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车载产品手册 AUTOMOTIVE 2017



企业简介

福建福光股份有限公司，成立于1958年，是世界领先的光学制造企业。

公司注册资本1.15亿元人民币，拥有员工2000余人。公司引进德国、美国、日本先进的光学研发、测试、生产设备，具备年产2亿光学镜片与3000万颗光学镜头的制造能力。

公司产品涵盖了从紫外、可见、近红外、到长波红外热成像的波段，广泛应用于车载、安防监控、道路监控、森林防火、机器视觉、智能家居等领域。

公司以“更高、更远、更清晰”为目标，质量第一，客户为先，不断为客户提供领先的光学产品。

企业文化

企业理念：更高 更远 更清晰

企业精神：创新致远 启迪视界

核心价值观：为企业创造利益，为客户创造价值，为员工创造事业，为社会创造效益。

企业愿景：肩负振兴民族镜头产业的使命，以加强国防现代化和国家信息化建设为己任，全力打造中国光学镜头第一品牌，矢志成为中国最大最强的光学镜头制造企业。

Company profile

Established in 1958, Fujian Forecam Optics Co., Ltd. (RICOM) is the leading manufacturer of optical products in China. Over 2000 people are employed in the company, with a high percentage of design engineers. Our investment in precision optical testing and production equipment from Germany, US and Japan, ensures the consistent high quality of our products. The annual production capacity of RICOM is currently 200 million pcs of optical glass and 30 million pcs of lens.

The main products of RICOM are the lenses for visible light, infrared light and infrared thermal imaging, widely used in automotive, security surveillance, machine vision, smart home, digital camera and ITS industries. Pursuing "Higher, Further, Clearer", RICOM keeps providing the highest quality optical products for the top video surveillance enterprises worldwide.

Corporate culture

- ☀ Focusing higher further and sharper.
- ☀ Innovate in vision, focus on future.
- ☀ Create value for customers, employees, enterprise and society.
- ☀ We are responsible for revitalizing national Lenses and modernizing national defense. Making our Optical Lens to be No.1 brand with all method and to be most popular manufacturer in China.



精密设备

精密光学加工设备:

- ✦ 单点金刚石车床
- ✦ 德国非球面铣磨加工中心
- ✦ 德国劳尔 数控光学抛光机
- ✦ 德国莱宝 镀膜机

精密机械加工设备:

- ✦ 数控五轴加工中心
- ✦ 车铣复合加工中心
- ✦ 数控切割机
- ✦ 高精度磨床

精密测试设备:

- ✦ 德国马尔 非球面轮廓仪
- ✦ 德国全欧 高精度MTF测量系统
- ✦ 德国全欧 中心偏测量仪
- ✦ 德国全欧 镜片厚与空气距测量仪
- ✦ 激光干涉仪
- ✦ 日本奥林巴斯 光谱仪
- ✦ Tenson II 傅利叶红外光谱仪
- ✦ 自动三坐标测量仪
- ✦ 平行光管
- ✦ 眩光测试仪

可靠性测试设备:

- ✦ 高低温湿热试验机
- ✦ 冷热冲击实验机
- ✦ 振动测试机
- ✦ 跌落测试机
- ✦ 防水测试机
- ✦ 沙尘试验箱



Precision equipment

Ultra-precision optical processing machine

- ✦ Diamond turning machine
- ✦ CNC aspheric grinding machine (German)
- ✦ CNC spherical polishing machine (Lauer, German)
- ✦ Coating machine (Leybold, German)

Ultra-precision mechanical processing machine

- ✦ 5-axis CNC lathe
- ✦ Lathe-millcutting center
- ✦ CNC wire-electrode cutting machine
- ✦ Ultra-precision grinding machine

