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2026版

激光光纤准直/耦合器

Laser Fiber Collimator And Coupler

• 专业全光谱光纤准直系统制造商 •

公司简介 Company Profile

西安远讯光电科技有限公司成立于2013年，是一家专注于精密光纤光学准直系统解决方案的高新技术企业。公司凭借自主知识产权的核心技术和25年以上的专业研发经验，已成为光纤准直领域有明显优势和极具竞争力企业。作为高精度光纤准直技术的创新者与践行者，远讯光电为智能制造、精密测量与分析、精准医疗、航空航天等高科技领域提供专业的光学解决方案和系列化产品，在业内建立了卓越的技术声誉和品牌影响力。

远讯光电始终坚持以技术创新为驱动，以客户需求为导向，致力于光纤准直技术的深度研发与产品迭代。产品在准直精度、系统稳定性和产品可靠性等方面均达到国际先进水平。

作为光纤准直系统解决方案的首选合作伙伴，远讯光电不仅为客户提供高品质、高性能的产品，更注重建立长期共赢的合作关系。公司秉持"专业、创新、精益、共赢"的理念，通过定制化解决方案和全方位技术服务，助力客户提升产品性能和市场竞争优势，创造更大价值。

Ysenser Co., Ltd., founded in 2013, is a high-tech enterprise specializing in providing solutions for precision fiber optic collimator systems. Leveraging its core technologies with independent intellectual property rights and over 25 years of extensive professional R&D experience, the company has firmly established itself as an entity with distinct advantages and remarkable competitiveness in the field of fiber optic collimators.

As an innovator and practitioner of high-precision fiber optic collimation technology, Ysenser offers professional optical solutions and a comprehensive range of products to high-tech sectors including intelligent manufacturing, precision measurement and analysis, precision medicine, and aerospace. Consequently, it has earned an outstanding technical reputation and strong brand influence within the industry.

Ysenser has always been driven by technological innovation and oriented towards meeting customer needs. It is wholeheartedly dedicated to the in-depth research and development of fiber optic collimation technology and the continuous iteration of its products. In terms of collimation accuracy, system stability, and product reliability, its products have reached the international advanced standard.

Make The Light Farther And More Collimated

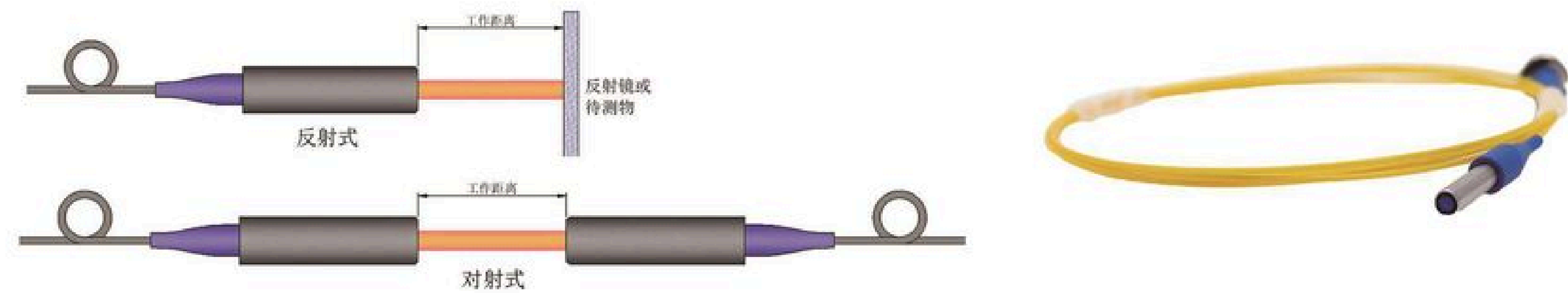
Contents 目录

01	单模光纤准直器 Single-mode fiber collimator	25	可调焦非球面光纤准直器 Adjustable Aspheric Collimators
03	单模高温光纤准直器 SM/MM High Temperature Fiber Optic Collimator	27	三合透镜光纤准直器 Triplet Fiber Optic Collimators
04	抗辐照单模光纤准直器 Anti-radiation SM Fiber Collimator	29	三维光纤准直/耦合器 Triaxial Fiber Collimator
05	保偏光纤准直器 Polarization-Maintaining Fiber Collimator	30	五维光纤准直/耦合器 FiberPort Collimators / Couplers
07	同轴光纤准直器 Coaxial fiber collimator	32	定焦大光束准直器 Large Beam Collimators
09	遥测光纤发射准直器 Telemetry Fiber Collimator	35	远距离准直器100M Long Distance Collimator For 100M
10	非球面准直器 Aspheric Lenses Collimators	36	远距离准直器300M Long Distance Collimator For 300M
14	非球面带纤准直器 Aspheric Lenses Collimators with Fiber	38	超远距离准直器 Ultra-Long-Range Collimator
16	非球面保偏光纤准直器 Aspheric Lenses Collimators with PM Fiber	40	变焦激光准直器 Zoom Fiber Collimators
18	消色差准直器 Achromatic Lenses Collimators	41	高功率多模准直器 High-power multimode collimator
21	消色差准直器（应用于多模光纤） Achromatic collimators (for multimode fibers)	43	宽光谱准直器 Broadband Fiber Collimator
23	RGB消色差准直器 RGB Achromatic Collimator	44	标准光纤跳线/超低损光纤跳线 Ultra -Low IL Fiber Patch Cord

单模光纤准直器
Single-mode fiber collimator

由光纤尾纤和聚焦透镜精确定位封装而成，可将光纤传输出射光变成平行光束（高斯光束），或将外界的平行光聚焦耦合进入光纤内。亦可以单只使用，按照既定发散角，在特定位置达到要求尺寸的光斑。

It is packaged by precise positioning of fiber pigtail and focusing lens, which can transform the output light of fiber into parallel light beam (Gaussian beam) or couple external parallel light into the fiber. It can also be used alone to achieve the required spot size at a specific position according to the predetermined divergence angle.



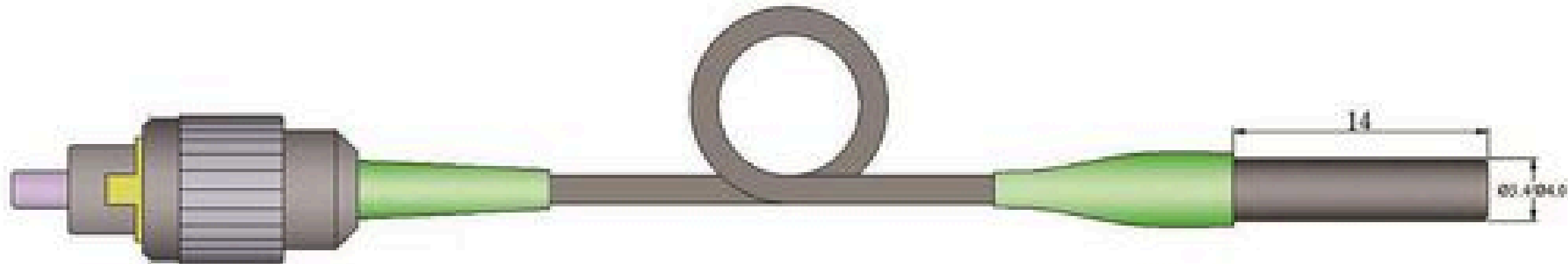
按照工作距离划分，可分为固定工作距离（定焦）准直器和工作距离范围可变（长景深）准直器，根据不同工作距离选用球面透镜或者渐变折射率透镜。我们建议准直器安装在光学精密调节架中进行对准和调试，保证耦合空间光束时达到最佳耦合效率。

According to the working distance, it can be divided into fixed working distance (fixed focus) collimator and variable collimator for working distance range. Conventional lenses or Grin lenses should be selected according to different working distances. We recommend installing the collimator in an optical precision adjustment frame for adjustment to ensure the best coupling efficiency.

区别 Difference	固定工作距离（定焦）准直器 Fixed Working Distance Collimator	工作距离可变准直器 Variable Collimator for Working Distance Range
工作距离 Working Distance	1M	0~1M Any Position
光束特点 Beam characteristics	准直/ 汇聚 Collimation / Focus	准直 Collimation
光斑 Beam Size	某一固定位置得到精准尺寸光斑，最小可到20um, 前后移动光斑变化大 At a fixed position, a precise sized beam spot can be obtained, with a minimum size of 20um. The beam size rapid changes when moved forwards or backwards.	在可调距离范围内前后移动，光斑尺寸变化非常小 Move forward and backward within an adjustable range, and the spot size changes very little.
配对损耗 Insert Loss For A Pair	随距离变化配对损耗变化明显 Changes significantly with distance.	随距离变化配对损耗变化不敏感 Insensitive to changes with distance
出射损耗 Output Loss	无差别 No difference	
回损 Return Loss	无差别 No difference	

固定工作距离光纤准直器 SM Fiber Optic Collimator for Fixed Working Distance

Wavelength	Bandwidth	WD	Waist Beam	Divergence Angle	Package	Insert Loss	Return Loss	Mode-Field Diameter	Max.Power	Fiber Type	Connector
405nm	±20nm	100mm	0.27mm	2.1mrad	Φ3.4mm*L14mm	≤2.0dB	≥55dB	3.0±0.5um	1W	405HP	FC/PC FC/APC LC/PC Or Customer specified
	±20nm	300mm	0.70mm	0.78mrad	Φ3.4mm*L14mm	≤2.0dB	≥55dB				
450nm	±20nm	100mm	0.26mm	2.3mrad	Φ3.4mm*L14mm	≤2.0dB	≥55dB	3.5±0.5um		460HP	
	±20nm	300mm	0.68mm	0.87mrad	Φ3.4mm*L14mm	≤2.0dB	≥55dB				
532nm	±20nm	100mm	0.31mm	2.3mrad	Φ3.4mm*L14mm	≤1.5dB	≥55dB	3.6±0.5um		630HP	
	±20nm	300mm	0.8mm	0.87mrad	Φ3.4mm*L14mm	≤1.5dB	≥55dB				
635nm	±20nm	100mm	0.39mm	2.6mrad	Φ3.4mm*L14mm	≤1.0dB	≥55dB	4.2±0.5um		780HP	
	±20nm	300mm	0.85mm	1.0mrad	Φ3.4mm*L14mm	≤1.0dB	≥55dB				
	±20nm	1000mm	1.32mm	0.7mrad	Φ4.0mm*L20mm	≤1.2dB	≥55dB				
780nm	±20nm	100mm	0.39mm	2.6mrad	Φ3.4mm*L14mm	≤0.9dB	≥55dB	4.5±0.5um		Hi1060	
	±20nm	300mm	0.99mm	1.0mrad	Φ3.4mm*L14mm	≤0.9dB	≥55dB				
	±20nm	1000mm	1.55mm	0.7mrad	Φ4.0mm*L20mm	≤1.2dB	≥55dB				
850nm	±20nm	100mm	0.37mm	3.0mrad	Φ3.4mm*L14mm	≤0.9dB	≥55dB	5.0±0.5um	2W	Smf-28e/ G657A1/ G657A2 ZBL	
	±20nm	300mm	0.97mm	1.1mrad	Φ3.4mm*L14mm	≤0.9dB	≥55dB				
	±20nm	1000mm	1.51mm	0.75mrad	Φ4.0mm*L20mm	≤1.2dB	≥55dB				
980nm	±20nm	100mm	0.36mm	3.5mrad	Φ3.4mm*L14mm	≤0.8dB	≥55dB	5.9±0.3um			
	±20nm	300mm	0.96mm	1.4mrad	Φ3.4mm*L14mm	≤0.8dB	≥55dB				
	±20nm	1000mm	1.48mm	0.87mrad	Φ4.0mm*L20mm	≤1.0dB	≥55dB				
1064nm	±20nm	100mm	0.37mm	3.3mrad	Φ3.4mm*L14mm	≤0.8dB	≥55dB	6.2±0.3um			
	±20nm	300mm	0.99mm	1.4mrad	Φ3.4mm*L14mm	≤0.8dB	≥55dB				
	±20nm	1000mm	1.53mm	0.87mrad	Φ4.0mm*L20mm	≤1.0dB	≥55dB				
1310nm	±20nm	100mm	0.38mm	4.4mrad	Φ3.4mm*L14mm	≤0.6dB	≥55dB	9.6±0.4um			
	±20nm	300mm	0.73mm	2.3mrad	Φ3.4mm*L14mm	≤0.6dB	≥55dB				
	±20nm	1000mm	0.91mm	1.9mrad	Φ4.0mm*L20mm	≤0.8dB	≥55dB				
1550nm	±20nm	100mm	0.46mm	4.5mrad	Φ3.4mm*L14mm	≤0.6dB	≥55dB	10.4±0.5um			
	±20nm	300mm	0.85mm	2.4mrad	Φ3.4mm*L14mm	≤0.6dB	≥55dB				
	±20nm	1000mm	1.35mm	1.7mrad	Φ4.0mm*L20mm	≤0.8dB	≥55dB				
1650nm	±10nm	100mm	0.47mm	4.5mrad	Φ3.4mm*L14mm	≤0.6dB	≥55dB	10.9±0.5um			
	±10nm	300mm	0.89mm	2.4mrad	Φ3.4mm*L14mm	≤0.6dB	≥55dB				
	±10nm	1000mm	1.22mm	1.7mrad	Φ4.0mm*L20mm	≤0.8dB	≥55dB				



工作距离可调光纤准直器 SM Fiber Optic Collimator for Variable Working Distance Range

Wavelength	Bandwidth	WD	Export beam Size	Divergence Angle	Package	Insert Loss	Return Loss	Mode-Field Diameter	Fiber Type	Connector
780nm	±20nm	0-350mm	0.95mm	1.05mrad	Φ3.4mm*L14mm	≤1.2dB	≥55dB	4.5±0.5um	780HP	FC/PC FC/APC LC/PC Or Customer specified
850nm	±20nm	0-350mm	1.0mm	1.05mrad	Φ3.4mm*L14mm	≤1.0dB	≥55dB	5.0±0.5um		
980nm	±20nm	0-350mm	0.99mm	1.26mrad	Φ3.4mm*L14mm	≤1.0dB	≥55dB	5.9±0.3um	Hi1060	
980nm	±20nm	50-1000mm	1.54mm	0.81mrad	Φ4.0mm*L20mm	≤1.2dB	≥55dB			
1064nm	±20nm	0-350mm	1.0mm	1.35mrad	Φ3.4mm*L14mm	≤1.0dB	≥55dB	6.2±0.3um		
1064nm	±20nm	50-1000mm	1.6mm	0.85mrad	Φ4.0mm*L20mm	≤1.2dB	≥55dB			
1310nm	±20nm	0-350mm	0.81mm	2.06mrad	Φ3.4mm*L14mm	≤0.8dB	≥55dB	9.6±0.4um	Smf-28e/ G657A1/ G657A2 ZBL	
1310nm	±20nm	50-1000mm	1.3mm	1.30mrad	Φ4.0mm*L20mm	≤1.0dB	≥55dB			
1550nm	±20nm	0-350mm	0.9mm	2.18mrad	Φ3.4mm*L14mm	≤0.8dB	≥55dB	10.4±0.5um		
1550nm	±20nm	50-1000mm	1.45mm	1.36mrad	Φ4.0mm*L20mm	≤1.0dB	≥55dB			
1650nm	±20nm	0-350mm	0.96mm	2.19mrad	Φ3.4mm*L14mm	≤0.8dB	≥55dB	10.9±0.5um		
1650nm	±20nm	50-1000mm	1.5mm	1.40mrad	Φ4.0mm*L20mm	≤1.0dB	≥55dB			

单模高温光纤准直器 SM/MM High Temperature Fiber Optic Collimator

采用耐高温型光纤、耐高温材料以及制作工艺，可满足工作温度-40~220℃的应用环境，高温器件专用FC/APC耐高温接头，保证在高温环境下光纤对接信号的稳定，产品出厂前需经过48小时220° 高温可靠性测试，确保器件长期在高温环境下工作的可靠性。



By using high-temperature optical fiber, materials, and production processes, this product can meet the application environments with a working temperature of -40~220°C. The high-temperature resistant FC/APC connector is specifically designed for high-temperature devices, ensuring stable optical signal transmission in high-temperature environments. The product undergoes a 48-hour 220°C reliability test before delivery, ensuring long-term reliability of the device working under high-temperature conditions.

