

JUMO

More than **sensors + automation**



JUMO dTRANS pH/CR/AS 02

Compact transmitter/controller series for liquid analysis



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Dear reader,

This new development was intended to take the place of the successful and internationally established first dTRANS...01 series. With extended functions in the same compact housing, the JUMO dTRANS pH/CR/AS 02 instrument series now covers all the measurement variables. The mounting dimensions for the panel-mounting instruments are 96 mm x 48 mm x 90 mm (W x H x D) and these instruments are also available in a surface-mounted housing, with IP65 protection.

The new instrument series is available in 3 variants:

JUMO dTRANS pH 02 – pH-measurement with glass and ISFET sensors, ORP measurement, NH₃ measurement

JUMO dTRANS CR 02 – conductivity measurement with conductive two-electrode and four-electrode sensors, resistance measurement in ultrapure water.

JUMO dTRANS AS 02 – 0/4 – 20 mA and 0 – 10 V signal input for sensors with a standard signal output, such as free chlorine, chlorine dioxide, ozone and hydrogen peroxide sensors, level probes, pressure measuring instruments.

Thanks to the plain text navigational structure, operating the instrument is simple and safe. The instrument can be set to many European languages.

There is a userfriendly PC setup program for easy configuration and data exchange. Digital interfaces such as PROFIBUS-DP and Modbus (RS 422/485) are available for connection to a higher-level control system.

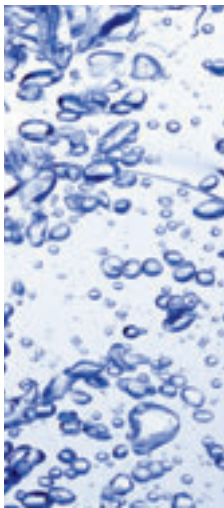
The new series can be used as a two-point or three-point controller, three-point modulating controller or continuous controller. All controller outputs can be configured to P, PI, PD or PID action.

As well as all the classical options for a liquid analysis controller and transmitter, some useful new special functions have been implemented, which are unique for such a compact device: Flow rate measurement, data logger, history function, washing contact and math module.

This brochure is designed to give you an overview of our new compact transmitter/controller series for liquid analysis JUMO pH/CR/AS 02.

PS: Detailed information about our products can be found under www.jumo.net.

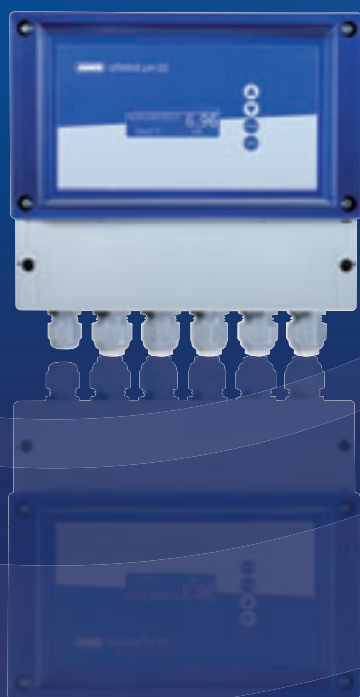
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JUMO dTRANS 02-Series

New compact transmitters/controllers JUMO dTRANS pH/CR/AS 02 are the ideal solution if you are looking for a reliable, compact and modular transmitter and controller that it is highly flexible (for example 3 slots for optional boards) and capable of performing a wide range of tasks. The high quality of this series is ensured by production on fully automatic production lines and a final 100% inspection. The extensive spectrum of pH and ORP electrodes, conductivity sensors and accessories allows optimum adaptation to every measuring task.

