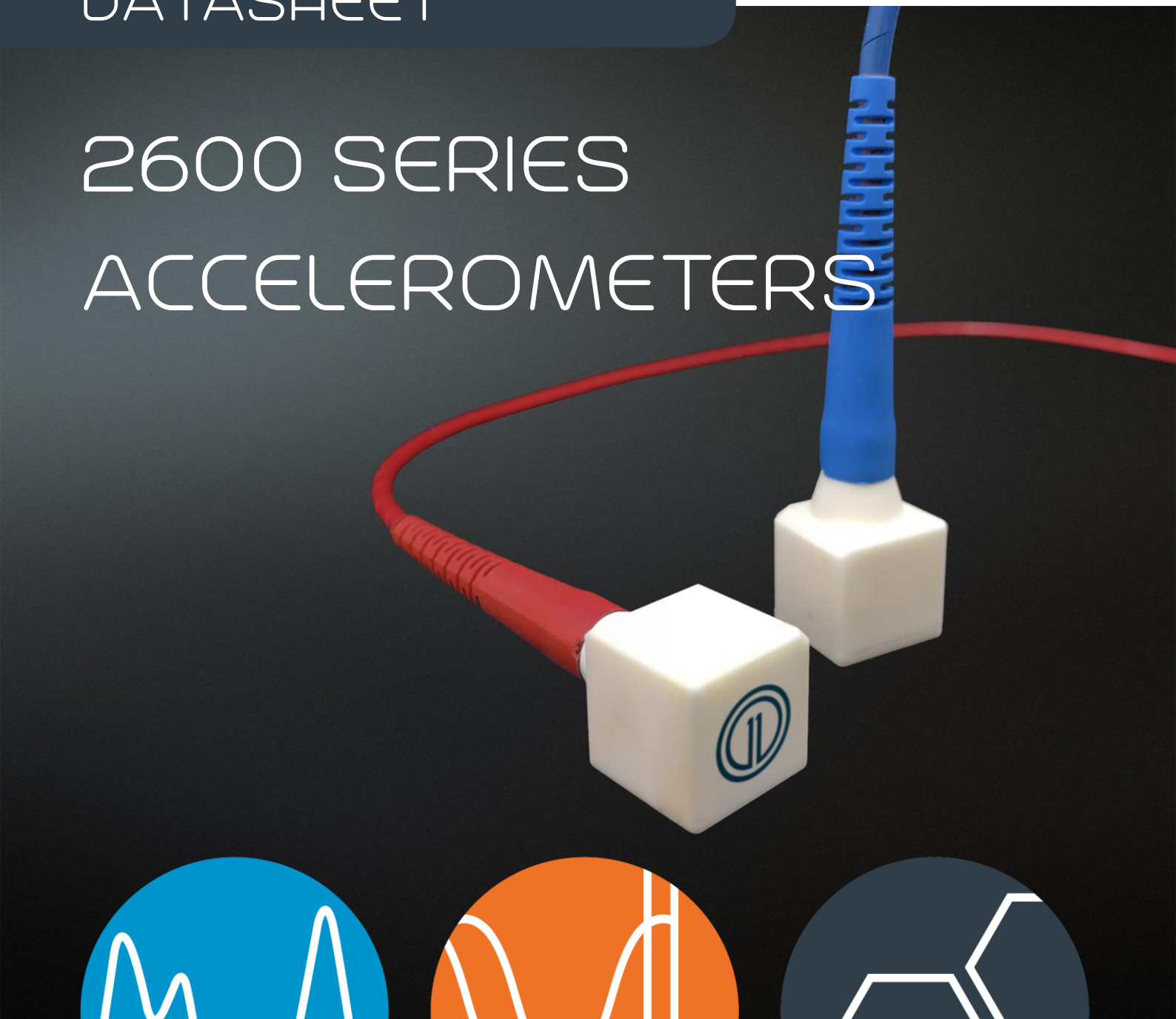
OPTICS11

DATASHEET

2600 SERIES ACCELEROMETERS



Applications

Optics11 acceleration sensors have a wide 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

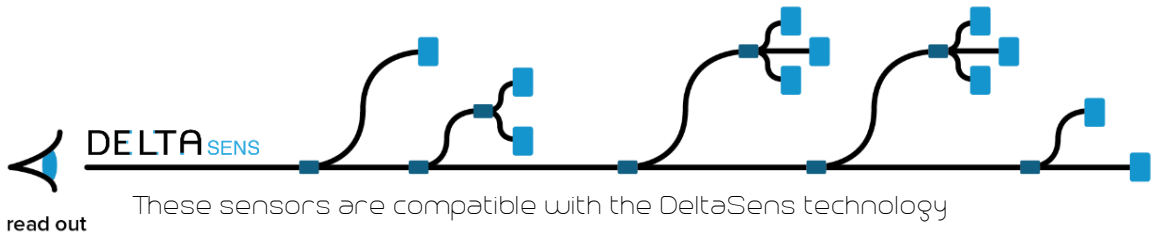
Description

All-optical fiber-based Fabry-Pérot sensors are ideal for a wide range of applications where the combination of high sensitivity and miniaturized dimensions is required.

