BusAlyzer

9Pin Communications Protocol Analyzer

Users Manual

JLCOOPER ELECTRONICS

BusAlyzer User's Manual, Second Edition (March 24, 2008)
Part Number 932104

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Introduction

The BusAlyzer is a serial communications analyzer designed specifically for the P2 protocol commonly used by Sony, Panasonic and other professional decks. It works with a host computer running Windows and connects over Ethernet. The BusAlyzer has two serial ports to monitor the exchange of commands and responses between a controller and a deck. The supplied Windows software displays the time stamped raw data. Additionally, the supplied software allows you to filter and decode the raw commands to display it in an easy to interpret manner. The data can also be saved for later analysis.

Additionally, it can be configured to act as a two port serial to Ethernet converter much like the JLCooper eBox. Pairing it up with a second BusAlyzer allows you create two, bidirectional serial links over any Ethernet connection. Since the BusAlyzer uses TCP/IP, traffic can be routed over internal LANs, wireless LANs, MANs, WANs and even over the public Internet. The serial ports can be configured to either connect to a controller or deck on each port independently.

Most configurations can be accomplished through a web page server built into the BusAlyzer. Items such as port speed, parity, IP address, remote IP address and TCP port are set using a standard web browser. Settings are stored in nonvolatile memory.

Typically, the eBox functions as a server, passively waiting for client devices to connect to it. The device can be a computer or another BusAlyzer configured as a client. When the BusAlyzer is configured as a client, it will actively attempt to connect to the server BusAlyzer. Once this is accomplished, the either BusAlyzer will pass data received from the serial ports to the remote BusAlyzer. If there is no data received in the BusAlyzer, the BusAlyzer will not send any TCP packets.

The unit features a 10/100 RJ-45 Ethernet connector, 2 9 pin D-Sub connectors that can be configured for RS-422 (deck or

controller) and a DC power jack. The unit can be power from the supplied power adaptor or powered from 9-12 volts DC. LED indicators show status of Ethernet activity and serial port activity.

Installation

Unpacking

When you receive your BusAlyzer, you should receive the following items:

- BusAlyzer
- This Users Manual
- 9 volt DC power supply
- Installation CD

Please take a moment to register your product at:

http://www.jlcooper.com

This will allow us to notify you of important updates and changes to software or features.

Setup

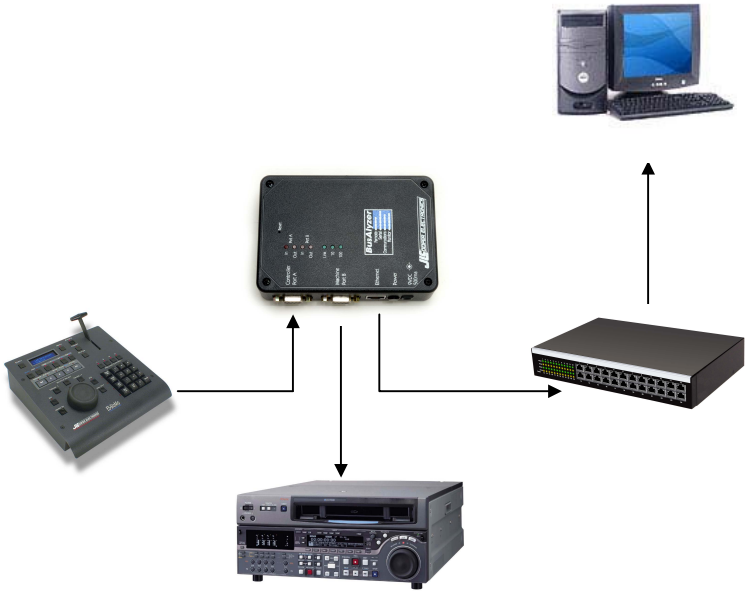
The BusAlyzers compact design makes it easy to locate wherever you need it. The BusAlyzer must be setup up in a location that does not experience vibration, excessive humidity, dust or temperature extremes.

The BusAlyzer can be mounted in any orientation.

Connecting the BusAlyzer

Connecting the BusAlyzer is quite straightforward. The BusAlyzer typically connects between a deck and a controller as shown in the following diagram.

1. Connect the controller to Port A on the BusAlyzer.
2. Connect the deck to Port B on the BusAlyzer.
3. Connect the BusAlyzer to the Ethernet network
4. Connect the included power supply to the BusAlyzer.



Configuring the BusAlyzer

Before using the BusAlyzer, it must be configured properly. There are two ways to use the BusAlyzer:

- Remote data capture
- Serial to Ethernet converter

Remote data capture

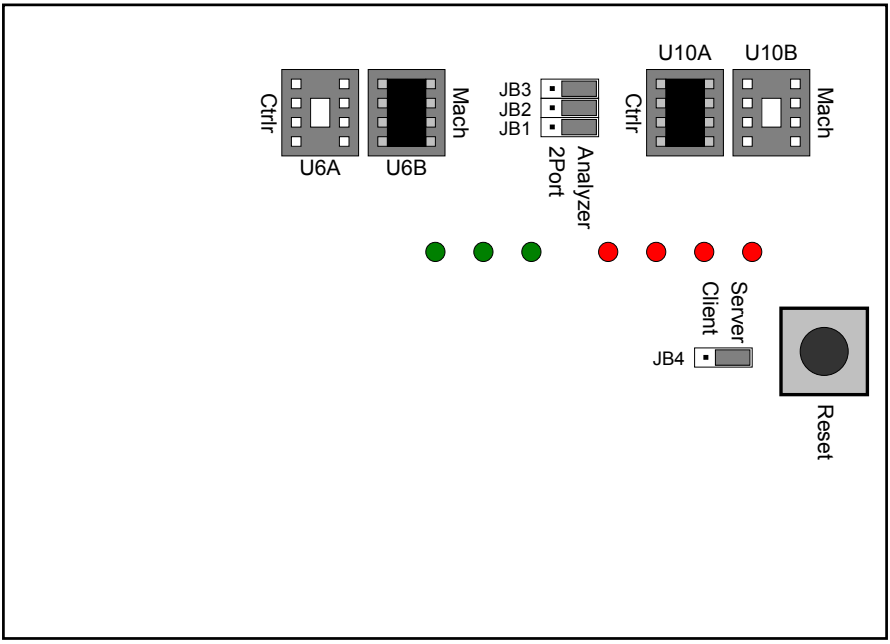
In Remote data capture mode, the BusAlyzer connects to an RS-422 controller (such as an editing controller) on Port A and an RS-422 device (such as a VTR or video server) on Port B.
In this mode, the BusAlyzer receives the serial data or commands from the receive pins (3 and 8) on Port A and passes it to the transmit pins (3 and 8) of Port B. Additionally, the BusAlyzer receives the serial data or responses from the receive pins (2 and 7) on Port B and passes it to the transmit pins (2 and 7) of Port A. The serial data is only buffered and amplified, there is no reclocking, or other processing being applied to the serial stream.