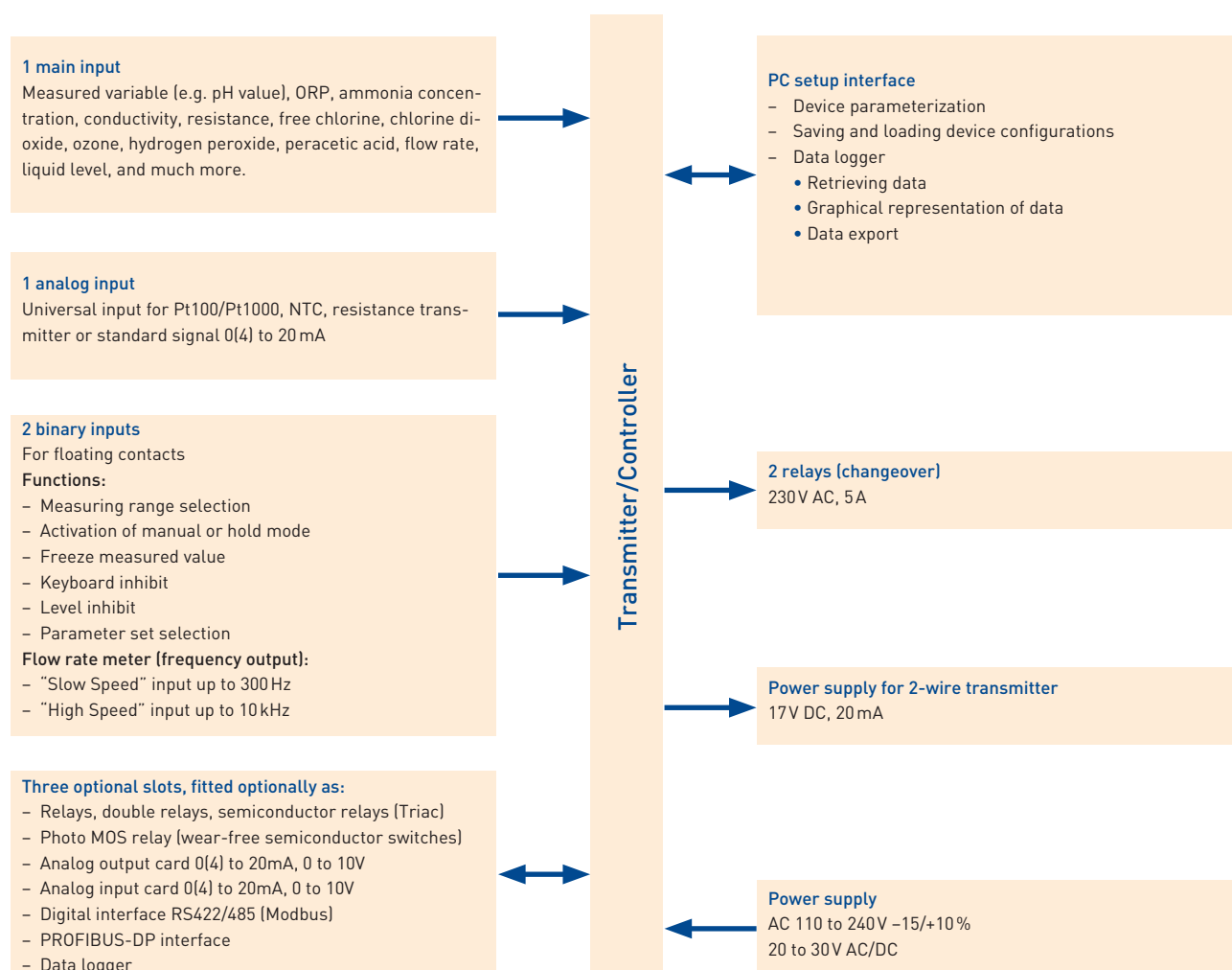


Compact transmitter/controller series for liquid analysis

The advantages in a nutshell

- Transmitter, controller, indicator and data logger, all in one
- Large, backlit graphic LC display
- Simple operation in plain text, multiple languages available
- Extremely compact design: panel unit measures just 96x48x90 mm (WxHxD)
- High-quality controller functions (pulse length and pulse frequency controller, programmable with P, PI, PD and PID action, three-point step controller)
- RS422/485 (Modbus) or PROFIBUS-DP interface
- PC setup program for device parameterization and data analysis
- Optionally available as surface mount housing with IP65 protection rating
- c-UL-approval

Block structure





Instrument version



JUMO dTRANS pH 02 – (Type 202551)

For measuring pH values, redox voltage (ORP) and ammonia concentration

- Measuring and control range
 - pH –2.00 to +16.00
 - ORP –1500 to +1500 mV
 - Ammonia 0 to 9999 mg/l (ppm)
- Asymmetrical/symmetrical high-resistance input
- One-point, two-point and three-point calibration
- Electrode monitoring is possible
- Flow rate measurement integrated



JUMO dTRANS CR 02 – (Type 202552)

