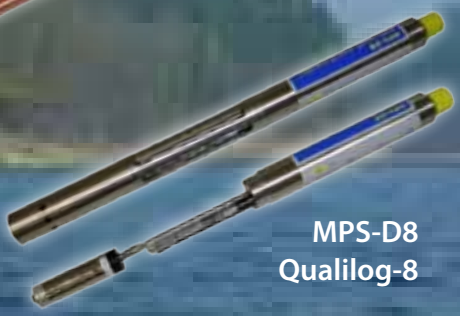
Water quality monitoring

Multiparameter measuring systems for ground and surface water

Measuring parameters

- water level
- temperature
- conductivity
  - total dissolved solids (TDS)
  - salinity
  - density
- dissolved oxygen
  - oxygen saturation
- pH value
- redoxpotential
- ammonia
- nitrate
- chloride
- ammonium
- sodium
- calcium
- fluoride
- potassium
- chlorophyll a
- cyanobacteria
- rhodamine WT
- turbidity
  - total suspended solids (TSS)

MPS-K16
Qualilog-16



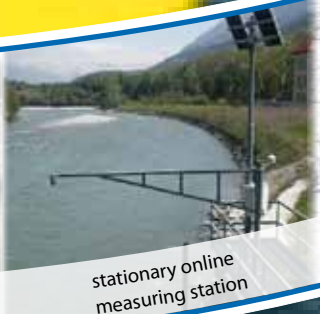
MPS-D8
Qualilog-8

MPS-PTEC
Dipper-PTEC

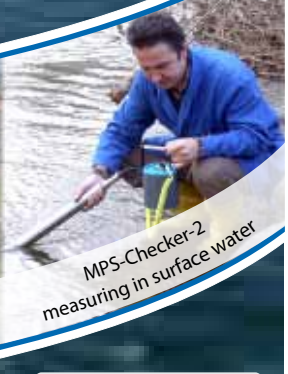
Electric contact meter KLL-Q-2
measuring in ground water

FlashCom-2/LogCom-2
online-measuring in ground water

Measuring in spring discharges



stationary online
measuring station



MPS-Checker-2
measuring in surface water

QZV Wir sind zertifiziert
ISO 9001:2008
Zertifikat Nr. 01150509
Qualität ist unser Standard

Multiparameter sensors MPS

MPS -PTEC / -D8 / -K16 and MPS-Qualilog -8 / -16

Equipped with up to 12 sensors, by which 16 different water quality parameters can be measured, the SEBA multiparameter sensors provide reliable informations about the conditions at the measuring site.

The multiparameter sensors MPS represent the consequent further development of the SEBA multiparameter product line. The calibration will be performed via user friendly software SEBAConfig. The Availability of high data quality is the base for proper evaluation of the hydrological enviroment.

To display the measured values the MPS sensors can be combined with the SEBA electric contact meter (mainly for ground water) or with the SEBA MPS-Checker (mainly for surface water). Continuously monitored measuring sites can be equipped with SEBA data loggers with or without data transmission (e.g. Unilog) or with integrated logger.

Designed for robust use in the field the sensors perform under roughest conditions like e.g. in tropic, arid and arctic enviroments. Rugged and ready for all uses in the field they measure with optimum precision.
SEBA sensors stand out due to high long-term stability (optical sensors) together with low maintenance requirements and can be used as stationary or mobile sensors.

MPS- Multiparameter sensors

for depths of up to 500m (dependent on used electrodes)

MPS-PTEC: Digital multiparameter sensors with RS485-output and sensors for measuring water level, temperature, conductivy and salinity

Dipper-PTEC: Digital multiparameter sensor with integrated data logger and sensors for measuring water level, temperature, conductivy and salinity

MPS-PTEC
Dipper-PTEC

MPS-D8: Digital multiparameter sensors with RS485-output and up to 8 electrodes in a stainless steel case

Qualilog-8: See MPS -D8 but additionally with integrated data logger

MPS-D8
Qualilog-8

MPS-K16: Digital multiparameter sensors with RS485-output and up to 12 electrodes in a robust plastic case

