

ReDAC™ Input/Output Module



Picture Source: <http://www.xkeys.com/redac/redacio.php>

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Abstract:

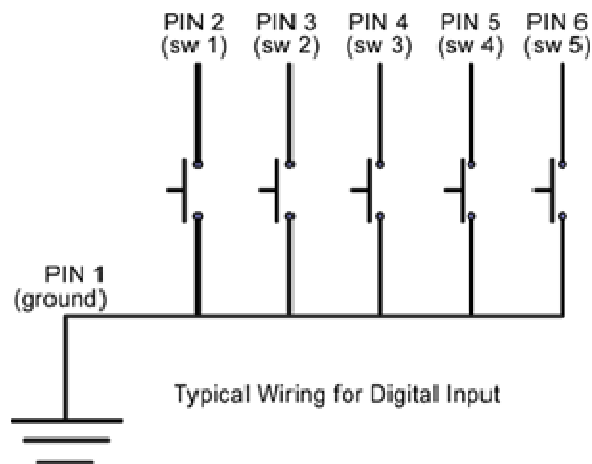
As the name suggests, the ReDAC (Real World Display and Control) is an input/output system which reads in inputs from both Digital and Analog systems and can return digital outputs. It can read 23 Analog and 46 digital inputs and can send 24 Digital Outputs. It interfaces with any USB capable operating system. It comes with a simple software package which displays the inputs to the different ports.

Objective:

In any variety of projects it becomes necessary to manage digital or analog inputs and be able to return a digital signal to the system. The ReDAC system allows one to take these analog and digital signals from the system and read them into a software package from which the values can be sent to a controlling software system allowing the values to be manipulated and a digital signal created then sent back out through the ReDAC to the system.

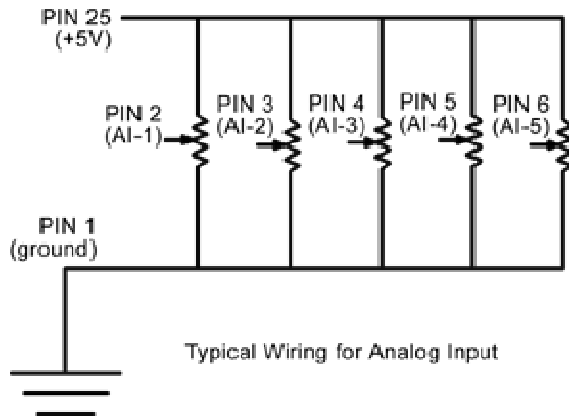
How it works:

The ReDAC system has 46 Digital Inputs divided into two ports. Each port consists of a ground pin located at pin 1 and a 5 V DC pin located at pin 25. The ports also contain 23 pins which contain parallel switches which report the state of the switch to the software.



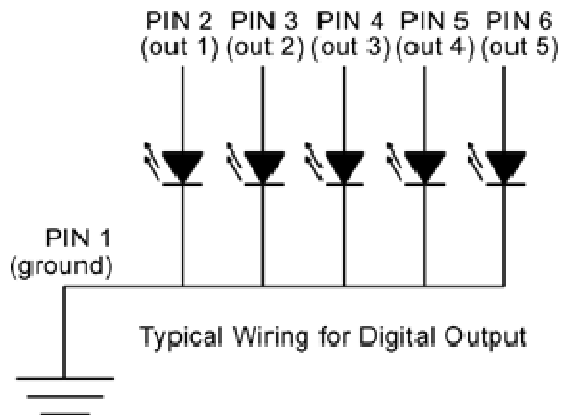
Picture Source: <http://www.xkeys.com/redac/redaciopinout.php>

The ReDAC also contains 23 Analog Inputs into a single port. The port consists of a ground pin located at pin 1 and a 5 V DC pin located at pin 25. The port also contains 23 pins which contain parallel pins connected through potentiometers.



Picture Source: <http://www.xkeys.com/redac/redaciopinout.php>

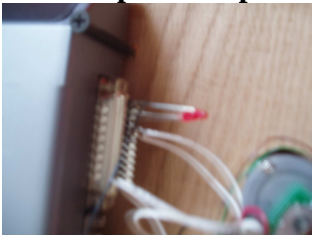
Finally the ReDAC also contains 24 outputs in a single port. The port contains a ground pin located at pin 1 and 24 additional pins to connect to outputs.



