

Electroencephalograph-recorder computerized portable "Encephalan-EEGR-19/26" ("Mini" modification)

European Quality Certificate
CE 538571,
issued by British Standards
Institution (BSI)

Reference guide on polysomnograph's sales package selection

using illustrated catalogue for
electroencephalograph-recorder
"Encephalan-EEGR-19/26"
("Mini" modification)

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computerized portable
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Electroencephalographs-recorders "Encephalan-EEGR-19/26" "Mini" modification, model AT-Somno and AT-Somno-Video combined with the software "Encephalan-PSG" are used as polysomnographs in somnological studies, centers, neurological and epileptological medical departments, and at patient's home.

Polysomnographs comply with Type II devices according to AASM and CMS classification – mobile polysomnographic systems for autonomous (unattended) study (recording data onto the memory card as in Holter-type) with an expanded set of recorded parameters (2, 6 or more EEG derivations). The study may be conducted both in autonomous (unattended) and telemetric (attended) mode (wireless interface technology Bluetooth®) under the supervision of a specialist with possibility of synchronized video monitoring with recorded parameters.

Electroencephalographs-recorders are available in the following models:

Model	Description
"Encephalan-EEGR-19/26" AT-Somno	Autonomous, telemetric or autonomous-telemetric polysomnographic study modes in neurological or epileptological medical departments or at patient's home. Registration of parameters with polygraphic channels of wireless units and modules of electroencephalograph-recorder.
"Encephalan-EEGR-19/26" AT-Somno-Video	Provides additional registration of videodata simultaneously with recording EEG and other parameters during polysomnographic studies.

Table 1. **Polysomnographs based on electroencephalographs-recorders "Encephalan-EEGR-19/26" ("Mini" modification)** provide multichannel registration of various physiological parameters and signals (optional, see Table 2) with wireless units and modules, electrodes and sensors to them:

Sensors, accessories and electrode systems	Wireless registration units					Registered signals and parameters	Abbreviations
	ABP-10 transceiver-recorder (optional registration)	Wireless pulse oximeter module (standard registration)	POLY-4 module (main) (optional registration)	POLY-4 module (additional) (standard registration)	Wireless respiration module WRM (standard registration)		
Electrode system ES-EEG-8-3 or Electrode system ES-EEG-8-3(c)	√	–	–	–	–	Electroencephalogram (9 derivations)	EEG
Electrode system ES-EEG-6-3 or Electrode system ES-EEG-6-3(c)	√	–	–	–	–	Electroencephalogram (6 derivations) Chin electromyogram	EEG EMGchin
Electrode system ES-EEG-4-1 or Electrode system ES-EEG-4-1(c)	√	–	–	–	–	Electroencephalogram (2 derivations) Chin electromyogram	EEG EMGchin
Pulse oximeter sensor	–	√	–	–	–	Electrooculogram (2 derivations) Oxygen saturation Photoplethysmogram Pulse rate Perfusion index	EOG SpO2 PPG PR PI
Pressure airflow sensor (P-Fow)	–	√	–	–	–	Pressure airflow Snore (via cannula of P-flow sensor) Airflow	P-Flow Snore (P-Flow) Airflow
T-adapter	–	√	–	–	–	Pressure from CPAP	CPAP P
Accelerometer movement activity sensor (integrated)	–	√	–	–	–	Movements Body position	Mvm (actigraphy) BodyPos
ECG electrodes for 1 ECG derivation	√	–	√	–	–	Electrocardiogram	ECG
EOG electrodes for 2 EOG derivations	–	–	√	–	–	Electrooculogram (2 derivations)	EOG
EMG electrodes for a chin EMG derivations	–	–	√	–	–	Chin electromyogram	EMGchin
Wired limbs movement sensors (2 pcs.)	–	–	√	–	–	Motility	Mtl
Electromyographic sensors (2 pcs.)	√	–	√	–	–	EMG	EMG
Respiratory effort sensor (2 pcs.)	√	–	√	–	√	Respiratory effort thoracic Respiratory effort abdominal	RespEff(thor) RespEff(abd)
Thermistor airflow sensor (oronasal)	√	–	–	–	√	Temperature airflow	T-Flow
Snore sensor from larynx	√	–	–	–	√	Snore	Snore
PG-ECG connector	√	–	√	–	–	Electrocardiogram (3 thoracic derivations) Impedance pneumogramm	ECG IPG
Wet sensor (for incontinence detection)	–	–	√	–	–	Wet	Wet
DC input for external devices	–	–	–	√	–	DC current (4 galvanic insulated channels)	DC
Additional N-electrode	–	–	√	–	–	Additional electrode for EMG registration	N

Table 2. Typical sales packages of polysomnographs based on electroencephalographs-recorders “Encephalan-EEGR-19/26” (“Mini” modification) AT-Somno и AT-Somno-Video models with the software “Encephalan-PSG” as a polysomnograph

