

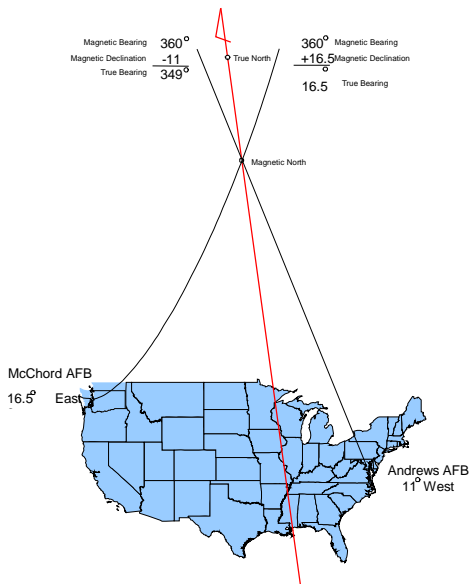
Magnetic Declination / Variation and WEATHERPAK[®] Compass Adjustment for Serial Numbers 3005 and Above with ZENOSOFT[®] Firmware

Please Note: The compass correction for your WEATHERPAK[®] has been pre-set at the factory. The only time this procedure may become necessary is:

- If the WEATHERPAK[®] has been relocated from its original service area by a distance of 500 miles or more.
- If your WEATHERPAK[®] has been designed for potential “worldwide” deployment, then Coastal Environmental Systems has set the correction to “0”. In this case, the operator must set the proper correction when the system is moved to a new location.

Note:

- A special test cable (Coastal p/n 6003101077 or other) and a 12VDC power source are required to perform this procedure.
- Please contact Coastal Environmental Systems’ Sales or Service Dept. for more information.



Magnetic declination / variation

Either term, *declination* or *variation*, is correct and is defined as the angle (at a particular location) between Magnetic North and True North. Surveyors generally prefer the term **declination** and navigators the term **variation**. The correction for a particular geographic location can be found on a chart designed for this purpose. Many Internet sites are available to help identify declination.

Aeronautical and marine charts give variation as isogonic lines, or lines of constant magnetic variation. Variation changes with the passage of time and the charts usually provide the rate of change in the map key. In some areas (such as the Arctic, for example), charts will note that compass measurements are unreliable. For the highest accuracy, it is important to use an up-to-date source.

When a compass needle points East of True North it is due to easterly variation. This is the case for most of the western United States. The correction from Magnetic to True direction for an easterly variation is a positive correction. For example, in Seattle WA, the variation is approximately 17° and a compass reading of 0° “Magnetic” corresponds to a true direction of (+) 17° “True”. Alternatively, a western variation results in a negative correction.

Links to useful web sites such as the NOAA Declination Computer can be found

on Coastal’s web site:

<http://www.coastalenvironmental.com/magnetic-declination.shtml>

It is good practice to double-check your calculation or compare it with known information, such as a chart or the table below.

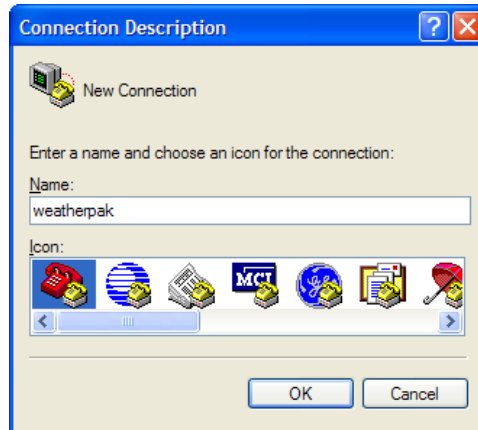
Table of Magnetic Variation (2010)

City	Magnetic Variation
Chicago	3° 36' W (-3.5)
Denver	9° E (+9)
Miami	6° W (-6)
Salt Lake City	12° E (+12)
Seattle	16° 34' E (+16.5)
St. Louis	1° W (-1)
Washington D.C.	11° W (-11)

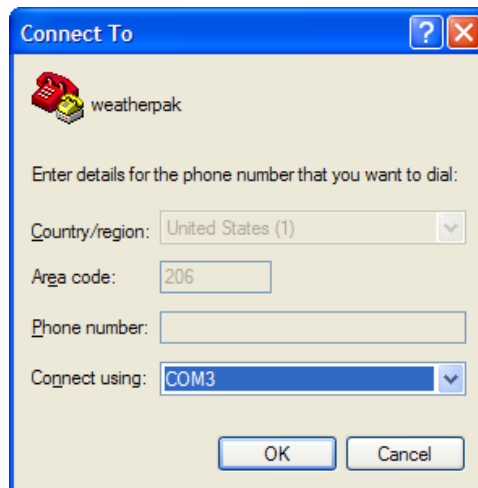
Procedure for Changing the WEATHERPAK® Compass Configuration

