



## Introduction of Capability, Facility and Product Range For Fiber Distributed Sensing Application

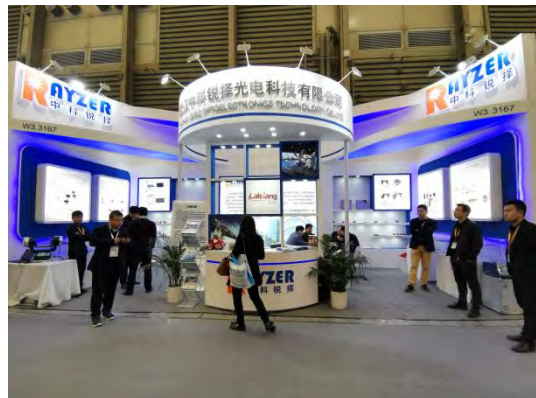
**Kokyo**

株式会社 光響

Email : [info@symphotony.com](mailto:info@symphotony.com)

Web : <https://www.symphotony.com/>

# Overview



## Company

**4 Factories**

Wuhan, Xi'an, Ji'nan, Shanghai

## Sales 2023

**20 Million USD**

## Employees

**240**

## Facility

**15000 m<sup>2</sup>**

**Clean Workshop**

## Focusing Fields

**Inertial Navigation**

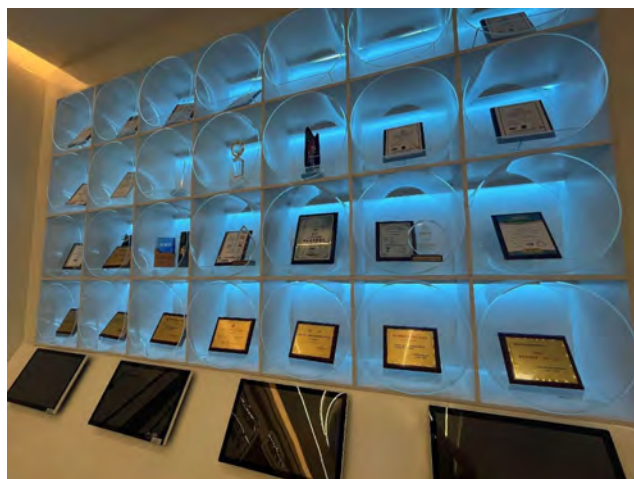
