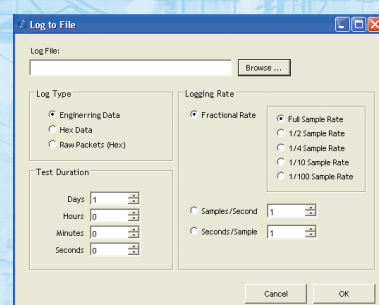


4. Recording & Playback

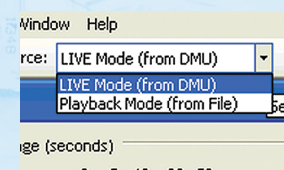
1. Click on the  icon at the top of the page. This will open a window allowing users to select a file name for data collection.



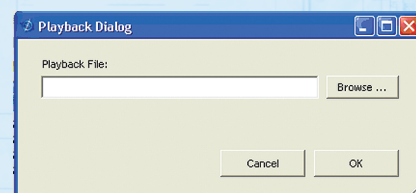
2. Adjust your data collection settings and press the "OK" button when finished.

4. To start recording, press the  record button.

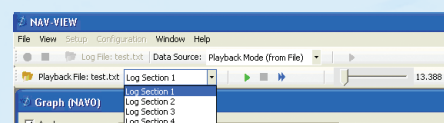
5. You can stop recording at any time by selecting the  stop button.



6. To playback data, select "Playback Mode" from the drop down menu at the top of the screen.



7. Locate the saved file you wish to view and press "OK".



8. To begin playback, use the VCR controls at the top of the page.

Scaled 1 Packet Format (Standard IMU440 Series)

Byte Offset	Name	Scaling	Units	Description
0	xAccel	20/2^16	g	X accelerometer
2	yAccel	20/2^16	g	Y accelerometer
4	zAccel	20/2^16	g	Z accelerometer
6	xRate	1260°/2^16	rad/s [°/sec]	X angular rate
8	yRate	1260°/2^16	rad/s [°/sec]	Y angular rate
10	yRate	1260°/2^16	rad/s [°/sec]	Z angular rate
12	xRateTemp	200/2^16	deg. C	X rate temperature
14	yRateTemp	200/2^16	deg. C	Y rate temperature
16	zRateTemp	200/2^16	deg. C	Z rate temperature
18	boardTemp	200/2^16	deg. C	CPU board temperature
20	Counter		packets	Output packet counter
22	BITstatus			Master BIT and Status

Angle 1 Packet Format (Standard AHR5440 Series)

Byte Offset	Name	Scaling	Units	Description
0	rollAngle	360°/2^16	Radians [°]	Roll angle
2	pitchAngle	360°/2^16	Radians [°]	Pitch angle
4	yawAngleMag	360°/2^16	Radians [°]	Yaw angle (magnetic north)
6	xRateCorrected	1260°/2^16	rad/s [°/sec]	X angular rate Corrected
8	yRateCorrected	1260°/2^16	rad/s [°/sec]	Y angular rate Corrected
10	zRateCorrected	1260°/2^16	rad/s [°/sec]	Z angular rate Corrected
12	xAccel	20/2^16	g	X accelerometer
14	yAccel	20/2^16	g	Y accelerometer
16	zAccel	20/2^16	g	Z accelerometer
18	xMag	2/2^16	Gauss	X magnetometer
20	yMag	2/2^16	Gauss	Y magnetometer
22	zMag	2/2^16	Gauss	Z magnetometer
24	xRateTemp	200/2^16	Deg C	X rate temperature
26	timeITOW	1	ms	DMU ITOW (sync to GPS)
30	BITstatus			Master BIT and Status

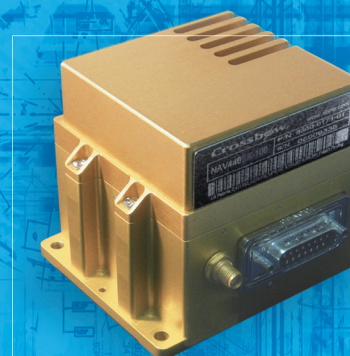
NAV 1 Packet Format (Standard VGS440 and NAV440 Series)

