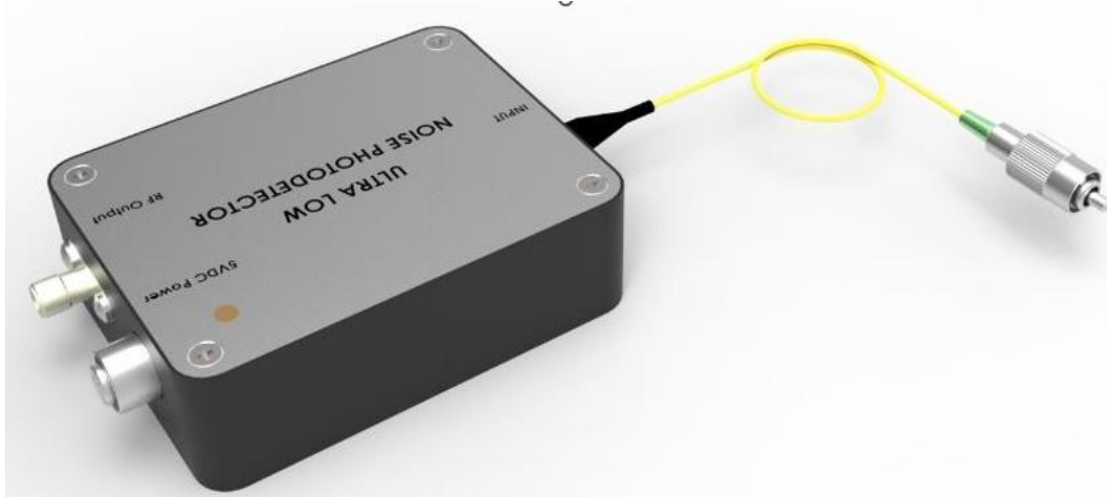


# InGaAs ultra-low noise unit detector

## UPD-200M-A



### ● Product Description

The ultra-low noise photodetector module integrates an ultra-low noise analog PIN photodetector, a low-noise broadband transimpedance amplifier, and an ultra-low noise isolated single power supply. The output signal is unaffected by external power supply sources. This module is particularly outstanding in terms of background noise control, with its background noise being approximately one-third of that of conventional modules under the same parameters, effectively meeting customers' needs for smaller signal detection and higher signal-to-noise ratio.

### ● Part Number

UPD-200M-A

### ● Product features

WUltra-low noise、High gain、High bandwidth、Compact structure、Built-in low-noise isolated power supply

## ● Application area

Fiber optic sensing、Fiber optic communication、Laser ranging、Spectral measurement、Nanosecond level optical pulse detection

