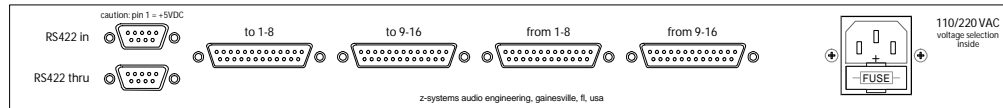


Digital Detangler Pro Instructions

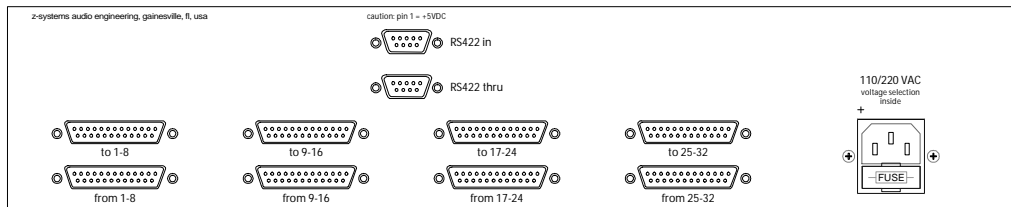
The Digital Detangler Pro is an automated patchbay/distribution-amplifier for digital audio signals. The primary function of the Digital Detangler Pro is to route the outputs of different machines to the inputs of other machines. For example, the output of a digital audio workstation (DAW) may be sent to the inputs of 16 DAT machines simultaneously. Or, the output of one DAW may be sent to 8 DAT machines while the output of another DAW is sent to another 5 DAT machines and the output of an A/D converter is sent to still another 3 machines. The power of the Digital Detangler Pro is that the various devices are physically connected to the Digital Detangler Pro in one configuration, while the output-to-input routing patterns can be changed dynamically without needing to unplug and rearrange cables.

The terminology used throughout this manual is simple. Device outputs are sent to the Digital Detangler Pro's inputs. These signals are referenced by the term "from." The Digital Detangler Pro's outputs are sent to device inputs. These signals are reference by the term "to." For example, we route "from" a CD player "to" a DAT machine.

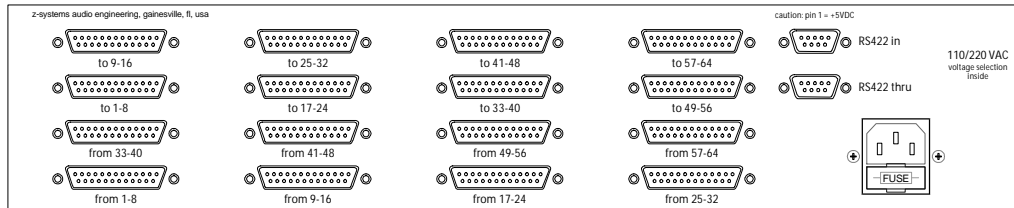
Figure 1 shows the rear panel layouts of the various Digital Detangler Pro models. Observe that the Digital Detangler Pro uses DB25 connectors for its digital audio inputs and outputs. The pinout is the same one that the Tascam DA88 uses for its *analog* I/O, only you will want to use digital cable. We can provide you with these cables or we can refer you to various other vendors.



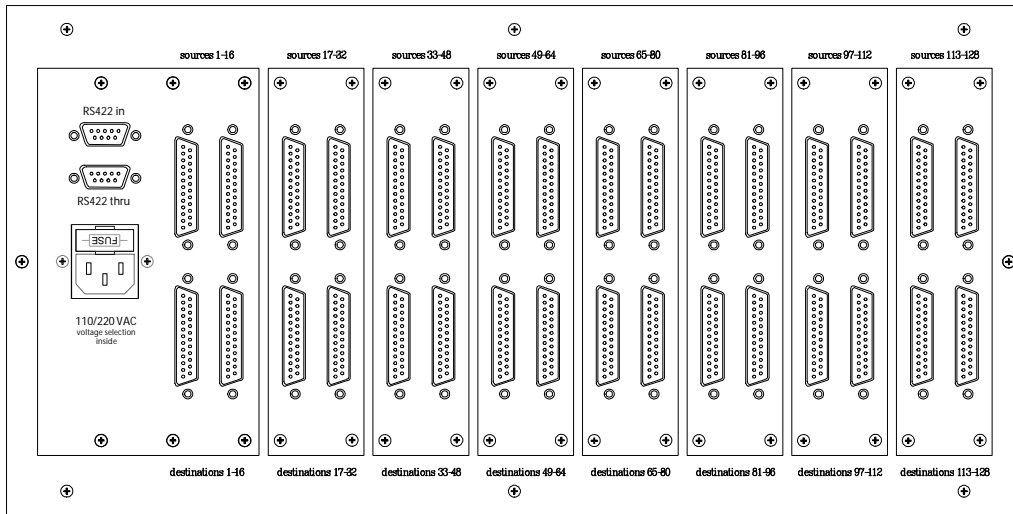
z-16.16r and z-8.8r rear panel (above)



