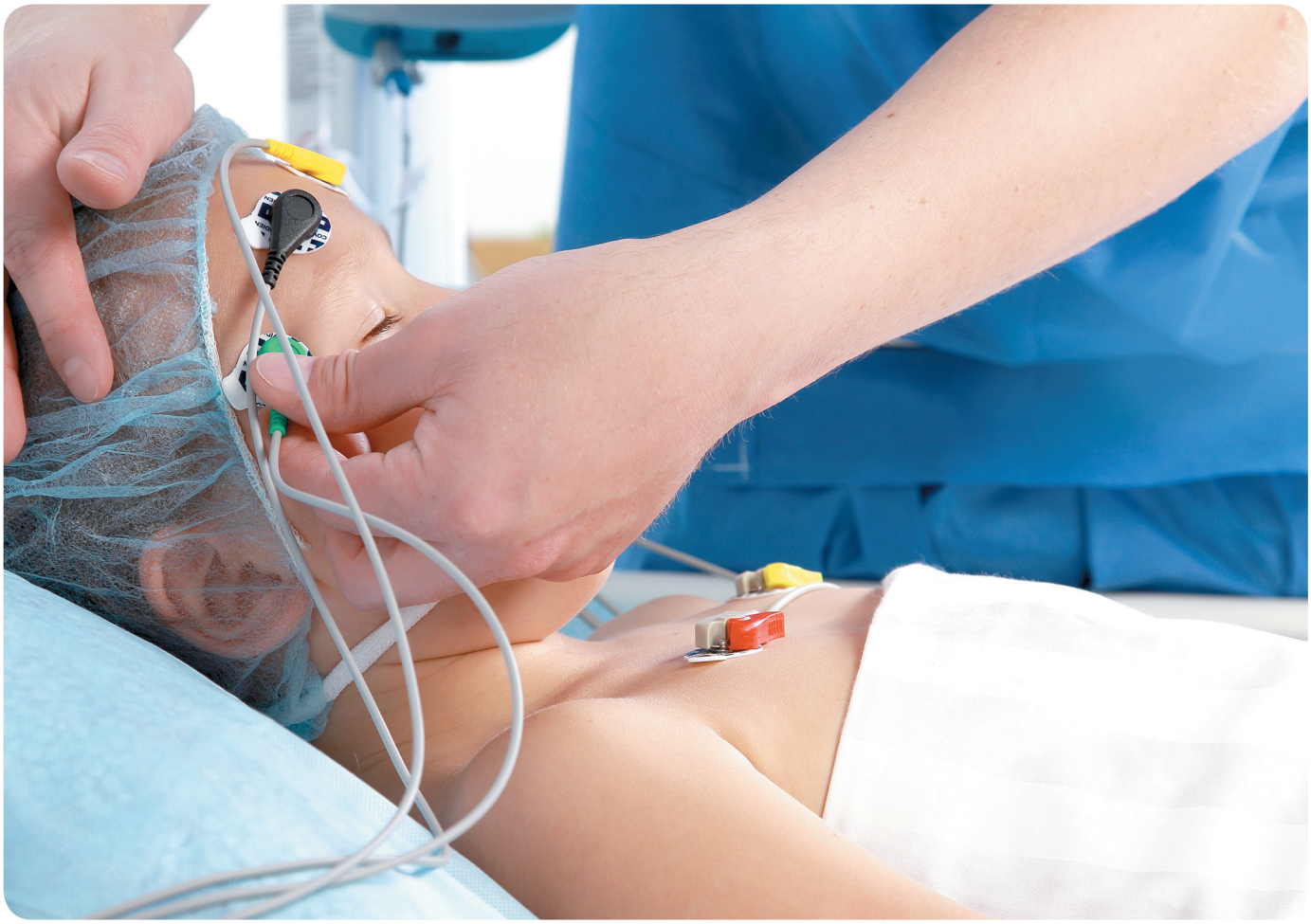
Depth of Anesthesia and Sedation Monitor MGA-06