**Fiber Sensing, Laser, Lidar**



## Show Room



## Awards and Certificates



## Measurement

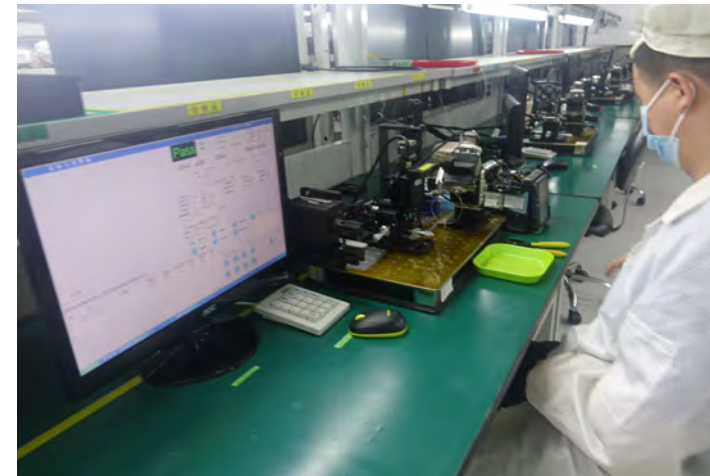


## Fabrication

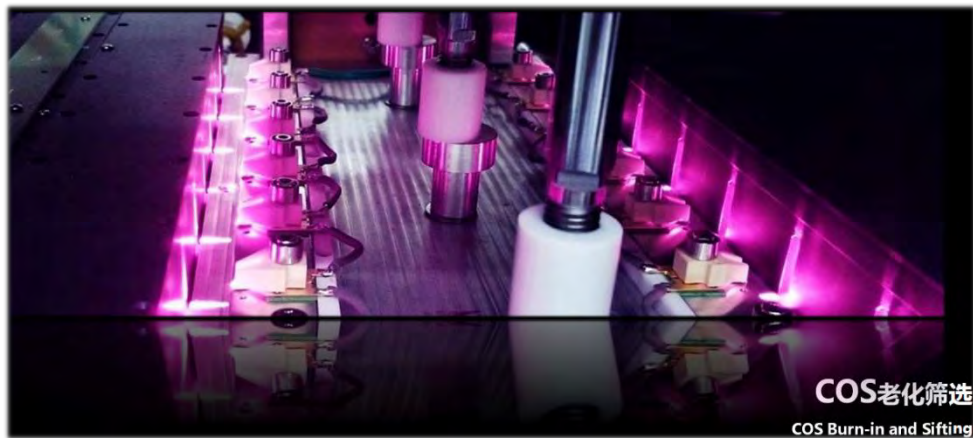




## Fabrication



## Chip Packaging

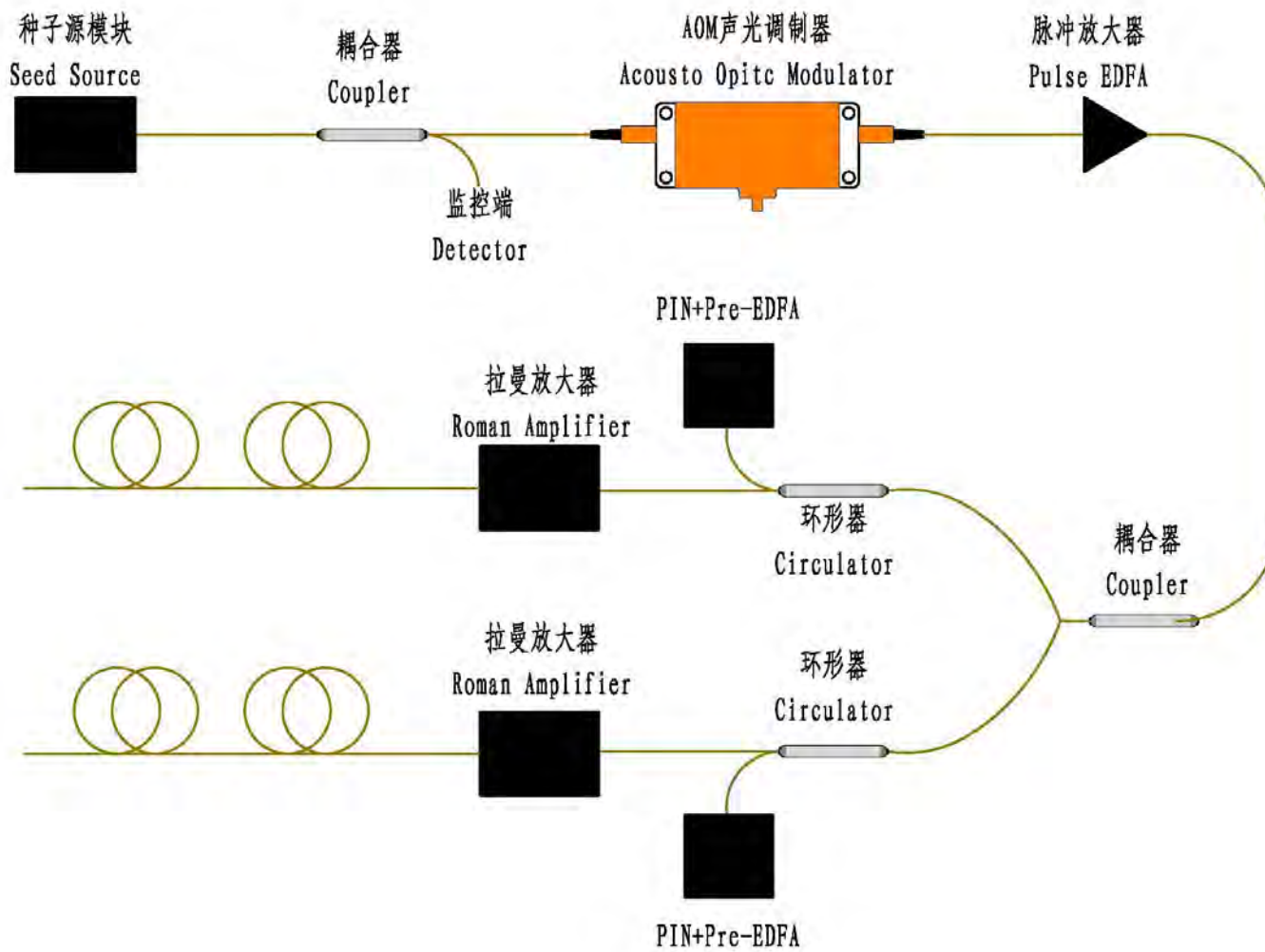


## Testing





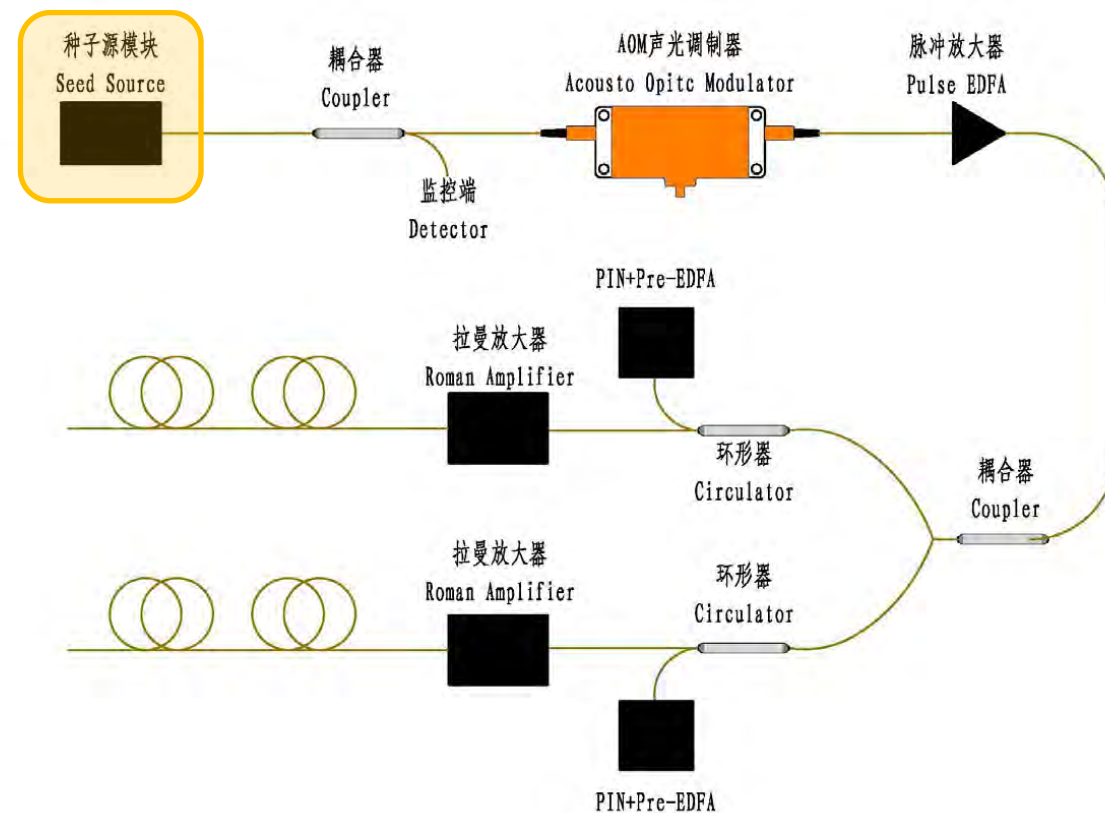
# Application DAS / DVS / DTS



## Laser Source

### ➤ Single Frequency Narrow Linewidth Laser

- ❑ 1550/1540nm/1560 nm
- ❑ PM or non-PM fiber
- ❑ 10~20mW output power
- ❑ 1kHz to 1 MHz

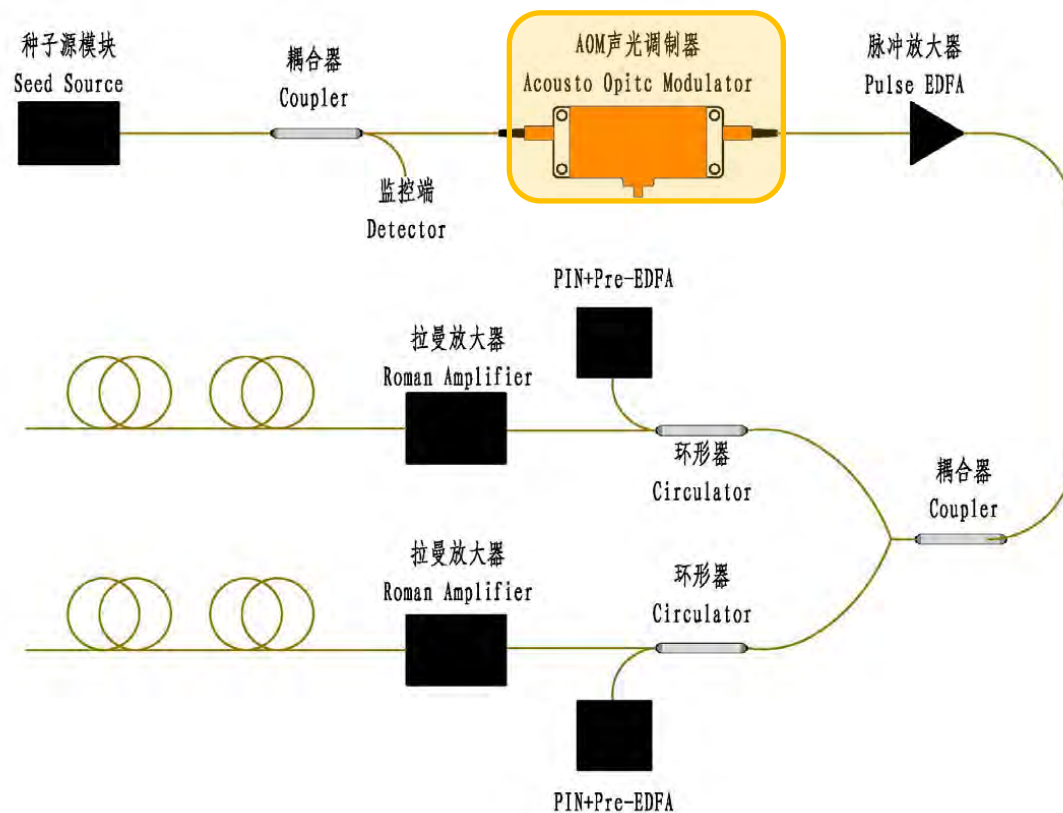




## Frequency Shifter / Acousto-Optic Modulator

### ➤ AOM

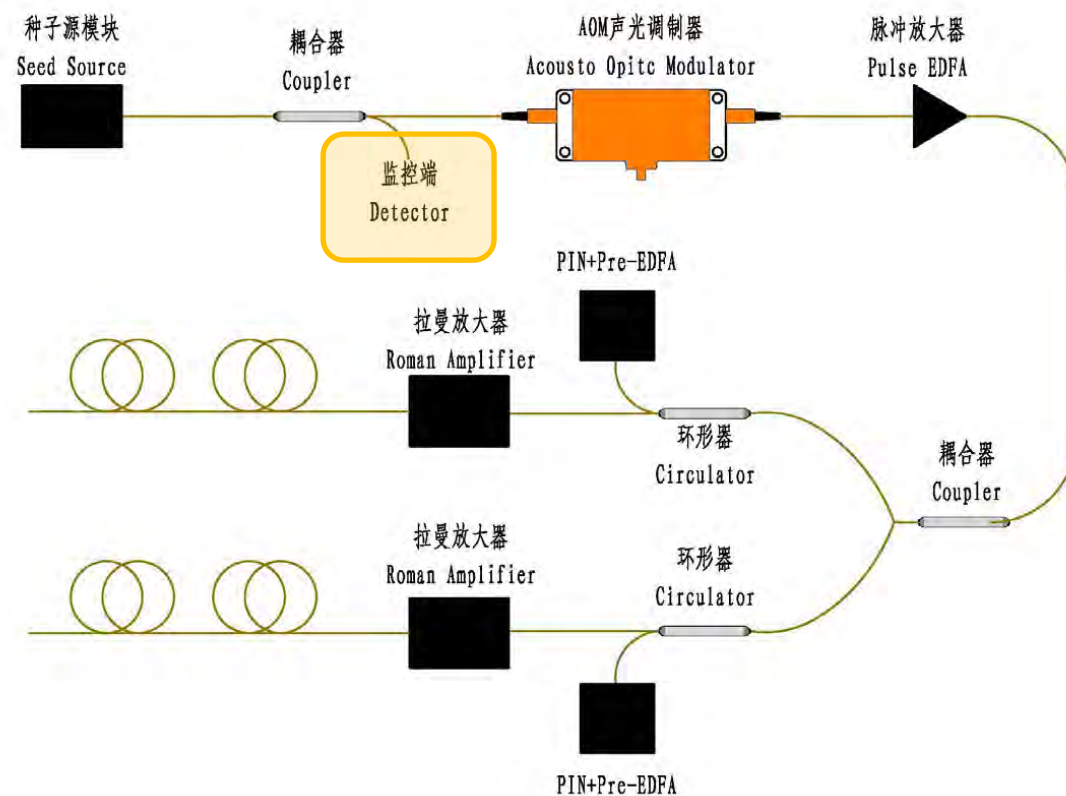
- ❑ 1550nm / 1064nm / Customized
- ❑ 80MHz / 100MHz / 200MHz / Customized
- ❑ Low Insertion Loss
- ❑ PM or non-PM fiber coupling
- ❑ RF Driver and Controller



## Detector

### ➤ Detector

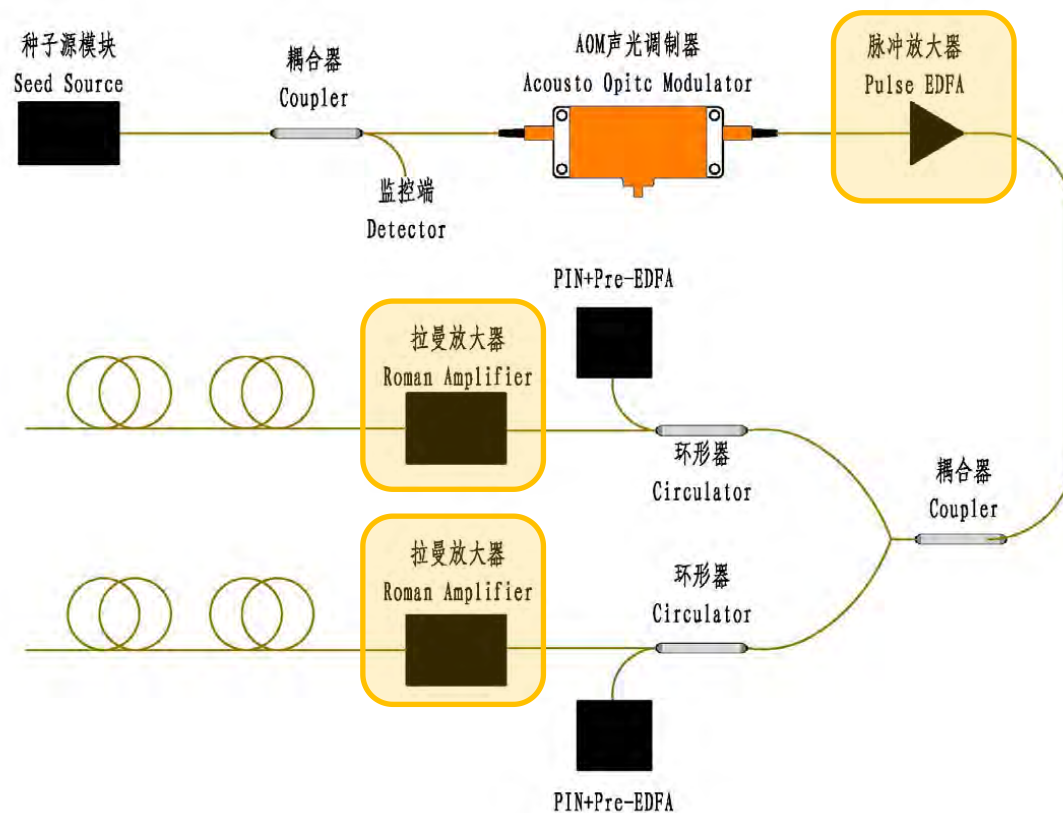
- ❑ Si or InGaAs
- ❑ APD, PD, Balanced detector
- ❑ Modular detector





## ➤ Amplifier module

- ❑ Pulsed Er-doped fiber amplifier
- ❑ Raman Amplifier and module



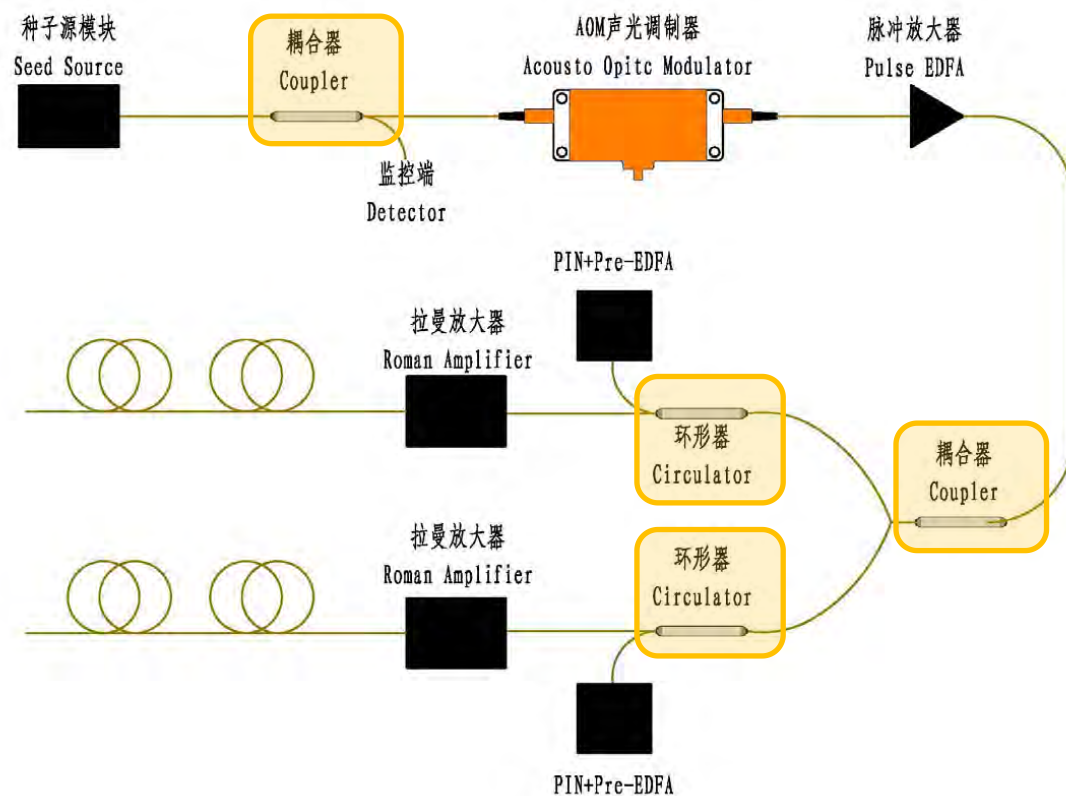
## Passive component

### ➤ Micro-optics fiber component

- ❑ Faraday Rotator, Circulator & Isolator
- ❑ WDM, DWDM, Coupler
- ❑ Hybrid with Tap, ISO or WDM
- ❑ Collimator

### ➤ Fused fiber component

- ❑ Coupler, WDM, Combiner

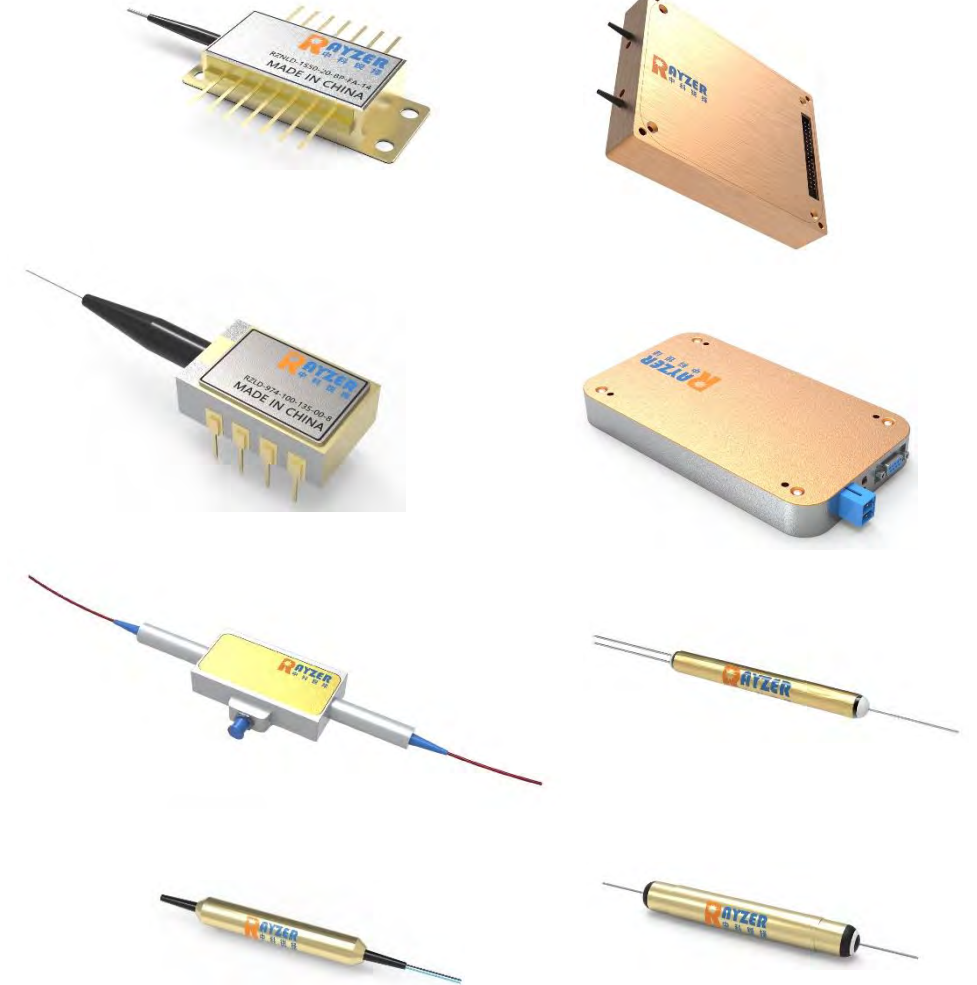




# Main Products

## DAS / DVS / DTS Components

- Narrow Line width Laser Diode/Module
- Balanced Photodetector
- Pulsed Fiber Laser Diode / EDFA
- Acousto-Optic Modulator
- Fiber Couplers / Circulators / WDM, etc

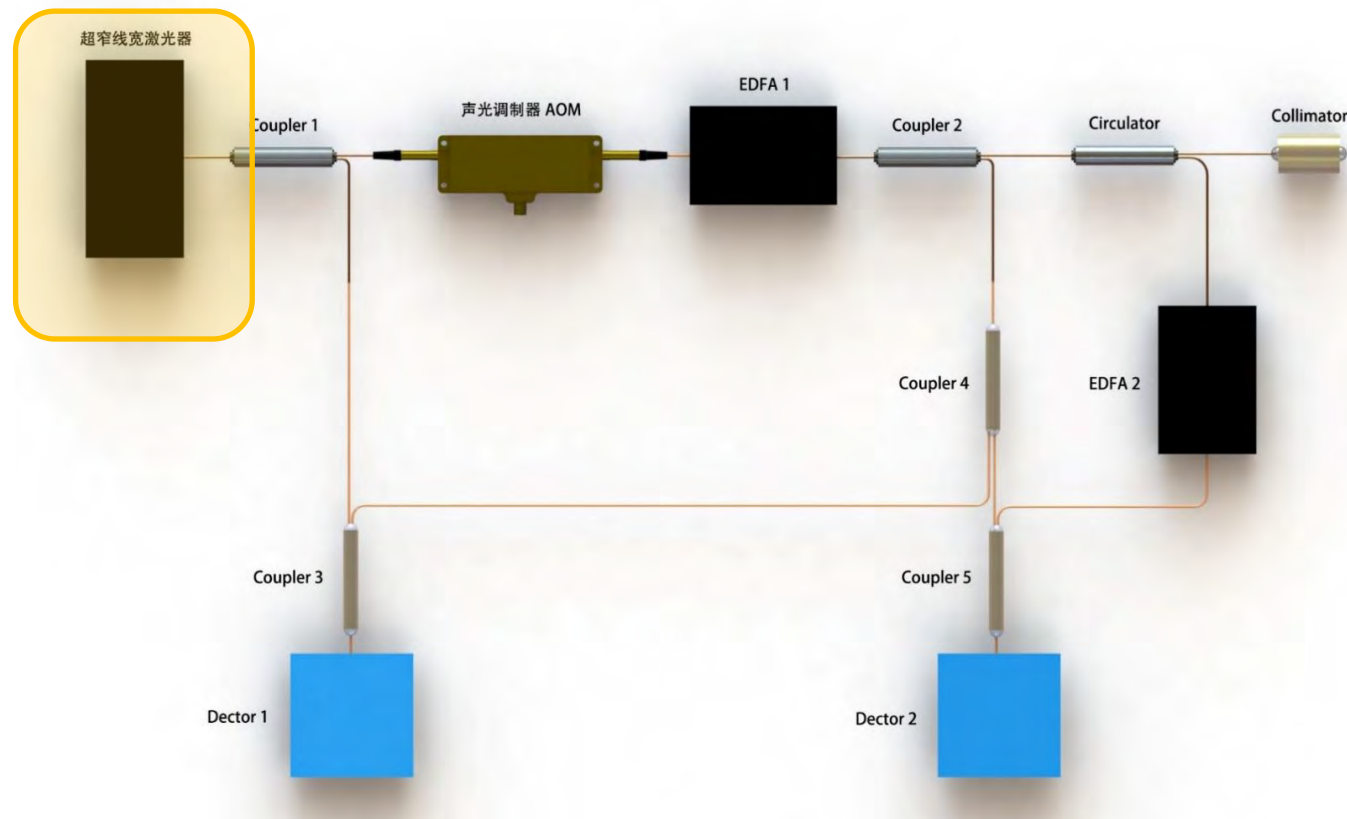


## Active components for external modulated laser model

### Active component

➤ **Single Frequency Narrow Line Width Laser**

- ❑ Max. Power up to 150 mW;
- ❑ Linewidth 10 Hz – 10 MHz;
- ❑ Laser Diode or Laser Module

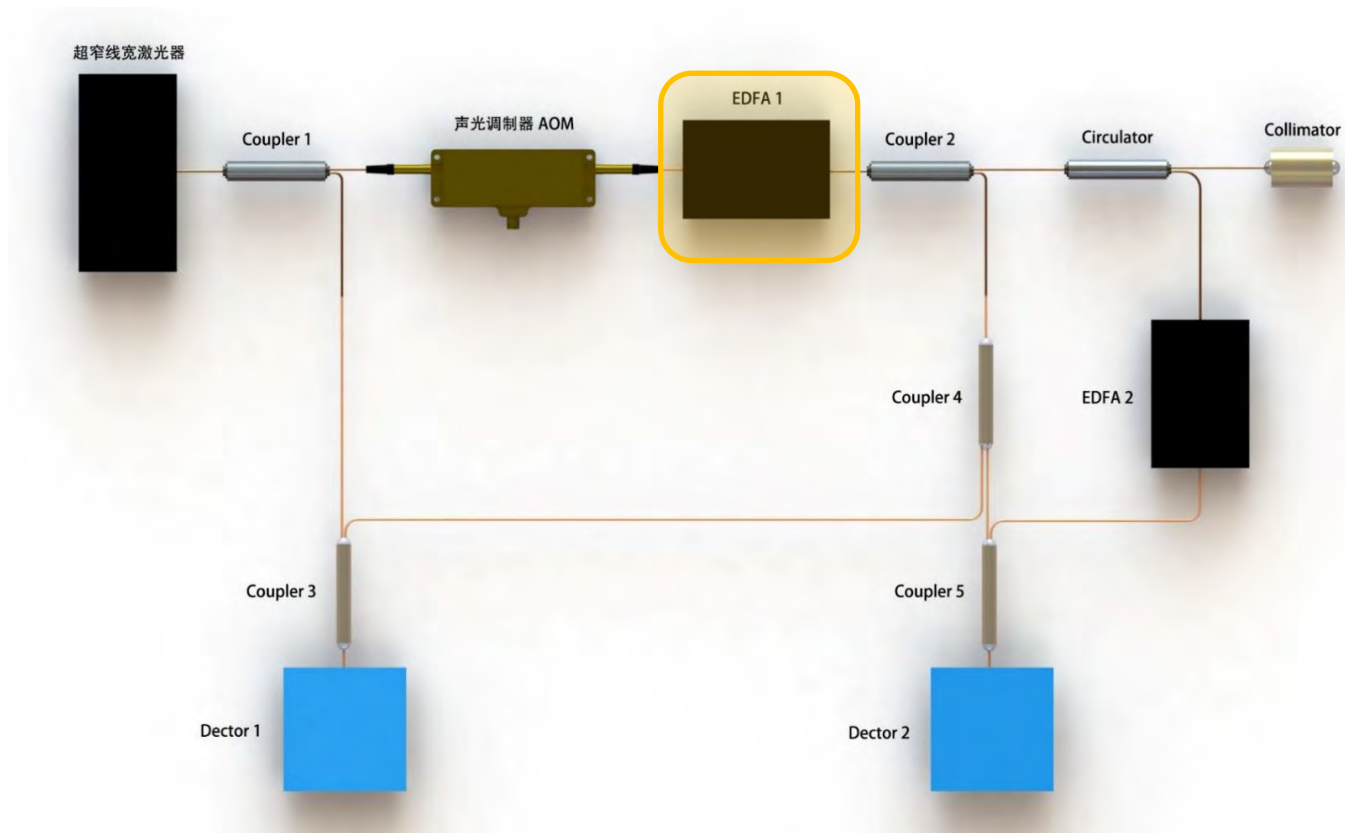




## Active components for external modulated laser model

### Active component

- Pump laser (PM or non-PM)
- ❑ 915, 940, 976 and 1480 nm
- ❑ Single or Multi mode fiber coupling
- ❑ Laser Diode or Module

