MAVS-3
3 Axis Acoustic Current Meter
Operation Manual

Model MAVS-3SD

BIO– MAVS 3 Serial Number: 10210 Date: 4/3/07

Instrument type – MAVS3, REV 3 Board, 6000M pressure housing (titanium)
Communications – RS232
Program version – MAVS34_6.C
Memory – 128MB
Orientation – Vertical/Down
Sensors
- Compass – Yes
- Tilt – Yes
- Pressure – No
- Conductivity – No
- Analog 1 – No
- Analog 2 – No
- Thermistor – Single or Bridge – Single(Internal)

Note: 2N2369A transistors installed in cascode circuit

Confirmed clean power bus.
Confirmed accurate sensor wiring.

Differential integrator, Nanosecond delay tare 7.25 ns

ns	Normal	Reverse	Net
0ns	4030	4048	FFE8
5ns	4200	3E68	0398
10ns	4410	3C58	07B8
15ns	4600	3A50	0BB0
20ns	4808	3858	0FB0
25ns	49F0	3678	1378
30ns	4C08	3470	1798
35ns	4DE0	3278	1B68
40ns	4FF0	3078	1F78
60ns	57E8	2880	2F68
80ns	5FC8	20B8	3F10
100ns	67B0	1898	4F18
120ns	6FB0	1090	5F20
140ns	7798	08A8	6EF0
160ns	7F90	0098	7EF8

Acoustics Frequency 1.76 MHz Power LOW Schmitt trigger 220/10k Trigger 64 mv

Axis	Transmit	Receive	Precursor	1st cycle
A	23.6v p-p	2.44v p-p	20 mv	280 mv
B	23.6v p-p	2.40v p-p	20 mv	272 mv
C	23.6 v p-p	2.56v p-p	20 mv	312 mv
D	23.6v p-p	2.68v p-p	14 mv	292 mv

Velocity sensor s/n: 1064

Zeros FFD6 0060 0009 FFF1
STD U=0.080, V=0.074, W=0.093

Compass: - heading rotation verified
Offsets: 5 -20 184

Tilt – 1 second to stabilize, s/n 1116
Ty scale= 0.02025, Ty tempco= 4.940
Tx scale= 0.02058, Tx tempco= -0.325
Tilt rotation verified
Offsets: 9822 9882

Angle	Pitch	Roll
0	-0.1	- 0.0

POWER CONSUMPTION:
12 volts
Power LP Sleep – 0.3ma
Power 2Hz Log – 25ma 0.5 Hz Log – 10ma
15 volts
Power 2Hz Log – 20ma
7.7 volts – minimum voltage for correct operation
Power 2Hz Log – 30 ma

Thermistor
Offset = 0.0

Sample of data recovered from flash memory:

E cm/s	N cm/s	W cm/s	T degC	MX	MY	Pitch deg	Roll deg
-0.1	-0.2	0.0	16.14	0.88	-0.48	-11.5	-7.1
-0.2	-0.2	0.0	16.14	0.89	-0.47	-11.5	-7.1
-0.2	-0.0	0.1	16.14	0.88	-0.48	-11.4	-7.1
0.0	-0.1	-0.0	16.14	0.88	-0.47	-11.4	-7.1
0.1	-0.2	-0.0	16.17	0.88	-0.48	-11.5	-7.1
0.1	-0.2	-0.0	16.14	0.88	-0.47	-11.5	-7.1
0.1	-0.2	-0.1	16.14	0.88	-0.47	-11.4	-7.2
0.0	-0.1	-0.1	16.12	0.88	-0.48	-11.4	-7.2
0.0	-0.1	0.1	16.14	0.88	-0.48	-11.5	-7.1
0.1	-0.2	0.0	16.14	0.88	-0.47	-11.4	-7.2
0.1	-0.1	0.0	16.14	0.88	-0.47	-11.4	-7.1
0.1	-0.1	0.0	16.14	0.88	-0.47	-11.4	-7.2
-0.0	-0.2	0.0	16.14	0.88	-0.48	-11.4	-7.3
0.1	-0.1	0.1	16.14	0.88	-0.47	-11.4	-7.2
0.0	-0.0	0.1	16.14	0.88	-0.47	-11.4	-7.2
0.0	-0.0	0.2	16.14	0.88	-0.47	-11.4	-7.2
-0.1	-0.0	0.1	16.14	0.88	-0.47	-11.4	-7.1

MAVS Quickstart Instructions
MAVS Operation
Operation of MAVS requires use of a terminal emulation program called Crosscut.exe or Windows Hyperterminal. These programs are provided on diskette or CDROM with the MAVS. This document deals with the use of Crosscut.exe. Create a directory in the PC hard disk drive called MAVS3. Copy contents of the diskette to the MAVS directory.

IMPORTANT: Do not apply power to MAVS until you have first completed steps 1 through 4 below.

1) Copy the contents of the diskette or CDROM provided with the MAVS-3 into a directory on your computer such as c:\MAVS3.

2) Connect one end of the cable provided to the 4 pin connector on the MAVS-3. Connect the other end to the Power and Communication box also optionally provided.
OR if not using a power and communication box
2a) Connect one end of the cable provided to the 4 pin connector on the MAVS-3. Connect the other end to 12 VDC and PC COM1 as per Table 1.

Table 1
Pin Assignments for RMG-4-FS Cable
Pin Color Function
1 White Common
2 Black RS-232 out of MAVS
3 Green Power 12 VDC
4 Red RS-232 into MAVS

3) Connect a 9 pin Serial cable (DB-9 to DB-9) to the COM1 connector on Computer and the other end to the Power and Communication box. If the Power/Comm box was not purchased then you must make a cable according to the Table 1.

4) If using Windows 95 or 98, in the DOS directory where the software had been copied, type in Crosscut.exe <RET>. If using Windows XP, copy and paste Crosscut.exe onto the Windows Desktop using Windows Explorer.

Note: Select CommPort/Setup and set Port settings: COM 1 for RS-232., 38,400 Baud, 8 data bits, None for Parity, 1 stop bit

Apply Power to MAVS Now.

5) In the Crosscut screen, type CTRL C at least 3 times to gain control and display the Menu.

6) The MAVS Menu appears. Select 6, Deploy, and proceed carefully setting each of the lines such as Time Now, Start Time ... on to the final G for Go. Be sure that Monitor is set to Enabled.

7) Input the battery capacity of 4.8 for the standard alkaline battery, 9.6 for the standard lithium battery, and 19.2 for the double lithium battery. Continue to the end. Data starts scrolling on the PC screen if the measurements are starting.

Display shows Day, Time, Raw axes, U, V, W (velocities), Temperature, Pressure, Magnetic components in X and Y directions, Pitch, and Roll

CTL C breaks Program operation

If sensor is out of water, Velocity values will display as 999.9 cm/sec or 8000 HEX

Place senor in bucket of water and wait at least 30 minutes for water to stabilize. Longer is better. If the water is fresh, bubbles will form on the sensor due to outgassing. The bubbles may NOT be visible. The velocities will not be good with bubbles on the sensor. Tap the sensor tube on the bottom of the bucket to dislodge bubbles

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