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## Contact us

Tel: +86-755-8981 8866 Fax: +86-755-8427 6832

Email & Skype: info@chipsmall.com Web: www.chipsmall.com

Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China

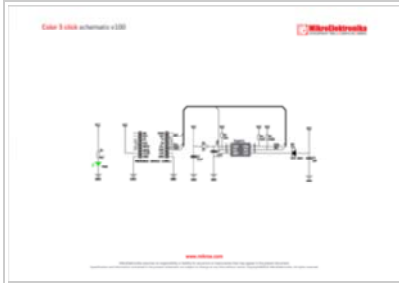


## Color 3 click

From MikroElektronika Documentation

**Color 3 click** is a mikroBUS™ add-on board with a TCS3771 color sensor (also known as a light-to-digital converter) and a narrow beam Infrared LED. The circuit can also function as a proximity sensor.

### Features and usage notes



Schematic also available in PDF ([http://cdn-docs.mikroe.com/images/0/0b/Color\\_3\\_click\\_schema](http://cdn-docs.mikroe.com/images/0/0b/Color_3_click_schema))

TCS3771 is a RGBC sensor (red, green, blue and clear). It consists of an array of 4x4 photodiodes and integrated amplifiers, 16-bit ADCs, accumulators, clocks, buffers, comparators and state machines.

The IC performs well under a variety of lighting conditions and can be covered with different attenuation materials.

Paired with an onboard IR LED, the TCS3771 device works as a proximity sensor (the emitted IR LED is reflected back to the photodiodes). Since the sensor has a large dynamic range of operation, Color 3 click can take both short distance measurements behind dark glass; or it can be configured for longer distance measurement, for example, human presence

detection in front of monitors or laptops.

For power-saving, TCS3771 has an internal state machine that can put the device into a low power mode between successive RGBC and proximity measurements.

TCS3771 is also fast enough to give off proximity information at a high rate of repetition. This makes it useful for proximity detection in portable devices (such as a phone coming near to a speaker's ear).

Color 3 click communicates with the target MCU through the mikroBUS™ I2C interface, with additional functionality provided by an INT pin. Designed to use a 3.3 power supply only.

### Programming

The following code snippet shows how to send temperature readings from Color 3 click to a TFT display.

```

1 void main()
2 {
3     //Local Declarations
4     uint8_t _i2c_address = 0x29;
5     color_t my_color;
6
7     // GPIOs
8     GPIO_Digital_Input( &GPIO_BASE, _GPIO_PINMASK_10 );
9     Delay_ms(300);
10
11     // I2C
12     I2C1_Init_Advanced( 100000, &_GPIO_MODULE_I2C1_PB67 );
13     Delay_ms(300);
14
15     //Color 3
16     color_3_init( _i2c_address );
17     Delay_ms(300);
18
19     color_3_get_rgb_data( &my_color );
20
21     while(1)
22     {
23     }
24 }
25

```

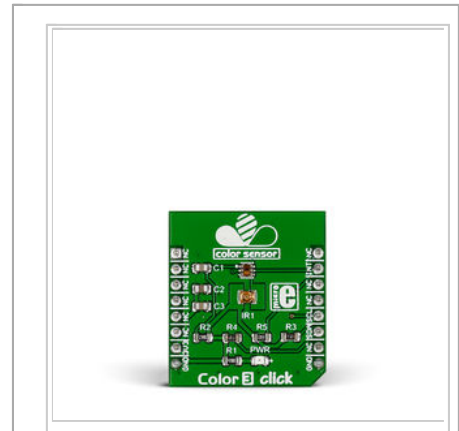
Code examples that demonstrate the usage of Color 3 click with MikroElektronika hardware, written for mikroC for ARM, AVR, dsPIC, FT90x, PIC and PIC32 are available on Libstock (<http://libstock.mikroe.com/projects/view/1925/color-3-click>).

### Resources

- Vendor's data sheet (<http://ams.com/eng/Products/Light-Sensors/Color-Sensors-Proximity-Detection/TCS37717>)
- Color 3 click Libstock example (<http://libstock.mikroe.com/projects/view/1925/color-3-click>)
- mikroBUS™ standard specification (<http://download.mikroe.com/documents/standards/mikrobus/mikrobus-standard-specification-v200.pdf>)

Retrieved from "[http://docs.mikroe.com/index.php?title=Color\\_3\\_click&oldid=1239](http://docs.mikroe.com/index.php?title=Color_3_click&oldid=1239)"

Color 3 click



Color 3 click

<b>IC/Module</b>	TCS3771 ( <a href="http://ams.com/eng/Products/Light-Sensors/Color-Sensors-Proximity-Detection/TCS37717">http://ams.com/eng/Products/Light-Sensors/Color-Sensors-Proximity-Detection/TCS37717</a> )
<b>Interface</b>	I2C, INT
<b>Power supply</b>	3.3V
<b>Website</b>	<a href="http://www.mikroe.com/click/color-3">www.mikroe.com/click/color-3</a> ( <a href="http://www.mikroe.com/click/color-3">http://www.mikroe.com/click/color-3</a> )

Category: Home page

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