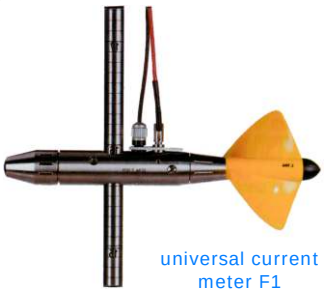
Mobile Discharge Measurement Systems

serves for determination of current velocities

short description

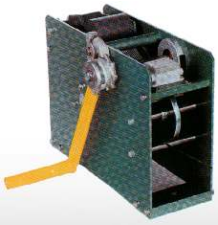
- Exact flow velocity measurement
- Operation possible on rod, with mobile bridge jib and cable way installationes
- Well - proven technology since decades

Current meter and single drum winch



universal current meter F1

mini current meter M1



single drum winch SEW II

surface water

SEWII with mobile jib and current meter

surface water

mobile bridge jib

surface water

vehicle with crane and current meterl

surface water

measurement hut

We are certified
ISO 9001:2000
Certificate No. 01110505
Quality is our standard

Universal Current Meter F1

The SEBA - Universal Current Meter F1 serves for determination of current velocities in water courses, canals, rivers and the sea, for use with rods or as cable-suspended meter equipment from 0,025 m/s up to 10 m/s.

Advantages:

- application of absolutely anti-corrosive materials
- low starting speed of 0,025 m/s
- almost frictionless contact transmission
- unit composed system

Description

The SEBA-Universal Current Meter F1 serves for use on rods (pic. 1,2,3) as well as for cable-suspended- current meter equipments (pic. 4,5) for use with SEBA single drum winches or cable way installations.

Meterbody

The streamlined meterbody and the axle are manufactured of high-quality, non-corrosive steel. The hub of the propeller is filled with oil and rotating in two special ball-bearings. The oil filling and a capillary seal protects against water entry. A base stop prevents the propeller from striking the ground.

Contact transmission

One signal is generated from each revolution of the propeller by means of a permanent magnet. Frictionless operation increases the sensitivity of the instrument. The contact mecha- nism is quickly interchangeable without problems.

Instrument case

Robust version made of aluminium, lockable, with three cover hinges, cover- and base plate made of resistent black ABS plastic.
Dimensions:
standard with compartment for counter
465 x 340 x 140 mm
Weight:
case including equipment
approx. 6 kg

Determination of the current velocity

acc. to formula

$V = k \cdot n + D$

the flow velocity will be determined

V = flow velocity m/s
k = hydraulic pitch of the propeller (m)*
n = propeller revolutions per second
D = characteristic of the current meter (m/s)*

*) to be determined by tests in hydraulic towing channel

Propellers

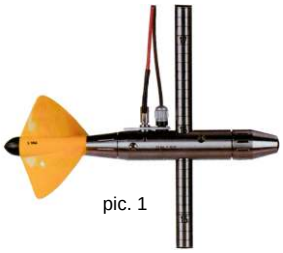
Ø (mm)	pitch (m)	max. water-velocity m/s	material
80 *	0,30	10,0	plastic
125 *	0,30	10,0	plastic
80	0,125	5,0	metal
80	0,25	10,0	"
80	0,50	10,0	"
125	0,125	5,0	"
125	0,25	10,0	"
125	0,50	10,0	"
125	1,0	10,0	"

The standard propeller * consists of plastic (Polyamid B) and is fibre glass reinforced with a metal winding inset. They are absolutely of same shape with accurate pitch and very high stability regarding on temperature and deformation. All propellers are inter- changeable, no individual calibration is necessary (individual calibration only on request).

