

HDAS

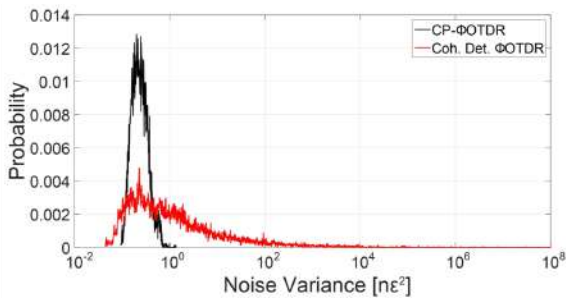
High-Fidelity Distributed Acoustic Sensor



HDAS

INTRODUCTION

Distributed fiber optic sensing (DFOS) is a disruptive technology set to change the way infrastructures are managed. DFOS can turn an optical fiber into thousands of sensors and monitor tens of kilometers of asset with a single interrogator, making it a very cost effective and non-intrusive solution that is being adopted by more industries every year. Among DFOS, Distributed Acoustic Sensing (DAS), which allows for the detection of vibrations along the fiber, is the one with a wider range of potential applications, both industrial (security, integrity, operation monitoring) and scientific (seismic, mechanical...). At Aragon Photonics we are set to provide scientists and engineers with the most advanced and configurable DAS system, the HDAS, so that they can use it as a tool to unlock new applications and knowledge.



TECHNOLOGY

HDAS is a revolutionary patented DFOS system that is able to detect temperature and strain changes (vibrations) instantly and with a linear response. HDAS provides instantaneous strain and temperature magnitude changes and a virtually undistorted signal with a very high sensitivity (1 nstrain) and reach (>70 km). HDAS stands out among competing DAS products thanks to its linearity, high performance and its unique capability to maintain a very homogeneous performance along all the fiber.

APPLICATIONS

At Aragon Photonics we have conceived the HDAS as an open platform to enable the development of applications for end-users in multiple sectors:

- Perimeter intrusion detection
- Third-party interference (TPI) detection
- Power cable monitoring
- Traffic monitoring (roads, railway, subway...)
- Seismic activity monitoring
- Subsea cable monitoring
- Asset integrity
- Oil, gas & water pipelines



High-fidelity Distributed Acoustic Sensor

KEY FEATURES

- Instantaneous strain and temperature measurement
- Up to 70 km reach
- 10 meter resolution
- High sensitivity 1 $\mu\epsilon$
- Linear measurements with no distortion
- Patented technology



SPECIFICATIONS

Measurement		
Wavelength		1550 nm
Strain resolution (noise rms)		< 1 $\mu\epsilon$
Spatial resolution		10 m
Sampling rate		200 – 4000 Hz
Reach	Basic configuration	>30 km
	Extended configuration (single end)	>50 km
	Extended configuration (requires termination box)	>70 km
System interfaces		
Default output optical connector (others on demand)		FC/SC
Data		Ethernet 1 Gb (x2), USB 3.0 (x2) + USB 2.0 (x2)
Video		VGA, HDMI
Physical & electrical		
HDAS Optical Unit	Size	19 inch rackable, 5 U, 50 cm depth
	Weight	<20 kg
HDAS Processing Unit	Size	19 inch rackable, 4 U, 40 cm depth
	Weight	<15 kg
	Power requirements	100/110/220 V , 50/60 Hz
	Power consumption	<800 W

INDUSTRIES & PRODUCTS



HDAS:
High-fidelity Distributed Acoustic Sensor



INCUS
Receiver tube spectrophotometer

CONDOR
Portable solar reflectometer



BOSA
High-resolution Optical Spectrum Analyzer

