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*****
'* Name   : Triac.BAS                                     *
'* Author :                                              *
'* Notice : Copyright (c) 2002 [Free to distribute]      *
'* Date   : 17/11/2002                                   *
'* Version : 1.0                                          *
'* Notes  : Lamp Dimmer                                  *
'* Proc   : 16F627                                        *
'* Clock  : Internal 4Mhz                                 *
'* Version: PicBasicPro V2.40                             *
*****

'
' The rising edge of the ZC circuit corresponds to the ac
' waveform as it passes through zero
'
' PortB.1 = Trig pulse to Opto-triac
' PortB.6 = Brightness Down
' PortB.7 = Brightness Up
'
'
'
' -----
' Device configuration
'
@ DEVICE pic16F627, INTRC_OSC_NOCLKOUT
' System Clock Options
@ DEVICE pic16F627, WDT_ON
' Watchdog Timer
@ DEVICE pic16F627, PWRT_OFF
' Power-On Timer
@ DEVICE pic16F627, MCLR_OFF
' Master Clear Options (Internal)
@ DEVICE pic16F627, BOD_OFF
' Brown-Out Detect
@ DEVICE pic16F627, LVP_OFF
' Low-Voltage Programming
@ DEVICE pic16F627, CPD_OFF
' Data Memory Code Protect
@ DEVICE pic16F627, PROTECT_OFF
' Program Code Protection
'
'
' Set up Port Assignments
' -----
        PORTA = 0           ' Clear latches
        PORTB = 0           '
        TRISA = %00000000   ' PORTA all O/P'S
        TRISB = %11111101   ' PORTB.1 Output
'
@ clrf PORTA                ; Clear PortA latches

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@  clrf PORTB                ; Clear PortB latches
'
'
'
' Set Variables Options
'
'
' CMCON = %00000111          ' Set Port A to all analogue
'
INTF  VAR INTCON.1           ' RB0 Interrupt flag
INTE  VAR INTCON.4           ' RB0 Interrupt Enable
Angle VAR WORD               ' Delay in firing triac
'
'
' Port B
Triac VAR PortB.1            ' Output - to opto-triac
Up    VAR PORTB.7            ' Input - Increase brightness
Down  VAR PORTB.6            ' Input - Decrease brightness
'
'
' Incon Register Definitions
' -----
' 7=1 Global Interrupt Enable
' 6=0 Peripheral Interrupts Disabled
' 5=0 TMR0 Interrupt Disabled
' 4=1 RB0 Interrupt Enabled
' 3=1 RB4-RB7 Port change Interrupt Enabled
' 2=0 TMR0 Flag Reset
' 1=0 RB0 Flag Reset
' 0=0 RB4-RB7 Flag Reset
'
' Option Register Definitions
' -----
OPTION_REG = %11000000
' 7=0 Port B Pullups Enable
' 6=0 Interrupt Edge Select Bit
' 5=0 TMR0 Clock Source Select Bit
' 4=0 TMR0 Source Edge Select Bit
' 3=0 Prescaler Assignment Bit
' 2=0 Prescaler Rate Select Bit
' 1=0 Prescaler Rate Select Bit
' 0=0 Prescaler Rate Select Bit
'
'
'
Triac = 0                    ' Triac off
Angle = 0                    '
OPTION_REG = %11001001      ' WDT enabled 1:2 (36mS timeout)
'

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On Interrupt Goto myint          ' Define interrupt handler
INTCON = %10010000             ' Enable RB0 interrupt
,
Angle = 1000                    '
Goto loop                      ' Start of program
,
,
,
*****
' Interrupt handler
*****
Disable                        ' No interrupts past this point
myint:
IF INTF = 1 THEN                ' If Interrupt flag set
PAUSEUS Angle                  ' Delay triac firing
HIGH Triac                    ' Triac ON
PAUSEUS 100                    '
LOW Triac                     ' Triac OFF
ENDIF                          '
INTCON.1 = 0                   ' Clear interrupt flag
Resume                         ' Return to main program
Enable                         ' Re-enable interrupts
,
,
,
-----
' Start of main program
-----
' Check switch settings
,
Loop:
CLEARWDT                      ' Reset if timeout
IF (Up = 1) AND (Down = 1) THEN Loop ' Do nothing
IF (Up = 1) AND (Down = 0) THEN Dimit ' Decrease lamp intensity
IF (Up = 0) AND (Down = 1) THEN Upit  ' Increase lamp intensity
IF (Up = 0) AND (Down = 0) THEN Loop  ' Do nothing
GOTO Loop
,
,
,
Dimit: IF (Angle = 10000) THEN LOOP ' If not at min brightness
Angle = Angle + 2                  ' Increase turn on delay
GOTO LOOP                          '
,
,
Upit: IF (Angle = 1000) THEN LOOP   ' If not at max brightness
Angle = Angle - 2                  ' decrease turn on delay
GOTO LOOP                          '
,
END

```