Fields of application

There are different current meter equipments available for the manifold measuring problems. The SEBA Universal Current Meter F1 on rod is often used in brooks or rivers with low water levels and current velocities. The following possibilities are available:

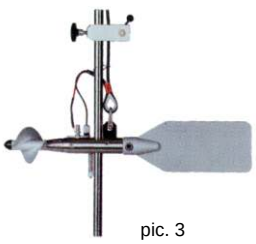
1. Fastening the meter body directly on rod 20 mm Ø (stainless steel) and using a direction indicator (pic. 1)



pic. 1

2. Fastening the meter body on a relocating device (made of aluminium) in connection with rod 20 mm Ø (pic. 2)

pic. 2



pic. 3

3. Fastening the meter body on rod 20 mm Ø and using a stabilizer tailpiece with special clamp (pic. 3)

Mini Current Meter M1 on rod 20mm Ø and relocating device

Guiding device

Generally a measurement will be effected on rod 9 mm Ø. This rod is manufactured from non-corrosive steel, in 3 parts and has a total length of 1,5 m. A base plate for the rod is attached. On request a cm-division and a dm- graduation of the rod is possible.

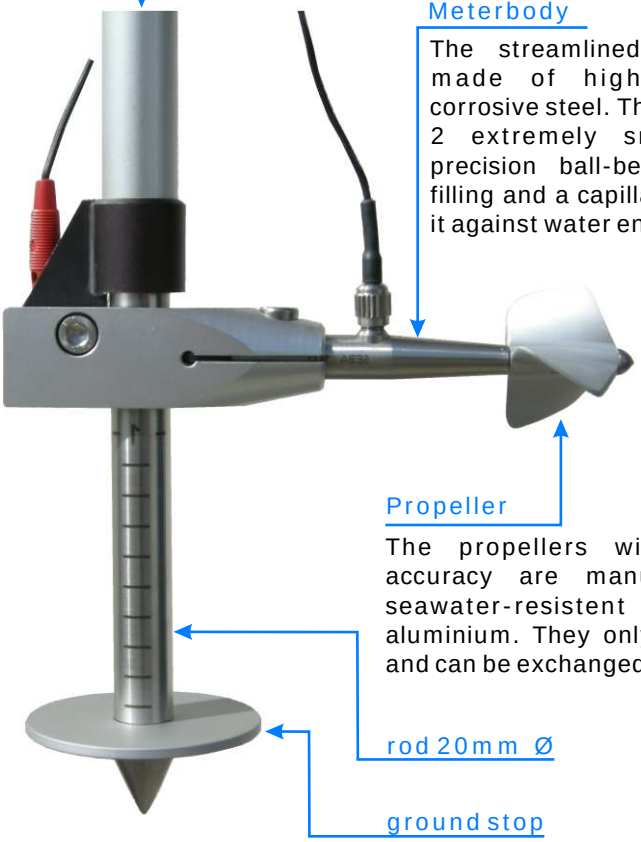
For measurements on rod 20 mm Ø resp. with relocating device, a special clamp is available (pic. 6).

Contact transmission

One signal is generated from each revolution of the propeller. The reed-switch for transmission of the propeller revolutions is composed within a small metal tube to a miniature construction unit.

The counting frequency for the mechanical counter Z1 is limited to 10 impulses per second. By application of the electronical counter Z4 all flow velocities can be measured. A complete current meter equipment comprises 6 propellers with 50 mm Ø resp. 30 mm Ø with diverse pitches (see table).

Depending on the requirement, the equipment can also be delivered with single propellers.



pic. 6, M1 on rod 20mm Ø


Ø 50/500


Ø50/250


Ø50/100


Ø 50/50


Ø30/100


Ø30/50

SEBA Signal Counter Z6 - SEBA HDA

Description of Product

With this full-electronic counter it is possible to receive frequencies for all flow velocities. The impulses generated by the current meter are added and indicated in relation to the preselected time. The timing starts from the first impulse.
With the basic version, the impulses can be counted in freely pre-definable measurement intervals. Optionally, the impulse number to be counted can be pre-selected (Z6-I). A further option is the direct calculation of the current velocity by means of pre-definable equations (Z6-V). There are several memory locations for all adjustments. All the user-defined adjustments can be made directly at the device or via connected PC and can be saved permanently.

Technical data

SEBA - Signal Counter Z6

Counter:
5-digit LCD-indication, automatic battery control and insertable buzzer.

