

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

Connection type mV:

pH: 0.00 ... 14.00

ORP potential: -1500 ... +1500 mV

Type of connection mA (amperometric measured variables, measuring ranges corresponding to sensors):

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

Type of connection mA (potentiometric measured variables, measuring ranges corresponding to transmitters):

pH

ORP potential

Fluoride:

via module VA and function upgrade package 3 and 4

Conductivity mA via sensor CCT 1-mA-20 mS/cm

Temperature:

via Pt 100/Pt 1000, measuring range 0 ... 150 °C

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 $> 0.5 \times 10^{12} \Omega$)

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.