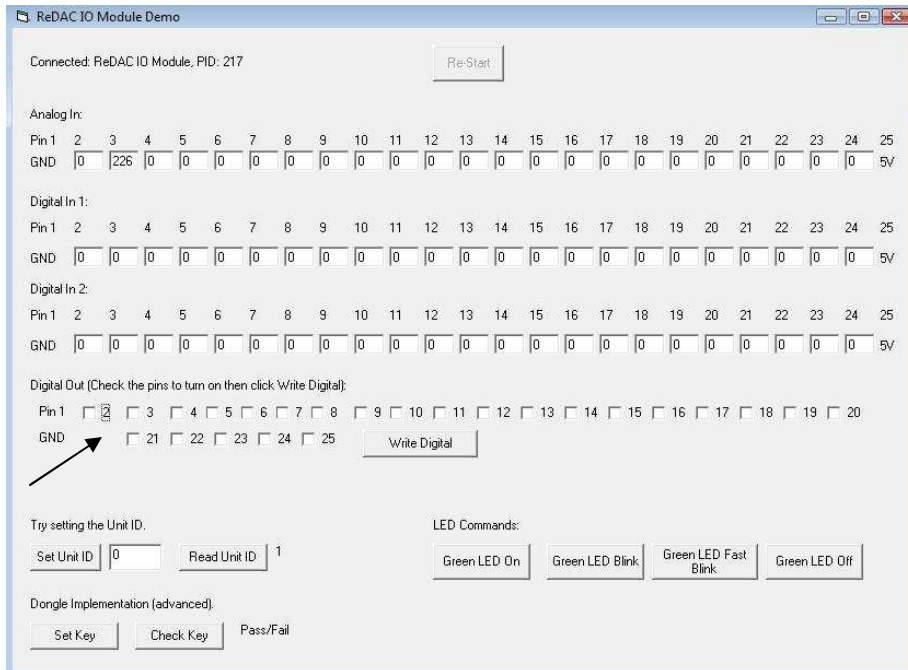
Picture Source: <http://www.xkeys.com/redac/redaciopinout.php>

Examples:

As a simple example take the two LED's in the picture below.

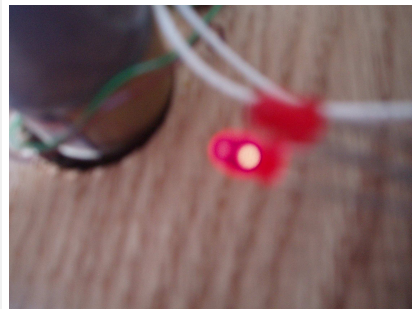
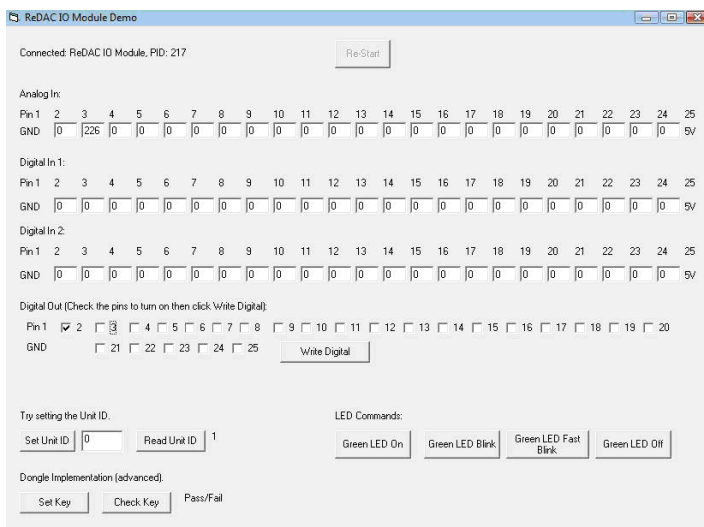


One of the LED's is connected between pin 1 and pin 2 of the output port and the other is connected between pin 1 and pin 3 of the output port. They are both connected to pin 1 because it is the ground pin.

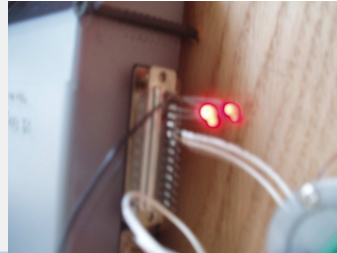
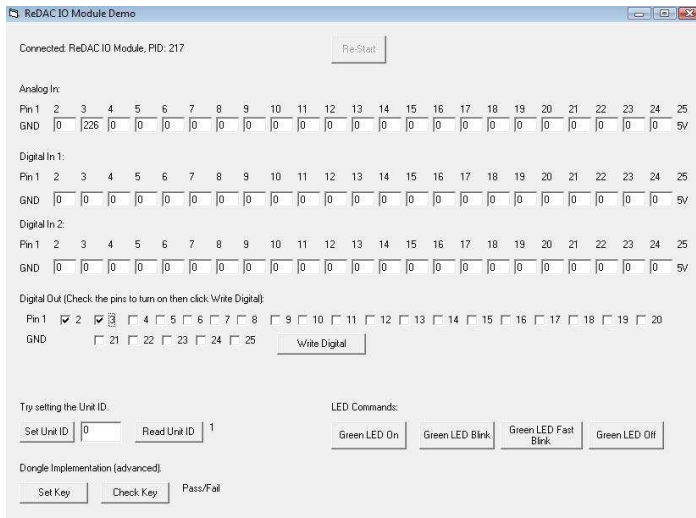


In the picture above is a snapshot of the software program that accompanies the ReDAC device. The Arrow is pointing to the digital output controls.

If either pin 2 or pin 3 is set with the current set up of the LED's connected to the output ports, the led will turn on as can be seen in the pictures below.



Also, the system can send multiple outputs simultaneously. So if we turn on pin 2 and pin 3 both lights will come on as shown below.



Issues:

The major thing to be careful of is not to short one of the pins because it will draw a large current and could cause major damage to the connected circuitry.

Conclusion:

The ReDAC device is an excellent way to collect digital and analog inputs from a system. It allows you to read them into a software system to manipulate them and send a digital signal back to the system.