Give you a feel®

When every point of the optical fiber is a sensor

Neural Optical Fiber Scope

NEUBRESCOPE *NBX-5101*

The 80km Long Measurement Distance Brillouin OTDR for distribution fiberoptic Strain and/or Temperature, and Coherence OTDR for optical link loss measurement

- Long measurement distance range up to **80km**
- **Built-in 1x2 optical switch** for dual fibers measurement
- Measurement Repeatability: **7.5με / 0.25 °C**
- **Measurement Speed** up to **10 times/sec**

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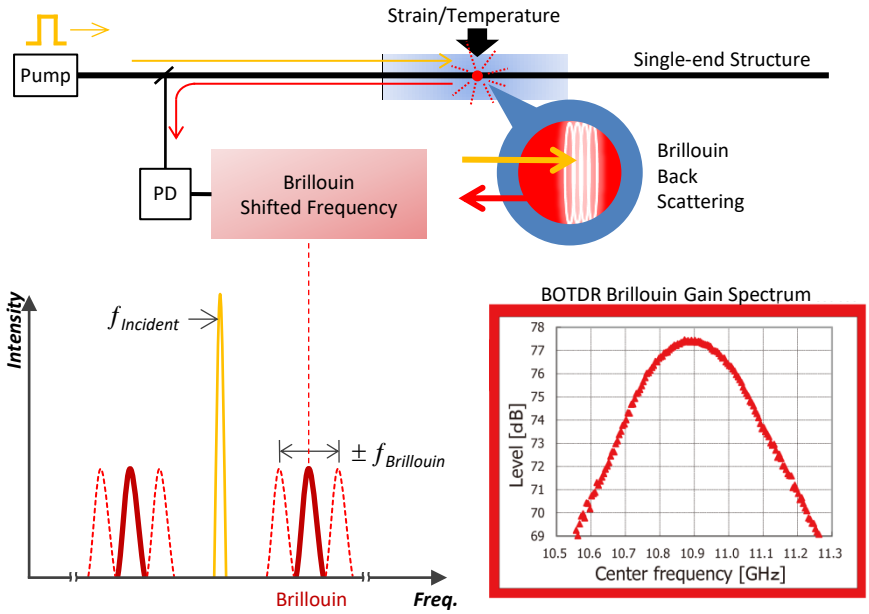
Key Features

- The 80km measurement distance in both BOTDR and COTDR measurement.
- Built-in 1x2 optical switch for dual fiber measurement, enables the total measurement distance up to 160km.
- Spatial resolution as high as 50cm.
- Fastest measurement speed is 10 time per second.

Brillouin Back Scattering & BOTDR



The NEUBRESCOPE NBX-5101 is single-ended Brillouin OTDR for fiberoptic distributed Strain and Temperature measurement.

NBX-5101 calculates the shifted frequency from the Brillouin center frequency and convert shifted volume into strain/temperature values according to the know-how and researches of Neubrex Technology.

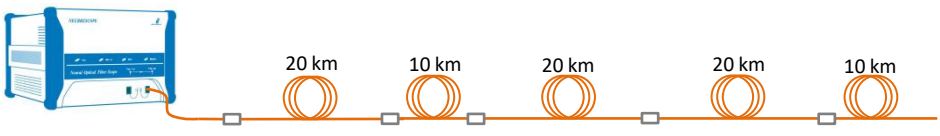
As well the responding time of backscattering is converted into distance, the activated event of the strain and temperature can be measured.

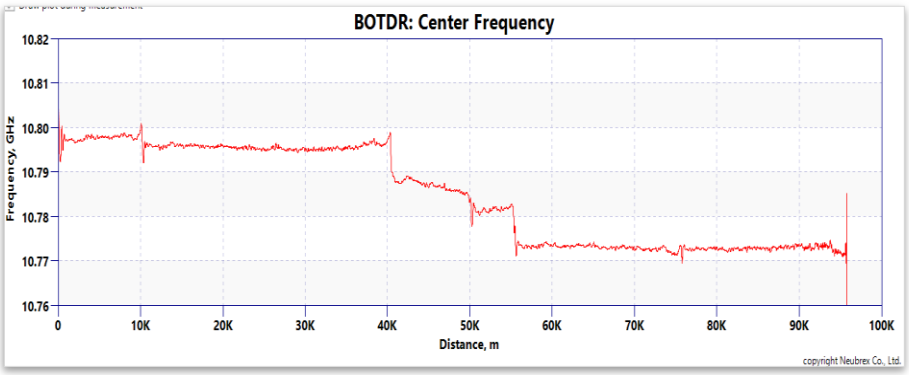
Long Distance Measurement

The NBX-5101 is capable to measure the distance up to 80km either by Brillouin OTDR or by Coherence OTDR.

