

Specifications NBX-6020A

Laser Wavelength	1550 ±2 nm			
Distance Range	50 m, 100 m, 250 m, 500 m, 1 km, 2.5 km, 5 km, 10 km			
Measurement Frequency Range	9~13 GHz			
Range of Strain Measurement	-30,000 to +40,000 $\mu\epsilon$ (-3 % to +4 %)			
Measurement Frequency Scan Step	1, 2, 5, 10, 20, 50 MHz			
Readout Resolution	5 cm (default), 1 cm (minimum)			
Sampling Points	600,000 (default), 3,000,000 (maximum)			
Average Count Settings	$2^5 \sim 2^{23}$ times (inc. Hardware Average Count 2^{16})			
Pulse Width	0.2 ns	0.5 ns	1 ns	2 ns
Spatial Resolution	2 cm	5 cm	10 cm	20 cm
Dynamic Range ⁽¹⁾	0.5 dB	1 dB	1.5 dB	3 dB
Max. Measurement Distance ⁽²⁾	0.5 km	1 km	2 km	5 km
Optical Budget ⁽¹⁾⁽⁵⁾	2 dB	3 dB	5 dB	7 dB
Measurement Accuracy ⁽³⁾⁽⁴⁾	15 $\mu\epsilon$ / 0.75 °C		7.5 $\mu\epsilon$ / 0.35 °C	
Repeatability ⁽³⁾⁽⁴⁾⁽⁵⁾	10 $\mu\epsilon$ / 0.5 °C		2.4 $\mu\epsilon$ / 0.1 °C	
Measurement Time ⁽⁶⁾	10 seconds (minimum, Readout Resolution: 5cm)			
	60 seconds (minimum, Readout Resolution: 1cm)			
Signal Terminal	Input-Output Fiber	Single mode optical fiber		
	Fiber Connector	FC-APC / SC-APC (factory option)		
Suitable Fiber	Single mode optical fiber			
Power Supply	AC100~240V 50/60Hz 250VA			
Laser Class	Class 1 (IEC60825-1: 2001)			
Dimensions / Weight	approx. 456 (W) × 485 (D) × 286 (H) mm / 30 kg			
Operating Temperature	10~35 °C, Humidity below 85% (no dew condensation)			
Storage Temperature	0~50 °C			
Place of Production	Japan			

(1) Based on 2^{15} average cycles by progressive measurement mode.

(2) Based on average fiber loss of 0.3 dB/km using Single mode optical 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.

(6) The settings of 50 m distance range, 2^{14} count settings, 41 scanning steps excluding the time for Pulse Adjustment.

(1) - (5) are all based on a frequency scan step of 5 MHz and with Pulse Adjustment and Auto Frequency Adjustment on.

*Specifications are subject to change without notice.

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When every point of the optical fiber is a sensor

Neural Optical Fiber Scope

NEUBREScope NBX-6020A

NEW

Pulse- PrePump Technique in BOTDA to measure strain and / or temperature

Now operated from
laptop computer
for easy in-the-field use



Now operated from laptop computer for easy in-the-field use

Spatial resolution: **2 cm** / Sampling resolution **1 cm**

Repeatability of strain measurement: **10 $\mu\epsilon$**

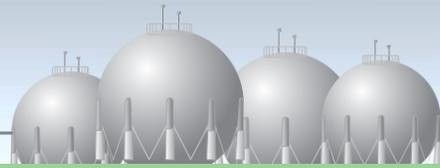
Repeatability of temperature measurement: **0.5 °C**

