

Sensor Board Guide for the VCNL36825T

INTRODUCTION

The VCNL36825T 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 VCNL36825T proximity 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

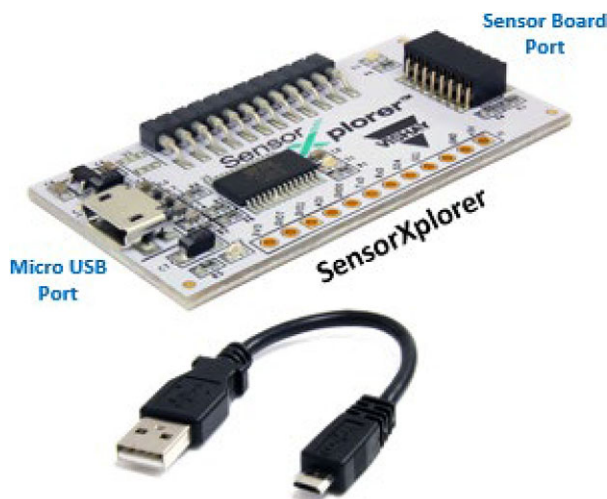


Fig. 1 - SensorXplorer

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

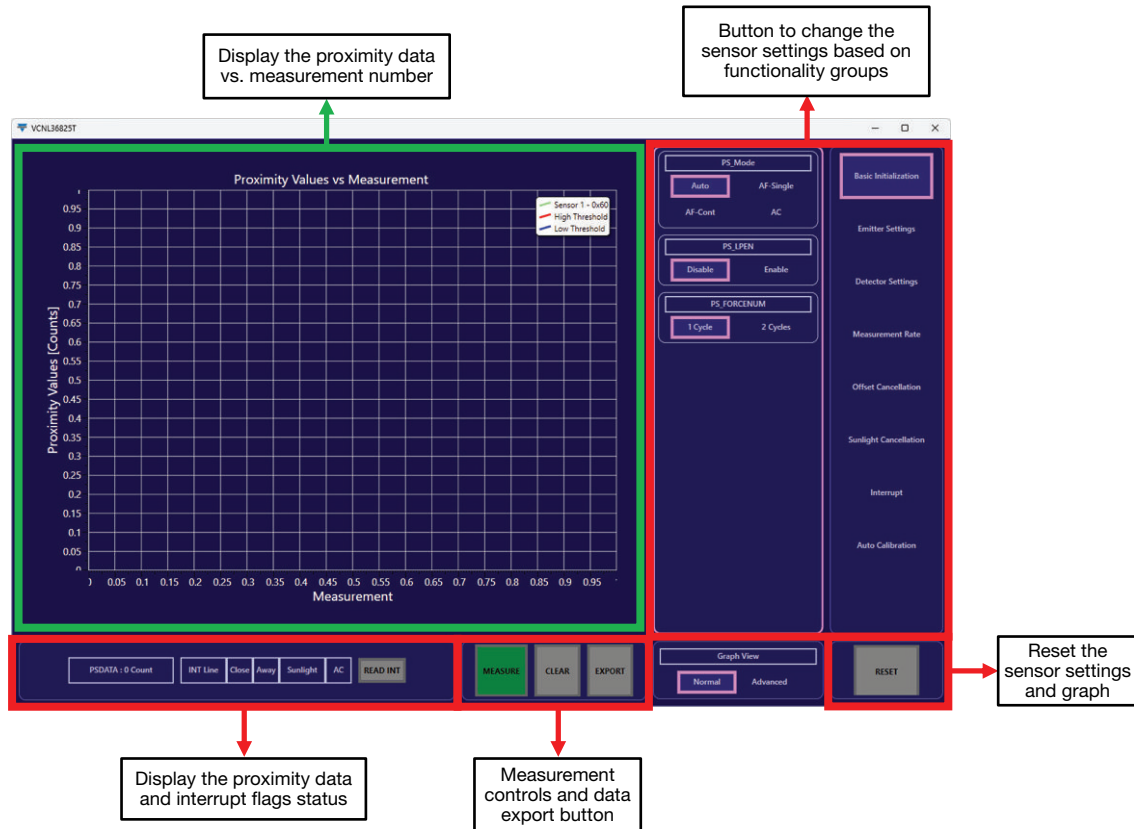


Fig. 2 - Demosoftware GUI Summary

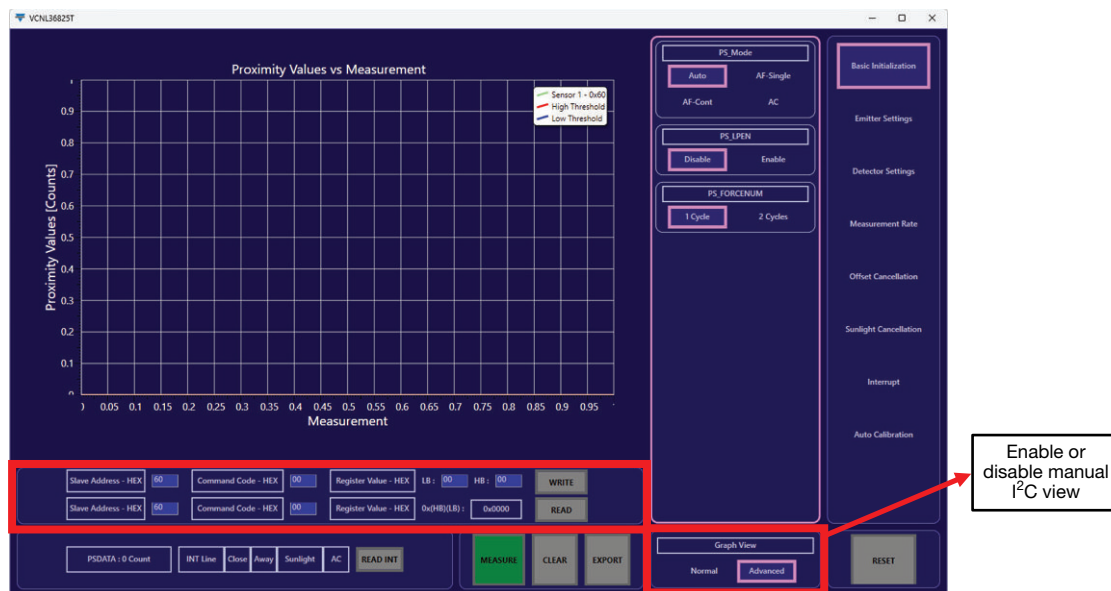


Fig. 3 - Enable or Disable Manual I²C View

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

Figure 10 displays five panels showing the configuration of various registers and settings for the module. Each panel is divided into two columns: the left column lists specific register settings, and the right column lists general module settings.

- Panel 1 (Left):**
 - PS_Mode: Auto, AF-Single, AF-Cont, AC
 - PS_LFEN: Disable, Enable
 - PS_FORCENUM: 1 Cycle, 2 Cycles
- Panel 2 (Left):**
 - PS_ITB: 25µs, 50µs
 - PS_ITI: 1T, 2T, 4T, 8T
 - LVCSEL: 10mA, 12mA, 14mA, 16mA, 18mA, 20mA
 - PS_MPS: 1 Pulse, 2 Pulses, 4 Pulses, 8 Pulses
- Panel 3 (Left):**
 - PS_HD: 12 bit, 16 bit
 - PS_HG: Disable, Enable
- Panel 4 (Left):**
 - PS_PERIOD: 10 ms, 20 ms, 40 ms, 80 ms
 - PS_LPER: 40 ms, 80 ms, 160 ms, 320 ms
