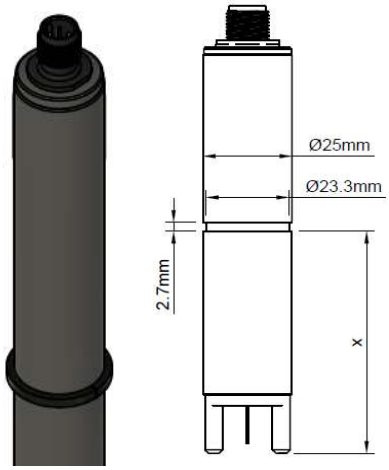
TARAeasy® CCF1.0

Indicator	Free chlorine, pH dependent
Application	Swimming pool and drinking water The pH value must be constant.
Chlorination agents	Inorganic chlorine compounds: NaOCl (=sodium hypochlorite), $Ca(OCl)_2$, chlorine gas
Measuring system	Amperometric 3-electrode system with integrated electronics
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)
Accuracy After calibration at repeatability conditions (25 °C, pH 7.2 in drinking water) of the measuring range end value	Measuring range 2 mg/l: at 2 mg/l <0.5% at 8 mg/l <3.0%
Working temperature	Measuring water temperature: 0 … +45 °C (no ice crystals in the measuring water)
	Ambient temperature: 0 … +55 °C
Temperature compensation	Automatically, through integrated temperature sensor Temperature jumps are to be avoided
Max. allowed working pressure	Operation without retaining ring: – 0.5 bar – no pressure surges and/or vibrations
	Operation with retaining ring in TARAflow® FLC: – 8 bar – no pressure surges and/or vibrations (see option 1)
Flow rate (face velocity)	Approx. 1-100 l/h (1 – 100 cm/s) in TARAflow® FLC, low flow is present (see diagram “Slope of TARAeasy® CCF1 versus flowrate”)
pH-range	pH 6 – pH 9, observe dissociation curve HOCL (see diagram “Slope of TARAeasy® CCF1 versus pH”)
Conductivity	0.2 to 10.0 mS/cm
Run-in time	Approx. 15 min.

TARAeasy® CCF1.0

Response time	T_{90}: approx. 20 sec.	
Zero point adjustment	Not necessary	
Calibration	At the device, by analytical determination DPD-1 method	
Cross sensitivities	ClO_2: is also measured O_3: is also measured	
Interference	– Iodine/bromine lead to a shift of the zero point – Strong changes in the CO_2 concentration (dissolved) have an influence on the sensor signal	
Absence of disinfectant	Prolonged absence of chlorine does not cause any problems.	
Connection	5-pin M12, flange plug	
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 class	IP68	
Material	PVC-U	
Dimensions	Diameter:	approx. 25 mm
	Length: mV version	approx. 131 mm (analog signal processing) approx.. 179 mm (digital signal processing)
	Modbus version	approx. 179 mm
	4-20 mA version	approx. 131 mm
Transport	+5 ... +50 °C	
Storage	Can be stored dry for an unlimited period at +5 ... +40 °C	
Maintenance	Regularly control of the measurement signal	
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) X 1 = 65 mm 2 = 82 mm 3 = 98 mm 4 = 102 mm 5 = 107 mm	

Technical Data

1. CCF1.0 (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**	**Option 1** **Retaining ring** **Positions**
CCF1.0N	0.05…10.00 *	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.	1

* concentration tested and approved up to 10 ppm
** 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. CCF1.0 (analog output, digital internal signal processing)
analog-out / digital

	**Measuring range** **in ppm**	**Resolution** **in ppm**	**Output** **Output resistance**	**Nominal slope** (at pH 7.2) **in mV/ppm**	**Power supply**	**Galvanic isolation required in the measuring device/controller ****	**Connection**	**Option 1** **Retaining ring** **Positions**
CCF1.0N-An	0.05…10.00 *	0.01	0…-2000 mV 1 kΩ	-100	9-30 VDC approx. 7-30 mA	no	5-pole M12 plug-on flange Function of wires: PIN1: measuring signal PIN2: +U PIN3: power GND PIN4: signal GND PIN5: n. c.	1, 2, 3, 4, 5
CCF1.0N-Ap	0.05…10.00 *	0.01	0…+2000 mV 1 kΩ	+100				

* concentration tested and approved up to 10 ppm
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(Subject to technical changes!)

3. CCF1.0 (digital output, digital internal signal processing)

- 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**	**Galvanic isolation required in the measuring device/controller ****	**Connection**	**Option 1** **Retaining ring** **Positions**
CCF1.0N-M0c	0.05…10.00 *	0.01	Modbus RTU There are no terminating resistors in the sensor.	9-30 VDC approx. 7-30 mA	no	5-pole M12 plug-on flange Function of wires: PIN1: reserved PIN2: +U PIN3: power GND PIN4: RS485B PIN5: RS485A	1, 2, 3, 4, 5

* concentration tested and approved up to 10 ppm
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(Subject to technical changes!)

4. CCF1.0 4-20 mA

	**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**	**Option 1** **Retaining ring** **Positions**
CCF1.0MA2-M12	0.05…2.00	0.01	4…20 mA uncalibrated	8	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.	1
CCF1.0MA5-M12	0.05…5.00			3.2				
CCF1.0MA20-M12	0.05…10.00			0.8				

* concentration tested and approved up to 10 ppm
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(Subject to technical changes!)

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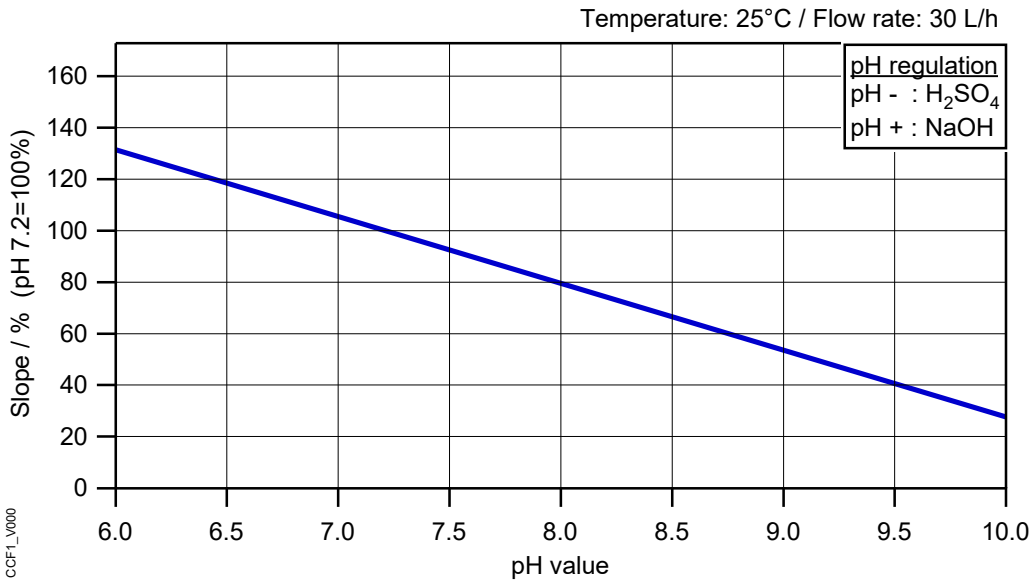
Slope of TARAeasy® CCF1 versus pH



Slope of TARAeasy® CCF1 versus Flow