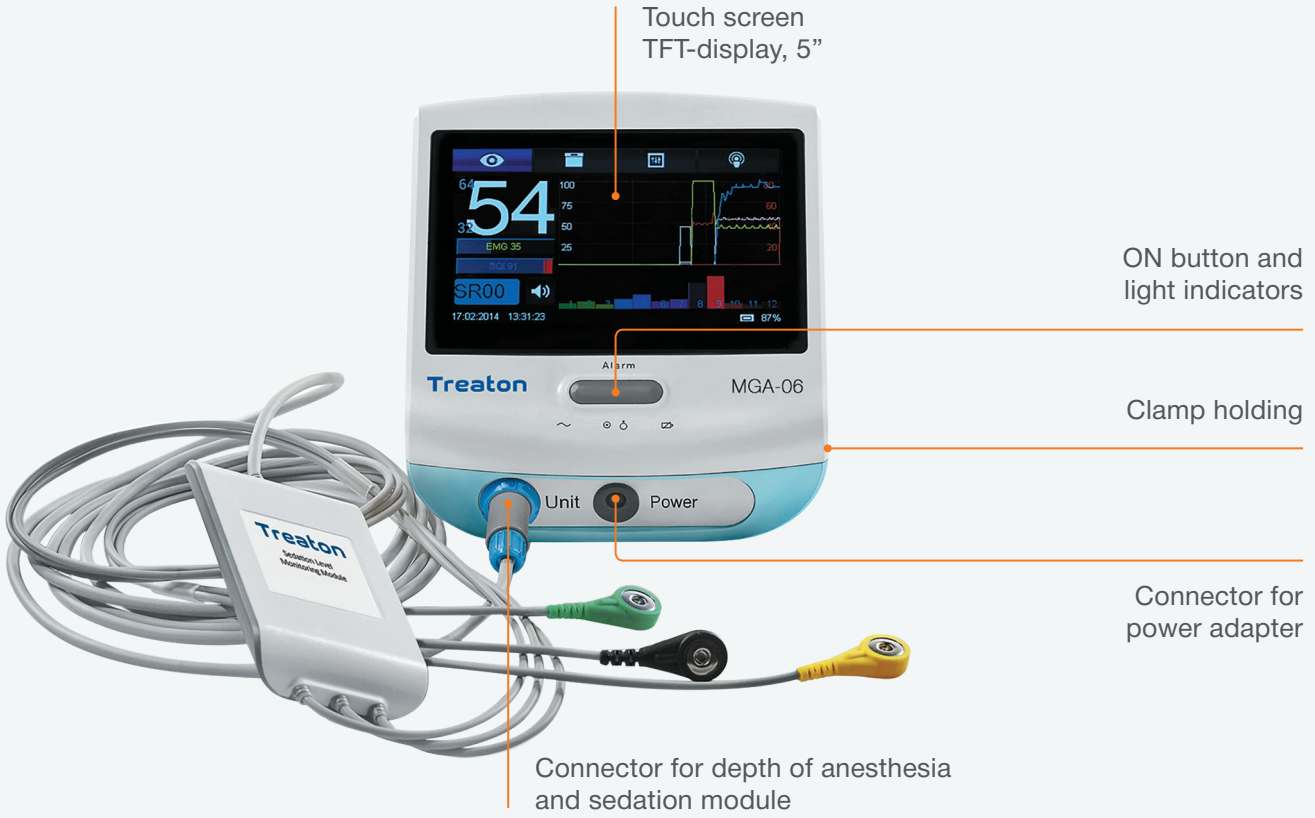
Complete solution for anesthesiologists:
Monitoring of Sedation Level
and Depth of Anesthesia



MGA-06 is a monitor assessing depth of anesthesia and designed to improve patient safety through long and continuous monitoring of the Brain Activity Index (AI).

Application: anesthesiology, including perioperative period, resuscitation, intensive care, procedural sedation.