Wavelength	Bandwidth	WD	Export beam Size	Divergence Angle	Pakage Dia.	Output Loss	Return Loss	Mode-Field Diameter	Fiber Type
1310nm	±20nm	≤300mm	0.81mm	2.0mrad	Φ3.4mm	≤0.6 dB	≥55dB	9.26±0.4um	9/125 Polyimide coating
1310nm	±20nm	300-1000mm	1.27mm	1.31mrad	Φ4.0mm	≤0.9 dB	≥55dB		
1550nm	±20nm	≤300mm	0.92mm	2.2mrad	Φ3.4mm	≤0.6 dB	≥55dB	10.4±0.5um	
1550nm	±20nm	300-1000mm	1.45mm	1.4mrad	Φ4.0mm	≤0.9 dB	≥55dB		
1650nm	±20nm	≤300mm	0.96mm	2.3mrad	Φ3.4mm	≤0.6 dB	≥55dB	10.9±0.6um	
1650nm	±20nm	300-1000mm	1.5mm	1.4mrad	Φ4.0mm	≤0.9 dB	≥55dB		

抗辐照单模光纤准直器 Anti-radiation SM Fiber Collimator

在核电和航空航天领域，光纤承担着重要的角色，抗辐照光纤准直器作为一种光纤扩束接头和光纤滑环的关键组件，具有不可替代的重要作用。通过特殊的材料和结构设计，能够在高强辐射环境下保持高度的稳定性和精准的准直性能。光纤作为一种传输介质，其轻巧、高速、抗干扰的特点使其成为航空航天应用的理想选择。而抗辐照光纤准直器的应用，可以有效提高光纤通信的稳定性和可靠性，保证信息的传输准确性和实时性。

In the nuclear power and aerospace industries, optical fibers play an important role. Anti-radiation fiber collimators, as a critical component of fiber beam expanders and fiber optic rotary joint, have an irreplaceable and significant role. Through special material and structural design, they can maintain high stability and precise collimation performance in high-intensity radiation environments. Optical fiber, as a transmission medium, is lightweight, high-speed, and resistant to interference, making it an ideal choice for aerospace applications. The application of anti-radiation fiber collimators can effectively enhance the stability and reliability of fiber communication, ensuring the accuracy and real-time transmission of information.

Wavelength	Bandwidth	WD	Export beam Size	Divergence Angle	Insert Loss	Fiber Type	Radiation tolerance	Evacuation of Hot Vacuum	Operating temperature
1310nm	±20nm	0-10mm	0.38mm	4.4mrad	≤1.5dB	RD 1310-G2 (HT)	The radiation source uses a cobalt-60 γ-ray source with a uniform field, and the radiation dose is ≥1.8 × 10 ⁵ Gy, with a dose rate of 0.5 Gy/s.	Non-metallic materia 1 TML≤1%, CVCm≤0.1%	-40℃ ~80℃
1310nm	±20nm	100-500mm	0.95mm	1.8mrad	≤1.5dB				
1550nm	±20nm	0-10mm	0.42mm	4.7mrad	≤1.5dB				
1550nm	±20nm	100-500mm	1.0mm	2.0mrad	≤1.5dB				

- * 束腰光斑直径：取高斯光束1/e²处，选用各波长单模光纤理论计算值。
- * Waist Beam diameter: Calculate the theoretical value using single-mode fibers of various wavelengths at the 1/e² point of the Gaussian beam.
- * 封装材质和其它光纤接头类型可定制
- * Packaging materials and other types of fiber optic connectors can be customized.

保偏光纤准直器
Polarization-Maintaining Fiber Collimator

由保偏光纤尾纤和自聚焦透镜或C透镜精确定位封装而成，可将光纤传输出射光变成平行光束（高斯光束），或将外界的平行光聚焦耦合进入光纤内。它可以单只使用，在要求位置达到指定尺寸光斑；也可以配对使用，在一对准直器中间加入滤波片、隔离器等其它光学元件，达到客户使用目的。在以光学相干检测为基础的干涉型光纤传感器中，使用保偏光纤能够保证线偏振方向不变，提高相干信噪比，以实现物理量的高精度测量。

It is assembled precisely by PM fiber pigtail and a Grin lens or C-Lens, which can convert the divergent light into a parallel beam (Gaussian beam) from fiber export , or couple space parallel light into the fiber. It can be used singly to achieve a specified beam size at the required position, or paired with other optical components such as filters and isolators in between two collimators to meet specific customer needs. In fiber optic interferometric sensors based on optical coherence detection, the use of polarization-maintaining fibers can ensure the unchanged polarization direction, improve the coherence signal-to-noise ratio, and achieve high-precision measurement of physical quantities.



在制作保偏器件连接头时，猫眼的连接轴线方向和键槽纤芯连接线方向一致，也称为慢轴对准，两线垂直时，为快轴对准。

When making a polarization maintaining connector, the axis direction of the cat's eye connection is aligned with the connection line direction of the key slot fiber core, also known as slow axis alignment. When the two lines are perpendicular, it is fast axis alignment.



固定工作距离保偏光纤准直器 PM Fiber Optic Collimator for Fixed Working Distance

Wavelength	Bandwidth	WD	Waist Beam	Divergence Angle	Package	Extinction Ratio	Output Loss	Return Loss	Mode-Field Diameter	Fiber Type
633nm	±20nm	100mm	0.39mm	2.6mrad	Φ3.4mm*L14	≥20dB	≤0.5dB	≥55dB	4.5±0.5um	Nufern PM630
633nm	±20nm	300mm	0.85mm	1.0mrad	Φ3.4mm*L14	≥20dB	≤0.5dB	≥55dB		
633nm	±20nm	1000mm	1.32mm	0.7mrad	Φ4.0mm*L20	≥20dB	≤0.5dB	≥55dB		
780nm	±20nm	100mm	0.41mm	2.4mrad	Φ3.4mm*L14	≥20dB	≤0.5dB	≥55dB	5.2±1.0um	Nufern PM780
780nm	±20nm	300mm	0.75mm	1.3mrad	Φ3.4mm*L14	≥20dB	≤0.5dB	≥55dB		
780nm	±20nm	1000mm	1.55mm	0.7mrad	Φ4.0mm*L20	≥20dB	≤0.5dB	≥55dB		
850nm	±20nm	100mm	0.37mm	3.0mrad	Φ3.4mm*L14	≥20dB	≤0.5dB	≥55dB		
850nm	±20nm	300mm	0.97mm	1.1mrad	Φ3.4mm*L14	≥20dB	≤0.5dB	≥55dB		
850nm	±20nm	1000mm	1.51mm	0.75mrad	Φ4.0mm*L20	≥20dB	≤0.5dB	≥55dB		
980nm	±20nm	100mm	0.50mm	2.5mrad	Φ3.4mm*L14	≥20dB	≤0.35dB	≥55dB	6.6±0.5um	Nufern PM980
980nm	±20nm	300mm	0.96mm	1.3mrad	Φ3.4mm*L14	≥20dB	≤0.35dB	≥55dB		
980nm	±20nm	1000mm	1.48mm	0.87mrad	Φ4.0mm*L20	≥20dB	≤0.35dB	≥55dB		
1064nm	±20nm	100mm	0.51mm	2.7mrad	Φ3.4mm*L14	≥20dB	≤0.35dB	≥55dB		
1064nm	±20nm	300mm	0.9mm	1.5mrad	Φ3.4mm*L14	≥20dB	≤0.35dB	≥55dB		
1064nm	±20nm	500mm	1.43mm	0.95mrad	Φ4.0mm*L20	≥20dB	≤0.35dB	≥55dB		
1310nm	±20nm	100mm	0.4mm	4.2mrad	Φ3.4mm*L14	≥20dB	≤0.35dB	≥55dB	9.3±0.5um	Corning PM1300
1310nm	±20nm	300mm	0.8mm	2.1mrad	Φ3.4mm*L14	≥20dB	≤0.35dB	≥55dB		
1310nm	±20nm	1000mm	1.2mm	1.4mrad	Φ4.0mm*L20	≥20dB	≤0.35dB	≥55dB		
1550nm	±20nm	100mm	0.45mm	4.4mrad	Φ3.4mm*L14	≥20dB	≤0.35dB	≥55dB	10.1±0.5um	Corning PM1550
1550nm	±20nm	300mm	0.86mm	2.3mrad	Φ3.4mm*L14	≥20dB	≤0.35dB	≥55dB		
1550nm	±20nm	1000mm	1.3mm	1.5mrad	Φ4.0mm*L20	≥20dB	≤0.35dB	≥55dB		

工作距离可调偏光纤准直器 PM Fiber Optic Collimator for Variable Working Distance Range

Wavelength	Bandwidth	WD	Waist Beam	Divergence Angle	Package	Extinction Ratio	Output Loss	Return Loss	Mode-Field Diameter	Fiber Type
633nm	±20nm	0-100mm	0.39mm	2.6mrad	Φ3.4mm*L14mm	≥18dB	≤0.5dB	≥55dB	4.5±0.5um	PM630-HP
780nm	±20nm	0-100mm	0.39mm	2.6mrad	Φ3.4mm*L14mm	≥18dB	≤0.5dB	≥55dB	5.2±1.0um	PM780-HP
780nm	±20nm	0-350mm	1.05mm	0.95mrad	Φ3.4mm*L14mm	≥18dB	≤0.5dB	≥55dB		
850nm	±20nm	0-100mm	0.37mm	3.0mrad	Φ3.4mm*L14mm	≥18dB	≤0.5dB	≥55dB		
850nm	±20nm	0-350mm	1.02mm	1.05mrad	Φ3.4mm*L14mm	≥18dB	≤0.5dB	≥55dB		
980nm	±20nm	0-350mm	0.99mm	1.26mrad	Φ3.4mm*L14mm	≥20dB	≤0.35dB	≥55dB	6.6±0.5um	PM980-XP
980nm	±20nm	50-850mm	1.54mm	0.81mrad	Φ4.0mm*L20mm	≥20dB	≤0.35dB	≥55dB		
1064nm	±20nm	0-350mm	1.0mm	1.35mrad	Φ3.4mm*L14mm	≥20dB	≤0.35dB	≥55dB		
1064nm	±20nm	50-850mm	1.6mm	0.85mrad	Φ4.0mm*L20mm	≥20dB	≤0.35dB	≥55dB		
1310nm	±20nm	0-350mm	0.81mm	2.06mrad	Φ3.4mm*L14mm	≥20dB	≤0.35dB	≥55dB	9.3±0.5um	PM1300-XP
1310nm	±20nm	50-850mm	1.27mm	1.31mrad	Φ4.0mm*L20mm	≥20dB	≤0.35dB	≥55dB		
1550nm	±20nm	0-350mm	0.92mm	2.15mrad	Φ3.4mm*L14mm	≥20dB	≤0.35dB	≥55dB	10.1±0.5um	PM1550-XP
1550nm	±20nm	50-850mm	1.45mm	1.36mrad	Φ4.0mm*L20mm	≥20dB	≤0.35dB	≥55dB		

* 消光比值未计算接头，增加接头后，消光比减小2dB；

The extinction ratio is not calculated with the connector included. After adding the connector, the extinction ratio decreases by 2dB.

* 出射损耗未计算接头，增加接头后，出射损耗增加0.15dB（不考虑对接损耗）；

The output loss is not calculated for the connector. After adding the connector, the output loss increases by 0.15dB (Not considering Flange Insertion Loss.).

同轴光纤准直器
Coaxial fiber collimator

又名无偏角光纤准直器，其核心特性在于准直器的出光光轴与机械轴近乎完美重合。这种设计使得在安装过程中，无需对光束出光偏角进行精密调节，极大地简化了安装流程。在工作距离范围内，同轴光纤准直器能够始终保持优异的准直性能，确保光信号的稳定传输。特别是在配对安装场景下，该准直器可实现快速精准的对准，显著降低光路的插入损耗，有效提升光信号的传输效率。此外，同轴光纤准直器支持随机装配方式，大幅提高了安装效率，不仅减少了人工调节的复杂程度，还降低了对调试人员专业技能的要求，使安装过程更加便捷高效。



It also known as the non-deviation angle fiber optic collimator, its core characteristic lies in the nearly perfect coincidence between the output optical axis of the collimator and the mechanical axis. This design eliminates the need for precise adjustment of the output angle of the light beam during the installation process, greatly simplifying the installation procedure. Within the working distance range, the coaxial fiber collimator can always maintain excellent collimation performance, ensuring the stable transmission of optical signals. Especially in the paired installation, this collimator can achieve rapid and precise alignment, significantly reducing the insertion loss of the optical path and effectively improving the transmission efficiency of optical signals.



特征 Features:

- 单模、多模光纤均可制作

Both single-mode and multi-mode optical fibers can be fabricated

- 支持随机装配，无需复杂调试

It supports flexible configuration without the need for in-depth calibration

- 光纤滑环（旋转关节）的核心光学器件

The core optical components of the optical fiber rotary joint

- 抗辐照同轴准直器可定制

The radiation-resistant coaxial collimator can be customized.

- 光纤连接器可选

Connector Options: FC/APC、FC/PC、LC、ST、SMA905

应用场景Application:

光纤扩束连接器、光电混合滑环、光纤旋转云台、智能机器人、光电流互感器等即插即用光准直链路

Fiber bundle connectors ,Opto-electric rotary Jumper,Fiber rotation platforms,Intelligent robotsOpto-electric current transformers with plug-and-play optical axis alignment.