Ultra-precision test machine

- ✦ Form & surface finish measurement system for aspheric (Mahr, German)
- ✦ MTF measurement station (Trioptics, German)
- ✦ Optical centration measurement machine (Trioptics, German)
- ✦ Thicknesses and air gaps measurement machine (Trioptics, German)
- ✦ Laser interferometer (German)
- ✦ Spectrophotometer (Olympus, Japan)
- ✦ Tenson II Fourier Transform Infrared spectrophotometer
- ✦ Auto 3-coordinate measuring machine
- ✦ Collimator (f5000mm, f3000mm, f2000mm, f1200mm, f950mm, f95mm...)
- ✦ Glare test machine

Reliability test machine

- ✦ High-low temperature-humidity test machine
- ✦ Thermal shock test machine
- ✦ Vibration test machine
- ✦ Drop test machine
- ✦ Water -proof test machine
- ✦ Sand and dust test machine



车载镜头—前视

Automotive Lens—Front View



产品特点

- ◆ F1.2/F1.6大光圈
- ◆ 全玻璃镜片
- ◆ 工作温度：-40°C~95°C
- ◆ 可定制结构

Product features

- ◆ Large aperture
- ◆ All-glass lenses
- ◆ Operating Temperature -40°C to 95°C
- ◆ Customized structure

Specification

Model No.	C06127F12MP2F	C06125F16MP3F	C08127F16MP2F	C08125F16MP3F	C12125F16MP3F
Focal length	6mm	6mm	8mm	8mm	12mm
Image Circle	1/2.7"	1/2.5"	1/2.7"	1/2.5"	1/2.5"
Aperture (D/f')	F1.2	F1.6	F1.6	F1.6	F1.6
Resolution	2MP	3MP	2MP	3MP	3MP
TV distortion	-8% (1/2.7" Full)	-5.2% (1/2.5" Full)	-3.8% (1/2.7" Full)	-3.8% (1/2.5" Full)	-1.9% (1/2.5" Full)
Chief ray angle	<12°	<8°	<9°	<9°	<12°
FOV (Focus on INF)	CMOS D H V	CMOS D H V	CMOS D H V	CMOS D H V	CMOS D H V
	1/3.2" 56° 45° 32°	1/3.2" 54° 43° 32°	1/3.2" 38° 31° 24°	1/3.2" 41° 34° 25°	1/3.2" 26° 21° 16°
	1/3" 61° 48° 35°	1/3" 59° 46° 34°	1/3" 41° 33° 25°	1/3" 44° 36° 27°	1/3" 28° 23° 17°
	1/2.8" 66° 57° 31°	1/2.8" 63° 54° 30°	1/2.8" 43° 38° 23°	1/2.8" 47° 41° 24°	1/2.8" 30° 26° 15°
	1/2.7" 69° 59° 32°	1/2.7" 65° 56° 31°	1/2.7" 45° 40° 24°	1/2.7" 48° 43° 25°	1/2.7" 31° 27° 15°
Mount	M12×P0.5	M12×P0.5	M12×P0.5	M12×P0.5	M12×P0.5
Total track length	23.2mm(in air)	23.4mm(in air)	23mm(in air)	23.3mm(in air)	22.9mm(in air)
Back focal length	6.7mm(in air)	6mm(in air)	7.6mm(in air)	6mm(in air)	6.6mm(in air)
IR Filter	650±10nm	650±10nm	650±10nm	650±10nm	650±10nm

车载镜头—后视

Automotive Lens—Rear View



产品特点

- ◆ 高分辨率
- ◆ 全玻璃镜片
- ◆ 工作温度：-40°C~95°C
- ◆ 可定制结构

Product features

- ◆ High Resolution
- ◆ All-glass lenses
- ◆ Operating Temperature -40°C to 95°C
- ◆ Customized structure

