

Sleep Apnea

"Amphitheatrum Flavium (Colosseum) in Roma, Italy"

Indication

Dyna-Vision™ is a sophisticated portable device designed for early detection of sleep apnea in patients inside or outside the hospital. The detection is based on trend analysis of 4 parameters:

- :: Heart Rate (ECG)
- :: Heart Rate Variability (ECG)
- :: SpO2 (Pulse oxymetry)
- :: Respiration rate (Chest Belt)

Parts

The Dyna-Vision™ solution consists of two parts:

- (1) Dyna-Vision™ unit for ECG, SpO2 and Respiration signal recording
- (2) Software for data analysis and reporting

Using Dyna-Vision™

Connecting Dyna-Vision™ to a patient is a 1-minute procedure and can be done in a hospital, general practitioner's office or at home. The recording can be analyzed by a professional the same day. The patient does not physically have to visit the hospital or practice. The recordings are automatically transmitted to a central station or hospital where they are screened for apnea events. When apneas were detected, the patient is requested to visit the hospital for further testing and treatment.



Remote Monitoring

Dyna-Vision™ has a built-in cellular modem to transmit the recorded data to a remote station for diagnostic purposes.

In case of emergency the remote station can monitor the vital signs of the patient in real-time.

With Dyna-Vision™ we offer a unique and true solution for large scale apnea screening.

“5% of the population suffers from sleep apnea. When left untreated, sleep apnea causes cardiovascular disease, hypertension, stroke and pre-diabetes”. World Health Organization, 2009.

Telemedicine

The built-in GPRS modem makes Dyna-Vision™ the most advanced telemedicine product in the market.

It is now possible to monitor the real-time ECG, Heart Rate, Plethysmogram and SpO2 of any patient using a computer or mobile phone.

The range of the data transmission is unlimited as we are using the cellular network to transmit the data from the patient to the remote location.

Dyna-Vision™ is the first true telemedicine product available to healthcare providers and their patients.

Mobile Applications

Remote monitoring of vital signs is not only possible with our PC software. Use our sophisticated Smartphone and iPad application or web interface to monitor vital signs of your patients without using your computer.

Mobile Phone

Use our iPhone, Android or Blackberry application to monitor a patient's vital signs. The phone connects to the Dyna-Vision™ unit to initiate the transmission of the actual and current parameters and waveforms to the phone. On the display of the phone you will see ECG, Heart Rate, SpO2, Plethysmogram and battery level of the Dyna-Vision™ unit.

Dyna-Vision™ Server

Our server allows access by Dyna-Vision™ software to activate the data transmission from the Dyna-Vision™ Unit to the software. With a single mouse click you have access to real-time ECG, Heart Rate, SpO2, Plethysmogram and the battery level of the Dyna-Vision™ unit.



Dyna-Vision™ for apnea screening is used by:

- Sleep centers
- Hospitals
- General practitioners
- Home care providers
- Telemedicine service providers



Benefits of Dyna-Vision™ Apnea

Dyna-Vision™ features automatic detection of cardiac and respiratory events which are automatically transmitted to a remote location for analysis. The Respiration Chest Belt in combination with the Heart Rate and SpO2 detections provides detailed information about sleep apnea events that occur during the night.

Dyna-Vision™ does not need any peripherals to transmit the recorded events. The built-in GPRS modem with SIM card is used for data transmission. The user interface is friendly and offers a single-button control. Dyna-Vision™ Software offers a truly unique feature; Real-time Monitoring of ECG, SpO2 and Respiration by a remote physician !

Dyna-Vision™ Apnea comes with a 3-lead wire ECG cable, a SpO2 finger sensor and a Respiration Chest Belt.

Applications

The product comes with a basic software platform. Dyna-Vision™ can be used for different applications and for each of these applications we offer a software module which integrates in the basic platform. In this way you can easily upgrade your system with new features and benefits.

Technical specifications

Dyna-Vision™ Unit

Dimensions:	115 x 59 x 26 mm
Weight:	190 gram
Power:	Internal rechargeable battery (3,7 V)
Operation time:	17 hours real-time GPRS 24 hours real-time Bluetooth 70 hours holter recording
Charging time:	2 hours
Storage:	30 days full-disclosure
Event button:	Yes
Arrhythmia detection:	Yes; Tachycardia, Bradycardia, Pause, Atrial fibrillation, Low saturation, Battery low, Lead off, Device on/off
Controls:	Ruggedized foil with integrated buttons
Charger:	Autoswitching 110 - 230 VAC (external adaptor)



ECG

Leads:	3, 5 or 12 (I, II, III, AVR, AVL, AVF, V1-V6)
ECG cable:	Special with Active Noise Reduction
Sample rate:	1,0 kHz
RR intervals:	Yes, automatically

SpO2

Range (SpO ₂):	0 to 100%
Rate Range:	18 to 321 beats per minute (BPM)
Type:	Infrared 910 nanometers @ 1.2 mW
SpO ₂ Accuracy:	70-100% (Adults/Pediatrics Neonates)
Pulse Rate Accuracy:	18-300 BPM (Adults/Pediatrics Neonates)
Peak detection:	Automatic

Respiration

Type of sensor:	Flexible extension chest belt
Respiration curve:	Yes
Range:	2 to 60 breaths per minute

Bluetooth

Operating freq. range:	2400 ... 2483,5 MHz ISM Band
Compliance:	Bluetooth specification, version 2.0 + EDR
Class:	Class I (100 meters)

GSM / GPRS

Operation frequency:	GSM 850, E-GSM 900, DCS 1800 and PCS 1900
Antenna:	Built-in
SIM card:	Local SIM card

USB

Type:	2.0
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