Optical fiber sensors have proven to be of value in many industrial applications. This is mainly due to their intrinsic benefits such as ability to provide reliable data in strong EMI fields, extreme temperatures and remote operation without requirement of additional electronic equipment at the sensing location.

Optics11 accelerometers are designed to deliver long time reliable measurements for accelerations from DC up to more than 8000 Hertz. As the Fabry-Pérot is the most sensitive optical transducer on the market, our accelerometers are able to detect accelerations down to nano-g level. Connecting several sensors in a network is possible by using our unique patented readout technology (DeltaSens). Using this technology, it is even possible to integrate different sensor types to your measurement system, like temperature, pressure, or force.

The acceleration sensors are available in single or tri-axial configuration.



These sensors are compatible with the DeltaSens technology

Main characteristics

- *All-optical fiber based sensor*
  Inherent immunity to all electromagnetic effects (EMI, RFI, sparks, etc.), intrinsic safety, and operable in liquids and extreme temperatures.
- *High multiplexing capability*
  Connection of a large number of sensors to a single optical fiber, reducing network and installation complexity.
- *Small dimensions, non-metal housing and low weight*
  The sensors are packaged in small robust metal free housing with low weight minimizing the impact on the structure.
- *Remote sensing*
  Up to kilometers between sensors and interrogator.

2600 Series Accelerometers

Performance[1]	*Low frequency*	*High frequency*	*High range*
Range[2]	± 1 g	± 320 g	± 25 000 g
Sensitivity	24.9 µm/g	62.1 nm/g	0.77 nm/g
Frequency response ± 5 %	35 Hz	650 Hz	6 000 Hz
Frequency response ± 10 %	50 Hz	1 000 Hz	8 500 Hz
Resonance frequency	100 Hz	2 000 Hz	18 000 Hz
Spectral noise density[3]	40 ng/√Hz	16 µg/√Hz	1.3 mg/√Hz
Broadband noise floor	285 ng rms	500 µg rms	120 mg rms
Measurement axes (orthogonal)	1 or 3 axes		
Transverse sensitivity	< 1 %		
Non-linearity[4]	< 1 %		
Sampling rate	up to 17 kHz		
MTBF	> 120 000 hours		
Environmental			
Storage temperature	-40 to 80 °C		
Operating temperature	-40 to 80 °C (ST version)		
	-40 to 250 °C (HT version)		
IP rating	IP68		
Physical			
Dimensions[5]	15 x 15 x 26 mm		
Weight	11 gr		
Housing material	Ceramic (Alumina)		
Mounting method	Adhesive		
Fiber type	SMF, G.657.B3 standard		
Standard cable length	2 ± 0.1 m		
Cable jacket	PVC, 4.4 mm OD		
Cable bend radius	≥ 5 mm		
Connector	FC/APC		
Optical			
Visibility	90%		
Operation wavelength	C & L Band		

[1] Custom sensors available upon request.
[2] Range at 25 Hz, estimated based on sensor design.
[3] Based on DeltaSens interrogator noise floor.
[4] Measured with DeltaSens interrogator at 10 % of the resonance frequency.
[5] Ultra-compact sensors available upon request (down to 1.5 x 2 x 5 mm).

