

JUMO tecLine H₂O₂ and PAA

Sensors for hydrogen peroxide (H₂O₂) and peracetic acid (PAA)

Type 202636/55	PAA, output signal 4 to 20 mA
Type 202636/75	PAA, digital interface output signal
Type 202636/60	H ₂ O ₂ , output signal 4 to 20 mA
Type 202636/80	H ₂ O ₂ , digital interface output signal

Brief description

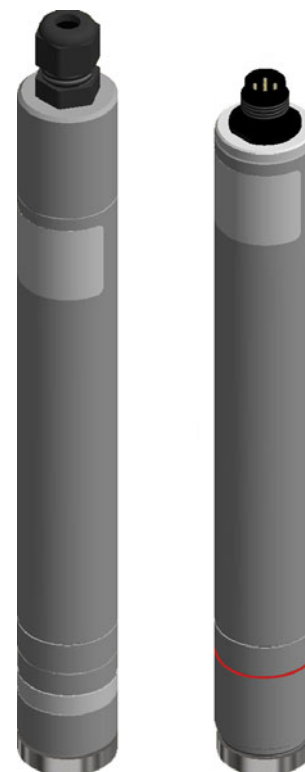
These membrane-covered amperometric sensors are used to measure the concentration of peracetic acid or hydrogen peroxide in aqueous solutions.

The sensors are not suitable for detecting the absence of peracetic acid or hydrogen peroxide.

Depending on the type, the electronics integrated in the sensors provide a temperature-compensated current signal (4 to 20 mA) or a Modbus RTU output signal.

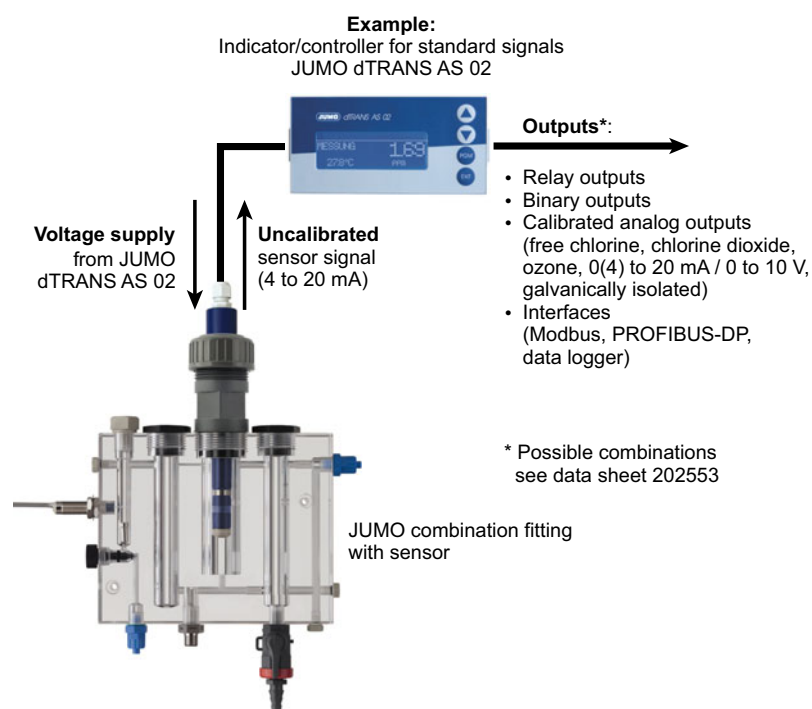
The sensors can be connected directly to indicating devices/transmitters/controllers (see "Suitable indicating devices/transmitters/controllers", page 8). They supply the sensors with voltage and allow for easy calibration of the measuring system.

Areas of application: Galvanizing plants, pharmaceutical industry, food and beverage industry, dairies, chemical industry, swimming pools



Type 202636/55... and type 202636/75...

