Serial to LANC Adapter
User's Guide

Thank you for purchasing our controller product. The following information will help you successfully connect this controller board and get it running in your application.

Connecting to power

The adapter comes standard with a USB "micro" size jack for connection to any compatible power source. We supply a standard cable for connection to a PC USB port, but you can substitute any other compatible cable and power the board from a DC adapter if you choose to do so. This power source runs all circuitry on the board.

Note that this USB connection DOES NOT provide a data connection to the adapter – it is used only to supply +5VDC power to the adapter board.

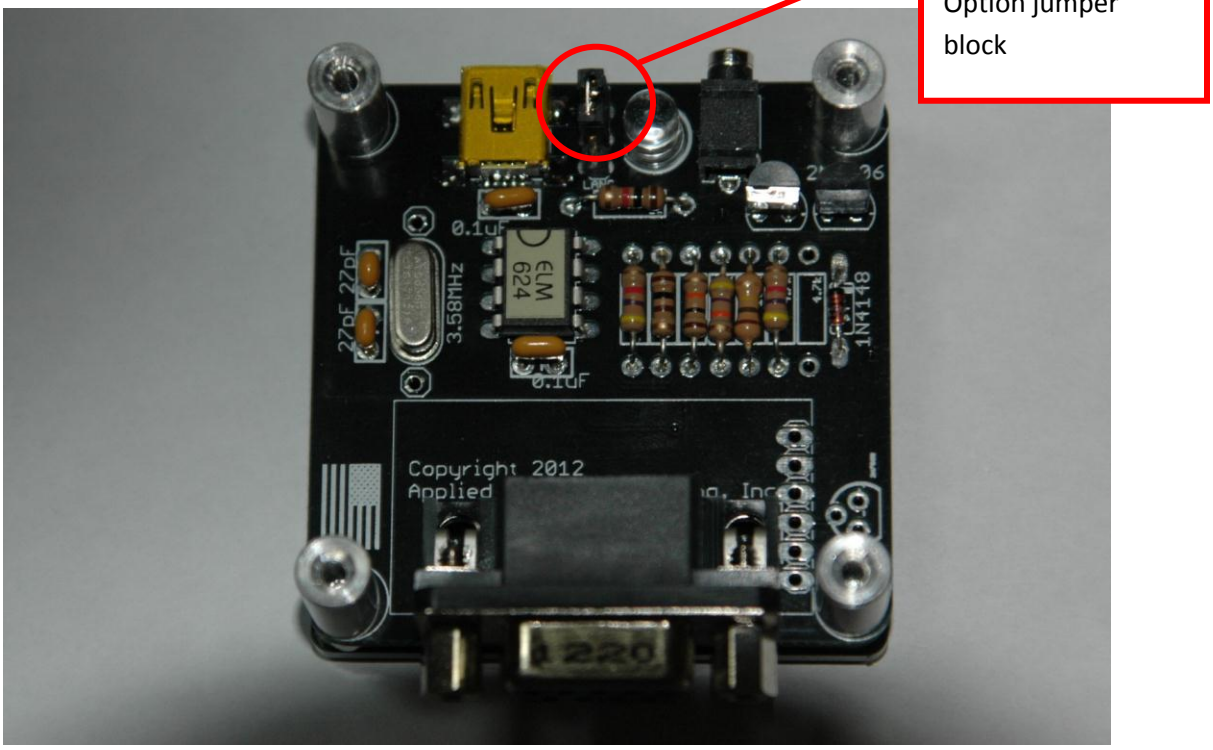
Powering the adapter from the LANC bus

PLEASE NOTE : This option is highly dependent on the capabilities of your camera! Please test before using this power option to insure that your camera will supply the proper voltage to the controller board!

