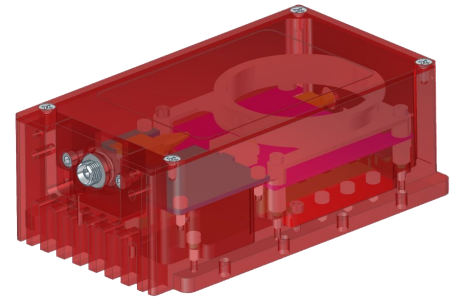


## Introduction

Redwave Labs' AD300 is a compact and affordable single-photon detector module with a built-in counter. The AD300 can be fitted with two different diodes based on your needs. Our fiber-coupled InGaAs offering detects photons in the NIR region up to 1600 nm. Our silicon offering has high efficiency values in the near visible region (around 650 nm). The AD300 features active quenching and full digital temperature control. A separate power supply is provided as standard.



Fiber-coupled variant

## Specification

### Silicon based

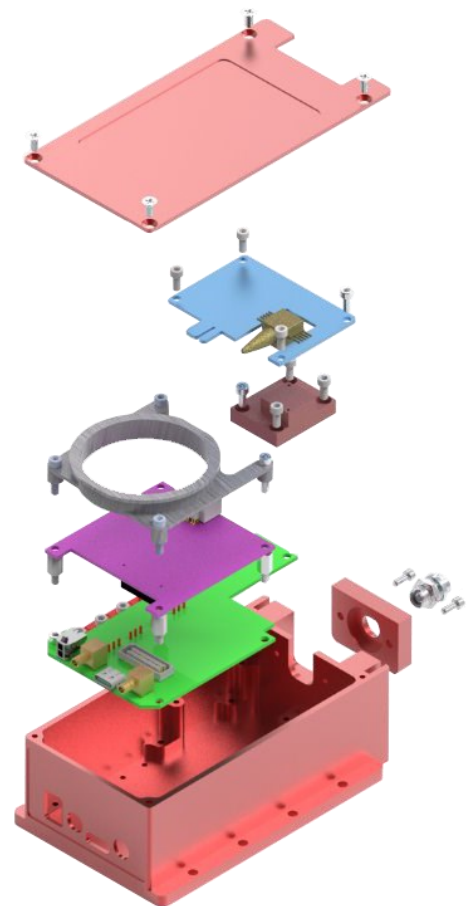
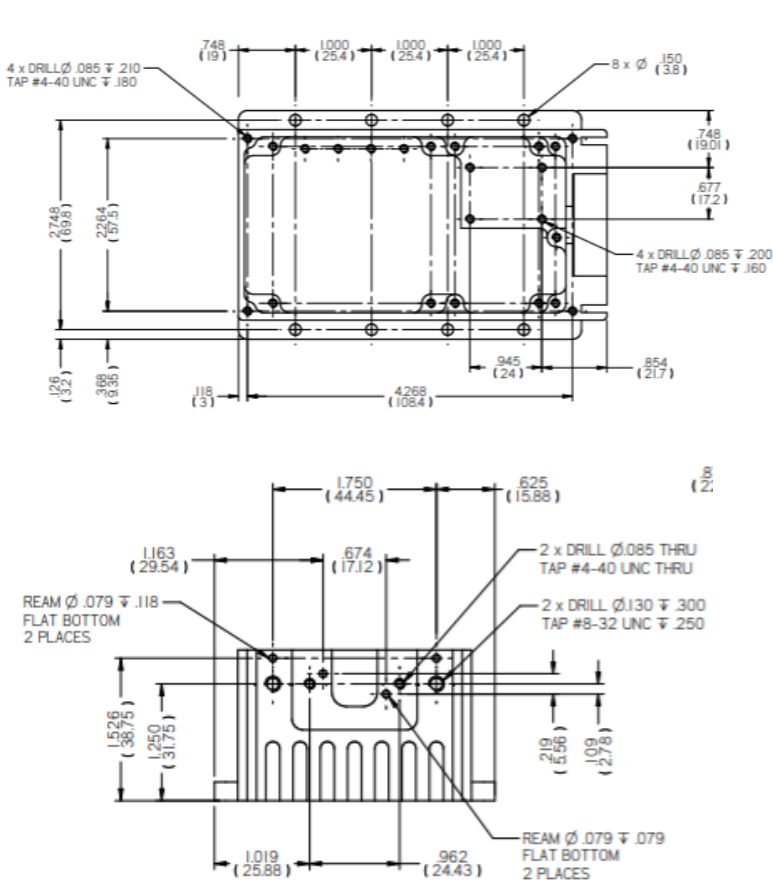
### InGaAs based

|                                     |  |                    |   |                      |
|-------------------------------------|--|--------------------|---|----------------------|
| Features                            | <b>70% quantum efficiency at 650 nm</b><br><b>55% quantum efficiency at 800 nm</b><br><b>Tunable temperature of the diode</b><br><b>Low dark and after pulsing rates</b><br><b>Software included</b> |                    | <b>Tunable temperature of the diode (down to -40 °C)</b><br><b>Low dark and after pulsing rates</b><br><b>Software included</b><br><b>FC/PC connector</b> |                      |
| Applications                        | <b>Time correlated single photon counting</b><br><b>Single molecule detection</b><br><b>Laser scanning microscopy</b><br><b>Particle physics</b><br><b>Spectrophotometry</b>                         |                    | <b>QKD</b><br><b>LIDAR</b><br><b>Fluorescence Lifetime Imaging</b>  |                      |
| Specifications                      | Parameter  | Value              | Parameter   | Value                |
| Power                               | Single   | +5 V               | Single  | +5 V                 |
|                                     | Wavelength   | 400 – 1100 nm      | Wavelength  | 1100 nm - 1600 nm    |
| Photodiode                          | Breakdown Voltage  | 125V@ 25C          | Breakdown Voltage   | 60 V - 80 V          |
|                                     | Active Area  | 500 μm             |   |                      |
| Single-Photon Detection Probability | At 650nm   | 0.7                | At 1550 nm  | 0.7                  |
|                                     | At 800nm   | 0.55               |   |                      |
| Dark Count Rate                     |  | 25 @ -20C, typical |   | 2000 @ -40C, typical |
| Deadtime                            |  | 100 ns             |   | 1.5 us               |
| Output pulse                        |  | 40 ns              |   | 25 ns                |
| Connectors                          | Power  | Molex 2 PIN        | Power   | Molex 2 PIN          |
|                                     | Output   | SMB                | Output  | SMB                  |
|                                     | USB  | USB TYPE C         | USB   | USB TYPE C           |
|                                     | Timing Gate  | SMB                | Timing Gate   | SMB                  |
| Weight                              |  | 350 g              |   | 350 g                |
| Storage Temp                        |  | -40 to 85 C        |   | -40 to 85 C          |
| Operating Temp                      |  | -40 to 85 C        |   | -40 to 85 C          |

## Absolute Maximum Ratings

| Symbol          | Parameter               | Ratings   | Unit  |
|-----------------|-------------------------|-----------|-------|
| V <sub>dd</sub> | Supply Voltage          | +5        | Volt  |
| T <sub>op</sub> | Operational Temperature | -40 to 85 | Deg C |
| T <sub>st</sub> | Storage Temperature     | -40 to 85 | Deg C |

## Mechanical Information



| Parameter | Value         | Unit      |
|-----------|---------------|-----------|
| Length    | 5.004 (127.1) | Inch (mm) |
| Width     | 3.000 (76.2)  | Inch (mm) |
| Height    | 1.625 (41.28) | Inch (mm) |
| Weight    | 350           | gram      |