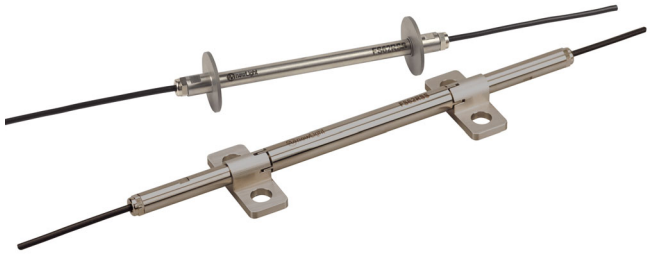
DATA SHEET

FS62RSS
Rugged Strain Sensor

SPECIAL FEATURES

- Easy and straightforward installation
- Efficient anchoring by means of disks for embedding or feet for bolting
- Configurable wavelengths, cable lengths and connector types



DESCRIPTION

The Rugged Strain Sensor is a Fiber Bragg Grating (FBG) based sensor designed as a robust solution with outdoor cable. Select embedded option for casting in wet concrete mixture or surface mount for bolting to flat surfaces.

The FS62RSS is based on the newLight® technology developed by HBK FiberSensing. newLight sensors employ high strength fiber coatings ensuring increased strain ranges, enhanced fatigue resistance and higher measurement accuracy. HBK FiberSensing offers innovative sensor designs compatible with standard telecommunication fibers. This eases network design and significantly reduces installation time and cost, even when a large number of sensors are multiplexed on the same fiber, sometimes kilometers apart. The technology is completely passive - fitting explosive environments -, self-referenced - providing measurement long term stability -, and compatible with most interrogators in the market.

Combine this with other strain and temperature sensors from HBK FiberSensing with armor cables by using the configurator K-FS76ARM.

BENEFITS AND APPLICATIONS

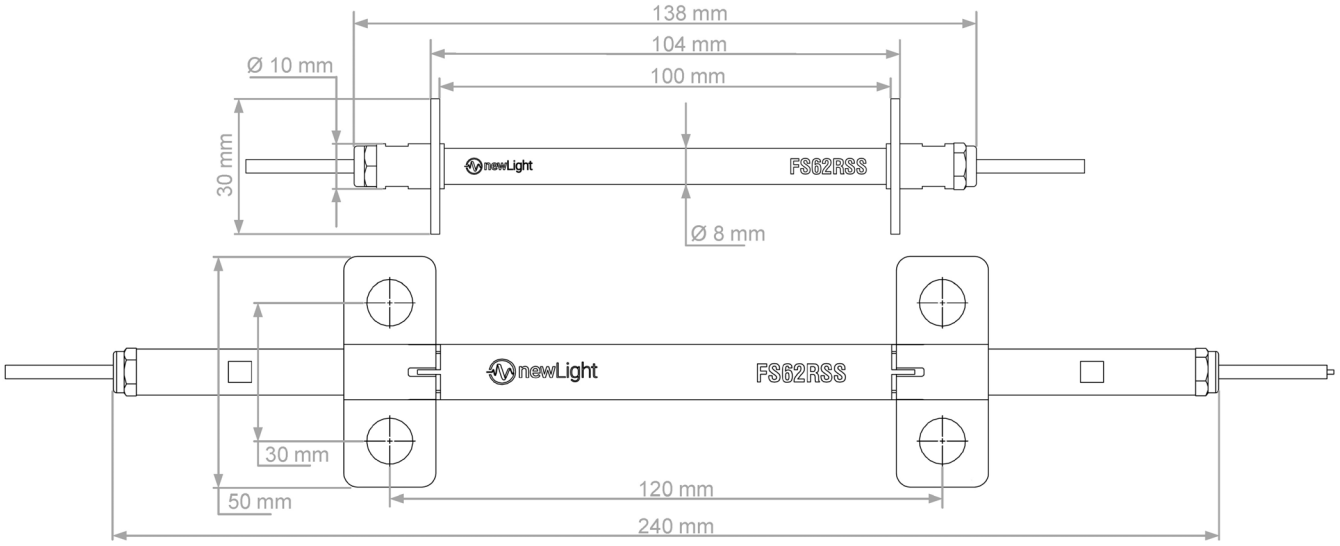
Sensor design

- Reusable version with surface mount option
- Strain measured over the full anchoring length
- Suited for outdoor applications and embedding in concrete with IP68 protection
- Fitting applications from R&D to structural health monitoring of large structures across several industries (civil engineering, wind...)

