


	<h1>P9</h1>
indicator	Peracetic acid
Application	All kinds of water treatment Tensides and conductivity acids are tolerated (e. g. bottle washing machine, CIP-plants)
Measuring system	Membrane covered, amperometric 2-electrode system
Electronic	<p>Analog version:</p> <ul style="list-style-type: none"> - voltage output - not galvanically isolated electronics - analog internal data processing - output signal: analog (analog-out/analog) <p>Digital version:</p> <ul style="list-style-type: none"> - electronic is completely galvanically isolated - digital internal data processing - output signal: analog (analog-out/digital) or digital (digital-out/digital) <p>mA-version:</p> <ul style="list-style-type: none"> - current output analog - not galvanically isolated electronics - output signal: analog (analog-out/analog)
Information about the measuring range of sensors with 4-20 mA	<p>Slope of a sensor can vary production-related or application-related between 65% and 150% of the nominal slope</p> <p>-> Recommendation to determine the suitable measuring range or the suitable sensor: Concentration to be measured x factor 1.5 = measuring range of the sensor</p> <p>Example: Concentration to be measured 1.6 ppm x 1.5 = 2.4 -> recommended sensor with a measuring range of 5 ppm</p>
Working temperature	Measuring water temperature: 0 ... +60 °C (no ice crystals in the measuring water)
	Ambient temperature: 0 ... +55 °C
Temperature compensation	Automatically, by an integrated temperature sensor sudden temperature changes must be avoided P9: T ₉₀ : approx. 8 min. P9.2: T ₉₀ : approx. 3.5 min.
Max. allowed working pressure	Operation without retaining ring: 0.5 bar, no pressure impulses and/or vibrations
	Operation with retaining ring: 1.0 bar, no pressure impulses and/or vibrations
Flow rate	approx. 15-30L/h in DF, small flow rate dependence is given
pH-range	pH 1 – pH 6


	<h1>P9</h1>
Run-in time	P9: First start-up approx. 1 h P9.2: P9.2H: First start-up approx. 3 h P9.2N: First start-up approx. 1 h P9.2L: First start-up approx. 30 min.
Response time	T ₉₀ : P9 approx. 5 min. at 10 °C approx. 1.5 min. at 50 °C T ₉₀ : P9.2 approx. 3.5 min. at 10 °C approx. 45 sec. at 50 °C
Zero point adjustment	Not necessary
Slope calibration	At the device, by analytical determination
interferences	O ₃ : P9: factor 2500 P9.2: high increase of the measuring value ClO ₂ : P9: factor 1 P9.2: increases the measuring value H ₂ O ₂ : P9: high concentrations reduce the PAA-signal P9.2: very low influence on the measuring value (reduce of the PAA-signal)
influence of conductivity acids	1 % sulfuric acid, 1 % nitric acid or 1 % phosphoric acid in the water have no influence to the measuring behaviour
Absence of the disinfectant	Max. 24 h
Connection	analog-out/analog version: 4-pole plug adapter analog-out/digital version: 4-pole plug adapter digital-out/digital version: 5-pole M12, plug-on flange 4-20 mA version: 2-pole terminal or 5-pole M12, plug-on flange
material	PEEK, stainless steel
Size	diameter: approx. 25 mm Length: analog-out/analog version approx. 175 mm analog-out/digital version approx. 195 mm digital-out/digital version approx. 205 mm 4-20 mA version approx. 220 mm (2-pole-terminal) approx. 190 mm (5-pole-M12)
Transport	+5 ... +50 °C (Sensor, electrolyte, membrane cap)
storage	Sensor: dry and without electrolyte no limit at +5 ... +40 °C
	Electrolyte: in original bottle protected from sunlight at +5 ... +35 °C min. 1 year or until specified EXP-Date
	Membrane cap: in original packing no limit at +5 ... +40 °C (used membrane caps can not be stored)

	<h1>P9</h1>
maintenance	Regularly control of the measuring signal, min. once a week The following specifications depend on the water quality: Change of the membrane cap: once a year Change of the electrolyte: every 3 - 6 months
	EMC-Testing DIN EN 61326-1, 61326-2-3 RoHS compliant

Technical Data

1. P9.2 / P9 (Analog output, analog internal signal processing) analog-out / analog


A potential-free electrical connection is necessary as the sensor electronic is not equipped with a galvanical isolation.

	Measuring range	resolution	Output Output resistance	Nominal slope	Voltage supply	Connection
P9.2H	0.5...200 ppm	0.1 ppm	0...-2000 mV 1 kΩ	-10 mV/ppm	±5 - ±15 VDC 10 mA	4-pole screw connector
P9.2N	5...2000 ppm	1 ppm		-1 mV/ppm		
P9.2L	0.005...2 % (20000 ppm)	0.001 % (10 ppm)		-1000mV/% (-0.1 mV/ppm)		
P9.2Up2000	5...2000 ppm	1 ppm	0...+2000 mV 1 kΩ	+1 mV/ppm	10 - 30 VDC 10 mA	
P9.2Up5000	50...5000 ppm	1 ppm		+0.4 mV/ppm		

(Subject to technical changes.)

