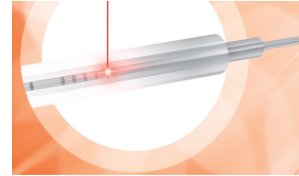


飞秒激光写入的光纤布拉格光栅 (FBG)

飞秒激光写入法是光纤布拉格光栅 FBG 的一种全新制备方法。采用飞秒激光写入方法制作的光纤布拉格光栅 FBG, 可以在所有带有多种涂层的透明光纤、高端特种光纤以及低成本商用光纤上写入光纤布拉格光栅 FBG。



与传统的光纤布拉格光栅 FBG 制作方法相比, 飞秒激光写入制作的光纤布拉格光栅 FBG 能在极端温度条件下工作, 工作温度可达 1000°C, 抗拉伸强度更高, 并具有耐腐蚀、耐高温高湿环境、抗辐射、抗电磁干扰等特点。

数以千计的光纤布拉格光栅 FBG 被集成于一个单个的传感阵列, 可在几千米长度上实现多点测量。飞秒激光写入法是一种高度灵活的光纤布拉格光栅 FBG 制作方法, 可以非常方便地实现个性化大批量光纤布拉格光栅 FBG 的生产。总之, 飞秒激光写入法是光纤布拉格光栅 FBG 为光纤传感应用提供了一个全新的可靠性更高的解决方案, 必将为推动光纤传感市场的大力发展做出杰出贡献。

产品特点:

- 飞秒激光刻写工艺
- 无需剥层与再涂敷
- 全自动化生产
- 通过涂敷层甚至碳涂层
光纤直接写入
- 无掺杂要求, 可使用特种
抗辐射光纤或纯芯光纤



- 极端工作温度范围:
up to 1,000°C
- 超强的抗拉伸强度
- 高产量&低成本
- 耐腐蚀、耐高温高湿环境
- 抗辐射、抗电磁干扰



典型应用:

- 分布式温度传感 DTS;
- 油井与石油管道监控;
- 电厂监控; 火灾报警;
- 桥梁压力监测
- 生物医疗
- 航空航天



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INDIVIDUAL products

FBG TYPES

- Single FBGs
- FBG arrays
- Apodized FBGs
- Chirped and PI-shifted FBGs¹⁾

FBG SPECIFICATIONS

- Bragg wavelength 1460nm-1640nm (others on request)
- Wavelength tolerance <0.2 nm
- FWHM: 0.3nm to several nm
- Reflectivity: 10⁻⁴ to 99%
- Sideband suppression (apodized): up to 20dB

FIBER OPTIONS

- Standard single mode fiber
- Pure silica core fiber
- Special fibers and materials like sapphire or laser fiber

FIBER COATINGS

- Acrylate coating
- Polyimide (PI) coating
- Carbon coating
- Gold coating

FBG DURABILITY

- Temperature for PI-coated fibers up to 300 °C
- FBG temperature up to 1.000°C
- Tensile strength >200kpsi

¹⁾Currently under development

标准产品列表:

Acrylate coated SM fiber	Art No.	Item Description	Wavelength	Reflectivity	3dB Bandwidth	SLRS (dB)	Length
Low Reflectivity	AUT.FB G.S.0.01	Single FBG – 20% - AC	1500-1600	>20%	0.4nm	>15dB	<5mm
Medium Reflectivity	AUT.FB G.S.0.02	Single FBG – 50% - AC	1500-1600	>50%	0.4nm	>15 dB	<5mm
High Reflectivity	AUT.FB G.S.0.03	Single FBG – 70% - AC	1500-1600	>70%	0.5nm	>15 dB	<5mm
PI coated SM fiber	Art No.	Item Description	Wavelength	Reflectivity	3dB Bandwidth	SLRS (dB)	Length
Low Reflectivity	AUT.FB G.S.1.01	Single FBG – 20% - PI	1500-1600	>20%	0.4nm	>15 dB	<5mm
Medium Reflectivity	AUT.FB G.S.1.02	Single FBG – 50% - PI	1500-1600	>50%	0.4nm	>15 dB	<5mm
High Reflectivity	AUT.FB G.S.1.03	Single FBG – 70% - PI	1500-1600	>70%	0.5nm	>15 dB	<5mm

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PI coated pure core fiber	Art No.	Item Description	Wavelength	Reflectivity	3dB Bandwidth	SLRS (dB)	Length
Low Reflectivity	AUT.FB G.S.2.01	Single FBG – 20% -PC- PI	1500-1600	>20%	0.4nm	>15 dB	<5mm
Medium Reflectivity	AUT.FB G.S.2.02	Single FBG – 50% - PC-PI	1500-1600	>50%	0.4nm	>15 dB	<5mm
High Reflectivity	AUT.FB G.S.2.03	Single FBG – 70% -PC- PI	1500-1600	>70%	0.5nm	>15 dB	<5mm

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