

OPT3101 SDK and Device Configuration

The OPT3101SDK is a tool meant to run on the MCU in the system. This allows the configurator tool output to be loaded onto the OPT3101. The SDK will automatically preform the needed i2c transactions to configure the OPT3101 once the host specific i2c implementation is performed.

If SDK is not used in the system

If there is a reason that prevents the SDK from being used on the host then the i2c configuration would need to be determined by hand. This is not recommended as many of the tools offered by TI such as the configurator tool are made to be incorporated directly into the SDK. Translating the configurator tool output to i2c is outlined below.

The code generated by the configurator tool has a function `OPT3101::device::initialize` which contains all register settings. These registers and the associated address can be found in the device datasheet to determine the bits needed to be written. There are a few options to do this

1. All writes to a single register can be consolidated into a single write which masks the default register value with the new bits to be written.
2. Alternatively, each line in the initialize function can be converted to a read, modify, write on the corresponding register to only alter the bits for the register setting. This method would result in multiple writes to the same register.
3. Another option is to add a print statement to the SDK i2c handler to print all i2c writes. Then running the initialize function with the OPT3101 connected will print all the i2c transactions performed by the SDK.

Calibration

This document outlines the calibrations required for OPT3101

<https://www.ti.com/lit/ug/slau791/slau791.pdf>

As shown in the document, the per design calibration process (section 3) is only done on a small subset of units. The per unit Factory calibration (section 4) must be done on every unit in production. This includes the crosstalk and phase offset calibrations.