

DATASHEET

DELTASENS R&D





Applications

Optics11 DeltaSens products have a large range of possible applications, including:

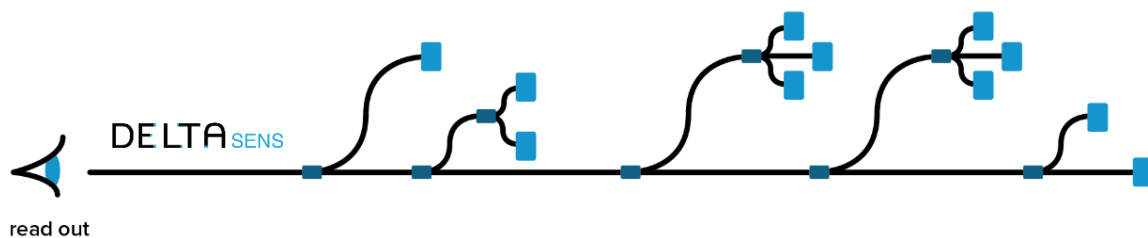
- Condition monitoring
- Seismology
- Oil and gas exploration
- Civil engineering
- Structural vibration monitoring
- High voltage facility monitoring
- Micro vibration and shaker test facilities
- High EMI or RFI areas

Description

DeltaSens is the solution for multiplexing Fabry-Pérot sensors while maintaining high sensitivity and acquisition speed. In combination with our fiber-top technology, it supports the measurement of a broad range of physical parameters such as accelerations, pressure, humidity, temperature, and even gas concentrations.

DeltaSens is a high tech optical system that simultaneously interrogates multiple Fabry-Pérot (FP) sensors, connected through an optical fiber network. By using just a single read-out to measure multiple transducers, DeltaSens provides a very affordable solution without compromising on the sensitivity. The distance between the sensors and/or read-out can vary from centimeters up to several kilometers.

DeltaSens uses interferometry to measure multiple low-finesse Fabry-Pérot sensors, and therefore provides a reduced cost per sensor. Our fiber-top sensor probes are all-optical and fully passive; no electrical signals are involved. Therefore these sensors can be used in harsh environments such as in high temperature, liquid environments or in presence of strong electrical and/or magnetic fields.



Main characteristics

- Multiplexing Fabry-Pérot sensors**
Connecting a large number of the most sensitive optical sensors in an optical network, reducing cabling and installation complexity.
- Remote sensing in extremely harsh environments**
Up to kilometers between sensors and interrogator and inherent immunity to all electromagnetic effects (EMI, RFI, sparks, etc.), intrinsic safety, and operable in liquids and extreme temperatures.
- Low cost per sensing point**
Having multiple sensors measures at the same time reduces costs per sensing point, which can be further optimised when adding optical switches to the network
- Measuring different parameters within a network**
Possibility to combine different sensor types while keep simultaneous measuring, like integrated temperature and pressure sensors or temperature combined acceleration sensors.