z-32.32r rear panel (above)



z-64.64r rear panel (above)



z-128.128r rear panel (above)

Figure 1: Digital Detangler Pro rear panel layouts

An important note: Digidesign uses a DB25-to-XLR harness for AES/EBU I/O on their new ProTools HD system, but the pinout is different. They put four AES/EBU sources and four AES/EBU destinations on a single DB25-to-XLR cable. We put either eight AES/EBU sources or eight AES/EBU destinations on a single DB25-to-XLR cable. We can supply you with ProTools HD-to-Digital Detangler Pro adapter harnesses.

Also note that the naming convention in Figure 2 is based on stereo pairs. For example, pins 1G, 1+, and 1- would connect to the three pins of an XLR connector for AES/EBU, and this connector carries two channels of digital audio. Thus, a single DB25 connector carries eight stereo pairs of digital audio.

Furthermore, the naming of the various models references how many stereo pairs of digital audio are supported. For example, the z-32.32r has 32 stereo pairs in and 32 stereo pairs out. The units can not cross-route different halves of a stereo pair; all routing must be done on a stereo-pair basis.

You will want female XLRs on the source harnesses and male XLRs on the destination harnesses. If in doubt, or if you wish to make your own cable assemblies, Figure 2 shows the proper pin-out for both the source and destination connectors.

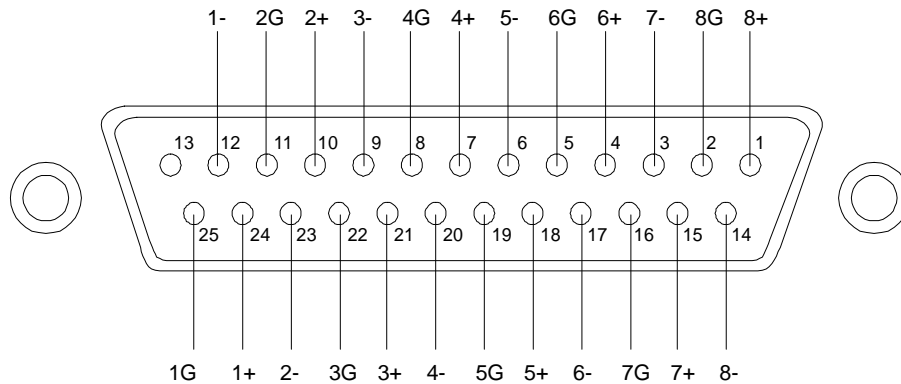


Figure 2 – DB25 pinout

The configuration of the Digital Detangler Pro is defined by a set of "to/from" pairs. Each "to" can have only one "from" sent to it at a time (to do otherwise would require a digital mixer).

Changing the configuration of the Digital Detangler Pro is simple -- you merely edit the to/from pairs one at a time until you have the desired configuration. If you have a number of different configurations you will be using frequently (e.g., CD mastering setup, DAW archive-to-tape setup, DAW load from multitrack setup, DAT duplication setup, etc.), you have the ability to reconfigure the Digital Detangler Pro for your needs at the touch of a few buttons -- the remote controller for the Digital Detangler Pro allows you to save and recall up to 15 entire configurations. These configurations are held in non-volatile memory in the remote controller. This means that the configurations are held between power-downs.

The Digital Detangler Pro itself also has non-volatile memory, but only for one configuration. The remote control can be used to edit this configuration and put it in the Digital Detangler Pro memory. Then, whenever the Digital Detangler Pro is powered up this configuration will be loaded, regardless of whether or not the remote control is attached.

Figure 3 shows the front-panel layout for the z-rrc router remote control unit. The controls/indicators have the following functions.

