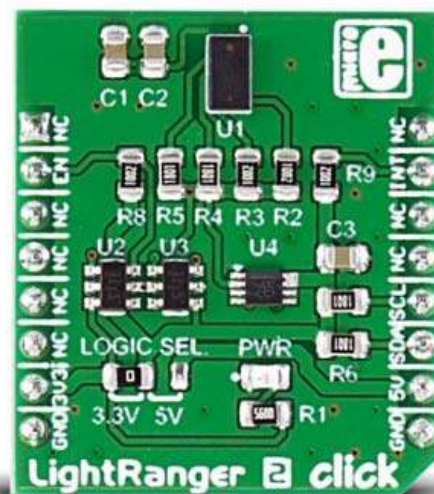


LightRanger 2 click

PID: MIKROE-2509

Weight: 22 g

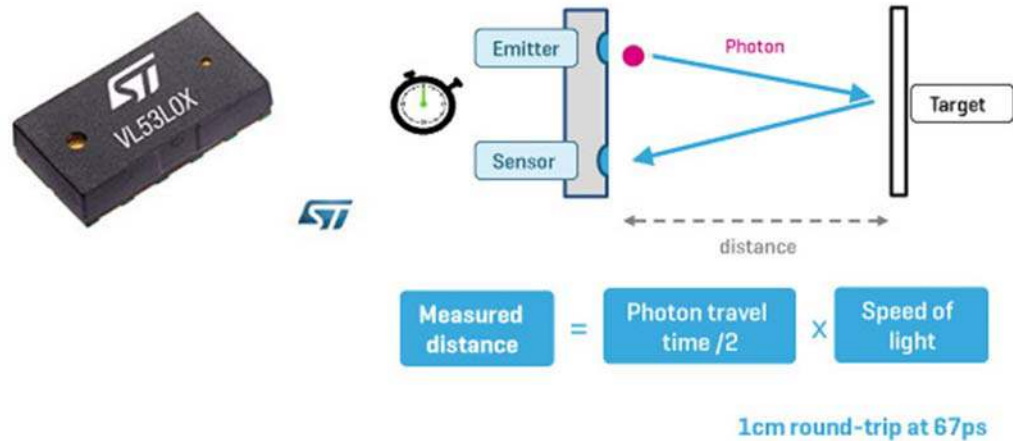


LightRanger 2 click carries VL53L0X IC from STMicroelectronics, the world's smallest Time-of-Flight ranging and gesture detector sensor. The click is designed to run on either 3.3V or 5V power supply. LightRanger 2 click communicates with the target microcontroller over I2C interface and the following pins on the mikroBUS™ line: RST, INT.

Measuring range

The VL53L0X sensor can measure absolute distances **up to 2m**. Reported range is independent of the target reflectance.

FlightSense™



The VL53L0X integrates a leading-edge SPAD array (Single Photon Avalanche Diodes) and embeds ST's second generation FlightSense™ patented technology.

FlightSense™ technology measures the time it takes for a photon to reach the nearest object. The photon travel time is multiplied by the speed of light, and from there a distance is calculated.

The photon travel time is not affected by reflectance, and this kind of technology is immune to ambient illumination and optical path variations.

VCSEL emitter

The VL53L0X's 940nm VCSEL emitter (Vertical Cavity Surface-Emitting Laser), is totally invisible to the human eye, coupled with internal physical infrared filters, it enables longer ranging distance, higher immunity to ambient light and better robustness to cover-glass optical cross-talk.

Power consumption

The average power consumption at 10MHz is 20mW, and while in standby mode the typical power consumption is around 5uA.

Key features

- VL53L0X module
 - Measures absolute range up to 2m
 - Range is independent of the target reflectance
 - Operates in high infrared ambient light levels
 - Dimensions: 4.4 x 2.4 x 1.0mm
- Interface: I2C
- 3.3V or 5V power supply

Pinout diagram

This table shows how the pinout on **LightRanger 2 click** corresponds to the pinout on the mikroBUS™ socket (the latter shown in the two middle columns).

Notes	Pin	mikroBUS™				Pin	Notes
		1	AN	PWM	16		
Not connected	NC	1	AN	PWM	16	NC	Not connected
Enable	EN	2	RST	INT	15	INT	Hardware interrupt
Not connected	NC	3	CS	TX	14	NC	Not connected
Not connected	NC	4	SCK	RX	13	NC	Not connected
Not connected	NC	5	MISO	SCL	12	SCL	I2C serial clock input
Not connected	NC	6	MOSI	SDA	11	SDA	I2C serial data
Power supply	+3.3V	7	3.3V	5V	10	+5V	Power supply
Ground	GND	8	GND	GND	9	GND	Ground

Programming

The code initializes the click and sets it in continuous conversion mode. Range data is read continuously and printed on UART.

```
01     tof_init(true);
02     tof_set_timeout(500);
03     tof_start_continuous(0);
04     Uart_Write_Text("TOF ready\r\n");
05
06
07     while(1)
```

```
08     {
09         range = tof_read_range_continuous_millimeters();
10         WordToStr(range, txt);
11         Uart_Write_Text("Range: ");
12         Uart_Write_Text(txt);
13         Uart_Write_Text("\r\n");
14
15         if (tof_timeout_occurred())
16             Uart_Write_Text("TIMEOUT\r\n");
17
18     }
```