The ALE716 adapter includes an alternative power scheme that will allow powering the adapter directly from your camera's LANC bus. However, the voltage supplied from the camera MUST BE greater than 6VDC in order for this option to work properly. As the battery is drained on the camera through normal use, the voltage supplied on the LANC bus may drop below an acceptable level. If the operation of the adapter becomes inconsistent while powering in this manner, make sure that the camera's battery is fully charged. Please be aware of this if you choose to power the adapter using this method.

The power input on the adapter is set at the factory to use the USB micro plug as the power source. To switch to using power from the LANC bus, you must do the following:

1) Remove the four screws on the adapter's top acrylic panel and remove it.
2) Next, locate the power supply option jumper as indicated below:



3) Move the jumper block from the current (top) position to the lower position, connecting the bottom two pins with the jumper block.
4) Replace the top acrylic panel and the four screws.

Using this method, the connection to the USB port MUST be removed.

Plug the adapter board into the camera and turn the camera on. If everything is working correctly, the adapter board will power on at the same time and will be ready to operate.

To return the adapter back to being powered from the USB jack, unplug the adapter from all power sources (including the camera), move the jumper block back to the original position (connecting the top two pins), and reapply power via the USB port.

Connecting the adapter to a PC

The adapter has a built in 9-pin Dsub connector for connection to a host's serial (RS-232) port. This could be a PC, Mac, Linux box, or other embedded system. The pinout of this connector on the adapter conforms to standard PC serial port connections. Use a "straight through" cable (not a "null modem" cable that crosses signal lines) to connect to your host system. The cable will require a socket (female) 9-pin connector for the host side and a pin (male) connector on the adapter side.

Connecting the controller board to a camcorder

The controller board comes with a LANC cable that is terminated in a standard 3-conductor, 2.5mm plug that is compatible with Sony's LANC connector on the camcorder. Simply plug one end of the cable into the jack on the camera and the other end into the adapter board.

If your camera has the following type of connection, you will need to use our ALE707 or ALE709 adapter cable to convert the 2.5mm plug on the standard cable into the 10-pin D connector. Please see www.appliedlogiceng.com for more information.

Sending commands from the PC

In order to send LANC commands from your PC to the camera, you must have the appropriate software running on your PC. In simple applications, a terminal emulation program (like Microsoft

HyperTerminal) can be used to establish communication with the controller board. Make sure that your communication software is set to the proper COM port and that its settings conform to the following:

- 9600 baud
- 8 data bits
- No parity
- 1 stop bit
- No handshaking

Once the hardware connection is established and the communication software is running, applying power to the controller board will result in the following message being displayed on the PC's communication software:

ELM624 v3.0
>

If you do not see this message in the communication software when power is applied to the controller board, check your connections and make sure that your communication software is set correctly (correct COM port, correct serial settings, etc.) and that you are using the correct (straight – through) cable for connecting to the adapter.

Using the adapter

There are a host of commands that are available to configure the board for operation. These commands are all detailed in ELM Electronics' data sheet on the ELM624 controller chip (which is the heart of our controller board). This datasheet can be downloaded from:

http://www.elmelectronics.com

While you can customize these settings for your particular application, the default settings that are used when power is applied to the controller board will give acceptable operation in many cases.

Sending LANC commands to the camera / camcorder

Once everything is configured and running, you are ready to start using the controller board for controlling your LANC device. The following table of LANC commands represent some of the most common commands that are available to control basic camera operation and/or recorder operation. From the communication software on the PC, simply type in the 4 character code followed by the ENTER key.

Function	Character Code
Zoom Out	2837
Zoom In	2835
Focus Auto/Manual Toggle	2841
Manual Focus Farther	2845

Manual Focus Nearer	2847
Backlight	2851

Function	Character Code
Stop	1830
Rewind	1836
Fast Forward	1838
Play	1834
Rewind	183A
Reset Counter	188C
Pause	1832
Power Up from Sleep	185C

Obviously, this is not a comprehensive list of LANC commands. There are literally dozens of commands that Sony has in the LANC protocol – other commands can be found by learning more about the details of the LANC command structure available from other resources.

