

```
'Antenna Rotator Controller
'KG4JJH
'09/23/07
Const Device = CB220
Ramclear
Set Display 2,1,115200,128
Set Pad 0,1,5
Set I2c 6,7
Input 5
Const Byte KeyTable =
(0,0,1,2,3,11,0,0,0,0,4,5,6,12,0,0,0,0,7,8,9,13,0,0,0,0,16,0,15,14)
Opencom 0,38400,3,10,10
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Dim A As String
Dim I As Integer
Dim T1 As Integer
Dim T2 As Integer
Dim T3 As Integer
Dim T1Flag As Integer
Dim T2Flag As Integer
Dim T3Flag As Integer
Dim Target As Integer
Dim Status As String
Dim X As Byte
Dim Azimuth As Integer
Dim Switch As Integer
Dim Control As String
Dim Reg1 As Byte
Dim Revision As Byte
Dim Magnetic As Integer
Dim Declination As Long
Dim DecAbs As Long
Dim True As Integer
Dim Az As String
Dim Azi As String
Dim Blink As Integer
Dim Current As Integer
```

```
Cls
Delay 200
Csroff
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Locate 2,0
Print "Antenna Rotator"
Locate 5,1
Print "Controller"
Locate 7,2
Print "KG4JJH"
Locate 3,3
Print "Software V1.3"
Delay 2000
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Cls
Delay 200
Csroff
Print
&H1B,&H44,8,0B00110,0B01001,0B01001,0B00110,0B00000,0B00000,0B00000,0B0
Locate 0,0
Print "Azimuth:      ",8
Locate 1,1
Print "Target:      ",8
Locate 1,2
Print "Status:"
Locate 0,3
Print "Control:"
Gosub Compass
Target=Azimuth
Locate 9,1
Print  Dp(Target,3,1),8
T1Flag=1
T2Flag=1
T3Flag=1

MainLoop:
  Gosub Compass
  Gosub Stall
  Gosub ReadSwitch
  Gosub ReadOutputs
  On Pad Gosub PadRead
  If Switch=1 Then On Recv0 Gosub PC
  Gosub StopRotate
Goto MainLoop

ReadOutputs:
  If Outstat(8)=0 And Outstat(9)=0 Then Status="Idle      "
  If Outstat(8)=1 And Outstat(9)=0 Then Status="Turning CW "
  If Outstat(8)=0 And Outstat(9)=1 Then Status="Turning CCW"
  Locate 9,2
  Print Status
Return

ReadSwitch:
  Switch = Keyin(4,10)      'Input switch position at P4 and remove
switch bounce
  If Switch=0 Then Control="Keypad  "
  If Switch=1 Then Control="PC      "
  Locate 9,3
  Print Control
Return

PadRead:
  If Switch=1 Then Return      'Switched to PC
  X=Getpad(1)

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X=KeyTable(X)
Select Case X
  Case Is < 10                                '0-9 is pressed
    If T1Flag=0 Then Goto GetT1              'get 1st digit
    If T2Flag=0 Then Goto GetT2              'get 2nd digit
    If T3Flag=0 Then Goto GetT3              'get 3rd digit
  Case 11                                       'GO is pressed
    If Target>359 Then Gosub BlinkClearTarget
    If Target<360 Then Gosub StartRotate
  Case 12                                       'STOP is pressed
    Gosub Stop
  Case 13                                       'CLR is pressed
    Gosub ClearTarget
  Case 14                                       'RST is pressed
    Gosub Reboot
  Case 15                                       'Jog CCW is pressed
    Gosub JogCCW
  Case 16                                       'Jog CW is pressed
    Gosub JogCW
End Select
Return

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BlinkClearTarget:
  For Blink=1 To 4
    Print 27,"b"
    Delay 100
    Print 27,"B"
    Delay 100
  Next
  T1=0
  T2=0
  T3=0
  T1Flag=0
  T2Flag=0
  T3Flag=0
  Locate 9,1
  Print "  ",8
  Delay 100
Return

```

```

ClearTarget:
  T1=0
  T2=0
  T3=0
  T1Flag=0
  T2Flag=0
  T3Flag=0
  Locate 9,1
  Print "          "
  Locate 12,1
  Print 8

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    Delay 100
Return

GetT1:

    T1=X
    Locate 9,1
    Print Dec T1
    T1Flag=1
    Target=((T1*100)+(T2*10)+T3)
Return

GetT2:
    T2=X
    Locate 10,1
    Print Dec T2
    T2Flag=1
    Target=((T1*100)+(T2*10)+T3)
Return

GetT3:
    T3=X
    Locate 11,1
    Print Dec T3
    T3Flag=1
    Target=((T1*100)+(T2*10)+T3)
Return

StartRotate:
    If (T1Flag+T2Flag+T3Flag) <> 3 Then Return
    If Azimuth < Target Then Out 8,1           'Turn CW
    If Azimuth > Target Then Out 9,1           'Turn CCW
Return

StopRotate:
    If Azimuth>Target-2 Then Out 8,0
    If Azimuth<Target+2 Then Out 9,0
Return

JogCW:
    If Azimuth>357 Then Return                 'Rotor has mechanical
stop at 359 degrees
    If Outstat(8)=0 And Outstat(9)=0 Then Status="Jog CW      "
    Locate 9,2
    Print Status
    Pulsout 8,1800                               ' ~2 Degrees CW
    Status="Idle      "
    Locate 9,2
    Print Status
Return

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JogCCW:
  If Azimuth<3 Then Return 'Rotor has mechanical
stop at 0 degrees
  If Outstat(8)=0 And Outstat(9)=0 Then Status="Jog CCW  "
  Locate 9,2
  Print Status
  Pulsout 9,1800 ' ~2 Degrees CCW
  Status="Idle  "
  Locate 9,2
  Print Status
Return

