Elecraft W2 Serial Interface Commands

Revision D, April 12, 2010. Applies to firmware rev 1.00 or higher.

The W2 serial port is configured for 9600 baud, 8 databits, 1 stopbit, no handshake.

The W2 responds to commands for data supplied by the external system. Nothing is sent until a command is received by the W2. These requests are in the form of a single letter as shown below. The user sends a single character and receives one data string in response. The semicolon (;) is an end-of-string identifier, and will be at the end of every return string. The strings vary in length. Use the table below to determine the output from your command input.

Command			
A or a	Purpose	Toggle locking SWR Alarm On/Off.	
	String Length	3 chars.	EEPROM: No
	Response	[A/a][0/1];	
	Notes	"0" is non-locking, "1" will lock.	

Command			
B or b	Purpose		
	String Length		EEPROM:
	Response		
	Notes		

Command			
C or c	Purpose	Reset from SWR Alarm	
	String Length	3 chars.	EEPROM: No
	Response	[C/c]!;	
	Notes	Returns only [C/c] if not in Alarm.	

Command			
D or d	Purpose		
	String Length		EEPROM:
	Response		
	Notes		

Command			
F or f	Purpose	Request Forward Power in Watts.	
	String Length	9 chars.	EEPROM: No
	Response	[F/f]nnnnnDn;	
	Notes	(Watt value) -D- (number of decimal places).	

Command			
I or i	Purpose	Request W2 config information.	
	String Length	13 chars.	EEPROM: No
	Response	[I/i][Info String];	
	Notes	See page 3 for String details.	

Command			
L or l	Purpose	Toggles W2 LED's On/Off	
	String Length	3 char.	EEPROM: Yes
	Response	[L/l][0/1];	
	Notes	"0" is LED's Off, "1" is LED's On.	

Command			
M or m	Purpose	Toggles between Average or PEP display of Forward Power LED's.	
	String Length	3 chars.	EEPROM: Yes
	Response	[M/m][A/P];	
	Notes	"A" = Average, "P" = PEP.	

Command			
N or n	Purpose	Toggles between Average or PEP value of Power serial data.	
	String Length	3 chars.	EEPROM: Yes
	Response	[N/n][A/P];	
	Notes	"A" = Average, "P" = PEP.	

Command			
O or o	Purpose	Toggles between two Sensors.	
	String Length	3 chars.	EEPROM: Yes
	Response	[O/o][1/2];	
	Notes	"1" = Sensor1, "2" = Sensor2.	

Command			
P or p	Purpose	Toggles Peak-Hold LED On/Off.	
	String Length	3 chars.	EEPROM: Yes
	Response	[P/p][0/1];	
	Notes	"0" = Off, "1" = On.	

Command			
R or r	Purpose	Request Reverse Power in Watts.	
	String Length	9 chars.	EEPROM: No
	Response	[R/r]nnnnnDn;	
	Notes	Same as "F" (left)	

Command			
S or s	Purpose	Request the SWR value.	
	String Length	5 chars	EEPROM: No
	Response	[S/s]nnnn;	
	Notes	nnn has implied dp "nn.nn".	

Command			
V or v	Purpose	Request Firmware version.	
	String Length	6 chars.	EEPROM: No
	Response	Vn.nn;	
	Notes	n.nn is the version 0.01 to 9.99	

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Command			
W or w	Purpose		
	String Length		EEPROM:
	Response		
	Notes		

Command			
4 to 6	Purpose	Sets LED Decay Rate	
	String Length	3 chars.	EEPROM: Yes
	Response	[4S;][5M;][6F;]	
	Notes	Adjust to your liking.	

Command			
X or x	Purpose		
	String Length		EEPROM:
	Response		
	Notes		

Command			
7 to 9	Purpose	Set Range Drop Rate	
	String Length	3 chars.	EEPROM: Yes
	Response	[7S;][8M;][9F;]	
	Notes	Adjust to your liking.	

