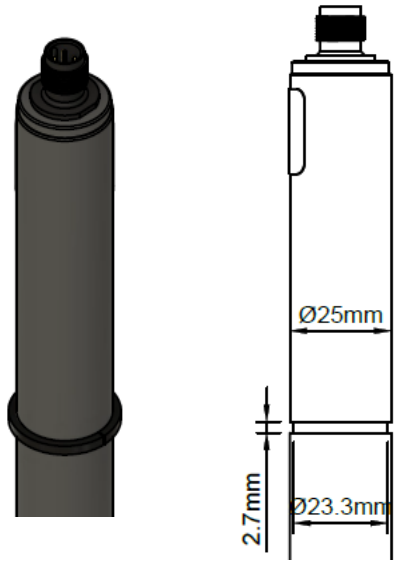
TARAbase CL2.2

indicator	Free chlorine, pH-dependent
Application	Brine or sea water from a concentration of >3.5 % (>50 mS) up to a concentration of approx. 26 % salt The water must not contain any surfactants (tensides)! pH-value must be constant.
Chlorination agents	inorganic chlorine compounds: NaOCl (=sodium hypochlorite), $Ca(OCl)_2$, chlorine gas, chlorine electrolysis with membrane cell (unsuitable: chlorine electrolysis without membrane cell)
Measuring system	Membrane covered, amperometric 2-electrode system with electronic inside
Electronic	Analog version: - voltage output - not galvanically isolated electronics - analog internal data processing - output signal: analog (analog-out/analog) mA-version: - current output analog - not galvanically isolated electronics - output signal: analog (analog-out/analog)
Information about the measuring range	The actual slope of a sensor can vary production-related between 65% and 150% of the nominal slope Note: With a slope > 100% the measuring range is reduced accordingly. (Ex.: 150% slope → 67% of the specified measuring range)
Working temperature	Measuring water temperature: 0 … +45 °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
Max. allowed working pressure	Operation without retaining ring: – 0.5 bar – no pressure impulses and/or vibrations
	Operation with retaining ring in TARAflow FLC: – 1 bar – no pressure impulses and/or vibrations (see option 1)
Flow rate (Incoming flow velocity)	approx. 15-30/h (15 – 30 cm/s) in TARAflow FLC, small flow rate dependence is given (see diagram “Slope of TARAbase CL4 versus flowrate”)
pH-range	pH 6 – pH 8, pay attention to the dissociation equilibrium HOCL (see diagram “Slope of TARAbase CL2 versus pH”)
Run-in time	First start-up approx. 1 h
Response time	T_{90}: approx. 30 sec.

TARAbase CL2.2

Zero point adjustment	Not necessary	
calibration	At the device, by analytical determination DPD-1-Method	
Interferences	ClO_2: factor 9 O_3 Electrolytically generated chlorine with a cell without membrane can produce trouble	
Absence of the disinfectant	Max. 24 h	
Connection	mV version: 4-20 mA version:	5-pole M12, plug-on flange 2-pole terminal or 5-pole M12, plug-on flange
max. length of sensor cable (depending on internal signal processing)	analog	< 30 m
	digital	> 30 m are permissible Maximum cable length depends on application
Protection type	5-pole M12 plug-on flange: 2-pole terminal with mA-hood:	IP68 IP65
material	Semipermeable membrane, PVC-U, ABS	
Size	diameter: Length: mV version 4-20 mA version	approx. 25 mm approx. 190 mm (analog signal processing) 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 tested RoHS compliant	

Option 1: **Retaining ring**	– When operating with pressures >0.5 bar in TARAflow FLC – Dimensions retaining ring 29 x 23.4 x 2.5 mm, slitted, PETP – Different positions for groove selectable (on request)	

Spare Parts

Type	Membrane cap	Electrolyte	Emery	O-ring
For all CL2	M20.2 Art. no. 11011.1	ECL2.1, 100 ml Art. no. 11003	S1 Art. no. 11908	14 x 1.8 NBR Art. No. 11806

(Subject to technical changes!)

Technical Data

1. CL2.2 (analog output, analog internal signal processing)

	**Measuring range** **in ppm**	**Resolution** **in ppm**	**Output** **Output resistance**	**Nominal slope** (at pH 7.2) **in mV/ppm**	**Voltage supply**	**Galvanic isolation required in the measuring device/controller ***	**Connection**
CL2.2N-M12	0.05…20.00	0.01	0…-2000 mV 1 kΩ	-100	±5 - ±15 VDC 10 mA	yes	5-pole M12 plug-on flange Function of wires: PIN1: measuring signal PIN2: +U PIN3: -U PIN4: signal GND PIN5: n. c.