For measuring conductive conductivity or specific resistance

- Two and four-electrode sensors can be connected
- Measuring and control range
 - 0,005 µS/cm to 600 mS/cm
 - 0,005 kΩ x cm to 20 MΩ x cm
- Temperature compensation integrated (linear, natural water, ASTM D1125-95)
- USP function (pharmaceutical water), Ph. Eur., ultrapure water
- Electrode monitoring is possible (deposit detection)
- TDS (Total Dissolved Solids) function integrated
- Flow rate measurement integrated



JUMO dTRANS AS 02 – (Type 202553)

For measuring disinfectants (such as free chlorine, chlorine dioxide, ozone, hydrogen peroxide, peracetic acid), liquid levels (hydrostatic)

- Standard signal input 0/4 to mA or 0 to 10V freely programmable and scalable
- Integrated power supply for two-wire transmitter
- Unit of measure can be selected or set with the setup program
- Display scope
 - 0 to 9999 digits
 - Decimal place adjustable

Sensors



JUMO pH and ORP Electrodes

Areas of application:

- Industrial and general water and wastewater engineering
- Drinking water and well water
- Swimming pools/aquariums



JUMO conductive two-electrode and four-electrode conductivity sensors

Areas of application:

- Water monitoring
- Ion exchangers/reverse osmosis plants
- Pure and ultrapure water (pharmaceutical version)



JUMO sensors with standard signal

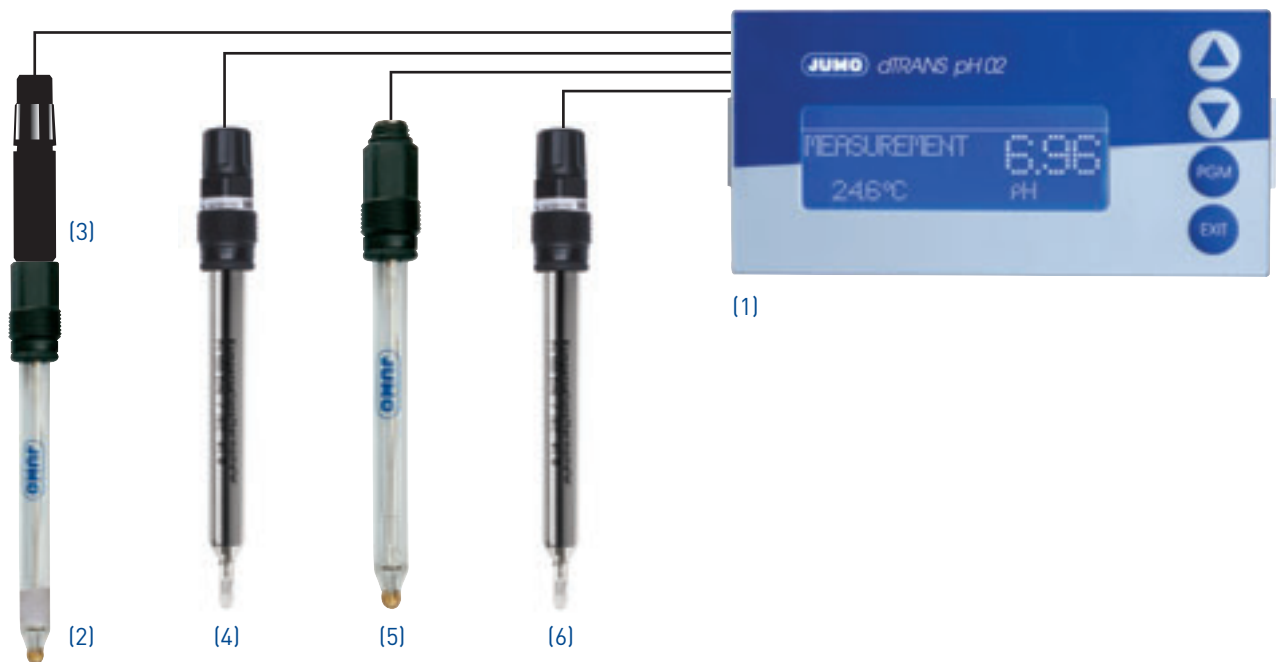
Areas of application:

- Concentration measurement of disinfectants
- Liquid level measurement
- Pressure measurement



pH measurement (redundant and temperature compensated)