LANC data returned from the device

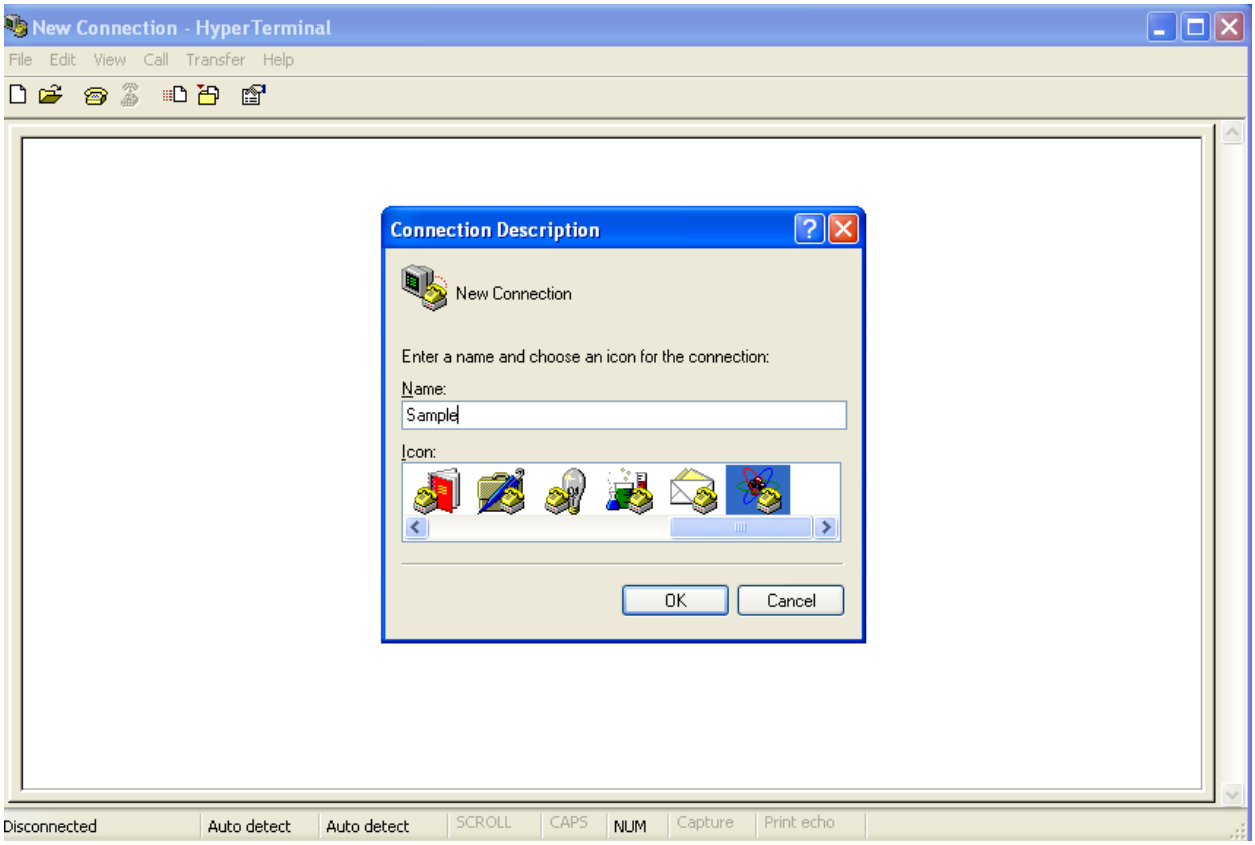
When a LANC command is sent to the LANC device, the controller board will begin sending response codes from the LANC device to the PC. This comes in the form of 4 status bytes which are formatted into eight hexadecimal characters. The first two characters represent status, the third character is used to identify the meaning of the fifth through eighth characters. This is all defined in the ELM data sheet and may be useful to you for development of custom software for monitoring your device.