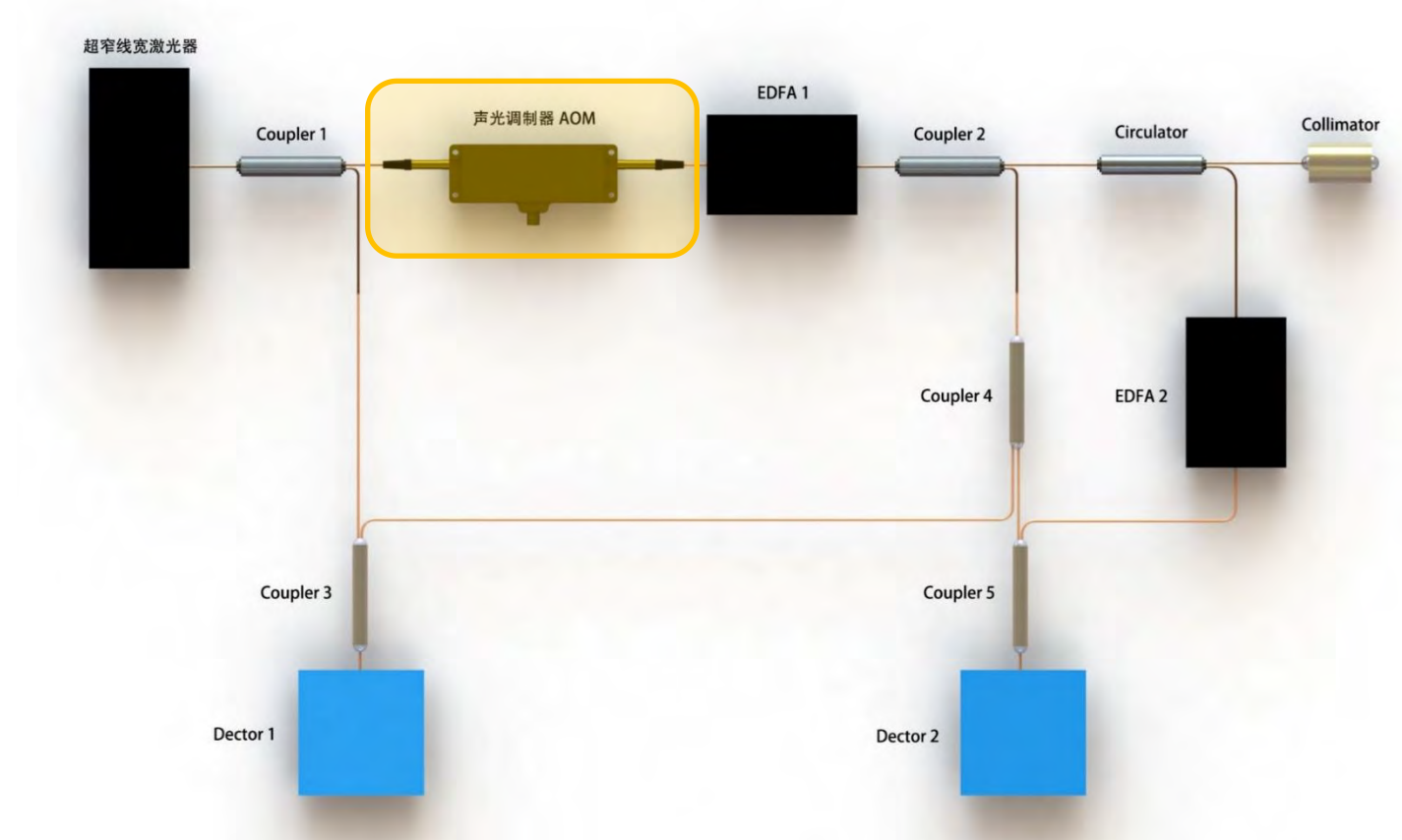


## Active components for external modulated laser model

### Modulator

#### ➤ AOM

- ❑ 780, 980, 1030, 1064, 1550 & 1950 nm
- ❑ Frequency 40-200 MHz
- ❑ Rise time less than 10 ns
- ❑ Low Insertion Loss
- ❑ Extinction Ratio > 55 dB
- ❑ PM or non-PM fiber coupling
- ❑ RF Driver and Controller

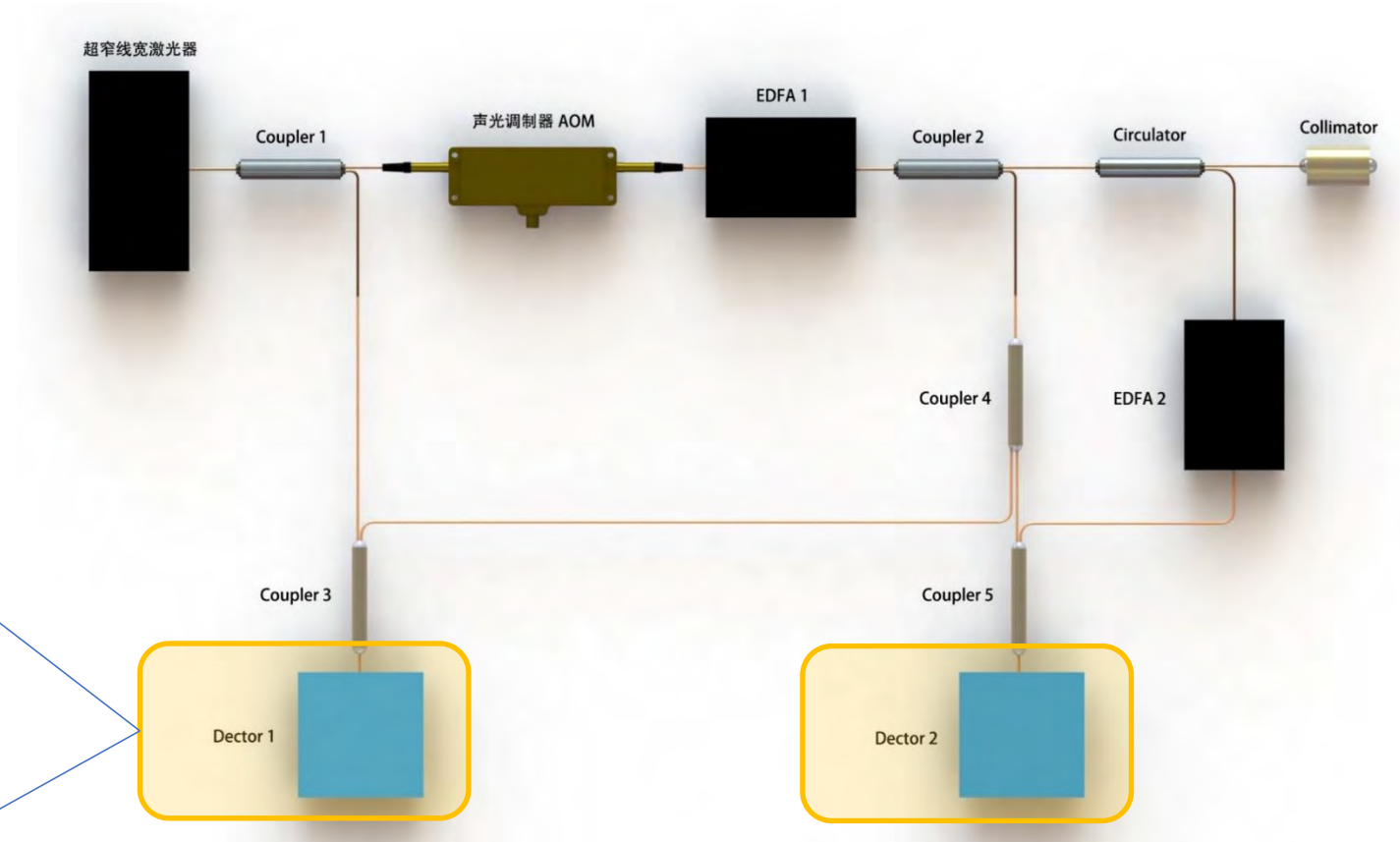


## Active components for external modulated laser model

### Active component

#### ➤ Detector

- ❑ Si or InGaAs;
- ❑ APD, PD, Balanced detector
- ❑ Int. fiber coupling 4-Channel detector

