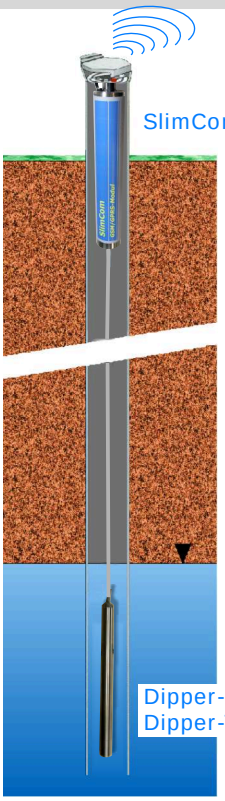
Groundwater Monitoring System-Online
Type SlimCom

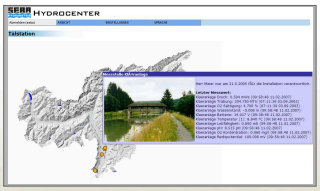
GSM/GPRS transmission suitable for 1 1/2" observation wells

Key Features:

- Automatic call of measuring stations
- GSM/GPRS data transmission
- SMS-Alarm
- Suitable for 1 1/2" observation wells
- Battery operation
- Reduction of expenses due to longer control intervals
- Option: Bluetooth-Interface

- Also available as a retrofit kit for existing Dipper-3 data loggers





Internet-Hydrocenter

Installation in tube

Groundwater Monitoring site

Readout with SEBA-HDA

Evaluation with our internet hosted portal SEBA-Hydrocenter

We are certified.
ISO 9001:2008
Zertifikat Nr. 01150509
Quality is our standard

System Description

The GSM/GPRS transmission system SlimCom is a miniature data transmission system for an economic control of groundwater monitoring stations. The following features are characteristic for the SlimCom System:

1. Compact Construction

Our SlimCom module with integrated GSM/GPRS modem and antenna is suitable for installation in observation wells starting from 1 $^{1}/_{2}$" diameter.
For observation wells 2" or bigger, control measurements with electric contact meters (KLL) are possible without removing the system from the casing.

2. Energy Management

Standardly, the system comes with three 1,5V Alkali manganese batteries. A sophisticated energy management (time slot procedure) provides high battery lifetime and therefore a minimum amount of maintenance. A battery change is blindingly easy.
For longer download intervals, the SlimCom system can be equipped with two 3,6 V lithium batteries. With a weekly download interval the lifetime of the sytems is more than 8 years.

3. Automatic call of the measuring sites and SMS alarm

The SlimCom System can be called comfortably in individually programmable time slots via the software DEMASole. Independently, alarm limits can be defined (e.g. water level, battery capacity). SMS alarms can be sent to up to 8 different mobile phone numbers, as well as by email (GPRS) or with a provider to a facsimile instrument.

Data logger directly pluggable to SlimCom

Water Level:

- with Dipper-3

1 MB Flash-memory
for up to 480.000 values

measuring ranges:
2,10,20,40,100,200 m

accuracy:
±0,05 % = 1cm
at 20 m measuring range

dimensions: 22 mm Ø, 270 mm length

Water level-/temperature:

- with Dipper-T3

as Dipper-3
incl. temperature sensor

measuring range:
-5...+50°C ± 0,1°C

dimensions: 22 mm Ø, 270 mm length

Operation with SEBA-HDA or Notebook

The adjustment and programming of the SlimCom System can be done with a notebook, an interface cable and our userfriendly configuration software WBedien/SEBA Config. Alternatively to the notebook, we recommend our trailworthy, handy SEBA HDA (Hydrological Digital Assistent). Or ask for our new HDA-Pro (Tablet-PC).

SEBA-HDA a tough and robust hand-held

Robust PDA for tough field operations and an alternative to the notebook. Vibration, impact, dust and water resistant magnesium housing according to IP 67 for the operation between -30°C and +60°C. Operation time of up to 30 hours on one charge.

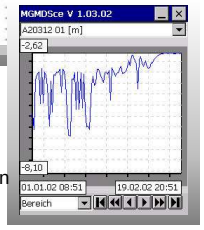
Simple operation resp. input of parameters (e.g of control values) via TFT colour LC-touchscreen or stylus

Included in the delivery:

- Operation software SEBA-WBedienCE for simple programming, adjustment and operation of the entire SlimCom and Dipper-3 System as well as for transmission of the stored values to your PC.
- Evaluation software MGMDS / MLMDS CE for plausibility check of stored measuring data in form of graphs and data sheets.

SEBA-HDA
with WBedienCE

MLMDS CE
for presentation
in form of
data sheets



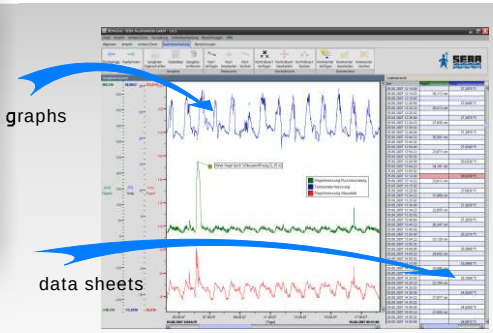
MGMDS CE
for presentation
in form of
graphs

