

**USB Driver:**

In order for Windows to recognize the Eye-BERT the USB driver must first be installed, after which the Eye-BERT appears as an additional COM port on the computer.

1. Copy the file "cdc\_NTXP.inf" from the supplied CD to the hard drive.
2. Plug the Eye-BERT into a free USB port. When the hardware installation wizard asks for the driver location, browse to the "cdc\_NTXP.inf" file on the hard drive.
3. After the driver has been installed right click "my computer" and select "properties". In the properties window select the "hardware" tab. Click on "device manager" and expand the "Ports (COM & LPT)" item. Locate the "Spectronix, Inc." entry and note the assigned Com number, (ie "COM4"). This is the COM port that the software will use to communicate with the Eye-BERT.

**USB Commands:**

The Eye-BERT uses a combination of ASCII and binary data to communicate with a host computer; the tables below list the individual commands, parameters, and responses from the Eye-BERT.

Notes:

1. All communication is initiated by the host.
2. All commands should be terminated with a <CR> <LF>.
3. Responses from the Eye-BERT are not terminated unless noted.
4. Text inside quotations ("" )are ASCII and those not in quotations are binary.

Change the operating mode	
Command:	Parameters:
"SetMode"	"O" ( <i>Optical BERT</i> ) "E" ( <i>Electrical BERT</i> ) "C" ( <i>E/O &amp; O/E converter</i> )
Response:	Parameters:
(none)	
Notes:	

Set the data rate	
Command:	Parameters:
<b>"SetRate"</b>	<p>"1" (125 Mbps)</p> <p>"2" (155.52 Mbps)</p> <p>"3" (200 Mbps)</p> <p>"4" (622.08 Mbps)</p> <p>"5" (1.0625 Gbps)</p> <p>"6" (1.250 Gbps)</p> <p>"7" (2.125 Gbps)</p> <p>"8" (2.48832 Gbps)</p> <p>"9" (2.50 Gbps)</p> <p>"10" (2.66608 Gbps)</p> <p>"11" (4.25 Gbps)</p>
Response:	Parameters:
(none)	
Notes:	

Change the pattern	
Command:	Parameters:
<b>"SetPat"</b>	<p>"0" (PRBS <math>2^7-1</math>)</p> <p>"1" (PRBS <math>2^{23}-1</math>)</p> <p>"2" (PRBS <math>2^{31}-1</math>)</p> <p>"3" (reserved – do not use)</p> <p>"4" (K28.5)</p> <p>"5" (CJTPAT)</p> <p>"6" (CRPAT)</p> <p>"7" (CSPAT)</p>
Response:	Parameters:
(none)	
Notes:	

Read the measurement results	
<u>Command:</u>	<u>Parameters:</u>
" <b>r</b> "	(none)
<u>Response:</u>	<u>Parameters:</u>
Mode (one char)	" <b>O</b> " (Optical BERT) " <b>E</b> " (Electrical BERT) " <b>C</b> " (E/O & O/E converter)
Rate (one byte)	<b>1 through 11</b> (per above)
PRBS (one byte)	<b>0 – 7</b> (per above)
Logging (one byte)	<b>0</b> (disabled) <b>100</b> (100 mS) <b>1</b> (1 Sec) <b>10</b> (10 Sec) <b>60</b> (60 Sec)
Optical power in dBm (two bytes)	$Power (dBm) = (32768 - (\text{byte1} * 256 + \text{byte2})) / 100$
Optical status (one byte)	<b>0</b> (disabled / off) <b>1</b> (enabled / red) <b>2</b> (signal and sync / solid) <b>3</b> (signal but no lock / blink)
Electrical status (one byte)	<b>0</b> (disabled / off) <b>1</b> (enabled / red) <b>2</b> (signal and sync / solid) <b>3</b> (signal but no lock / blink)
Total bit count (four bytes)	$Count = (\text{byte1} * 2^{16} + \text{byte2} * 2^8 + \text{byte3}) * 2^{(\text{byte4} - 24)}$
Error count (four bytes)	$Errors = (\text{byte1} * 2^{16} + \text{byte2} * 2^8 + \text{byte3}) * 2^{(\text{byte4} - 24)}$
Termination (one byte)	<b>0x00</b> (termination character)
Notes:	BER = Errors / Count

Download log file	
Command:	Parameters:
"ReadLog"	(none)
Response:	Parameters:
Number of stored records (four bytes)	$Records = \text{byte1} * 2^{24} + \text{byte2} * 2^{16} + \text{byte3} * 2^8 + \text{byte4}$
Record data (16 bytes per record)	Per "Read" command above but without the 0x00 termination
Notes:	

Reset error counters, BER, and test timers	
Command:	Parameters:
"Reset"	(none)
Response:	Parameters:
(none)	
Notes:	

Calibrate the optical power meter	
Command:	Parameters:
"Calibrate"	
BERT:	Host / user input:
<CR/LF>"Low power Level (dBm) -> "	Adjust the input power to a level between -50dBm and 30dBm and enter the actual value (ASCII string, number of characters is not important): "-32.4"<CR/LF> (Example)
<CR/LF>"High power Level (dBm) -> "	Adjust the input power to a level between -10dBm and 0dBm and enter the actual value (ASCII string, number of characters is not important): "-8.436"<CR/LF> (Example)
<CR/LF>"accept? <y/n>"	Enter "y" or "n" "y"<CR/LF>" (Example)
Notes:	