

Give you a feel[®]
When every point of the optical fiber is a sensor

Neural Optical Fiber Scope

NEUBRESCOPE *NBX-SR7100 and NBX-SB7100 series*
Optical Fiber Distributed Strain and Temperature measurement (Raileigh and Brillouin method)



NBX-SR7100 series PC TW-COTDR technical specifications

Function	Property					
Function	PC TW-COTDR (including TW-COTDR)					
Laser wavelength	1553.328 nm ~ 1561.419 nm					
Measurement Type	Temperature ; Strain					
Main Feature	COTDR, TW-COTDR, PC TW-COTDR					
Distance Range	50 m ~ 10 km					
Measurement Frequency Range	192,000.000 ~ 193,000.000 GHz					
Range of Strain Measurement *8	-3,000 $\mu\epsilon$ to +3,000 $\mu\epsilon$					
Range of Temperature Measurements	-100° to +400° C (fiber dependent)					
Range of Frequency Measurements	10 GHz ~ 1.0 THz					
Measurement Frequency Scan Step	4 MHz ~ 500 MHz					
Readout Resolution	5 cm (default), 10 cm, 20 cm					
Average Count Settings	2 ⁰ ~ 2 ¹⁶ times (Hardware Average)					
Measurement Model	TW-COTDR			PC TW-COTDR		
Output Power	+27dBm			+22 dBm		
Pulse Width	2 ns	5 ns	10 ns	2ns	5 ns	10 ns
Spatial Resolution	20 cm	50 cm	1 m	20 cm	50 cm	1 m
Dynamic Range *1	3 dB	6 dB	9 dB	4 dB	7 dB	10 dB
Max. Measurement Distance *2	10 km	10 km	10 km	10 km	10 km	10 km
Optical Budget *1 *7	5 dB	8 dB	11 dB	6 dB	9 dB	12 dB
Measurement Accuracy *3 *4	10n ϵ / 0.001° C					
Repeatability *3 *4 *5	5n ϵ / 0.0005° C					
Measurement Time *6	≥30 seconds (minimum)					
Input – output Fiber	Single mode optical fiber					
Fiber Connector	FC/APC (Factory default) , SC-APC (Factory option)					
Suitable Fiber	Single mode optical fiber					
Power Supply	AC 100 ~ 240V 50/60 Hz 350 VA					
Laser Class	Class 1 (IEC60825-1 : 2001)					
Dimensions / Weight	approx. 450(W) × 685(D) × 295(H) mm / 35 kg					
Operating Temperature	10 ~ 35° C, Humidity below 85 % (no dew condensation)					
Storage Temperature	0 ~ 50° C					
Place of Production	Japan					

*1 Based on 2¹² average cycles (TW-COTDR and PC TW-COTDR)

*2 Based on average fiber loss of 0.3 dB/km using single mode fiber (UV-coated).

*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 100m measurement range, 2¹² count settings, 401 scanning steps excluding the time for Pulse Adjustment

*7 Within the Allowable range adjusted by the optical power excluding the case of nonlinear phenomena.

*8 Optical frequency calibration with built-in gas cell.

*1-5 are all based on a frequency scan step of 100 MHz for PC TW-COTDR, TW-COTDR and with Pulse Adjustment on.

* Specifications are subject to change without notice.

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NBX-SB7100 series PC-PSP-BOTDR technical specifications

Function	Property	
Main Function	Coded PSP-BOTDR (include PSP-BOTDR)	
Laser wavelength	1550 ± 2 nm	
Distance Range	100 m ~ 3 km (100 m step), 3 km ~ 10 km (1 km step)	
Measurement Frequency Range	9 ~ 13 GHz (Range : 1 GHz)	
Range of Strain Measurement	-4,000µε to +4,000 µε (-0.4% to +0.4%)	
Range of Temperature Measurements	-100 to +400 ° C (fiber dependent)	
Frequency Step	4 MHz, 8 MHz, 16 MHz	
Readout Resolution	5 cm (default), 10 cm, 20 cm	
Sampling Points	200,000 (default); 100,000; 50,000	
Average Count Settings	2 ⁵ ~ 2 ²³ times (including Hardware Average Count 2 ⁵ ~ 2 ¹⁶)	
Output Power	+22dBm	
Pulse Width	2ns	5ns
Spatial Resolution	20 cm	50 cm
Dynamic Range	2.5 dB	4 dB
Max. Measurement Distance *2	7 km	10 km
Optical Budget *1 *8	4 dB	6 dB
Measurement Accuracy *3 *4 *7	8 µε / 0.4° C	5 µε / 0.25° C
Repeatability *3 *4 *5 *7	6 µε / 0.3° C	4 µε / 0.2° C
Measurement Time *6	<30 seconds	
Input – output Fiber	Single mode optical fiber	
Fiber Connector	FC/APC (Factory default) , SC-APC (Factory option)	
Control Interface	Ethernet RJ-45 x1 / USB 2.0 (type-A) x2	
Power Supply	AC 100 ~ 240V 50/60 Hz 350 VA	
Laser Class	Class 1 (IEC60825-1 : 2001)	
Dimensions / Weight	approx. 450(W) × 685(D) × 295(H) mm / 35 kg	
Operating Temperature	10 ~ 35 ° C, Humidity below 85 % (no dew condensation)	
Storage Temperature	0 ~ 50 ° C	
Place of Production	Japan	

*1 Based on 2¹⁶ average cycles

*2 Based on average fiber loss of 0.3 dB/km using single mode fiber (UV-coated).

*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 100m measurement range, 2¹⁶ count settings, 4 MHz frequency step excluding the time for Pulse Adjustment

*7 Based on 2¹⁸ average cycles

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