

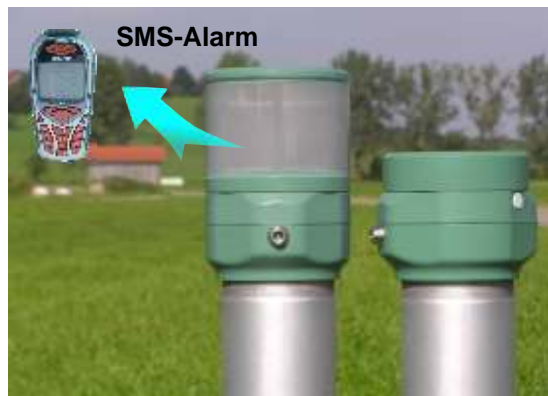
## Groundwater Survey - Online

GSM Remote Data Transmission  
SMS alarms

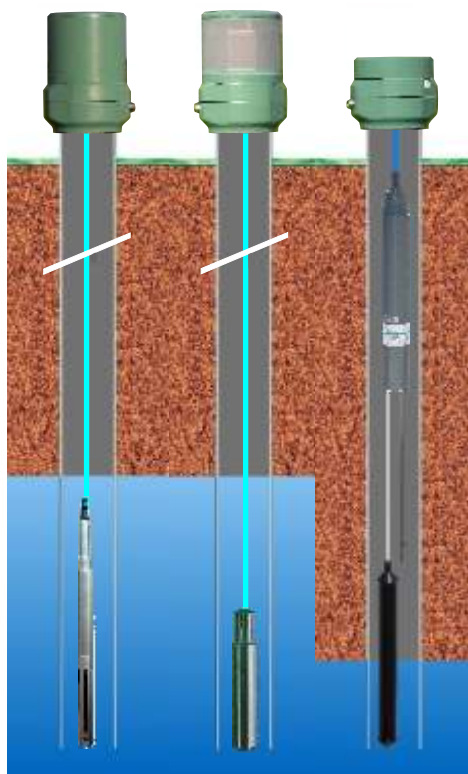
*The "intelligent"  
SEBA top piece*



QZV We are certified  
**ISO 9001**  
certificate no. 01110505  
*Quality Is Our Standard*



*FlashCom / LogCom*



multiparameter probe pressure sensor float-driven sensor

- remote data transmission with GSM modem
- automatic query of measuring data
- SMS alarm
- suitable for 2" tubes
- battery operation / solar operation
- reduction of expenses due to longer control intervals

### parameters

- water level
- temperature
- conductivity
- salinity
- pH
- oxygen
- redox
- turbidity

Remote Data Transmission Systems

## System description

The **intelligent SEBA Top Piece** is a sophisticated, compact remote transmission system for economical observation of ground water measuring stations. Following characteristics distinguish the SEBA top piece:

### 1. compact construction

Logger, GSM/GPRS modem, antenna and LC-display are located in the folding top: Contrary to conventional remote transmission systems the measuring site is freely accessible for control measurements, sampling procedures etc. The intelligent top piece can be easily mounted onto 4" measuring sites with tube thread. With the help of adapter parts also mounting to 2", 3", 4.5", 5" and 6" tubes is possible.

### 2. Energy management

A sophisticated energy management (time-slot procedure) cares for long battery life times and thus for low maintenance efforts. The plugable battery compartment is installed in the observation tube and due to plugable connections it can be removed from the measuring station without any tools. Easy battery change! As option a solar cap is available so that battery change at the measuring site is not necessary.

### 3. Automatic call of the measuring sites and SMS alarm

With the comfortable data management software DEMAS db the intelligent SEBA top piece can be called up to 8 times per day in individually programmable time slots. Independently alarm limits can be defined (i.e. waterlevel, battery capacity). SMS alarms can be sent to 4 different mobile phone numbers, as well as to a facsimile instrument.



