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**ISL29020IROZ-EVALZ**

Using the Intersil ALS Software (v520) With Intersil Ambient and Infrared  
Light-to-Digital Converter with IR LED Driver ISL29020

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## 0.0 Evaluation Package

- Demo Board
- Evaluation CD
- USB 2.0 Cable

## 1.0 System Requirements

- Windows 98/NT/2000/XP/VISTA
- CD Drive
- Available USB Port

## 2.0 Hardware Setup

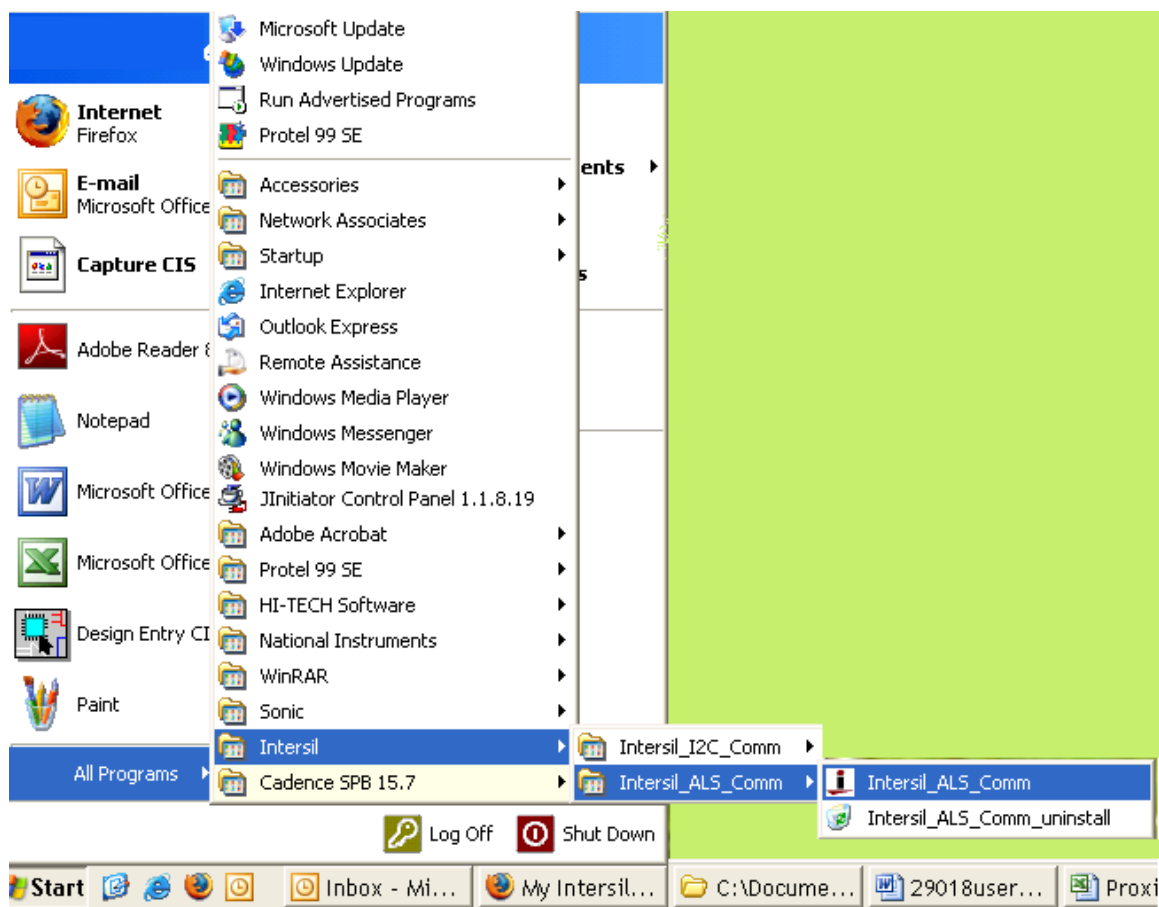
- Connect USB 2.0 Cable to PC first, and then to evaluation board.
- Computer may ask about installing software for new found hardware, select "Yes, this time only". On the following screen it will ask about how to install hardware. Select the recommended option- Installing from CD- and follow the directions.
- USB is only connector needed