Byte Offset	Name	Scaling	Units	Description
0	rollAngle	360°/2^16	Radians [°]	Roll angle
2	pitchAngle	360°/2^16	Radians [°]	Pitch angle
4	yawAngleMag	360°/2^16	Radians [°]	Yaw angle (true north)
6	xRateCorrected	1260°/2^16	rad/s [°/sec]	X angular rate Corrected
8	yRateCorrected	1260°/2^16	rad/s [°/sec]	Y angular rate Corrected
10	zRateCorrected	1260°/2^16	rad/s [°/sec]	Z angular rate Corrected
12	xAccel	20/2^16	g	X accelerometer
14	yAccel	20/2^16	g	Y accelerometer
16	zAccel	20/2^16	g	Z accelerometer
18	nVel	512/2^16	m/s	North velocity
20	eVel	512/2^16	m/s	East velocity
22	dVel	512/2^16	m/s	Down velocity
24	longitudeGPS	360°/2^32	Radians [°]	GPS Longitude
28	latitudeGPS	360°/2^32	Radians [°]	GPS Latitude
32	altitudeGPS	2^14/2^16	m	GPS altitude [-100,16284]
34	xRateTemp	200/2^16	deg C	X rate sensor temperature
36	timeITOW	1	ms	DMU ITOW (sync to GPS)
40	BITstatus			Master BIT and Status

Crossbow

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Document Part Number: 7430-0133-01 Rev A



Crossbow

440 Series Inertial Systems

Installation Guide

New Features

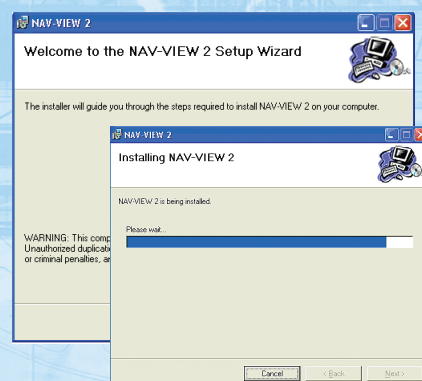
1. Fully Configurable Behavior
Adjust Baud Rate, Sampling Rate, Packet Type with the Click of a Button.
2. Improved Communication Packet Format including CRC.
3. User Configurable Orientation.
4. New NAV-VIEW 2.0 Software Including:
 - Data Recording and Playback
 - Data Plotting
 - Charting
 - Configuration Menus
 - Raw Packet Viewing
 - Troubleshooting Menus
 - Packet Statistics
 - Send/Receive Commands

What's Included

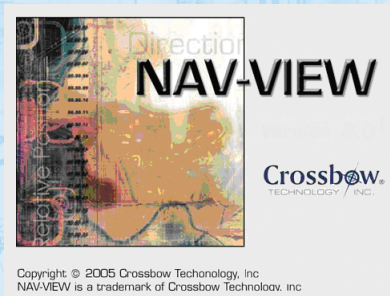
1. 440 Series DMU.
2. Crossbow Inertial CD (Includes NAV-VIEW 2.0 and User Manual).
3. 440 Series User Manual.
4. 440 Series Communication Cable.
5. GPS Antenna (NAV and VGS).



1. Getting Started



Reference Step 3.



Reference Step 4.



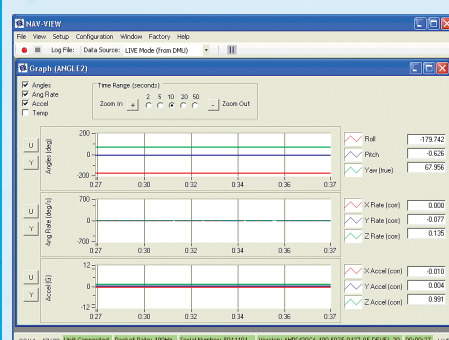
Reference Step 5.



Reference Step 6.



Reference Step 7.



Reference Step 8.

1. Power Windows 2000, XP, Vista based PC or Laptop.
2. Locate and open the "440 Series Install System" cd, load the CD via the CD-ROM drive.
3. Install NAV-VIEW 2.0 (Double click "setup.exe" to execute).

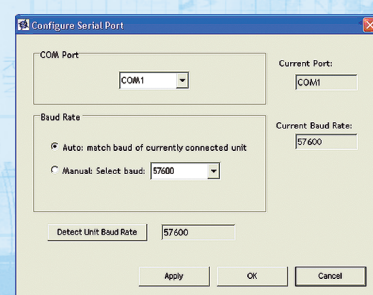
4. Open NAV-VIEW 2.0.

5. Connect DB-9 connector labeled "DMU440 to User" to COM port on PC or laptop.

6. Connect DB-15 connector to 440 Series DMU (DMU440 to PC).

7. Connect Power (Red) and Ground (Black Wires) on the DMU cable to an appropriate power supply (8-42VDC).

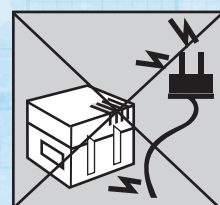
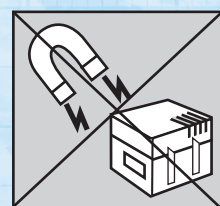
8. Data will begin scrolling across the screen.



