



AquaProfiler[®] M-Pro Mobile acoustic flow profiler

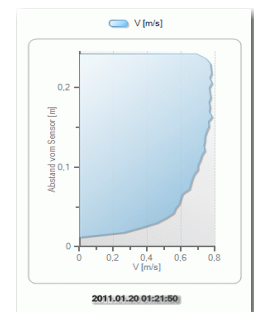
The mobile ADCP sensor for use on rod

Key Features

- Measurement of 2-D flow velocity profile in up to 128 cells
- Integrated water level sensor
- incl. Software AquaProfiler
- Discharge Calculation according to EN ISO 748
- Data export to software Q 3.0
- Measurement and Operation with robust weatherproof HDA-Pro



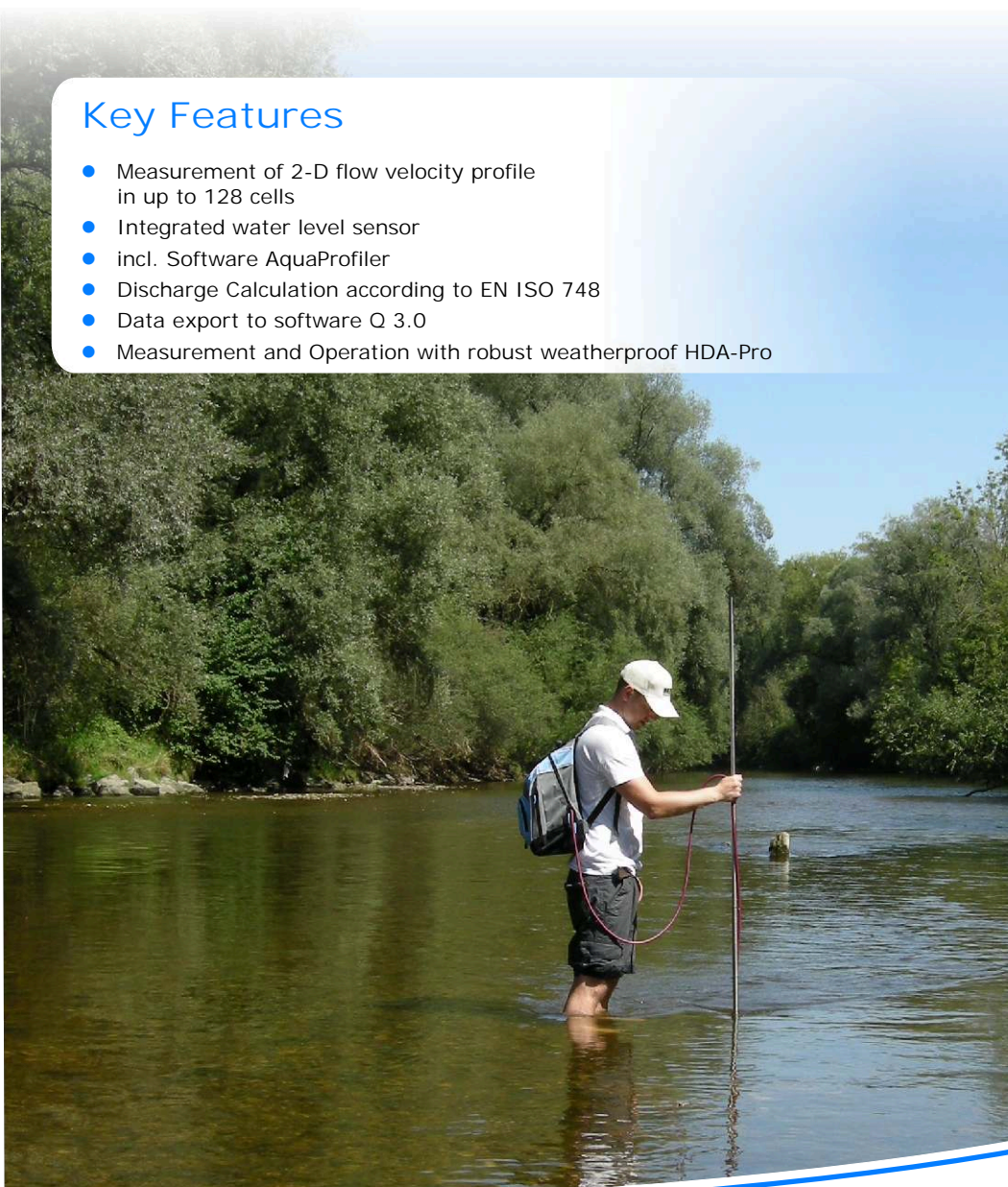
Operation & Evaluation
with Tablet-PC
and Software AquaProfiler



vertical
flow velocity PROFILE



mobiler acoustic sensor



AquaProfiler[™] M-Pro

Measurement with Tablet PC HDA-Pro



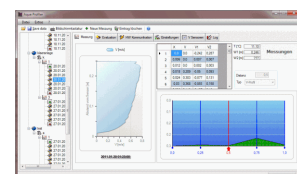
AquaProfiler[™] M-Pro

Use on wading rod



AquaProfiler[™] -CW

Use on sinker weight



Software

Software AquaProfiler



Description

What are the advantages :

With AquaProfiler M-Pro we are proud to introduce yet another milestone in mobile flow measurement for small brooks, channels and rivers.