Accuracy:
time measurement 0.01 s
impulse counting 1 Impulse

Connection to current meter:
2 x 4 mm socket for the connection of the connection cable current meter/signal counter with 4 mm bunch plugs („banana plug“) delivered by the producer of the current meter

Maximum impulse frequency:
40 Impulse/s

Input signal:
contact input (closed = active)
or TTL-Signal with up to 5V span

Power supply:
internal 9V block battery, optionally
8.4V block accumulators
with integrated loading function

Connection to PC / Notebook:
RS232, 2400Baud, 8Bits, no parity, 1 stopbit
9-pole RS232-cable, "modem cable"

Housing:
aluminium, black anodized
protection class: IP 64
dimensions: 122mm x 117mm x 45mm
weight: 450g

Counter Z6

SEBA - Signal Counter Z6 - V

technical data as for type Z6
but with input of up to 20 calibration results
and additional indication of the flow velocity in cm/s

SEBA - Signal Counter Z6 - I

technical data as for type Z6
but with preselection of time and impulses

SEBA HDA, the Multifunctions-Handheld

Size: 165 x 95 x 45 (mm) LxBxH
Weight: 490 g incl. battery
Protection class: IP 67
Drop: 26 fall from 1.2 m on concrete
Operating temperature: -30 °C up 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
colour TFT display with touch screen and front light
Battery: Rechargeable battery pack NiMH 3.800 mAh for up to 30 hours operation period depending on operating status
Operating system: Windows Mobile 2003
Connections: 1 x USB-B Slave (12 Mbps),
1 x RS232 (115 Kbps)
1 x charging, 2 x CF-Card slots Typ II
Keyboard: 10 keys, onscreen qwerty softkeyboard

included in delivery:

- battery charger
- software SEBAConfig CE
- MGMDS/MLMDS CE
  for presentation of lists and graphs

HDA

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

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represented by:

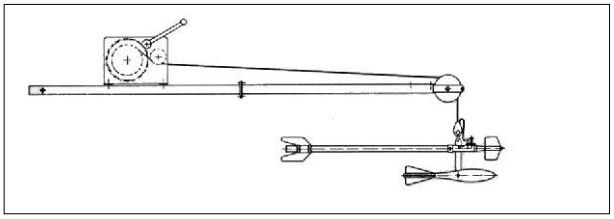
F1 - Current Meter Equipment

for sinker weights of 5 or 10 kg (pic. 4)

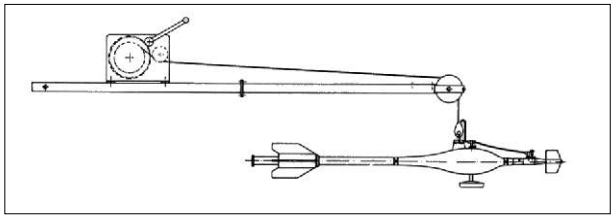
It is specially suited for water velocities from 0,025 up to 1 m/s and a max. water depth of 2 m. The sinker weights are manufactured of brass and are lacquered in yellow.

with sinker weights of 25, 50 or 100 kg and ground sensor (pic. 5)

Specially suited for measuring current velocities up to 10 m/s. This equipment is often used in connection with a single drum winch or a stationary cable-way-installation. The sinker weights consist of a stable brass frame casted round with chilled lead and are lacquered in yellow.



pic. 4



pic. 5

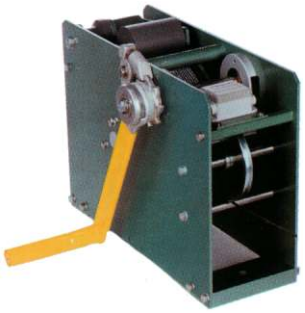
Single Drum Winch SEW II, SEW II-100

For measurements from bridges and boats the SEBA - Single Drum Winch SEW II with jib is used together with the cable-suspended current meter equipment. It is portable and for universal applications.

