



MAVS-3

Vector Averaging 3 Axis Acoustic Current Meter With Long Term Deployment Capability

The **MAVS Current Meter** is a true 3 axis Acoustic Current Meter which employs a differential travel time measurement technique. The current meter takes measurements across 4 acoustic axes to provide a true vector averaged velocity measurement. Programmable burst mode and triggered sampling provide the most flexible current meter available.

The combination of small sensor geometry and differential travel time technique provide **unsurpassed resolution and accuracy**. The small transducer size significantly reduces the disturbance to water flow. While the standard range of measurement is 200 cm/sec, low speed measurement accuracy in the 0.03 cm/sec to 10 cm/sec range is preserved.

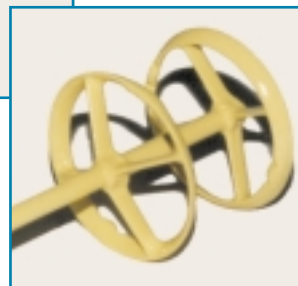
MAVS-3 includes **MAVS** Win95, Win98, WinNT user interface. Standard, commercially available software such as **TTOOLS** or **PROCOMM** may be used to communicate with the **MAVS-3** for getting real time data or for downloading and archiving recorded data to a PC. Software such as **MATLAB**, **Excel**, **Quattro Pro** and **Lotus 123** may be used for tabular display and graphing data.

OPTIONS:

- Tilt sensor
- Temperature sensor
- Conductivity sensor
- Pressure sensor
- Internal logging memory available from 4 to 96 Mbyte
- Deep water housing



Faired Acoustic Sensor



Features:

- Unsurpassed Resolution and accuracy
- True 3 axis acoustic velocity measurement
- Field proven sensor technology
- No moving parts to foul
- Multi-mode operation, Vector averaging or event driven sampling
- Excellent vertical cosine response
- Differential travel time measuring technique
- Internal recording or direct reading
- Accuracy unaffected by instrument tilt or mooring motion
- Internal real time clock
- Digital communication via 5 Volt TTL, RS-232 or RS-485
- Temperature measurement

The **MAVS-3** employs a faired sensor head design with central strut and a 9.5 cm acoustic path length. The controller is an Onset Tattletale 8 which is mounted by a connector beneath the main circuit board. A battery pack comprising 18 AA alkaline

cells provides all the necessary power to the instrument. A 4 pin connector mounted on the top end cap permits external power to be applied and provides TTL level, RS-232 or RS-485 communication capability.



NOBSKA

Innovation In Acoustic Current Measurements

SPECIFICATIONS:

<u>Parameter</u>	<u>Accuracy</u>	<u>Resolution</u>	<u>Range</u>
Speed	0.3 cm/sec	0.03 cm/sec	200 cm/sec (optional ranges available)
Direction	+/- 2 deg	1 deg	360 deg
Temperature	0.1 deg C	0.03 deg C	-5 to 45 deg C
Conductivity	0.2 mS/cm	0.02 mS/cm	0 to 75 mS/cm
Pressure	0.5% F.S.	0.024% F.S.	15, 30, 60, 150, 450, 3,000, 7,500 & 10,000 PSI
Tilt	2 deg	0.1 deg	20 deg, 45 degree optional

Drift: 0.15 cm/sec per month

Measurement Technique: Differential travel time, 3 axis

Acoustic Paths: 4 measured, 4 used

Power:

Internal Recording: 13.5 VDC, 18 AA Alkaline batteries @ 3.4 Ah, optional lithium thionyl chloride @ 10 Ah

Direct Reading: External 9 - 15 VDC

Current Drain: 9 ma. On
0.35 ma. Deep Sleep Mode

Internal Recording Memory: 15, 20, 30, 40, 48, 64, 80 or 96 Mbyte compact flash card (Digital Camera type)

Memory Usage: Dependent on sampling method and size of memory installed

Communications: TTL, RS-232 or RS-485 @ maximum 115.2 K baud

Depth: 2,000 m. or 6,000 m.

Dimensions:

Cylinder Diameter: 3.25 in.

Overall Length: 25 in.

Weight:

Water: 2.6 lbs.

Air: 5 lbs.

Mooring Frame: 3000 lbs. Optional 10,000 lbs. available

Sampling Rates: 2 Hz in Earth Coordinates (resolved to V_e , V_n , V_{up}) or
10 Hz in instrument coordinates
1 sec to 15 min vector average

Sea Cable: RS-485 or RS-232 4 wire (inquire for other communication protocols)

Data Record Size: Standard Instrument: 20 bytes per record for Day, Hour, Min, Sec, T, P,C, Tilt, V_e , V_n , V_u
Recorded as Binary and transmitted as ASCII Comma separated variables with CR LF

Operating Modes: Vector Averaging
Burst Mode (programmed for timed sampling)
Externally Triggered Sample

Software: MAVSOFT Windows95, Windows98, WindowsNT user interface
TTools Terminal Emulator
Optional Graphical Software available upon request