To stop the flow of data from the controller board to the PC, simply type any character on the PC's keyboard while in the terminal emulation software.

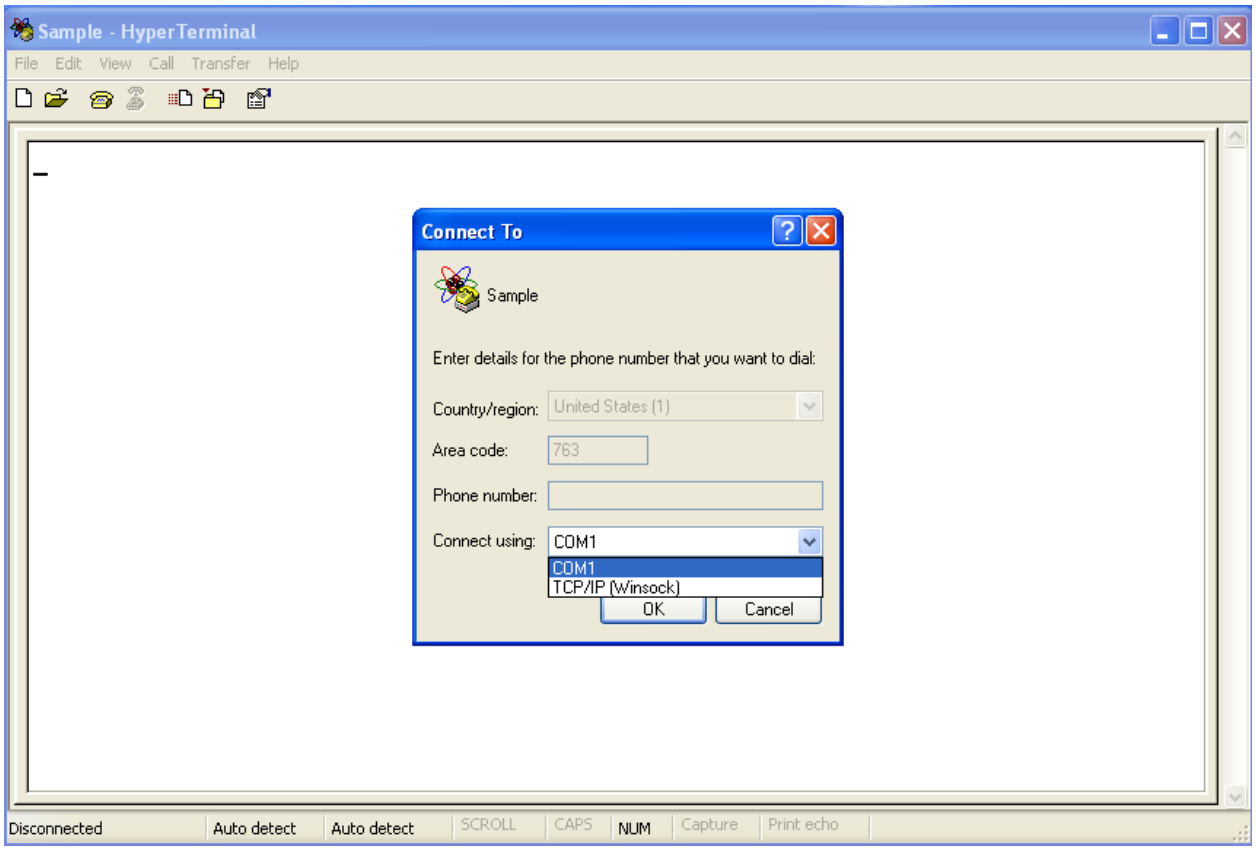
Appendix A : Instructions for Configuring HyperTerminal for ALE's LANC Controller Board

1) Start HyperTerminal on a Windows XP-based PC.