Establishing Communication Using Windows® HyperTerminal

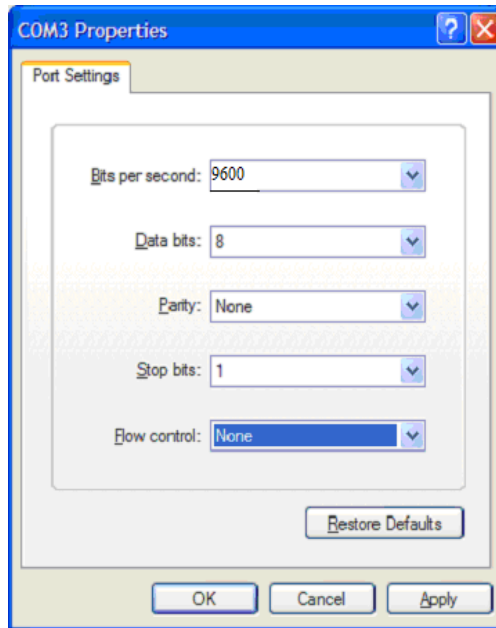
- Locate the HyperTerminal program in Windows® by selecting **Start, Programs, Accessories, Communications**, and then **HyperTerminal**.
- If HyperTerminal asks, make it your default terminal program by selecting [Yes].
- Name the connection in the **Connection Description** window (we suggest: "weatherpak"). Click [OK].



- In the **Connect To** window select an open COM port in the **Connect using** box. Then click [OK]



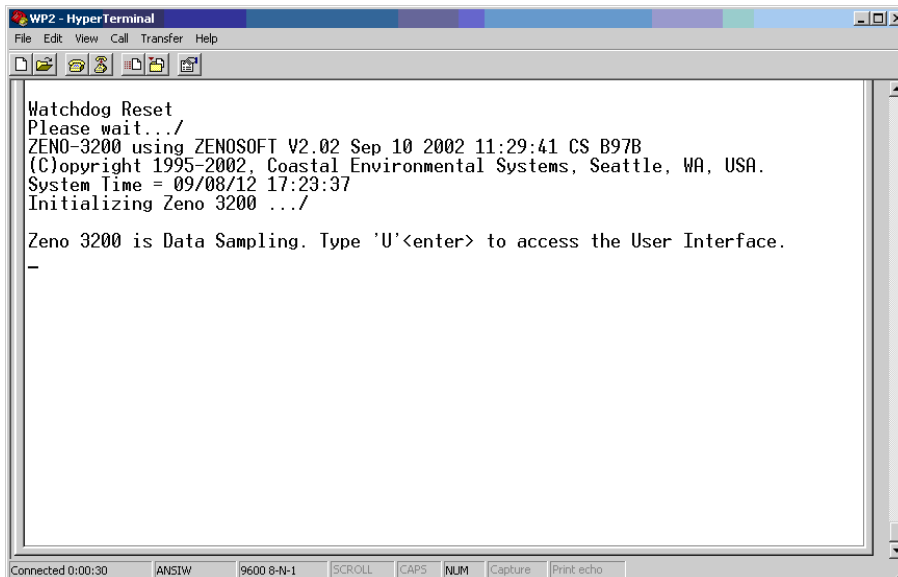
- Enter the port settings in the **COM Properties** window:



- Click [Apply], and then [OK]. The HyperTerminal window should now be connected to the selected COM port. The message “Connected” should be visible in the lower left of the window with a timer.

Changing the WEATHERPAK® Compass Configuration

- Connect the PC to the WEATHERPAK® using a direct hardwired connection (e.g. the WEATHERPAK® test cable with the 12VDC power attached, or the direct download cable attached to a MIL-SPEC connector on the tower junction box). When the WEATHERPAK® completes its boot-up routine the following should appear in the HyperTerminal window.



- Type [U] then [Enter]. The “User Menu” will appear...