## 3.0 Software Installation

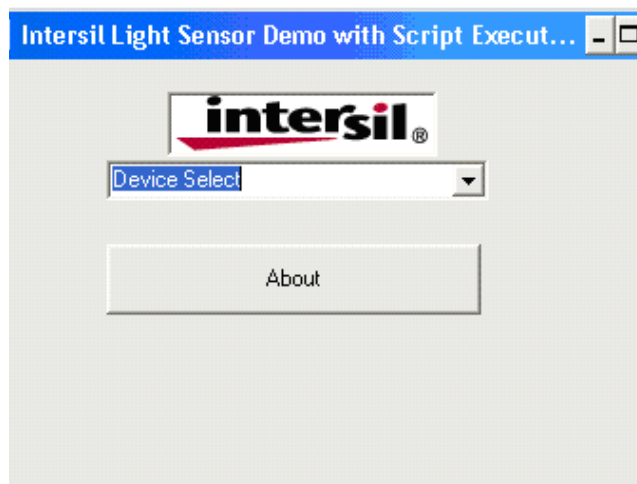
- Insert Intersil CD into CD Drive/player when asked to by the Hardware wizard
- Install the Intersil software

## 4.0 Software Setup

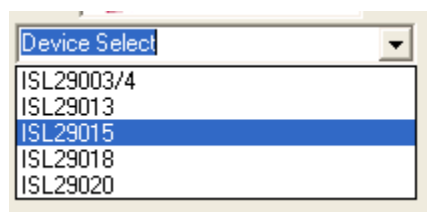
- To open program, go to "Start" menu, Start -> Intersil -> Intersil\_ALS\_Comm -> Intersil\_ALS\_Comm



Once you have double clicked the program, the following window will open.



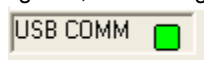
Go to “Device Select” tab, Select whichever device you have connected to your computer. For this example, we will use “ISL29015 Light Sensor”.



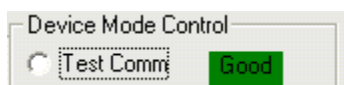
One window will open, “ISL29015 Multi-Function Sensor Evaluation Software”.

This is the main window in which all demonstrations will be done.

**USB Communication** - Check to make sure this light is green, if it is not green - check your connection.



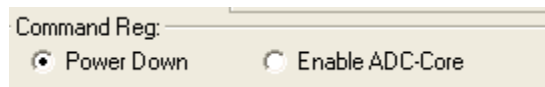
**Test Communication** - with IC, click this button; if it shows “good” - then Hardware and Software are properly set up; if it says “fail” - then check your connections. If problem still persists, then you may want to restart the software.



Note: This is common for all devices.

## 5.0 Multi-Function Sensor Evaluation Software Guide

From menu on left, choose the specific “**Mode**” you want to operate the IC in. A detailed explanation is described in the data sheet. The Table 1 on page 4 summarizes the different modes.



Measurements

☒ One Shot

☐ Continuous

Measurement

☒ Visible Light

☐ IR Sensing

TABLE 1. SUMMARY OF MODES

| MODE                   | EXPLANATION                                                        |
|------------------------|--------------------------------------------------------------------|
| Power-Down             | Turn off and keep data in registers                                |
| Visible Light One Shot | Ambient Light Sense for one conversion then Power-Down             |
| IR One Shot            | Infrared Sense for one conversion then Power-Down                  |
| Visible Light Cont     | Ambient Light Sense continuously and continue to refresh registers |
| IR Cont                | Infrared Sense continuously and continue to refresh registers      |

**Integration Time** - this corresponds to the resolution of the internal ADC, the number of bits allocated to representing Count. Higher resolution (more bits) requires a large number of counts and will need longer acquisition (integration) time.