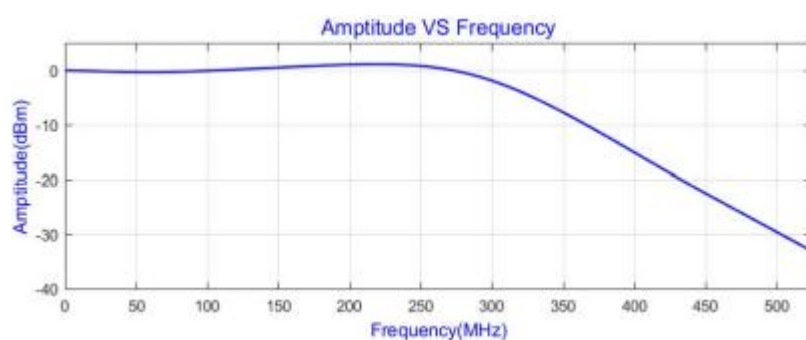
## Parameters

| PN#                                          | UP<br>D-1<br>00<br>M-<br>A | UP<br>D-2<br>00<br>M-<br>A | UP<br>D-3<br>00<br>M-<br>A | UP<br>D-4<br>00<br>M-<br>A | UP<br>D-5<br>00<br>M-<br>A | UP<br>D-6<br>00<br>M-<br>A | UP<br>D-8<br>00<br>M-<br>A | UP<br>D-<br>1G<br>-A | UP<br>D-<br>1.2<br>G-<br>A | UP<br>D-<br>1.5<br>G-<br>A | UP<br>D-<br>2G<br>-A | UP<br>D-<br>2.5<br>G-<br>A | UP<br>D-<br>5G<br>-A | Uni<br>t                   |
|----------------------------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------|----------------------------|----------------------------|----------------------|----------------------------|----------------------|----------------------------|
| Det<br>ecto<br>r<br>Typ<br>e                 | InGaAs                     |                            |                            |                            |                            |                            |                            |                      |                            |                            |                      |                            |                      |                            |
| Wav<br>elen<br>gth                           | 800~1700                   |                            |                            |                            |                            |                            |                            |                      |                            |                            |                      |                            |                      | nm                         |
| Ban<br>dwi<br>dth                            | 100<br>M                   | 200<br>M                   | 300<br>M                   | 400<br>M                   | 500<br>M                   | 600<br>M                   | 800<br>M                   | 1G                   | 1.2<br>G                   | 1.5<br>G                   | 2G                   | 2.5<br>G                   | 5G                   | Hz                         |
| Det<br>ecto<br>r<br>Res<br>pon<br>sivi<br>ty | 0.9<br>5                   | 0.9<br>5                   | 0.9<br>5                   | 0.9<br>5                   | 0.9<br>5                   | 0.9<br>5                   | 0.9<br>5                   | 0.<br>95             | 0.9<br>5                   | 0.9<br>5                   | 0.<br>95             | 0.9<br>5                   | 0.<br>95             | A/<br>W<br>@1<br>550<br>nm |
| Tran<br>sim<br>ped<br>ance<br>Gain           | 30K                        | 30K                        | 30K                        | 20K                        | 15K                        | 15K                        | 30K                        | 30<br>K              | 30<br>K                    | 30<br>K                    | 30<br>K              | 30<br>K                    | 6K                   | V/<br>W                    |

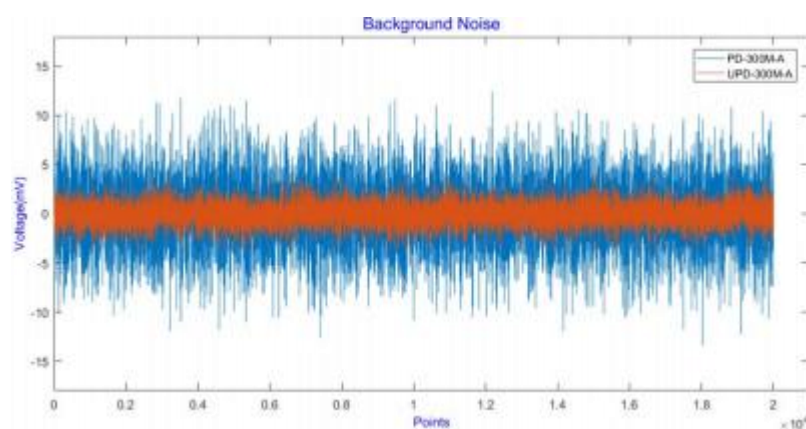
|                          |                                      |           |           |           |           |           |           |           |           |           |           |           |        |             |
|--------------------------|--------------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|--------|-------------|
| Saturation Optical Power | 140                                  | 140       | 140       | 420       | 280       | 280       | 140       | 140       | 140       | 420       | 140       | 140       | 700    | $\mu$ W     |
| NEP                      | 2.2                                  | 2.2       | 2.2       | 2.7       | 3.1       | 3.1       | 3.3       | 3.3       | 3.3       | 3.3       | 3.3       | 3.3       | 3.3    | pW/Sqrt(Hz) |
| Output Impedance         | 50                                   | 50        | 50        | 50        | 50        | 50        | 50        | 50        | 50        | 50        | 50        | 50        | 50     | $\Omega$    |
| Output Coupling          | DC/AC                                | DC/AC     | DC/AC     | DC/AC     | DC        | DC        | AC        | AC        | AC        | AC        | AC        | AC        | AC     |             |
| Power Supply Voltage     | 5                                    | 5         | 5         | 5         | 5         | 12        | 12        | 12        | 12        | 12        | 12        | 12        | 12     | V           |
| Power Supply Current     | 0.5 (max)                            | 0.5 (max) | 0.5 (max) | 0.5 (max) | 0.5 (max) | 0.5 (max) | 0.5 (max) | 0.5 (max) | 0.5 (max) | 0.5 (max) | 0.5 (max) | 0.5 (max) | 0.3    | A           |
| Optical Input            | FC/APC (Free space option available) |           |           |           |           |           |           |           |           |           |           |           | FC/APC |             |
| RF Output                | SMA                                  |           |           |           |           |           |           |           |           |           |           |           | SMA    |             |

|            |          |          |          |    |
|------------|----------|----------|----------|----|
| Dimensions | 65*50*20 | 65*50*25 | 80*90*25 | mm |
|------------|----------|----------|----------|----|

## Test Result



300MHz ultra-low noise unit detector



Comparison of the Ultra-Low Noise Unit Detector with Conventional Unit Detector in Terms of Background Noise