Measurement speed (up to 2,000 sampling points): **10 seconds**

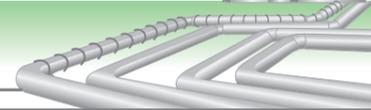




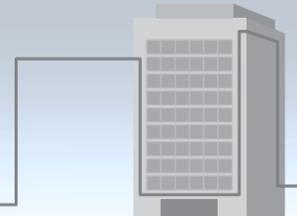
Segment 1



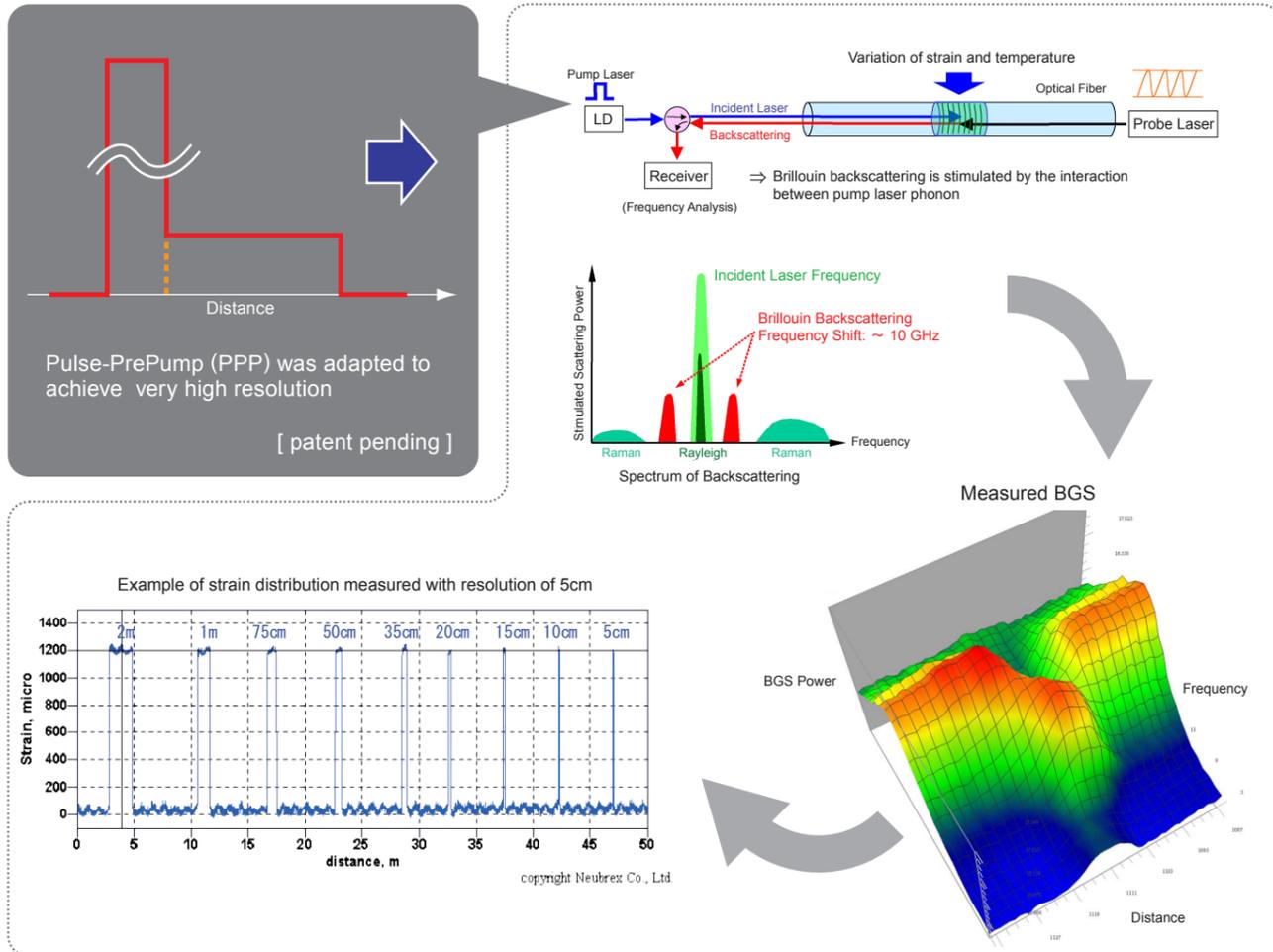
Segment 2



Segment 3



Principle of PPP-BOTDA



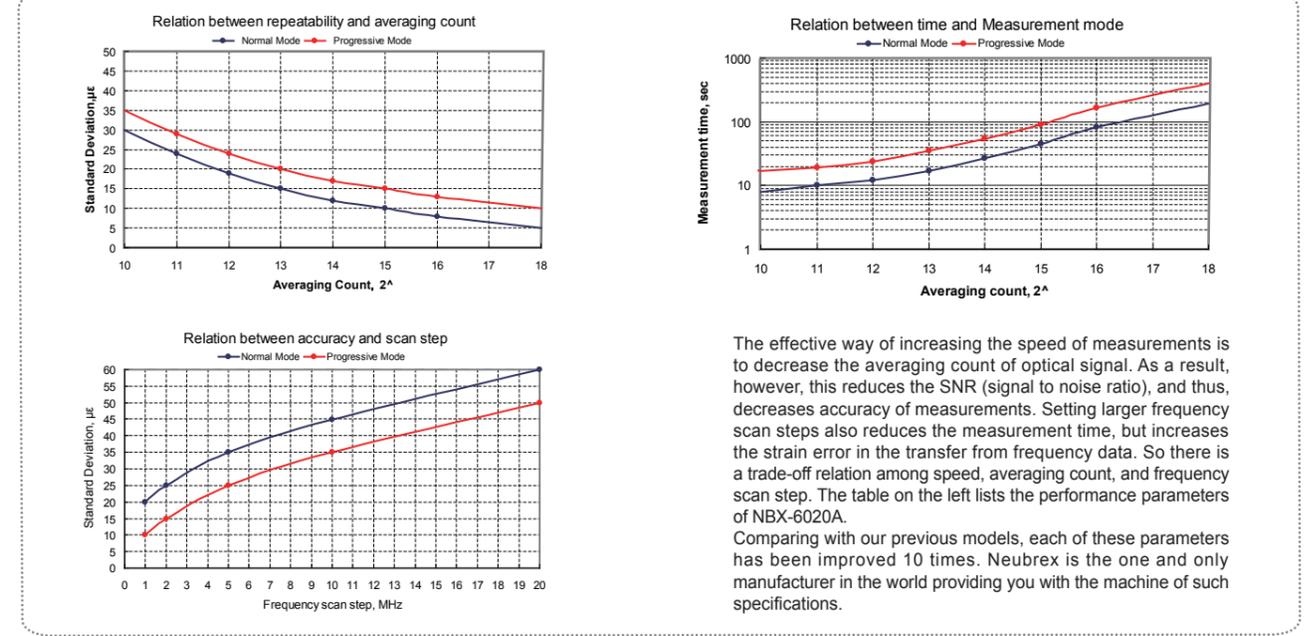
Neubrex technology of PPP-BOTDA successfully increases the spatial resolution and strain accuracy one-order higher than previous products. This is the only one technology in the world.

Open Architecture



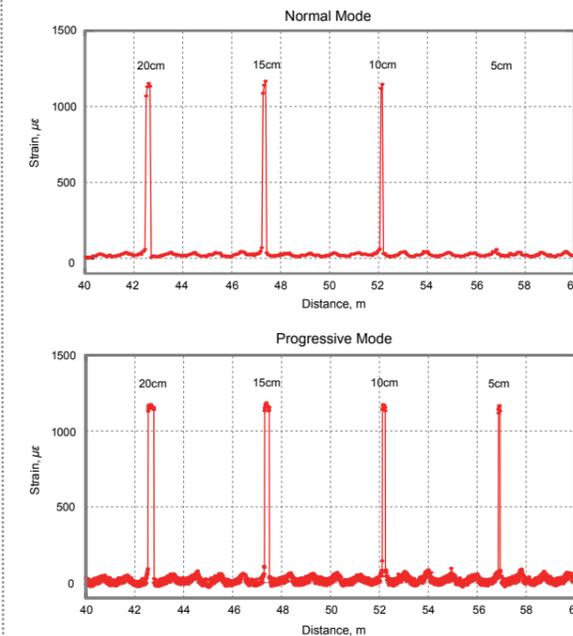
- Open Architecture (OA), allows User to customize, automate, and extend the standard capabilities of NEUBRESCOPE software
- .NET Remoting in communication layer

Accuracy



Normal / Progressive Mode

In progressive mode, high spatial resolution is achieved by using specially designed pulse pre-pump scheme, resulting in signal power level higher by 1.5 dB than that of Normal mode.



Readout Resolution

1cm data sampling allows one to considerably improve the detection accuracy of highly varying strain/temperature distribution.

