

Steps to read the AutoNulling Values from EPROM using USB Command Set

- 1) First thing, plug your spectrometer, open the USB EPROM Programmer.
- 2) Double-check the values from the AutoNulling Info:

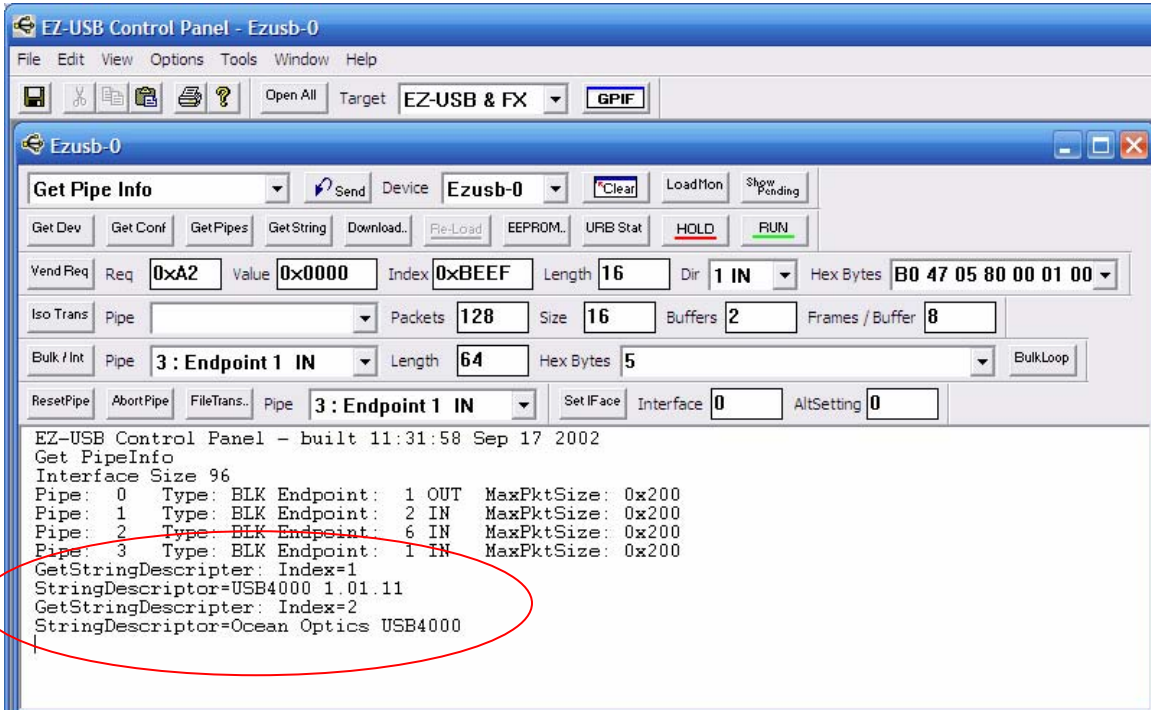
The screenshot shows the 'Ocean Optics, Inc. USBProgrammer' application window. The interface includes a menu bar (File, Help), a toolbar with buttons for 'Refresh Tree', 'Get All Values', 'Save All Values', 'Program', and 'Program FPGA', and a secondary toolbar with 'Verify', 'Reset Coefs.', and 'Linearity Coefs.'. On the left, a tree view shows various device categories, with 'USB [0] USB4000 - USB4F00874' selected. The main area displays a table of device parameters:

Item	Data
IO0	Firmware Version USB4000 1.01.11
SN	Serial Number USB4F00874
WL	Wavelength Calibration Intercept 1.7735491e+002
WL	Wavelength Calibration First Coe... 2.2086300e-001
WL	Wavelength Calibration Second C... -5.9618700e-006
WL	Wavelength Calibration Third Co... -2.4520600e-010
SL	Stray Light Correction Coefficient 0.0000000e+000
NL	Nonlinearity Correction 0th-order... 9.7091430e-001
NL	Nonlinearity Correction 1st-order... 3.8169350e-006
NL	Nonlinearity Correction 2nd-orde... -3.5400430e-010
NL	Nonlinearity Correction 3rd-order... 2.2382930e-014
NL	Nonlinearity Correction 4th-order... -8.2595730e-019
NL	Nonlinearity Correction 5th-order... 1.6743890e-023
NL	Nonlinearity Correction 6th-order... -1.7415050e-028
NL	Nonlinearity Correction 7th-order... 7.2551050e-034
NL	Nonlinearity Correction Order 7
CF6	Configuration String 1 01 000 025
CF6	Configuration String 2 P40 C
CF6	AutoNulling Info Disabled, Disabled, 17232, 32000
CF6	Startup Baud Rate -1
IO0	0x04 - FPGA Firmware Version 1.03.0