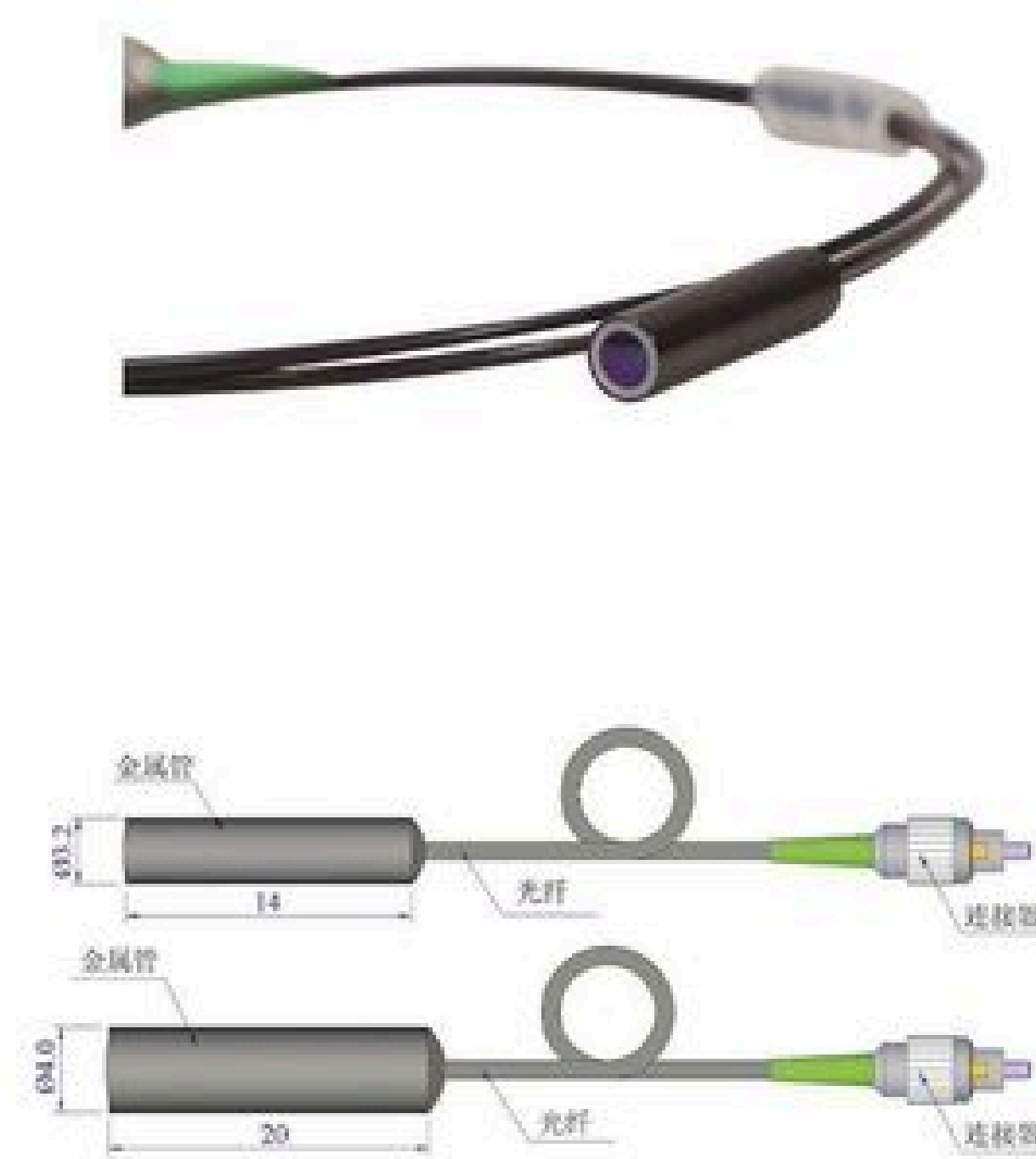
参数表 Parameter

Wavelength	Working Distance	Waist Beam	Deflection Angle	Divergence Angle	Pakage Dia.	Fiber Type	IL for a Pair	Return Loss
1310nm	0~20mm	0.36mm±10%	< 0.1°	< 5mrad	2.5mm 3.5mm	G625D G657A1 G657A2	≤1.5dB	≥50dB
	10~50mm	0.38mm±10%	< 0.1°	< 5.5mrad				
	50-80mm	0.43mm±10%	< 0.1°	< 4.5mrad				
1550nm	0~20mm	0.36mm±10%	< 0.1°	< 5.5mrad				
	10~50mm	0.38mm±10%	< 0.1°	< 6mrad				
	50-80mm	0.43mm±10%	< 0.1°	< 4.5mrad				
850nm	0-10mm	0.75mm±10%	< 0.1°	< 9mrad		OM2-OM4	≤1.2dB	≥25dB
1300nm	0-10mm	0.7mm±10%	< 0.1°	< 12mrad				

▶ 遥测光纤发射准直器
Telemetry Fiber Collimator

远讯光电自主设计研发、生产应用于气体遥测仪上的光纤发射准直器是应用可调谐半导体激光吸收光谱技术（TDLAS），作为气体遥测仪的信号发射器，它好比传感器的触觉、视觉，具有光斑能量集中、传输速度快、透过率高等特点，加之体积小巧的显著优势，越来越多地被用于便携式遥测或测距仪器上。

The fiber collimator developed and produced by Ysensor for use in gas telemetry instruments is a fiber optic transmitter that utilizes tunable diode laser absorption spectroscopy (TDLAS) technology. Serving as a signal transmitter for gas telemetry instruments, it can be likened to the sense of touch and vision for sensors, featuring characteristics such as concentrated spot energy, fast transmission speed, and high transmittance. In addition, its small and compact size provides a significant advantage, leading to its increasing use in portable telemetry or ranging instruments.



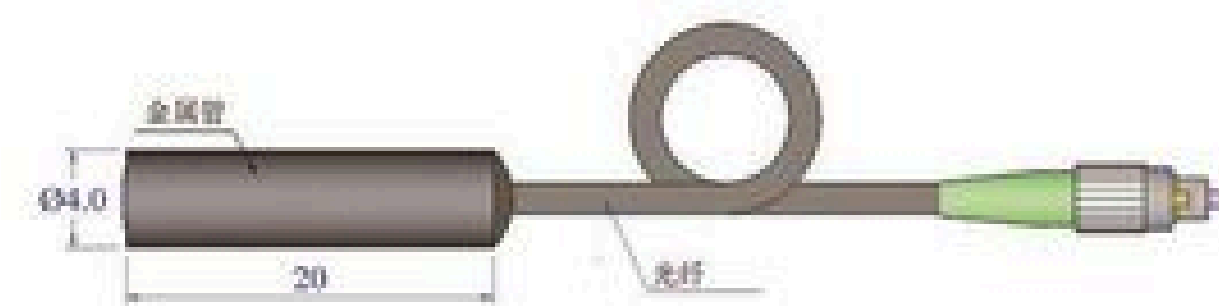
参数表 Parameter

Wavelength	AR Coating	Beam Size @0mm	Divergence Angle	Working Distance	Beam Size@100M	Transmittance	Package Size	Connector	Fiber Type
1653nm	1250~1700nm	0.9mm±0.1mm	0.09+0.05°	100M	220mm±10mm	≥95%	Φ3.2×15mm	FC/APC	G657A2
1653nm	1250~1700nm	1.32mm±0.1mm	0.05+0.05°	100M	170mm±10mm	≥95%	Φ4.0×20mm	FC/APC	ZBL

▶ 遥测光纤发射共聚焦准直器
Telemetry Confocal Fiber Collimator

通过消色差透镜组设计，使同一只准直器适用于可见光和近红外两个波长，并且在相同工作距离位置两种波长光斑大小、出光偏角基本一致。激光遥测光学模块，可通过双波长合波器，将可见光与近红外光耦合进一根光纤，工作时指示光信号光可同时点亮，并且指示光精准指向信号光位置，便于精准探测，为便携式遥测设备小型化、轻量化进一步提供优化方案。

It designed with a chromatic aberration correcting lens group, the same collimator is applicable to both visible light and near-infrared wavelengths, with similar beam size and light divergence angles at the same working distance. The laser telemetry optical module can couple visible light and near-infrared light into a single fiber through a dual-wavelength coupler. During operation, the indicator light and the signal can simultaneously illuminate, and the indicator light accurately points to the position of the signal light, facilitating precise detection. This provides an optimized solution for further miniaturization and lightweight of portable telemetry devices.



参数表 Parameter

Wavelength	AR Coating	Beam Size @0mm	Divergence Angle	Beam Size@100M	Transmittance	Package Size	Connector	Fiber Type
520 / 1653	520±30nm & 1650±30nm	1.5mm@520nm	< 2.5mrad@520nm	< 250mm@520nm	≥ 90%	Φ4.0*20mm	FC/APC	G657A2
		1.5mm@1653nm	< 2.4mrad@1653nm	< 230mm@1653nm				ZBL

应用场景Application:

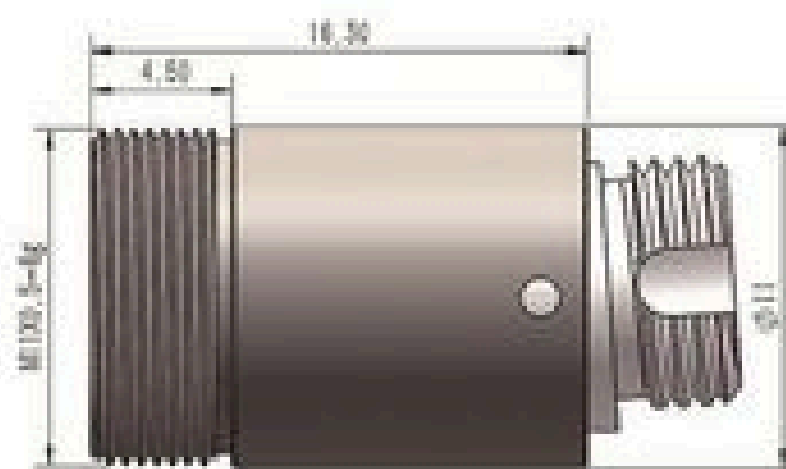
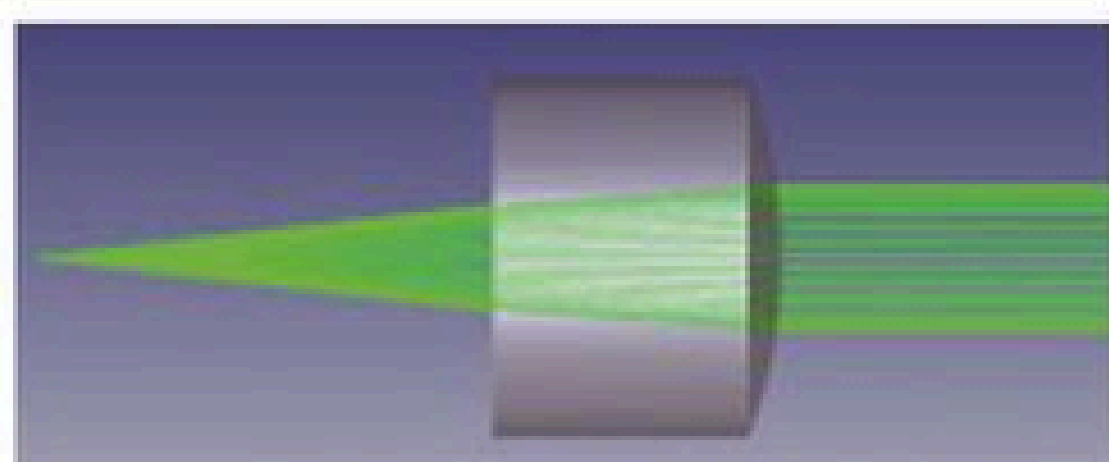
可应用于手持、无人机、车载、云台的激光气体遥测设备中
It can be applied to laser gas telemetry devices used in handheld devices, drones, vehicles, and pan-tilt systems.

▶ 非球面准直器
Aspheric Lenses Collimators

采用固定焦距的非球面透镜，非球面透镜的消像差设计使其能够对光束进行高效且精准的准直处理，从而使出射光束的能量呈现出理想的高斯分布状态。透镜的双面均镀有增透膜，这一工艺能够最大限度地降低表面反射损耗，有效提升光的透过率。然而，非球面透镜存在一定的固有特性，即存在色差现象，其有效焦距（EFL）与波长之间存在着紧密的关联关系。在制造过程中，透镜与光纤的相对位置经过了极为精密的调试，确保了出射光束的偏角控制在0.5° 的极小范围之内。同时，标准化且严格的制作工艺贯穿整个生产流程，不仅保证了产品在性能上具有高度的稳定性和一致性，还使其具备了良好的互配性能，能够更好地适配不同的应用场景和系统需求。

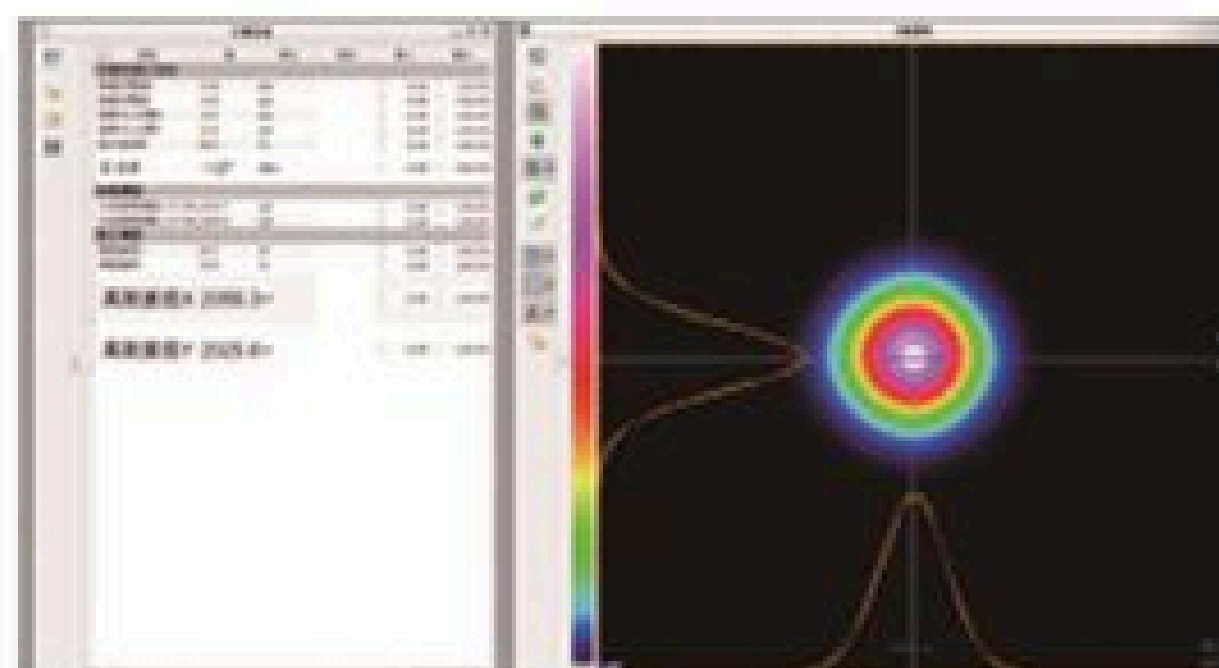


The aspherical lens's unique aberration-correction design empowers it to execute highly efficient and accurate collimation of light beams. As a result, the energy of the output light beam assumes a Gaussian distribution. Both surfaces of the lens are coated with anti-reflection films, that significantly decrease surface reflection losses and substantially improve the light transmittance. Nevertheless, the aspherical lens possesses certain inherent characteristics. Specifically, it exhibits a chromatic aberration phenomenon, with a strong correlation existing between its effective focal length (EFL) and the wavelength. During the manufacturing , the relative positioning of the lens and the optical fiber has undergone extremely precise adjustments. This ensures that the deflection angle of the emitted light beam is maintained within an exceedingly narrow range of 0.5°. Consequently, it is better equipped to adapt to diverse application scenarios and system requirements.

