LUNA

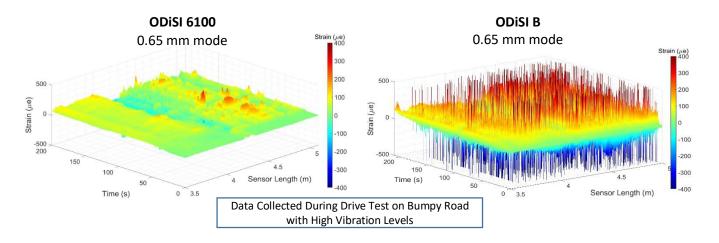|	ODiSI-A10/A50	ODiSI-B 5.0	ODiSI 6100 Series	Benefit
Number of Channels	1	1	1, 2, 4, or 8	Up to 20X more coverage with multichannel options and longer sensor lengths
Sensor lengths (modes)	10, 50	2, 10, 20 m	2.5, 5, 10, 20, 50m	
Standoff cable length	10 m	50 m	10, 50 or 100 m	More flexibility in locating interrogator and sensors
Max real-time measurement rate	2.5Hz/5Hz	20 Hz	250 Hz	At full rate (up to 250 Hz), all data can be displayed, logged and accessed for real-time processing and control
Continuous fiber grating (CFG) measurement rate (maximum)[1]	-	100 Hz	250 Hz	
Strain measurement range	±13,000 με	±10,000 με	±15,000 με	Measure 20% larger strains – important for new age materials
Measurement repeatability	-	–	2X – 4X improvement	Up to 4X more precise measurements for detailed analysis and to prevent false alarms
Measurement reliability and robustness	-	–	Up to 10X improvement	Increased immunity to vibration, movement, birefringence (polarization) and high strain gradients. Enables embedded sensors
Self-calibration to onboard NIST traceable reference	Performed only on setup or when initiated by user	Performed only on setup or when initiated by user	Performed on every scan	Maintains higher accuracy and precision for manufacturing operations and long-term fatigue tests
Internal optical alignment to optimize measurement	Performed only on setup or when initiated by user	Performed only on setup or when initiated by user	Performed on every scan	
Simplified setup and configuration	-	–	✔	Easy-to-use for fast, plug-and-play setup to ensure correct sensor DAQ mapping
Strain-compensated optical temperature sensors[1]	-	–	✔	More accurate. Sensors can be laid out on a contour with minimal impact due to applied strain.
Included sensor rekeying	– (optional)	– (optional)	✔	Increase strain range up to 4%, remove residual strain effects
Sensor and system health check on every scan	-	–	✔	System will self-diagnose sensor health issues and inform the user how to fix the issue
Controller operating system	Windows	Windows	Linux	More reliable and stable software
System synchronization options	-	–	IEEE 1588 PTP Sync signal output	Time-synchronize data from multiple instruments and systems
Test data file size		70MB/sec – 246 GB/hour	3 MB/sec – 10.5 GB/hour	File storage space requirement *decreased* by 24X
3D data visualization in real-time	-	–	✔	Simplify analysis and presentation of data to teams and colleagues

[1]Features to be released in 2020

Example Test Results in Challenging Environments

To illustrate the increased robustness of the ODiSI 6100 in demanding environments, HD-FOS data was collected with both an ODiSI 6100 (left) and ODiSI B (right) during an in-vehicle road test involving relatively high levels of vibration and bumpy movement.

ODiSI 6100
0.65 mm mode

ODiSI B
0.65 mm mode

Data Collected During Drive Test on Bumpy Road with High Vibration Levels

The high value data outliers in the ODiSI B data (red and blue spikes) represent invalid data due to the high levels of vibration and movement present in the sensor. The impact on the ODiSI 6 measurements were much lower.

In controlled laboratory testing, cyclical loading of a DUT at rates up to 2.5 Hz lead to vibration and movement of the sensor, causing an appreciable amount of data dropouts in ODiSI B measurement results. The non-static loading had negligible impact on the ODISI 6100 measurements

1000 β Cyclical Loading (0.65 mm mode)

ODiSI B

ODiSI 6100