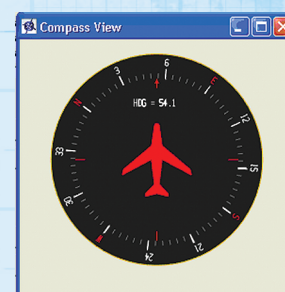
Reference Step 9.

2. Preparing for Permanent Mounting

(The following steps relate to the AHRS and NAV series only)



1. Locate an area on the aircraft or vehicle which is free of magnetic disturbances and at least **24"** away from moving ferrous material.
2. **Do NOT** place a magnet to the AHRS/NAV440.
3. **Do NOT** place the unit within **24"** of power cables, batteries, strobe light ballasts or control linkages.

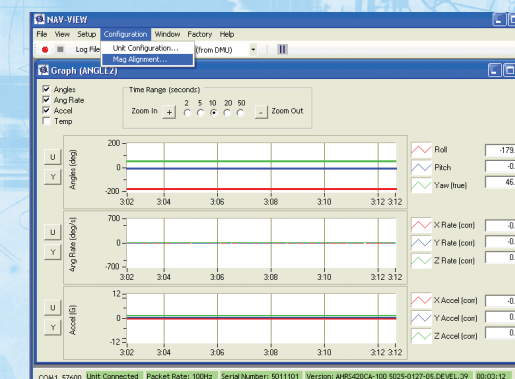


Reference Step 8.

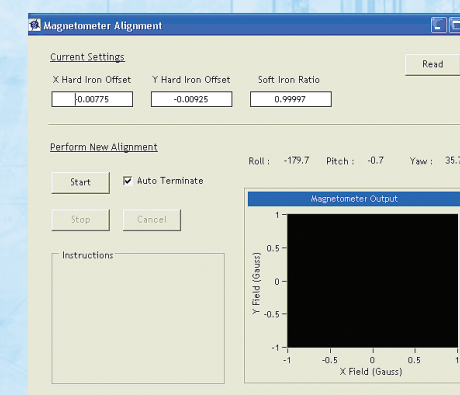
9. Using the provided heading information cycle power to all components on the vehicle or aircraft and operate all controls and linkages looking for a shift in heading performance.
10. If a heading shift >1.5 degrees is noted, relocate the unit to a location farther away from the source of the magnetic field.
11. Repeat the above steps until the heading performance is consistent.
12. Once the location has been verified, permanently mount the unit in the aircraft or vehicle.

3. Calibrating the System

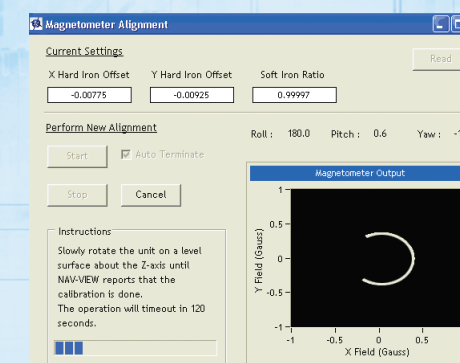
(The following steps relate to the AHRS and NAV series only)



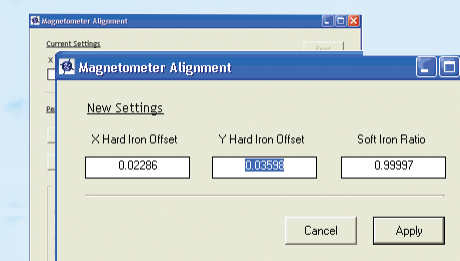
Reference Step 2.



Reference Step 3.



Reference Step 4.



Reference Step 5.

1. Position the aircraft or vehicle in an area away from large metal structures or objects, preferably at a compass rose.
2. Using NAV-VIEW, from the "Configuration" menu select "Mag Alignment".

3. Verify the "Auto-Terminate" check box is selected.

4. Press Start and begin to slowly turn the vehicle in a circle (a full 380 degree turn must be completed within 120 seconds).

5. NAV-VIEW will provide a pop-up window to inform you when you can stop turning.

6. Upon completion of the calibration, (step 3-6, 4-4, 4-8) you will be provided with a Soft Iron Ratio. This should be considered a measure of the quality of magnetic environment surrounding the unit. A good alignment indicates a soft iron ratio >0.95 and an X and Y Hard Iron offset < 0.1.

7. Click apply to save the new calibration value.