

# NewTech<sup>®</sup> NeuVision 500



## Features

This monitoring system may be used to monitor patient's 6 physiological parameters: ECG, respiratory rate, body temperature, non-invasive blood pressure (NIBP), pulse oxygen saturation (SpO<sub>2</sub>), and pulse rate.

- ✧ It is lightweight, easy to carry and operate;
- ✧ 7" high-resolution (800 × 480pixel) color LCD to display patient's ECG waveform, respiratory waveform and SpO<sub>2</sub> waveform;
- ✧ Abundant and friendly display interface, multifold ECG display screen:

*Main monitoring screen:* displays the information of all the waveforms and parameters visually.

*Observing screen:* heart rate value and SPO<sub>2</sub> value display in big fonts.

*Seven lead waveforms on one screen:* displays the information of 7 ECG lead waveforms and different monitoring parameters on one screen.

*Five channel real-time waveforms and two hours' trends viewing:* intuitionistic knowing the physiological status of patient.

*oxyCRG screen:* displays heart rate trend, SpO<sub>2</sub> trend, respiration trend or waveform simultaneously on oxyCRG screen, to know the instantaneous condition change of patient.

- ✧ Intuitionistic and easy calculation. Medical consistent calculation and analysis can accurately figure out the speed of medicine supply and dose, to observe the relation

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#### International offices

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# NewTech®

between amount and effect indirectly.

- ✧ Convenient and applied accessorial tourniquet function, according to patient's condition, different tourniquet cuff pressure can be set.
- ✧ Automatic analysis of 20 arrhythmia waveforms and VPC, waveform freezing function and automatic ST segment measurement and manual analysis;
- ✧ Up to 480 hours statistic data of ECG, ST,TEMP, SpO<sub>2</sub>, RESP and NIBP trends;
- ✧ value of each case;
- ✧ 100 groups of arrhythmia cases' data and the corresponding HR, TEMP, SpO<sub>2</sub>, RESP and pulse
- ✧ Storage and recall of a list of 800 groups of NIBP measurement data, as well as heart rate, body temperature, respiratory rate and SpO<sub>2</sub>/pulse rate when the measure of blood pressure is taken;
- ✧ 36 hours of ECG data storage and recall;
- ✧ High precision NIBP measuring module;
- ✧ Special SpO<sub>2</sub> measuring device, which ensures the accuracy of SpO<sub>2</sub> and pulse rate measures;
- ✧ Visual and audible alarm, recall of alarm events;
- ✧ Flexible high and low alarm limits setting function;
- ✧ Real-time monitoring of battery capacity, when the battery power is insufficient, low battery voltage alarm indication will display on LCD screen.
- ✧ Easy to color-code and change the color of the font, background and waveforms if need to be;
- ✧ Resistance against defibrillator and electrosurgical knife interference, detects and filters the pacemaker-generated signals, and high safety level;
- ✧ Able to be used along with cardiac pacemaker;
- ✧ "Adult/Infant" mode which may be selected via the menu, to better suit the adult and infant patient;
- ✧ Networking with the central station as a part of the central network;

## ECG Monitoring

1. Input signals range in amplitude:  $\pm(0.4\text{mVp} \sim 5\text{mVp})$
2. Heart rate display range: 20bpm~300bpm
3. Heart rate display accuracy:  $\pm 1\%$  or  $\pm 2\text{bpm}$ , whichever is greater.

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4. Heart rate alarm delay time:  $\leq 10s$
5. Sensitivity selection:
  - $\times 1/2$ , 5mm/mV tolerance:  $\pm 5\%$
  - $\times 1$ , 10mm/mV tolerance:  $\pm 5\%$
  - $\times 2$ , 20mm/mv tolerance:  $\pm 5\%$
6. Sweeping speed: 12.5mm/s, 25mm/s, 50mm/s tolerance:  $\pm 10\%$
7. ECG noise level:  $\leq 30\mu VP-P$ .
8. ECG input loop current:  $\leq 0.1\mu A$
9. Differential input impedance:  $\geq 5M\Omega$
10. Common-mode rejection ratio (CMRR):  $\geq 89dB$
11. Time constant:
  - Monitoring mode:  $\geq 0.3s$  Diagnostic mode:  $\geq 3.2s$
12. Frequency response:
  - Monitoring mode:  $0.5 Hz \sim 40Hz \left( \begin{smallmatrix} + & 0 \\ - & 3 \end{smallmatrix} ; \begin{smallmatrix} 4 & d \\ 0 & d \end{smallmatrix} \frac{B}{B} \right)$
  - Diagnostic mode:  $0.05 Hz \sim 75Hz \left( \begin{smallmatrix} + & 0 \\ - & 3 \end{smallmatrix} ; \begin{smallmatrix} 4 & d \\ 0 & d \end{smallmatrix} \frac{B}{B} \right)$

## Standards:

Meets the performance standards of IEC 60601-2-27. The following references particular of IEC 60601-2-27.

