IR Beacon click

From MikroElektonika Documentation

IR Beacon click is a mikroBUS™ add-on board with an array of nine high speed infrared emitting diodes. It functions as a beacon device, transmitting infrared rays in a wide angle, which can be detected by nearby infrared receivers (such as the one on IR click).

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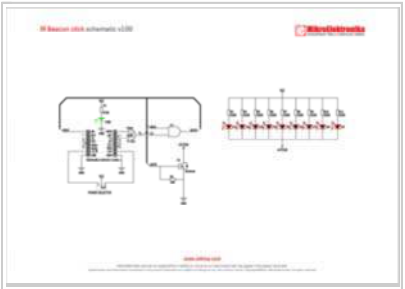
IC/Module	Array of nine VSMB2948SL (http://www.vishay.com/docs/83498/vsmb2948sl.pdf) infrared diodes
Interface	MOD, PWM, TX
Power supply	3.3V, 5V
Website	www.mikroe.com/click/ir-beacon (http://www.mikroe.com/click/ir-beacon)

Features and usage notes



Schematic also available in PDF (http://cdn-docs.mikroe.com/images/e/e8/IR_Beacon_Click_sch

Each of the nine VSMB2948SL diodes have a transparent plastic package that serve as tiny lenses. The IR wave has a half intensity angle of ±25 degrees. The diodes have high radiant power and intensity with a peak wavelengths of 940nm..

IR Beacon click is suitable for high pulse current operation. The mainboard MCU drives the infrared diodes through the mikroBUS™ MOD pin, providing a carrier signal (which can be modified to match the frequency of the receiver). Either UART or PWM can be used to transmit a signal to a target receiver (specified by the position of the TX SEL jumper in the middle of the board).

The range is up to half a meter. You can increase it by stacking multiple IR Beacon clicks onto a same mikroBUS™ socket. The board can use either a 3.3V or a 5V power supply.

Programming

This code demonstrates how the IR Beacon click sends IR signals depending on the PWM frequency.

```
unsigned int ratio;
sbit IR_control at GPIOA_ODR.B4;

void main() {

        ratio = PWM_TIM2_Init(74);
        PWM_TIM2_Set_Duty(ratio / 4, _PWM_INVERTED, _PWM_CHANNEL1);
        PWM_TIM2_Start(_PWM_CHANNEL1, &_GPIO_MODULE_TIM2_CH1_PA0);

        GPIO_Digital_Output(&GPIOA_BASE, _GPIO_PINMASK_4);

        /* Sending IR signals */

        while (1) {
                IR_control = 1;
                delay_us(13);
                IR_control = 0;
                delay_us(13);
        }
}
```

Code examples that demonstrate the usage of IR Beacon click with MikroElektronika hardware, written for mikroC for ARM, PIC32, and FT90x are available on Libstock (http://libstock.mikroe.com/projects/view/1846/ir-beacon-click).

Resources

- Vendor’s data sheet (http://www.vishay.com/docs/83498/vsmb2948sl.pdf)

- MikroBUS standard specifications (http://www.mikroe.com/downloads/get/1737/mikrobus_specification.pdf)

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