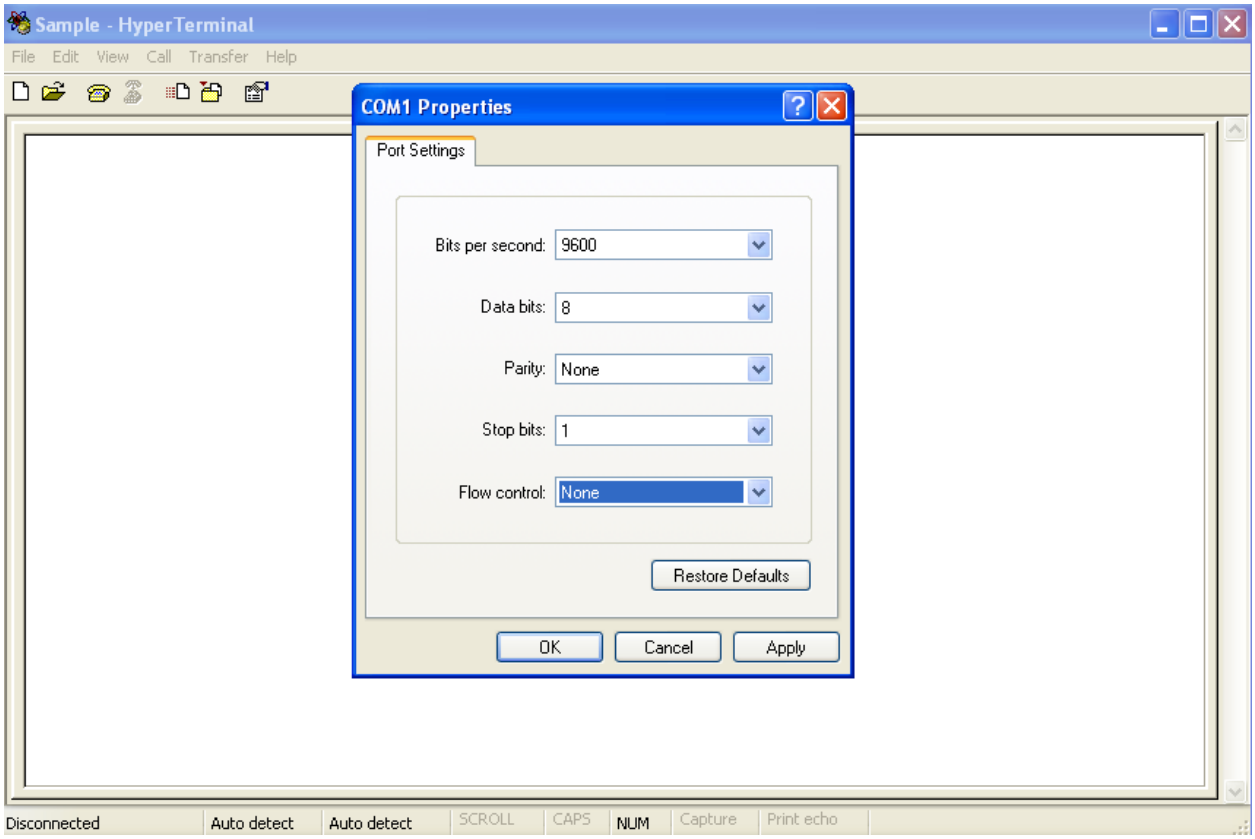
2) On the first screen, enter a session name and choose the proper configuration icon:



3) On the next screen, choose the correct COM port number from the dropdown (in this example, we have chosen COM1, but be sure to select the correct COM port that corresponds to the port that you are using to connect to the LANC board. If you are unsure, check your system hardware settings in Windows).



4) On the next screen, set the com port operating parameters as shown below (i.e. 9600 bits per second, 8 data bits, no parity, 1 stop bit, no handshaking.



5) At this point, HyperTerminal is properly configured. When you apply power to the LANC board, you will see the following sign on message in the HyperTerminal session window: