

## FEATURES

- Built-in 1 single- and 1 multi-mode optical fibers
- Strain and Raman-based DTS measurement
- Non-slippery embossed sheath
- CALIBRATED WITH HIGH-PRECISION NEUBREScope INTERROGATOR
- Flexible, Easy handling on site and tensile strength up to 40 kg-f
- Length marks for easy identification of installation



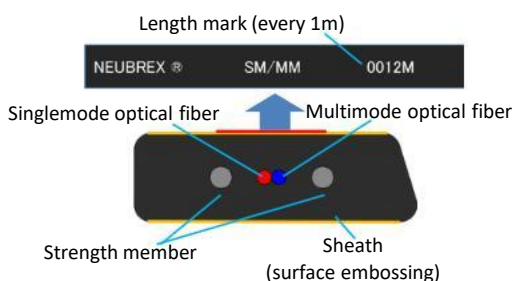
The FN-EBSM-02 is a strain and temperature sensing cable designed for distributed fiber optics sensing. It offers excellent, linear responses to mechanical and/or thermal loads, providing accurate strain or temperature measurements. By incorporating one singlemode and one multimode optical fibers in the center of the cable, it allows one not only to obtain very accurate strain and temperature measurements, but also to perform a temperature compensation. Its embossed surface enables very good adhesion to measured object, preventing any slippage. In addition, two strength members provide a tensile strength up to 40 kg force.

The resin sheath of FN-EBSM-02 is flexible and easy to bend. Optical fibers can be easily extracted for splicing. The length marks on cable make the installation and position identification easy and efficient.

## Applications

- Distributed Strain / Displacement measurements
- BOTDA measurements with double-end connections
- Distributed Temperature measurement by DTS
- Measurement requiring temperature compensation
- Embedding in concrete, installation on rebar
- Fixing to the surface of pipes / structures
- Installation in borehole
- Monitoring of floor slabs, shoring, piles, etc.
- Monitoring of the ground, seabed, etc.

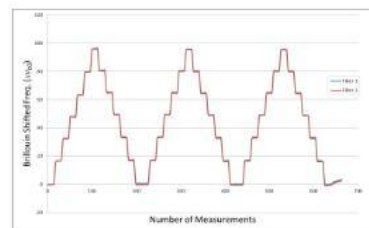
## Structure Diagram



## Supports NEUBREScope's high-precision measurement

The FN-EBSM-02 is calibrated with state-of-the-art NEUBREScope's Brillouin and Rayleigh sensing technology. It has excellent characteristics that supports not only Brillouin scattering measurement (BOTDR, BOTDA method) but also high-precision Rayleigh scattering measurement (TW-COTDR method).

The Figure right presents measurements results in both fibers subject to 40 hours of thermal load test (20-80-20C, with 10C step). In total, 640,000+ data points were available for hysteresis effects analysis. The results clearly demonstrate that the cable maintained its structure and reinforcing members maintained both elongation and deformation characteristics during temperature increase and decrease.



\* The measurement performance of Multimode optical fiber depends on the specs of DTS interrogator used.

Embedded in concrete structures



Tied to rebar of concrete



Winded on the casing pipe

## Specification FN-EBSM-02

Optical fiber type	10 / 125 $\mu$ m SMF 50 / 125 $\mu$ m MMF
Number of Optical fibers	2
Attenuation	(SMF) < 0.5 dB/km (MMF) < 0.7 dB/km
Strain Sensing Range*( $\Delta\epsilon$ )	5000 $\mu\epsilon$
Temperature Sensing Range	-20 to +80 C
Bending radius	> 40 mm
Outer sheath	Thermoplastic elastomers
Strength member	$\phi$ 0.4mm, SUS304x2
Tensile strength	40 kg-f
Dimensions (W x H)	5.1 x 1.7 mm
Weight	13 g / m
Length mark	Yes (1m interval)
Operating temperature	-20 to +80 C
Storage temperature	-40 to +85 C

\* Depends on cable installation. Please contact us for more information.

\*\* All specifications are subject to change without notice.

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