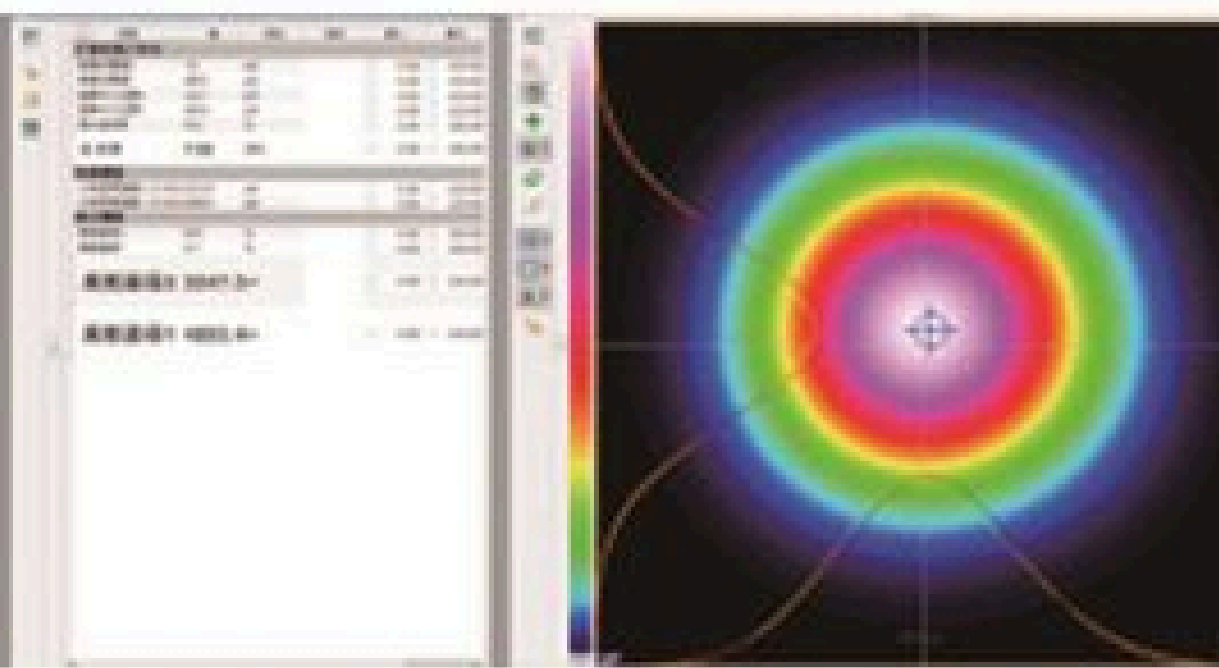


特征 Features:

- 接头类型可选
Three Connector Options: FC/PC、FC/APC、SMA905
- 兼容宽键和窄键的接头
Compatible with Narrow and Wide Key Connectors
- 结构紧凑，便于安装
Compact structure, Convenient for installation
- 接受定制波长
Custom Options including wavelengths



Beam Quality @ 0mm



Beam Quality @ 5M

参数表 Parameter

Wavelength	Bandwidth	Export beam Size	Divergence Angle	EFL	NA	Pakage	Fiber Type	Transmittance
405nm	±5nm	0.8mm±10%	0.06°+0.01°	4.45mm	0.25	Φ11*L10.5mm	405HP	>95%
	±5nm	0.89mm±10%	0.03° +0.01°	6.02mm	0.41	Φ11*L13mm		
	±5nm	1.13mm±10%	0.03° +0.01°	7.70mm	0.51	Φ12*L12.7mm		
	±5nm	2.2mm±10%	0.02° +0.01°	10.67mm	0.26	Φ11*L16.6mm		
	±5nm	2.17mm±10%	0.01° +0.01°	14.71mm	0.17	Φ11*L20mm		
	±5nm	2.61mm±10%	0.01° +0.01°	17.71mm	0.16	Φ11*L23mm		
	±5nm	3.39mm±10%	0.01° +0.01°	23.00mm	0.17	Φ12*L29mm		
450nm	±5nm	0.82mm±10%	0.05°+0.01°	4.50mm	0.25	Φ11*L10.5mm	460HP	
	±5nm	0.94mm±10%	0.04° +0.01°	6.07mm	0.41	Φ11*L13mm		
	±5nm	1.2mm±10%	0.03° +0.01°	7.77mm	0.51	Φ12*L12.7mm		
	±5nm	2.3mm±10%	0.02° +0.01°	10.77mm	0.26	Φ11*L16.6mm		
	±5nm	2.30mm±10%	0.01° +0.01°	14.86mm	0.17	Φ11*L20mm		
	±5nm	2.77mm±10%	0.01° +0.01°	17.88mm	0.16	Φ11*L23mm		
	±5nm	3.60mm±10%	0.01° +0.01°	23.24mm	0.17	Φ12*L29mm		
520nm	±5nm	0.84mm±10%	0.05°+0.01°	4.55mm	0.25	Φ11*L10.5mm	460HP	
	±5nm	1.07mm±10%	0.04°+0.01°	6.13mm	0.41	Φ11*L13mm		
	±5nm	1.37mm±10%	0.03°+0.01°	7.86mm	0.51	Φ12*L12.7mm		
	±5nm	2.3mm±10%	0.02° +0.01°	10.89mm	0.25	Φ11*L16.6mm		
	±5nm	2.62mm±10%	0.015° +0.01°	15.01mm	0.16	Φ11*L19mm		
	±5nm	3.15mm±10%	0.01° +0.01°	18.07mm	0.15	Φ11*L23mm		
	±5nm	4.09mm±10%	0.01° +0.01°	23.49mm	0.17	Φ12*L29mm		
633nm	±5nm	0.86mm±10%	0.05°+0.01°	4.59mm	0.24	Φ11*L10.5mm	630HP	
	±5nm	1.25mm±10%	0.04°+0.01°	6.19mm	0.4	Φ11*L13mm		
	±5nm	1.60mm±10%	0.03°+0.01°	7.94mm	0.5	Φ12*L12.7mm		
	±5nm	2.3mm±10%	0.02° +0.01°	10.99mm	0.25	Φ11*L16.6mm		
	±5nm	3.06mm±10%	0.015° +0.01°	15.17mm	0.16	Φ11*L19mm		
	±5nm	3.68mm±10%	0.01° +0.01°	18.26mm	0.15	Φ11*L23mm		
	±5nm	4.78mm±10%	0.01° +0.01°	23.74mm	0.16	Φ12*L29mm		
780nm	±5nm	1.0mm±10%	0.06°+0.01°	4.63mm	0.24	Φ11*L10.5mm	780HP	
	±5nm	1.29mm±10%	0.04°+0.01°	6.23mm	0.4	Φ11*L13mm		
	±5nm	1.65mm±10%	0.03°+0.01°	8.0mm	0.5	Φ12*L12.7mm		
	±5nm	2.4mm±10%	0.025° +0.01°	11.09mm	0.25	Φ11*L16.6mm		
	±5nm	3.16mm±10%	0.02° +0.01°	15.29mm	0.16	Φ11*L19mm		
	±5nm	3.81mm±10%	0.015° +0.01°	18.40mm	0.15	Φ11*L23mm		
	±5nm	4.95mm±10%	0.01° +0.01°	23.93mm	0.16	Φ12*L29mm		

Wavelength	Bandwidth	Export beam Size	Divergence Angle	EFL	NA	Package	Fiber Type	Transmittance
850nm	±5nm	1.0mm±10%	0.06°+0.01°	4.64mm	0.24	Φ11*L10.5mm	780HP	>95%
	±5nm	1.35mm±10%	0.05°+0.01°	6.25mm	0.4	Φ11*L13mm		
	±5nm	1.74mm±10%	0.04°+0.01°	8.02mm	0.5	Φ12*L12.7mm		
	±5nm	2.4mm±10%	0.03° +0.01°	11.12mm	0.25	Φ11*L16.6mm		
	±5nm	3.32mm±10%	0.02° +0.01°	15.33mm	0.16	Φ11*L19mm		
	±5nm	3.99mm±10%	0.015° +0.01°	18.45mm	0.15	Φ11*L23mm		
	±5nm	5.19mm±10%	0.01° +0.01°	24.00mm	0.16	Φ12*L29mm		
980nm	±5nm	1.0mm±10%	0.07°+0.01°	4.66mm	0.24	Φ11*L10.5mm	HI1060	
	±5nm	1.45mm±10%	0.05°+0.01°	6.27mm	0.4	Φ11*L13mm		
	±5nm	1.86mm±10%	0.04°+0.01°	8.05mm	0.5	Φ12*L12.7mm		
	±5nm	2.3mm±10%	0.03° +0.01°	11.16mm	0.25	Φ11*L16.6mm		
	±5nm	3.56mm±10%	0.02° +0.01°	15.39mm	0.16	Φ11*L19mm		
	±5nm	4.28mm±10%	0.02° +0.01°	18.53mm	0.15	Φ11*L23mm		
	±5nm	5.57mm±10%	0.01° +0.01°	24.10mm	0.16	Φ12*L29mm		
1064nm	±5nm	1.0mm±10%	0.08°+0.01°	4.67mm	0.24	Φ11*L10.5mm	HI1060	
	±5nm	1.42mm±10%	0.055°+0.01°	6.29mm	0.4	Φ11*L13mm		
	±5nm	1.82mm±10%	0.04°+0.01°	8.07mm	0.5	Φ12*L12.7mm		
	±5nm	2.3mm±10%	0.03° +0.01°	11.19mm	0.25	Φ11*L16.6mm		
	±5nm	3.48mm±10%	0.02° +0.01°	15.43mm	0.16	Φ11*L19mm		
	±5nm	4.19mm±10%	0.02° +0.01°	18.57mm	0.15	Φ11*L23mm		
	±5nm	5.45mm±10%	0.01° +0.01°	24.15mm	0.16	Φ12*L29mm		
1310nm	±5nm	0.84mm±10%	0.11°+0.01°	4.70mm	0.24	Φ11*L10.5mm	Smf-28e	
	±5nm	1.10mm±10%	0.09° +0.01°	6.32mm	0.4	Φ11*L13mm		
	±5nm	1.41mm±10%	0.07°+0.01°	8.12mm	0.49	Φ12*L12.7mm		
	±5nm	2.1mm±10%	0.05° +0.01°	11.26mm	0.25	Φ11*L16.6mm		
	±5nm	2.70mm±10%	0.035° +0.01°	15.52mm	0.16	Φ11*L19mm		
	±5nm	3.25mm±10%	0.03° +0.01°	18.68mm	0.15	Φ11*L23mm		
	±5nm	4.22mm±10%	0.02° +0.01°	24.29mm	0.16	Φ12*L29mm		
1550nm	±5nm	0.87mm±10%	0.11°+0.01°	4.74mm	0.24	Φ11*L10.5mm	Smf-28e	
	±5nm	1.24mm±10%	0.09°+0.01°	6.36mm	0.39	Φ11*L13mm		
	±5nm	1.60mm±10%	0.07°+0.01°	8.17mm	0.49	Φ12*L12.7mm		
	±5nm	2.1mm±10%	0.05° +0.01°	11.32mm	0.24	Φ11*L16.6mm		
	±5nm	3.05mm±10%	0.04° +0.01°	15.61mm	0.16	Φ11*L19mm		
	±5nm	3.67mm±10%	0.03° +0.01°	18.79mm	0.15	Φ11*L23mm		
	±5nm	4.77mm±10%	0.02° +0.01°	24.42mm	0.16	Φ12*L29mm		

Wavelength	Bandwidth	Export beam Size	Divergence Angle	EFL	NA	Pakage	Fiber Type	Transmittance
1650nm	±5nm	0.90mm±10%	0.11°+0.01°	4.74mm	0.24	Φ11*L10.5mm	Smf-28e	>95%
	±5nm	1.26mm±10%	0.10°+0.01°	6.37mm	0.39	Φ11*L13mm		
	±5nm	1.62mm±10%	0.07°+0.01°	8.19mm	0.49	Φ12*L12.7mm		
	±5nm	2.15mm±10%	0.05°+0.01°	11.35mm	0.24	Φ11*L16.6mm		
	±5nm	3.10mm±10%	0.04°+0.01°	15.65mm	0.16	Φ11*L19mm		
	±5nm	3.73mm±10%	0.03°+0.01°	18.84mm	0.15	Φ11*L23mm		
	±5nm	4.85mm±10%	0.025°+0.01°	24.47mm	0.16	Φ12*L29mm		
2000nm	±50nm	1.83mm±10%	0.078°+0.01°	5.91mm	0.56	Φ11*L13mm	SM1950	≥90%

* 所有光斑、发散角的测试数据均由远讯标准跳线接入测试
All testing data for beam size and divergence angle are obtained by connecting the standard jumpers from Ysenser.

* 也适用于相应波长的保偏单模光纤接入
Also applicable for polarization maintaining fiber with corresponding wavelength.

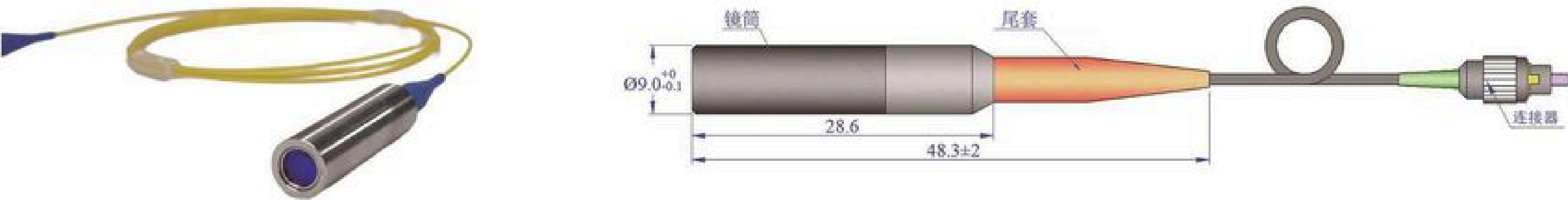
* 可定制应用于无磁、真空、高温环境的产品
Products suitable for non - magnetic , vacuum or high Temperature environments can be customized.

非球面带纤准直器
Aspheric Lenses Collimators with Fiber

采用紧凑结构设计，其中特定倾角的角尾纤和非球面透镜经过精密调节，从而保证出射光呈现出高质量的高斯光束形态，同时具备出众的准直特性。同时，在透镜和光纤表面均镀有增透膜，大大减少了出光端面的回光，显著降低光学链路光噪声，使得光传输过程更加稳定。长焦型准直器采用弯折型外壳设计，可以有效修正倾因斜尾纤所导致的出光偏角，确保光束几乎无偏移准直出射；短焦型准直器，倾斜尾纤输出光引起的偏角极小，几乎可以忽略不计，所以采购外壳使用直通型的。在满足性能需求的同时，兼顾了结构的稳定性与可靠性。

It adopts a compact structural design. The pigtail fiber with an inclination angle and the aspherical lens are precisely adjusted, ensuring that the emitted light presents a high-quality Gaussian beam and has excellent collimation characteristics at the same time. Anti-reflection films are coated on both the surfaces of the lens and the optical fiber, which greatly reduces the reflected light at the light-emitting end face and significantly decreases the optical noise in the optical path, making the light transmission process more stable.

The long-focal-length collimator is designed with a bent-shaped housing, which can effectively correct the light-emitting deflection angle caused by the angled pigtail fiber, ensuring that the light beam is collimated and emitted with almost no deviation. For the short-focal-length collimator, the deflection angle caused by the light output of the angled pigtail fiber is extremely small and can be almost ignored. Therefore, a straight-through housing is used. In this way, while meeting the performance requirements, it also takes into account the structural stability and reliability.



特征 Features:

- 出光偏角、出光中心偏移量极小
The deflection angle of the emitted light and the deviation of the emitted light center are both minuscule.
- 多种光纤类型可选
Fiber Type Options: 405HP/460HP/630HP/780HP/Hi1060/G625D
- 多种连接器类型可选
Connector Options: FC/PC、FC/APC、LC、SC、SMA905
- 多种护套类型可选
The Type of Cable Options: PVC0.9mm/2.0mm/3mm, 3mm armored cable, 3mm Stainless steel, 0.9mmTeflon
- 封装材料304不锈钢，结构紧凑可靠
The packaging material is 304 stainless steel, and the structure is compact and reliable.
- 可定制无磁、真空环境应用封装结构
It can be customized with a packaging structure for applications in a non-magnetic and vacuum environment.