LC-display for indication of actual measuring values



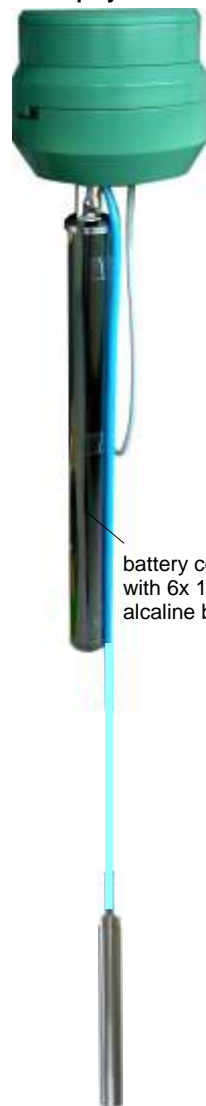
simple battery change without tools at the system "LogCom"

## The intelligent SEBA top piece

### Log-Com with battery supply

#### FlashCom incl.:

- Logger
- GSM/GPRS-Modem
- Antenna
- LC-display



pressure sensor  
**DS22**

### Flash-Com with Solar top piece



float-operated  
**FloatSens**

battery compartment with 6x 1.5V alkaline batteries

## Measuring sensors directly connectable to GSM-LogCom/FlashCom

### Water level:

- with float-operated sensor Floatsens
- with pressure sensor DS 22 robust, high precise differential pressure sensors with extreme long-term stability; stainless steel encapsulation ; special cable with pressure compensation tube.

### Water level/temperature:

- combined sensor DS/T with special cable and pressure compensation tube For measuring water level and water temperature with extreme long-term stability.

### Water quality:

- multiparameter sensor MPS-D for measurement of:
  - water level
  - water temperature
  - conductivity
  - salinity
  - pH-value
  - Redox potential
  - dissolved oxygen
  - turbidity

## Operation with HDA or Notebook

The adjustment and programming of the **intelligent SEBA Top Piece** can be effected by means of a notebook, an interface cable and the userfriendly configuration software SEBA Config. Alternatively to the notebook, we recommend our fieldproven, handy SEBA HDA (Hydrological Digital Assistant).

### SEBA HDA - the handheld which withstands a lot!

Robust PDA for the rough field operation as alternative to the notebook. Vibration, impact, dust and water resistant housing acc. to IP 67 for operation between -30°C and +60°C. Long durability up to 30 hours.

Simple operation resp. input of parameters (i.e. of control values) via TFT colour LC-touchscreen or pin.

Included in the delivery:

- Operation software **SEBA-ConfigCE** for simple programming, adjustment and operation of SEBA water level observer, as well as for transmission of the stored values to PC.
- Evaluation software **MGMDs/MLMDS CE** for plausibility check of stored measuring data in form of curves and lists.

### MLMDS CE for presentation of lists



### MGMDs CE for presentation of graphs

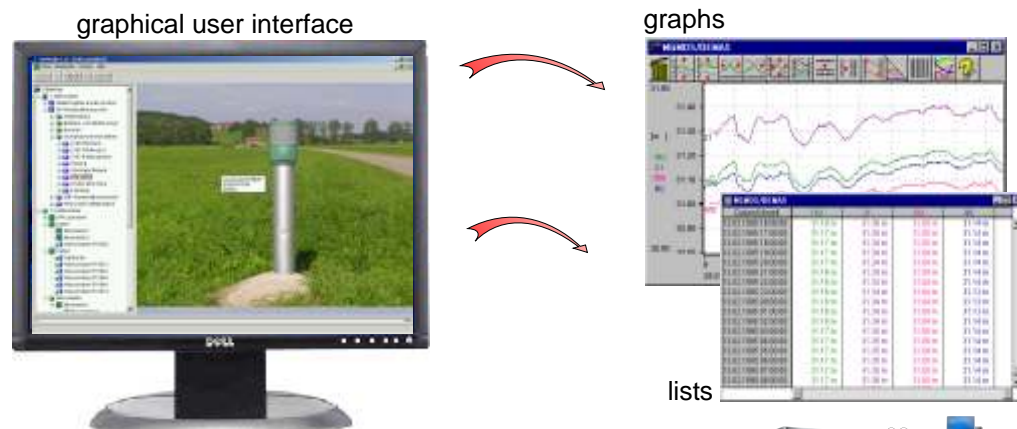


**HDA**  
with SEBA-Config CE

## Automatic call of measuring values with DEMASdb incl. storage of data (SQL-database) and visualisation of measuring values (graphs/lists)

For automatic call of the intelligent SEBA Top Piece the comfortable data evaluation management software DEMASdb is used. Alternatively the standardized call protocol DDP (descriptive data protocol) also approves the call of measuring data with non-proprietary software, i.e. WISKI/SODA (Kisters, MAWIN (Läufer) etc.

DEMASdb works with a comfortable graphical user desktop and disposes of an evaluation module with manifold calculation possibilities. In standard version a paradox-database is included in the delivery. As option DEMASdb can also be used with already existing SQL databases (i.e. Oracle, SQL-Server). With DEMASdb a simple and clearly arranged management for small, middle and bigger measuring networks is possible.