These two serial streams are read by the BusAlyzer, time stamped and transmitted via Ethernet to a host computer running the BusAlyzer analysis software.

To configure the BusAlyzer for Remote data capture mode, the following internal jumpers must be configured:

- JB4 – jumper must be in the Server position
- JB1 – jumper must be in the Analyzer position
- JB2 – jumper must be in the Analyzer position
- JB3 – jumper must be in the Analyzer position
- U6 – IC must be in the Mach position
- U10 – IC must be in the Ctrlr position

The following diagram illustrates the correct jumper configuration for Remote data capture mode.



BusAlyzer Jumper Configuration for Remote data capture mode

Serial to Ethernet converter

In Serial to Ethernet converter mode, a pair of BusAlyzers can connect two RS-422 devices together over an Ethernet connection. This can be done on both Port A and Port B simultaneously. Additionally, Port A and Port B can be configured to accommodate a controller or deck independently of each other.

In this mode, two BusAlyzers are required. One BusAlyzer must be configured to be a Server and the other must be configured to be a Client.

To configure the BusAlyzer for Remote data capture mode, the following internal jumpers must be configured:

- JB1 – jumper must be in the 2Port position
- JB2 – jumper must be in the 2Port position
- JB3 – jumper must be in the 2Port position

Additionally, one unit must be configured as the Client and the other configured as the Server. To do that,

In the Client,

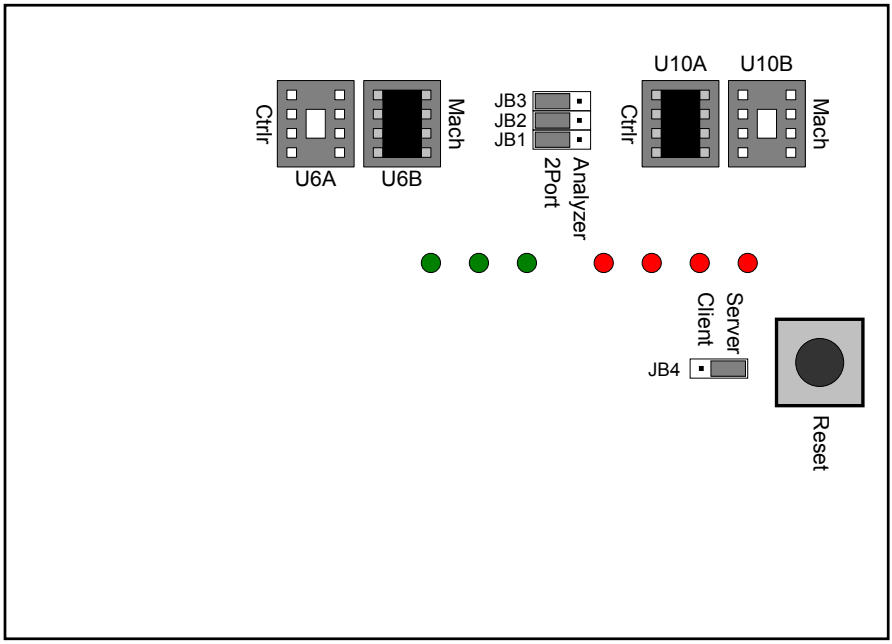
- JB4 – jumper must be in the Client position

In the Server,

- JB4 – jumper must be in the Server position

U6 and U10 can be configured for the desired operation. That is, if the port is intended to connect to a controller or host, the IC must be in the 'Ctlr' position. Conversely, if the port is intended to connect to a deck or slave device, the IC must be in the 'Mach' position.

The following diagram illustrates the correct jumper configuration for Remote data capture mode.



BusAlyzer Jumper Configuration for Remote data capture mode

Web Page Configuration

In addition to the jumpers settings, there are internal settings that must be configured if the BusAlyzer is to function correctly in your application. This is done by accessing the configuration web page.