Qualilog-16: See MPS-K16 but additionally with integrated data logger

MPS-K16
Qualilog-16
with antifouling coating

Product overview

	Multiparameter sensors	MPS-PTEC		MPS-D8	MPS-K16	
	Multiparameter sensors with integrated data logger		Dipper-PTEC	Qualilog-8	Qualilog-16	
	minimum Ø	1½"	1½" [1]	2"	4"	
	usage in ground water / surface water	● / ●	● / ●	● / ●	● / ●	
Nr.	**Parameter**					
1	water level (pressure)	●	●	●	●	
2	temperature	●	●	●	●	
3	conductivity	●	●	●	●	
	- total dissolved solids TDS	○	○	○	○	
	- salinity	○	○	○	○	
	- water density	○	○	○	○	
4	oxygen - oxygen saturation			● ○	● ○	
5	pH			●	●	
6	redox			●	●	
7	ammonia			●	●	
8	nitrate *			●	●	
9	chloride *			●	●	
10	ammonium *			●	●	
11	sodium *			●	●	
12	calcium *			●	●	
13	fluoride *			●	●	
14	potassium *			●	●	
15	fluorometer for chlorophyll or cyanobacteria or rhodamine WT				●	
16	signal at water contact (KLL)			●	●	
17	turbidity - total suspended solids TSS			● ○	● ○	
	maximum amount of measured parameters	6	6	13	17	

2 sensors out of No. 5 - 14 can be selected additionally

7 sensors out of No. 5 - 16 can be selected additionally

○ calculated parameter [1] for battery compartment the first 80 cm 2" are necessary
At the parameters (No. 8 - 14) marked with * the pH- or redox-electrode has to be implemented constantly, because these values are needed as reference.

Technical data

Sensor type	MPS-PTEC	Dipper-PTEC	MPS-D8	Qualilog-8	MPS-K16	Qualilog-16
diameter [mm]	22	22	48	48	89	89
basic length [mm]	300	300	493	493	572	572
+ plug-in system [mm]			+81	+81		
+ turbidity [mm]			+185	+185		
basic weight [kg]	0,4	0,4	2,1	2,1	2,5	2,5
+ plug-in system [kg]			+0,3	+0,3		
+turbidity [kg]			+0,95	+0,95	+0,3	+0,3
sensor body	1.4539	1.4539	1.4404	1.4404	PVC-U	PVC-U
pluggable	no	no	yes	yes	no	no
output	RS485 4..20mA SDI12 Modbus	RS485 4..20mA SDI12 Modbus	RS485 4..20mA SDI12 Modbus	RS485 4..20mA SDI12 Modbus	RS485 4..20mA SDI12 Modbus	RS485 4..20mA SDI12 Modbus
supply voltage - with optical sensors	4-15 VDc -	4-15 VDc -	4-15 VDc 8-15 VDc	4-15 VDc 8-15 VDc	4-15 VDc 8-15 VDc	4-15 VDc 8-15 VDc

Decisive customer advantages

- High flexibility: Connection facility to different terminal devices for mobile and/or stationary application

- Inteligent modular system: Individual retrofitting of further parameters within a series anytime possible

- New optical sensor technology: Measurement of dissolved oxygen, cyanobacteria, chlorophyll a and rhodamine WT

- Quick and uncomplicated exchange of exhausted electrodes

- Compact design: Useable in pipes with minimum 1½" and 4" (MPS-K) diameter

Accessories

Calibration liquids and replacement sensors

Anti-Fouling

Cleaning of electrodes with wiper

for MPS-K16 and Qualilog 16

Signal converter

RS 485 - 4-20 mA

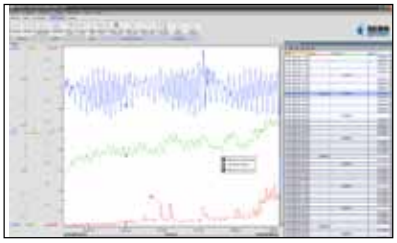
RS 485 - Modbus

RS 485 - SDI 12

Calibration stand

Flow-through vessel

Evaluation software DEMASvis



DEMASvis is an elaborate software solution for visualization and editing of measurement results:

- Graphics and lists at a glance!
- Input option for comments
- Automatic correction of hydrographs and lists via check values