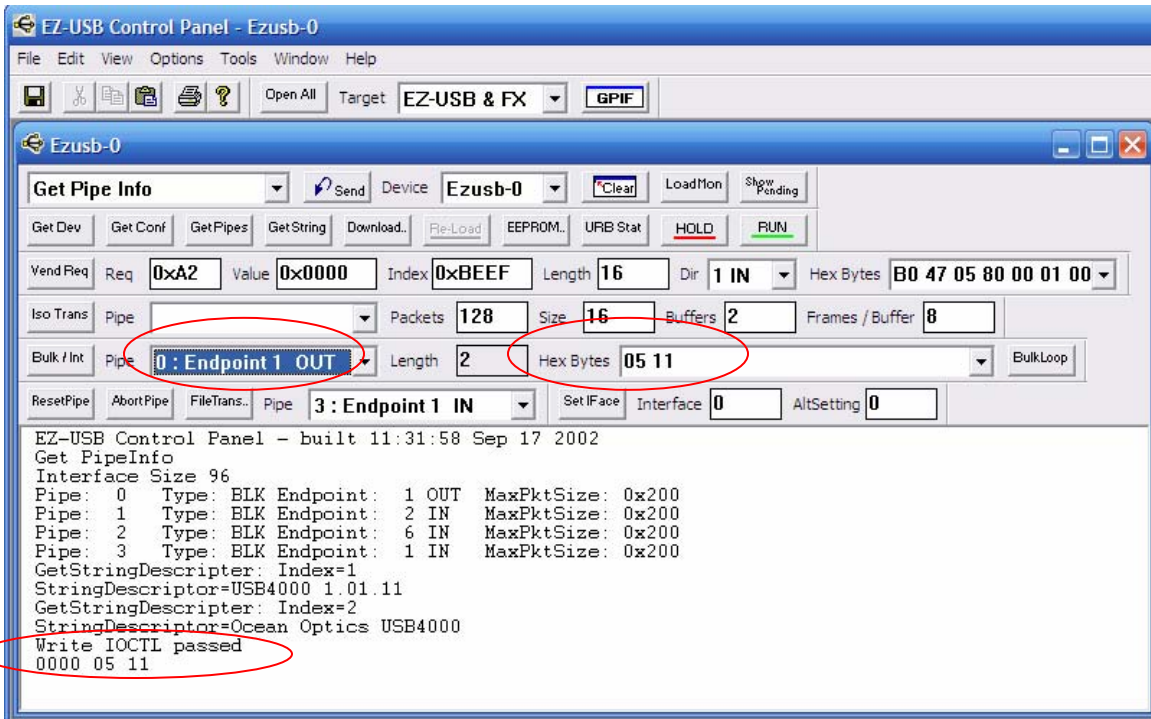
A red box highlights the 'AutoNulling Info' row, with an arrow pointing to a callout box containing the following text:

Dark Value at 25C: 17232
Saturation Value: 32000

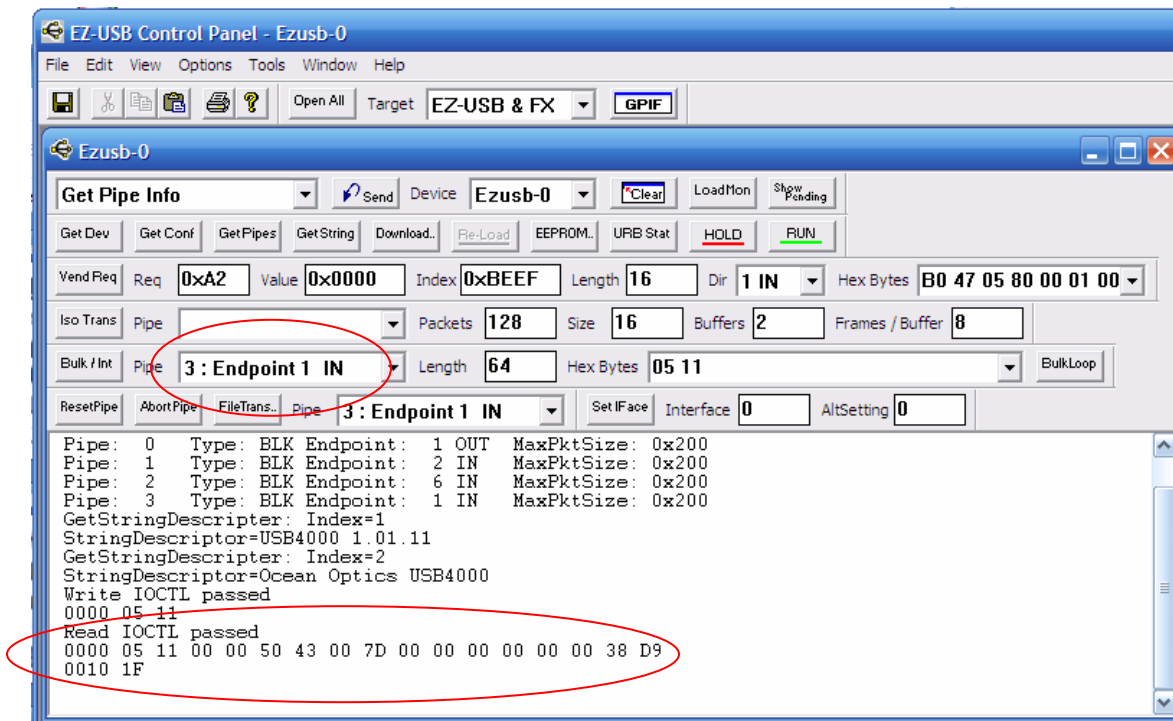
- 3) Open USB Control Panel (this case Cypress Control Panel, EZMr) and get a string:



- 4) Send command 0x05 0x11 through Endpoint 1 OUT, and receive knowledge.



5) Change pipe to Endpoint 1 IN and send Bulk, receiving Byte info from slot.



6) To convert the values do the following:

Word:

Read IOCTL passed

0000 05 11 00 00 50 43 00 7D 00 00 00 00 00 00 38 D9

0010 1F

Description:

0511 – Byte 0 and Data Byte

5043 – ASCII Byte 4 and 5 (Dark Value)

007D – ASCII Byte 6 and 7 (Saturation Value)

Conversion:

Hex 4350 to Decimal 17232

Hex 7D00 to Decimal 32000

These values match the ones from the USB EPROM Programmer.