
- Control outputs for electronically controlled metering pumps and solenoid valves
- Interference variable processing: simple control of water parameters in flowing water by processing the flow in the control algorithm
- Adaptation of the controller setpoint to changed process conditions is possible via remote control by means of the mA signal of a PLC or with more stringent requirements via the field bus option



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## Technical Data

Measured variables and measuring ranges	<p><b>Connection type mV:</b>            pH: 0.00 ... 14.00            ORP potential: -1500 ... +1500 mV</p> <p><b>Type of connection mA (amperometric measured variables, measuring ranges corresponding to sensors):</b>            Chlorine            Chlorine dioxide            Chlorite            Bromine            Ozone            Hydrogen peroxide (PER 1 and PEROX H-3E)            Hydrogen peroxide (PEROX H2.10 P with PEROX transducer V2 order. no. 1047979)            Peracetic acid            Dissolved oxygen</p> <p><b>Type of connection mA (potentiometric measured variables, measuring ranges corresponding to transmitters):</b>            pH            ORP potential</p> <p><b>Fluoride:</b>            via module VA and function upgrade package 3 and 4</p> <p><b>Conductivity mA</b> via sensor CCT 1-mA-20 mS/cm</p> <p><b>Temperature:</b>            via Pt 100/Pt 1000, measuring range 0 ... 150 °C</p>
Resolution	pH: 0.01 ORP voltage: 1 mV temperature: 0.1 °C amperometric analysis (chlorine etc.): 0.001/0.01 ppm, 0.01 vol.%, 0.1 vol.%
Accuracy	0.3% based on the full-scale reading
Measurement input	pH/ORP (input resistance > 0.5 x 10 <sup>12</sup> Ω)
Temperature compensation	Pt 100/Pt 1000 for pH, chlorine dioxide (CDP) sensor and fluoride
Correction range temp.	0...100 °C
pH compensation range for chlorine	Sensor CLE 3 and CLE 3.1: 6.5 ... 8.5, sensor CBR: 6.5 ... 9.5
Disturbance signals	Flow via 0/4 ... 20 mA signal or contact water meter, 1 - 500 Hz. The multiplicative interference variable can influence all channels, while the additive interference variable only influences one channel.
Control characteristic	P/PID control
Control	2 or 3 bidirectional controls
Analogue outputs	2 (3) x 0/4 ... 20 mA electrically isolated, max. load 450 Ω, range and assignment (measured, correction, control variable) can be set
Control outputs	2 (4) pulse frequency outputs for controlling metering pumps 2 relays (limit value or pulse length control)
Alarm relay	250 V ~3 A, 700 VA contact type, changeover
Digital control inputs	4 (7) as a remote control input for the functions pause control/sample water fault, parameter set switch-over, level monitoring of chemical tanks
Electrical Connection	100 – 230 V, 50/60 Hz, 25 VA, optional 24 V DC
Field bus connection	PROFIBUS® DP, Modbus RTU, PROFINET
Ambient temperature	0 ... 50 °C (for use indoors or with a protective enclosure)
Enclosure rating	Wall-mounted: IP 66 and IP 67 (NEMA 4X) Mounted in control cabinet: IP 54 for control cabinet door
Tests and approvals	CE and MET (corresponding to UL as per IEC 61010)
Housing material	PC with flameproofing equipment
Dimensions	250 x 220 x 122 mm (WxHxD)
Weight	1.3 kg

### Standard equipment with basic measured variable

- PID controller with pulse frequency-based metering pump control for 2 metering pumps.
- 2 analogue outputs for measured value, correction value or control variable (depending on the optional equipment).
- 4 digital inputs for sample water fault detection, level switch, pause and parameter switch-over.
- 2 output relays can be programmed either as output for limit value, cycle timer, real-time timer or control output (depending on the optional equipment).
- Measured variables and language selection during commissioning.

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- Temperature compensation of the pH, chlorine dioxide (CDP) and fluoride measurement via Pt100/Pt1000.
- 24 operating languages: all European languages as well as Chinese, Russian, Thai, Korean. The operating language is selected during commissioning and can be changed at any time by a keyboard shortcut. The documentation language is selected via the identity code. A data carrier is also supplied that contains all other languages.
- Device parametrisation is saved and transferred on an SD card.
- Calibration and event data logger (without SD card, data is saved in the controller).
- Interference variable processing (flow) via frequency (contact water meter).
- Subsequent upgrade of the software function by means of an activation key or firmware update.

### Description of the possible measured variables as basic measured variables:

#### Module VA mV/temperature + mA sensor input:

- 1 sensor input for pH or ORP sensor and temperature sensor Pt100/Pt1000
- 1 sensor input for connecting, e.g. chlorine sensors, such as CBR or pH transducer pHV1 and fluoride including interference variable or pH compensation for chlorine.

#### Module AA mA/mA sensor input:

- 2 sensor inputs for connecting, e.g. chlorine sensors, such as CBR or pH transducer pHV1, including interference variable or pH compensation for chlorine.

#### Module VV mV/mV temperature sensor input:

- 2 sensor inputs for connecting pH and ORP sensors and temperature sensors Pt100/Pt1000, e.g. of type PHER, RHER, PHEI, RHEIC, Pt100SE

#### Module L3 conductivity temperature sensor input:

- 2 sensor inputs for connecting conductive conductivity sensors and temperature sensors Pt100/Pt1000, e.g. of type LFT, LMP

### Optional equipment for third pH measuring channel

#### Package 2

- Third measuring and control variable pH via mV or mA with or pH compensation for chlorine without external setpoint specification via analogue signal for channel 1 without flow interference variable via mA for channel 1
- Third analogue output.
- Three additional digital inputs, e.g. for level monitoring, pause and sample water alarm.
- Control two additional metering pumps.

#### Package 3

- Third complete measuring and control channel, any measured variable, with PID controller.
- Third analogue output for measured value, correction value or control variable (depending on the optional equipment).
- Three additional digital inputs, e.g. for level monitoring, pause and sample water alarm.
- Temperature compensation of the pH, chlorine dioxide (CDP) and fluoride measurement.

#### Package 4

- Combination of packages 2 and 3 (only one channel for amperometric sensors is available with the mA interference variable).

### Communication options

- Measurement data logger with SD card.
- Visualisation of the measured data using a web server via LAN and PC/tablet PC and web browser.
- PROFIBUS DP, Profinet or Modbus RTU.

### Hardware upgrade

- Protective RC circuit for output relay: Protects the output relay if inductive loads are to be switched (e.g. solenoid valves or motors). Not with 24 V DC electrical connector.