- client/server operation, network capability, user administration
- call of measuring stations via GSM/satellite/fax telephone modem
- evaluation of measuring data (multi-graphs, multi-lists)
- storage of measuring values (SQL-database connection)
- alarms of measuring values (i.e. FAX, SMS)
- export of measuring values to foreign programmes (automatically)



# Technical data

## Intelligent SEBA-top piece (LogCom/FlashCom) for GSM 900/1800MHz-Networks

**Housing:** Aluminium, watertight IP67  
dimensions:  
LogCom: Ø168mm, height 133mm  
FlashCom: Ø168mm, height 220mm

**Data logger:** integrated with MDS or DDP protocol  
Memory: 512K für 130000 Werte

**Modem:** GSM standard, 900MHz and 1800MHz  
(EGSM, Dualband), GPRS

**Operation:** with 3V- SIM-cards

**Antenna:** integrated in the top of the protection housing  
robust, impact resistant and weatherproof

**Display:** 2 x 16 digits LC-display for  
indication actual measuring value

**SMS-Alarm:** 4 x SMS-alarm to handy  
1 x SMS-alarm to FAX

**time slots:** 8 (free programmable)

**Power Supply**  
**LogCom:** 6x1,5V Alkaline batteries (Mono, LR1, AM1, MN1300)

**operation time:** <sup>3</sup> 2 years in case of 1 query/day  
(depending on the quality of the  
GSM connection)

**FlashCom:** solar operation

**operation time:** sufficient for 1 query/day  
(other query intervals on request)

## SEBA-Sensors

### Pressure sensor for water level registration

- high accurate, robust and long-term stable  
pressure transducer with stainless steel housing
- accuracy:  $\pm 0.1\%$  = better 1cm  
at 10 m measuring range
- long-term stability:  $< 0.1\%$  /year
- temperature stability:  $< 0.01\%$  /°K
- measuring ranges: 2.5; 5.0; 10.0; m water level etc.
- special cable for pressure transducer (food safe)  
with integrated pressure compensation tube (length up  
to 300m)



### Combined sensor DS/T:

for water level and water temperature registration

### Float-operated Floatsens:

to measure the water level

- SMD-technique with automatic test routines
- 16 Bit microprocessor
- Watch-Dog to observe the  
microprocessor activities
- Serial communication interface RS 485
- Real-time clock
- Encoder with two-phase counter
- Power supply with changeable Lithium  
battery sufficient for >5 years  
(with 60 min. interval)
- Operation temperature range: -20...+70°C
- Watertight PVC housing
- Dimensions: Ø 40mm, length 280mm
- Installation device for top pieces of min. 2"



### Multiparametersonde MPS-D

for measuring water quality:

- Water level: 0...10m, 0...Xm
- water temperature: 0...25°C, 0...50°C
- conductivity: 0...2mS, 0...10mS, 0...100mS etc.
- pH/Redox: 0...15pH /  $\pm 2000$ mV
- dissolved oxygen: 0...40mg/l; 0...400%
- turbidity: 0...1000NTU
- special cable (food safe!) with integrated pressure  
compensation tube (length up to 300m)



Further technical data please learn from leaflet MPS-D.

## SEBA-Terminal HDA

**Dimensions:** Length: 165 mm, Width: 95 mm, Height: 45 mm

**Weight:** 490 g including battery

**Protection class:** IP 67

**Drop:** 26 fall from 1.2m on concrete

**Operating temperature:** -30°C till +60°C

**Humidity resistance:** MIL-STD 810F method 507.4

**Processor/memory:** Intel PXA 255 X-Scale CPU  
RECON200 - 200 MHz,  
64 MB SDRAM, 64 MB NAND Flash

**Display:** 1/4 VGA, 240 x 320 Pixel, colour TFT display with touch-  
screen and front light

**Batterie:** 3,800 mAh NiMH-Batterie for 12 – 30 hours operating

**Operating system:** Windows Mobile 2003

**Connections:** 1 x USB-B Slave (12 Mbps),  
1 x RS232 (115 Kbps)  
1 x charging, 2 x CF-slots type II

**Keyboard:** 10 keys, on screen query keyboard

included in delivery:

- **battery-charger**
- **connection cable PDA-PC**
- **software SEBAConfig CE**
- **software MGMDs/MLMDs CE**  
for presentation of lists and graphs



The right is reserved to change or amend the foregoing technical specification without prior notice.



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