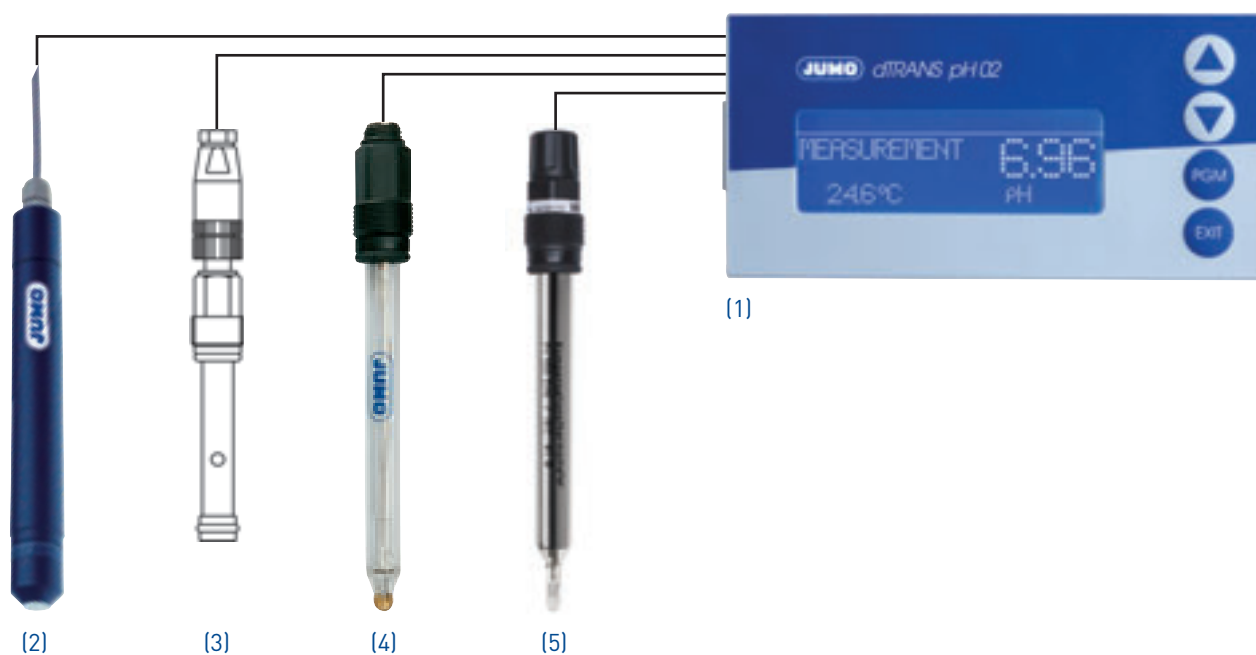
Other pH measurements/control processes can also be implemented as well as special combinations. Two independent pH measurements are connected to the instrument below. One pH electrode is connected directly to the instrument, the other is directed to the instrument via a two-wire transmitter. Each measuring point can be temperature compensated separately. If necessary, a switching function can be programmed to become active when an adjusted difference is reached.



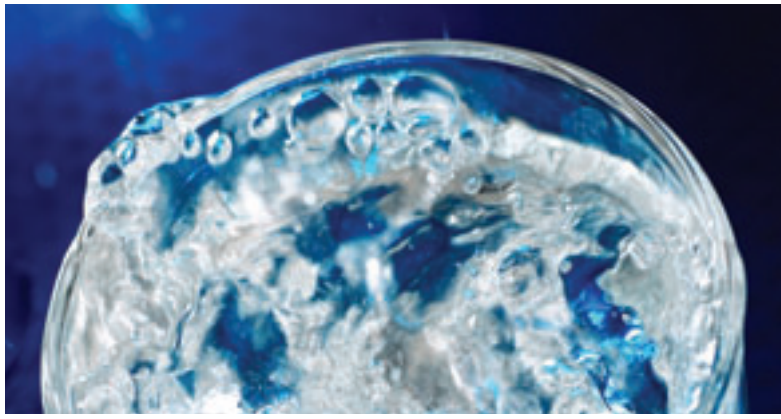
- (1) JUMO dTRANS pH 02, type 202551
- (2) JUMO pH electrode, type 201005 or type 201020
- (3) JUMO 2-wire transmitter, type 202701
- (4) JUMO compensation thermometer, type 201085
- (5) JUMO pH electrode, type 201005 or type 201020
- (6) JUMO compensation thermometer, type 201085

pH-compensated chlorine measurement

The sensor system for measuring chlorine is dependent on the actual pH value. Because of this, the pH value should ideally be kept constant during the measurement, which is difficult to implement under ordinary conditions. A special algorithm integrated into the instrument is able to compensate for this dependency within defined limits. Greater accuracy can be achieved in this function mode.