Application example



Special features

- Detection of peracetic acid or hydrogen peroxide concentration in the mg range
- 2-electrodes principle
- Chemical- and surfactant-resistant membrane
- Easy calibration
- Integrated temperature compensation
- Proven measuring system
- Electrical connection analog or digital

Additional indicating devices/controllers: "Suitable indicating devices/transmitters/controllers", page 8

Important information

Notes for all types

- Measuring is only possible in a suitable flow fitting (see accessories).
- The measuring water must be visibly clean (drinking water or swimming pool quality).
- The flow rate from the measurement medium must be at least 15 cm/s (0.5 l/min) in order for the sensor to work correctly. The minimum inflow can be guaranteed using the JUMO combination fitting or the JUMO individual fitting in connection with the JUMO flow monitor for disinfectant measurands (see accessories).
- For calibration, a test set is required to determine the peracetic acid or hydrogen peroxide content. Different manganometric or iodometric titrations can, for example, be used as determination methods.
- To make sure the sensor works correctly, only one disinfectant should be used at a time.
- For more details on the structure and uses of the amperometric sensors, please refer to our technical literature "Analytical Measurement Technology in Liquid Media".

Notes for types 202636/55 and /60 (output signal 4 to 20 mA)

- The slope of these sensors can vary depending on the manufacture and application by between 65 % and 150 % of the nominal slope. To determine the appropriate measuring range or appropriate sensor, it is therefore recommended that the concentration to be measured be multiplied by a factor of 1.5.
Example: concentration to be measured 1.6 ppm \times factor 1.5 = 2.4 ppm \Rightarrow recommended sensor with measuring range 5 ppm
- There must not be any surfactants in the measuring water in order to ensure the fault-free functioning of the membrane cap valve.

Required components for a measuring point

The following components are required to set up a measuring point for measuring peracetic acid or hydrogen peroxide:

- amperometric sensor, membrane-covered
- transmitter /controller
- flow monitor (optional extra, recommended)
- fitting for membrane-covered sensors

Technical data

Sensors for peracetic acid (PAA)

Sensor type	202636/55 (output signal 4 to 20 mA)	202636/75 (digital interface output signal)
Area of application	All types of water treatment (e.g. bottle washing machine, CIP plant, rinser) Control acids are tolerated, surfactants must not be present	Control acids and surfactants are tolerated
Measuring principle	Membrane-covered, amperometric, two-electrode system with integrated electronics	
Measuring cable connection	2-pin terminal connection (2 × 1 mm ²)	5-pin flange connector, M12
Voltage supply	U _B DC 12 to 30 V (galvanic isolation required)	U _B DC 22.5 to 26 V (galvanically isolated from the sensor)
Electromagnetic compatibility	According to EN 61326-1 interference emission: Class B interference immunity: industrial requirements	
Output signal	4 to 20 mA	Modbus RTU
Burden/current consumption	≤ (U _B - 7.5 V) ÷ 0.02 A	approx. 20 mA
Settling time	Approx 1 h for initial startup	
Inflow speed	Approx. 15 cm/s (entspricht to a flow of approx. 30 l/h when installed in the JUMO flow fitting (part no.: 00392611))	
Measuring ranges ^a	0.5 to 200 mg/l (ppm) 5 to 500 mg/l (ppm) 5 bis 2000 mg/l (ppm) 50 to 5000 mg/l (ppm) 50 to 20000 mg/l (ppm)	0.5 to 200 mg/l (ppm) 5 to 2000 mg/l (ppm) 50 to 20000 mg/l (ppm)
Resolution	0.1 mg/l with measuring range 200 mg/l 1 mg/l with measuring ranges 500/2000/5000 mg/l 10 mg/l with measuring range 20000 mg/l	0.1 mg/l with measuring range 200 mg/l 1 mg/l with measuring range 2000 mg/l 10 mg/l with measuring range 20000 mg/l
Response time t ₉₀	approx. 3 minutes	approx. 5 minutes at 10 °C approx. 1.5 minutes at 45 °C
Operating temperature	Measurement water 0 to 45 °C ^b Ambience 0 to 55 °C	
Temperature compensation	Automatic, using integrated temperature probe ^c	
pH value area of application	pH 1 to pH 6	
Zero point adjustment	Not required	
Slope adjustment	On evaluation unit/controller using analytical determination	
Disturbances	O ₃ : is recorded with a factor of 2500 of its measured value ClO ₂ : is recorded with a factor of 1 of its measured value H ₂ O ₂ : not a problem	
Influence of control acids	Sulphuric acid, nitric acid or phosphoric acid up to a concentration of 1 % in each case in the measuring water do not have any influence on the measurement behavior.	
Pressure resistance ^d	p _{abs} max. 2 bar p _{rel} max. 1 bar	
Materials	PVC-U, stainless steel 1.4571	
Dimensions	Dia. 25 mm, length 220 mm	Dia. 25 mm, length 205 mm
Weight	Approx. 125 g	

^a Other measuring ranges upon request.