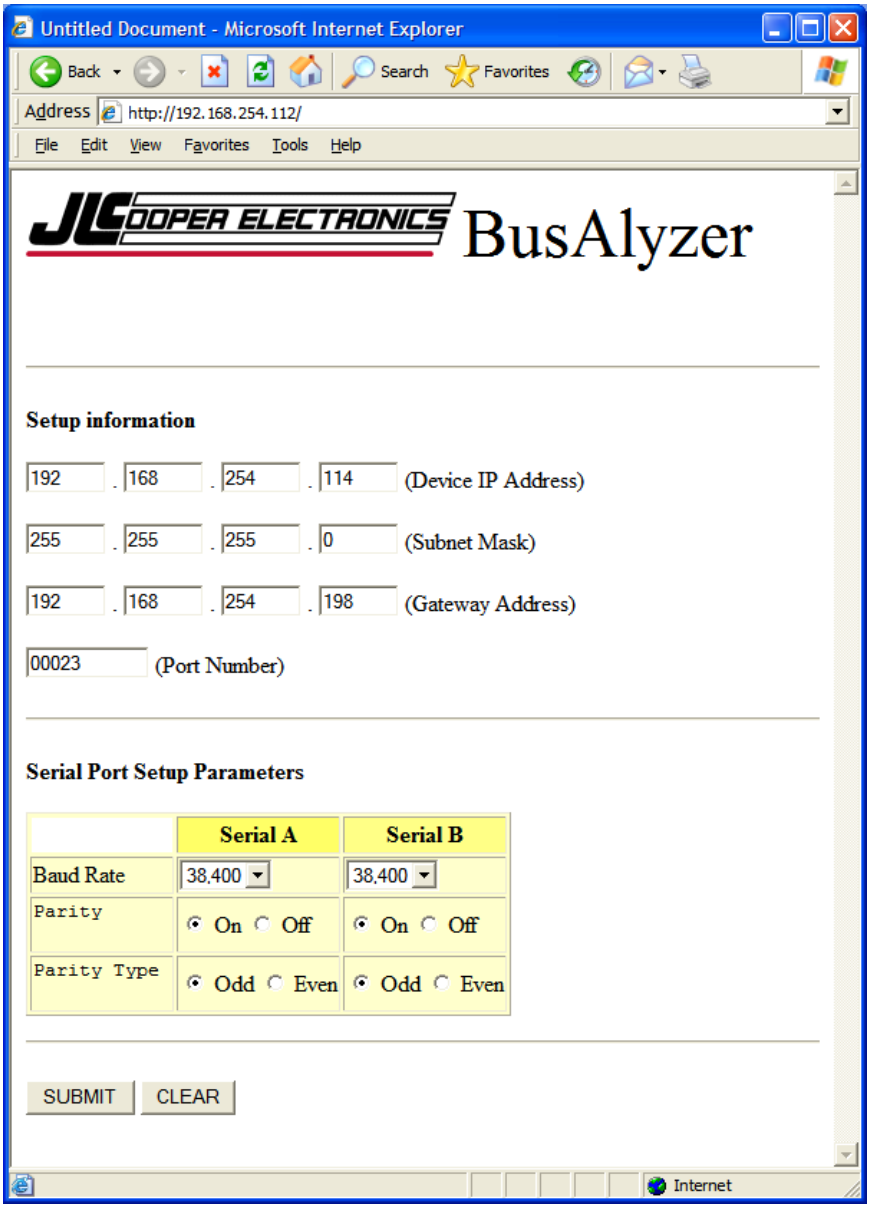
Note: You must use Internet Explorer 6 or Safari to access the BusAlyzers configuration web page. Other browsers such as Firefox, Mozilla and Konqueror are not supported.

The BusAlyzers configuration web page can be accessed by:

1. Pressing the Reset button, a short tap will suffice.
2. Entering the BusAlyzers IP address in your web browser. The configuration web page is at: http://192.168.254.112/. Please note that this differs from the normal operational IP address.

*Note: The Configuration Web Page is **ALWAYS** at 192.168.254.112 regardless of the normal operational IP address as shown on the Configuration Web Page.*

Note: Since the default subnet mask of the BusAlyzer is 255.255.255.0, you must set the IP address of your computer to match the subnet of the BusAlyzer. You will need to set your computers IP address to 192.168.254.nnn where nnn can be any address except 112 or 114.



BusAlyzer configuration web page

Setup Information

Device IP Address

This is the IP address of the BusAlyzer. The factory default is 192.168.254.114.

Subnet Mask

This is the Subnet Mask of the BusAlyzer. The BusAlyzer will only respond to devices in its subnet. Any devices that are not in the BusAlyzers subnet will be ignored. The factory default is 255.255.255.0.

Gateway Address

This is the address of the router on your network. This is used when the BusAlyzer is in serial to Ethernet converter mode as a client. The factory default is 192.168.254.198.

Port Number

This is the TCP port number of the BusAlyzer. The factory default is 23.

Serial Port Setup Parameters

Baud Rate

This defines the port speed of the serial ports. Normally, this does not need to be modified. The standard P2 port speed that controllers use to communicate with VTRs is 38400 bits/sec. The factory default is 38400 bits/sec.

Parity and Parity Type

This defines the parity of the serial ports. Normally, this does not need to be modified. The standard P2 parity that controllers use to communicate with VTRs is odd parity. The factory default is odd parity.

SUBMIT

Click on this button to save the settings in the BusAlyzer.

CLEAR

Click on this button to reset the settings in the web page.

Resetting the BusAlyzer

The BusAlyzer can be set to the factory defaults by performing the following steps:

1. Holding the Reset button.
2. Switching the Power switch on.
3. Releasing the Reset button.

The factory defaults are:

IP Address	192.168.254.114
Subnet Mask	255.255.255.0
Gateway	192.168.254.198
Port	00023
Baud Rate	38400
Parity	On/Odd

Installing the BusAlyzer analysis software

The BusAlyzer analysis software must be installed to make use of the analysis features of the BusAlyzer. The software requires a computer with modest requirements:

- Pentium III or greater
- 128MB RAM
- Windows 2000 or later
- Ethernet interface

To install the BusAlyzer analysis software, insert the BusAlyzer installation CD into your CD or DVD drive. Open the CD or DVD driver and click on “setup.exe”. Alternately, you can find the latest software on the JLCooper support site, download it to your computer, and install it.

LED indicators

The BusAlyzer has seven LEDs on the top panel to indicate various operating conditions of the BusAlyzer.

Ethernet

Starting with the Ethernet indicators, there are three LEDs.

Link

The Link LED indicates that the BusAlyzer is properly connected to another Ethernet device such as an Ethernet hub or a host computer.

100

The 100 LED indicates that the BusAlyzer has negotiated a 100 megabit or 100baseTX link to the other Ethernet device.

10

The 10 LED indicates that the BusAlyzer has negotiated a 10 megabit or 10baseT link to the other Ethernet device.

Serial

There are four LEDs dedicated to serial signals.

Port A IN / Port B IN

The IN LED is off when the BusAlyzer is not connected to the BusAlyzer analysis software. Conversely, the IN LED is on when the BusAlyzer is connected to the BusAlyzer analysis software. The IN LED flashes when the serial port is receiving data.