- Respiration, leads-off** : Applied current less than 0.2 microamperes.
- Tall T-wave rejection.** -wave of 0.8 mV amplitude will not affect heart rate determination.
- Heart rate averaging** Averages eight at most of recent beats having RR intervals fall within the acceptable limits.
- Response to irregular rhythm.** A1 Ventricular bigeminy-80BPM  
A2 Slow alternating ventricular bigeminy-60BPM  
A3 Rapid alternating ventricular bigeminy-120BPM
- Heart rate meter response time** A) Change from 80 to 120BPM: 4 to 6sec  
B) Change from 80 to 40BPM: 6 to 7sec
- | <u>Waveform B1, Amplitude</u> | <u>Average Time to Alarm</u> |
|-------------------------------|------------------------------|
| 0.5 mV                        | 4sec                         |
| 1 mV                          | 4sec                         |
| 2mV                           | 4sec                         |
- 
- | <u>Waveform B2, Amplitude</u> | <u>Average Time to Alarm</u> |
|-------------------------------|------------------------------|
| 1mV                           | 3sec                         |
| 2mV                           | 3sec                         |
| mV                            | 3sec                         |

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## Pacemaker pulse rejection

With the exceptions noted below, the monitor will reject all pacemaker pulse having amplitudes of  $\pm 2$  to  $\pm 700\text{mV}$  and pulse widths from 0.1 to 2.0ms, with and without under/overshoot. Following are pacer pulse conditions which the monitor will reject, but which are

Pacer pulse Pacer amplitude= $\pm 300\text{mV}$   
width=2ms, double  
pulse, without

Pacer pulse Pacer amplitude= $\pm 300\text{mV}$   
width=2ms, single and  
double pulse, with  
2mV over/undershoot,  
no QRS

Pacer pulse Pacer  
width=0.1ms, double amplitude= $\pm 300\text{mV}$ , -400mV  
pulse, with 2mV  
over/undershoot,  
ineffective pacing

## RESP Monitoring

1. RESP rate measuring range: 0rpm~120rpm
2. RESP rate accuracy:  $\pm 5\%$  or  $\pm 2$  rpm, whichever is greater
3. RESP rate alarm limit setting range: 0rpm~120rpm.
4. Alarm tolerance:  $\pm 5\%$  or  $\pm 2$  rpm, whichever is greater

## TEMP Monitoring

1. TEMP measuring range:  $25.0^{\circ}\text{C}\sim 45.0^{\circ}\text{C}$
2. TEMP measuring accuracy:  $\pm 0.2^{\circ}\text{C}$
3. TEMP responding time:  $\leq 150\text{s}$

## NIBP Monitoring

1. Measuring method: Oscillometric Technique
2. Pneumatic pressure measuring range: 0 mmHg~300mmHg
3. Accuracy of pressure measurement:  $\pm 3$  mmHg

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4. Cuff inflation time: <10 seconds (typical adult cuff)
5. Measurement time on the average: < 90 seconds
6. Air release time while the measurement is canceled: <2 seconds (typical adult cuff)
7. Initial cuff inflation pressure  
Adult: <180 mmHg; Infant: <120 mmHg;
8. Overpressure protection limit  
Adult: 300 mmHg; Infant: 240mmHg;
9. NIBP measurement range:

| press (unit) |      | Adult  | Infant |
|--------------|------|--------|--------|
| SYS          | mmHg | 40~255 | 40~200 |
| MAP          | mmHg | 20~215 | 20~165 |
| DIA          | mmHg | 10~195 | 10~150 |
10. NIBP accuracy:  
Maximal mean difference:  $\pm 5$  mmHg  
Maximal standard deviation: 8 mmHg
11. Measurement mode: Manual, Auto, STAT

## SpO<sub>2</sub> Monitoring

1. Transducer: dual-wavelength LED  
Wavelength: Red light: 660 nm, Infrared light: 905 nm.  
Maximal optical output power: less than 2mW maximum average
2. SpO<sub>2</sub> measuring range: 35%~100%
3. Low perfusion capability: 0.4%~5%
4. SpO<sub>2</sub> measuring accuracy: not greater than 3% for SpO<sub>2</sub> range from 70% to 100%  
\*NOTE: accuracy defined as root-mean-square value of deviation according to ISO 9919
5. Low perfusion performance: the declared accuracy is attained when the pulse amplitude modulation ratio is as low as 0.4%

## Pulse Rate Monitoring

1. Pulse rate measuring range: 30bpm~240bpm
2. Pulse rate measuring accuracy:  $\pm 2$ bpm or  $\pm 2\%$ , whichever is greater.

## Other Technical Specifications

1. Power supply: 100~240VAC, 50/60Hz

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2. Power consumption: see the nameplate on the monitor
3. Rechargeable Li-ion battery specification: 14.8V 2200mAh
4. Display mode: 7 inches TFT color LCD Resolution: 800×480pixel
5. Alarming mode: Audible & visible alarm
6. Communication: Serial/Net port

## Classification

|   |  |
|---|--|
| Safety standard:  | IEC 60601-1  |
| The type of protection against electric shock             | Class I equipment.   |
| The degree of protection against electric shock           | Type BF and CF applied parts                                       |
| Electro-Magnetic Compatibility:                           | Group I, Class A   |
| The degree of protection against harmful ingress of water | Ordinary equipment without protection against ingress of water.    |
| The safety degree of flammable gas                        | Not suitable to use in the environment where flammable gas exists. |

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