Controller DULCOMETER® diaLog DACb

Water parameter analysis made easy – with the DULCOMETER® diaLog DACb

The controller DULCOMETER® diaLog DACb is our compact all-rounder for water analysis. With its specially designed functionalities, e.g. processing or interference variables and switchover of control parameters, it closes the control circuit between DULCOTEST® sensors and ProMinent® metering pumps. The two measuring and control channels of the DULCOMETER® diaLog DACb can be individually configured to meet customer requirements. Everything that you need for the reliable treatment of industrial and process water, potable water as well as swimming pool water.

Your benefits

- Simple operation thanks to a clearly arranged display
- More for your money: two measuring and control channels now in the basic configuration
- Versatile use: all common measured variables can be set per channel and subsequently altered

- Control from everywhere: LAN-capable and convenient remote access via integrated web server
- Maximum flexibility: individually adjustable to different operating statuses, e.g. Day-Night mode
- Excellent process reliability: avoidance of incorrect metering by time-based monitoring of control variables

Field of application

- Measurement and control of water parameters in industrial and process water treatment plants
- Monitoring of the water parameters potable water
- Measurement of pH value and disinfection parameters in the food and beverage industry
- Measurement and control of the hygiene parameters in swimming pools
- Monitoring of the chlorine dioxide concentration in systems for legionella control and prevention, for example in schools, hotels or hospitals
- Measurement of the disinfection parameters of irrigation and sprinkler irrigation water in market gardens

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Technical Data

Measured variables and measuring ranges	**mV connection type:** pH: 0.00 ... 14.00 ORP voltage: -1500 ... +1500 mV **Connection type mA (amperometric measured variables, measuring ranges corresponding to the sensors):** Chlorine Chlorine dioxide Chlorite Bromine Ozone Hydrogen peroxide (PER sensor) Hydrogen peroxide (PEROX sensor with **PEROX transducer V2 Order No. 1047979**) Peracetic acid Dissolved oxygen **Connection type mA (potentiometer measured variables, measuring ranges corresponding to the transmitter):** pH ORP voltage **Fluoride:** via module VA and function extension 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 x 10^{12} Ω)
Temperature compensation	Pt 100/Pt 1000 for pH, chlorine dioxide (CDP) sensor and fluoride
Correction range	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 the control of metering pumps 2 relays (limit value or pulse length control)
Alarm relay	250 V ~3 A, 700 VA contact type changeover contact
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) Installation in the 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 flame proofing equipment
Dimensions	250 x 220 x 122 mm (WxHxD)
Weight	1.3 kg

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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 selectable as limit value, cycle timer, real-time timer or intermittent programmable control output (depending on the optional equipment).
- Measured variables and language selection during commissioning.
- 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 the connection of, for example, chlorine sensors, such as CBR or pH switch-over pHV1 and fluoride including interference variable or pH compensation for chlorine.

Module AA mA/mA sensor input:

- 2 sensor inputs for the connection of, for example, chlorine sensors, such as CBR or pH switch-over pHV1, including interference variable or pH compensation for chlorine.

Module VV mV/mV temperature sensor input:

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

Optional equipment for third measuring channel pH

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 interference variable flow via mA for channel 1
- Third analogue output.
- 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 for channel 2.
- 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 interference variable mA).

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 and Modbus RTU.

Hardware extension

- 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.

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