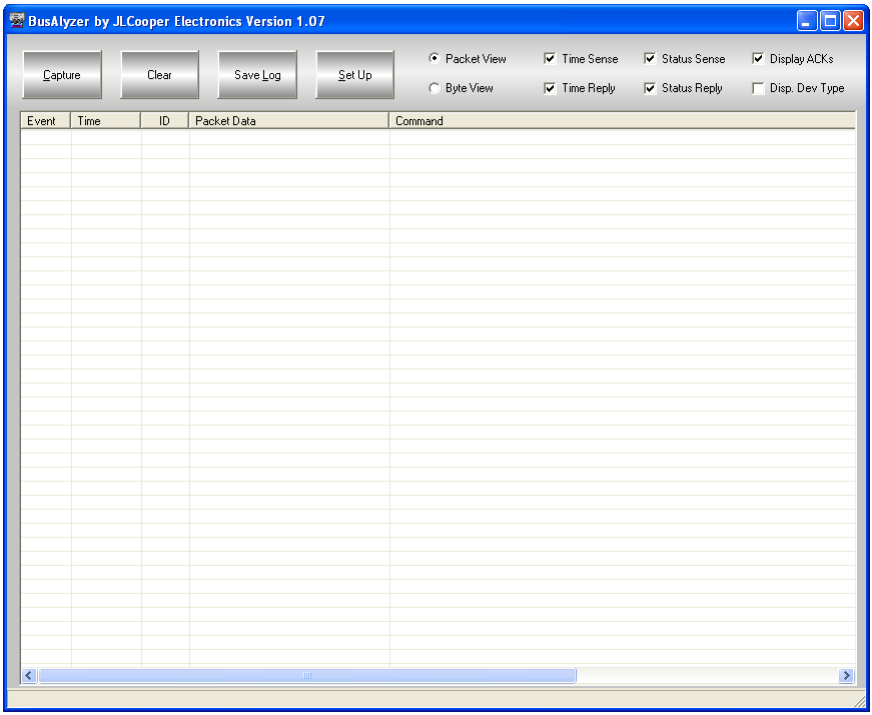
Port A OUT / Port B OUT

The OUT LED is off when the BusAlyzer is not connected to the BusAlyzer analysis software. Conversely, the Out LED is on when the BusAlyzer is connected to the BusAlyzer analysis software. The OUT LED flashes when the serial port is transmitting data in Serial to Ethernet converter mode.

Setting up the BusAlyzer analysis software

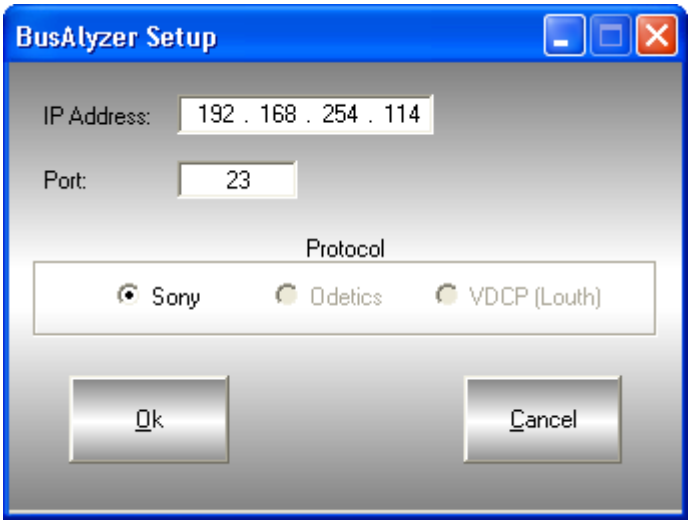
To use the BusAlyzer, power up the BusAlyzer, controller and deck. Next, launch the BusAlyzer analysis software.

After you launch the program, the following window will appear:



BusAlyzer Analysis Software

After launching the BusAlyzer analysis software, it is a good idea to configure the software to correctly communicate with the BusAlyzer. That can be accomplished by clicking the "Settings" button. The following window will pop up:



Specify the BusAlyzer IP address and port in the IP Address and Port boxes.

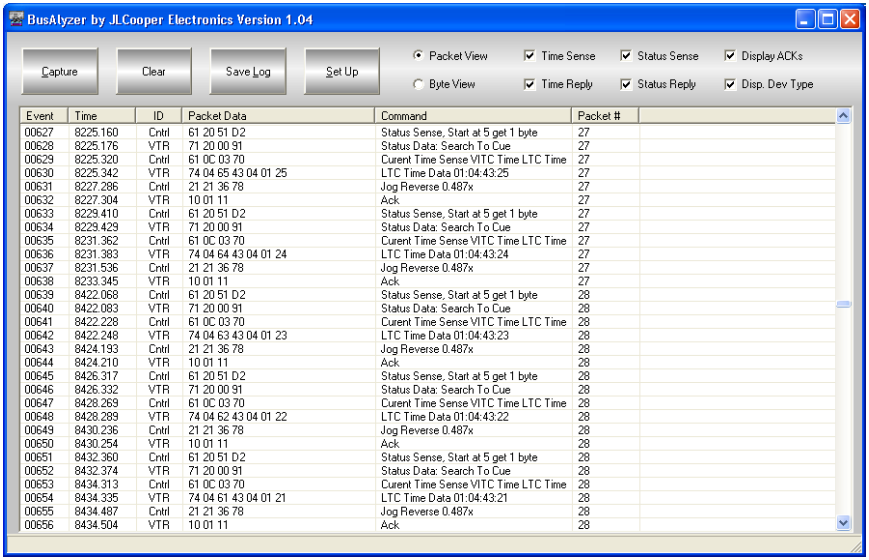
Select the protocol that the controller is using.

Using the BusAlyzer analysis software

Now that you have configured the BusAlyzer analysis software, click on the “Capture” button.

A window will open indicating the number of packets received.

