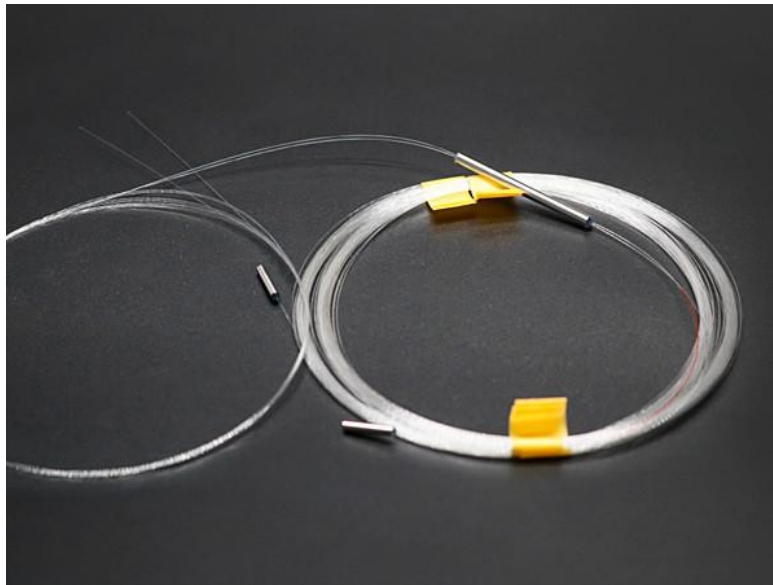


# 1310nm Faraday Rotator Michelson Interferometer 2X2



## ● Product Description

The Faraday Rotator Mirror (FRM) method is an important solution for suppressing polarization-induced signal fading in interferometric fiber optic sensing systems. In theory, it can completely eliminate polarization fading, but since the rotation angle of the selected FRM is not exactly  $45^\circ$ , residual polarization-induced phase noise will appear in the system. The Faraday Rotator Mirror Michelson interferometer used in the hydrophone can control the difference in length of the two arms to within 1 mm, achieving a low-cost miniaturized design

## ● Product features

Moisture resistant、 Pressure resistant、 Miniature、 Specially designed for hydrophones simplifies optical design

## ● Part Number

MP-MIM-1310-22-1-SA

## ● Application area

Fiber optic sensing、 Fiber optic hydrophone

## ● Core parameters

| Working Wavelength | Working Bandwidth | Operating Power |
|--------------------|-------------------|-----------------|
| 1310nm             | ±20nm             | 500mW           |

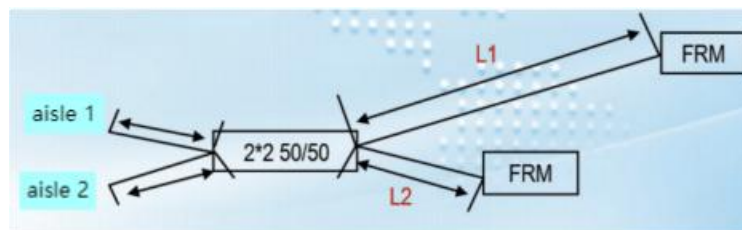
## ● General Parameters

Parameter

| Structure          | Unit | 1X2/2X2   |
|--------------------|------|-----------|
| Working wavelength | nm   | 1310/1550 |
| Working bandwidth  | nm   | ±20nm     |
| Operating power    | mW   | 500       |
| Insertion loss     | dB   | 3.8       |
| Polarization loss  | dB   | 0.1       |

|                             |     |               |
|-----------------------------|-----|---------------|
| Split ratio deviation       | %   | 3             |
| Rotation angle              | Deg | 45            |
| Arm length difference error | mm  | 1             |
| Fiber model                 |     | SMF-28E+      |
| Fiber diameter              | um  | 9/125         |
| Package size                | mm  | 2.4X25-2.4x12 |

### Interference optical path



|                                    |                                                                                                               |             |
|------------------------------------|---------------------------------------------------------------------------------------------------------------|-------------|
| High temperature storage           | Temperature: +85P ±3,0                                                                                        | 5000 hours  |
| Low temperature storage            | Temperature: -55X) ±3t                                                                                        | 5000 hours  |
| High temperature and high humidity | Temperature: +85P ±2t, humidity 2=85%                                                                         | 2000 hours  |
| Local low temperature cycle        | Temperature range: -40P ~ +85Q,<br>temperature change rate N 5t) /min<br>Hot-keeping time: @-40,0, @85: 30min | 1000 cycles |

|                                             |                                                                                                                                                                                                     |                                                                                        |
|---------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|
| <b>Temperature shock</b>                    | <b>Temperature range: -55~ +85*0</b><br><br><b>Hot-keeping time (@-55*0, @85*0):</b><br><br><b>30min, high temperature and low</b><br><br><b>temperature conversion time w 5min</b>                 | <b>10 times</b>                                                                        |
| <b>Mechanical shock test</b>                | <b>Waveform: half sine wave, test direction:</b><br><br><b>6 directions (3 axes)</b><br><br><b>Peak acceleration: 1500g, pulse duration:</b><br><br><b>6 ~ 8ms</b>                                  | <b>5 times in</b><br><br><b>each</b><br><br><b>direction</b>                           |
| <b>Mechanical vibration test</b>            | <b>Waveform: sine wave, test direction:</b><br><br><b>horizontal and vertical</b><br><br><b>Acceleration peak: 20g Frequency range:</b><br><br><b>20 ~ 2000Hz</b><br><br><b>Duration: 4min/time</b> | <b>4 times in</b><br><br><b>each</b><br><br><b>direction</b>                           |
| <b>Air tightness check</b>                  | <b>Initial pressure: 0.2MPa, hydrogen tracer</b><br><br><b>gas: 95% ~ 100%</b><br><br><b>Pressure time: 2hrs</b>                                                                                    | <b>Leak rate w</b><br><br><b>1.0x</b><br><br><b>lO<sup>^</sup>Pa • m<sup>3</sup>/s</b> |
| <b>High and low temperature online test</b> | <b>Temperature range: -40 ~ +85P</b><br><br><b>Insulation time (@-40*0, @257, @85*0):</b><br><br><b>5min</b>                                                                                        | <b>0.002dBTO</b>                                                                       |



## Ordering Information

MP-□□□□-XX-L□□

W□ □□□: wavelength

1310: 1310nm

1550:1550nm

□□: structure

12: 1×2

22: 2×2

XX: fiber and connector type

SN=SMF-28E Fiber + None

SA=SMF-28E Fiber + FC/APC

SP=SMF-28E Fiber + FC/PC

PP=PM Fiber Fiber + FC/PC

PA=PM Fiber Fiber + FC/APC

L□□:

1=1cm

10=10cm