

The system consists of a demodulator and sensors. The sensor converts the measured signal into a wavelength signal through a fiber grating, which is divided into a load sensor, an acceleration sensor, and a temperature sensor. The demodulator is responsible for demodulating the feedback wavelength of the sensor and transmitting data to the outside. The demodulator is used in conjunction with different sensors, and the sensor is arranged at the position to be measured on the blade, which can realize the measurement of the load, vibration and temperature of the blade.

Blade Load Measurement System

Molas FD



Demodulator Performance

Measurement Characteristics

Number Of Channels	1-16 Road Optional
Measuring Range	1546-1558nm
Demodulation Accuracy	20pm
Wavelength Resolution	0.01pm
Scanning Frequency	1kHz

Electrical Data

Powered By	22-26VDC
Power Consumption	<10W (-20~65°C) <32W (低温-20~40°C)
Electrical Connections	MC 1,5/2-GF-3,81

Environmental Conditions

IP Protection Class	IP20
Maximum Working Altitude	3000m
Operating Temperature	-40~65°C
Storage Temperature	-40~80°C
Environment Humidity	5%~95RH
Vibration Level	Meet the requirements of GB/T 2423 standard, $\pm 0.5g$
Electromagnetic Compatibility	Meet the requirements of GB/T 17626 standard

Mechanical Data

Length	217mm
Width	106mm
High	141mm
Gross Weight	1.8 $\pm$ 0.2kg(without packing box)

Load Cell Parameters

Measurement Characteristics

Sensor Type	Fiber Bragg Grating
Measuring Range	-2000~+2500 $\mu\epsilon$
Maximum Survival	4000 $\mu\epsilon$
Resolution	$\geq 0.05 \mu\epsilon$

Environmental Conditions

IP Protection Class	IP67
Maximum Working Altitude	3000m
Operating Temperature	-40~50°C
Storage Humidity	-40~80°C
Environment Humidity	0%~95RH

Mechanical Data

Length	220mm
Width	60mm
High	9mm
Gross Weight	0.3 $\pm$ 0.2kg(without packing box)

Fiber Optic Bus Parameters

Optical Data And Interfaces

Connect	E-2000/APC
Quantity	3/4/5
Type	single mode
Cable Tensile Strength	500N
Cable Bend Radius	Dynamic 120mm, Static 60mm
Attenuation Performance	$\leq 1dB/km$
Flammability Rating	CMR
Flattening Force/100mm	1000N

Environmental Conditions

Operating Temperature	-40°C~+65°C
Storage Temperature	-40~80°C
Environment Humidity	0~95%RH

Mechanical Data

Length	14m
Gross Weight	1 $\pm$ 0.5kg(without packing box)

**Easy to install / maintain / High precision
flexible and portable / safe and reliable data**

叶片载荷测量系统 Molas FD

系统由解调仪和传感器组成。传感器通过光纤光栅将被测量转换成波长信号，分为载荷传感器、加速度传感器和温度传感器等。解调仪负责解调传感器的反馈波长并对外传输数据。解调仪和不同传感器配合使用，将传感器布置在叶片待测位置，可以实现叶片的载荷、加速度和温度等数据的测量。



解调仪性能参数

测量特性	
通道数	1-16 路可选
测量范围	1546-1558nm
解调精度	20pm
波长分辨率	0.01pm
扫描频率	1kHz
电气数据	
供电	22-26VDC
功耗	<10W (-20~65℃) <32W (低温-20~40℃)
环境条件	
IP 防护等级	IP20
最大工作海拔	3000m
使用温度	-40~65℃
储存温度	-40~80℃
环境湿度	5%~95RH
振动等级	符合 GB/T 2423 标准要求, ±0.5g
电磁兼容性	符合 GB/T 17626 标准要求
机械数据	
长度	217mm
宽度	106mm
高度	141mm
总重量	1.8±0.2kg (不含包装箱)

载荷传感器性能参数

测量特性	
传感器类型	光纤布拉格光栅
测量范围	-2000~+2500 $\mu\epsilon$
最大生存应变	4000 $\mu\epsilon$
分辨率	$\geq 0.05 \mu\epsilon$
环境条件	
IP 防护等级	IP67
最大工作海拔	3000m
使用温度	-40~50℃
储存湿度	-40~80℃
环境湿度	0%~95RH
机械数据	
长度	220mm
宽度	60mm
高度	9mm
总重量	0.3±0.2kg (不含包装箱)

光纤总线性能参数

光学数据和接口	
连接	E-2000/APC
数量	3/4/5
类型	单模
线缆抗拉强度	500N
线缆最小弯曲半径	动态 120mm, 静态 60mm
衰减性能	$\leq 1\text{dB/km}$
阻燃等级	CMR
压扁力 /100mm	1000N
环境条件	
使用温度	-40℃~+65℃
储存温度	-40~80℃
环境湿度	0~95%RH
机械数据	
长度	14m
总重量	1±0.5kg (不含包装箱)

安装简单 / 易维护
高精度 / 灵活便携 / 数据安全可靠