IR Sense click

PID: MIKROE-2677

Weight: 22 g

IR Sense click carries the AK9750 quantum-type IR sensor. The click is designed to run on a 3.3V power supply. It communicates with the target microcontroller over I2C interface, with additional functionality provided by the INT pin on the mikroBUS™ line.

IR Sense cilck detects the temperature of objects and people in motion. It can also detect a human body that remains still. So, it distinguishes heat regardless of the fact whether or not an object is moving.

AK9750 features

The AK9750 is an ultra-low power and compact infrared-ray (IR) sensor module. It is composed of four quantum IR sensors and an integrated circuit (IC) for characteristic compensation.

An integral analog-to-digital converter provides 16-bits data outputs. Additional integrated features include a field of view limiter and an optical filter.

How it works

The IR sensors are arranged as shown. Each sensor detects the diagonal area, as indicated in the image below:
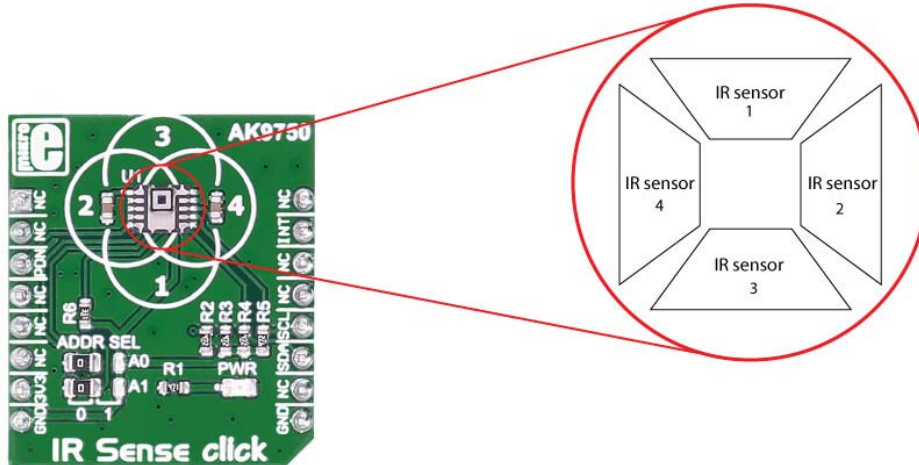
The observable area of the four sensors is as you see it on the silk of the IR Sense click board™.

Specifications

Type	Temperature,Humidity
Applications	Detecting heat with the four IR sensors
On-board modules	AK9750 IR sensor
Key Features	Low current consumption: Max. 1µA in Power down Mode; Integrated temperature sensor, 16-bits Digital Outputs to I2C bus
Interface	I2C
Input Voltage	3.3V
Click board size	S (28.6 x 25.4 mm)

Pinout diagram

This table shows how the pinout on **IR Sense click** corresponds to the pinout on the mikroBUS™ socket (the latter shown in the two middle columns).

Notes	Pin	mikro BUS				Pin	Notes
	ALR	1	AN	PWM	16	NC	
	NC	2	RST	INT	15	**INT**	Interrupt
Power down pin	**PDN**	3	CS	TX	14	NC	
	NC	4	SCK	RX	13	NC	
	NC	5	MISO	SCL	12	**SCL**	SCL I2C line
	NC	6	MOSI	SDA	11	**SDA**	SDA I2C line
Power supply	**+3.3V**	7	3.3V	5V	10	NC	
Ground	**GND**	8	GND	GND	9	**GND**	Ground

Jumpers and settings

Designator	Name	Default Position	Default Option	Description
A0	A0	Left	0	Selection of I2C address bit 0
A1	A1	Left	1	Selection of I2C address bit 1

Programming

Code examples for IR Sense click, written for MikroElektronika hardware and compilers are available on Libstock.
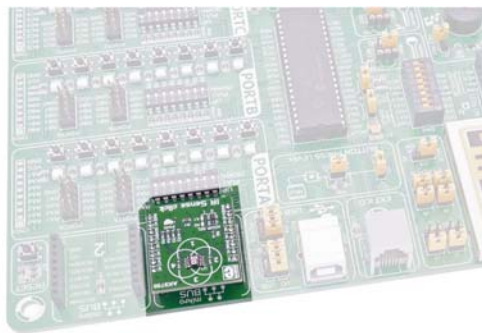
Code snippet

The following code snippet shows the main loop of the IR Sense click example, which reads data every few second and then displays it via UART.

```
01  while( 1 )
02    {
03        Delay_ms (5000);
04
05
06      IRGRID2_readAll (readData);
07
08      //Upper area sensor value
09       UART2_Write_Text ("rn      ");
10       tempValue = readData [5] + ( readData [6] << 8 );
11       IntToStr (tempValue, uartText);
12       UART2_Write_Text (uartText);
13
14      //Left area sensor value
15       UART2_Write_Text ("rn");
16       tempValue = readData [3] + ( readData [4] << 8 );
17       IntToStr (tempValue, uartText);
18       UART2_Write_Text (uartText);
19       //Right area sensor value
20       UART2_Write_Text ("      ");
21       tempValue = readData [7] + ( readData [8] << 8 );
22       IntToStr (tempValue, uartText);
23       UART2_Write_Text (uartText);
24
25      //Lower area sensor value
26        UART2_Write_Text ("rn      ");
27       tempValue = readData [1] + ( readData [2] << 8 );
28       IntToStr (tempValue, uartText);
29       UART2_Write_Text (uartText);
30       UART2_Write_Text ("rn------------");
31    }
```


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