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USER MENU
(C) Communications Menu           (T) Test Menu
(F) System Functions Menu        (Z) Zeno Program Menu
(S) Sample Period Menu          (Q) Quit
(D) Data Retrieval Menu         (H) Help
    
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- Type [Z] then [Enter]. The following prompt should appear:
Enter Administrator Password:

- Type [zeno] then [Enter]

- The "Zeno Program Menu" will appear...

ZENO PROGRAM MENU

(S) Sensor Menu	(M) Memory Management Menu
(P) Process Menu	(W) Password Menu
(D) Data Output Menu	(R) Reset System
(T) Sensor Timing Loop Menu	(E) Save Parameters To EEPROM
(O) Output Message Timing Menu	(U) User Menu
(L) System Load Menu	(Q) Quit
(G) General Serial Script Menu	(H) Help

- Type **[P]** then **[Enter]**. The "Process Menu" will appear...

PROCESS MENU

(Cn/m) Change Item n To Value m	(Jn) Jump To Record n
(A) Insert After This Record	(N) Go To Next Record
(B) Insert Before This Record	(P) Go To Previous Record
(X) Cut Record to Clipboard	(XA) Delete ALL Records
(C) Copy Record To Clipboard	(Z) Zeno Program Menu
(V) Paste Record From Clipboard	(H) Help
(Sn/m) Search Item n for Value m	

Process Items for Record 2 of 18:

Item 1: Process Category	1 : General
Item 2: Process Number	14 : Single Data Validation Process
Item 3: User-defined Process Name	validws
Item 4: Input for Control Data (C)	S1.3
Item 5: Input for Data	S1.2

- Locate the Process Record labeled MagDev. To go to the next record type **[n]** then **[Enter]**. To go to the previous record type **[p]** then **[Enter]**.

PROCESS MENU

(Cn/m) Change Item n To Value m	(Jn) Jump To Record n
(A) Insert After This Record	(N) Go To Next Record
(B) Insert Before This Record	(P) Go To Previous Record
(X) Cut Record to Clipboard	(XA) Delete ALL Records
(C) Copy Record To Clipboard	(Z) Zeno Program Menu
(V) Paste Record From Clipboard	(H) Help
(Sn/m) Search Item n for Value m	

Process Items for Record 3 of 21:

Item 1: Process Category	5 : Arithmetic
Item 2: Process Number	2 : Add Data & Constant Process
Item 3: User-defined Process Name	MagDev
Item 4: Input for Augend (X)	S3.1 : COMPASS
Item 5: Constant Addend (Y)	0

- Enter the magnetic declination for your location; type **[c5/y]** then **[Enter]**, where **y** is the magnetic declination for your location. For example, if the magnetic deviation for your location was -7 , your MagDev process would look like this after entering:

PROCESS MENU

(Cn/m) Change Item n To Value m	(Jn) Jump To Record n
(A) Insert After This Record	(N) Go To Next Record
(B) Insert Before This Record	(P) Go To Previous Record
(X) Cut Record to Clipboard	(XA) Delete ALL Records
(C) Copy Record To Clipboard	(Z) Zeno Program Menu
(V) Paste Record From Clipboard	(H) Help
(Sn/m) Search Item n for Value m	

Process Items for Record 3 of 21:

Item 1: Process Category	5 : Arithmetic
Item 2: Process Number	2 : Add Data & Constant Process
Item 3: User-defined Process Name	MagDev
Item 4: Input for Augend (X)	S3.1 : COMPASS

- Type [z] then [Enter] to return to the Zeno Program Menu.
- Save the new the configuration by typing [E] then [Enter]. The WEATHERPAK® will respond...

Verifying parameters can be stored in EEPROM . . .
 Saving parameters to EEPROM . . .
 Saving sensor lists to EEPROM . . .
 Saving process lists to EEPROM . . .
 Saving data output lists to EEPROM . . .
 Saving repeater lists to EEPROM . . .
 Saving general serial scripts to EEPROM . . .
 Saving constants to EEPROM . . .
 994 out of 2048 bytes used in EEPROM.
 Total EEPROM Writes = 101, EEPROM Checksum = 191.

ZENO PROGRAM MENU

(S) Sensor Menu	(M) Memory Management Menu
(P) Process Menu	(W) Password Menu
(D) Data Output Menu	(R) Reset System
(T) Sensor Timing Loop Menu	(E) Save Parameters To EEPROM
(O) Output Message Timing Menu	(U) User Menu
(L) System Load Menu	(Q) Quit
(G) General Serial Script Menu	(H) Help

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- Type [Q], then [Enter] to resume normal operation.