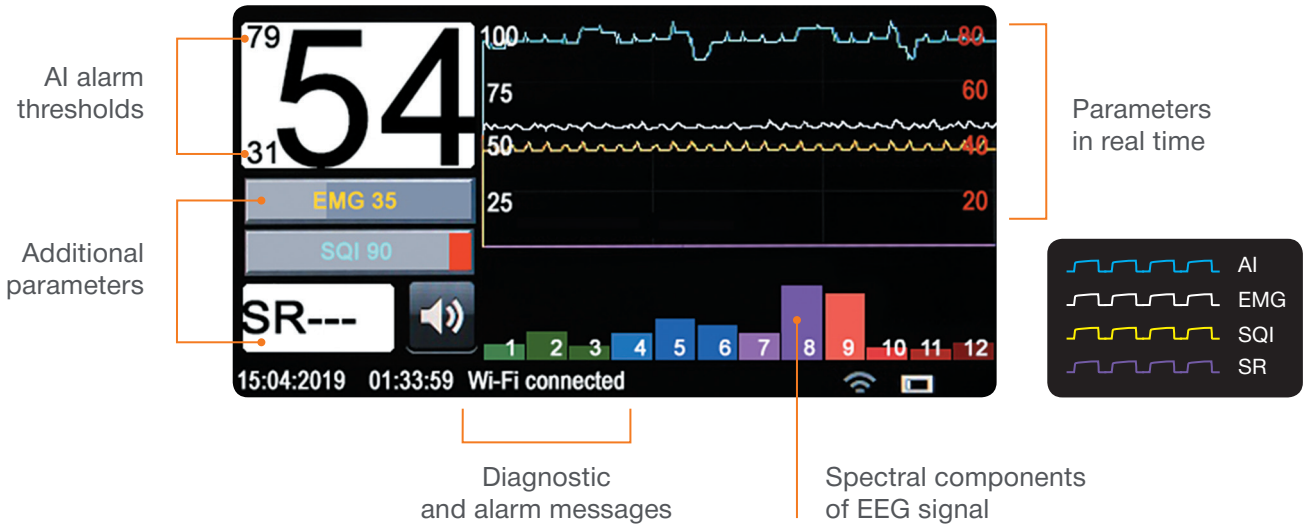
The Depth of Anesthesia and Sedation Monitor MGA-06 is the solution for the daily routine depth of anesthesia monitoring. Features such as low running cost, robust technology and flexible concept due to its reliable clamp and built-in battery could make the device a standard monitoring tool in a medical institution, thereby increasing the patient's safety and quality of patient care.



Parameters Identified by MGA-06

AI	Brain Activity Index	Indicates the level of consciousness depression by analyzing EEG, taking into account information on typical signs of anesthetics' impact on patients
SR	EEG Signal Suppression Rate	Reflects the relative duration of EEG suppression segments in the current time interval
SQI	EEG Signal Quality Index	Reflects noise influence on EEG signal
EMG	Electromyographic Component Level	Indicates the level of electrical activity of facial muscles
Z1, Z2, Z3	Electrode impedance	Demonstrates the quality of electrodes application and electrodes' electric contact with the patients' skin

Main Screen



Interpreting AI (Brain Activity Index) Data*

AI value**	Clinical stages of anesthesia	Clinical signs
90–100	Awake	
80–90	Anesthesia stage I — light sedation	Incomplete awakening, patient opens eyes and maintains visual contact in response to a voice for 10 seconds or less
60–80	Anesthesia stage II — sedation	Patient moves and opens eyes in reaction to voice but does not fix the eyes — no visual contact or no response to voice but eye movements and eye opening after a physical stimulation persists
40–60	Anesthesia stage III — surgical state	No response to voice or physical irritants
30–40	Anesthesia stage IV — deep anesthesia, BS (burst–suppression) patterns emerge	
20–30	Anesthesia stage V — deeper anesthesia compared to stage IV, length of suppression episodes may reach 10 seconds	
0–10	Anesthesia stage VII — extremely deep anesthesia, suppression episodes constitute 75% and more of the whole signal duration	

* According to a generally accepted classification of anesthesia stages.
** The same value of AI (Brain Activity Index) in two lines means the limits of indicators' range.