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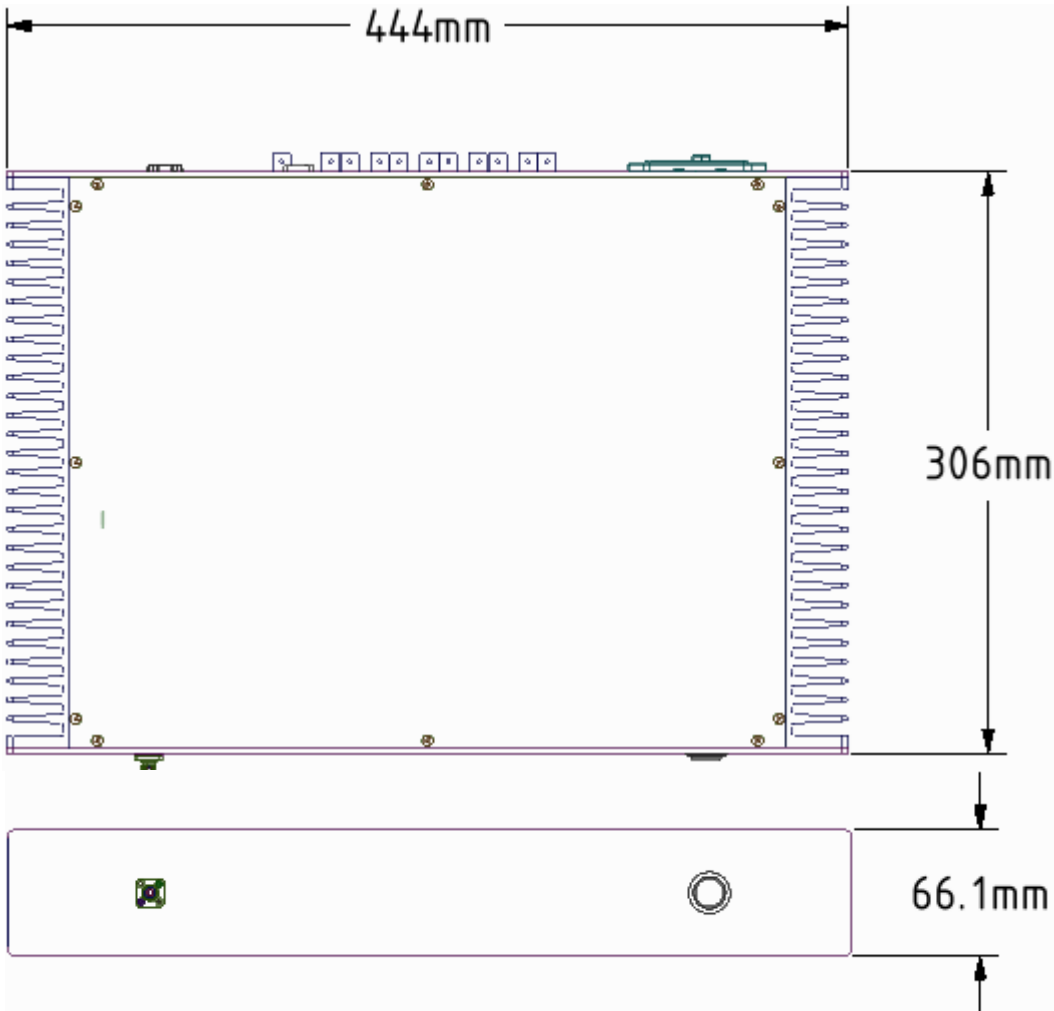
Performance	
Number of optical channels	1
Noise floor ¹	1 pm/ $\sqrt{\text{Hz}}$
Sampling speed	17 kHz
Frequency response sensors ²	DC to 8,5 kHz
Operation wavelength range	1510 nm to 1590 nm
Signal acquiring	True simultaneous
Sensors per channel	12
Signal resolution	64 bit digital / 16 bit analog
Dynamic range	154 dB @DC
Environmental	
Operating temperature	0 to 45 °C
Storage temperature	-10 to 70 °C
Maximum humidity	85% (non-condensing)
Recommended warm-up time	15 minutes
IP rating	IP52
Physical	
Dimensions (W x H x L)	444 mm x 66 mm x 306 mm (19 inch 1,5 U version available)
Max. weight	8 kg
Housing material	Aluminum
Input voltage	220 – 240 VAC, 0.8A 110 – 120 VAC, 1.6A
Power consumption ³	20 W
Input voltage frequency	50 – 60 Hz
Output interface / Port	Ethernet / RJ-45 Analog / BNC
Fiber port	FC/APC, 2.0 mm Narrow Key
Trigger interface	BNC
Trigger input /output	5V TTL, rising edge
Data properties	
Data output	Digital file (TDMS) and analog signal (± 10 V)
Software requirements	Intel Core i5 or equivalent, min. 4 GB RAM, display resolution min. 1920 x 1080

¹ The final noise floor of the system is a combination of the readout and the sensor.

² Independent to the amount of sensors connected to the readout

³ At room temperature

Dimensions



CONTACT
INFORMATION

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