^b Prerequisite: no ice crystals in the measurement medium.

^c Prerequisite: no temperature jumps in the measurement medium.

^d Pressure fluctuations are not admissible. Pressure-free operation (atmospheric pressure) recommended.

Maintenance	
Inspection of the measuring signal	Regularly, at least once a week
Replacement of membrane cap	Once a year (depending on the quality of the water)
Replacement of electrolyte	Every 3 to 6 months
Storage	
Sensor	Can be stored indefinitely in a frost-free and dry place, without electrolyte and between +5 and 40 °C
Membrane cap	Used membrane caps cannot be stored.
Electrolyte	In original bottle, away from sunlight, for at least one year at a temperature between +10 and 35 °C

Sensors for hydrogen peroxide (H₂O₂)

Sensor type	202636/60 (output signal 4 to 20 mA)	202636/80 (digital interface output signal)
Area of application	All types of water treatment, also seawater (e.g. bottle washing machine, CIP plant, rinser) Surfactants must not be present	Surfactants are largely tolerated
Measuring principle	Membrane-covered, amperometric, two-electrode system with integrated electronics	
Measuring cable connection	2-pin terminal connection (2 × 1 mm ²)	5-pin flange connector, M12
Voltage supply	U _B DC 12 to 30 V (galvanic isolation required)	U _B DC 22.5 to 26 V (galvanically isolated from the sensor)
Electromagnetic compatibility	According to EN 61326-1 interference emission: Class B interference immunity: industrial requirements	
Output signal	4 to 20 mA	Modbus RTU
Burden/current consumption	≤ (U _B - 7.5 V) ÷ 0.02 A	approx. 20 mA
Settling time	Approx 3 h for initial startup	
Inflow speed	Approx. 15 cm/s (entspricht to a flow of approx. 30 l/h when installed in the JUMO flow fitting (part no.: 00392611))	
Measuring ranges ^a	5 to 500 mg/l (ppm) 5 to 2000 mg/l (ppm) 50 to 10000 mg/l (ppm) 50 to 20000 mg/l (ppm)	50 to 20000 mg/l (ppm) 500 to 200000 mg/l (ppm)
Resolution	0.1 mg/l with measuring range 500 mg/l 1 mg/l with measuring range 2000 mg/l 10 mg/l with measuring range 10000/20000 mg/l	10 mg/l with measuring range 20000 mg/l 100 mg/l with measuring range 200000 mg/l
Response time t ₉₀	approx. 5 to 10 minutes	approx. 8 minutes
Operating temperature	Measurement water: 0 to 45 °C ^b Ambience: 0 to 55 °C	
Temperature compensation	Automatic, using integrated temperature probe ^c	
pH value area of application	pH 2 to pH 11	
Zero point adjustment	Not required	
Slope adjustment	On evaluation unit/controller using analytical determination	
Disturbances	Cl ₂ , PES, O ₃ : must not be present Sulfides: contaminate the measuring system Phenol: aqueous solution > 3 % Phenol contaminates the measuring system	
Pressure resistance ^d	p _{abs} max. 2 bar p _{rel} max. 1 bar	
Materials	PVC-U, stainless steel 1.4571	
Dimensions	Dia. 25 mm, length 220 mm	Dia. 25 mm, length 205 mm
Weight	Approx. 125 g	

^a Other measuring ranges upon request.

