

Sensor Board Guide for the VEML6031X00

INTRODUCTION

The VEML6031X00 sensor board is intended to be used in conjunction with Vishay's SensorXplorer demonstration kit, or as a standalone unit, to evaluate the capabilities of the VEML6031X00 ALS sensor.

SensorXplorer™

The SensorXplorer (Fig. 1) is a demonstration kit designed to help evaluate Vishay's digital sensors featured on Vishay's sensor boards. These boards, along with their respective software modules, can be used to demonstrate and test each sensor's functionalities, allowing the user to quickly understand how various settings affect the sensor's results. The SensorXplorer board includes an USB to I²C interface chip, a 3.3 V regulator, several indicator LEDs, as well as multiple GPIOs to control the functionality of each board and allow data to be read and displayed on a PC. To get an overview of available sensor boards, as well as to download the software modules and board design files, please visit: www.vishay.com/optoelectronics/SensorXplorer. Here you will also find a link next to each board showing its availability at each of our distributors.

Complete information about the SensorXplorer kit as well as all available sensor boards is available at www.vishay.com/optoelectronics/SensorXplorer. The same page also allows you to check inventory of SensorXplorer kits and Vishay sensor boards at our distributors.

The SensorXplorer installation guide is available for download from the following link: www.vishay.com/doc?849222

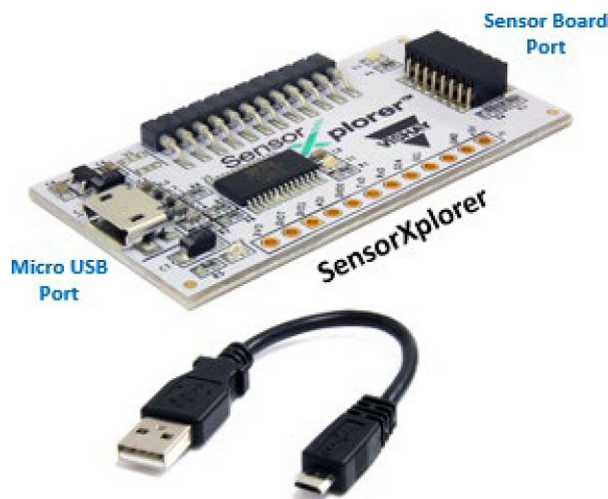


Fig. 1 - SensorXplorer

USING THE SENSOR BOARD WITH THE SensorXplorer

Following the instructions in the SensorXplorer installation guide, install the SensorXplorer software on your PC, then connect the SensorXplorer evaluation board to your PC and the Vishay sensor board.

The respective demo board software module can then be downloaded from: www.vishay.com/landingpage/SensorXplorer/

Once the module is unzipped the software can be run without the need for further installation.

You are now ready to explore the sensor and its different settings to see how they will work in your application.