Command			
Y or y	Purpose	Toggles Sensor "Search" mode.	
	String Length	3 chars.	EEPROM: Yes
	Response	[Y/y][0/1];	
	Notes	Only works with two sensors.	

Command			
[or]	Purpose	Adjusts SWR Alarm trip point	
	String Length	4 chars.	EEPROM: Yes
	Response	"[/]nn;"	
	Notes	Range is 1.1 to 5.0 (implied decimal). "[" lowers value, "]" raises it.	

Command			
Z or z	Purpose		
	String Length		EEPROM:
	Response		
	Notes		

Command		
?	Purpose	Output Sensor Calibration values.
	String Length	24 chars.
	Response	"nnn," (x5), "nnn;"
	Notes	See Page 3 for details.

Command			
+ - < >	Purpose	Adjust calibration of active sensor.	
	String Length	5 chars.	EEPROM: Yes
	Response	[+/-/</>]nnn;	
	Notes	**See page 3.**	

Command		
	Purpose	
	String Length	
	Response	
	Notes	

Command			
0	Purpose	Sets the active sensor to Autorange.	
	String Length	3 chars.	EEPROM: Yes
	Response	0A;	
	Notes		

Command		
	Purpose	
	String Length	
	Response	
	Notes	

Command			
1 to 3	Purpose	Sets active sensor to one range.	
	String Length	3 chars.	EEPROM: Yes
	Response	[1L;][2M;][3H;]	
	Notes	Matches function of "Range" button.	

Command		
	Purpose	
	String Length	
	Response	
	Notes	

W2 Configuration Information

Under normal operating conditions, if the W2 is sent either an "I" or an "i", it returns a string of information about the state of the Sensors, the Range settings, some internal settings, and which Sensor is active. If, however, the W2 is in the high SWR alarm mode (all SWR LED's flashing), sending the "I" command returns only "A!;".

This data is subject to change in future revs of the firmware (your suggestions are welcome!). When this occurs, a new rev of this document will be updated as well. The following list describes what is presently sent as the output string.

Byte	Property
1	"I" or "i" (echoes back what you sent).
2	Active Sensor (1 or 2) matching the "S1/S2" LED lit.
3	Range Level (1=2W, 2=20W, 3=200W, 4=2KW) of the Active Sensor.
4	AutoRange status (0=off, 1=on) for Active Sensor.
5	Sensor type (0=200W, 1=2KW, 2=VHF) of Active Sensor.
6	Sensor's internal attenuator status (0=off, 1=on) of Active Sensor.
7	W2 LED display state (0=off, 1=on).
8	Active Sensor (0=none, 1=S1, 2=S2).
9	Sensor1 Range Control (0=manual, 1=auto).
10	Sensor1 Range Level (0=no sensor, 1=2W, 2=20W, 3=200W, 4=2KW).
11	Sensor2 Range Control (0=manual, 1=auto).
12	Sensor2 Range Level (0=no sensor, 1=2W, 2=20W, 3=200W, 4=2KW).

W2 Sensor Calibration.

To calibrate a W2 Sensor to match a known good reference, send the W2 any one of the following four commands: "+", "-", ">", "<". The process works by changing a reference (or "Calibration") value that is set to "500" by Elecraft during production.

Here is how each of the four commands changes the Calibration value: "+" increases the calibration value by 1, "-" decreases the calibration value by 1, ">" increases the value by 5, "<" decreases the value by 5.

Increasing the calibration value raises the reported watts reading, lowering the value lowers the watt reading. The value is saved in EEPROM by both Sensor type and by the rear panel Sensor connector.

To see the Calibration values for all six possible settings, send the W2 a "?". The response is a string of six numbers in this order: Sensor1 HF 200W, Sensor1 HF 2Kw, Sensor1 VHF, Sensor2 HF 200W, Sensor2 HF 2Kw, Sensor2 VHF.