The test configuration as set by several fibers attached together as the real fiber line. The strain difference is showing for identification of each fiber segment.

The maximum measurement distance is up to 80km with the pulse width is set at 1000ns. The NBX-5101 gives 2.5 times longer range than Neubrex model before.





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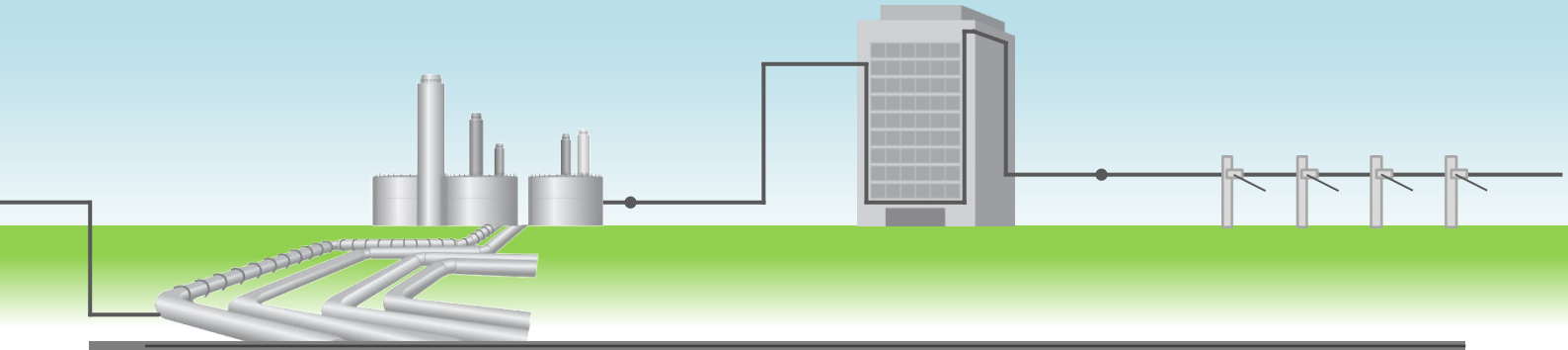
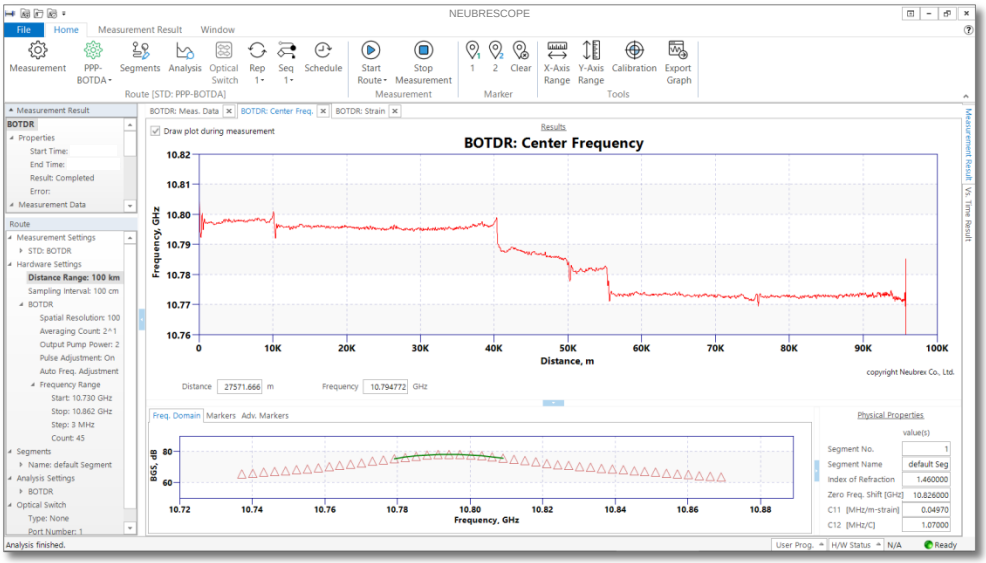


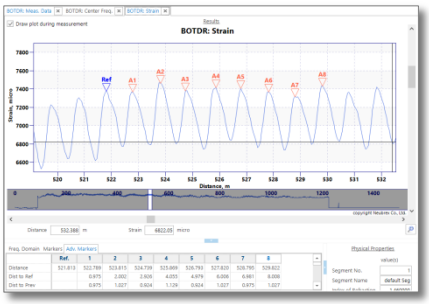
Software and Operation User Interface

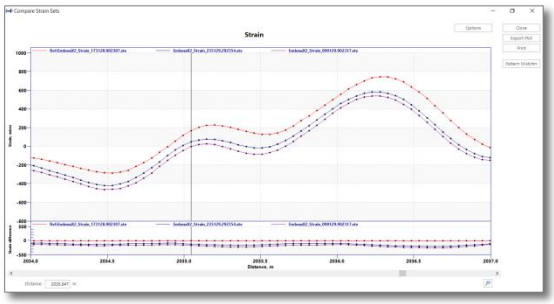
The NBX-5101 has built-in processor and controller circuits in the box.