Integration Time

N-bit A/D Converter

☐ 16 ☒ 12

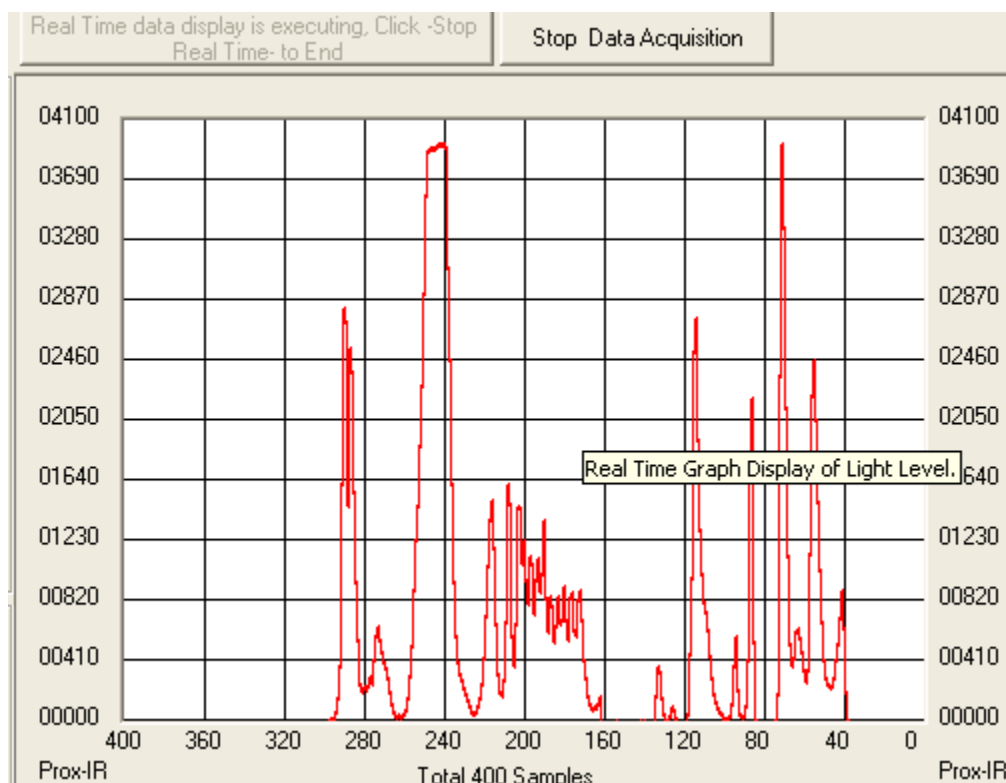
**Sensitivity-Range Select** - allows you to choose the sensitivity of the sensor based on external conditions/object detection. For example, a really bright object would require a higher range (i.e. 64000), vs a dark object which will require a low range (i.e. 1000). Higher range reduces photo detector sensitivity.

Sensitivity - Range Select

☒ 1000 ☐ 4000 ☐ 16000 ☐ 64000

**Collect Data Graphical Real Time Data** - allows you to sample data (whether ALS, IR, or Prox-IR). Samples are now being taken and are being plotted and appropriate values are displayed on the right in the corresponding box.

**Stop Data Acquisition** - To stop sampling of data.



Here, the scale can be adjusted to meet your sampling needs. “**Manual Re-Scale**” allows you to type in the maximum and minimum values for the scale (vertical axis) in the appropriate boxes. The “**Automatic Re-Scale**” button is useful if sampled data is out of range of graph or need to zoom-in on data. It will rescale the vertical axis to an appropriate field of view.

**Exit** - this button closes the entire program.

The value in the “**ADC Reading**” and/or “**Lux Reading**” fields are the appropriate output coming out of the sensor according to which Mode is engaged.

**Max Count** - this is the maximum value that can be measured based on the resolution chosen (Integration Time). Max count increases with more integration time.

Exit

ADC Reading

Calc Lux

Manual Re-Scale

Scale Max

1000

Automatic Re-Scale

## **6.0 Troubleshooting**

- If suffering from poor USB connection; USB port may need to change.
- If proximity sensor is unable to measure anything within a certain distance, the sensor has saturated and the selectivity parameter needs to be increased.
- If the program says connection fail and instantly the sensor stops working, then simply unplug it from the computer and plug it back in. If problem still persists then unplug, close program, plug it back in and reopen program.
- If during a measurement, program crashes or instantly the Evaluation board is no longer detected as being connected, then unplug and plug back in.
- If too much noise is being picked up, then increase the frequency parameter.
- If you require better detection of far distances, then increasing the current parameter will help.

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