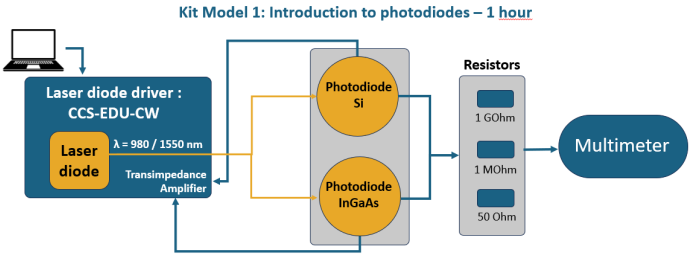
# Educational kit: Photodiode detection

## Model 1: Introduction to photodiodes – **1 hour**

Reference: **EDKIT-D1**

## Objectives:

- Evaluate the sensor gain and sensitivity.
- Compare Si and InGaAs detectors.
- Measure sensor saturation.
- Handle the impedance load charge variation.
- Estimate the dark current intensity.




## What's in the box?

- 1* Modular diode and photodiode driver with thermal regulation: "CCS-Educ-CW"
- 1* 1550 nm fiber coupled butterfly laser diode
- 1* 980 nm fiber coupled butterfly laser diode
- 1* fiber coupled Si photodiode + mounting
- 1* fiber coupled InGaAs photodiode + mounting
- 3*impedance loads (1GΩ, 1MΩ, 50Ω)
- 1*Multimeter; various clips etc.

<photo kit>

| SPECIFICATIONS | Unit | Min | Typ | Maximum |
|---|---|---|---|---|
| **Laser diode #1*** | | | | |
| CW Output Power | mW | | | 10 |
| Center Wavelength | nm | 1545 | 1550 | 1555 |
| Operating Current | mA | | | 70 |
| Laser safety classification | Class 1M | | | |
| Internal Photodiode Responsivity | mA/W | 5 | | |
| Internal Photodiode Dark Current | nA | | | 500 |
| Fiber type (Connector) / Buffer diameter | SMF28 (SC/APC) / 900µm | | | |
| **Laser diode #2*** | | | | |
| CW Output Power | mW | | | 5 |
| Center Wavelength | nm | 975 | 980 | 985 |
| Operating Current | mA | | | 100 |
| Laser safety classification | Class 1M | | | |
| Internal Photodiode Responsivity | mA/W | | | 100 |
| Internal Photodiode Dark Current | nA | | | 500 |
| Fiber type (Connector) | PM980 (SC/APC) / 900 µm | | | |
| **Diode driver: CCS-Educ-CW** | | | | |
| Diode driver with current limitation | Yes | | | |
| Laser diode thermal regulation | Yes | | | |
| Photodiode transimpedance amplifier | Yes | | | |
| GUI software with USB communication | Yes (Simplified version) | | | |
| **Photodiode #1: InGaAS** | | | | |
| Sensitivity | A/W | | 0.93 | |
| Dark current | | | | |
| **Photodiode #2: Si** | | | | |
| Sensitivity | A/W | | 0.35 | |
| Dark current | nA | | 0.01 | |

*: See our tutorial : fiber coupled laser diode

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