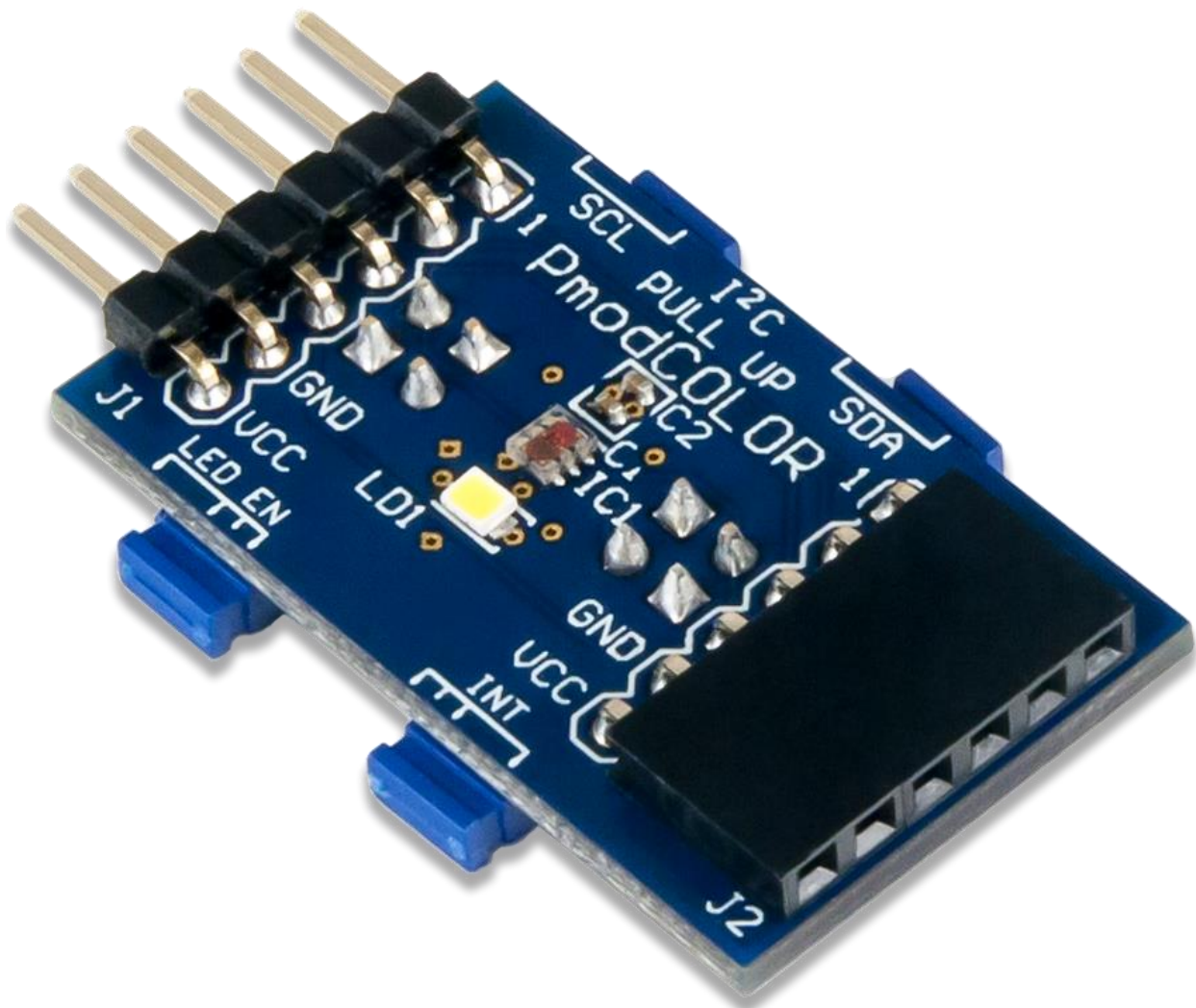


## Pmod COLOR Color Detector

The Digilent Pmod COLOR (Revision A) is a color sensor module with the ability to sense red, green, blue and clear light. The onboard [AMS TCS3472](#) integrates an IR blocking filter to accurately determine the color of objects as well as sense ambient light under varying lighting conditions and through attenuating materials.



## Features

- Red, green, blue, and clear light sensing
- IR-blocking filter
- White LED for reflective measurements
- Suitable for use behind darkened glass
- Optional pull-up resistors for SCL and SDA pins
- Small PCB size for flexible designs 0.8" × 1.35" (2.0cm × 3.4cm)
- 6-pin Pmod connector with I<sup>2</sup>C serial interface
- Pass-through Pmod host port for daisy chaining
- Follows Digilent [Pmod Interface Specification 1.2.0](#)

## Electrical

**Bus:** I<sup>2</sup>C

**Specification Version:** 1.2.0

**Logic Level:** 3.3V

## Physical

**Width:** 0.8 in (2.032cm)

**Length:** 1.35 in (3.429cm)

## Physical Dimensions

The pins on the pin header are spaced 100 mil apart. The PCB is 1.34 inches long on the sides parallel to the pins on the pin header and 0.8 inches long on the sides perpendicular to the pin header.

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## Functional Description

The Pmod Color utilizes the TCS3472 to detect color in the near vicinity. While communicating with the host board via the [I<sup>2</sup>C protocol](#) using an I<sup>2</sup>C address of 0x29 users can measure color. A user controlled white LED is also provided to help illuminate the object and improve color determination; the LED is very bright so it is recommended that users do not stare at the light.

## Serial Communication

The Pmod COLOR communicates with the host board via the [I<sup>2</sup>C protocol](#). By first sending the 7-bit I<sup>2</sup>C device address of 0101001 (0x29), users may receive the color data from the TCS3472. Each of the four ADC channels (red, green, blue, and clear) sends its conversion from the ADC to the host buffer simultaneously.

The TCS3472 can set the gain and integration time for each round of data collection. Integration time provides more time for the color sensor to collect more data, providing accurate data and helping to prevent the data from disproportionately capturing any overexposure that may occur. Each set of the 16-bit data is organized in a low-byte, high-byte arrangement.