Data Sheet

Neubrescope NBX-5000 (BOTDR)



|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Type of Document | Date | Document ID | Version | Status |
| Data Sheet | 15/10/2014 | DS – Cable01 | v1 | Under review |

Contact: C. Kechavarzi

**Centre for Smart Infrastructure & Construction**

University of Cambridge  
Department of Engineering  
Trumpington Street  
Cambridge CB2 1PZ  
United Kingdom

www-smartinfrastructure.eng.cam.ac.uk

# Neubrescope NBX-5000 – Manufacturer’s specifications

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Number of channels | | 2 | | | |
| Connectors | | FC / APC | | | |
| Laser Wavelength | | 1550±2 nm | | | |
| Distance Range | | 50m ~ 27 km | | | |
| Measurement Frequency Range | | 9～13 GHz | | | |
| Range of Strain Measurements | | -3% to +4% | | | |
| Measurement Frequency Scan Step | | 1, 2, 5, 10, 20, 50MHz | | | |
| Readout Resolution | | 5 cm (minimum) | | | |
| Sampling Points | | 600,000 (default), 3,000,000 (maximum) | | | |
| Average Count Settings | | 25～223 times (inc. Hardware Average Count 216) | | | |
| Function |  | BOTDR | | | |
| Pulse Width | | 10 ns | 20 ns | 50 ns | 100 ns |
| Spatial Resolution | | 1 m | 2 m | 5 m | 10 m |
| Dynamic Range\*1 | | 5 dB | 8 dB | 10 dB | 13 dB |
| Max. Measurement Distance (approx.)\*2 | | 15 km | 20 km | 27 km | 27 km |
| Optical Budget\*1\*6 | | 7 dB | 10 dB | 12 dB | 15 dB |
| Resolution\*3\*4 | | 30με/ 1.5 ℃ | | | |
| Repeatability(σ)\*3\*4\*5 | | 20με/ 1 ℃ | | | |
| Measurement Time\*7 | NBX-5000 | 2-3 minutes for high resolution measurements | | | |
| Suitable Fiber | | Single Mode Optical Fiber | | | |
| Connectors | | FC-APC | | | |
| Remote Control Interface | | TCP/IP / GPIB (factory option) | | | |
| Power Supply | | AC100～240V 50/60Hz 250VA | | | |
| Laser Class | | Class 1 (IEC60825-1: 2001) | | | |
| Dimensions / Weights | | 456(W)×485(D)×286(H) mm / 30 kg | | | |
| Operating Temperature | | 10～35℃, | | | |
| Operating Humidity | | < 85 % (no dew condensation) | | | |
| Storage Temperature | | 0～50℃ | | | |
| Place of Production | | Japan | | | |

\*1 Based on 215 average cycles.

\*2 Based on average fibre loss of 0.3 dB/km using single mode fibre.

\*3 Based on the measurement of strain-free, UV-coated fibre.

\*4 Based on the measurement with strain-free, UV-coated fibre and in constant temperature environment.

\*5 Maximum standard deviation of measurement value in 5 consecutive measurements for 100 consecutive points.

\*6 Within the allowable range adjusted by the optical power excluding the case of nonlinear phenomena.

\*7 The settings of 50 m distance range, 2^8-14 count settings, 41 scanning steps excluding the time for Pulse Adjustment.

\*1-\*6 are all based on a frequency scan step of 5 MHz and with Pulse Adjustment and Auto Frequency Adjustment on.