参数表 Parameter

Wavelength	Bandwidth	Waist Beam	Divergence Angle	NA	EFL	Pakage	Fiber Type	Max. Power	Transmittance
405nm	±5nm	0.85mm±0.1mm	0.06°+0.01°	0.25	4.45mm	Φ9.0*L23mm	Nufern 405HP	1W/mm²	>90%
	±5nm	2.01mm±0.2mm	0.02° +0.01°	0.25	10.67mm	Φ9.0*L28.5mm			
	±5nm	3.6mm±0.2mm	0.015° +0.01°	0.15	17.71mm	Φ9.0*L35mm			
450nm	±5nm	0.82mm±0.1mm	0.05°+0.01°	0.25	4.50mm	Φ9.0*L23mm	Nufern 460HP		
	±5nm	2.0mm±0.2mm	0.02° +0.01°	0.24	10.77mm	Φ9.0*L28.5mm			
	±5nm	3.0mm±0.2mm	0.015° +0.01°	0.15	17.88mm	Φ9.0*L35mm			
532nm	±5nm	0.84mm±0.1mm	0.05°+0.01°	0.24	4.50mm	Φ9.0*L23mm	Nufern 460HP		
	±5nm	2.1mm±0.2mm	0.02° +0.01°	0.24	10.87mm	Φ9.0*L28.5mm			
	±5nm	3.2mm±0.2mm	0.015° +0.01°	0.15	18.02mm	Φ9.0*L35mm			
633nm	±5nm	0.86mm±0.1mm	0.05°+0.01°	0.24	4.59mm	Φ9.0*L23mm	Nufern 630HP		
	±5nm	2.06mm±0.2mm	0.02° +0.01°	0.24	10.96mm	Φ9.0*L28.5mm			
	±5nm	3.3mm±0.2mm	0.015° +0.01°	0.15	18.14mm	Φ9.0*L35mm			
780nm	±5nm	1.0mm±0.1mm	0.06°+0.01°	0.24	4.63mm	Φ9.0*L23mm	Nufern 780HP		
	±5nm	2.1mm±0.2mm	0.026° +0.01°	0.24	11.06mm	Φ9.0*L28.5mm			
	±5nm	3.2mm±0.2mm	0.02° +0.01°	0.16	15.29mm	Φ9.0*L35mm			
850nm	±5nm	1.0mm±0.1mm	0.06°+0.01°	0.24	4.64mm	Φ9.0*L23mm	Nufern 780HP		
	±5nm	2.41mm±0.2mm	0.03° +0.01°	0.24	11.10mm	Φ9.0*L28.5mm			
	±5nm	3.8mm±0.2mm	0.02° +0.01°	0.15	18.45mm	Φ9.0*L35mm			
980nm	±5nm	1.0mm±0.1mm	0.07°+0.01°	0.24	4.66mm	Φ9.0*L23mm	Corning HI1060		
	±5nm	2.4mm±0.2mm	0.03° +0.01°	0.24	11.16mm	Φ9.0*L28.5mm			
	±5nm	4.0mm±0.2mm	0.02° +0.01°	0.15	18.58mm	Φ9.0*L35mm			
1064nm	±5nm	1.0mm±0.1mm	0.08°+0.01°	0.24	4.67mm	Φ9.0*L23mm	Corning HI1060		
	±5nm	2.4mm±0.2mm	0.032° +0.01°	0.24	11.18mm	Φ9.0*L28.5mm			
	±5nm	3.8mm±0.2mm	0.02° +0.01°	0.15	18.58mm	Φ9.0*L35mm			
1310nm	±5nm	0.84mm±0.1mm	0.11°+0.01°	0.24	4.70mm	Φ9.0*L23mm	G652D G657A1 G657A2		
	±5nm	2.04mm±0.2mm	0.047° +0.01°	0.23	11.25mm	Φ9.0*L28.5mm			
	±5nm	3.35mm±0.2mm	0.029° +0.01°	0.15	18.67mm	Φ9.0*L35mm			
1550nm	±5nm	0.87mm±0.1mm	0.11°+0.01°	0.24	4.74mm	Φ9.0*L23mm			
	±5nm	2.10mm±0.2mm	0.053° +0.01°	0.23	11.31mm	Φ9.0*L28.5mm			
	±5nm	3.4mm±0.2mm	0.032° +0.01°	0.15	18.75mm	Φ9.0*L35mm			

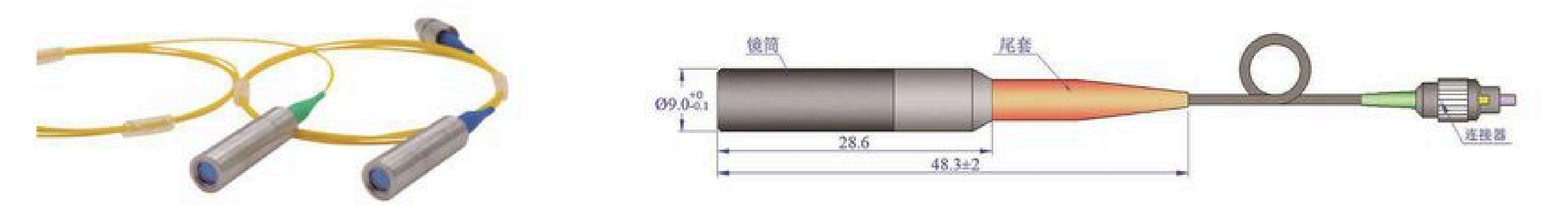
非球面保偏光纤准直器
Aspheric Lenses Collimators with PM Fiber

采用紧凑精巧的结构设计，其中特定倾角的角尾纤和非球面透镜经过精密调节，从而保证出射光呈现出高质量的高斯光束形态，同时具备出众的准直特性。不仅如此，在内部光机精密结构上进行了深度优化，极大程度上降低了后端光纤活动时对出射光斑产生的不良影响，为精密测量或控制过程中信号的稳定传输提供了坚实可靠的保障。此外，凭借远讯精湛的精密光学调试技术以及完备的测试手段，能够将出射光光斑的中心偏移量以及出光偏角精准地控制在极小的范围之内，尽显产品在光学性能上的高精度与高可靠性。

boasts a compact and ingeniously designed structure. The angled pigtail fiber with a inclination angle and the aspherical lens undergo meticulous and precise adjustments. This meticulous calibration ensures that the emitted light manifests as a high-quality Gaussian beam , and simultaneously endowing the collimator with exceptional collimation characteristics.

Furthermore, the internal precision opto-mechanical structure has undergone a thorough and in-depth optimization process. This optimization effectively minimizes the detrimental impact of the movement of the rear-end fiber on the emitted light spot, thereby providing a robust and dependable safeguard for the stable transmission of signals during intricate precision measurement or control operations.

Additionally, leveraging Ysenser's sophisticated precision optical debugging techniques and comprehensive testing methodologies, both the deviation of the center of the emitted beam and the light deflection angle can be accurately and precisely regulated within an extremely narrow margin. This exemplifies the product's remarkable high precision and reliability in optical performance, setting it apart in the field.



特征 Features:

- 出光偏角、出光中心偏移量极小
The deflection angle of the emitted light and the deviation of the emitted light center are both minuscule.
- 多种光纤类型可选
Fiber Type Options: PM460/PM630/PM780/PM980/PM1310/PM1550
- 多种连接器类型可选
Connector Options: FC/PC、FC/APC
- 多种护套类型可选
The Type of Cable Options: PVC0.9mm/2.0mm/3mm, 3mm armored cable, 3mm Stainless steel, 0.9mmTeflon
- 封装材料304不锈钢，结构紧凑可靠
The packaging material is 304 stainless steel, and the structure is compact and reliable.
- 可定制无磁、真空环境应用封装结构
It can be customized with a packaging structure for applications in a non-magnetic and vacuum environment.

参数表 Parameter

Wavelength	Bandwidth	Waist Beam	Divergence Angle	NA	EFL	Pakage	Fiber Type	Max. Power	Transmittance
405nm	±5nm	0.84mm±0.1mm	0.05°+0.01°	0.25	4.55mm	Φ9.0mm*L23±1	Nufern PM405	1W/mm²	>90%
405nm	±5nm	1.96mm±0.2mm	0.02°+0.01°	0.25	10.92mm	Φ9.0mm*L29±1			
405nm	±5nm	3.31mm±0.2mm	0.015°+0.01°	0.15	18.11mm	Φ9.0mm*L35±1			
532nm	±5nm	0.86mm±0.1mm	0.05°+0.01°	0.24	4.59mm	Φ9.0mm*L23±1	Nufern PM460		
532nm	±5nm	2.06mm±0.2mm	0.02°+0.01°	0.24	10.96mm	Φ9.0mm*L29±1			
532nm	±5nm	3.3mm±0.2mm	0.015°+0.01°	0.15	18.14mm	Φ9.0mm*L35±1			
633nm	±5nm	0.86mm±0.1mm	0.05°+0.01°	0.24	4.59mm	Φ9.0mm*L23±1	Nufern PM630		
633nm	±5nm	2.06mm±0.2mm	0.02°+0.01°	0.24	10.96mm	Φ9.0mm*L29±1			
633nm	±5nm	3.3mm±0.2mm	0.015°+0.01°	0.15	18.14mm	Φ9.0mm*L35±1			
780nm	±5nm	1.0mm±0.1mm	0.06°+0.01°	0.24	4.63mm	Φ9.0mm*L23±1	Nufern PM780		
780nm	±5nm	2.4mm±0.2mm	0.026°+0.01°	0.24	11.06mm	Φ9.0mm*L29±1			
780nm	±5nm	4.0mm±0.2mm	0.01°+0.01°	0.15	18.33mm	Φ9.0mm*L35±1			
850nm	±5nm	1.0mm±0.1mm	0.06°+0.01°	0.24	4.63mm	Φ9.0mm*L23±1	Nufern PM780		
850nm	±5nm	2.4mm±0.2mm	0.026°+0.01°	0.24	11.06mm	Φ9.0mm*L29±1			
850nm	±5nm	4.0mm±0.2mm	0.01°+0.01°	0.15	18.33mm	Φ9.0mm*L35±1			
980nm	±5nm	1.0mm±0.1mm	0.07°+0.01°	0.24	4.66mm	Φ9.0mm*L23±1	Nufern PM980		
980nm	±5nm	2.4mm±0.2mm	0.03°+0.01°	0.24	11.16mm	Φ9.0mm*L29±1			
980nm	±5nm	4.0mm±0.2mm	0.02°+0.01°	0.15	18.52mm	Φ9.0mm*L35±1			
1310nm	±5nm	0.84mm±0.1mm	0.11°+0.01°	0.24	4.70mm	Φ9.0mm*L23±1	Corning PM1310		
1310nm	±5nm	2.04mm±0.2mm	0.047°+0.01°	0.23	11.25mm	Φ9.0mm*L29±1			
1310nm	±5nm	3.35mm±0.2mm	0.029°+0.01°	0.15	18.67mm	Φ9.0mm*L35±1			
1550nm	±5nm	0.87mm±0.1mm	0.11°+0.01°	0.24	4.74mm	Φ9.0mm*L23±1	Corning PM1550		
1550nm	±5nm	2.10mm±0.2mm	0.053°+0.01°	0.23	11.31mm	Φ9.0mm*L29±1			
1550nm	±5nm	3.4mm±0.2mm	0.032°+0.01°	0.15	18.75mm	Φ9.0mm*L35±1			

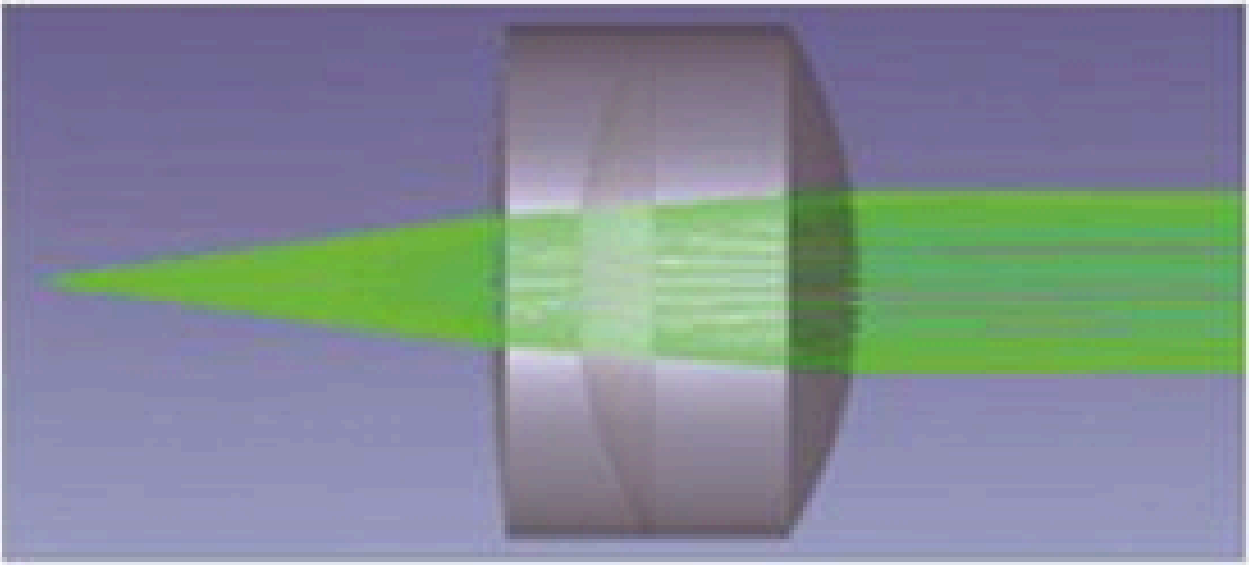
* 束腰光斑直径：取高斯光束1/e²处，均用各波长单模光纤理论计算值。
Waist beam size: calculated using the theory of single-mode optical fiber for each wavelength, taken at the 1/e² intensity point of the Gaussian beam.

* 光束远场发散角：按高斯光束1/e²理论计算值。
Far-field divergence angle of the beam: calculated according to the Gaussian beam 1/e² theory.

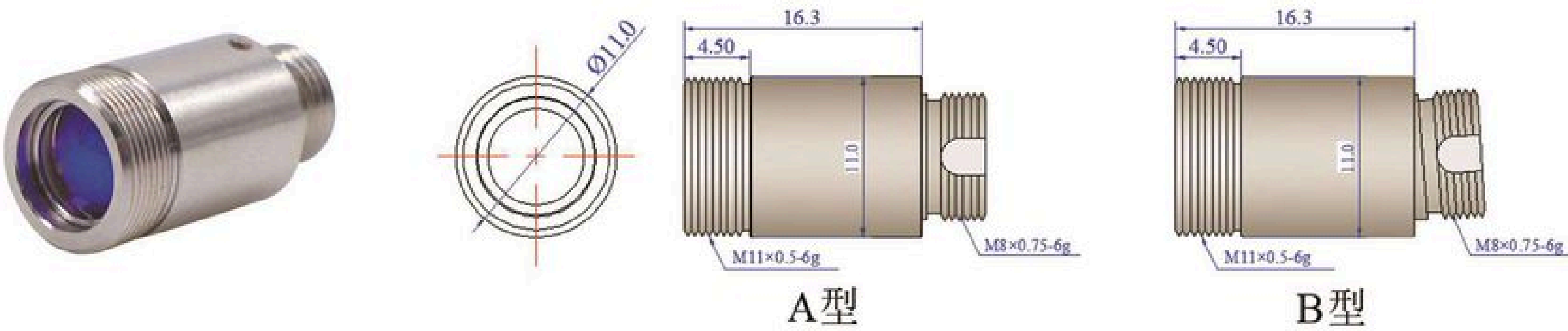
* 其它光斑或封装尺寸接收定制
Customization is accepted for other light beam sizes or packaging dimensions.

消色差准直器
Achromatic Lenses Collimators

由一组长焦准直光学系统构成，有消色差、消像差设计，故准直器焦距对波长带宽不敏感。它将光纤出射的发散光束进行整形处理，使光束在一定距离范围内具备良好的准直效果和光斑形状。透镜组各光学表面镀制增透膜，最大限度减少表面反射。透镜和光纤的相对位置经过精密调试，确保出光偏角在0.3° 范围以内，同时标准化的制作工艺，确保产品稳定的一致性。



It consists of a group of long focal length collimating optical systems with chromatic aberration and distortion compensation design, making the focal length of the collimator insensitive to wavelength bandwidth. The divergent light beam emitted from the optical fiber, providing a good collimating effect and beam shape within a certain distance range. The optical surfaces of the lens group are coated with anti-reflection film to minimize surface reflection. The relative position of the lens and fiber is precisely adjusted to ensure that the deviation angle of the emitted light is within 0.3°, and standardized manufacturing processes ensure stable consistency of the product.



- 特征 Features:
- 接头类型可选Three Connector Options: FC/PC、FC/APC、SMA905
 - 兼容宽键和窄键的接头 Compatible with Narrow and Wide Key Connectors
 - 结构紧凑，便于安装 Compact structure, Convenient for installation
 - 波长对于焦距不敏感，可兼顾相邻波长

The focal length has little influence on the wavelength, thus facilitating the handling of adjacent wavelengths.

