

EEPROM Breadboard Module

The EEPROM module has 2k of byte size non-volatile memory. Access to the memory is through I2C communication. The module can be banked with other modules by setting the jumper to a different address. Download the the 24LC16B/P data sheet from microchip.com for more information.



The module requires 5v and ground to operate. These can be connected through the breadboard power buss or connecting to the 4 pin header. The two main communication pins are the Data and Clock pins. Connect these to your microcontroller. Many high level languages have I2C commands for communicating with the module. The example below shows how to use the module with PicBasic Pro.

```
' ----[ Program Description ]-----  
,  
,  
' This program demonstrates the use of the I2CIN and I2COUT commands  
' to write to the first 16 locations of the external serial EEPROM  
' The program is written to work with a PC. The PC will send serial data to the  
' circuit to be stored into the EEPROM chip. If a value of 255 is sent to the  
' circuit, then the program will read each EEPROM location and send the data  
' to the PC to be displayed.  
' The receiving part of the program requires the address and the value of the  
' data to be stored. It then overwrites that address with the received data using  
' the I2COUT command.  
' When the data is 255, the program uses the I2CIN to read the EEPROM one byte  
' at a time and send that data to the PC.  
,  
' Hardware Connections:  
,  
' PIC          EEPROM Pin          Misc Conn.  
' -----  
' RA0          EEPROM.5 Data  
' RA1          EEPROM.6 Clock  
' RB1          Serial In (RX)  
' RB2          Serial Out (TX)  
'          EEPROM .1    A0          Gnd  
'          EEPROM. 2    A1          Gnd
```

```

'          EEPROM. 3   A2   Gnd
'          EEPROM. 4   Vss  Gnd
'          EEPROM. 7   WP   Gnd
'          EEPROM. 8   Vcc  5v

'-----[ Defines ]-----
'
'      Include "modedefs.bas"      ' Include serial modes
'      define loader_used 1'Used for bootloader only

'-----[ Variables and Constants ]-----
'
SO  con  2          ' Define serial output pin
SI  con  1          ' Define serial input pin
Control con  %10100000 ' Set EEPROM control byte
DPIN var  PORTA.0   ' I2C data pin
CPIN var  PORTA.1   ' I2C clock pin
Address var  byte   ' Byte to store address
Value var  byte    ' Byte to store value to store
X var  byte        ' multi-purpose variable

'-----[ Initialization ]-----
'
adcon1 = 7        ' Set PortA to digital ports
TRISA = %00000000 ' Set PortA as all outputs

Init:
  For x = 0 To 15      ' Loop 16 times
    I2Cwrite dpin,cpin,control,x,[20] ' Preset each address to ten
    Pause 10          ' Delay 10ms after each write
  Next

'-----[ Main Code ]-----
'

RX:
  serout SO, T2400,["Enter #address#value"] 'Display instruction line
  Serin SI,T2400,address, value ' Receive location and data to store
  If address = 255 then TX      ' Test for data dump request
  I2Cwrite dpin,cpin,control,address,[value] ' Store value received at address received
  pause 10                    ' Delay to allow write to occur

  Goto RX                    ' Jump back to receive more data

TX:
  For X = 0 To 15          ' Loop thru 16 locations
    I2Cread dpin,cpin,control, X, [value] ' Read byte at address X
    Serout SO,T2400,[#X, ":",#value, 10, 13] ' Send Address and value read to PC
  Next

  Goto RX                    ' Loop back to the top to receive data

```