Background Pattern Classification (BPc)

BPc software for the Olympic Brainz Monitor enhances bedside neonatal brain monitoring by automatically marking the aEEG trace with the suggested background pattern classification. BPc also incorporates a quick guide describing the five classifications and tips for validating the underlying BPc.

Enhanced bedside neonatal brain monitoring on OBM

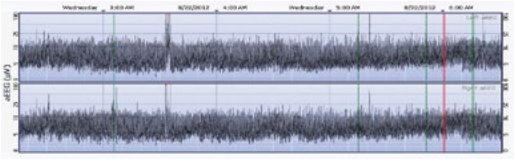
Continuous Normal Voltage (CNV)

Classifying the aEEG trace may initially be challenging for those who are new to cerebral function monitoring (CFM). The BPc software option applies continuous analysis of the peak-to-peak EEG voltage and offers a classification based on clinical evidence.

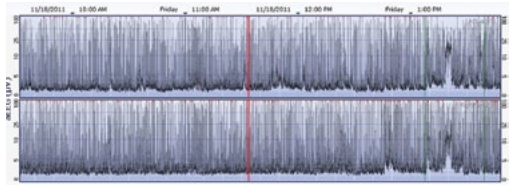
- Eases interpretation for the non-neurologist
- Assists in monitoring neurological changes during the CFM study
- Aids the prediction of HIE outcomes[1] and the need for neurology consults

The screen shown at left shows the automatic BPc as displayed on the Olympic Brainz Monitor with the BPc of the selected trace section is highlighted in white. Shown below are examples of additional classifications.

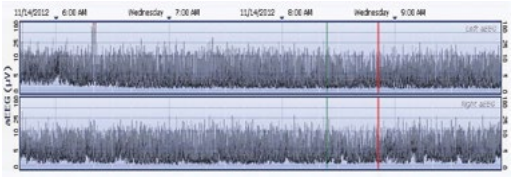
Discontinuous Normal Voltage (DNV)



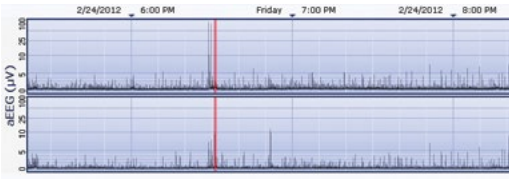
Burst Suppression (BS)



Continuous Low Voltage (CLV)



Inactive, Flat Trace (FT)



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Background Pattern Classification (BPc)

The **Olympic Brainz Monitor** is the latest technology in cerebral function monitoring (CFM). Understanding an infant's brain health is a critical part of your treatment decisions. Use of continuous Cerebral Function Monitoring provides vital information to clinicians to assist with earlier diagnosis and treatment[3] – the Olympic Brainz Monitor is the optimal solution for fast & simple routine bedside monitoring.

Clinical Usage of aEEG Monitoring

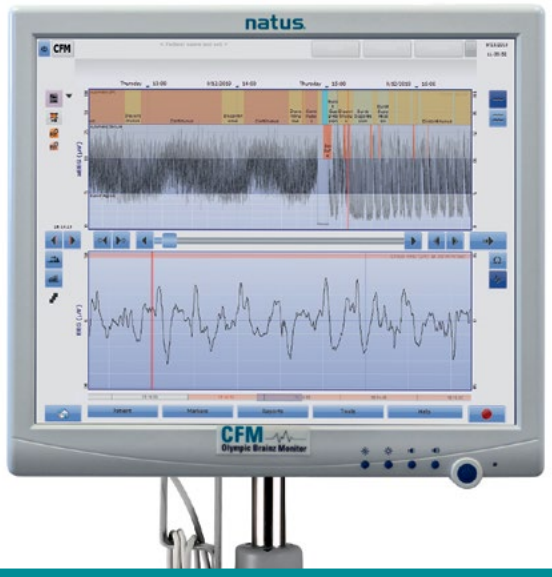
Medical literature reports that aEEG monitoring can be used to:

- Monitor general neurological status
- Monitor and record seizures
- Monitor during hypothermic treatment to measure the effectiveness of treatment[4]
  - The time to normal trace (TTNT) has prognostic value and is a good predictor of neurodevelopment outcome in term infants with Hypoxic-Ischemic Encephalopathy (HIE) undergoing hypothermic treatment[5]
  - Monitor aEEG patterns to indicate the presence of sleep wake cycling in preterm infants, which is associated with better outcomes in HIE patients[6] and may add value in developmental care

Utilizing Background Pattern Classification

The Olympic Brainz Monitor BPC software was developed specifically for neonatology to assist NICU clinicians by:

- Automatically applying clinical criteria to the aEEG trace to assist in identifying the baseline pattern classification
- Identifying clinically significant changes that require further review
- Yielding a high prognostic sensitivity and specificity during hypothermia treatment
  - Recovery time to normal background pattern was the best predictor of poor outcome (96.2% in hypothermia, 90.9% in normothermia)[1]
  - The most promising neurophysiologic tests (performed in the first week) were aEEG (sensitivity 0.93, 95% confidence interval [CI] 0.78–0.98; specificity 0.90 [95% CI 0.60–0.98])[2]



Ordering Information	
Part Number	**Description**
OBM00493	OBM BPc Software License Kit V3.1.5

References:

1 Marianne Thoreson, Lena Hellstrom-Westas, Xun Liu, Linda de Vries. Effect of Hypothermia on Amplitude-Integrated Electroencephalogram in Infants with Asphyxia. Pediatrics: 2010 2009-2938.

2 Henriette van Laerhoven, Timo R. de Haan, Martin Offringa, Bart Post and Johanna H. van der Lee. Prognostic Tests in Term Neonates With Hypoxic-Ischemic Encephalopathy: A Systematic Review. Pediatrics; originally published online December 17, 2012; 2012-1297.

3 Mathur AM, Morris LD, Teteh F, Inder TE, Zempel J. Utility of prolonged bedside amplitude-integrated encephalogram in encephalopathic infants. Am J Perinatol. 2008 Nov;25(10):611-5. Epub 2008 Oct 7.

4 Atlas of amplitude integrated EEGs in the Newborn, 2nd Edition. Lena Hellström-Westas (Author), Ingmar Rosen (Author), Linda S. de Vries (Author) (P.81 and p.82).

5 Damjan Osredkar, MD, Mona C. Toet, MD, Linda G. M. van Rooij, MD, Alexander C. van Huffelen, MD, PhD, Floris Groenendaal, MD, PhD, Linda S. de Vries, MD, PhD. Sleep-Wake Cycling on Amplitude-Integrated Electroencephalography in Term Newborns With Hypoxic-Ischemic Encephalopathy. PEDIATRICS Vol. 115 No. 2 February 2005, pp. 327-332.

6 Hellstrom-Westas, Rosen, deVries, Greisen. NeoReviews. Vol 7 No. 2 February 2006.

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