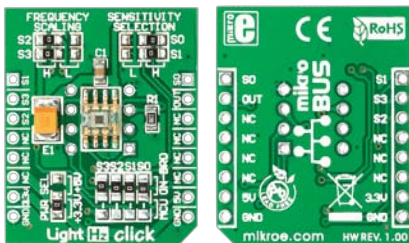# LightHz click™

1. Introduction

Front and back side appearance of the LightHz click Board

LightHz Click is an accessory board in **mikroBus™** form factor. Board features **TSL230BR** programmable light-to-frequency converter. The output can be either a pulse train or a square wave (50% duty cycle) with frequency directly proportional to light intensity. Device sensitivity and frequency scaling can be determined by the MCU, or selected using available SMD jumpers if used in hardware selection configuration. Solder **PWR SEL** SMD jumper to 5V position if used with 5V systems.
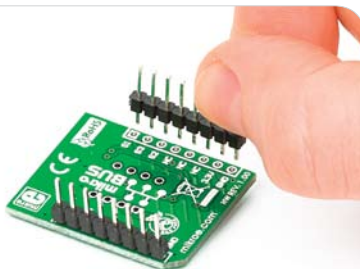
2. Soldering the headers

Before using your click board, make sure to solder the provided 1x8 male headers to both sides of the board. Two 1x8 male headers are included with the board in the package.

1

2 Turn the board upside down, so that bottom side is facing you upwards. Place shorter parts of the header pins in the both soldering pad locations.

3 Turn the board upward again. Make sure to align the headers so that they are perpendicular to the board, then solder the pins carefully.

3. Plugging the board in

Once you have soldered the headers your board is ready to be placed into desired mikroBUS™ socket. Make sure to align the cut in the lower-right part of the board with the markings on the silkscreen at the mikroBUS™ socket. If all the pins are aligned correctly, push the board all the way into the socket.
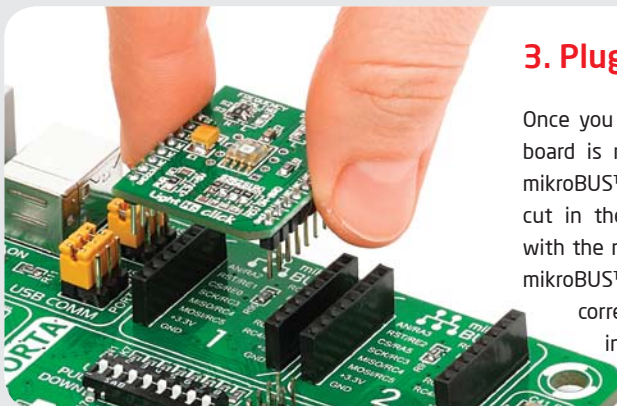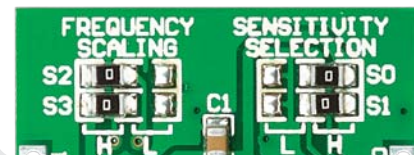
4. SMD Jumpers

Frequency scaling and **sensitivity selection** of the sensor can be set by bringing the logic combination to **S0** - **S3** lines according to sensor specification. This can be done by soldering corresponding SMD jumpers to appropriate logic voltage levels, or they can be connected to your MCU and determined by software. Board comes with SMD jumpers which are set to **ON-BOARD** configuration of scaling and sensitivity. If you want those lines to be available to your MCU, just resolder SMD jumpers to **MCU** position. Default on-board configuration for scaling is **(S2, S3) = (H, H),** and for sensitivity is **(S0, S1) = (H, H)**.
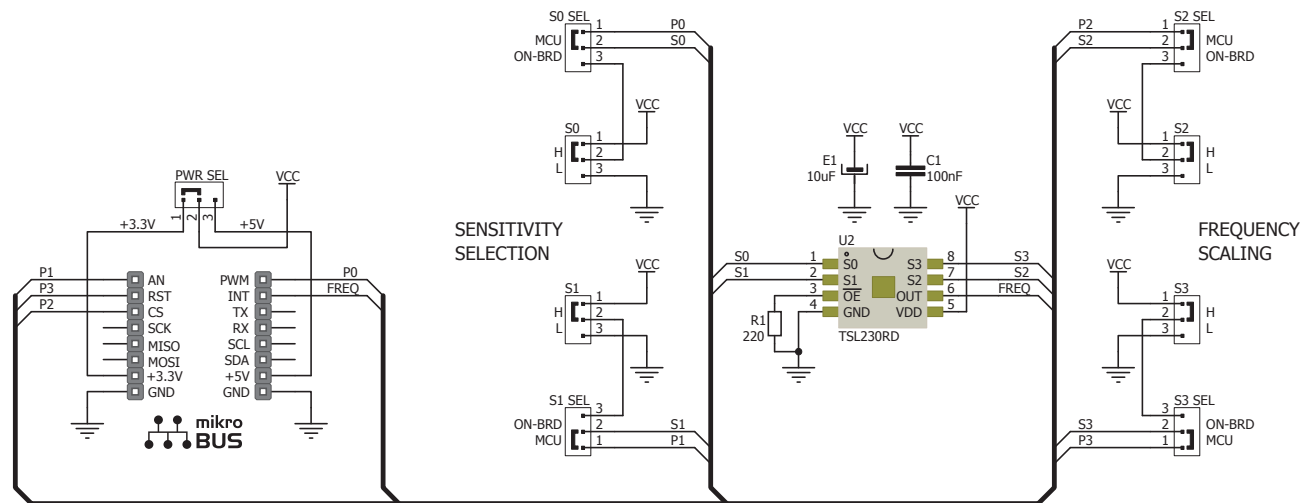
5. LightHz click Board Schematics

SENSITIVITY SELECTION

FREQUENCY SCALING

6. Sensitivity and scaling

Hardware configuration of **frequency scaling** and **sensitivity selection** can be adjusted by resoldering **S0 - S3** SMD jumpers to **H** - logic high or **L** - logic low positions, according to the following table:

S0	S1	Sensitivity		S2	S3	f_0 Scaling
L	L	Power down		L	L	1
L	H	1x		L	H	2
H	L	10x		H	L	10
H	H	100x		H	H	100

7. Code Examples

Once you have done all the necessary preparations, it's time to get your click board up and running. We have provided the examples for mikroC, mikroBasic and mikroPascal compilers on our **Libstock** website. Just download them and you are ready to start.

LIBSTOCK.com

8. Support

MikroElektronika offers **Free Tech Support (www.mikroe.com/esupport)** until the end of product lifetime, so if something goes wrong, we are ready and willing to help!

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