When you are finished, click on the “Stop” button. The software will then decode and display all the received data from the controller and deck. A typical screen shot will look like this:



Event	Time	ID	Packet Data	Command	Packet #
00627	8225.160	Cntrl	61 20 51 D2	Status Sense, Start at 5 get 1 byte	27
00628	8225.176	VTR	71 20 00 91	Status Data: Search To Cue	27
00629	8225.320	Cntrl	61 0C 03 70	Curent Time Sense VITC Time LTC Time	27
00630	8225.342	VTR	74 04 65 43 04 01 25	LTC Time Data 01:04:43:25	27
00631	8227.286	Cntrl	21 21 36 78	Jog Reverse 0.487x	27
00632	8227.304	VTR	10 01 11	Ack	27
00633	8229.410	Cntrl	61 20 51 D2	Status Sense, Start at 5 get 1 byte	27
00634	8229.429	VTR	71 20 00 91	Status Data: Search To Cue	27
00635	8231.362	Cntrl	61 0C 03 70	Curent Time Sense VITC Time LTC Time	27
00636	8231.383	VTR	74 04 64 43 04 01 24	LTC Time Data 01:04:43:24	27
00637	8231.536	Cntrl	21 21 36 78	Jog Reverse 0.487x	27
00638	8233.345	VTR	10 01 11	Ack	27
00639	8422.068	Cntrl	61 20 51 D2	Status Sense, Start at 5 get 1 byte	28
00640	8422.083	VTR	71 20 00 91	Status Data: Search To Cue	28
00641	8422.228	Cntrl	61 0C 03 70	Curent Time Sense VITC Time LTC Time	28
00642	8422.248	VTR	74 04 63 43 04 01 23	LTC Time Data 01:04:43:23	28
00643	8424.193	Cntrl	21 21 36 78	Jog Reverse 0.487x	28
00644	8424.210	VTR	10 01 11	Ack	28
00645	8426.317	Cntrl	61 20 51 D2	Status Sense, Start at 5 get 1 byte	28
00646	8426.332	VTR	71 20 00 91	Status Data: Search To Cue	28
00647	8428.269	Cntrl	61 0C 03 70	Curent Time Sense VITC Time LTC Time	28
00648	8428.289	VTR	74 04 62 43 04 01 22	LTC Time Data 01:04:43:22	28
00649	8430.236	Cntrl	21 21 36 78	Jog Reverse 0.487x	28
00650	8430.254	VTR	10 01 11	Ack	28
00651	8432.360	Cntrl	61 20 51 D2	Status Sense, Start at 5 get 1 byte	28
00652	8432.374	VTR	71 20 00 91	Status Data: Search To Cue	28
00653	8434.313	Cntrl	61 0C 03 70	Curent Time Sense VITC Time LTC Time	28
00654	8434.335	VTR	74 04 61 43 04 01 21	LTC Time Data 01:04:43:21	28
00655	8434.487	Cntrl	21 21 36 78	Jog Reverse 0.487x	28
00656	8434.504	VTR	10 01 11	Ack	28

In the window, you will notice the exchange of data between the controller and the deck. The far left column is the event number followed by the timestamp, the port the command came from, the packet data and the decoded command.

Event

The BusAlyzer numbers each complete command and response in the order it was received and displays the number in this column.

Time

This column lists the actual relative time that a byte was received on either the controller or deck port. The time listed is relative to establishing a connection to the BusAlyzer and is displayed in milliseconds. Currently, the BusAlyzer timestamps received bytes with a resolution of 100 microseconds.

ID

This column indicates which port the data was received on.

Packet Data

This column displays the actual bytes that are received on either the controller or deck port. These bytes are displayed in hexadecimal format.

Comment

This column shows the decoded command if it is valid. Currently, only the Sony P2 protocol as defined in the *Protocol of Remote (9-pin) Connector 2nd Edition* is decoded. The decoder in the BusAlyzer analysis software will attempt to decode commands even if there are incomplete packets, errors or a checksum mismatch.

Packet#

This column indicates in which Ethernet packet the command was received.

BusAlyzer Software Functions

Capture

This button initiates an Ethernet connection to the BusAlyzer and begins the process of capturing data between the Controller and the deck.

Clear

This button clears all data in the list box.

Save Log

This button allows the BusAlyzer to save all the displayed data to a text file for later analysis.

Set Up

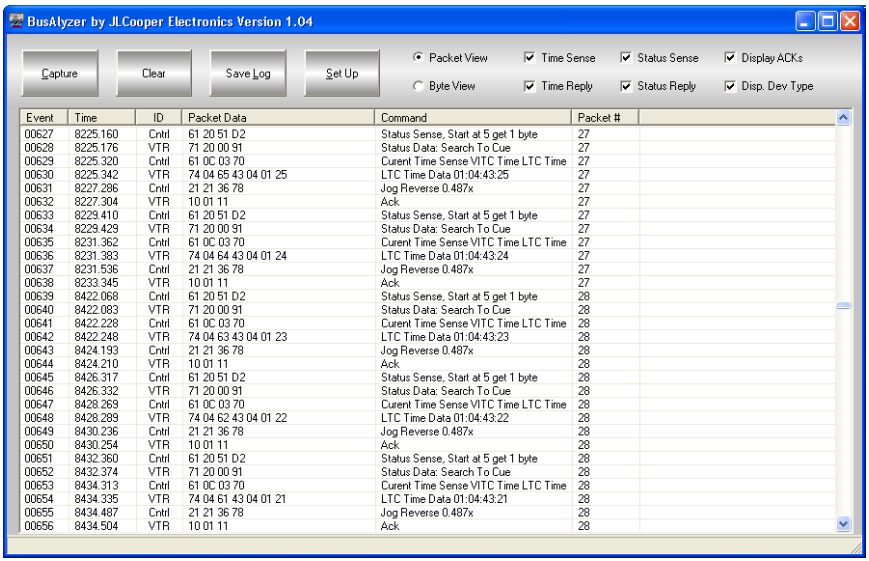
This button causes the set up dialog box to open so the IP settings can be changed.

Viewing Command and Response Data

The BusAlyzer Software allows you to view the received commands and responses in two different ways: Packet View and Byte View. Packet View allows you to analyze a large amount of data quickly. Byte View allows you to see the relationship between the actual bytes, which is helpful in finding overlapping or corrupt messages.

Packet View

Clicking on the "Packet View" button will cause the software to display an entire command on a single line as shown in the screen shot on the following page. You will notice that there is an additional labeled "ID". This indicates which serial port the packet came from.