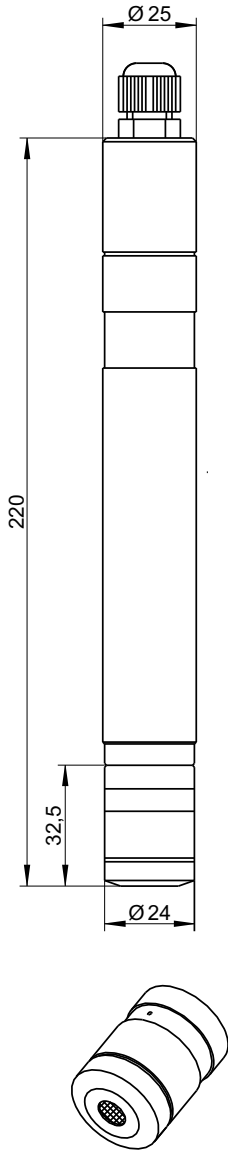
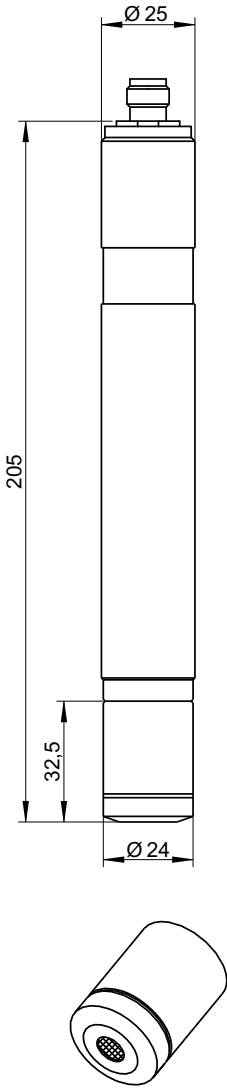
^b Prerequisite: no ice crystals in the measurement medium.

^c Prerequisite: no temperature jumps in the measurement medium.

^d Pressure fluctuations are not admissible. Pressure-free operation (atmospheric pressure) recommended

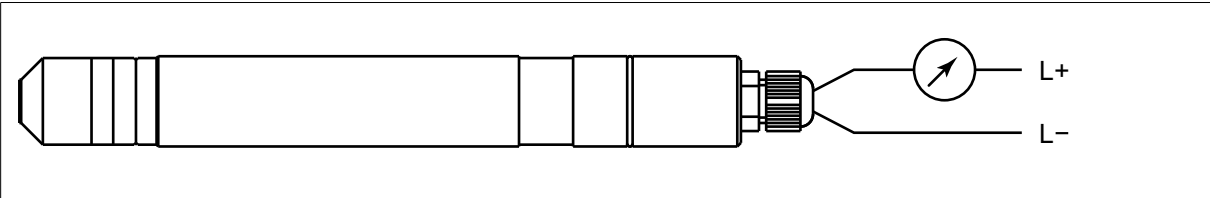
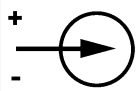
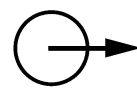
Maintenance	
Inspection of the measuring signal	Regularly, at least once a week
Replacement of membrane cap	Once a year (depending on the quality of the water)
Replacement of electrolyte	Every 3 to 6 months
Storage	
Sensor	Can be stored indefinitely in a frost-free and dry place, without electrolyte and between +5 and 40 °C
Membrane cap	Used membrane caps cannot be stored.
Electrolyte	In original bottle, away from sunlight, for at least one year at a temperature between +10 and 35 °C

Dimensions

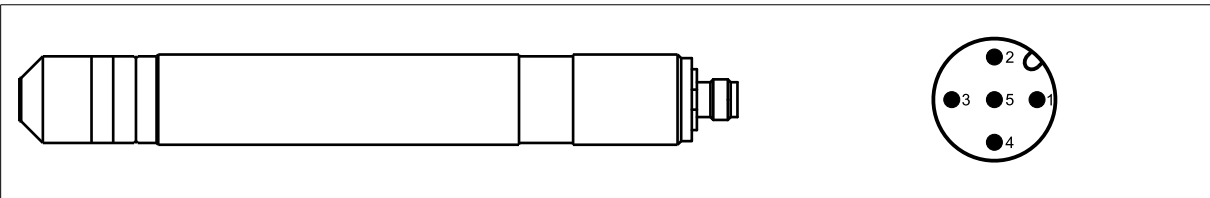
Types 202636/55 and /60	Type 202636/75 and /80
	