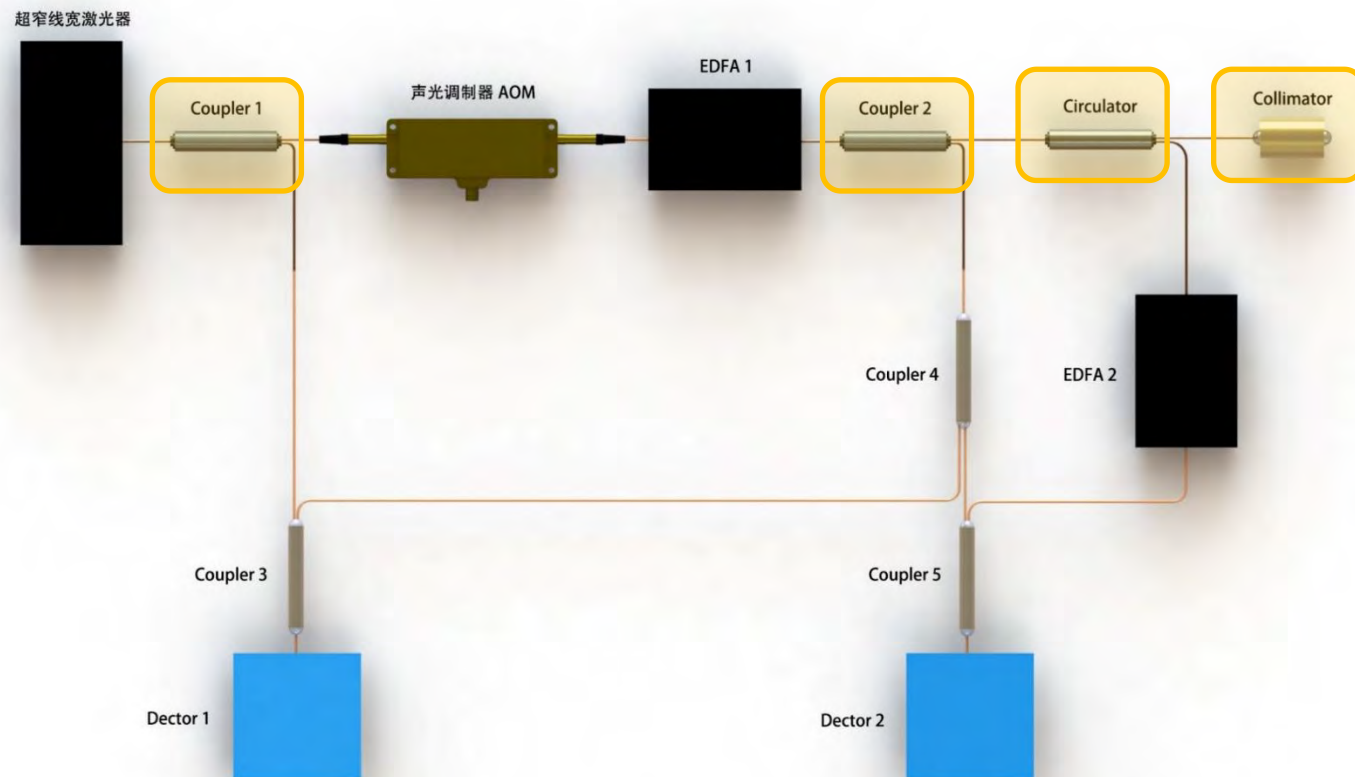




## Passive components for external modulated laser model

### Passive component

- **Micro-optics fiber component**
  - Faraday Rotator, Circulator & Isolator
  - WDM, DWDM, Coupler
  - Hybrid with Tap, ISO or WDM.
  - Collimator
- **Fused fiber component**
  - Coupler, WDM, Combiner



# System Qualified Certificates



ISO 9001:2015



ISO 45001:2018



ISO 14001:2015

## ➤ Active Optical Components

- ❑ Narrow Linewidth Laser Diode
- ❑ 976/974nm Pump LD
- ❑ Superluminescent Laser Diode
- ❑ Pulse Laser Diode
- ❑ TO Packaged Laser Diode

## ➤ Optical Amplifier and Module

- ❑ SM/PM CW/PULSE EDFA
- ❑ Space Grade PA/BA EDFA
- ❑ ASE Light Source
- ❑ Customized Optical Module
- ❑ Balanced Photodetector

## ➤ Fiber Optic Components

- ❑ Polarization Maintaining/SM
- ❑ Collimator, Coupler, WDM, Isolator, Filter
- ❑ Circulator, FRM, Interferometer
- ❑ Hybrid Components

## ➤ Modulator

- ❑ Acousto Optic Modulator
- ❑ Electro Optic Modulator

## ➤ FOG Components

- ❑ FreeStanding/Skeleton Fiber Coil
- ❑ Passive Components, SLD, ASE
- ❑ Coil Winding Machine, UV OVEN





# Solutions CSRayzer Involved

## ➤ Fiber Optic Gyroscope

- ❑ Gyro Components
- ❑ Equipment and instruments

## ➤ LIDAR

- ❑ Vehicle LIDAR
- ❑ Wind Measurement
- ❑ Laser Rangefinder

## ➤ Quantum System

- ❑ Cold Atoms
- ❑ Quantum Gravimeter

## Fiber Lasers

- ❑ Ultrafast Fiber Laser
- ❑ CW high power laser

## ➤ Fiber Distributed Sensing

- ❑ DAS/DVS/DTS
- ❑ Underwater Hydrophone Detecting

## ➤ High Accuracy Time Frequency Transmission

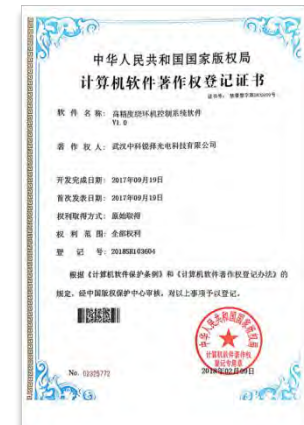
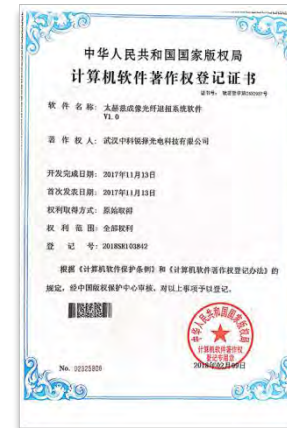
- ❑ Atomic clock
- ❑ Optical Frequency Comb

# Scientific Research Activity



Our R&D investment accounts for more than 10% of income. In year 2023, the research and development investment is 13 million yuan, and we have 2 national key joint experimental centers.

## 80+ patents (40+ invention patents) + 31 software patents



# Strategic Objectives



**CSRayzer Optical Technology Co., Ltd.** is committed to building a top service provider of special optical system solutions, serving the science and research at universities, fiber laser companies, fiber sensing companies and inertial navigation system, etc. The quality and reputation of products are the foundation of the company's development. We strengthen technological innovation, focus on team building, and strive to build the company into a competitive optical enterprise.





# THANKS!

**CSRayzer Optical Technology Co., Ltd**

Address: 5# Building, FiberHome  
Innovation Park, 88# Youkeyuan Rd,  
Hongshan Dist, Wuhan China

Web: [www.csrayer.cn](http://www.csrayer.cn)

Phone/Wechat: +86 17707135527

Email: [INTL@csrayzer.com](mailto:INTL@csrayzer.com)

Contact: Mr. Jimmy Wang