	# MST1
indicator	Chlorite
Application	Drinking water, swimming pool water, service water, process water.
appropriate chlorine dioxide production methods	e. g. – Acid/chlorite-method – Chlorine/chlorite-method
Measuring system	membrane covered, amperometric potentiostatic 3-electrode system
electronic	Analog version: - voltage output - not galvanically isolated electronics - analog internal data processing - output signal: analog (analog-out/analog) Digital version: - electronic is completely galvanically isolated - digital internal data processing - output signal: analog (analog-out/digital) or digital (digital-out/digital) mA-version: - current output analog - not galvanically isolated electronics - output signal: analog (analog-out/analog)
Working temperature	Measuring water temperature: 0 … +40 °C (no ice crystals in the measuring water)
	Ambient temperature: 0 … +55 °C
Temperature compensation	Automatically, by an integrated temperature sensor Max. change in temperature: 0.3 °C per minute, sudden temperature changes must be avoided
max. allowed working pressure	Operation without retaining ring: 0.5 bar, no pressure impulses and/or vibrations
	Operation with retaining ring: 5 bar, no outgasing, no pressure impulses and/or vibrations
Flow rate	approx. 15-30 L/h in DF
pH-range	pH 6 – pH 9
Run-in time	First start-up approx. 24 h
Response time	T_{90}: approx. 1 min
Zero point adjustment	Normally not necessary
Slope calibration	At the device, by analytical determination of the chlorite concentration
Cross sensitivities/ interferences	Mn^{2+}, Nitrite, Fe^{2+} No interference to Chlorine dioxide, Chlorine und Chlorate Corrosion inhibitors can lead to measuring errors. Stabilisers for water hardness can lead to measuring errors.

	# MST1
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	Microporous hydrophilic membrane, PVC, 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)
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
CE	EMC-Testing DIN EN 61326-1, 61326-2-3 RoHS compliant

Spare Parts

Type	Membrane cap	Electrolyte	Emery	O-ring
For all MST1	M48.2	EMST1/GEL, 100 ml	S1	14 x 1.8 NBR

(Subject to technical changes!)

Technical Data

1. MST1 (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** **in ppm**	**resolution** **in ppm**	**Output** **Output resistance**	**Nominal slope** (at pH 7.2) **in mV/ppm**	**Voltage supply**	**Connection**
MST1H	0.005…2.000 *	0.001	0…-2000 mV 1 kΩ	-1000	±5 - ±15 VDC 10 mA	4-pole screw connector
MST1N	0.05…2.00 *	0.01		-100		
MST1HUp	0.005…2.000 *	0.001	0…+2000 mV 1 kΩ	+1000	10 - 30 VDC 10 mA	
MST1Up	0.05…2.00 *	0.01		+100		

* concentration tested and approved up to 2 ppm

(Subject to technical changes!)

2. MST1 (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** **in ppm**	**Resolution** **in ppm**	**Output** **Output resistance**	**Nominal slope** **in mV/ppm**	**Power supply**	**Connection**
MST1H-An	0.005…2.000 *	0.001	analog 0…-2 V (max. -2.5 V) 1 kΩ	-1000	9-30 VDC approx. 56-20 mA	4-pole screw connector
MST1N-An	0.05…2.00 *	0.01		-100		
MST1H-Ap	0.005…2.000 *	0.001	analog 0…+2 V (max. +2.5 V) 1 kΩ	+1000		
MST1N-Ap	0.05…2.00 *	0.01		+100		

* concentration tested and approved up to 2 ppm

(Subject to technical changes!)

3. MST1 (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** **in ppm**	**Resolution** **in ppm**	**Output** **Output resistance**	**Power supply**	**Connection**
MST1H-M0c	0.005…2.000 *	0.001	Modbus RTU There are no terminating resistors in the sensor.	9-30 VDC approx. 56-20 mA	5-pole M12 plug-on flange
MST1N-M0c	0.05…2.00 *	0.01			

* concentration tested and approved up to 2 ppm

(Subject to technical changes!)

4. MST1 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** **in ppm**	**Resolution** **in ppm**	**Output** **Output resistance**	**Nominal slope** (at pH 7.2) **in mA/ppm**	**Voltage supply**	**Connection**
MST1MA2	0.005…2.000 *	0.001	4…20 mA uncalibrated	8.0	12…30 VDC R_L 50Ω…R_L 900Ω	2-pole terminal (2 x 1 mm²) Recommended: Round cable ∅ 4 mm 2 x 0.34 mm²
MST1MA20	0.05…2.00 *	0.01		0.8		

* concentration tested and approved up to 2 ppm

(Subject to technical changes!)

4.2 Electrical connection: 5 pole M12 plug-on flange

	**Measuring range** **in ppm**	**resolution** **in ppm**	**Output** **Output resistance**	**Nominal slope** (at pH 7.2) **in mA/ppm**	**Voltage supply**	**Connection**
MST1MA2-M12	0.005…2.000 *	0.001	4…20 mA uncalibrated	8.0	12…30 VDC R_L 50Ω…R_L 900Ω	5-pole M12 plug-on flange Function of wires: PIN2: +U PIN3: -U
MST1MA20-M12	0.05…2.00 *	0.01		0.8		

* concentration tested and approved up to 2 ppm

(Subject to technical changes!)