

Fast Facts

RZ6 Z-Series Processor



This fast fact sheet provides basic reference information for the RZ6 Z-Series Processor and related devices. See the System 3 Manual for more detailed information. **Note:** The RZ6 is available with up to four processors.

Onboard Analog Output. The RZ6 is equipped with two analog output channels and two channels of programmable attenuation. In Synapse, analog output [DAC] must be enabled and configured on the RZ6 Options pages.

Analog signals are output through connectors on the RZ6 front panel:



1. **Manual Attenuator.** Quickly add attenuation to analog outputs from 0 to 27 dB in increments of 3 dB. Manual attenuation is applied before the signal is output on any of the front panel connectors and is therefore added to any programmable attenuation applied.
2. **Analog Output via BNCs.** DAC channels A and B are output to BNCs labeled Out-A and Out-B after attenuation has been applied. These outputs use a power amplifier to drive various transducers (such as TDT's magnetic speakers).
3. **Stereo Headphone Output.** DAC channels A [left] and B [right] are available on two 1/8" audio jack connector ports]. The port labeled A&B [top] provides output suitable for experimental paradigms while the port labeled Mon [bottom] outputs can be controlled by the Mon Level knob.
4. **Electrostatic Speaker Output.** A switch located directly to the left of the two 4-pin, mini-DIN connectors is used to enable or disable output of both electrostatic channels. Always turn the switch OFF when not using these outputs.
5. **Monitor Speaker.** A switch located directly to the left of the monitor speaker is used to switch between DAC channels A and B or to disable the monitor speaker. The Mon Level knob can also be used to control monitor speaker output level.

Front Panel Display. Push and release the Mode button to manually change the display options or push and hold the button for one second then release to automatically cycle through options:

- Cyc: percentage of cycle usage
- Bus%: percentage of internal device's bus capacity used
- I/O%: percentage of data transfer capacity used
- DAC: current hardware attenuator setting. Displays bars* according to the RMS level of DAC A and B using a logarithmic scale.
- ADC: displays bars* according to the RMS level of DAC A and B using a logarithmic scale.

*Eight solid bars denote signal clipping.

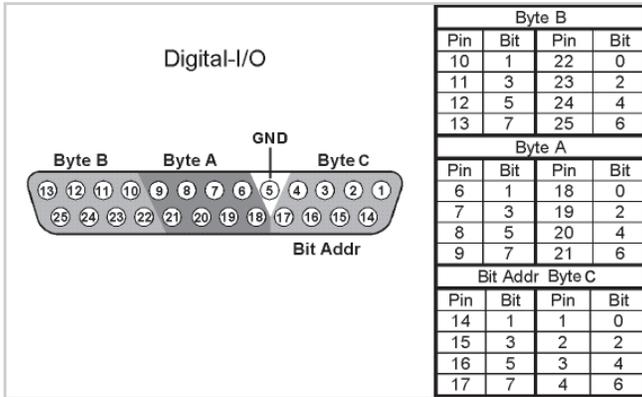
The VFD screen may also report system status such as booting status [Reset]. **Note:** When burning new microcode or if the firmware on the RZ6 is blank, the screen will report 99% cycle usage and the processor status lights will flash red.

Digital Input/Output. The digital I/O circuits include 24 bits of programmable I/O.

- Byte A = bits 0 - 7 [byte addressable]
- Byte B = bits 8 - 15 [byte addressable]
- Byte C = bits 16 - 23 [byte addressable]

Digital I/O lines are accessed via the 25-pin connector on the front of the RZ6.

DB25 Digital Input/Output Connector Pinouts

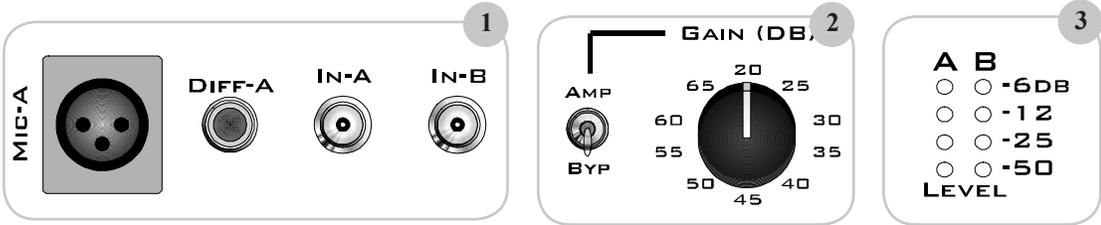


Fiber Optic Input Port (Optional). The RZ6-A-P1 is equipped with a fiber optic amp input port and can be used with the RA4PA to input up to 4 channels at a maximum sampling rate of ~25 kHz. Oversampling allows the RZ6 to sample up to ~200 kHz while using an RA4PA.

See the *Preamplifiers* section of the *System 3 Manual* for connection diagram.

In Synapse, front panel analog input [DAC] and Digital I/O must be enabled and configured on the RZ6 Options pages.

Onboard Analog Input. The RZ6 is equipped with two analog input channels.



1 Analog Input Channels. Can be input through several RZ6 front panel connectors:

- Channel A Inputs
- Channel B Inputs
- BNC labeled In-A
- BNC labeled In-B
- MIC-A [XLR microphone input]
- DIFF-A [1/4" TRS microphone input]

Important! Use only one input for channel A at a time.

2 ADC and Microphone Amplifier. An onboard two channel amplifier provides gain for input channels A and B. The switch to the left of the gain control knob allows the current gain setting to be applied (if set to Amp) or bypassed completely (if set

to Byp]. When gain amplification is in use, the amplifier is AC coupled to prevent clipping caused by a DC offset.

Using a differential microphone when the gain is enabled also inherently adds 6 dB to the original signal, so, setting the gain knob to 20 dB would apply a gain of 26 dB.

3 ADC LED Indicators. LEDs indicate the level of the signals relative to 10 V peak on ADC channels A and B and are useful for adjusting the gain and to detect and prevent clipping.