Specification

Model No.	C02113F20MPF	C024128F20MPF	C01314F20MP (Model)
Focal length	2.1mm	2.4mm	1.3mm
Image Circle	1/3"	1/2.8"	1/4"
Aperture (D/f')	F2.0	F2.0	F2.0
Resolution	1.3MP	1.3MP	1.3MP
TV distortion	-32% (1/3" Full)	-30% (1/2.8" Full)	-10% (1/4" Full)
Chief ray angle	<15°	<14°	<20°
FOV (Focus on INF)	CMOS D H V	CMOS D H V	CMOS D H V
	1/4" 117° 101° 56°	1/4" 103° 89° 50°	1/4" 159° 135° 106°
	1/3.2" 152° 113° 89°	1/3.2" 134° 107° 78°	1/3.2" - - -
	1/3" 163° 128° 95°	1/3" 144° 113° 84°	1/3" - - -
	1/2.8" - - -	1/2.8" 148° 128° 70°	1/2.8" - - -
Mount	M12×P0.5	M12×P0.5	M12×P0.5
Total track length	19.6mm(in air)	17.3mm(in air)	10.5mm(in air)
Back focal length	4.8mm(in air)	4.8mm(in air)	2.2mm(in air)
IR Filter	650±10nm	650±10nm	650±10nm

车载镜头—环视

Automotive Lens—Surround View

车载镜头—行车记录仪

Automotive Lens—Driving Recorder



产品特点

- ◆ 高分辨率
- ◆ 超广角
- ◆ 工作温度：-40°C~95°C
- ◆ 可定制结构

Product features

- ◆ High Resolution
- ◆ Ultra-wide Field
- ◆ Operating Temperature -40°C to 95°C
- ◆ Customized structure

Specification

Model No.	C01314F20MP(Model)				C012813F20MPF			
Focal length	1.3mm				1.28mm			
Image Circle	1/4"				1/3"			
Aperture (D/f')	F2.0				F2.0			
Resolution	1.3MP				1.3MP			
TV distortion	-10% (1/4" Full)				-38% (1/3" Full)			
Chief ray angle	<20°				<15°			
FOV (Focus on INF)	CMOS	D	H	V	CMOS	D	H	V
	1/4"	159°	135°	106°	1/4"	180°	168°	102°
	1/3.2"	-	-	-	1/3.2"	210°	187°	128°
	1/3"	-	-	-	1/3"	220°	194°	134°
	1/2.8"	-	-	-	1/2.8"	-	-	-
Mount	M12×P0.5				M12×P0.5			
Total track length	10.5mm(in air)				17.4mm(in air)			
Back focal length	2.2mm(in air)				1.8mm(in air)			
IR Filter	650±10nm				650±10nm			

产品特点

- ◆ 高分辨率
- ◆ 全玻璃镜片
- ◆ 工作温度：-40°C~95°C
- ◆ 可定制结构

Product features

- ◆ High Resolution
- ◆ All-glass lenses
- ◆ Operating Temperature -40°C to 95°C
- ◆ Customized structure

Specification

Model No.	C02113F20MP2F				C024128F20MP3F				C02614F20MP2F			
Focal length	2.1mm				2.4mm				2.6mm			
Image Circle	1/3"				1/2.8"				1/4"			
Aperture (D/f')	F2.0				F2.0				F2.0			
Resolution	2MP				3MP				2MP			
TV distortion	-32% (1/3" Full)				-30% (1/2.8" Full)				-13% (1/4" Full)			
Chief ray angle	<15°				<14°				<15°			
FOV (Focus on INF)	CMOS	D	H	V	CMOS	D	H	V	CMOS	D	H	V
	1/4"	117°	101°	56°	1/4"	103°	89°	50°	1/4"	120°	87°	67°
	1/3.2"	152°	113°	89°	1/3.2"	134°	107°	78°	1/3.2"	-	-	-
	1/3"	163°	128°	95°	1/3"	144°	113°	84°	1/3"	-	-	-
	1/2.8"	-	-	-	1/2.8"	148°	128°	70°	1/2.8"	-	-	-
Mount	M12×P0.5				M12×P0.5				M12×P0.5			
Total track length	19.6mm(in air)				17.3mm(in air)				17.5mm(in air)			
Back focal length	4.8mm(in air)				4.8mm(in air)				4.4mm(in air)			
IR Filter	650±10nm				650±10nm				650±10nm			