Operational Advantages

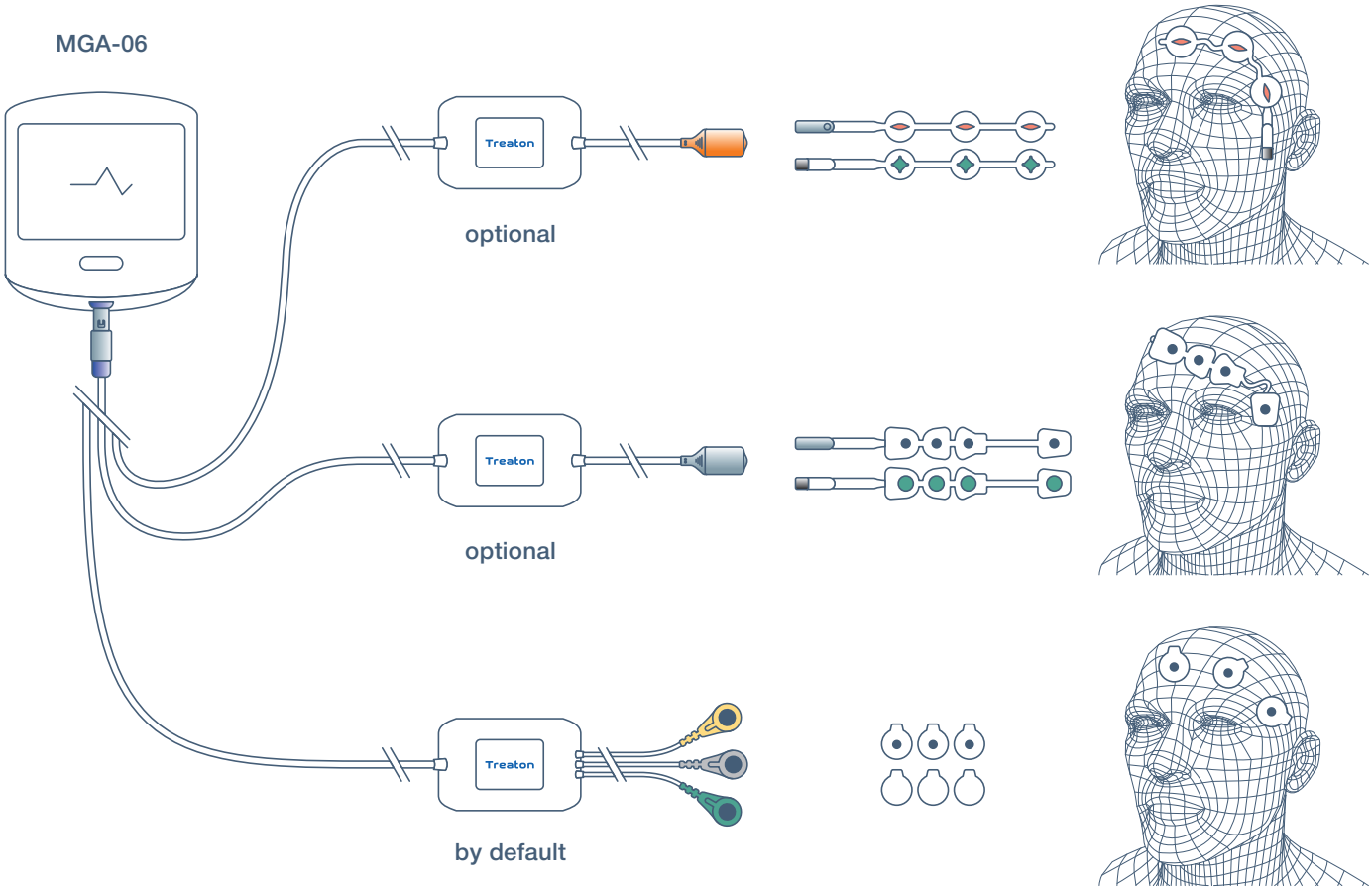
Simple and safe	Non-invasive technology; visual and audible alarm system; intuitive interface; sensitive touch screen; built-in battery.
Reliable and accurate	Accurate monitoring of sedation level due to the high sensitivity of signal processing algorithm. Short operation mode setup time.
Convenient	Small-size, mobile; easy fits to any environment due to the reliable clamp; light weight; no routine maintenance.
Low cost	Neglectable running cost; standard consumables (EEG electrodes) available worldwide.
All-purpose	Works with both inhaled and intravenous anesthetics. Increase patient's safety when used together with Multigas Analyzer AMG-06.

To improve patient's safety you can use Depth of Anesthesia and Sedation Monitor MGA-06 with Multigas Analyzer AMG-06

AMG-06 is intended for continuous non-invasive side-stream monitoring of CO_2 & anesthetics concentration in inspired and expired gases. The device also determines RSP, apnea, MAC index and measures atmospheric pressure in operating rooms and wards when providing anesthetic support.

More on www.treat-on.com

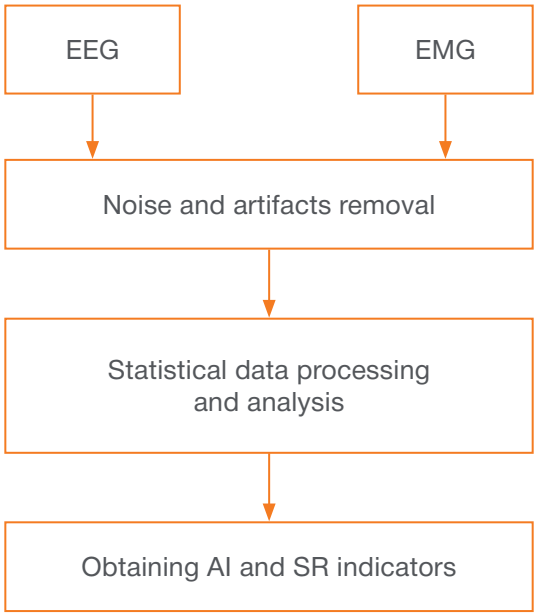
Available Options Electrodes



Electrodes can be positioned to the left or right for ease of use.
Low and stable impedance provides a high-quality signal.

