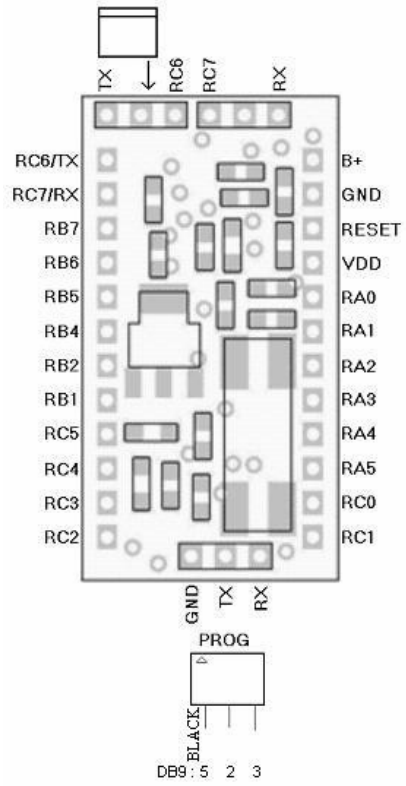
EZ-Controller

Welcome to the EZ-Controller module quick user guide. This guide consists of the characteristics of the module and general information related to its usage.

Characteristics

- Compact size DIP-24
- 2 external interrupt sources
- Boot loader leaves hardware UART available for user program
- 20 configurable inputs/outputs
- Asynchronous serial port
- I^2C port
- PWM modulator
- 5 channels 10 bits AD
- 32 KB FLASH (16 K instructions)
- 1.5 KB RAM
- 256 BYTES EEPROM
- 20 MHz oscillator (5 MIPS)
- Integrated 5V regulator
- Integrated MAX232 circuit
- Power LED
- Built in boot loader program

Connections



If your supply voltage ranges between 4.2V and 5.5V, connect the supply to the VDD (bypassing the onboard 5V regulator).
If your supply voltage is greater than 6V, you must connect the supply to the B+. In this situation, the VDD pin can be used to supply an additional circuit with 5V at 500 mA (maximum power dissipation in the regulator is 1W@40ºC ambient).

RC6/TX and RC7/RX connections can be configured at TTL levels (0,5V) or at RS-232 levels (-8,+8V). In the example shown in the diagram, the RC6/TX port is configured as a 232 port in order to use the asynchronous port of the uC.
With the links outwards, RC6 and RC7 operate with RS232 levels. With the links inwards, RC6 and RC7 operate with 5V logic levels.

Downloading

EZ-Controller contains a boot loader program. This allows a program to be downloaded using an RS232 cable. To load program code into the module, it is necessary to use the EZ-Downloader software. EZ-Downloader is installed as part of the SourceBoost Package.

EZ-Downloader can be run standalone or invoked from the SourceBoost IDE to download a hex file. The command line required is:

EZDownloader.exe -pX

Where 'X' is the PC com port used for the RS232 connection.
The RS232 cable has to be connected to the **PROG** port as show in the Connections Diagram.

Programming Tips

Remember the boot loader uses ROM from 0x0000 to 0x01FF, So your program must start at address 0x0200. If it doesn't it may fail to download and verify.

When writing programs always leave RB0 as an input and don't permanently disable the INT0 interrupt, otherwise the boot loader communications will no longer work and you will need to perform the reset procedure.

Reset Proceedure

If you lose communications to the module (normally as a result of setting RB0 to output mode or disabling INT0) you can perform the reset procedure. Short circuit the RX and TX connections of the PROG connector with a jumper. Then ether Reset or switch off the module for at least 2 seconds and then switch it back on.
This procedure wipes the downloaded program so it will no longer run. You can now remove the jumper and resume working with the module.

Pre-loaded Program

EZ-Controller is supplied with an 'LED flash' program pre-loaded. Port RB1 will pulse on and off at a rate of 0.6 Hz. Note: this program will be overwritten when a program is downloaded to EZ-Controller.

For more information regarding the PIC18F252 used in this module, please consult the *datasheet* 39564b.pdf , available on the microchip ® website.
www.microchip.com

Please note that the EZ-Controller module is intended to be a development and educational tool. We do not recommend its usage in situations where human lives may be compromised.

Specifications

Microcontroller type	PIC18F252
Operating Temperature	-40ºC to +85ºC
Package	24-pin DIP
Dimensions	0x75x1.4x0.45 (inch)
Oscillator Frequency	20MHz (20MHz Clock)
RAM	1536 bytes
FLASH (available)	16 128 words (14K)
FLASH Useful Life	100 000 cyles (40 years)
EEPROM	256 bytes
EEPROM Useful Life	1 000 000 cycles (200 years)
Operating Voltage (VDD)	4.2 to 5.5 VDC
Operating Voltage (B+)	6V to 20 VDC
Maximum current (per I/O)	25mA
Maximum Current (per port)	200mA
Consumption	30mA (max unloaded)
Programming Method	Serial 57 600 Kbps
Programming Software	EZ-Downloader