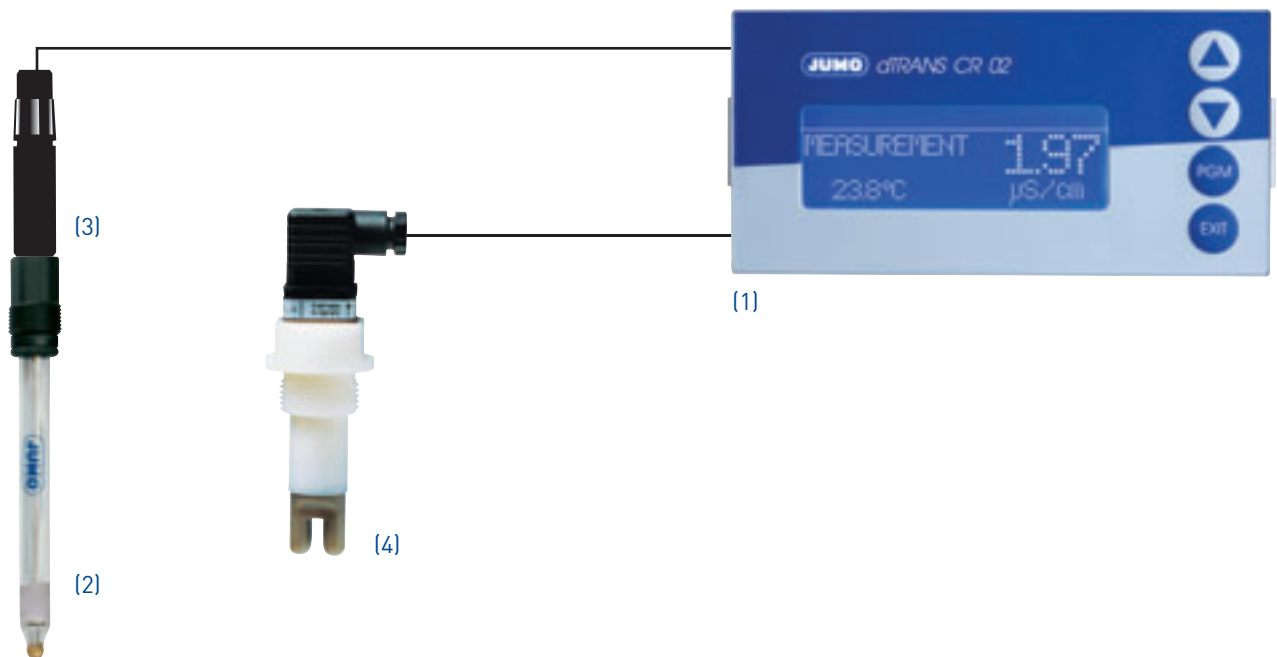


- (1) JUMO dTRANS pH 02, type 202551
- (2) JUMO measuring cell for free chlorine, type 202630
- (3) JUMO flow monitor, type 202630
- (4) JUMO pH electrode, type 201005 or type 201020
- (5) JUMO compensation thermometer, type 201085



Conductivity measurement with additional pH measurement (temperature compensated)