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00635	8231.362	Cntrl	61 0C 03 70	Curent Time Sense VITC Time LTC Time	27
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00642	8422.248	VTR	74 04 63 43 04 01 23	LTC Time Data 01:04:43:23	28
00643	8424.193	Cntrl	21 21 36 78	Jog Reverse 0.487x	28
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00645	8426.317	Cntrl	61 20 51 D2	Status Sense, Start at 5 get 1 byte	28
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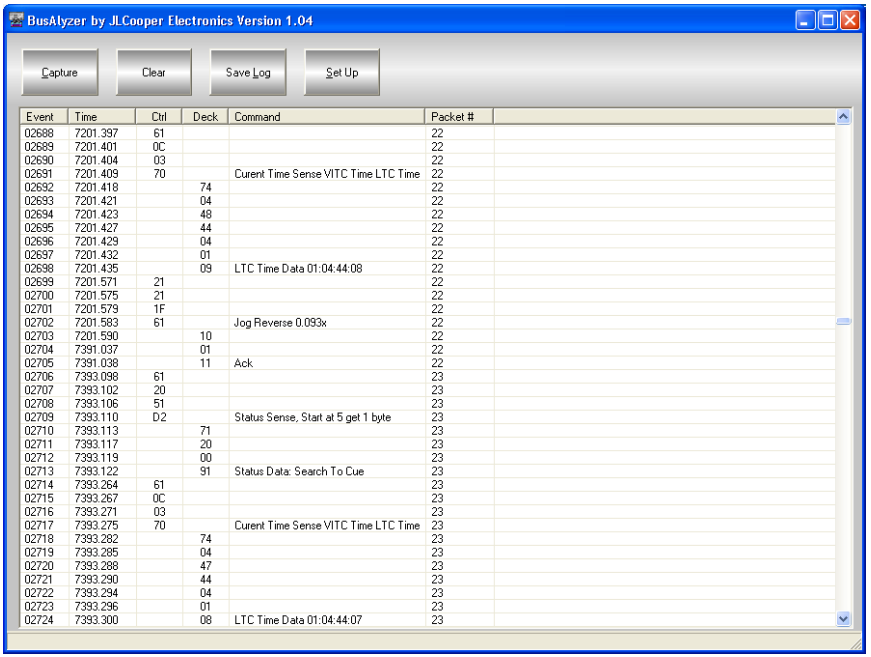
00647	8428.269	Cntrl	61 0C 03 70	Curent Time Sense VITC Time LTC Time	28
00648	8428.289	VTR	74 04 62 43 04 01 22	LTC Time Data 01:04:43:22	28
00649	8430.236	Cntrl	21 21 36 78	Jog Reverse 0.487x	28
00650	8430.254	VTR	10 01 11	Ack	28
00651	8432.360	Cntrl	61 20 51 D2	Status Sense, Start at 5 get 1 byte	28
00652	8432.374	VTR	71 20 00 91	Status Data: Search To Cue	28
00653	8434.313	Cntrl	61 0C 03 70	Curent Time Sense VITC Time LTC Time	28
00654	8434.335	VTR	74 04 61 43 04 01 21	LTC Time Data 01:04:43:21	28
00655	8434.487	Cntrl	21 21 36 78	Jog Reverse 0.487x	28
00656	8434.504	VTR	10 01 11	Ack	28

Byte View

Clicking on the “Byte View” button will cause the software to display each byte on a line. There is a column for bytes received on the Controller port and a column for bytes received on the Deck port.



Event	Time	Ctrl	Deck	Command	Packet #
02688	7201.397	61			22
02689	7201.401	0C			22
02690	7201.404	03			22
02691	7201.409	70		Curent Time Sense VITC Time LTC Time	22
02692	7201.418		74		22
02693	7201.421		04		22
02694	7201.423		48		22
02695	7201.427		44		22
02696	7201.429		04		22
02697	7201.432		01		22
02698	7201.435		09	LTC Time Data 01:04:44:08	22
02699	7201.571	21			22
02700	7201.575	21			22
02701	7201.579	1F			22
02702	7201.583	61		Jog Reverse 0.093x	22
02703	7201.590		10		22
02704	7391.037		01		22
02705	7391.038		11	Ack	22
02706	7393.098	61			23
02707	7393.102	20			23
02708	7393.106	51			23
02709	7393.110	D2		Status Sense, Start at 5 get 1 byte	23
02710	7393.113		71		23
02711	7393.117		20		23
02712	7393.119		00		23
02713	7393.122		91	Status Data: Search To Cue	23
02714	7393.264	61			23
02715	7393.267	0C			23
02716	7393.271	03			23
02717	7393.275	70		Curent Time Sense VITC Time LTC Time	23
02718	7393.282		74		23
02719	7393.285		04		23
02720	7393.288		47		23
02721	7393.290		44		23
02722	7393.294		04		23
02723	7393.296		01		23
02724	7393.300		08	LTC Time Data 01:04:44:07	23

Analysis using Packet Filtering

The usefulness of the BusAlyzer is enhanced by the filtering functionality of the BusAlyzer Software. By definition, the controller queries the deck for time and status quite often. Many times, we are not interested in these messages. Using the filters in the BusAlyzer Software, we can filter out unneeded Time Sense, Time Return, Status Sense, Status Return and Acknowledge messages.

Time Sense / Time Return / Status Sense / Status Return

These four buttons are very useful. They allow you to filter out frequently occurring status and return messages. Without them, you must filter many background messages that are not related to your analysis yourself. Clicking the Time Sense, Time Return, Status Sense and Status Return buttons instruct the BusAlyzer analysis software to filter those messages from the list box.

The sense and return filtering works in both Packet View and Byte View.

Supported Time Sense messages begin with 61 0C.

Supported Time Return messages begin with 74 00, 74 01, 74 04, 78 04, 74 05, 74 06, 78 06, 74 07 70 0D, 74 14 78 14, 74 16 and 78 16.

Supported Status Sense messages begin with 61 20.

Supported Status Return messages begin with 7x 20.

Ack

When a controller sends command blocks to a deck, the deck must always acknowledge the command with an ACK message. Most of the time however, these ACK messages are unnecessary for our analysis and only add to the amount of data we must sift through.

Clicking the ACK button will instruct the BusAlyzer analysis software to hide ACK messages from the deck. Clicking the button again will cause the BusAlyzer analysis software to show the ACK messages. This is helpful to increase the number of useful packets that can be seen on the screen at once.

NAK messages are always shown regardless of this setting.

ACK messages are defined as 10 01 11.
NAK messages begin with 11 12.