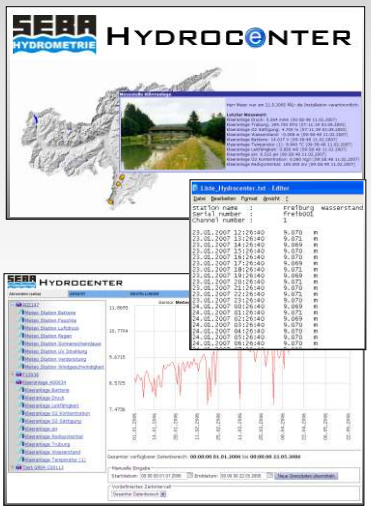
Automatic monitoring data retrieval with DEMASole or with Hydrocenter via Internet

Storage and management of data (SQL-database) with DEMASdb and Visualisation of measuring values (graphs/lists) with DEMASvis

In order to conduct an automatic monitoring data retrieval from the SlimCom, the comfortable DEMASOle software is implemented and the data can automatically be stored in DEMASdb. Alternatively the standardized call protocol DDP (descriptive data procotol) also allows the retrieval of recorded data with nonproprietary software, e.g WISKI/SODA (Kisters), MAWIN etc.
DEMASdb offers a comfortable graphical user interface, an automatic data retrieval software (DEMASole) as well as an evaluation module (DEMASvis) which includes various calculation functions. Depending on the size of the network, DEMASdb is provided with a paradox-, MySQL or Oracle- database. Optionally, DEMABdb can also be integrated with an already existing SQL database (e.g Oracle, MySQL). DEMASdb enables a simple data management of monitoring networks of various extents: small (10 sensors), middle (50 sensors) and large (> 100 sensors).

graphical user interface





- Client/Server operation, network capability, user administration
- DEMASole: data retrieval of monitoring stations via GSM/satellite/landline
- DEMASvis: evaluation of measuring data (multi-graphs,multi data sheet)
- DEMASdb: storage of monitoring data (SQL-database connection)
- Alarm in case of exceeding of predefined thresholds (e.g. FAX, SMS, Email)
- Export of monitoring data to other software (automatically)

Technical Data SlimCom

for GSM/GPRS 850/900MHz/1800/1900MHz-Networks

Housing:	Alu, IP67
Dimensions:	
Standard:	Ø 35 mm, height 350 mm height incl. antenna 390 mm
Modem:	GSM standard, 850/900MHz/1800/1900MHz (GSM, Quadband), GPRS
Operation:	with 1,8/3V- SIM-card
Antenna:	integrated, robust and weatherproof
Interface/s	RS 485
Option:	Bluetooth

SMS-Alarm:	8 x SMS-Alarm to a mobile phone SMS-Alarm to facsimile instrument
Time Slots:	freely adjustable
Power Supply:	
standard:	adaptable battery compartment with 3x1,5V Alkaline-Mangan batteries
operation time:	> 2 years @ 1 call/day
optional:	2x3,6V lithium batteries
operation time:	> 8 years @ 1 call/week (depending on the quality of the GSM connection)
operating temperature:	-20°C ... +70°C

SEBA Data Logger

Dipper-3
for water level measurements

- 16 Bit microprocessor
- 1 MB Flash-archive memory for approx. 480.000 values
- Watch-Dog for control of the microprocessor activities
- Serial communication interface RS 485
- Optional connection via Bluetooth-Interface
- Realtime Clock
- Analog input (water level and temperature)
- Power supply with exchangeable lithium battery, sufficient for approx. 10 years (with 60 minutes interval)
- Supply- and adaption unit with integrated desiccator and pressure compensation tube
- Housing: water pressure-tight housing of anti-corrosive steel
- Dimensions: 22 mm Ø, 270 mm length
- Operation temperature: -20...+70°C

Pressure Sensor for water level measurement
robust pressure sensor with excellent long-term stability:

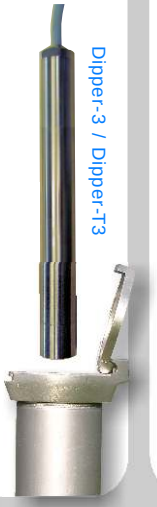
Accuracy:
±0,05 % = 1 cm at 20 m measuring range

Long-term stability:	±0,1 % / year
Temperature stability:	±0,01 % / K
Measuring ranges:	2 / 10 / 20 / 40 / 100 / 200 m resp. upon request

Dipper-T3:
for water level and temperature registration
technical data as Dipper-3,
but additionally with temperature registration:

Temperature sensor (NTC30 sensor element polynomic linearised)

Measuring range:	-5...+50°C ± 0,1°C
System length:	up to max. 1000 m
Special cable:	screened round cable with integrated pressure compensation tube



Dipper-3 / Dipper-T3

For further information on the above mentioned data loggers, please refer to their brochures.

SEBA operation terminal - HDA

Size: 16,5 x 9,5 x 4,5 cm (6,5 x 3,75 x 1,75")
Weight: 490 g incl. battery
Protection class: IP 67
Operation temperature: -30°C to +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, color TFT, LED-light
TFT with touchscreen and display illumination
Battery: 3.800 mAh rechargeable pack

Operation system: Windows Mobile
Interface: 1 x USB-B Slave (12 Mbps),
1 x RS232 (115 Kbps)
1 x charging, 2 x CF-slots type II
Keypad: 10 function keys, softkeyboard for entering of alphanumerical characters

included upon delivery:

- battery charger
- connection cable HDA-PC
- Software SEBAConfig CE
- Software MGMDS/MLMDS CE for presentation of data in form of graphs and data sheets

HDA
hydrological
digital assistant

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