HOW TO USE THE DEMOSOFTWARE

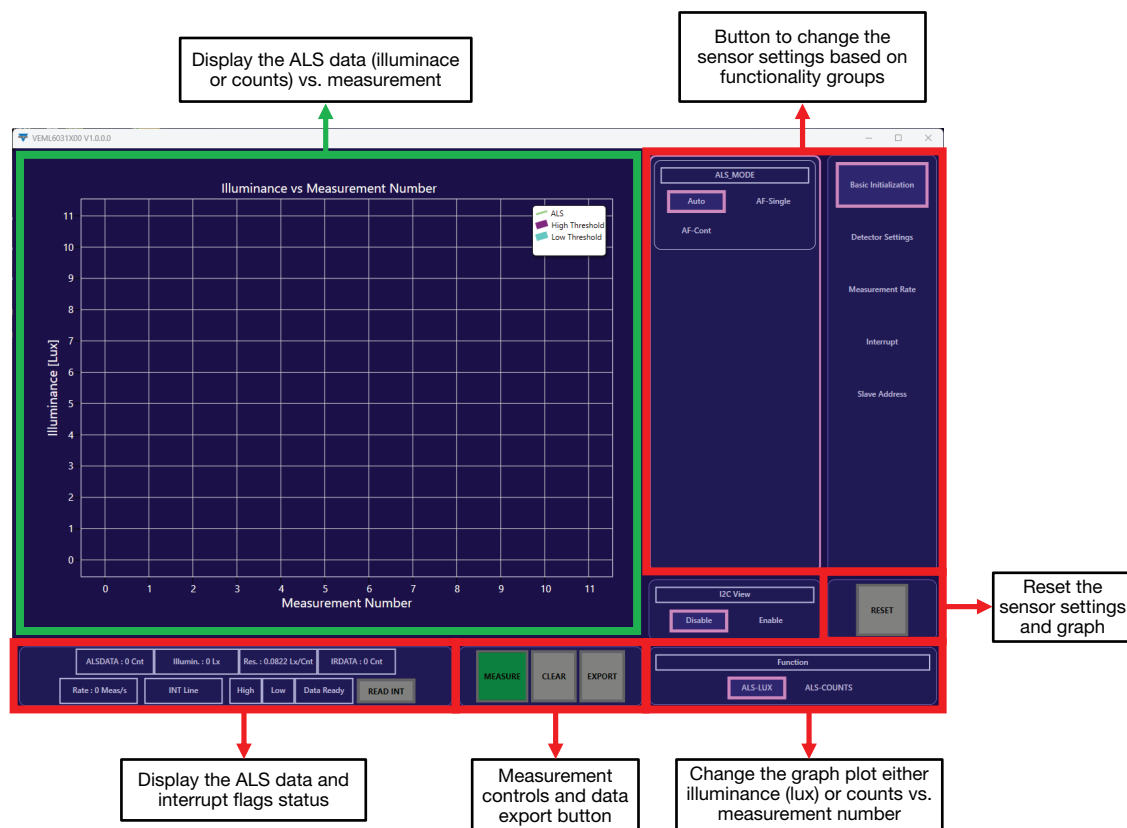


Fig. 2 - Demosoftware GUI Summary

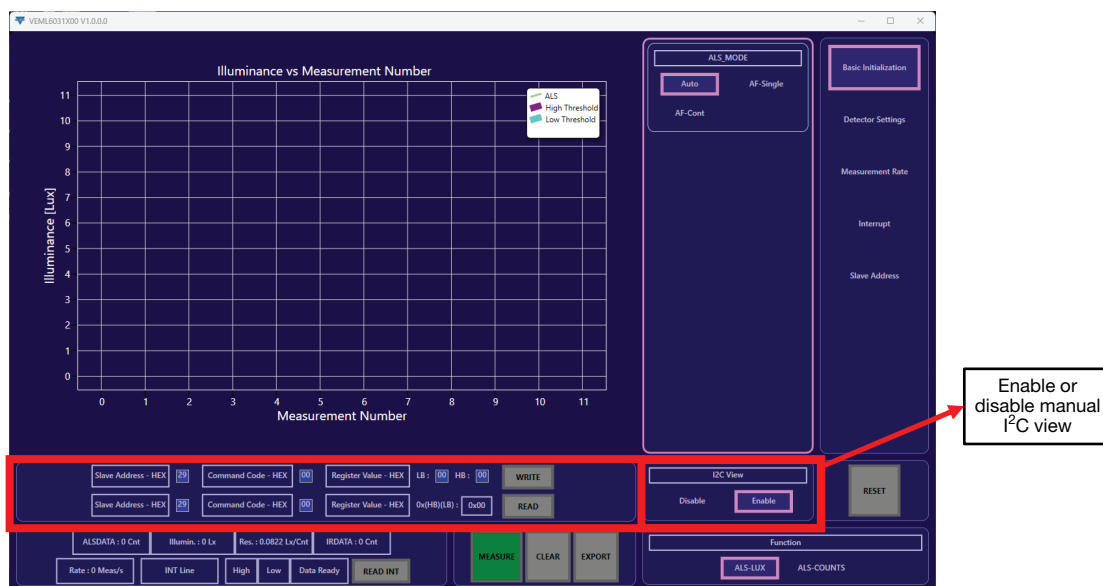


Fig. 3 - Enable or Disable Manual I²C View

VEML6031X00 timing diagram for active force mode (AF mode)



RGB_IT (ms)	Recommended Min AF Wait (ms)
3.125	4
6.25	8
12.5	15
25	30
50	60
100	120
200	240
400	480

AF wait-time delay to allow for the measurement to be completed before reading the data registers

AF delay time is the time delay between measurements to determine the measurement rate

Fig. 4 - AF Wait and AF Delay Parameter

Change sensor settings group button to go to the specific register settings, which belong to its respective functionality group