2. P9.2 (analog output, digital internal signal processing) analog-out / digital

- The power supply is galvanically isolated inside of the sensor.
- The output signal is galvanically isolated too, that means potential-free.


	Measuring range	resolution	Output Output resistance	Nominal slope	Voltage supply	Connection
P9.2H-An	0.5 ... 200 ppm	0.1 ppm	analog 0...-2 V (max. -2.5 V) 1 kΩ	-10 mV/ppm	9-30 VDC approx. 56-20 mA	4-pole screw connector
P9.2N-An	5 ... 2000 ppm	1 ppm		-1 mV/ppm		
P9.2-5000-An	50 ... 5000 ppm	1 ppm		-0.4 mV/ppm		
P9.2L-An	0.005 ... 2 % (20000 pm)	0.001 % (10 ppm)	-1000mV/% (-0.1 mV/ppm)			
P9.2H-Ap	0.5 ... 200 ppm	0.1 ppm	analog 0...+2 V (max. +2.5 V) 1 kΩ	+10 mV/ppm		
P9.2N-Ap	5 ... 2000 ppm	1 ppm		+1 mV/ppm		
P9.2L-Ap	0.005 ... 2 % (20000 pm)	0.001 % (10 ppm)		+1000mV/% (+0.1 mV/ppm)		

(Subject to technical changes.)

3. P9.2 (digital output, digital internal signal processing)

digital-out / digital

- The power supply is galvanically isolated inside of the sensor.
- The output signal is galvanically isolated too, that means potential-free.

	Measuring range	resolution	Output Output resistance	Voltage supply	Connection
P9.2H-M0c	0.5 ... 200 ppm	0.1 ppm	Modbus RTU There are no terminating resistors in the sensor.	9-30 VDC approx. 56-20 mA	5-pole M12 connector
P9.2N-M0c	5 ... 2000 ppm	1 ppm			
P9.2L-M0c	0.005 ... 2 % (20000 ppm)	0.001 % (10 ppm)			


(Subject to technical changes.)

4. P9.2 4-20 mA (analog output, analog internal signal processing)

analog-out / analog


A potential-free electrical connection is necessary as the sensor electronic is not equipped with a galvanical isolation.

4.1 Electrical connection: 2 pole terminal clamp

	Measuring range	resolution	Output Output resistance	Nominal slope	Voltage supply	Connection
P9.2MA-200	0.5 ... 200 ppm	0.1 ppm	4...20 mA uncalibrated	0.08 mA/ppm	12...30 VDC $R_L = 50\Omega$ (12V)... 900Ω (30V)	2-pole terminal (2 x 1 mm ²) Recommended: Round cable \varnothing 4 mm 2 x 0.34 mm ²
P9.2MA-2000	5 ... 2000 ppm	1 ppm		0.008 mA/ppm		
P9.2MA-2%	0.005 ... 2 % (20000 ppm)	0.001 % (10 ppm)		8.0 mA/% (0.0008 mA/ppm)		

(Subject to technical changes.)

4.2 Electrical connection: 5 pole M12 plug-on flange

	Measuring range	resolution	Output Output resistance	Nominal slope	Voltage supply	Connection
P9.2MA-200-M12	0.5 ... 200 ppm	0.1 ppm	4...20 mA uncalibrated	0.08 mA/ppm	12...30 VDC R _L = 50Ω (12V)... 900Ω (30V)	5-pole M12 plug-on flange Function of wires: PIN2: +U PIN3: -U
P9.2MA-2000-M12	5 ... 2000 ppm	1 ppm		0.008 mA/ppm		
P9.2MA-2%-M12	0.005 ... 2 % (20000 ppm)	0.001 % (10 ppm)		8.0 mA/% (0.0008 mA/ppm)		

(Subject to technical changes.)

Spare Parts

Type	Membrane cap	Electrolyte	Emery	O-ring
P9N	M9.1D with G-holder	EPS7/W, 100 ml	S2	20 x 1.5 silicone
P9L				
P9Up2000				
P9Up5000				
P9.2H	M9.1N with G-holder	EPS9H/W, 100 ml		
P9.2N				
P9.2Up2000				
P9.2Up5000				
P9.2-5000				
P9.2L		EPS9L/W, 100 ml		
P9.2MA-200		EPS9H/W, 100 ml		
P9.2MA-2000				
P9.2MA-2%			EPS9L/W, 100 ml	

(Subject to technical changes.)

Slope of P9 and P10 versus pH

Temperature: 25°C / Flow rate: 30 l/h