Application variants

portable systems


HDA-Tablet


HDA-Pro


Notebook


KLL-Q-2


Checker-2


MPS-K16
Qualilog-16


MPS-D8
Qualilog-8


MPS-PTEC
Dipper-PTEC

stationary systems


LogCom-2/FlashCom-2


Unilog


UniLog-Light


UnilogCom


MPS-K16


MPS-D8


MPS-PTEC

Application examples

portable systems for ground water

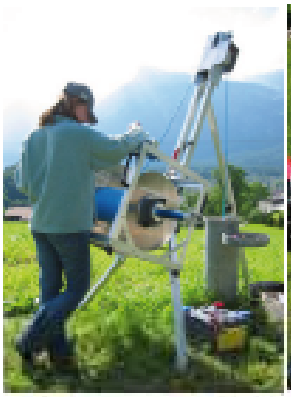
The SEBA electric contact meter KLL-Q-2 is a unique mobile field laboratory for measuring water quality at ground water measurement sites with minimum 2“ diameter.

- compact design
- easy handling
- quick and precise capture of different parameters until max. 500 m depth
- integrated data logger (optional)

portable systems for ground water

For monitoring of deep drillings SEBA has developed a mobile winch system with electrical drive. The multiparameter sensor is able to measure, display and record water quality and water quality profiles until a depth of 800m.

Special solution with electrical winch



portable systems for storage reservoirs

With the electric contact meter KLL-Q-2 water quality and water quality profiles can be measured comfortably in reservoirs or lakes.

- compact design
- easy handling
- quick and precise capture of different parameters until max. 500 m depth
- integrated data logger (optional)

portable systems for rivers

The SEBA multiparameter system Checker-2 was developed as mobile field laboratory especially for determination of parameters which are significant for water quality in lakes, rivers, channels and sea.

- compact design
- easy handling
- quick and precise capture of different parameters
- integrated data logger (optional)

Application examples

stationary systems in ground water

Monitoring of ground water quality becomes more and more important globally. By using SEBA multiparameter sensors together with data logger (e.g. LogCom-2 or FlashCom-2) water quality can be monitored network-independent continuously, online (GSM/GPRS) or offline.

Primarily measured parameters:

- water-level
- temperature
- conductivity
- salinity
- pH value
- nitrate etc.

stationary systems in storage reservoirs

Permanent measurement of water quality in lakes and storage reservoirs is mostly performed by means of moored buoys or pontoons. The multiparameter sensor is dangled at a certain water depth, the complete electronics is installed waterproof in the buoy. The power supply with solar cells allows permanent monitoring of water quality with constant data transmission (GSM / GPRS or radio).

Primarily measured parameters:

- water-level
- temperature
- conductivity
- oxygen
- pH value
- chlorophyll a
- nitrate etc.

stationary systems in rivers

Together with the continuously measuring low-maintenance SEBA multiparameter sensors, automatic warning systems are installed which display the water quality in real time.
Real time water quality measuring are positioned at strategic locations on rivers, e.g. to determine forbidden discharge, to document misconduct, to set off the alarm and therefore to secure water protection.

Primarily measured parameters:

- water-level
- temperature
- conductivity
- oxygen
- pH value
- ammonium etc.

stationary systems in channels

The monitoring of water quality in irrigation channels is essential nowadays. Polluted and saline water damages plants and could cause crop failures. Selected parameters of water quality will be documented SEBA multiparameter sensors in connection with data acquisition and transmission systems Wasserqualitäten dokumentiert und ggfls. Alarme bei Grenzüberschreitungen ausgelöst.

Primarily measured parameters:

- water-level
- temperature
- conductivity
- oxygen
- pH value
- ammonium etc.

