



RESmart™ Auto Pressure

(Applied on AutoCPAP and BPAP 25A)

Clinician's Manual

The treatment pressure required by the patient may vary through the night, and from night to night, due to changes in sleep states, body position, and airway resistance. RESmart™ Auto Pressure provides only sufficient pressure to maintain upper airway patency.

You can set the initial and maximum allowable treatment pressures. RESmart™ Auto Pressure analyzes the state of the patient's upper airway on a breath-by-breath basis and delivers pressure within the allowed range according to the degree of obstruction. RESmart™ Auto Pressure adjusts treatment pressure as a function of four parameters: Apnea, Snore, Flow Limitation, and Hypopnea.

Apnea

An apnea is defined as a greater than 80% decrease in ventilation. After scores 2 apneas within 3 minutes, treatment pressure will rise. The rising speed is inverse proportion to current pressure, namely the higher current pressure the lower rising speed. Treatment pressure stops rising when normal ventilation and no snore. If ventilation keeps normal for several minutes, treatment pressure will decrease. The descending speed is direct proportion to current pressure, namely the higher current pressure the higher descending speed.

When treatment pressure approaches 10hPa(cmH₂O) during rising, not only rising speed will decrease greatly but also snore or flow limitation must be detected for increasing pressure. This is to prevent an inappropriate response to central apneas.

Snore

When a patient snores, sound is generated and the inspiratory flow/time curve is distorted by the frequency of the sound. RESmart™ Auto Pressure detects and calculates snore level breath-by-breath. When snore sound intensity exceeds 50% higher than background noise, then one snoring event is

scored. Treatment pressure increases after continuing 3 snores. The rising speed is inverse proportion to current pressure, namely the higher current pressure the lower rising speed.

Snore Level is index for degree of patient snoring. It is the percentage of all breathes with snoring event.

For example, 20% means 20 breathe along with snoring in all 100 breathes.

Flow Limitation

Flow Limitation is the partial airway closure without snore. As the upper airway begins to collapse, the shape of the inspiratory flow/time curve changes and the central section flattens. RESmart™ Auto Pressure analyzes the curve shape of each breath and calculates the distortion.

Flow Limitation usually precedes snoring and obstruction. Detection of Flow Limitation enables the device to increase the pressure before obstruction occurs, making treatment pre-emptive. This is also the important criterion for obstruction and central apnea.

Hypopnea

A hypopnea is defined as a 60-80% decrease in ventilation. After scores 6 hypopneas within 3 minutes, treatment pressure will rise.

Treat P Setting (IPAP on BPAP 25A)

Usually Treat P(IPAP) is recommended to be set as to P95 pressure. RESmart™ Auto Pressure can perform the best treatment effect. When treatment pressure is rising, if current pressure is lower than Treat P(IPAP), the rising speed is doubled. If current pressure is higher than Treat P(IPAP), the rising speed is normal. Contrarily, when treatment pressure is decreasing, if current pressure is lower than Treat P(IPAP), the decreasing speed is normal. If current pressure is higher than Treat P(IPAP), the decreasing speed is doubled.

Sensitivity

Sensitivity setting can perform personalized benefits according to patient's requirement and habit. The higher Sensitivity (for example 5), the higher speed of pressure changing (increase and decrease) is. And when ventilation increases rapidly and suddenly (like patient awake), the treatment pressure decreases quickly to improve the patient comfort.