Technical Reference

Ethernet Interface

The Ethernet Interface is intended for operation with a host computer. It provides the advantages of a standard interface, long cable runs, use over private/public/wired/wireless networks, the ability of being shared among computers and the ability to work with any platform that supports TCP/IP.

The Ethernet interface in the BusAlyzer is a standard auto switching 10baseT/100baseTX, twisted pair interface with an RJ-45 connector. Use a straight through cable to connect the BusAlyzer to an Ethernet hub or switch. Use a crossover cable to connect the BusAlyzer directly to a host computer.

Serial Port Interface

The serial ports on the BusAlyzer are intended to connect to either a Controller or a Machine. Each serial port can be independently configured to connect to a Controller or a Machine. From the factory, the BusAlyzer is configured to connect to a controller on Port A and a machine on Port B.

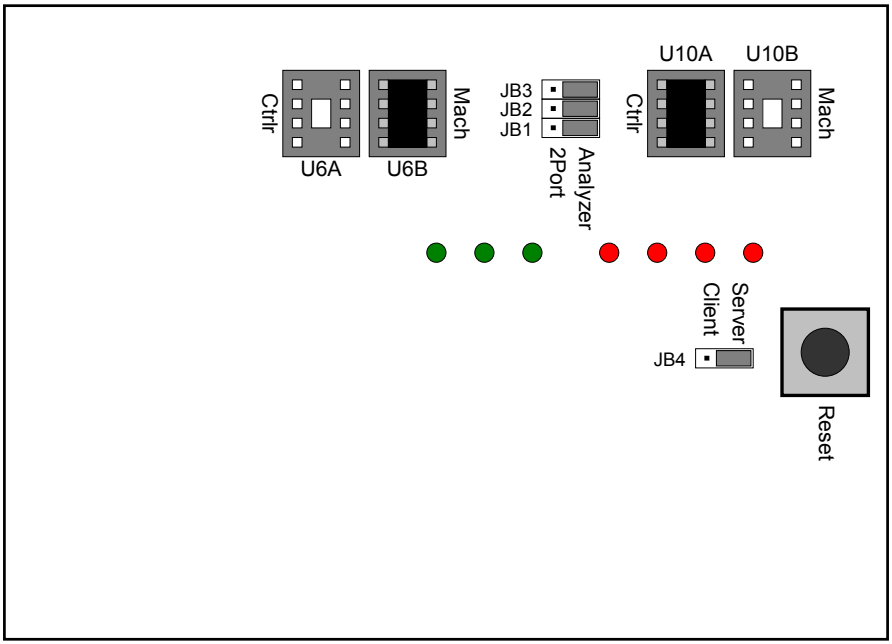
The pinout of the serial ports is listed in the table below.

Pin	Machine	Controller
1	Not connected	Not connected
2	Receive A	Transmit A
3	Transmit B	Receive B
4	Ground	Ground
5	GPI Input	GPI Input
6	Ground	Ground
7	Receive B	Transmit B
8	Transmit A	Receive A
9	Ground	Ground

The ports can be configured to connect to either a controller or machine by:

1. Removing the four small screws securing the top panel.
2. Removing the top panel.
3. Port A is configured by moving U10 to either the “Ctrlr” for a controller or “Mach” position for a machine.
4. Port B is configured by moving U6 to either the “Ctrlr” for a controller or “Mach” position for a machine.
5. Replacing the top panel.
6. Replacing the four small screws.

In the example below, Port A is configured to connect to a controller and Port B is configured to connect to a machine or deck.



BusAlyzer Jumper Configuration

GPI Input

Both Port A and Port B have a General Purpose Interface input. This can be used to sense external signals such as tallies and alarms. This pin is a CMOS input. The input signal must be limited to between 0 and 5 volts referenced to ground. This input is pulled up to +5 volts with an internal pullup resistor. This makes it compatible with dry relay contacts, optoisolators and open collector outputs.

A change in the state of this pin will be indicated in the list box on the BusAlyzer analysis software.

Power

The BusAlyzer requires a 9-12 volt DC power supply capable of delivering at the minimum, 0.5 amps. The unit comes with a power supply (JLCooper part number PSDC117). If you need a power supply specific to your location, please contact your local distributor or JLCooper Electronics.

> *Warning: using a power supply other than, the unit specified could result in damage to the BusAlyzer and/or other equipment, which is not covered by the JLCooper Factory Warranty.*

Troubleshooting

If for some reason the BusAlyzer does not give you the expected results, take a moment to do some investigating. The most important concept is that you have your BusAlyzer connected properly as outlined in *Installation and Use*. Take a moment to double check your setup.

A common problem is forgetting to turn the power switch on or turning the unit on after the software application has launched.

In addition, the JLCooper website (www.jlcooper.com) will contain current information on drivers, applications and troubleshooting.

Below are listed some possiable issues and solutions.

Issue
Can't connect to BusAlyzer with the BusAlyzer analysis software through an Ethernet hub or switch.
Cause
BusAlyzer not properly connected to ethernet hub or switch.
Solution
Connect BusAlyzer to ethernet hub or switch with a straight through cable not a crossover cable.

Issue
Can't connect to BusAlyzer directly to my PC with the BusAlyzer analysis software.
Cause
BusAlyzer not properly connected to PC.
Solution
Connect BusAlyzer to ethernet port on your PC with a crossover cable not a straight through cable.

Issue
Can't connect to BusAlyzer with the BusAlyzer analysis software.
Cause
Ethernet settings on BusAlyzer and PC are not compatible.
Solution
Set the ethernet settings on your busalyser and PC to work together.

For example, with the BusAlyzer factory defaults of:

IP Address	192.168.254.114
Subnet Mask	255.255.255.0
Gateway	192.168.254.198

Set your PC ethernet settings to:

IP Address	192.168.254.nnn
Subnet Mask	255.255.255.0

nnn is anything except 112 or 114

Note: You can verify that the computer can communicate with the BusAlyzer by pinging the BusAlyzer. In Windows, click Start | run… and type: `ping 192.168.254.114`. *If everything is configured correctly, the BusAlyzer will reply.*

Issue
I still can't connect to BusAlyzer with the BusAlyzer analysis software.
Cause
The BusAlyzers internal jumpers may not properly configured.
Solution
Open the unit and verify that JB4 is in the Server position.