Mechanical drawing

Ceramic (alumina) / 11 grams / IP68 / 1 or 3 axes execution

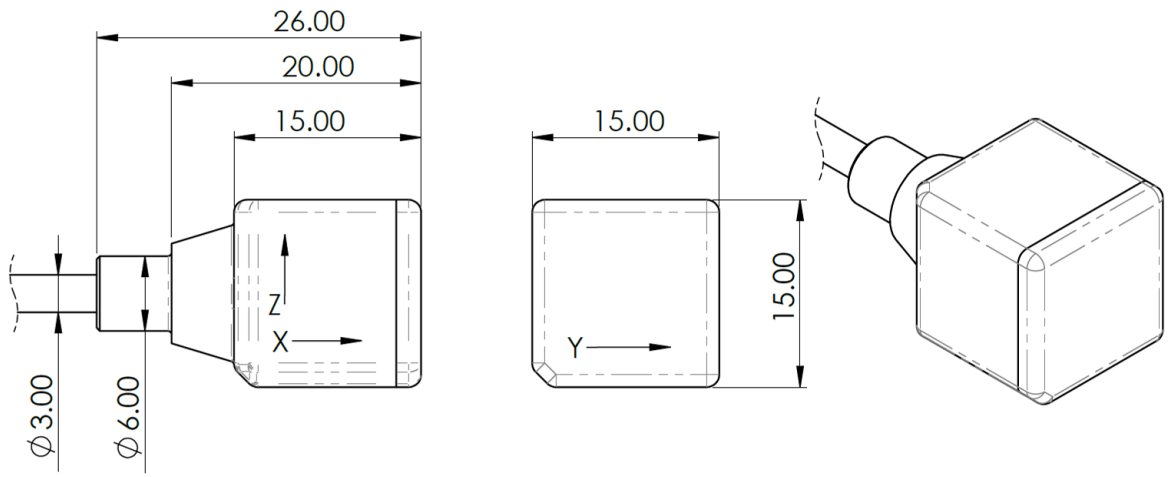


Figure 1: Sensor housing drawing, dimension in mm.

Ordering information

P/N 2600-RAFFF-TLL

R	Resonance frequency	1	100 Hz
		2	2 kHz
		3	18 kHz
A	Sensing direction	X	x-axis
		Z	z-axis
		T	triaxial

T	Operating temperature	S	-40 to 80 °C
		H	-40 to 250 °C
LL	Cable length	ST	2 ± 0.1 m
		03	3 ± 0.1 m
	Note: cable lengths are available from 2 to 15 meters.	04	4 ± 0.1 m
		…	…

FFF Sensor footprint

Note: in a single network a letter cannot appear twice, see also image below.

Example:
- *ABC & GHI & 00K* ✓
- *00C & 00D & DEF* ✗

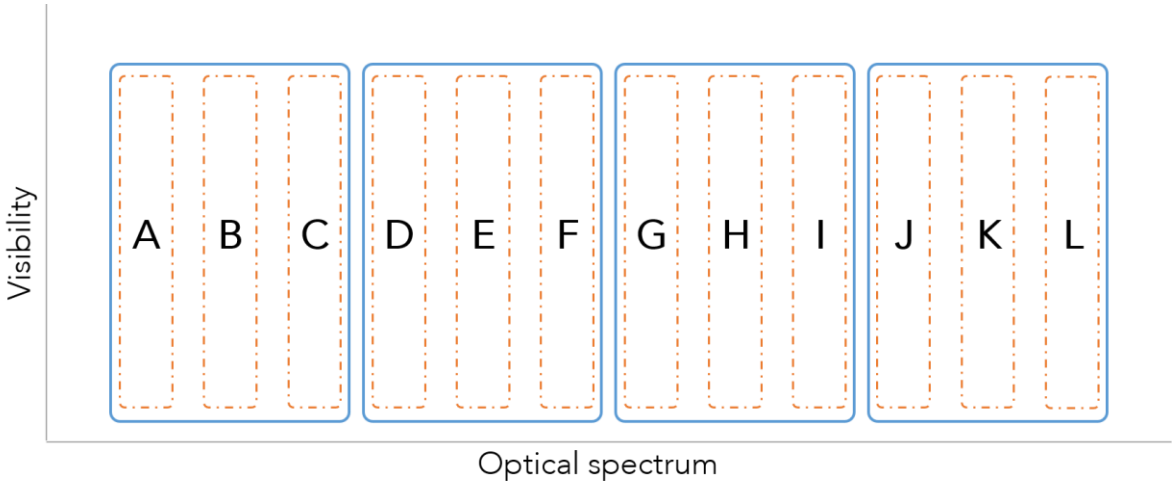
0	0	A	Single axis
0	0	B	
0	0	C	
0	0	D	
0	0	E	
0	0	F	
0	0	G	
0	0	H	
0	0	I	
0	0	J	
0	0	K	
0	0	L	
A	B	C	Triaxial
D	E	F	
G	H	I	
J	K	L	

Ordering examples

2600-2TGHI-H05
- 2 kHz resonance frequency
- Tri-axial acceleration sensor
- High operating temperature, 5 m cable length

2600-1X00E-SST
- 100 Hz resonance frequency, X sensing axis
- Single axis acceleration sensor
- Std operating temperature, 2 m cable length

* Please contact us for more information about ordering options.



3D sensor optical footprint
1D sensor optical footprint

* For simultaneous measurement sensors cannot overlap in optical spectrum

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