Simple Graycode Conversion Routine
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The following algorithm is a simple Absolute Encoder Grayscale decoding routine.

```
#include <stdio.h>
// 180 degrees rotation of a gray code 8 bit encoder

// bit7  =  1111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111
// bit6  =  1111111111111111111111111111111111111111111111111111111111111111000000000000000000000000000000000000000000000000000000000000000000000000
// bit5  =  1111111111111111111111111111111100000000000000000000000000000000000000000000000000000000000000000000000011111111111111111111111111111111
// bit4  =  1111111111111110000000000000000000000000000000001111111111111111111111111111111100000000000000000000000000000000001111111111111111
// bit3  =  1111111100000000000000001111111111111111000000000000000011111111111111110000000000000000111111111111111100000000000000001111111111
// bit2  =  1111000000001111111100000000111111110000000011111111000000001111111100000000111111110000000011111111000000001111111100000000111111
// bit1  =  1100001111000011110000111100001111000011110000111100001111000011110000111100001111000011110000111100001111000011110000111100001111
// bit0  =  1001100110011001100110011001100110011001100110011001100110011001100110011001100110011001100110011001100110011001100110011001100110011
// 1.40625 deg per bit change

char ch;

// binary result
float Angle = 0;
unsigned int Binary = 0;

// gray code bits
float Bit0 = 1;          float Bit1 = 0;          float Bit2 = 0;          float Bit3 = 1;
float Bit4 = 1;          float Bit5 = 0;          float Bit6 = 1;          float Bit7 = 1;

void main(void)
{
        Angle = 0;
        if (Bit7 == 0)  Angle = 180.;
        if (Bit6 != Bit7) Angle = Angle + 90.;
        if (Bit5 != Bit6) Angle = Angle + 45.;
        if (Bit4 != Bit5) Angle = Angle + 22.5;
        if (Bit3 != Bit4) Angle = Angle + 11.25;
        if (Bit2 != Bit3) Angle = Angle + 5.625;
        if (Bit1 != Bit2) Angle = Angle + 2.8125;
        if (Bit0 != Bit1) Angle = Angle + 1.40625;

// Angle now contains the angular value of the encoder as a float

// Next is to convert the angle into a binary value
        Binary = (int) (Angle + .5);  // add .5 for round out
        printf ("\r\nAngle = %4.2f   Hex (Binary) = %x ", Angle, Binary);
        while (!kbhit());
        Ch = getch();
}
```