* for further information see brochure ‘Technical information // galvanic isolation’ (in the download area of our website www.reiss-gmbh.com)

(Subject to technical changes!)

2. CL2.2 4-20 mA (analog output, analog internal signal processing)

2.1 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**	**Galvanic isolation required in the measuring device/controller ***	**Connection**
CL2.2MA2	0.005…2.000	0.001	4…20 mA uncalibrated	8.0	12…30 VDC R_L 50Ω…R_L 900Ω	yes	2-pole terminal (2 x 1 mm²) Recommended: Round cable ∅ 4 mm 2 x 0.34 mm²
CL2.2MA20	0.05…20.00	0.01		0.8			

* for further information see brochure ‘Technical information // galvanic isolation’ (in the download area of our website www.reiss-gmbh.com)

(Subject to technical changes!)

2.2 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**	**Galvanic isolation required in the measuring device/controller ***	**Connection**
CL2.2MA2-M12	0.005…2.000	0.001	4…20 mA uncalibrated	8.0	12…30 VDC R_L 50Ω…R_L 900Ω	yes	5-pole M12 plug-on flange Function of wires: PIN1: n. c. PIN2: +U PIN3: -U PIN4: n c. PIN5: n. c.
CL2.2MA20-M12	0.05…20.00	0.01		0.8			

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(Subject to technical changes!)

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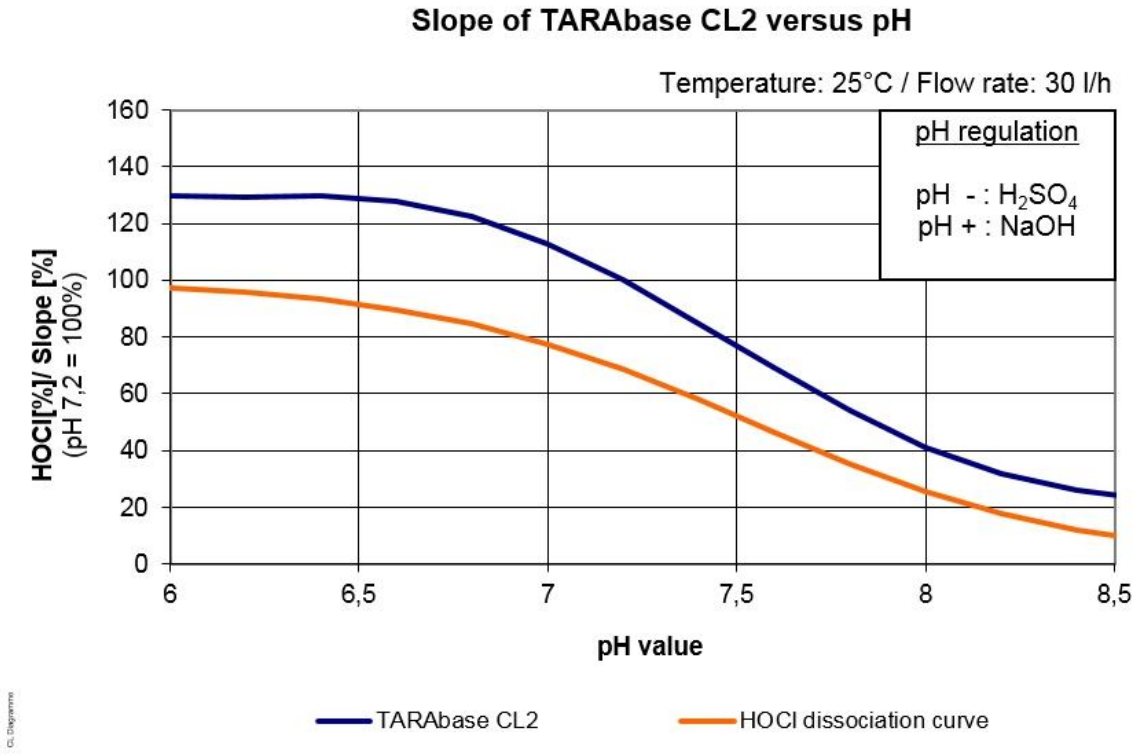
Slope of TARAbase CL2 versus pH
Temperature: 25°C / Flow rate: 30 l/h
pH regulation
pH - : H2SO4
pH + : NaOH
HOCl[%]/ Slope [%]
(pH 7,2 = 100%)
160
140
120
100
80
60
40
20
0
6
6,5
7
7,5
8
8,5
pH value
TARAbase CL2
HOCl dissociation curve