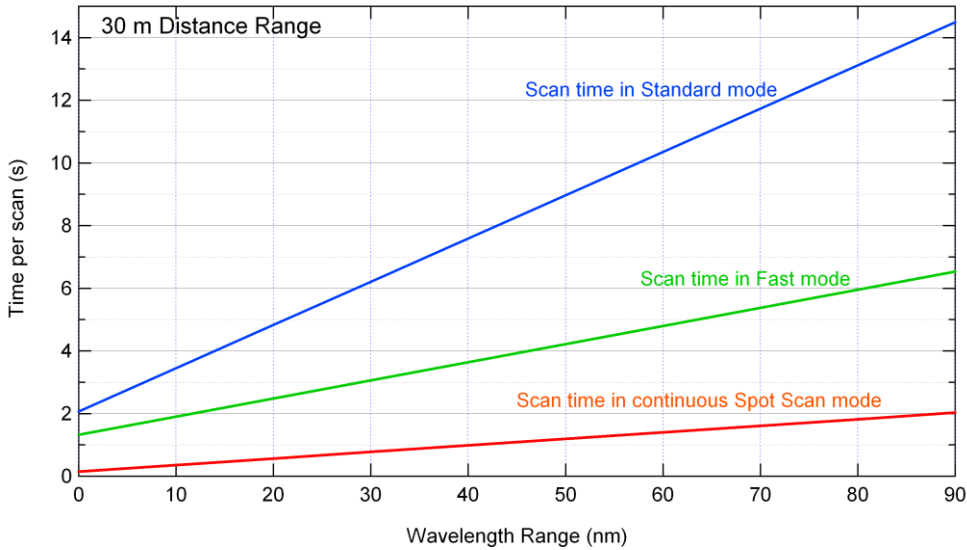
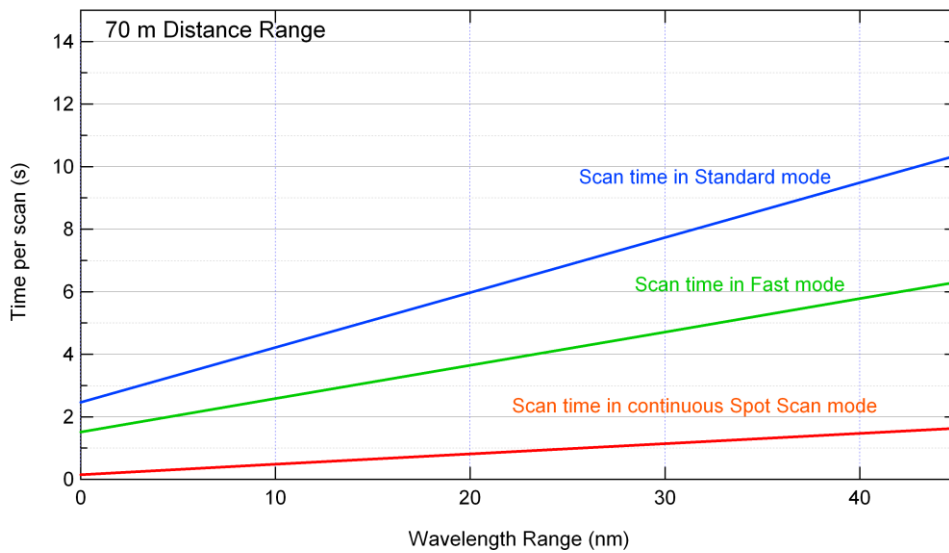


MEASUREMENT TIMING INFORMATION



Time per scan vs. scan wavelength range for 30 m scans in standard operating, fast scanning and continuous spot scanning modes.



Time per scan vs. scan wavelength range for 70 m scans in standard operating, fast scanning and continuous spot scanning modes.

Wavelength Range (nm)	Spot Scan Rate (Hz) 30 m mode	Spot Scan Rate (Hz) 70 m mode
5	3.7	2.9
10	2.7	2.0
20	1.8	1.2
40	0.9	0.6
80	0.5	-

Scan repetition rates at various scan wavelength ranges for continuous spot scanning in 30 m and 70 m modes of operation. Rates are for laser tuning speed set to 100 nm/s.

The Extended Range Interrogation capability is available on the OBR 4600 with purchase of the extended range mode and spot scan mode. To perform strain and temperature measurements, the distributed sensing option is required in addition to the above. This capability extends strain and temperature measurements up to a range of 2 km for applications located in a benign vibration environment.

APPLICATIONS

- Evaluating spools of Fiber Bragg Gratings
- Evaluating optical networks and devices
- Strain and temperature at a distance

PARAMETER	SPECIFICATION	UNITS
Maximum Range	2,000	meters
Spot Scan Size	80	meters
Maximum Wavelength Range	3.2	nm
Time Per Scan	6.5	seconds
2-pt Spatial Resolution	0.25	mm
Wavelength Accuracy ²	$\pm 5.0 + 12 \cdot \Delta T$	pm
Strain Range ³	$\pm 1,250$	μ Strain
Strain Accuracy ^{2,5}	$\pm 4.1 + 9.9 \cdot \Delta T$	μ Strain
Temperature Range ^{3,4}	± 175	°C
Temperature Accuracy ^{2,5}	$\pm 0.5 + 1.2 \cdot \Delta T$	°C
Minimum Gage Length ⁶	3	cm
Minimum Sensor Spacing	0.6	mm

- 1 Extended range sensing works best with a low net change in accumulated strain between the unit and the sensing region.
- 2 Internal wavelength calibration using a NIST-traceable HCN gas cell occurs upon instrument configuration, but may drift with temperature. Wavelength offset measured at 1550nm. Thermal drift, ΔT , in degrees Celcius.
- 3 Based on maximum wavelength range of 3.2 nm.
- 4 Actual temperature range will be limited by the sensing fiber used.
- 5 Temperature accuracies are calculated from the wavelength accuracy using the spectral shift of Rayleigh scatter, $1 \text{ GHz} = 0.8 \text{ }^\circ\text{C} = 6.58 \text{ } \mu\text{e}$. [Othonos and K. Kalli, Fiber Bragg Gratings (Artech House, Boston, 1999)].
- 6 Larger gage lengths may be required to meet noise specifications in the presence of vibration.