It substitutes or complements established hydrological instruments like the current meter (e.g. SEBA universal current meter F1, mini current meter M1) and Moving-Boat-ADCPs (e.g. StreamPro, RioGrande, RiverRay). The AquaProfiler System uses reliable ADCP-Technology in order to measure velocity and water depth in a vertical in one single measurement. Therefore the sensor is mounted on a common wading rod $\varnothing 20\text{mm}$ and placed on the bed of the river or channel. Then, the included software AquaProfiler automatically calculates the flow according to ISO 748 based on the measurements in each vertical.

One of the big advantages for the user lies in its saving of time when compared to traditional point measurements with current meter, magnetic inductive sensor or other wading rod ADCPs. Besides, the instrument captivates by its minimum blanking (=dead area), which allows to use it in waters as shallow as 10 cms. New standards are set in terms of High resolution: each vertical is separated into 128 individual measuring cells, each with a minimum size of 1 cm. At the end of each vertical, the user receives a velocity profile that delivers unparalleled transparency of the actual flow behaviour within the cross section in high resolution.

How does it work:

AquaProfiler M-Pro measures the Doppler-shift in up to 128 cells along each of the two ultrasonic beams and then calculates the velocity vector that accounts for the flow.

Thanks to the two acoustic transducers, not only a vertical misalignment of the wading rod, but also a flow velocity not being parallel to the river bed is automatically compensated.

Thanks to additionally integrated sensors, water level and temperature are simultaneously recorded besides the actual flow measurement. Signal processing and power supply of the system are arranged into a shock resistant housing. Both components are stored inside the inclusive weatherproof backpack, so that the user can easily handle the wading rod and the HDA-Pro.

After a successful connection of HDA-Pro and Sensor via a powerful wireless Wi-Fi connection, the measurement can most efficiently be done with a party of 2. Here, one person makes the actual measurement in the river going from vertical to vertical along the cross section, whereas the second person operates the HDA-Pro or his notebook standing on the river bank, a bridge, inside a gauging house etc. He can also check the results for plausibility and instruct his partner in case additional measurements are necessary.

Technical Data

Velocity Sensor

2-D Velocity Meter

Max. Profiling Range:	0 to 3 m
Min. Cell Size:	0,01 m
Min. Blanking above sensor:	0,02 m
Max. number of cells:	128
Measuring Range:	+/- 5 m/s
Accuracy:	1% of measured value +/- 0,25 cm/s

Water Level Sensor

capacitive ceramic pressure sensor

Range:	0 to 4 m
Accuracy:	0,1% of measuring range
Resolution:	0,005 m

Temperature Sensor

Range:	-5°C to +40°C
Accuracy:	+/- 0,1°C



Technical Data for Type AquaProfiler-CW to use with sinker weights on cable way installation - upon request..

Accessories



Included upon delivery:

- robust backpack for safe storage and easy transport of measuring equipment
- Sensor fixing element for rod $\varnothing 20\text{mm}$
- cable length 3m (standard)

Optional Accessories:

- Wading Rod $\varnothing 20\text{mm}$
- Spare Rechargeable batter (for easy swap at site)
- vehicle charger
- cable lengths 5m, 10m (optional)
- Handle for rod with level tool
- Tablet PC Type HDA-Pro

Software & Tablet PC

Thanks to the windows based, clearly arranged user interface of Software AquaProfiler, the instrument AquaProfiler M-Pro is easy to operate. The software can be run on every Laptop with operating system Windows XP, Windows Vista or Windows 7 and an integrated Wi-Fi interface.

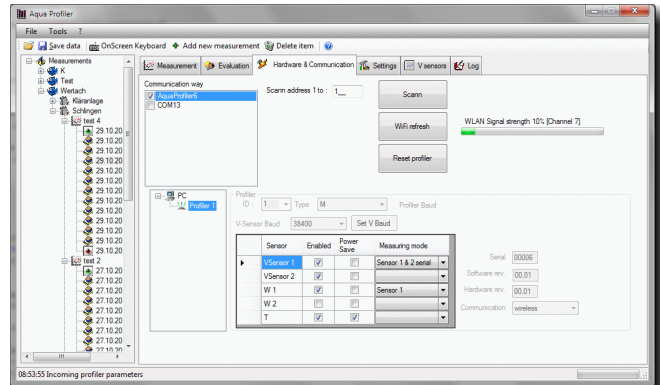
However, we recommend using the rugged Tablet PC Type [HDA-Pro](#) with operating system Windows 7.

In both cases communication of the AquaProfiler-M-Pro to the laptop or tablet PC is made via the integrated WiFi interface. As soon as a connection is established between the two devices, the software automatically recognizes the connected sensor and auto adapts to the required user interface. The user can insert the desired parameters like for example cell size and measuring period. In another step the integrated highly accurate absolute pressure sensor is calibrated.

