New Aluminum and Copper Coated Fiber Bragg Grating (FBG) Sensors for Industrial Optical Sensing Applications

Technica releases new family of Aluminum and Copper coated Fiber Bragg Gratings (FBG) Sensors that are small, hermetically sealed, and resistant to high temperatures, expanding its family of metal coated fiber based sensors. Together with its Gold coated sensors, this represents a new generation of upcoming inherently humidity proof strain, temperature, displacement, acceleration, pressure, load, tilt, bio, and other useful optical sensors and devices.

ATLANTA (PRWEB) September 04, 2020 -- Many measurement applications in harsh environments would benefit greatly by using fiber Bragg grating (FBG) sensing technology, given its numerous well-known advantages such as absolute temperature measurement, rapid response, multiple sensing points on a single fiber strand with minimal mechanical burden and intrusion, as well as the critical properties of EMI immunity, spark free, and chemical inertness. However, the presence of high humidity, or high temperatures, corrosive chemicals or high mechanical stress often encountered in real life environments impose serious challenges on the glass fiber coating. Technica now offers Fiber Bragg Gratings inscribed into optical fibers coated with Aluminum, Copper and Gold for addressing an ever growing field of new applications.

"All laser writing techniques require stripping and recoating when metal is involved. To meet the demand of these applications, Technica has developed reliable processes to end-strip or window-strip acrylate, polyimide, aluminum, copper, and gold coated fibers, embed standard and high-temperature FBGs, and then recoat them with acrylate, polyimide, or gold coatings. Our proprietary fabrication processes allow for varying lengths of window stripping and recoating with very controllable and repeatable material thickness and length control", stated Tommy Jin, Chief Operations Officer of Technica Optical Components, LLC.

"Depending on the type of inscription and coating used, these FBG sensors are suitable for operation from the cryogenic temperature of -200°C to the high temperatures ratings of +100°C, +300°C, +450°C, +550°C, +700°C, +850°C, and +1000 Degrees Celsius” added Andrei Csipkes, Chief Executive Officer of Technica Optical Components, LLC.

These metal coated FBG sensors fabricated by excimer and/or femtosecond laser writing techniques, as required by each application, have demonstrated unique advantages in providing multipoint and multifunction measurement capabilities in an ever increasing range of applications not previously addressable by FBGs fabricated using standard manufacturing techniques. However, properly designed fiber sensor packaging is also critical for maintaining the FBG sensor’s integrity, survivability, functionality, and durability. The ability to manufacture these FBGs in strain-locked Aluminum, Copper, and Gold coatings and the availability of loose tube Inconel 625 and Stainless Steel FBG packaging probes allows Technica to offer unique and practical solutions for fiber-optic sensing in both typical (T25) and high-temperature environments (T98 ad T160).

Technica is a leading developer, manufacturer, and provider of premium quality Fiber Bragg Grating sensors and FBG array sensors in acrylate, polyimide, aluminum, copper, gold, GFRP, and PEEK coatings, and sensor packaging in Teflon, stainless steel, and Inconel probes. The company also proudly licenses and produces individual OEM custom packaged filters and sensors. Technica is headquartered in Atlanta, USA, with Advanced Technology and Manufacturing Centers in USA, Sweden, Singapore, and China.
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