```

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PC:
If Switch=0 Then Return 'Switched to Keypad
  If Blen(0,0)>4 Then A=Getstr(0,10)
    If Left(A,1)="M" Then
      If Right(A,1)=Chr(&H0D) Then
        If Len(A)=5 Then Goto Yaesu
        Endif
      Endif
    If Left(A,1)="A" Then
      If Mid(A,2,1)=Chr(&H0D) Then
        If Right(A,1)=Chr(&H0D) Then
          If Len(A)=6 Then Goto Orion
          Endif
        Endif
      Endif
    Endif

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Yaesu:
Azi=Mid(A,2,3)
Target=Val(Azi)
Locate 9,1
Print Dp(Target,3,1),8
T1Flag=1
T2Flag=1
T3Flag=1
Goto StartRotate

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Orion:
Azi=Mid(A,3,3)
Target=Val(Azi)
Locate 9,1
Print Dp(Target,3,1),8
T1Flag=1
T2Flag=1
T3Flag=1
Goto StartRotate

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Return
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Stop:
  Out 8,0

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Out 9,0
Return

Compass:

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Print
&H1B,&H44,8,0B00110,0B01001,0B01001,0B00110,0B00000,0B00000,0B00000,0B0
Delay 100 'Reduces flicker
'Read CMPS03 register 0 (byte) into Revision
I2cstart 'Send start bit
I=I2cwrite(&hc0) 'Send module address with read/write bit low
(0xc0)
I=I2cwrite(&h00) 'Send register to read (register 0)
I2cstart 'Send start bit again
I=I2cwrite(&hc1) 'Send module address again with read/write bit
high (0xc1)
Revision = I2creadna(0) 'Revision = CMPS03 register 0
'Read CMPS03 register 1 (Byte) into Reg1 As 0 To 255
I2cstart 'Send start bit
I=I2cwrite(&hc0) 'Send module address with read/write bit low
(0xc0)
I=I2cwrite(&h01) 'Send register to read (register 1)
I2cstart 'Send start bit again
I=I2cwrite(&hc1) 'Send module address again with read/write bit
high (0xc1)
Reg1 = I2creadna(0) 'Reg1 = CMPS03 register 1
'Read CMPS03 register 2 (word) into Magnetic.Bytel, 3256 = 325.6
degrees
I2cstart 'Send start bit
I=I2cwrite(&hc0) 'Send module address with read/write bit low
(0xc0)
I=I2cwrite(&h02) 'Send register to read (register 2)
I2cstart 'Send start bit again
I=I2cwrite(&hc1) 'Send module address again with read/write bit
high (0xc1)
Magnetic.Bytel=I2creadna(0) 'Magnetic.Bytel = CMPS03 register 2
'Read register 3 (word) into Magnetic.Lowbyte
I2cstart 'Send start bit
I=I2cwrite(&hc0) 'Send module address with read/write bit low
(0xc0)
I=I2cwrite(&h03) 'Send register to read (register 3)
I2cstart 'Send start bit again
I=I2cwrite(&hc1) 'Send module address again with read/write bit
high (0xc1)
Magnetic.Lowbyte=I2creadna(0) 'Magnetic.Lowbyte = CMPS03 register
3
```

'The Declination for my QTH is 4.8 deg W. West Declination is
negative & East Declination is positive, so 4.8W = -4.8 degrees.
'Multiply this number X 10 to get it into the compass module format
of 0 to 3599: -4.8 x 10 = -48
'Replace "-48" in the next line with your Declination:

Declination=-48

DecAbs = Abs Declination 'Absolute value of Declination

'Math for East & West Declinations to keep True calcs between 0 and 359.

If Declination < 0 Then

If Magnetic < DecAbs Then True = Magnetic + Declination + 3600

Else True = Magnetic + Declination

Endif

If Declination > 0 Then

If Magnetic > 3599 - Declination Then True = Magnetic +

Declination - 3600 Else True = Magnetic + Declination

Endif

Az=Dp(True/10,3,1)

Azimuth=True/10

Locate 9,0

Print Az,8

I2cstop

Return

Stall: 'Check motor current at P5

Current=Adin(5)

Select Case Current

Case Is > 750

Status="Stalled "

Locate 9,2

Print Status

Out 8,0

Out 9,0

Delay 2000

End Select

Return

Reboot:

Out 8,0

Out 9,0

Reset

Return