Module	Ref. No.	Recommended electrodes
MGA module compatible with GE-Entropy type EEG electrodes *Optional*	TESN. 626002-02	MK-03 MedKer Tech
MGA module compatible with BIS type EEG electrodes *Optional*	TESN. 626002-04	MK-01 / MK-02 MedKer Tech
MGA module compatible with any type of disposable ECG electrodes *Standard, by default*	TESN. 626001-03	Most types of disposable ECG electrodes (Fiab, Ambu WhiteSensor, Vitrode F, Red Dot 3M and other brands)

Algorithm of AI (Brain Activity Index) Calculation



Anesthesia depth assessment is based on a comprehensive electroencephalogram (EEG) analysis using unique algorithms developed by Triton Electronic Systems Ltd. A simplified algorithm for AI (Brain Activity Index) calculation is performed below.

EEG and EMG signals are registered from the electrodes applied on the frontotemporal area of the patient's head.

The registered signal is subjected to digital filtration: motion artifacts, power main disturbances and noise from electrosurgical equipment, other bioelectrical signals, etc. are removed.

The algorithm of EEG analysis includes statistical information on typical signs of various groups of anesthetics' impact on the patient's EEG. During the analysis, the level of compliance is established between the registered EEG signal and each type of conscience depression.

As a result of data analysis, the following indicator values are obtained:

AI (Brain Activity Index);
SR — EEG Signal Suppression Rate, taking into account the total duration of segments with low-voltage activity (suppression segments) over the last minute. Displayed as a percentage.
SR > 0 is usual at AI < 50.

Signal quality

To get accurate data on anesthesia depth monitoring:

- assess the signal quality continuously;
- provide control of electrodes' impedance;
- prevent impedance values from increasing;
- minimize artifacts and other noise.

For this purpose, the following technical solutions are implemented in MGA-06 monitor:

SQI (Signal Quality Index) is continuously monitored. It takes into account the values of EEG cable electrode' impedance, noise level from artifacts, high-frequency noise and power main disturbances within EEG, etc.

If SQI = 0, displaying the values of AI (Brain Activity Index), SR rate and EMG Component Level is blocked. A message on the most significant cause for SQI dropping is displayed.

The level of EEG signal noise is measured continuously.

The electrodes impedance is measured automatically every 6 minutes; it can also be launched manually by the user.

Besides, to identify impedance changes or electrodes drop (in case of rapid changes of the noise background within the EEG signal), measurement of electrodes impedance is launched automatically.

Technical Specification
MGA-06 Monitor

Patient age groups	Adults, pediatrics, neonates
Display	Touch screen TFT-display, 5”
Dimensions	150x140x105 mm
Operation mode setup time	≤10 s
Weight of the device (with built-in battery)	0.8 kg
Power supply	100–240 V, 50/60 Hz Built-in battery (at least 2 h of operation)
Mounting system	360° rotated clamp
Displayed parameters	Brain Activity Index EEG Signal Suppression Rate EEG Signal Quality Index Electromyographic Component Level Electrodes impedance (Z1–Z3)
Trends	AI, EMG 72 h
Alarms	Visual and sound alarm
Connection to external medical information systems	Wi-Fi
Languages	Multi-language
Screen keyboard	For Wi-Fi settings and entering patient information
Recording patient information	Age, gender, weight, height, date of admission, diagnosis at admission, clinical diagnosis, notes
The recommended types of electrodes	31.1245.21, 24 mm, Covidien LLC, USA; F9079/RU3236-100, FIAB SpA, Italy; White Sensor 40713, Ambu A/S, Denmark; G210C/F-150S, Nihon Kohden Corporation, Japan

We continuously improve the technological principles and implement new profitable solutions based on market demands

In biomedical signal processing, gas monitoring and respiratory support since 1989

Bajova str. 33
Ekaterinburg, 620133
Russian Federation

Quality management system certified as meeting the requirements of EN ISO 13485

March 2025