Technical data of electrodes

Parameter	Measuring range	Accuracy	Resolution
water level	0-10, 20, 50, 100, 200m 0...100/200 mWs Temperature: -5...50°C	+/-0,1% of end of measuring range	0,002%
temperature	Temperature: -5...50°C Pressure: 0...500 mWs	+/- 0,1°C	0,01°C
conductivity	0...200mS Temperature: -5...50°C Pressure: 0...500 mWs	+/- 1µS/cm (0…200µS/cm) +/-0,5% (> 200µS/cm)	0,001mS/cm
total dissolved solids (TDS)	0...200.000mg/l Temperature: -5...50°C Pressure: 0...500 mWs		
salinity	0...70 Temperature: -5...50°C Pressure: 0...500 mWs	+/- 0,2 (0...16) +/- 0,8% (>16)	0,01
water density	988…1060 g/l Temperature: -5...50°C Pressure: 0...500 mWs		
oxygen (amperometric)	0...40mg/l Temperature: 0...50°C Pressure: 0...100mWs	+/-0,5% of end of measuring range	0,01mg/l
oxygen (optic)	0...25mg/l (bei 25°C, 1013hPa) 0...40mg/l (bei 3° C, 1013hPa) Temperature: -5..50°C Pressure: 0..120 mWs	+/- 0,02mg/l (0...2mg/l) +/- 1% of measured value (>2mg/l)	0,001mg/l
oxygen saturation	0...400% saturation Temperature: 0...50°C Pressure: 0...100 mWs	+/-0,5% of end of measuring range	
pH	0...14 pH Temperature: 0...50°C Pressure: 0...200 mWs	+/- 0,1pH	0,01pH
redox (ORP)	-1200mV...1200mV Temperature: 0...50°C Pressure: 0...200 mWs	+/- 10mV	0,1mV
ammonia	0,01...17000mg/l Temperature: 0...50°C Pressure: 0...5 mWs	+/-0,2mg/l (24h) (0...10mg/l) +/- 2% of measured value (24h) (>10mg/l)	0,01mg/l
nitrate	0,4...60000mg/l Temperature: 0...40°C Pressure: 0...200 mWs	+/-2mg/l (24h) (0...40mg/l) +/- 5% of measured value (24h) (>40mg/l)	0,01mg/l
chloride	1...35000mg/l Temperature: 0...50°C Pressure: 0...200 mWs	+/-2mg/l (24h) (0...40mg/l) +/- 5% of measured value (24h) (>40mg/l)	0,01mg/l
ammonium	0,2...18000mg/l Temperature: 0...40°C Pressure: 0...10 mWs	+/-2mg/l (24h) (0...40mg/l) +/- 5% of measured value (24h) (>40mg/l)	0,01mg/l
sodium	0,2..20000mg/l Temperature: 0...50°C Pressure: 0...60 mWs	+/-2mg/l (24h) (0...40mg/l) +/- 5% of measured value (24h) (>40mg/l)	0,01mg/l
calcium	0,5...40000mg/l Temperatur:e 0...40°C Pressure: 0...10 mWs	+/-2mg/l (24h) (0...40mg/l) +/- 5% of measured value (24h) (>40mg/l)	0,01mg/l
fluoride	0,2…20000mg/l Temperature: 0...40°C Pressure: 0...10 mWs	+/-2mg/l (24h) (0...40mg/l) +/- 5% of measured value (24h) (>40mg/l)	0,01mg/l
potassium	0,4...39000mg/l Temperature: 0...40°C Pressure: 0...10 mWs	+/-2mg/l (24h) (0...40mg/l) +/- 5% of measured value (24h) (>40mg/l)	0,01mg/l
chlorophyll a (optical)	0,03…500µg/l Chl a Temperature: -2...50°C Pressure: 0...600 mWs	+/-3%	0,01µg/l
cyanobacteria (optical) - Phycocyanin (PC) - Phycoerythrin (PE)	2-40.000 ppb (PC) 0,15-750 ppb (PE) Temperature: -2...50°C Pressure: 0...600 mWs	+/-3%	1 ppb (PC) 0,01 ppb (PE)
rhodamine WT (optical)	0,04...1000µg/l RWT Temperature: -2...50°C Pressure: 0...600 mWs	+/-3%	0,01µg/l
turbidity (optical)	0...1000NTU Temperature: 0...50°C Pressure: 0...100 with wiper 0...200 without wiper	+/-0,3NTU (0…10NTU) +/-3% (>10NTU)	0,01NTU
Total suspended solids (TSS)	approx. 5 fold measured range turbidity mg/l Temperature: 0...50°C Pressure: 0...100 with wiper 0...200 without wiper		

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