# Ultra-low noise polarization diversity coherent reception module 1.2G


## Product Description

The ultra-low noise polarization diversity receiver module is designed for polarization-sensitive fiber optic sensing applications. This module coherently processes the two polarization states of the local oscillator and signal light separately, using two high-speed, low-noise balanced detectors for independent reception. It effectively solves the issue of coherent polarization states. This series is an upgrade of the original PDR series,

significantly reducing the background noise, thereby providing higher signal-to-noise ratio for signal detection.

## Product features

High Bandwidth、 High Gain、 Ultra-low noise、 Built-in low-noise isolation power supply

## Part Number

MP-UPR-M-I-1200-F-A

## Application area

Fiber optic sensing、 Laser wind radar、 Optical coherence tomography、 Spectroscopy

## Core parameters

| Wavelength | Bandwidth | Responsivity |
|---|---|---|
| 1510~1590nm | 1.2GHz | 0.95A/W@1550nm |

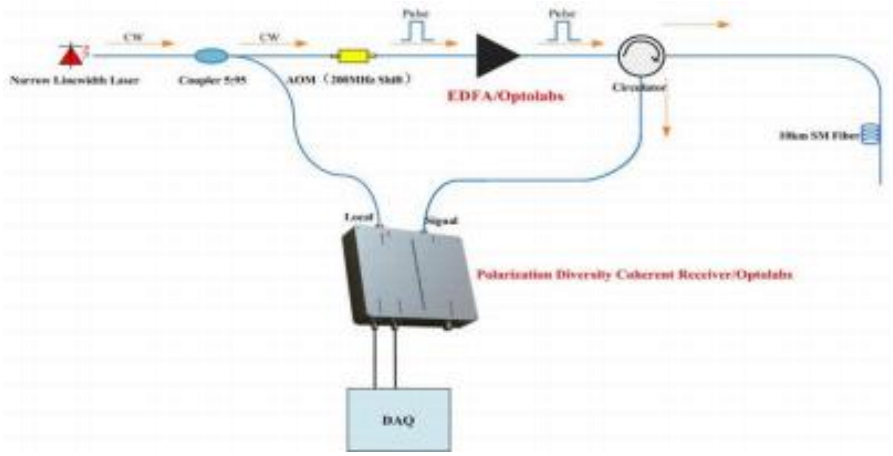
## General Parameters

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Wavelength | 1510~1590（1300±50nm；1060±50nm Optional） | | | | | | | | | | | nm |
| Bandwidt | 100 | 200M | 300M | 400M | 500M | 800M | 1G | 1.2G | 1.5G | 2G | 2.5G | Hz |