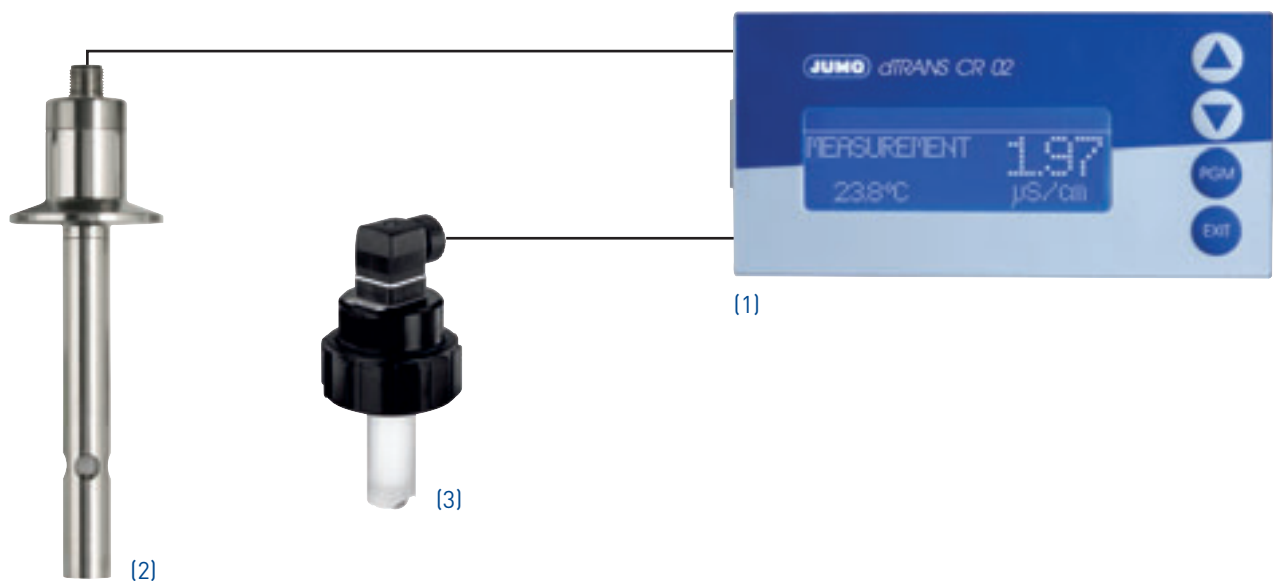
Together with the conductivity sensor, which is connected directly, a pH electrode is connected as a second measurement (via a two-wire transmitter). Each measuring point can be temperature compensated separately. If necessary, the two measurement variables can be monitored and controlled independently of each other.



- (1) JUMO dTRANS CR 02, type 202552
- (2) JUMO pH electrode, type 201005 or type 201020
- (3) JUMO 2-wire transmitter, type 202701
- (4) JUMO conductive conductivity sensor, type 202925

Conductivity and flow rate measurement

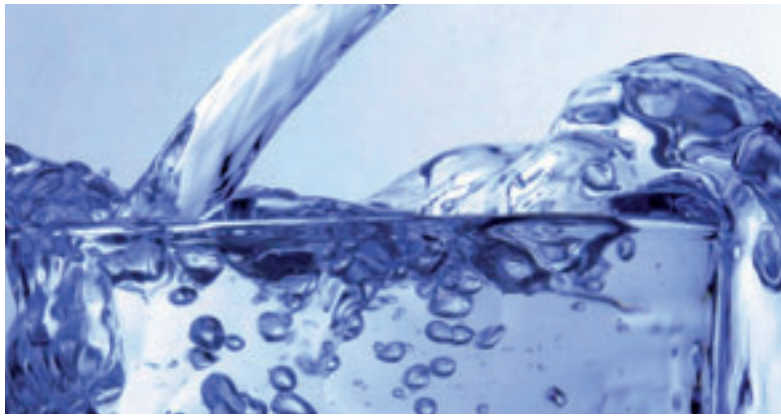
The measurement value is temperature compensated with the temperature sensor integrated into the conductivity sensor. In addition to conductivity, flow rate is also measured. A paddle-wheel flow sensor with a pulse output could be used as a suitable sensor. This reading can be displayed and/or controlled separately or it can be used as a disturbance variable for the main variable.