<p>"Basic" suite: (start up set):</p> <p>to analyze sleep structure by 2 EEG derivations and cardiorespiratory monitoring.</p>	<p>10-channel patient transceiver-recorder ABP-10:</p> <ul style="list-style-type: none"> • Electrode system ES-EEG-4-1(c) to record 2 EEG derivations, 1 chin EMG, 2 EOG and 5 universal polygraphic channels for sensors: ECG, RespEf (chest), RespEf (abdomen), T-Flow, snore. <p>Wireless pulse oximeter module (standard configuration):</p> <ul style="list-style-type: none"> • SpO2, PPG, PR, PI, P-flow, snore (P-flow), Mvm (actigraphy), BodyPos.
<p>"Optimal" suite:</p> <p>to analyze sleep structure and EEG analysis by 6 EEG derivations (corresponds to AASM recommendations) and cardiorespiratory monitoring.</p>	<p>10-channel patient transceiver-recorder ABP-10:</p> <ul style="list-style-type: none"> • Electrode system ES-EEG-6-3(c) to record 6 EEG derivations, 1 chin EMG, 2 EOG and 1 polygraphic channel for ECG. <p>Wireless pulse oximeter module (standard configuration)</p> <p>Wireless respiratory module:</p> <ul style="list-style-type: none"> • RespEf (chest), RespEf (abdomen), P-flow, snore.
<p>"Professional" suite:</p> <p>to analyze sleep structure and EEG analysis by 6 EEG derivations (corresponds to AASM recommendations) and cardiorespiratory monitoring in relation to respiratory disorders and limbs movement activity in sleep and evaluation of restless legs syndrome intensity</p>	<p>10-channel patient transceiver-recorder ABP-10:</p> <ul style="list-style-type: none"> • Electrode system ES-EEG-6-3(c) to record 6 EEG derivations, 1 chin EMG, 2 EOG and 1 polygraphic channel for ECG. <p>Wireless pulse oximeter module (standard configuration)</p> <p>Wireless respiratory module:</p> <ul style="list-style-type: none"> • RespEf (chest), RespEf (abdomen), P-flow, snore. <p>Universal wireless module Poly-4:</p> <ul style="list-style-type: none"> • 4 universal polygraphic channels for sensors: 2 EMG, 2 Mtl • or PG-ECG connector with 3 ECG and 1 IPG.
<p>"Professional - neurological" suite:</p> <p>to analyze sleep structure and EEG analysis by 9 EEG derivations (corresponds to AASM recommendations) and cardiorespiratory monitoring, for expanded EEG analysis it can be supplied with additional accessories, phono-photo stimulators, SW of quantitative EEG treatment</p>	<p>10-channel patient transceiver-recorder ABP-10:</p> <ul style="list-style-type: none"> • Electrode system ES-EEG-8-3(c) to record 9 EEG derivations and 1 polygraphic channel for ECG. <p>Wireless pulse oximeter module (standard configuration)</p> <p>Wireless respiratory module:</p> <ul style="list-style-type: none"> • RespEf (chest), RespEf (abdomen), P-flow, snore. <p>Universal wireless module Poly-4:</p> <ul style="list-style-type: none"> • 4 universal polygraphic channels for sensors: 2 EOG, 1 chin EMG (3 electrodes) and optional sensor – wet, EMG, GSR, etc.

- Polysomnographs can be supplied with 4-channel POLY-4 module (similar to the "professional" suite)** with two EMG sensors and two Mtl sensors to record movement activity of limb movements in sleep and assess the severity of restless legs syndrome, and / or with connector PG-ECG (three ECG derivations and 1 IPG) - for extended analysis of cardiac disorders connected to respiratory disorders.
NOTE: In sales package for polysomnographs, simultaneous operation of not more than two Poly-4 modules is possible.
- The optional Poly-4 module can input signals of DC current (DC) for 4 galvanically isolated input in the mode of potential registration with and open input. Requires approval of data input protocol (DC).
NOTE: In sales package for polysomnographs, simultaneous operation of not more than two Poly-4 modules is possible.
- For extended analysis of EEG, polysomnographs can be supplemented with phono- photostimulator, additional accessories and software for quantitative methods of EEG processing.
- During polysomnography, the registration of the therapy pressure in the mask of a CPAP/BiPAP/AutoPAP device is possible to monitor the impact of CPAP/BiPAP/AutoPAP therapy on the quality of sleep. This option requires purchasing the T-adaptor with a tube.
- Electroencephalographs-recorders "Encephalan-EEGR-19/26," modification "Mini"** can be additionally supplied with sensors, accessories and software to use for other medical purpose during the day (for example, sensors and software required for functional biocontrol with BFB "REHACOR" for relaxation skills training and self-regulation in order to improve the quality of sleep) to improve the economic efficiency of its use (**quotation on request**).
- Model AT-Somno-Video** shall include a video equipment kit (for EEG / PSG video monitoring) with software for video monitoring "Encephalan-Video". It is necessary to choose a kit of equipment for video monitoring from the table given below.