



RF/MRI COMPATIBLE IN-VIVO TEMPERATURE SENSING

Diagnostic instruments are the tools MD's use to acquire data about the patient. An important parameters is the body temperature, both externally on the skin and in-vivo. Especially during Hyperthermia and surgical interventions, the in-vivo body temperature is a parameter that needs continuous monitoring.

Disadvantage of electrical temperature sensors is the fundamental use of electric current, and the sensitivity to RF-sources (e.g. MRI). Fiber Bragg Gratings (FBG), are insensitive to RF sources and are therefore ideally to be used during in-vivo temperature monitoring in RF environment.

The *SwitchedRefGator* system from Technobis runs on the same principle as the *Gator* series; A reflected wavelength from an FBG is tracked over time using our spectrometer. Combined with an internal reference FBG, the recorded wavelength of the FBGs can be converted into an absolute temperature reading. The *SwitchedRefGator* can integrate up to 7 optical fibers with each 8 FBGs (total 54 sensors). The FBGs are integrated in the optical fiber with a typical diameter of 0.25mm allowing for easy integration into a catheter or needle. The system can achieve a short-term σ of 0.1°C (1-2 hr) and a long-term accuracy of 0.5°C (5-10 hr), with a resolution of 0.03°C.

T-Gator



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