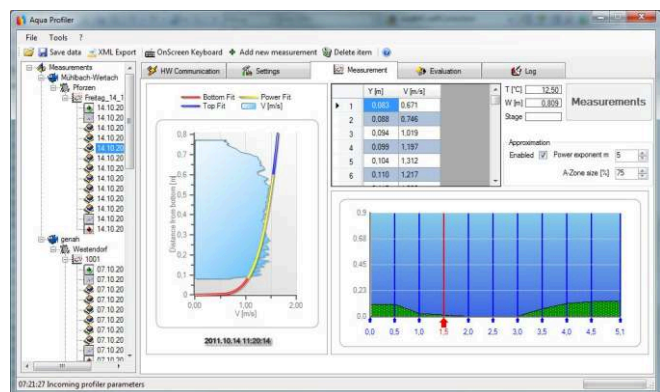
The actual measurement is made in the same way as a traditional current meter measurement on several verticals in the water body. The distinctive difference is that with the AquaProfiler-M-Pro you only need to place the sensor on the bottom of each vertical once. In contrast to classical current meter measurement, the entire velocity profile in this vertical is captured in a single measurement and in high resolution. Complex time-consuming single point measurements within each vertical finally belong to the past.

The Software "AquaProfiler" instantly visualises the measured velocity profile and the user can directly check the measurement result for plausibility. Once the measurements in each vertical is completed, discharge is automatically calculated according to EN ISO 748 using either Mean-Section or Mid-Section-Procedure. In addition to a display of all values in form of lists, the velocity distribution over the cross section is visualized in form of Isovels.

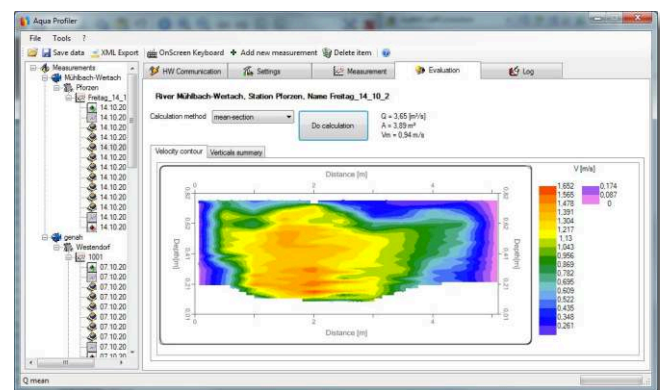
In case one vertical is not feasible, a second measurement in this specific vertical can be made even after completion of the measurement and integrated into the calculation. Also if the chose distance between the verticals can be adjusted: if they are too big, additional measurements can be made and integrated into the calculation.



User Interface



Vertical Velocity Profile



Evaluation

The measuring results can easily be imported in Software Q 3.0 for further evaluation and use.

This allows for using existing master data of Software Q for future discharge measurements with various types of instruments.



[HDA-Pro](#)
incl. Software AquaProfiler

Tablet PC HDA-Pro

The new **HDA-Pro** is your multifunctional Tablet-PC for all areas of Hydrology. It represents the next generation of mobile PCs. It is impact-resistant, handy, lightweight and waterproof - the ideal assistant for managing numerous tasks in the field.



Following tasks can be done with the HDA-Pro at the moment:

- Programming and adjustment of SEBA data loggers as well as Data readout with SEBA-Config
- Visualization and Evaluation of time rows with DEMASVIS
- Taking & Evaluation of current meter measurements with Software Q 3.0
- Making & evaluating ADCP measurements with Software Aqua-Profiler
- Making & evaluating ADCP measurements of RDI products with Software WinRiver2

Technical Data - HDA Pro

Operating System:	Microsoft Windows 7 Professional
Processor:	1.6 GHz Intel Atom
RAM:	2 GB DDR2 RAM;
Hard Disk:	32 GB SSD Hard Disk
Display:	7" Widescreen 1024x600 WSVGA - sunlight readable - robust watertight design
Keyboard:	Touchscreen with QWERTY Software keyboard - 10 extra keys (power, menu, 4+1 navigation, 3 x user programmable hot keys)
IP protection:	IP65 (MIL-STD 810G)
Battery pack:	2x 2.600 mAh support minimum 6 hours operation (hot-swappable)
Operating temperature:	-23°C to +60°C
Interface:	- 2x USB 2.0 port (one fully waterproof, even when the latch is open) - 1x RS232 port (fully waterproof, even when the latch is open) - 1x LAN - integrated microphone and speakers
	- integrated GPS (WAAS/EGNOS) - integrated digital camera 2.0 Megapixel - integrated Bluetooth interface 2.0
Dimensions:	144 x 242 x 40 (LxWxH)
Weight:	1.100 g inclusive battery pack
Accessories:	12V vehicle charger, bag (further accessories upon request)



The right is reserved to amend technical specifications without prior notice.



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