- Panel 5 (Left):** (Empty)

The right column for all panels lists the following settings:

- Basic Initialization
- Emitter Settings
- Detector Settings
- Measurement Rate
- Offset Cancellation
- Sunlight Cancellation
- Interrupt
- Auto Calibration

Fig. 4 - Register Settings are Arranged by Functionality Groups

Enter the offset
cancellation values
and click set to enter

PS_CANC

0 Count

SET

- Basic Initialization
- Emitter Settings
- Detector Settings
- Measurement Rate
- Offset Cancellation
- Sunlight Cancellation
- Interrupt
- Auto Calibration

Enter the threshold values and click set to enter the values

PS-INT

Disable Enable

Logic

First High High/Low

PS-PERS

1 2

3 4

PS-SMART_PERS

Disable Enable

PS_SP_INT

Disable Enable

PS-THIDH

0 Count

PS-THIDL

0 Count

SET

Basic Initialization

Emitter Settings

Detector Settings

Measurement Rate

Offset Cancellation

Sunlight Cancellation

Interrupt

Auto Calibration

Fig. 5 - Offset Cancellation and Threshold Settings for the Interrupt

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 the power supply (3.3 V, GND) and the I²C lines (SDA, SCL) test pins as shown in Fig. 6.

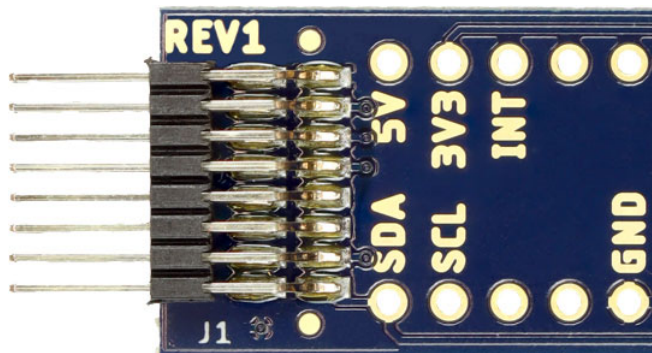


Fig. 6 - Connection of the Sensor Board (power supply and I²C lines)

