

S/5™ Entropy Module, M-ENTROPY

Single-width plug-in module with the unique Entropy algorithm, designed for monitoring the state of the central nervous system during anesthesia



Features

Entropy measurement

- Utilizes the intuitive and open Entropy algorithm, a Datex-Ohmeda innovation
- Based on acquisition and processing of raw EEG and FEMG signals
- Features two Entropy parameters
 - the fast reacting Response Entropy (RE) for detecting activation of facial muscles, and
 - the more steady and robust State Entropy (SE) for assessing the hypnotic effect of anesthetic drugs in the brain

Display Options

- Entropy information integrated into S/5 modular multiparameter anesthesia monitor screens
- Digital display of the Entropy parameters and Burst Suppression Ratio (BSR)

- Entropy EEG waveform display, one channel
- Trending of Response Entropy, State Entropy and Burst Suppression Ratio for up to 24 hours
- 5 - minute and 30 - minute Entropy minitrend
- Features the new space-saving digit field trend

Benefits

Use of the Entropy parameters, may help physicians to:

- Ensure faster and more predictable wake-up and extubation
- Improve drug management
- Avoid unnecessarily deep anesthesia and decrease side effects
- Prevent unexpected recovery

Technical specifications

Direct function keys

Entropy	Opens Entropy menu
Check Sensor	Starts impedance measurement of sensor electrodes

Dimensions and weight

Module size (WxDxH)	37 x 180 x 112 mm/ 1.5 x 7.1 x 4.4 in
Module weight	0.3 kg/0.7 lbs

Parameter specifications

Entropy

Measurement method	Entropy monitoring is based on acquisition and processing of raw EEG and FEMG signals using the Entropy algorithm. The signal is measured by placing a disposable sensor on patient's forehead. Entropy parameters, RE and SE, may help the anesthesiologist to assess the effect of certain anesthetics on the patient's central nervous system.
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Amplifier

Amplification	10000
Input dynamic range	$\pm 500 \mu\text{V}$
Input offset	$\pm 300 \text{ mV}$
Frequency range	0.5 - 118 Hz
Noise level	$< 0.5 \mu\text{V}$ @ 0.5 - 118 Hz
Input impedance	1 M Ω @ 50 Hz
CMRR	$> 100 \text{ dB}$
Defibrillation protection	3000 V, 130 J

A/D conversion

Sampling frequency	1600 Hz
Resolution	60 nV

Waveform display (One channel of raw EEG)

Range	800 μV_{pp}
Scales	$\pm 25/50/100/250/400 \mu\text{V}$
Sweep speed	12.5/25/50 mm/s

Numeric display (RE, SE and BSR)

Range	RE 0-100 SE 0-91 BSR 0-100%
Accuracy	± 1 or $\pm 1\%$
Display resolution	1 digit
Display update	1 s

Impedance measurement

Measurement frequency	75 Hz
Current	10 μA
Range	0-30 k Ω
Resolution	0.1 k Ω
Accuracy	$\pm 1\text{k}\Omega$ or $\pm 10\%$
Measurement time, all leads	5 s
Leads off detection	$> 3 \text{ M}\Omega$, continuous
Start of measurement	manual/automatic

Ordering information

Description	Order code
S/5 Entropy Module	M-ENTROPY

Only Entropy sensors are compatible with the M-ENTROPY.

M-ENTROPY is only available with S/5 Anesthesia Monitor and S/5 Compact Anesthesia Monitor using software L-ANE03(A) and L-CANE03(A) or later.



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