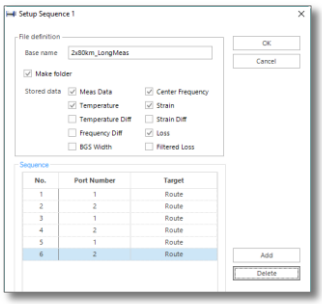
The measurement results and control commands are easily going through the RJ-45 interface and TCP/IP setting.

The NEUBRESCOPE operation software with the enhanced user interface compatible with latest MS-Windows version. And now, the NEUBRESCOPE is providing the intuitional operation experiences than before.





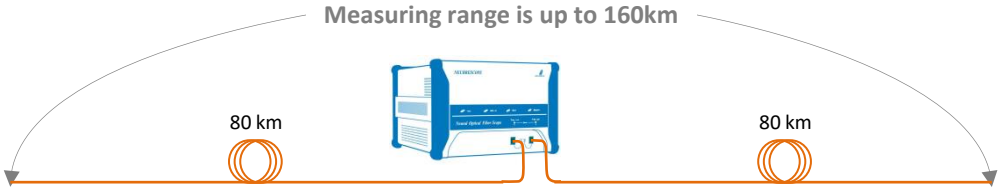




Configurations & Applications

In addition to the capability of 80km measurement in a single fiber, the NBX-5101 is able to measure two fibers by using built-in 1x2 optical switch.

By the setting and the operation of the Sequence Mode in the NEUBRESCOPE software, the measurement results from two fibers can be kept. It gives the total distance up to 160km.



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Specifications NBX-5101

Laser Wavelength	1550nm ± 2nm							
Distance Range	100m to 100km							
Measurement Frequency Range	9 to 13 GHz							
Strain Management Range	-30,000 to +40,000 με (-3% to 4%)							
Temperature Measurement Range	-150 °C to +600 °C (fiber dependent)							
Frequency Scanning Step	5, 10, 20, 50 MHz							
Readout Resolution	5 cm (minimum)							
Sampling Points	600,000 (maximum)							
Pump Output Power (Max.)	30 dBm							
Average Count Setting	2^8 to 2^{24} (incl. 2^{16} hardware counting)							
Pulse Width (ns)	5	10	20	50	100	200	500	1000
Spatial Resolution (m)	0.5	1	2	5	10	20	50	100
Function	BOTDR							
BOTDR Dynamic Range (dB) *1	3	5	8	12	15	16	22	24
BOTDR Measurement Distance (km) *2	10	15	25	40	45	50	70	80
Function	COTDR							
COTDR Dynamic Range (dB) *1	10	13	16	20	23	26	30	30
COTDR Measurement Distance (km) *2	27	27	50	60	70	80	80	80
Strain Accuracy (1σ) *3	± 20 με		± 15 με					
Temperature Accuracy (1σ) *3 *4	± 1.0 °C		± 0.5 °C					
Repeatability *3*4*5	±10με / ±0.5°C		±7.5 με / ±0.25 °C					
Fiber Channel	2							
Fiber Connector	FC/APC							
Input/output Interface	USB 3.0 x4, LAN x2, RGB x1							
Power Supply	100-240 VAC, 50/60 Hz, 250 VA							
Laser Class	Class 1 (IEC60825-1 : 2001)							
Dimensions / Weight	456 (W) × 485 (D) × 286 (H) mm / 30 kg							
Operating Environment	10 to 35 °C, RH < 85 % (none condensation)							
Storage Temperature	0 to 50 °C (32 to 122°F)							
Place of Production	Japan							

*1: Based on 2^{15} average cycles .
*2: Based on average fiber loss of 0.3 dB/km using single mode fiber.
*3: Based on the measurement of strain free, UV coated fiber.
*4: Based on the measurement of strain free, UV coated fiber and in constant temperature environment.
*5: The maximum standard deviation of measurement value in 5 consecutive measurements for 100 consecutive points.

* The specifications above and accessories layout are subject to change without notice. (20171225, A4)

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