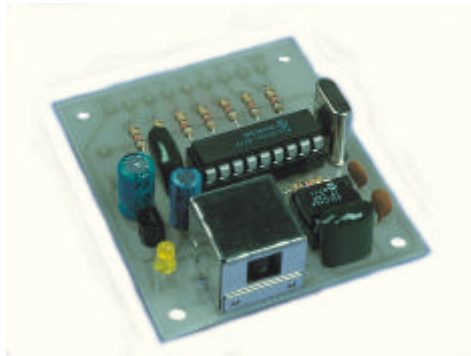# Blue Point Engineering

IR-Decoder Module

The IR-Decoder has 7 individual TTL (0 or +5V) level outputs which can be programmed to correspond to any button on an IR remote control and can be set-up for one of two options: to toggle the output between 0 and +5v whenever the particular button is pressed or momentary output which remains at +5v only when the button is pressed.
Programming the unit is very simple- aiming the remote at the IR-Decoder module whilst pressing the required buttons enables the Decoder to "learn" and record the data streams being sent it. Subsequent received data streams are then compared to the taught data sets until a match is found.

Operation
Connect a suitable power source to the decoder (eg PP3 battery). Locate the two jumper pins adjacent to the IR module and, using a small screwdriver, briefly short them together. This will cause the LED to light and remain on.

Point the remote control at the module (keep the minimum distance between them to about 1m or otherwise the decoder's input circuit may be overloaded and prevented from memorising the correct data stream) and press and hold the button you wish to assign to I/O pin 1. After approximately 1-2 seconds the LED will flash off and then back on. If you wish I/O pin 1 to be configured as a "toggle" type pin, immediately release the control button. For a "momentary" type output, keep the button on the control depressed until the LED flashes a second time.

Next choose the button you wish to assign to I/O pin 2 and repeat the above procedure. Repeat until all 7 I/O pins have been programmed after which the Decoder will automatically terminate the programming mode and turn off the LED.

Programming cannot end until all 7 I/O pins have been allocated. The programmed information is stored in non-volatile memory- it will not be lost when the decoder is switched off.

Outputs
Connect a voltmeter or LED to the various outputs. Pressing the appropriate control button will cause the LED to turn on and off as the button is pressed.

You can assign more than one I/O pin to a particular button- one I/O could be set-up to toggle between high and low and another (set to momentary action) could indicate how long the button was pressed.

The chip used in the decoder is a standard PIC microcontroller. As such the outputs may sink or source up to 20mA each. To drive relays etc it will be necessary to include either a power handling chip such as the ULN2003 (provides 8 outputs of which only 7 are used) or individual transistor drivers.

Problems

The Decoder modules are fully tested before shipping. If you experience problems, please check the following points:

Decoder will not programme (LED does not flash on/off)
Check that the batteries in the Remote Control are in good condition

Decoder appears to programme but will then not respond as expected
Data may be being corrupted during programming-
Re-programme but increase the distance between the Control and the Decoder,
Avoid programming near fluorescent lights.

Output cannot be programmed as a momentary action
Some Controllers only emit a single, one-shot stream of data when a button is pressed. This type of control cannot be used to set a momentary action output.