• 建议配合远讯的标准跳线使用，获得更好的互换性和重复性

It is recommended to use it together with Ysenser's standard patch cords to achieve better interchangeability and repeatability.

参数表 Parameter

Wavelength	Bandwidth	Waist Beam	Divergence Angle	EFL	NA	Pakage	Fiber Type	Max.Power	Transmittance
405nm	±30nm	0.97mm±10%	0.062+0.01°	4.06mm	0.61	Φ11*L10.5mm	405HP	2W/mm ² @B eam Size	>95%
	±30nm	2.0mm±10%	0.03+0.01°	10.05mm	0.37	Φ11*L16mm			
	±30nm	3.7mm±10%	0.021+0.01°	15.96mm	0.25	Φ11*L20.5mm			
	±30nm	3.95mm±10%	0.015+0.01°	19.95mm	0.2	Φ11*L25.5mm			
450nm	±30nm	0.96mm±10%	0.06+0.01°	4.10mm	0.6	Φ11*L10.5mm	460HP		
	±30nm	2.0mm±10%	0.028+0.01°	10.07mm	0.37	Φ11*L16mm			
	±30nm	3.6mm±10%	0.020+0.01°	15.98mm	0.25	Φ11*L20.5mm			
	±30nm	3.95mm±10%	0.014+0.01°	19.96mm	0.2	Φ11*L25.5mm			
520nm	±30nm	0.92mm±10%	0.059+0.01°	4.15mm	0.6	Φ11*L10.5mm	630HP		
	±30nm	2.0mm±10%	0.025+0.01°	10.09mm	0.37	Φ11*L16mm			
	±30nm	3.2mm±10%	0.019+0.01°	15.98mm	0.25	Φ11*L20.5mm			
	±30nm	3.95mm±10%	0.014+0.01°	19.97mm	0.2	Φ11*L25.5mm			
635nm	±30nm	0.87mm±10%	0.056+0.01°	4.20mm	0.58	Φ11*L10.5mm	780HP		
	±30nm	2.0mm±10%	0.024+0.01°	10.13mm	0.37	Φ11*L16mm			
	±30nm	3.12mm±10%	0.019+0.01°	16.01mm	0.25	Φ11*L20.5mm			
	±30nm	3.95mm±10%	0.014+0.01°	20mm	0.2	Φ11*L25.5mm			
780nm	±30nm	1.95mm±10%	0.031+0.01°	10.04mm	0.37	Φ11*L16mm			
	±30nm	3.49mm±10%	0.020+0.01°	16.0mm	0.24	Φ11*L20.5mm			
	±30nm	3.95mm±10%	0.015+0.01°	20.03mm	0.2	Φ11*L25.5mm			

Wavelength	Bandwidth	Waist Beam	Divergence Angle	EFL	NA	Package	Fiber Type	Max.Power	Transmittance
850nm	±30nm	2.0mm±10%	0.030+0.01°	10.05mm	0.37	Φ11*L16mm	780HP	2W/mm2 @Beam Size	>95%
	±30nm	3.47mm±10%	0.020+0.01°	16.01mm	0.24	Φ11*L20.5mm			
	±30nm	3.95mm±10%	0.016+0.01°	20.03mm	0.2	Φ11*L25.5mm			
980nm	±40nm	2.0mm±10%	0.035+0.01°	10.07mm	0.37	Φ11*L16mm	980HP		
	±40nm	3.39mm±10%	0.024+0.01°	16.03mm	0.24	Φ11*L20.5mm			
	±40nm	4.23mm±10%	0.018+0.01°	20.05mm	0.2	Φ11*L23mm			
1064nm	±40nm	2.0mm±10%	0.038+0.01°	10.03mm	0.37	Φ11*L16mm	HI1060		
	±40nm	3.51mm±10%	0.032+0.01°	15.97mm	0.24	Φ11*L20.5mm			
	±40nm	3.75mm±10%	0.026+0.01°	19.97mm	0.2	Φ11*L23mm			
1310nm	±40nm	2.0mm±10%	0.053+0.01°	10.07mm	0.37	Φ11*L16mm	Smf-28e		
	±40nm	2.91mm±10%	0.036+0.01°	16.01mm	0.24	Φ11*L20.5mm			
	±40nm	3.62mm±10%	0.028+0.01°	20.0mm	0.2	Φ11*L23mm			
1550nm	±40nm	2.0mm±10%	0.06+0.01°	10.11mm	0.37	Φ11*L16mm			
	±40nm	3.14mm±10%	0.039+0.01°	16.08mm	0.24	Φ11*L20.5mm			
	±40nm	3.55mm±10%	0.031+0.01°	20.07mm	0.2	Φ11*L23mm			
1654nm	±40nm	2.0mm±10%	0.06+0.01°	10.14mm	0.37	Φ11*L16mm			
	±40nm	3.2mm±10%	0.036+0.01°	16.15mm	0.24	Φ11*L20.5mm			
	±40nm	3.65mm±10%	0.029+0.01°	20.12mm	0.2	Φ11*L23mm			

* 所有光斑、发散角的测试数据均由远讯标准跳线接入测试
All testing data for beam size and divergence angle are obtained by connecting the standard jumpers from Ysenser.

* 也适用于相应波长的保偏单模光纤接入
Also applicable for polarization maintaining fiber with corresponding wavelength.

* 可定制应用于无磁或真空环境的产品
Products suitable for non - magnetic or vacuum environments can be customized.

消色差准直器（应用于多模光纤）

Achromatic collimators (for multimode fibers)

多模光纤因数值孔径偏大，使边缘的光束经过镜头更容易产生杂光与像差等问题。因此多模光纤输出激光后需要接入的匹配型大数值孔径的镜头显得尤为必要。远讯自主研发的数值孔径0.5以上的镜头，专为多模光纤应用量身打造。这款准直器能够出色地对NA为0.5的光纤输出光进行准直处理，得益于透镜的消色差设计，它可以将波长在±20nm范围内的激光实现良好的进行准直输出，有效保证了激光输出的质量合稳定性。此外，该镜头较大的数值孔径使其具备显著优势，能够高效地将空间光耦合进数值孔径为 0.5 的光纤内，极大地提升了光信号的传输效率和质量，为多模光纤的应用提供了更为可靠和高效的解决方案。



Due to the relatively large numerical aperture (NA) of multimode fibers, the marginal light beams are more likely to generate problems such as stray light and aberrations when passing through the lens. Therefore, it is particularly necessary to connect a matching lens with a large NA after the multimode fiber outputs the laser.

Ysenser's self-developed lens, boasting a NA exceeding 0.5, is meticulously engineered for applications involving multimode fibers. This achromatic collimator demonstrates remarkable proficiency in collimating the output light from fibers with an NA of 0.5. Leveraging the sophisticated achromatic design of the lens, it is capable of delivering excellent collimation output for lasers within a wavelength range of ±20 nm. By virtue of this, it effectively guarantees the high quality and stability of the laser output, setting a new standard for performance in this domain.

In addition, the large NA of this lens gives it significant advantages. It can efficiently couple space light into a fiber with a NA of 0.5, greatly improving the transmission efficiency and quality of optical signals and providing a more reliable and efficient solution for multimode fiber applications.

特征 Features:

- 设计波长范围Designed Wavelength Range: 400nm~1700 nm
- 数值孔径大，用于多模光纤With a large numerical aperture, it is applied to multimode fibers.
- 有效焦距Effective Focal Length: 10mm
- 有效通光孔径Effective Aperture for Light Transmission: Ø11.0 mm
- 两款接头类型可选 Two Connector Options: FC/PC 2.2mm wide key connector,SMA905
- 可以用作耦合器或准直器:It can be used as a coupler or a collimator.
- 所有光斑、发散角的测试数据均由远讯标准跳线接入测试

All testing data for beam size and divergence angle are obtained by connecting the standard jumpers from Ysenser

参数表 Parameter

Wavelength	Bandwidth	AR Coating	Exit Beam Diameter		EFL	Fiber Type	Package Dia.	NA
			Laser (光纤NA 0.22)	LED (光纤NA 0.5)				
405nm	±10nm	400-700 nm	4.5mm	10 mm	9.61 mm	50um 105um 200um 400um 600um	Φ15mm	0.54
450nm	±10nm	400-700 nm	4.5mm	10 mm	9.76 mm			
520nm	±10nm	400-700 nm	4.5mm	10 mm	9.91 mm			
633nm	±10nm	400-700 nm	4.5mm	10 mm	10.05 mm			
780nm	±10nm	600-1050 nm	4.5mm	10.5mm	10.22 mm			
850nm	±10nm	600-1050 nm	4.5mm	10.5mm	10.25 mm			
980nm	±10nm	600-1050 nm	4.5mm	10.5mm	10.30 mm			
1064nm	±10nm	1050-1700 nm	4.5mm	10.5mm	10.32 mm			
1310nm	±10nm	1050-1700 nm	4.5mm	10.5 mm	10.38 mm			
1550nm	±10nm	1050-1700 nm	4.5mm	10.5 mm	10.43 mm			
1650nm	±10nm	1050-1700 nm	4.5mm	10.5 mm	10.45 mm			

* 所有光斑、发散角的测试数据均由远讯标准跳线接入测试
All testing data for beam size and divergence angle are obtained by connecting the standard jumpers from Ysenser.

* 可定制应用于无磁或真空环境的产品
Products suitable for non - magnetic or vacuum environments can be customized.

▶ RGB消色差准直器
PM Fiber Optic Collimator for Variable Working Distance Range

针对红绿蓝三色激光器的应用需求，设计并开发了一款高性能的消色差准直镜。该镜头专门用于处理从单根光纤出射的波长分别为450nm、488nm、520nm、635nm和670nm激光束。鉴于光纤出射光具有天然的发散特性，远讯镜头系统通过精密的透镜组结构设计，在450nm至670nm的宽光谱范围内实现了极为出色的消色差效果，有效保障了光束的高质量输出。



In strict accordance with the application requirements of red, green, and blue tricolor lasers, Ysenser has meticulously designed and successfully developed a high-performance achromatic collimating lens. This lens is exclusively engineered to manage the laser beams with wavelengths of 450nm, 488nm, 520nm, 635nm, and 670nm, which emanate from a single optical fiber. Considering the innate divergent properties of the light emitted from the optical fiber, the lens system of Ysenser, through the exquisitely precise structural design of its lens group, has accomplished remarkable achromatic performance within the extensive spectral range spanning from 450nm to 670nm. As a result, it effectively guarantees the high-quality output of the light beams, demonstrating outstanding technical superiority.

特征 Features:

• 宽波段消色差能力，将波长带宽范围在焦点位置的差异控制在±2微米以内，显著提升了多波长激光的共焦性能。

It effectively restricts the discrepancy in focal positions within the wavelength bandwidth range to within ±2 micrometers. This outstanding performance significantly enhances the confocal properties of multi-wavelength lasers.

• 卓越的准直效果：经过准直后的激光束，在出口处的光束直径差异小于±2.5%，发散角差异控制在±3%以内，确保了三色激光的空间一致性。

Excellent collimation effect: After collimation, the difference in the beam diameter of the laser beam at the exit is less than ±2.5%, and the difference in the divergence angle is controlled within ±3%, ensuring the spatial consistency of the three-color laser.

• 卓越的光学性能：单波长波前误差：< $\lambda/8$ @ 632.8nm，光束质量因子 M^2 ：< 1.2

Excellent optical performance: Wavefront error for a single wavelength: < $\lambda/8$ @ 632.8nm, Beam quality factor M^2 : < 1.2

• 温度稳定性：在10-35℃工作温度范围内，焦点漂移小于2 μm，适用于各种实验室和工业环境

Temperature stability: Within the operating temperature range of 10-35°C, the focal point drift is less than 2μm, making it suitable for various laboratory and industrial environments.

应用 Application:

激光显示、光谱分析、生物医学成像
Laser display, spectral analysis, biomedical imaging

参数表 Parameter

Wavelength	EFL	Waist Diameter	Divergence Angle	AR Coating	NA	Package Dia.	Fiber Type	Connector
450nm	5.835mm	1.15 mm	0.50 m rad	400-700 nm	0.25	Φ9mm	460HP (芯径 3.0um)	FC/PC FC/APC Sma905
488nm	5.834mm	1.20mm	0.50 m rad					
520nm	5.834 mm	1.20mm	0.55 mrad					
633nm	5.836mm	1.25mm	0.60 mrad					
650nm	5.836mm	1.25mm	0.65 mrad					
670nm	5.837mm	1.25mm	0.65 mrad					
450nm	11.661mm	2.15mm	0.26 mrad					
488nm	11.661mm	2.25mm	0.27 mrad					
520nm	11.661mm	2.30mm	0.28 mrad					
633nm	11.665mm	2.40mm	0.30 mrad					
650nm	11.665mm	2.45mm	0.30 mrad	400-700 nm	0.25	Φ9mm	Smf-28e (芯径 9.0um)	FC/PC FC/APC Sma905
670nm	11.667mm	2.50mm	0.32 mrad					
450nm	5.835mm	1.25 mm	1.1 m rad					
488nm	5.834mm	1.25mm	1.1 m rad					
520nm	5.834 mm	1.25mm	1.1 mrad					
633nm	5.836mm	1.30mm	1.1 mrad					
650nm	5.836mm	1.30mm	1.2 mrad	400-700 nm	0.25	Φ9mm	多模光纤 (芯径 105um)	FC/PC Sma905
670nm	5.837mm	1.30mm	1.2 mrad					
450nm	11.661mm	4.8 mm	12 m rad					
488nm	11.661mm	4.8 mm	12 m rad					
520nm	11.661mm	4.8 mm	12 m rad					
633nm	11.665mm	4.8 mm	12 m rad					
650nm	11.665mm	4.8 mm	12 m rad					
670nm	11.666mm	4.8 mm	12 m rad					

▶ 可调焦非球面光纤准直器
Adjustable Aspheric Collimators

该设计在机械件内部用采用弹簧装配适用的光学透镜，用于光纤光束的准直器输出，也可用于空间光耦合进入光纤。通过旋转准直器外部的套管可以使内部的光学透镜延光轴方向进行前后平移，从而调节透镜与光纤端面之间的距离，得到不同光斑尺寸。一旦达到所需位置，就可以将外壳滚花锁紧环将调节器锁定。

is engineered with a spring - fitted optical lens housed within its mechanical structure. It serves to collimate the fiber - emitted light beam and can also be utilized for coupling spatial light into the fiber. By rotating the outer sleeve of the collimator, the internal optical lens can be precisely translated along the vertical axis direction. This translation enables the adjustment of the distance between the lens and the fiber endface, thereby achieving different light spot sizes. Once the optimal position is attained, the housing knurled locking ring can be employed to fix the regulator firmly.



特征 Features:

- 接入光纤准直射出或将自由空间准直光耦合进光纤

Connecting fiber collimated output or coupling free space collimated light into fiber

- 三款焦距可选Three Focal Length Options、4.5 mm、7.5 mm、11mm
- 调节时对准误差adjustment alignment error < 15 mrad
- 接头类型可选Three Connector Options: FC/PC、FC/APC、SMA905
- 非球面透镜镀三种增透膜可选 Threee AR-Coated Aspheric Lens Options、400-700nm、650-1050nm、1050-1650nm
- 与远讯的标准跳线配合使用可提高耦合效率和良好的重复性

When used in combination with Ysenser's standard jumpers, it can improve coupling efficiency and ensure good repeatability.v

参数表 Parameter

EFL	NA (Lens)	Waist Beam	AR Coating	Far-field divergence angle	Input Fiber MFD	Length Between Fiber and Lens	Transmittance
4.5mm	0.54	0.86mm±10%	400~700nm R<0.5%	0.05°±0.01°	3.5um	2.4 - 4.9 mm	>90%
	0.54	0.98mm±10%	600~1050nm R<0.5%	0.06°±0.01°	5um	2.4 - 4.9 mm	
	0.54	0.87mm±10%	1050~1700nm R<0.5%	0.13°±0.01°	10.4um	2.4 - 4.9 mm	
7.5mm	0.3	1.35mm±10%	400~700nm R<0.5%	0.03°±0.01°	3.5um	4.2- 6.8 mm	>90%
	0.3	1.6mm±10%	600~1050nm R<0.5%	0.04°±0.01°	5um	4.2- 6.8 mm	
	0.3	1.44mm±10%	1050~1700nm R<0.5%	0.08°±0.01°	10.4um	4.2- 6.8 mm	
11 mm	0.3	1.96mm±10%	400~700nm R<0.5%	0.02°±0.01°	3.5um	8.6 - 10.9 mm	>90%
	0.3	2.35mm±10%	600~1050nm R<0.5%	0.03°±0.01°	5um	8.6 - 10.9 mm	
	0.3	2.1mm±10%	1050~1700nm R<0.5%	0.06°±0.01°	10.4um	8.6 - 10.9 mm	

*所有光斑、发散角的测试数据均由远讯标准跳线接入测试

All testing data for beam size and divergence angle are obtained by connecting the standard jumpers from Ysenser.