(1) JUMO dTRANS CR 02, type 202552

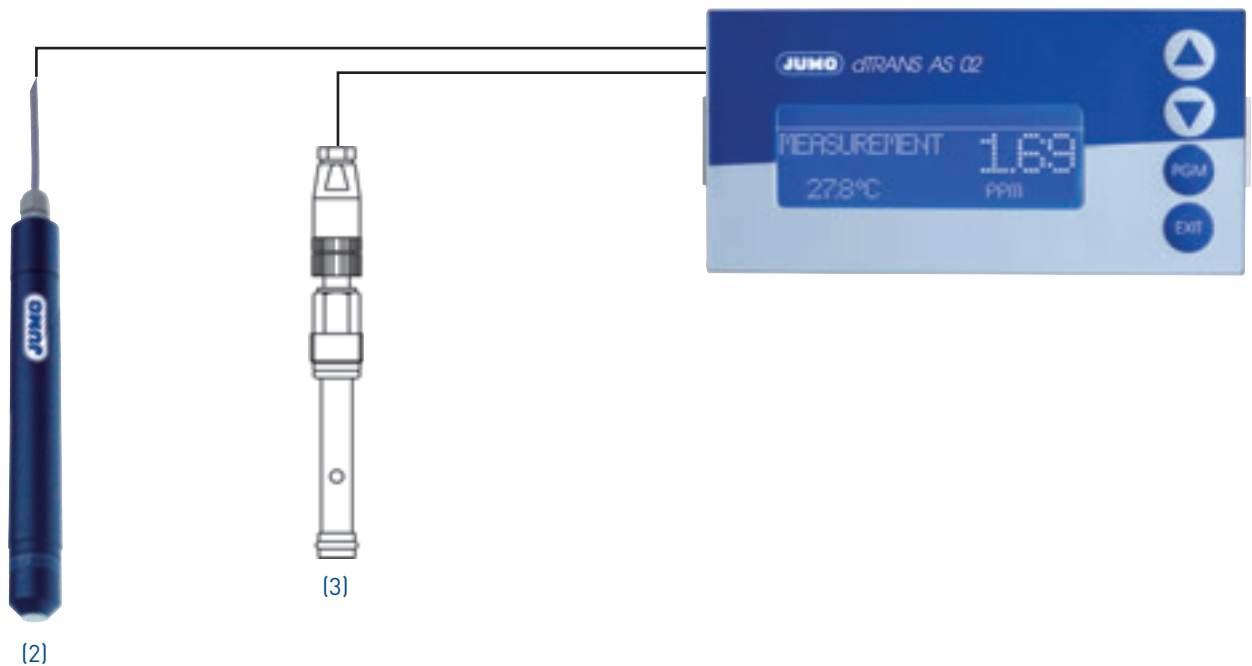
(2) JUMO conductive conductivity sensor, type 202924

(3) JUMO MID flow rate transmitter, type 406010



Measuring free chlorine with flow monitoring

Membrane covered sensors for disinfectants (for example free chlorine, chlorine dioxide, ozone, etc.) require a minimum incident flow. To achieve reliable measurements, it is therefore important to monitor the minimum incidental flow of the sensors. This additional information can be downloaded to the instrument and used internally to enable dosing.



- (1) JUMO dTRANS AS 02, type 202553
- (2) JUMO measuring cell for free chlorine, type 202630
- (3) JUMO flow monitor, type 202630

Level measurement

The internal power supply feeds a two-wire transmitter. The signal of the transmitter could for example represent the level in a tank. The PC setup program can be used to store a graph that makes it possible to display a filling quantity (of a cylinder lying on its side, for example). Depending on how it is fitted (which optional boards are fitted) the instrument can provide up to six switching points.



- [1] JUMO dTRANS AS 02, type 202553
- [2] JUMO MAERA level measurement probe, type 404390 or type 404391



Variable measurement display



Standard

Two current measured values in numbers



Bar graph display

For a quick glance of the measured value



Tendency display (arrow)

Helpful for controller optimization



Trend curve (monitor)

For an overview of the process

Key features

Measurement of flow volume

- Additional recording of flow rate quantity (as well as the main measured value)
 - via binary input (up to 10kHz)

- Signal from an impeller sensor can be evaluated

Application:

- Alarms for lack of dosing agents, feedforward control

PC setup program

- Convenient programming
- System documentation

History function, washing contact, math module

■ History function

- Min./max. values (records the minimum and maximum input quantities that occur)

■ Washing contact for sensor cleaning

- An automatic cleaning fitting can be activated by means of a binary output
- The interval time and duration of washing are configurable

■ Math and logic module

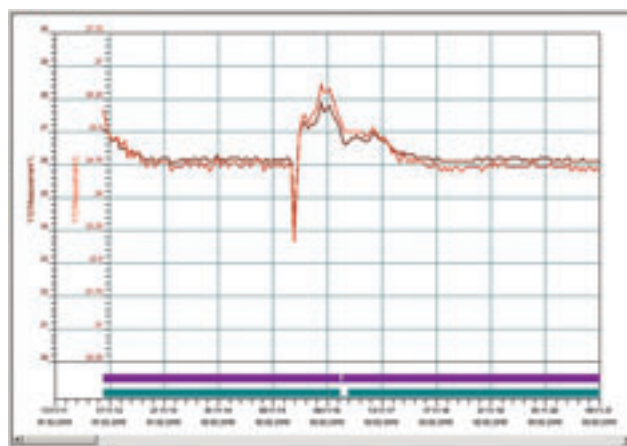
- Free math combination and evaluation of measurement signals (addition, subtraction, multiplication, division, xy, square root, logarithm, exponential function, absolute value, sine, cosine, tangent are all possible)