Electrical connection

Types 202636/55 and /60

		
Function		Screw terminals
Voltage supply DC 12 to 30 V		1 L+ 2 L-
Two-wire output of 4 to 20 mA, load-independent current of 4 to 20 mA in voltage supply		1 L+ 2 L-

Types 202636/75 and /80

	
Function	Pin on M12 flange connector
not connected	1
+24 V voltage supply from transmitter/controller	2
GND	3
RS 485 B (Rx/D/TxD-)	4
RS 485 A (Rx/D/TxD+)	5

Accessories

Combination fitting type 202811/10

The combination fitting is intended to hold several electrochemical sensors. It is typically used for disinfection monitoring of drinking and swimming pool water as well as slightly polluted process and cooling water. Thanks to its compact design, the fitting allows for the space-saving consolidation of several sensors and is usually operated in a bypass or downstream of a tap in the main line. The sensors are easily visible through the fitting's crystal-clear design and can be visually inspected for pollutants.

In the maximum version, 2 sensors with Pg13.5 thread (for example for pH value and redox), 1 membrane-covered sensor Ø 25 mm for disinfectant monitoring and one temperature probe with thread M14 x 1.5 can be installed. Furthermore, the inflow of the measuring water contains flow monitoring with an inductive proximity switch for monitoring the inflow of the membrane-covered sensor. A ground pin can also be installed to discharge any electrostatic charges.



Flow monitor type 202811/20

The flow monitor is integrated in the measuring water supply, in line with the disinfection sensor, and monitors the required minimum flow speed to the sensor.

It consists of a flow unit, a needle valve insert for flow control, and an inductive proximity sensor, the contact of which can control a binary input of a controller (for example JUMO AQUIS 500 AS/RS). If the inflow is too low, the controller is moved to the "HOLD" status. This helps to avoid incorrect dosages.



Flow fitting type 202811/30

The flow fitting is intended to hold an individual membrane-covered sensor. The fitting is generally mounted in the bypass and, thanks to its special design type, provides the correct inflow for the sensor.

The flow monitor type 202811/20 is recommended as an extension for monitoring the minimum inflow speed of a sensor.

The standard ground rod of the fitting enables the discharge of undesired electrical and electrostatic voltage potentials, which occur in complex plants and can distort the measured values.



Suitable indicating devices/transmitters/controllers

Type	Features	Suitable sensors
JUMO AQUIS 500 AS	Single-channel (4 to 20 mA) indicating device/controller, additional temperature input, binary input, up to two analog and switching outputs	Types with output signal 4 to 20 mA (202636/55 and /60)
JUMO AQUIS 500 RS	Single-channel (Modbus RTU) indicating device/controller, additional temperature input, binary input, up to two analog and switching outputs	Types with digital interface (202636/75 and /80)
JUMO dTRANS AS 02	Modular multichannel transmitter/controller for standard signals, PROFIBUS-DP, RS422/485, data logger using optional boards	Types with output signal 4 to 20 mA (202636/55 and /60)
JUMO AQUIS touch S/P	Modular multichannel measuring devices for liquid analysis with integrated controller and paperless recorder, USB host, USB device, Modbus, PROFIBUS-DP and Ethernet using optional boards	Types with output signal 4 to 20 mA (202636/55 and /60) types with digital interface (202636/75 and /80)

Order details

(1) Basic type	
202636	JUMO tecLine H ₂ O ₂ + PAA
	Sensors for hydrogen peroxide and peracetic acid
(2) Basic type extension	
55	Sensor for peracetic acid, output signal 4 to 20 mA
60	Sensor for hydrogen peroxide, output signal 4 to 20 mA
75	Sensor for peracetic acid, digital interface output signal
80	Sensor for hydrogen peroxide, digital interface output signal
(3) Measuring range^a	
45	0 to 200 mg/l (ppm)
60	0 to 500 mg/l (ppm)
70	0 to 2000 mg/l (ppm)
75	0 to 5000 mg/l (ppm)
80	0 to 10000 mg/l (ppm)
81	0 to 20000 mg/l (ppm)
85	0 to 50000 mg/l (ppm)
95	0 to 200000 mg/l (ppm)

^a When selecting the measuring range, please refer to the note on the slope of the sensors on page 2.