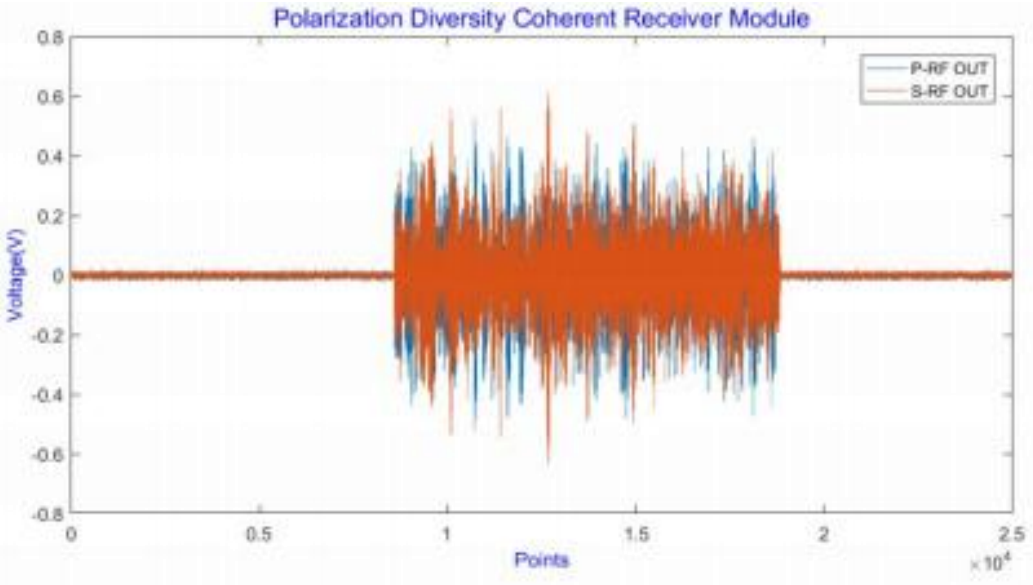
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| h | | M | | | | | | | | | | |
| Detector Responsivity | | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | A/W@1550nm |
| Transimpedance Gain | | 30K | 30K | 30K | 20K | 10K | 30K | 30K | 30K | 30K | 30K | 30K | V/A |
| Input Light | Local | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | mW |
| | Signal | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | μW |
| Polarization Extinction Ratio | | 22 | 22 | 22 | 22 | 22 | 22 | 22 | 22 | 22 | 22 | 22 | dB |
| NEP | | 2.5 | 2.5 | 2.5 | 2.9 | 3.1 | 3.1 | 3.1 | 3.1 | 3.1 | 3.1 | 3.1 | pW/Sqrt(Hz) |
| Power Supply Voltage | | 5 | 5 | 5 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | V |
| Power | | 0.5( | 0.5( | 0.5( | 0.5( | 0.5( | 0.5( | 0.5( | 0.5( | 0.5( | 0.5( | 0.5( | A |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Supply Current | max) | max) | max) | max) | max) | max) | max) | max) | max) | max) | max) | |
| Coupling Method | DC/AC | DC/AC | DC/AC | DC/AC | DC | AC | AC | AC | AC | AC | AC | |
| Interface Type | Electrical interface: SMA; Fiber connector: FC/APC | | | | | | | | | | | |
| Fiber Type | Local:PM; Signal:SM | | | | | | | | | | | |
| RF Output | SMA | | | | | | | | | | | |
| Dimensions | 120*100*25mm | | | | | | | | | | | |

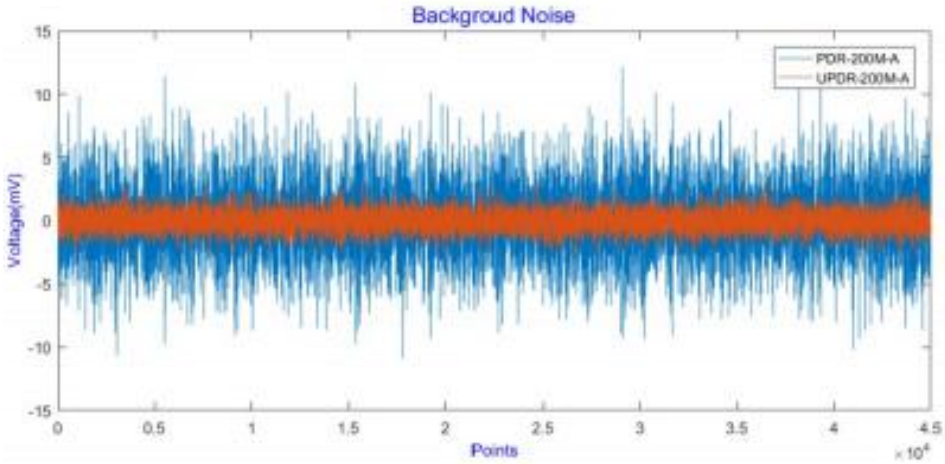
## Test Result




Polarization Diversity Coherent Reception Optical Circuit Diagram




**Coherent signals of P-polarized and S-polarized states.**




**Comparison of the base noise between ultra-low noise polarization diversity and conventional polarization diversity**