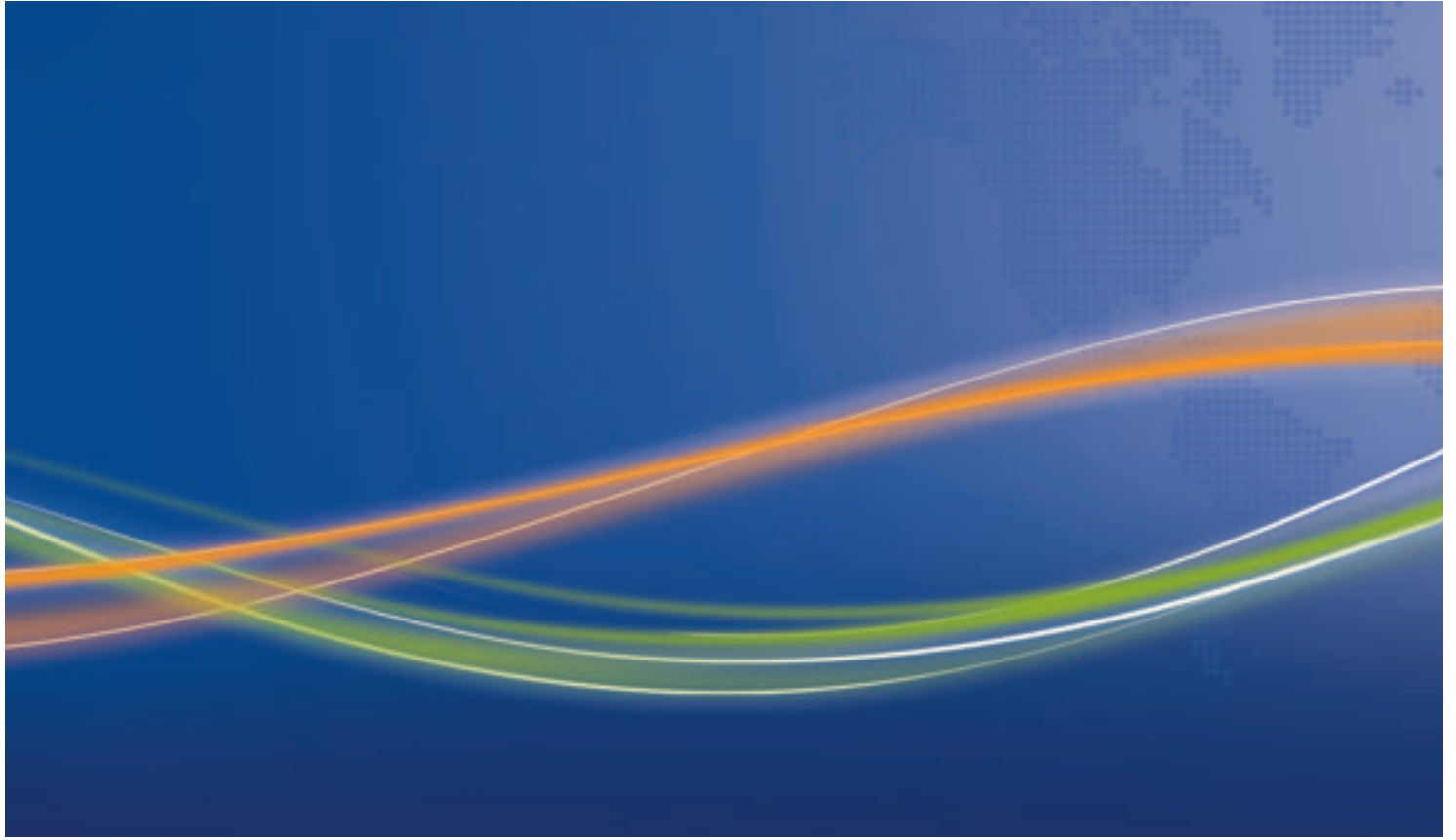
Application:

- For example a ratio formed from two conductivity values can be used to evaluate filter cartridges in ion exchange systems.

Data logger function

- Recording of 4 analog and 12 binary inputs and output signals
- Real-time clock integrated
- Data storage from 10 hours to 150 days depending on the set sampling rate
- Option for data analysis of systems while in operation
- Data backup with flash data storage (about 40,000 measured values)
- Read, graphically display and evaluate data with the JUMO PC setup program
- Data can be exported





www.jumo.net