SCHEMATIC OF THE VCNL36825T SENSOR BOARD

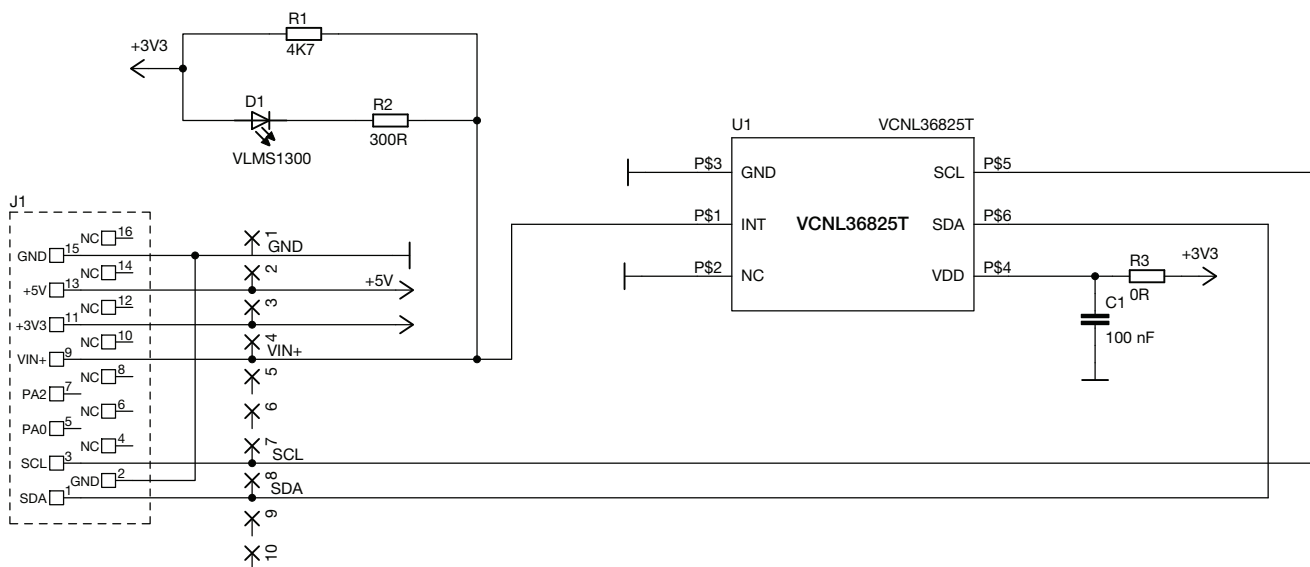
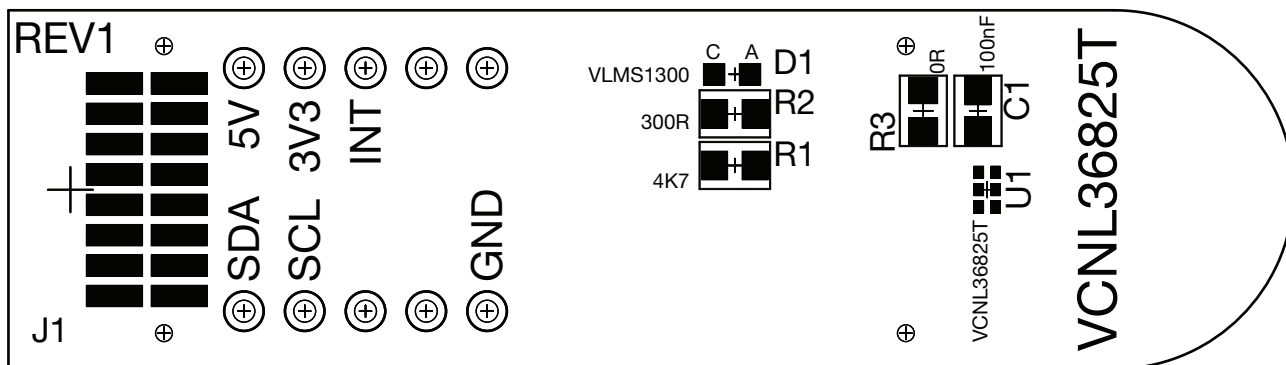


Fig. 7 - Schematic of the VCNL36825T Sensor Board

ASSEMBLY OF THE VCNL36825T SENSOR BOARD

VCNL36825T sensor board, rev. 1.0



Assembly top

BILL OF MATERIALS					
ITEM	QUANTITY	REFERENCE	PART	VALUE	PACKAGE
1	1	C1	Capacitor	100 nF	0603
2	1	R1	Resistor	4.7 kΩ	0603
3	1	R2	Resistor	300 Ω	0603
4	1	R3	Resistor	0 Ω	0603
5	1	D1	LED	VLMS1300	SMD
6	1	U1	Sensor	VCNL36825T	SMD
7	1	J1	Edge connector	2 x 8 pos.	SMD