Order code	(1)	/	(2)	-	(3)
Order example	202636	/	60	-	81

Important information:

The order code is not modular. When placing orders, if possible please select the items listed under **"Stock versions"**. We must check the technical feasibility of and approve freely chosen combinations of individual code parts.

Scope of delivery

Type 202636/55-45, -60, -70, -75	Two-wire sensor, incl. membrane cap, electrolyte, special abrasive paper for cathode cleaning, and operating manual
Type 202636/60-60, -70, -80	
Type 202636/55-81	Two-wire sensor, incl. membrane cap, electrolyte, G-bracket with tweezers, spare G-bracket with O-ring, special abrasive paper for cathode cleaning, and operating manual
Type 202636/60-81, -85	
Type 202636/75	Modbus RTU sensor, incl. membrane cap, electrolyte, G-bracket with tweezers, spare G-bracket with O-ring, special abrasive paper for cathode cleaning, and operating manual
Type 202636/80	

Stock versions

(Delivery within 3 working days after receipt of order)

Type	Part no.
202636/60-80 (hydrogen peroxide, 4 to 20 mA, 0 to 10000 mg/l)	00409343

Accessories

Fittings

Designation	Part no.
Combination fitting for mounting several electrochemical sensors ^a	00607325
Individual fitting for mounting a membrane-covered sensor	00392611
Mounting bracket for individual fitting	00455706
Flow monitor for monitoring the minimum inflow ^b	00605507

^a With integrated flow monitor, mini ball valve included.

^b For flow monitoring in connection with the individual fitting.

Connecting cables for sensors with a digital interface

Designation	Part no.
1.5 m connecting cable, 5-pin M12 connector, A-coded on the ferrules	00638333
5 m connecting cable, 5-pin M12 connector, A-coded on the ferrules	00638337
10 m connecting cable, 5-pin M12 connector, A-coded on the ferrules	00638341

Suitable transmitters/controllers

Designation	Part no.
JUMO AQUIS 500 AS ^a , type 202568/20-888-888-888-310-310-23/000 (for further versions, please refer to data sheet 202568)	00528718
JUMO AQUIS 500 RS ^b , type 202569/20-654-888-888-310-310-23/000 (for further versions, please refer to data sheet 202569)	00602275
JUMO dTRANS AS 02 ^a , type: 202553/01-8-01-4-0-00-23/000 (for further versions, please refer to data sheet 202553)	00550842
JUMO AQUIS touch S/P ^c	Refer to data sheet 202580/81

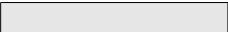
^a For types 202636/55 and /60.

^b For types 202636/75 and /80.

^c For all types 202636.

Spare part sets and electrolytes

Sensor	Measuring range	Part no. Spare parts set (membrane cap, fine abrasive paper)	Part no. electrolyte (100 ml)
202636/55-45	0 to 200 mg/l	00409344	00440821
202636/55-60	0 to 500 mg/l	00409344	00440821
202636/55-70	0 to 2000 mg/l	00409344	00440821
202636/55-75	0 to 5000 mg/l	00493433	00684631
202636/55-81	0 to 20000 mg/l	00673072	00673075
202636/60-60	0 to 500 mg/l	00409344	00438126
202636/60-70	0 to 2000 mg/l	00409344	00438126
202636/60-80	0 to 10000 mg/l	00438125	00438126
202636/60-81	0 to 20000 mg/l	00572408	00438126
202636/60-85	0 to 50000 mg/l	00572408	00438126
202636/75-45	0 to 200 mg/l	00682748	00682756
202636/75-70	0 to 2000 mg/l	00682748	00682756
202636/75-81	0 to 20000 mg/l	00682748	00682789
202636/80-81	0 to 20000 mg/l	00682753	00682792
202636/80-95	0 to 200000 mg/l	00682753	00682792

 = spare part set, additionally with spare G-bracket