Technical Specifications

Model Number	ASIS-DAS-UWFBG
Product Name	Distributed Acoustic Sensing Interrogator
Version	V1.3
Revision Date	07.08.2025

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1. Product Overview

The ASIS-DAS-UWFBG is an acoustic-grade micro-vibration demodulation module based on ultra-weak fiber Bragg grating. The laser emits light pulses along the fiber, which are directionally reflected at the grating position and interfere after phase compensation. This interference carries vibration information along the fiber. After data acquisition and processing, a data matrix is formed to extract the frequency, phase, and amplitude information of the vibration signal. It is recognized as the most reliable distributed acoustic measurement and the world's most sensitive fiber optic sensing technology. The module is equipped with a high-performance ARM chip and features a high degree of integration of optics, mechanics, and electronics. It uses a parallel demodulation algorithm to process massive amounts of data at the base level, accurately capturing vibration information at different positions on the fiber and transmitting it back via Ethernet. It is suitable for structural health monitoring of large tunnels, railways, highways, dams, etc., as well as monitoring vehicle trajectory positions, pipeline leaks, oil and gas extraction, border intrusion, and the integrity analysis of acoustic signals.

2. Optical Specifications

Parameter	ASIS-DAS-UWFBG
Operating Wavelength (nm)	1550
Spatial Resolution (m)	3 (customizable)
Single Channel Measurement Distance (km)	2.5 (customizable)
Sensitivity (nε)	0.5
Dynamic Range (dB)	30
Data Refresh Rate (kHz)	10-33
Number of Measurement Points per Channel	>500
Number of Channels	1 (customizable)
Fiber Optic Port	FC/APC

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3. Other Specifications

Parameter	ASIS-DAS-UWFBG
Communication Interface	Gigabit Ethernet
Operating System and Software	Windows 10/11, C#
Input Power	DC 12V/20W (full load)
Operating Temperature (℃)	0-50
Dimensions (mm)	230 × 180 × 45
Weight (kg)	1.85

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