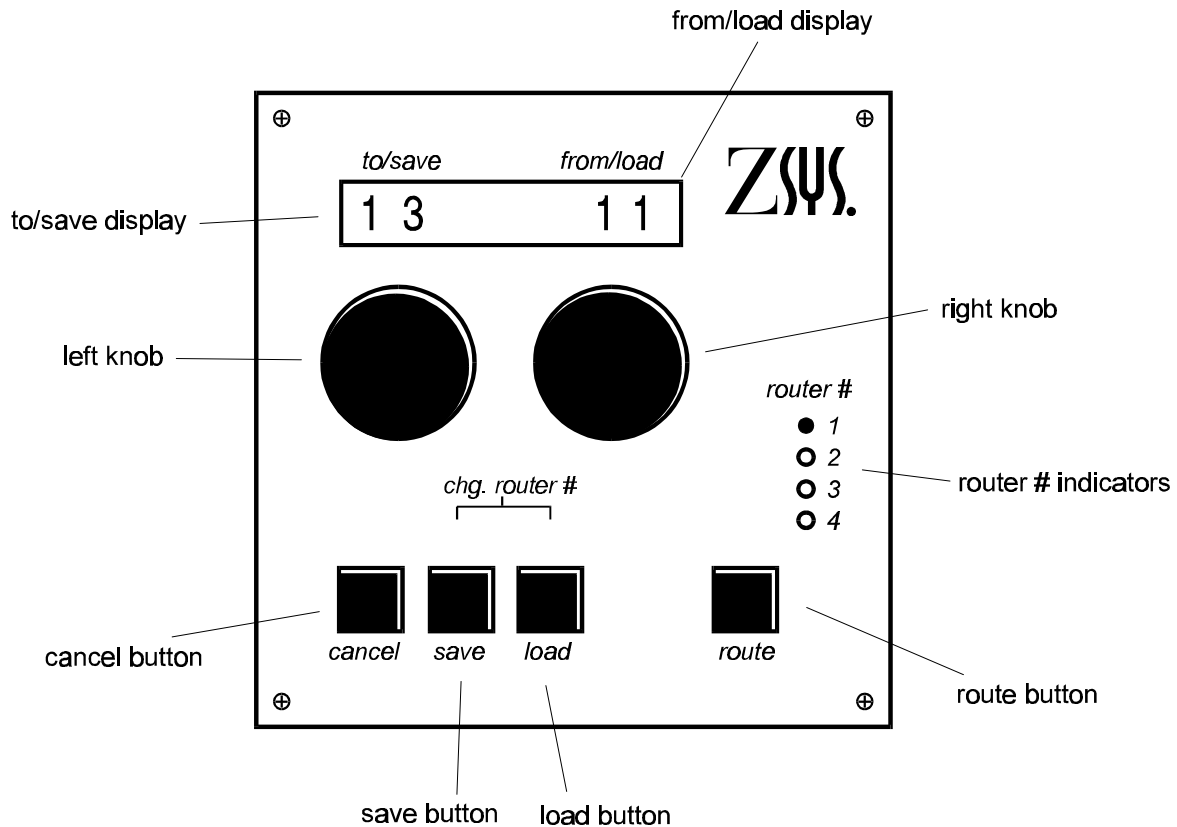


Figure 3 – Router Remote Control

- **to/save display.** This indicator shows the "to" half of the to/from pair being edited. When saving configurations, this indicator shows the memory location to be used to save the configuration.

- **from/load display.** This indicator shows the "from" half of the to/from pair being edited. When loading configurations, this indicator shows the memory location from which to load.

- **left knob.** This knob is used to scroll through the "to" device numbers. Turning the left knob clockwise increments the "to" device number, while turning it counter-clockwise decrements the "to" device number. As the "to" number is changed, the "from" number changes with it, showing the current state of the to/from pair.

When loading or saving configurations, the left knob is used to scroll through the "save" or "load" memory locations.

- **right knob.** This knob is used to scroll through the "from" device numbers. Turning the right knob clockwise increments the "from" device number, while turning it counter-clockwise decrements the "from" device number. The "to" device number does not change, so turning the right knob changes the "from" half of the to/from pair.

- **save button.** Pressing this button puts the remote controller into save mode. When the **save button** is pressed, the **save indicator** turns on, the **from/load display** goes blank, and the **to/save display** indicates the save number. The **left knob** is used to select the save number. Pressing the **cancel button** aborts this operation, while pressing the **save button** a second time saves the configuration and returns the remote controller to normal mode.

