```
'---------------Title--------------

' File......multiplex_rx3y.pbp
' Started....9/1/12
' Microcontroller used:  Microchip Technology PIC16F88
'                        microchip.com
' PicBasic Pro Code: micro-Engineering Labs, Inc.
'                    melabs.com

'--------Program Desciption--------

' The program receives an 8-bit digital value (0 to 255)
' of y and from a fiber-optic receiver and converts the value
' of y into a PWM signal to a dc motor.

'------------Schematic-------------

' See schematic at:
' http://cornerstonerobotics.org/schematics/control5_multiplex_tx_rx3.pdf

'----------Related Lesson----------

' http://cornerstonerobotics.
org/curriculum/lessons_year3/eriii23_control_navigation6.pdf

'-----New PicBasic Pro Commands----

' The PicBasic Pro Compiler Manual is on line at:
' http://www.microengineeringlabs.com/resources/index.htm#Manuals

'------------Variables-------------

    x  VAR BYTE       ' Byte for potentiometer 1 input
    y  VAR BYTE       ' Byte for potentiometer 2 input
    z  VAR BYTE

'----------Initialization----------

    DEFINE OSC       8              ' Defines oscillator setting at 8 MHz.
                                    ' For SEROUT2, an oscillator speed
                                    ' faster than 4MHZ may be required
                                    ' for reliable operation at 9600 baud
                                    ' and above.
    DEFINE HSER_RCSTA 90h           ' Set receive register to receive
                                    ' enabled
    DEFINE  HSER_TXSTA 20h          ' Set transmit register to transmitter
                                    ' enabled
    DEFINE HSER_BAUD 9600           ' Set baud rate to 9600
    DEFINE CCP1_REG PORTB           ' Set PORTB for CCP1
                                    ' (Capture/Compare/PWM) Channel 1.
    DEFINE CCP1_BIT 0               ' Set Set bit 0 for CCP1
                                    ' (Capture/Compare/PWM) Channel 1.
    ANSEL = 0                       ' Changes analog bits to digital.

    OSCCON = $70                    ' Sets the internal oscillator in the
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                                    ' 16F88 OSCCON register to 8 MHz
    TRISB = %00000100               ' Set PIC receive pin to input
    PORTB = %00100000               ' Set PIC transmit pin RB5 to HIGH

'-------------Main Code------------

start:

    HSERIN[WAIT("B0"), x, y]    ' Serial input, B0 is start bit, x and y
                                ' are data bits.  This PIC only uses the
                                ' value for y.

    z = y/2 + 125               ' Changes range of PWM values from 0-255
                                ' to 125-252.

    HPWM 1, z, 20000            ' Output PWM pulse on Channel 1
                                ' (Pin RB0 specified above) at duty cycle
                                ' "z" [0 (OFF all the time) to
                                ' 255 (ON all the time)]) at frequency
                                ' of 20,000 Hz.

    GOTO start
```