

**The Technology of Processed Electroencephalogram Monitoring Devices for Assessment of Depth of Anesthesia.**

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Commercial brain function monitors for depth of anesthesia have been available for more than 2 decades; there are currently more than 10 devices on the market. Advances in this field are evidenced by updated versions of existing monitors, development of new monitors, and increasing research unveiling the mechanisms of anesthesia on the brain. Electroencephalography signal processing forms an integral part of the technology supporting the brain function monitors for derivation of a depth-of-anesthesia index. This article aims to provide a better understanding of the technology and functionality behind these monitors. This review will highlight the general design principles of these devices and the crucial stages in electroencephalography signal processing and classification, with a focus on the key mathematical techniques used in algorithm development for final derivation of the index representing anesthetic state. We will briefly discuss the advantages and limitations of this technology in the clinical setting as a tool in our repertoire used for optimizing individualized patient care. Also included is a table describing 10 available commercial depth-of-anesthesia monitors.