Fig. 5 - Register Settings are Arranged by Functionality Groups

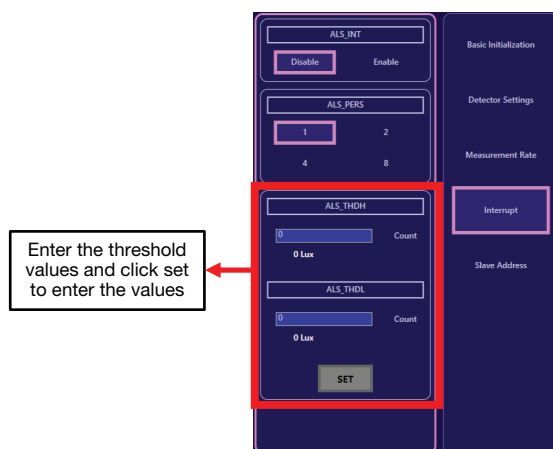


Fig. 6 - Threshold Settings for the Interrupt

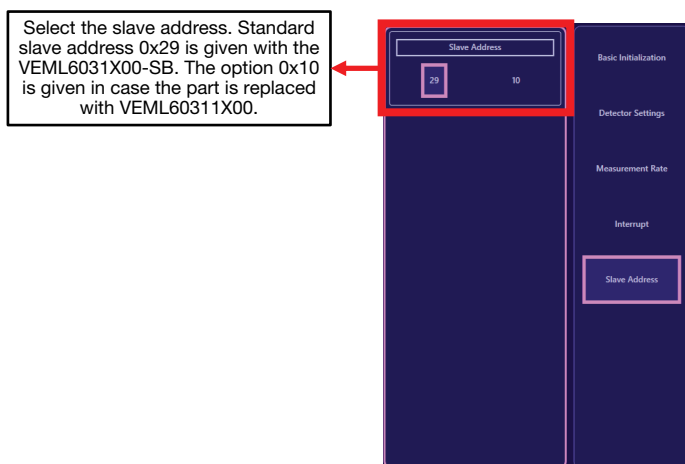


Fig. 7 - Slave Address Selection

USING THE SENSOR BOARD FOR ITSELF

If you want to use the sensor board within your own application and with your own I²C master, simply connect the board to a power supply (3.3 V, GND) and the I²C lines (SDA, SCL) as shown in Fig. 8.

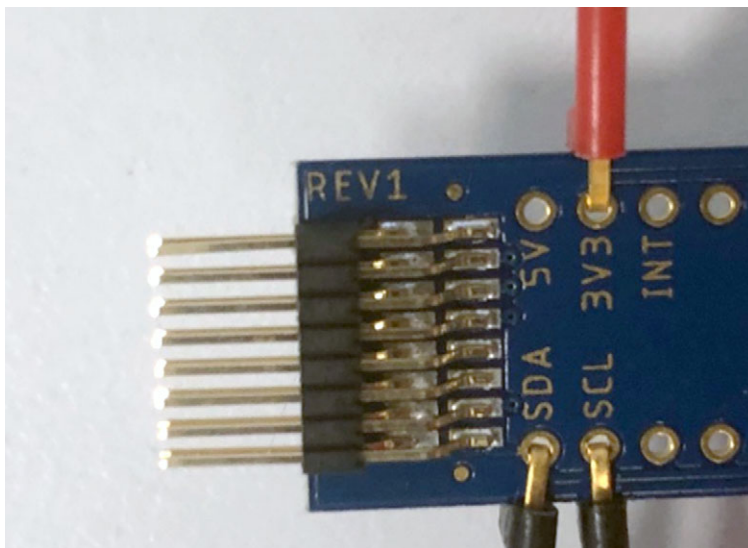


Fig. 8 - Connection of the Sensor Board (power supply and I²C lines)