*束腰光斑直径：取高斯光束1/e²处，选用各波长单模光纤理论计算值。

Waist beam diameter: Take the Gaussian beam at 1/e² and use the theoretical calculated values for each wavelength using single-mode fibers.

*光束远场发散角：输入选用各波长单模光纤，按高斯光束1/e²理论计算值。公差 +0.003° /0.0°

Beam far-field divergence angle: The input uses single-mode optical fibers with various wavelengths, calculated according to the Gaussian beam 1/e² theory. Tolerance is +0.003°/0.0°.

*理论计算匹配的波长和光纤

Theoretical Calculation of Wavelength - Fiber Matching、450 nm-460HP、850 nm-780HP、1550 -SMF-28e.

采用三片透镜结构，各透镜之间以精确设定的空气间隙间隔装配，能提供比非球面透镜准直器更优异的光束质量。其低像差三合透镜设计具备诸多优势，例如更接近于1的M2因子(高斯光束)、这表明光束质量更接近理想的高斯分布；同时还拥有更小的发散角和更小的波前误差。每片透镜双面都镀制增透膜，最大限度减少表面引起的反射损耗。为了充分发挥光束质量的优势，我们建议选用远讯的标准单模跳线和保偏跳线接入。



Is use a three-lens structure. The precisely air-spaced triplet lenses can provide better beam quality than aspherical lens collimators. Its low-aberration three-lens design has numerous advantages. For instance, the M2 factor (in the context of a Gaussian beam) is closer to 1, which indicates that the beam quality approaches the ideal Gaussian distribution more closely. Meanwhile, it also exhibits a smaller divergence angle and a smaller wavefront error. Each lens has both of its surfaces coated with antireflection films to minimize the reflection loss caused by the surfaces. To fully capitalize on the advantages of the beam quality, we recommend using Ysenser's standard single-mode patch cords and polarization-maintaining patch cords for the connection.

特征 Features:

- 两款焦距可选
Three Focal Length Options
- 接头2.2mm宽键，类型可选
Two Connector Options: FC/PC、FC/APC 2.2mm wide key connector
- 封装材料304不锈钢，结构紧凑可靠
The packaging material is 304 stainless steel, and the structure is compact and reliable.

参数表 Parameter

Wavelength	Bandwidth	AR Coating	Waist Diameter	Divergence Angle	EFL	NA	Package Dia.	Fiber Type
405nm	±5nm	400-700 nm	3.37 mm	0.009°	17.72mm	0.29	Φ14.9mm	405HP
450nm	±5nm	400-700 nm	3.36 mm	0.010°	17.80mm	0.29		405HP
520nm	±10nm	400-700 nm	3.34 mm	0.012°	17.89 mm	0.28		460HP
633nm	±15nm	400-700 nm	3.37 mm	0.014°	17.99 mm	0.28		630HP
780nm	±20nm	600-1050 nm	3.90 mm	0.015°	18.09 mm	0.28		780HP
850nm	±30nm	600-1050 nm	3.91 mm	0.016°	18.12 mm	0.28		780HP
980nm	±30nm	600-1050 nm	3.91 mm	0.019°	18.17 mm	0.28		980HP
1064nm	±30nm	1050-1700 nm	3.98 mm	0.020°	18.20 mm	0.28		HI1060
1310nm	±50nm	1050-1700 nm	3.31 mm	0.029°	18.28 mm	0.27		Smf-28e
1550nm	±50nm	1050-1700 nm	3.33 mm	0.034°	18.36 mm	0.27		Smf-28e
1650nm	±50nm	1050-1700 nm	3.38 mm	0.036°	18.40 mm	0.27		Smf-28e
405nm	±5nm	400-700 nm	4.70 mm	0.006°	24.77 mm	0.25	Φ16mm	405HP
450nm	±5nm	400-700 nm	4.66 mm	0.007°	24.81 mm	0.25		405HP
520nm	±10nm	400-700 nm	4.65 mm	0.008°	24.88 mm	0.25		460HP
633nm	±15nm	400-700 nm	4.67 mm	0.010°	24.98 mm	0.25		630HP
780nm	±20nm	600-1050 nm	5.42 mm	0.010°	25.08 mm	0.25		780HP
850nm	±30nm	600-1050 nm	5.44 mm	0.011°	25.12 mm	0.25		780HP
980nm	±30nm	600-1050 nm	5.40 mm	0.013°	25.19 mm	0.25		980HP
1064nm	±30nm	1050-1700 nm	5.49 mm	0.014°	25.23 mm	0.25		HI1060
1310nm	±50nm	1050-1700 nm	4.58 mm	0.021°	2.535 mm	0.25		Smf-28e
1550nm	±50nm	1050-1700 nm	4.65 mm	0.024°	25.49 mm	0.25		Smf-28e
1650nm	±50nm	1050-1700 nm	4.69 mm	0.026°	25.55 mm	0.25		Smf-28e

* 所有光斑、发散角的测试数据均由远讯标准跳线接入测试
All testing data for beam size and divergence angle are obtained by connecting the standard jumpers from Ysenser.

* 也适用于相应波长的保偏单模光纤接入
Also applicable for polarization maintaining fiber with corresponding wavelength.

* 钛合金（无磁）材料外壳或真空条件下使用的产品可定制
Titanium alloy (non-magnetic) material shell or products used in vacuum conditions can be customized

三维光纤准直/耦合器
 Triaxial Fiber Collimator

三维光纤准直器提供三个维度的调节功能。在进行空间光耦合或准直输出时，可对透镜进行自由灵活的俯仰、偏摆调节与纵向一维调节，所有调节均采用螺纹顶丝机构，操作便捷，能够对入射光耦合进行精细调整与对准，从而实现优异的耦合效率。俯仰偏摆时的转角行程范围为±5°，纵向行程范围±1mm。

镀膜分三种类型，400~700nm，650~1050nm以及1050~1650nm，在每种镀膜带宽内，由不同波长引起的透镜焦距差异问题也可通过调节来解决。该准直器壳体采用铜合金材质，结合高稳定性的调节方式及调节后的螺纹锁定功能，具有长期高稳定性与高指向性的优点，非常适用于激光光纤耦合及准直应用。

The Triaxial Fiber Collimator provides three degrees of adjustment freedom. For spatial light coupling or collimated output, the lens enables flexible and precise adjustment of pitch, yaw, and one-dimensional longitudinal displacement. All adjustments are facilitated by threaded set screws for convenient operation, allowing fine alignment of the incident light to achieve excellent coupling efficiency. The pitch and yaw offer an angular travel range of ±5°, and the longitudinal travel range is ±1 mm.

Three AR coating options are available: 400–700 nm, 650–1050 nm, and 1050–1650 nm. Within each coating bandwidth, variations in the lens's effective focal length due to different wavelengths can be compensated for via adjustment. The collimator housing is constructed from a copper alloy. Combined with a highly stable adjustment mechanism and a post-adjustment screw-locking function, it offers exceptional long-term stability and high pointing accuracy. This makes it ideally suited for laser-to-fiber coupling and collimation applications.

特征 Features:

- 接入光纤准直出射或将自由空间准直光耦合进光纤
Connecting fiber collimated output or coupling free space collimated light into fiber.
- 三种自由度可调节
Three degrees of freedom are adjustable
- 耦合效率长期稳定性
Long-term stability of coupling efficiency.
- 三种增透膜可选 400~700nm, 650~1050nm、1050~1650nm
Three AR Coated Lens Options: 400~700nm, 650~1050nm, and 1050~1650nm
- 接头类型可选:FC/PC、FC/APC
Two Connector Options: FC/PC, FC/APC

参数表 Parameter

Wavelength	EFL	Fiber MFD	Waist Beam	NA(Lens)	AR Coating	Transmittance
350~700nm	4.4mm±10%	3.5μm	0.86mm±10%	0.54	R<0.5%@350~700nm	>90%
600~1050nm	4.5mm±10%	5μm	0.98mm±10%	0.54	R<0.5%@600~1050nm	
1050~1700nm	4.56mm±10%	10.4μm	0.87mm±10%	0.54	R<0.5%@1050~1700nm	
350~700nm	7.35mm±10%	3.5μm	1.35mm±10%	0.3	R<0.5%@350~700nm	
600~1050nm	7.5mm±10%	5μm	1.6mm±10%	0.3	R<0.5%@600~1050nm	
1050~1700nm	7.6mm±10%	10.4μm	1.44mm±10%	0.3	R<0.5%@1050~1700nm	
350~700nm	10.7mm±10%	3.5μm	1.96mm±10%	0.3	R<0.5%@350~700nm	
600~1050nm	11.0mm±10%	5μm	2.35mm±10%	0.3	R<0.5%@600~1050nm	
1050~1700nm	11.2mm±10%	10.4μm	2.1mm±10%	0.3	R<0.5%@1050~1700nm	



五维光纤耦合/准直器
 FiberPort Collimators / Couplers

在接头和光纤保持不动时，内置的透镜具有五个对准自由度：X和Y方向的线性对准、俯仰和偏转角度对准、同时使用俯仰和偏转调节Z轴。其X和Y方向的行程范围为±0.7mm，Z方向行程范围为>2mm，俯仰偏摆调节范围±4°。该款耦合镜具有很好的结构稳定性和较高的耦合效率，如果更换光源波长，使用时还需对耦合镜进行微调，以获得更高的耦合效率。

When the connector and the fiber remain stationary, the internal lens has five alignment degrees of freedom: linear alignment in the X and Y directions, pitch and yaw alignment angles, and adjustment of the Z-axis using both pitch and yaw. The travel range in the X and Y directions is ±0.7 mm, the travel range in the Z direction is greater than 2 mm, and the pitch and yaw adjustment range is ±4°. It has good structural stability and high coupling efficiency. If the wavelength of the light source is changed, the collimator needs to be re-adjusted to achieve higher coupling efficiency.



特征 Features:

- 接入光纤准直出射或将自由空间准直光耦合进光纤
Connecting fiber collimated output or coupling free space collimated light into fiber.
- 五个自由度加旋转调节
Five Degrees of Freedom Plus Rotational Adjustment
- 可选择装配非球面透镜和消色差透镜
Optional combination of an aspherical lens and an achromatic lens
- 接头类型可选
Three Connector Options: FC/PC、FC/APC、SMA905
- 透镜镀三种增透膜可选
Three AR-Coated Lens Options、400-700nm、650-1050nm、1050-1650nm
- 与远讯的标准跳线配合使用可提高耦合效率和良好的重复性

When used in combination with Ysenser's standard jumpers, it can improve coupling efficiency and ensure good repeatability.

参数表 Parameter

装配非球面透镜 Assemble Aspheric Lenses

Wavelength	EFL	Fiber MFD	Waist Beam	Divergence Angle	NA (Lens)	AR Coating	Transmittance
350 - 700 nm	4.60 mm	3.5um	0.75 mm±10%	0.76 mrad	0.52	R<0.5%@350 - 700 nm	>95%
600 - 1050 nm	4.60 mm	5.0um	1.0 mm±10%	1.09 mrad	0.52	R<0.5%@600 - 1050 nm	
1050 - 1650 nm	4.60 mm	10.4um	0.87 mm±10%	2.26 mrad	0.52	R<0.5%@1050 - 1650 nm	
350 - 700 nm	7.50 mm	3.5um	1.23 mm±10%	0.47 mrad	0.3	R<0.5%@350 - 700 nm	
600 - 1050 nm	7.50 mm	5.0um	1.62 mm±10%	0.67 mrad	0.3	R<0.5%@600 - 1050 nm	
1050 - 1650 nm	7.50 mm	10.4um	1.42 mm±10%	1.39 mrad	0.3	R<0.5%@1050 - 1650 nm	
350 - 700 nm	10.0 mm	3.5um	1.64 mm±10%	0.35 mrad	0.23	R<0.5%@350 - 700 nm	
600 - 1050 nm	10.0 mm	5.0um	2.16 mm±10%	0.50 mrad	0.23	R<0.5%@600 - 1050 nm	
1050 - 1650 nm	10.0 mm	10.4um	1.99 mm±10%	0.99 mrad	0.23	R<0.5%@1050 - 1650 nm	

装配消色差透镜 Assemble Achromatic Lenses

Wavelength	EFL	Fiber MFD	Waist Beam	Divergence Angle	NA (Lens)	AR Coating	Transmittance
350 - 700 nm	7.50 mm±10%	3.5um	1.23 mm	0.47mrad	0.3	R<0.5%@350 - 700 nm	>95%
600 - 1050 nm	7.50 mm±10%	5.0um	1.62 mm	0.67mrad	0.3	R<0.5%@600 - 1050 nm	
1050 - 1650 nm	7.50 mm±10%	10.4um	1.42 mm	1.39mrad	0.3	R<0.5%@1050 - 1650 nm	
350 - 700 nm	10.0 mm±10%	3.5um	1.64 mm	0.35mrad	0.23	R<0.5%@350 - 700 nm	
600 - 1050 nm	10.0 mm±10%	5.0um	2.16 mm	0.50mrad	0.23	R<0.5%@600 - 1050 nm	
1050 - 1650 nm	10.0 mm±10%	10.4um	1.99 mm	0.99mrad	0.23	R<0.5%@1050 - 1650 nm	

*所有光斑、发散角的测试数据均由远讯标准跳线接入测试

All testing data for beam size and divergence angle are obtained by connecting the standard jumpers from Ysenser.

*也适用于相应波长的保偏单模光纤接入

Also applicable for polarization maintaining fiber with corresponding wavelength.

*束腰光斑直径：取高斯光束 $1/e^2$ 处，选用各波长单模光纤理论计算值。

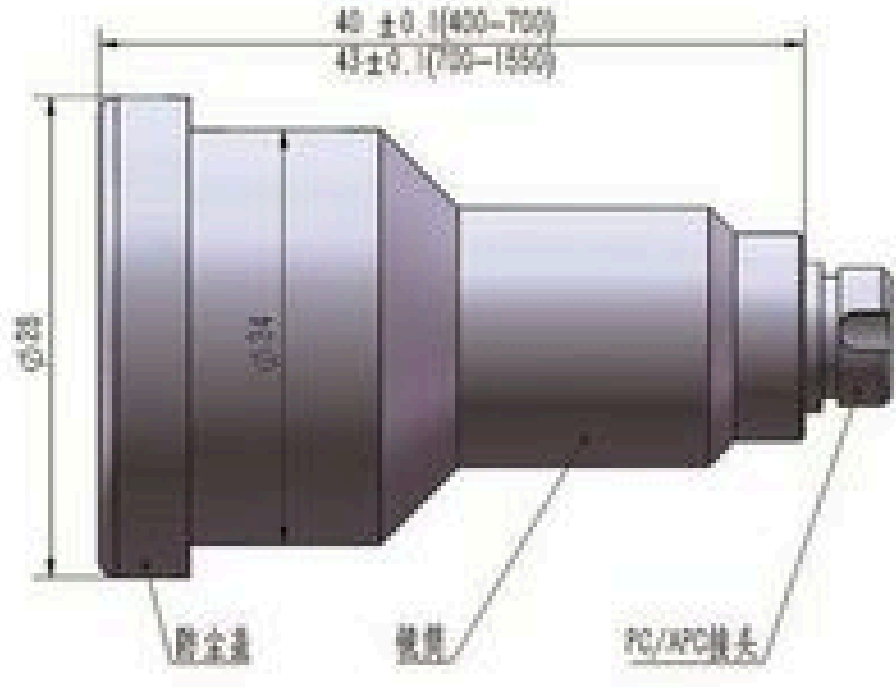
Waist beam diameter: Take the Gaussian beam at $1/e^2$ and use the theoretical calculated values for each wavelength using single-mode fibers.