Fiber Bragg grating technology

- No drift, absolute referenced measurements
- Immune to electro-magnetic and radio frequency interferences
- Passive technology fitting applications in explosive areas
- Reduced cable requirements with intrinsic multiplexing capability
- Long distances between sensors and the interrogators attainable
- Combinable with other FBG sensor types on the same fiber and same interrogator

DIMENSIONS



SPECIFICATIONS

Sensor		Embedded	Surface Mount
k-factor[1)]	n.a.	0.96±0.03	0.7±0.04
Sensitivity[2)]	pm/(µm/m)	1.5	1.1
Resolution[3)]	µm/m	0.3	0.5
Measurement range	µm/m [%]	±2500 [0.25]	±5000 [0.5]
Gauge length	mm	104	120
Load per milistrain	N/(mm/m)	600	22
Transverse sensitivity	%	0	
Operation and storage temperature	°C	-20 … +80	
Temperature cross sensitivity[4)]	(µm/m)/°C	5.8±1	11±1
Sensor bend radius	mm	Cannot be bent	
Degree of protection[5)]	n.a.	IP68	
Attachment method	n.a.	Directly cast; Cable ties	Bolted (M6)
Dimensions	mm	140±0.5 x Ø30±0.5	240±0.5 x Ø50±0.5
Weight[6)]	g	112	236
Main materials[7)]	n.a.	Stainless steel, ormocer®	Stainless steel, ormocer®, peek
Bragg wavelengths	nm	1500 … 1600 (±0.75)	
Fiber type	n.a.	SMF-28 compatible	
Fiber cladding and coating diameter	µm	125/195	
FWHM, reflectivity and side lobe suppression	n.a.	≤ 0.3 nm, 21±4%, > 10 dB	
Inputs / Outputs			
Cable type	n.a.	Ø 3 mm armor (Hytrel, stainless steel spiral, Kevlar®, stainless steel mesh and LDPE)	
Cable bend radius[8)]	mm	> 30	
Cable length[9)]	m	0 … 20	
Connectors	n.a.	FC/APC, SC/APC or NC (No Connectors)	

ORDERING INFORMATION

Configurable Item **K-FS62RSS** – 1 – 2 3 – 4 – 5 6	
Options	
1	**E** - Embedded; **SM** - Surface Mount
2	**NC** - No connector; **FC** - FC/APC; **SC** - SC/APC
3	0.5 m ≤ **Cable length** ≤ 20 m @0.5 m steps
4	1510 nm ≤ **Wavelength**[10)] ≤ 1590 nm @10 nm steps
5	0.5 m ≤ **Cable Length** ≤ 20 m @0.5 m steps
6	**NC** - No connector; **FC** - FC/APC; **SC** - SC/APC

1) Surface mount sensor measured strain on the bending surfaces needs correction due to height of the sensing element relative to the measurement surface. Please refer to the installation instructions for further details.
2) Typical. Considering an FBG with 1550 nm wavelength.
3) For 0.5 pm resolution in wavelength measurement, as found in FS22SI interrogator.
4) Temperature Cross Sensitivity (TCS) is the thermal strain induced by a 1 °C change in temperature.
5) DIN EN 60529.
6) With 2 m cable each side and no connectors.
7) The full composition of the sensor including cable, complies with RoHS, REACH, Conflict Minerals and fire propagation prevention directives.
8) Induced loss due to one complete turn around a mandrel lower than 0.05 dB.
9) For cables longer than 2 m, a splice with polyimide protection is included at 2 m from the sensor (Ø 8x150 mm). Specified cable length is ensured on delivery. A margin of up to 10 cm can be present. Extension cables are delivered with acrylate coated fiber. For different cable lengths or splice position please contact HBK FiberSensing.
10) For different wavelengths please contact HBK FiberSensing.

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