SCHEMATIC OF THE VEML6031X00 SENSOR BOARD

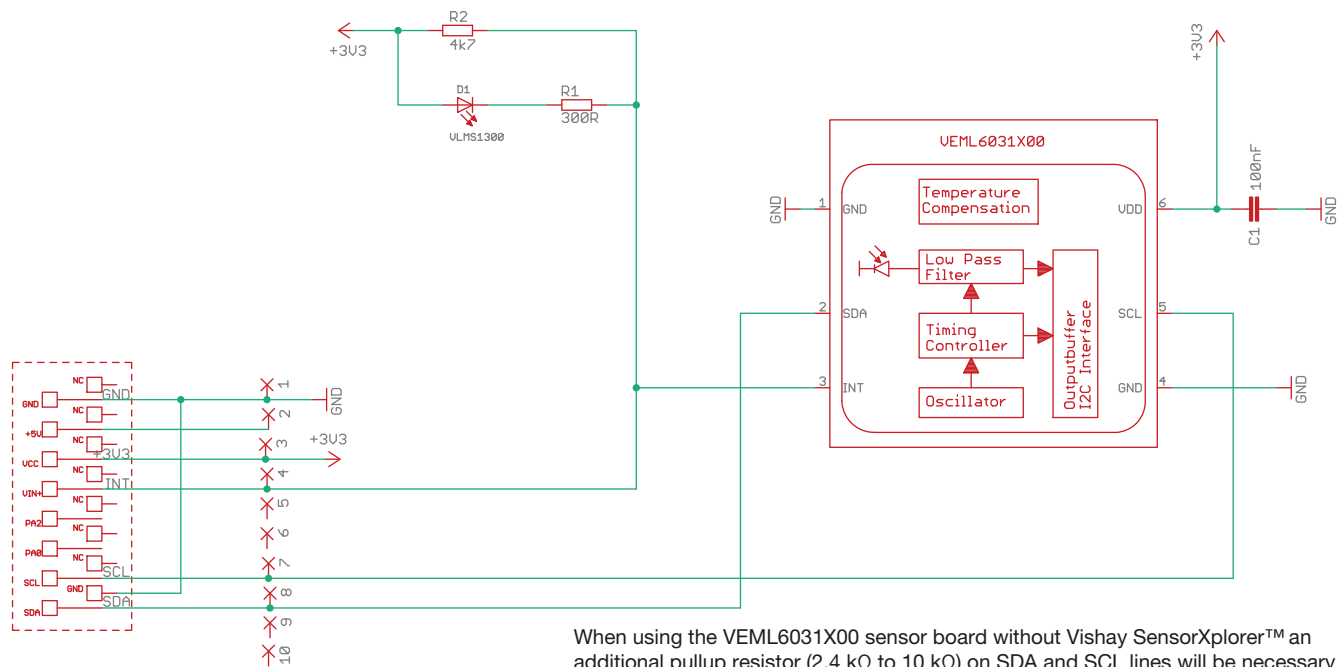
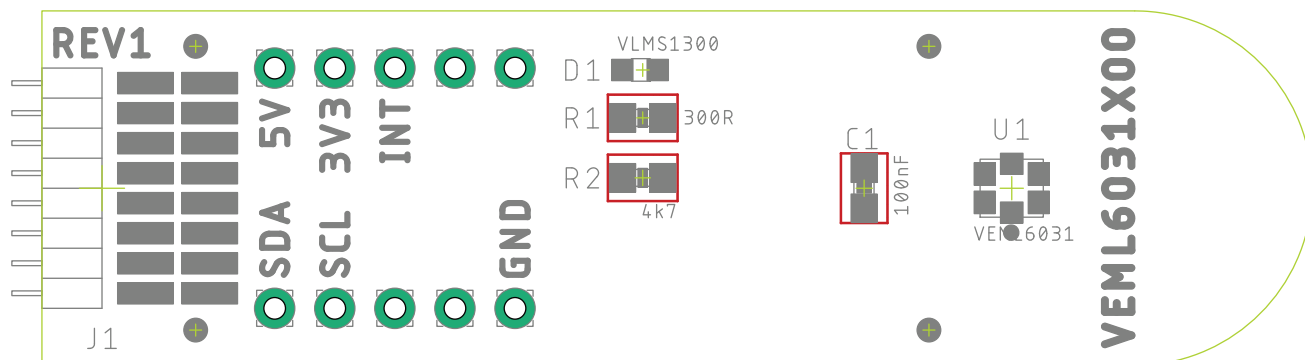


Fig. 9 - Schematic of the Schematic of the VEML6031X00 Sensor Board

ASSEMBLY OF THE VEML6031X00 SENSOR BOARD

VEML6031X00 sensor board, rev. 1.0



Assembly top

BILL OF MATERIALS					
ITEM	QUANTITY	REFERENCE	COMPONENT CLASS	VALUE	PACKAGE
1	1	C1	Capacitor	100 nF	C0603
2	1	D1	LED	VLMS1300	VLMS1300
3	1	J1	Edge connector	2 x 8 pos.	SMD Header Strip
4	1	R2	Resistor	4.7K	R0603
5	1	R1	Resistor	300R	R0603
7	1	U1	Sensor	VEML6031X00	SMD