Issue

I still can't connect to BusAlyzer with the BusAlyzer analysis software.

Cause

There may be another device on the newtork that uses the same address as the BusAlyzer.

Solution

Change the IP address of the conflicting device or remove the conflicting device.

Issue

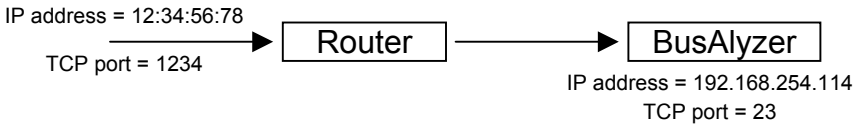
Can't connect to BusAlyzer with the BusAlyzer analysis software behind a router.

Cause

An ethernet router may block and/or translate ethernet traffic.

Solution

Ask your network administrator for assistance. If the BusAlyzer is set as a server and is behnd a router, you will need to perform port forwarding. Configure your router to forward TCP traffic on one port to the IP address and port number of your BusAlyzer. You will also need to configure the busalyser gateway address to match the routers address.



Issue

I can connect to BusAlyzer with the BusAlyzer analysis software but I don't seen any RS-422 traffic.

Cause

The controller and deck may not be connected porperly.

Solution

Make sure the controller is plugged into Port A and the deck is plugged into Port B.

Issue
I still don't seen any RS-422 traffic in the BusAlyzer analysis software.
Cause
The BusAlyzers internal jumpers may not properly configured.
Solution
Open the unit and verify that U6 is in the Mach position, U10 is in the Ctrlr position, JB4 is in the Server position and JB1,2,3 are in the Analyzer position.

Issue
I can't access the BusAlyzers' Configuration Web Page.
Cause
You could be be using an incorrect IP address.
Solution
The BusAlyzer Configuration Web page is at 192.168.254.112. This differs from address of the normal, operation mode.

Issue
I still can't access the BusAlyzers' Configuration Web Page.
Cause
Browser incompatibility.
Solution
Currently, the BusAlyzer only supports Internet Explorer 6. Later versions of Internet Explorer and Firefox have known incompatibilities.

Care and Service

If properly cared for, your BusAlyzer should provide years of troublefree performance. While the BusAlyzer is built in a rugged enclosure, please avoid dropping the BusAlyzer.

Clean with a soft, damp cloth. Do not allow liquids, dust or other foreign matter to get inside the unit.

There are no user-serviceable parts in the BusAlyzer. Please refer to the JLCooper Electronics Limited Factory Warranty on the following page for detailed warranty and service information.

JLCooper Electronics Limited Factory Warranty

JLCooper Electronics ("JLCooper") warrants this product to be free of defects in materials or workmanship for a period of 12 months from the date of purchase. This warranty is non-transferable and the benefits apply only to the original owner. Proof of purchase in the form of an itemized sales receipt is required for warranty coverage. To receive service under this warranty, customers in the United States should contact the JLCooper factory at (310) 322-9990 and talk to a service technician. If necessary, a Return Authorization number may be issued. For our customers outside the United States, it is recommended that you first contact your Dealer or Distributor, since they may offer their own service or support policy. If local support is not obtainable, please send a FAX to JLCooper's Service Department at +1 310 335 0110 with a detailed description of the service required. Upon issuance of return authorization, the product should be packed in the original shipping materials and shipped prepaid and insured to: Service Department, JLCooper Electronics, 142 Arena Street, El Segundo, CA 90245. Please include the following: copy of the sales receipt, your name and address (no P.O. Boxes, please), a brief description of the problem, and any other related items discussed with the service department and considered necessary to evaluate the product or effect a repair. The return authorization number must be clearly written on the outside of the package. JLCooper will at its option, without charge for parts or labor, either repair or replace the defective part(s) or unit. Shipping costs are not covered by this warranty. JLCooper's normal repair turn around time at the factory is approximately 15 business days from receipt of product to shipping. Your actual turn around time will include return shipping. Actual turn around time will vary depending upon many factors including the repeatability of the customer's reported complaint, the availability of parts required for repair, the availability of related products needed to evaluate the product if necessary. Priority services are available at additional cost. These should be discussed with the service technician at the time the return authorization is issued. This warranty provides only the benefits specified and does not cover defects or repairs needed as result of acts beyond the control of JLCooper including but not limited to: abuse, damage by accident/negligence, damage from using incorrect power supply, modification, alteration, improper use, unauthorized servicing, tampering, or failure to operate in accordance with the procedures outlined in the owner's manual; nor for natural or man-made events such as, but not limited to flooding, lightning, tornadoes, earthquake, fire, civil unrest, war, terrorism, etc.

THE DURATION OF ANY OTHER WARRANTIES, WHETHER IMPLIED OR EXPRESS, INCLUDING BUT NOT LIMITED TO THE IMPLIED WARRANTY OF MERCHANTABILITY, IS LIMITED TO THE DURATION OF THE EXPRESS WARRANTY HEREIN. JLCOOPER HEREBY EXCLUDES INCIDENTAL AND CONSEQUENTIAL DAMAGES, INCLUDING BUT NOT LIMITED TO: LOSS OF TIME, INCONVENIENCE, DELAY IN PERFORMANCE OF THIS WARRANTY, THE LOSS OF USE OF THE PRODUCT OR COMMERCIAL LOSS, AND FOR BREACH OF ANY EXPRESS OR IMPLIED WARRANTY OF MERCHANT-ABILITY APPLICABLE TO THIS PRODUCT. JLCOOPER SHALL NOT BE LIABLE FOR DAMAGES OR LOSS RESULTING FROM THE NEGLIGENT OR INTENTIONAL ACTS OF THE SHIPPER OR HIS CONTRACT AFFILIATES. THE CUSTOMER SHOULD CONTACT THE SHIPPER FOR PROPER CLAIMS PROCEDURES IN THE EVENT OF DAMAGE OR LOSS RESULTING FROM SHIPMENT. THIS WARRANTY SHALL BE GOVERENED BY THE LAWS OF THE STATE OF CALIFORNIA.