Technical Data:

Solid construction made of aluminium and non-corrosive steel, lacquered with weatherproof hammerscale lacquer.

cable drum:	aluminium cast., 175 mm Ø, capacity max. 80m.
cable:	zinced steel rope, 3,25 mm Ø, with insulated copper cord, T- and angle-plug.
safety-crank:	load break and foldable grip prevents from unintended lowering of the equipment.
counter:	adding by lowering, 4-digit for depth indication in m and cm, with 0-reset.
capacity:	SEW II: 50 kp, SEW II-100: 100 kp
weight:	10 kg without cable 12 kg with 25 m cable
transport case:	made of waterproof plywood, stained, dimensions: 410 x 345 x 240 mm weight without winch: 7 kg
jib:	steel profile, 80 x 50 x 3 mm, 2580 mm long, 2 parts, for mounting of winch and cable roll also available in one part length (1330 mm long). dimensions: 2580 x 80 x 50 mm, weight: 16,5 kg with weatherproof hammerscale lacquer with transport case - dimensions: 140 x 30 x 13 cm, weight: 14 kg



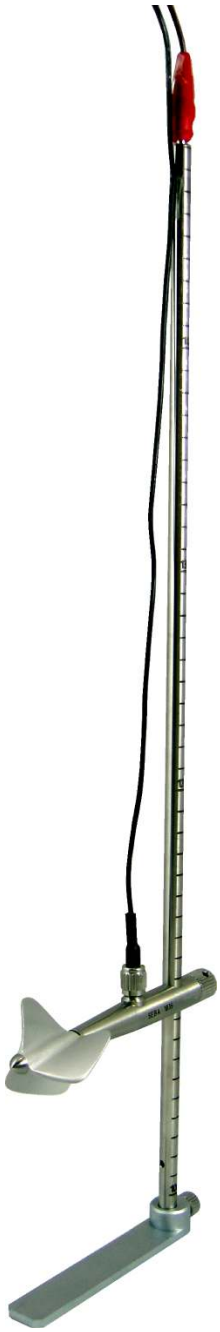
trailer with mechanical or
electrical SEW - II
for measurements from bridges

Mini Current Meter M1

The SEBA-Mini Current Meter M1 serves for determination of the current velocities in laboratories, river models, brooks, small rivers with low water level and for tubes with small diameters.

Special advantages:
- universal application
- low starting speed
- frictionless contact transmission
- non-corrosive materials
- unit composed system

Description:
a complete current meter equipment comprises current meter, rods with base, cable and the impulse counter (acc. to pic. 7)



pic. 7, Mini Currentmeter M1
on rod 9mm Ø

Propellers and measuring ranges

propeller-diameter	propeller-pitch	V max.	start-velocity
50 mm	250 mm	2,5 m/s	0,03 m/s
50 mm	500 mm	5,0 m/s	0,05 m/s
50 mm	100 mm	2,5 m/s	0,025 m/s
50 mm	50 mm	1,0 m/s	0,025 m/s
30 mm	100 mm	2,5 m/s	0,03 m/s
30 mm	50 mm	1,0 m/s	0,03 m/s

Determination of the current velocity

A calibration of the mini current meter with the particular propellers will be recommended, so that the flow velocity can be determined according to formula

$$V = k \cdot n + D$$

V = flow velocity m/s
k = hydraulic pitch (m) *)
n = propeller revolutions per second
D = characteristic of the current meter (m/s) *)
*) to be determined by tests in a hydraulic towing channel.

Instrument case

The Mini Current Meter is stored with its spare parts and accessories - without signal counter - in a weatherproof aluminium case. You will find the parts clearly arranged in a deep drawn plastic tray. (pic. 8)
Dimensions: 553 x 225 x 90[mm]
Weight: 3,2 kg

Spare parts

2 special ball bearings, wing oil, instruments as special key pin Ø2.8.

Accessories

Meter bodies, rod with base, 4m connection cable with special clamp for attachment on rod (Ø 20 mm) and adjustment device.

pic. 8, instrument case

The all purpose SEBA Mini Current Meter M1 cannot fully replace a bigger current meter.