*理论计算匹配的波长和光纤Theoretical Calculation of Wavelength - Fiber Matching、450 nm-460HP、850 nm-780HP、1550 -SMF-28e.

定焦大光束准直器
Large Beam Collimators

采用空气隙胶合透镜，能提供比非球面透镜和消色差透镜准直性能更优异的光束质量，低相差的透镜组设计可获得更接近高斯光束、更小的发散角和更小的波前误差。

By using an air gap bonded lens, it can provide better beam quality than aspherical lenses and achromatic lenses in terms of collimation performance. The design of a low aberration lens group can achieve a beam closer to a Gaussian beam, with smaller divergence angles and smaller wavefront errors.



特征 Features:

- 接头类型可选Three Connector Options: FC/PC、FC/APC、SMA905
- 兼容宽键和窄键的接头 Compatible with Narrow and Wide Key Connectors
- 结构紧凑，便于安装 Compact structure, Convenient for installation
- 接受定制波长 Custom Options including wavelengths
- 建议选配远讯的标准跳线，提高参数的重复性和一致性

It is recommended to select Ysenser's standard patch cords to improve the repeatability and consistency of the parameters.

参数表 Parameter
输入单模光纤 Put In SM Fiber

Wavelength	Bandwidth	Waist Beam	Divergence Angle	EFL	NA (Lens)	Package Dia.	Fiber Type	Connector	Transmittance
405nm	±10nm	5.0 mm	0.16mrad	33.2 mm	0.27	Φ24mm	405HP	FC/PC FC/APC Sma905	>92%
450nm	±10nm	5.4mm	0.12mrad	33.5 mm	0.26	Φ24mm	460HP		
520nm	±10nm	6.1mm	0.10mrad	34.3 mm	0.26	Φ24mm			
635nm	±10nm	6.7 mm	0.12mrad	35.3 mm	0.25	Φ24mm	630HP		
780nm	±10nm	7.4 mm	0.14mrad	36.0 mm	0.25	Φ24mm	780HP		
850nm	±10nm	7.8 mm	0.14mrad	36.2 mm	0.25	Φ24mm			
905nm	±15nm	7.5mm	0.15mrad	36.3mm	0.25	Φ24mm			
980nm	±15nm	8.6mm	0.16mrad	36.4 mm	0.25	Φ24mm	Hi1060		
1064nm	±15nm	7.8mm	0.17mrad	36.6 mm	0.25	Φ24mm			
1310nm	±20nm	6.6 mm	0.24mrad	36.7 mm	0.24	Φ24mm	Smf-28e		
1550nm	±20nm	6.9 mm	0.28mrad	37.1 mm	0.24	Φ24mm			
1654nm	±10nm	7.0 mm	0.30mrad	37.2mm	0.24	Φ24mm			

输入多模光纤 Put In MM Fiber

Wavelength	Bandwidth	Waist Beam	Divergence Angle	EFL	NA (Lens)	Package Dia.	Fiber Type	connector	Transmittance
450nm	±10nm	18.0mm	2.3mrad	33.5 mm	0.27	Φ24mm	62.5/125	FC/PC Sma905	>92%
	±10nm	14.6mm	6.5mrad	33.5 mm	0.27	Φ24mm	200/220		
	±10nm	14.6mm	12.5mrad	33.5 mm	0.27	Φ24mm	400/440		
488nm	±10nm	15.0mm	4.0mrad	34.1mm	0.27	Φ24mm	105/125		
	±10nm	15.0mm	7.0mrad	34.1mm	0.27	Φ24mm	200/220		
	±10nm	15.4mm	12.8mrad	34.1mm	0.27	Φ24mm	400/440		
520nm	±10nm	18.2mm	2.2mrad	34.3 mm	0.27	Φ24mm	62.5/125		
	±10nm	14.9mm	3.5mrad	34.3 mm	0.27	Φ24mm	105/125		
	±10nm	14.9mm	6.2mrad	34.3 mm	0.27	Φ24mm	200/220		
	±10nm	15.2mm	12.6mrad	34.3 mm	0.27	Φ24mm	400/440		

Wavelength	Bandwidth	Waist Beam	Divergence Angle	EFL	NA (Lens)	Package Dia.	Fiber Type	connector	Transmittance
633nm	±10nm	18.8mm	2.8mrad	35.3 mm	0.26	Φ24mm	62.5/125	FC/PC Sma905	>92%
	±10nm	15.2mm	4.0mrad	35.3 mm	0.26	Φ24mm	105/125		
	±10nm	15.3mm	6.1mrad	35.3 mm	0.26	Φ24mm	200/220		
	±10nm	15.4mm	11.8mrad	35.3 mm	0.26	Φ24mm	400/440		
780nm	±10nm	19.0mm	2.7mrad	36.0 mm	0.26	Φ24mm	62.5/125		
	±10nm	15.6mm	3.1mrad	36.0 mm	0.26	Φ24mm	105/220		
	±10nm	15.5mm	5.9mrad	36.0 mm	0.26	Φ24mm	200/220		
	±10nm	15.5mm	11.6mrad	36.0 mm	0.26	Φ24mm	400/440		
850nm	±10nm	19.1mm	2.7mrad	36.2 mm	0.26	Φ24mm	62.5/125		
	±10nm	15.6mm	3.2mrad	36.2 mm	0.26	Φ24mm	105/220		
	±10nm	15.6mm	5.8mrad	36.2 mm	0.26	Φ24mm	200/220		
	±10nm	15.6mm	11.4mrad	36.2 mm	0.26	Φ24mm	400/440		
905nm	±15nm	15.7mm	3.3mrad	36.3 mm	0.26	Φ24mm	105/220		
	±15nm	15.7mm	5.9mrad	36.3 mm	0.26	Φ24mm	200/220		
1064nm	±15nm	19.4mm	2.4mrad	36.6 mm	0.26	Φ24mm	62.5/125		
	±15nm	15.8mm	3.4mrad	36.6 mm	0.26	Φ24mm	105/125		
	±15nm	16.0mm	6.4mrad	36.6 mm	0.26	Φ24mm	200/220		
	±15nm	16.0mm	12.2mrad	36.6 mm	0.26	Φ24mm	400/440		
1300nm	±20nm	19.4mm	2.3mrad	36.7 mm	0.25	Φ24mm	62.5/125		
	±20nm	15.8mm	3.5mrad	36.7 mm	0.25	Φ24mm	105/125		
	±20nm	15.8mm	6.1mrad	36.7 mm	0.25	Φ24mm	200/220		
	±20nm	15.9mm	11.6mrad	36.7 mm	0.25	Φ24mm	400/440		
1550nm	±20nm	19.4mm	2.1mrad	37.1 mm	0.25	Φ24mm	62.5/125		
	±20nm	15.9mm	3.4mrad	37.1 mm	0.25	Φ24mm	105/125		
	±20nm	15.9mm	6.1mrad	37.1 mm	0.25	Φ24mm	200/220		
	±20nm	16.0mm	11.6mrad	37.1 mm	0.25	Φ24mm	400/440		

* 所有光斑、发散角的测试数据均由远讯标准跳线接入测试
All testing data for beam size and divergence angle are obtained by connecting the standard jumpers from Ysenser.
* 也适用于相应波长的保偏单模光纤接入
Also applicable for polarization maintaining fiber with corresponding wavelength.
* 束腰光斑直径：取高斯光束1/e²处，选用各波长单模光纤理论计算值。
Waist beam diameter: Take the Gaussian beam at 1/e² and use the theoretical calculated values for each wavelength using single-mode fibers.
* 光束远场发散角：输入选用各波长单模光纤，按高斯光束1/e²理论计算值。公差+0.003°/0.0°
Beam far-field divergence angle: The input uses single-mode optical fibers with various wavelengths, calculated according to the Gaussian beam 1/e² theory. Tolerance is +0.003°/0.0°.

▶ 远距离准直器100M
Long Distance CollimatorFor100

可将光纤出光进行准直整形，用于不同光纤连接出射的激光，在设计波长下提供衍射极限性能，准直距离可达200米。此系列准直镜的结构紧凑，不受错位影响。设计时进行消像差处理，选用空气间隔的双透镜系列，具有极好的准直效果和耦合空间光的能力，双透镜的有效焦距与波长有关。因此，此系列准直镜头需在设计波长下使用，性能最佳。

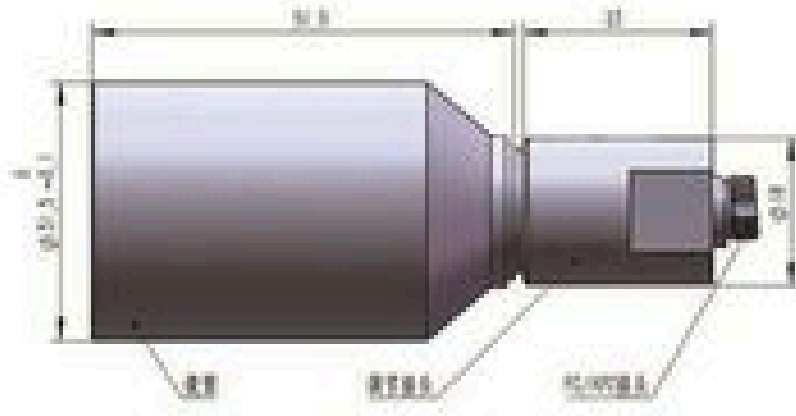
The fiber optic beam can be collimated and shaped for different lasers output through fiber optic connections, providing diffraction-limited performance at the design wavelength, with a collimation distance of up to 200 meters. The structure of this series of collimators is compact. Aberration correction is performed during design by selecting an air-spaced doublet lens series, which has excellent collimation effect and ability to couple space light. The effective focal length of the doublet lens depends on the wavelength. Therefore, this series of collimators should be used at the design wavelength for optimal performance.

特征 Features:

- 接头类型可选Three Connector Options: FC/PC、FC/APC、SMA905
- 在200M范围内保持良好的准直特性 Maintain good collimation characteristics within a range of 200 meters.
- 结构紧凑，便于安装 Compact structure, Convenient for installation
- 接受定制波长 Custom Options including wavelengths
- 建议选配远讯的标准跳线，提高参数的重复性和一致性

It is recommended to select Ysenser's standard patch cords to improve the repeatability and consistency of the parameters.

Wavelength	Bandwidth	Waist Beam	Divergence Angle	EFL	NA (Lens)	Fiber Type	connector	Transmittance
405nm	±10nm	10.2mm	0.09mrad	66.5mm	0.19	405HP	FC/PC FC/APC Sma905	>92%
450nm	±10nm	13.7mm	0.07mrad	68.4mm	0.18	460HP		
520nm	±10nm	14.2mm	0.06mrad	70.3mm	0.18			
635nm	±10nm	14.5mm	0.07mrad	72.1mm	0.17	630HP		
780nm	±15nm	14.2mm	0.07mrad	73.3mm	0.17	780HP		
850nm	±15nm	14.9mm	0.07mrad	73.7mm	0.17			
905nm	±20nm	14.9mm	0.07mrad	73.9mm	0.17			
980nm	±20nm	15.0mm	0.09mrad	74.2mm	0.17	Hi1060		
1064nm	±20nm	15.2mm	0.09mrad	74.5mm	0.17			
1310nm	±30nm	12.9mm	0.12mrad	75.1mm	0.17	Smf-28c		
1550nm	±30nm	14.2mm	0.14mrad	75.6mm	0.17			
1650nm	±30nm	14.5mm	0.14mrad	76.0mm	0.17			

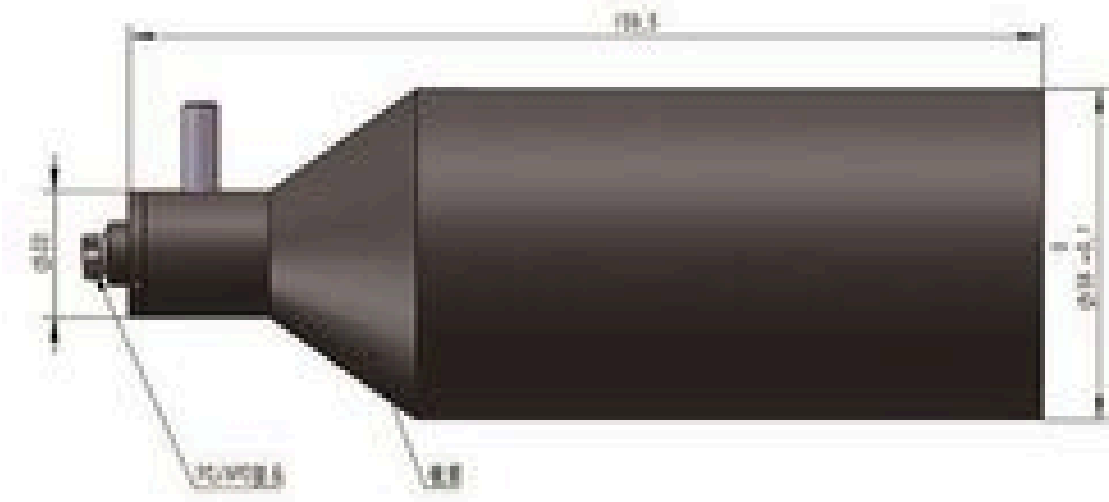


▶ 远距离准直器300M
Long Distance CollimatorFor300m

针对长达300米距离的激光准直或耦合应用场景，我们特别将准直镜头的焦距精心设计为约150毫米。这一设计能够对从光纤出射的激光进行更为有效的准直整形，生成更大光斑的高质量激光束。

该准直镜头采用多片空气间隔透镜的先进设计架构，不仅能够输出极高的光束质量（光束质量因子M²接近1），还能实现极小的波前误差。这使其尤其适用于远距离激光传输以及脉冲型激光出射的应用。在有效工作距离范围内，它能够确保激光束保持极佳的准直效果，同时，其输出的光束能量分布近似高斯分布，光斑清晰锐利，无明显衍射现象，极大地提升了激光的传输性能和应用效果。在实际使用中，这款准直镜头具备高度的适配性，可与单模光纤、多模光纤以及大芯径光纤完美兼容，广泛应用于激光空间通信、激光雷达探测、激光遥测监控等前沿领域，为各类高精度激光应用提供可靠的技术支持。

For laser collimation or coupling at up to 300 meters, we've carefully designed the collimating lens with a focal length of around 150 mm. This effectively collimates and shapes the fiber-emitted laser beam, yielding a high-quality beam with a larger beam. The lens uses an advanced multi-air-spaced lens design. It outputs a beam of extremely high quality (M² approaching 1) with minimal wavefront error, making it perfect for long-distance laser transmission and pulsed laser emission. Within the effective range, it ensures excellent collimation, with an approximately Gaussian energy distribution, a clear and sharp spot, and no obvious diffraction, thus enhancing laser performance.



特征 Features:

- 适合光纤到自有空间的准直或耦合 Suitable for the collimation or coupling from optical fiber to free space
- 在300M范围内保持良好的准直特性 Maintain good collimation characteristics within a range of 300 meters.
 - 可耦合的最大输入光纤NA为0.24 The maximum input fiber numerical aperture (NA) that can be coupled is 0.24.