- **load button.** Pressing this button puts the remote controller into load mode. When the **load button** is pressed, the **load indicator** turns on, the **to/save display** goes blank, and the **from/load display** indicates the load number. The **left knob** is used to select the load number. Pressing the **cancel button** aborts this operation, while pressing the **load button** a second time loads the configuration and returns the remote controller to normal mode.

- **route button.** Pressing this button sends the current configuration of the remote controller to the Digital Detangler Pro and establishes the connection pattern in the router. Until the **route button** is pressed, the configuration is *local to the remote controller only* -- the Digital Detangler Pro will not change its configuration until this button is pressed. This allows you to make configuration changes and not have them take effect until they are complete.

- **save indicator.** This LED indicates that the remote controller is in save mode.

- **load indicator.** This LED indicates that the remote controller is in load mode.

- **router # indicators.** These LEDs indicate which router is being controlled by the remote controller. To change the router number, press the **load button** and the **save button** at the same time. Both the **save indicator** and the **load indicator** will light and both the **to/save display** and the **from/load display** will go blank. Now, the **left knob** is used to change the router number, which will be reflected by the **router # indicators**. The **exit** button is used to return to normal operation.

- **escape button.** This button is used to cancel load and save operations and to return to normal operation from the router number change sequence.

When the power is first turned on, the Digital Detangler Pro wakes up with its own configuration (the one stored in its own non-volatile memory) while the remote controller wakes up in the configuration stored in memory location #1. Obviously, the Digital Detangler Pro and the remote might not have the same configurations. Therefore, it is important to be able to determine what configuration the Digital Detangler Pro is holding. To do this, simply load from memory location #16 (in other words, hit the **load button**, turn the **right knob** until 16 shows on the **from/load display**, and hit the **load button** again). The remote controller will now hold the same configuration as the Digital Detangler Pro.

Although the remote controller will let you save the configuration to memory location #16, don't do it since it will not be possible recall this configuration.

Figure 4 shows the RS422 input DB9 receptacle on the back of the Digital Detangler Pro. This is the receptacle to which you should connect the router remote controller. Be careful if you are using the Macintosh software interface for the Digital Detangler Pro -- please use the cable we supply in order to connect your computer and the router. ***It is important to make note that pin 1***

on the connector is a +5-volt power supply pin, used to supply power to the remote controller. If the Digital Detangler Pro is to be hooked up to a computer, it is critical that this pin not be passed through to the computer's serial port. The +5-volt power output is *not* present on the RS422 thru receptacle. To daisy-chain multiple routers, simply attach the remote controller to the RS422 input receptacle of the first router, connect the RS422 thru receptacle of the first router to the RS422 in receptacle of the second router, and so forth.

A note about computer control for the Digital Detangler Pro:

Z-Systems can supply you with computer interface kits for the Digital Detangler Pro. Both Windows and Macintosh software are available. The Windows control kit consists of software for the PC, an RS232-to-RS422 converter module, and a special cable. The Macintosh control kit consists of software for the Mac OS and a special Mac mini-DIN-to-DB9 converter cable. Contact your dealer or Z-Systems for information and pricing on the software control kits. If you wish to write your own software, please send an email to info@z-sys.com asking for a copy of the control protocol.

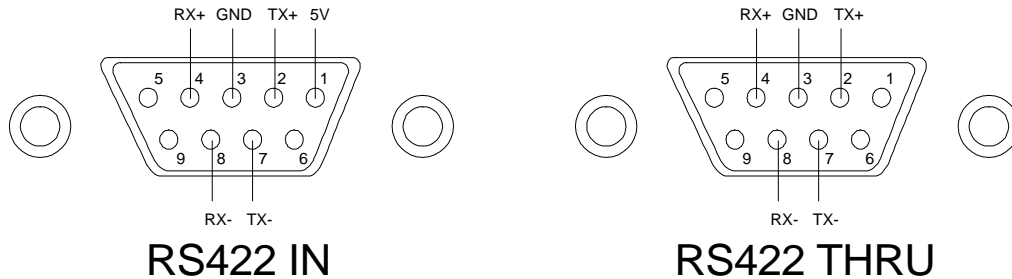


Figure 4 – RS422 in and RS422 thru port pinouts