FEMTO SENSING INTERNATIONAL

描述

W4 光纤光栅解调仪是一款经济型商业级光栅解调仪，配置4通道，每通道160 nm的扫描范围。该型号光纤光栅解调仪针对静态和动态测量都进行了优化，可在全光谱模式下以 10Hz 的频率运行，也可在传感器峰值检测模式下以 100 Hz 的频率运行。如果用户需要更高频率的解调仪，可联系厂家咨询。W4光纤光栅解调仪每个通道的传感器容量是最大44个，4通道合计也就是176支传感器。此外，厂家还提供 8 通道和 16 通道的版本，以满足更高的传感器数量需求（有关这些型号的信息，请参阅 W8 和 W16 的数据手册）。W4 型光纤光栅解调仪封装外壳为标准 1U 规格。

W 系列坚固耐用的光纤光栅解调仪是光纤传感仪器市场上一个重要的新成员。 W4光纤光栅解调仪技术既集合了多年从业工程师的经验，也结合了多方客户对我们 FAZT 系列、M 系列和 S 系列光纤光栅解调仪的反馈意见。这些系列的光纤光栅解调仪广泛应用于土木工程、航空航天、海洋领域、铁路、公路、能源、岩土工程、工业、安防、医疗以及许多其他商业应用中。W4光纤光栅解调仪对研发工作也是一个有用的工具，其工业级的设计非常适合大规模生产。

特点

重复性、精度和动态范围：采用了激光校准技术和光谱分析固件，W4光纤光栅解调仪的重复性为±2 pm、波长精度为±10 pm，动态范围为25 dB，在 160 nm的扫描范围内具备增益和阈值自动控制调节功能。此外，还提供了手动设置选项。

可靠性好：W4光纤光栅解调仪基于一种已大量应用于各种现场应用的固态激光技术平台。该光纤光栅解调仪不含可移动部件，不使用可调滤波器，在-15℃至 +55℃摄氏度的工作温度范围内可靠性良好。

传感器容量大/可适配更多类型的传感器：每个通道最多可监测 44 个传感器。与市场上大多数光纤布拉格光栅（FBG）传感器兼容：W4光纤光栅解调仪优化了内部高速硬件和固件算法，能够可靠地追踪3dB带宽250 pm（一些温度、应变和压力传感器）到 3.0 nm（一些生物传感器）的光纤布拉格光栅。

系统和网络就绪：配备快速内部处理器、支持 TCP/IP 协议，搭载 PicoSense 软件。可选配额外的内部处理器（Raspberry PI），以运行客户自行开发的应用软件。

低成本与高可靠性：W4 光纤光栅解调仪基于厂家的固态仪器平台研发，专为针对高质量仪器与高可靠性的用户需求进行了优化，并节约了成本。同时厂家还提供8通道和16通道两种规格。
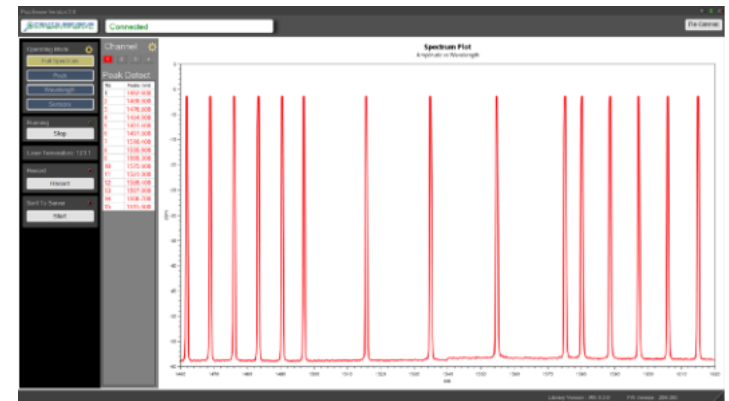
Civil Engineering, Geotechnical, Industrial, Energy, Security, Transportation, and Research Centers

参数	规格	说明
波长范围	160nm	1460nm to 1620nm
光通道数	4	Also available in 8 channels (W8) and 16 channels (W16) configurations
每通道传感器容量	1 to 44	4*44 = 176 sensors (with ~3.6nm spacing between adjacent FBG sensors). See note 1.
波长精度	+/- 10pm	Defined over long-term
波长重复性	+/- 2pm	Defined over long-term
扫描频率 (寻峰模式)	100Hz	FBG Sensors Peaks vs. Wavelength on all channels. Also available with 250Hz option.
扫描频率(全光谱模式)	10Hz	Full Spectrum display at 10Hz AND Full Spectrum data recording at 10Hz, in parallel. Also available with 25Hz full spectrum display and recording option.
激光器最大输出功率	4.4mW	Optical sensing performance is maintained even with 20dB optical power loss. See note 2.
动态范围	25dB	Controlled automatically. Can also be controlled manually. Six gain stages.
光纤长度 (距离)	10km	Lead-in lengths up to 5km and FBG1 to FBGn in each array to be within 5 km from each other
输入电压和功耗	12V and 8W	Auto-detect 100V to 240V AC with 12V supply block included
工作温度范围	-15 to +55°C	Designed for commercial field use
尺寸 (WxDxH)	440x298x44mm	All W Series Interrogators have the same dimensions (W4, W8, W16)
重量	2.6kg	All W Series Interrogators have the same weight (W4, W8, W16)
机箱颜色	Black	Other colors and graphics available for OEM purchases of 10 or more units per PO
光学接口	LC/APC with Internal Shutters	The Internal Shutters are independent for each channel and open and close automatically when LC/APC connectors are inserted or removed from the interrogator, for protection
符合标准	YES	REACH and ROHS Compliant
通讯	YES	TCP/IP100 Mbps Ethernet
搭载软件	YES	User friendly PICOSENSE Software in .NET environment and API support are included.
附加内部处理器 (Raspberry Pi)	可选	Open system available for customers who want to develop and run their own applications specific software and custom communications protocols from within the W4 Interrogator. See note 3.

Note 1: FBGs from 0.1nm to 3nm BW@3dB (FWHM) supported. Best performance results obtained using BW = 500pm FBGs. It is recommended for optical systems designers to leave at least 1nm of safety margin on both sides of the expected wavelength range of each FBG sensor in the network.

Note 2: Optical losses in the sensors network can be caused by cumulative losses from many FBG based sensors that are daisy-chained on the same fiber string, from long fiber distances (hundreds of meters or kilometers) between the instrument and the sensors, or from in-line splices, connectors, and optical splitters/combiners.

Note 3: All W4 interrogators equipped with the secondary Raspberry PI (RPI) processor have two IP addresses, and retain the capability of running in standard mode (bypassing the RPI) until the customer chooses to enable the RPI processor to run their software. Using the RPI brings the ability to turn power on/off to the W4 unit (wake on LAN, wake/sleep on Clock), set alarms or notifications based on FBG sensors status, etc. Customers with the RPI option receive our W4 Developer's Commands Library.

Civil Engineering, Geotechnical, Industrial, Energy, Security, Transportation, and Research Centers