



Using the Advanced features of the Tefonius software

Scope: This applies to software versions 1174 and above

Buffer Volume

The Buffer Volume is a user-controllable value and is set by a button located on the Tidal Volume button.

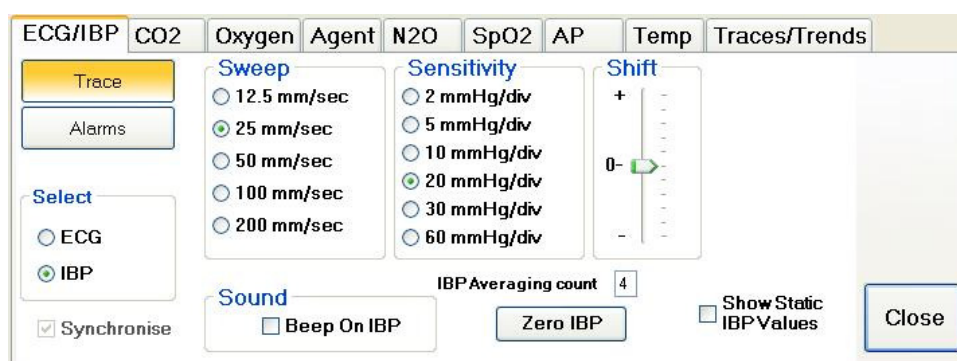


The Buffer Volume can be set to any value between 0 and 20. The size of the Buffer Volume is added to the Tidal Volume to determine the maximum capacity of the cylinder. In the button shown above, the piston will not fill above a level of 15L (TV=10, BV=5). Note that when the Ventilate button is pressed, only the 10L will be delivered to the patient. This change allows for much easier control of circuit volume. The default value for the Buffer Volume can be set in the Initial Settings, accessed using the Configure Button and then the Initial Settings tab. To save these settings, be sure to save the active Preset, either after the change has been made, or on leaving the program.

Data Averaging in IBP Measurements

The Systolic, Diastolic and Mean values of the blood pressure system are on a beat-beat measurement basis. The number of pulses used to average the data can be selected by the user from 1, up to a maximum of 16. To use this feature enter the number of samples over which to average the data in the edit box found in the IBP Attribute tab. The simplest way to bring up this tab is to touch the IBP button at the top left of the screen. The following Attribute panel will then appear.

IBP Attribute tab





Also in this IBP Attribute tab the IBP Values can be set to Static. This means that the value shown in the IBP button will be the continuous and instantaneous pressure. No Algorithm is applied to detect Systolic and Diastolic Values.

CPAP

The CPAP function has not changed, but the transition between CPAP values has been modified to allow a smoother implementation. The transition to the new CPAP value is now made in small steps, each step taking 50ms. So, setting a new CPAP value of 20 when the existing value is 0 will produce a slow ramp up to the 20cm CPAP over 1 second. This feature prevents abrupt changes in patient airway pressure.

If the machine has support for CPAP in both Tafonius mode and Auxiliary mode then, when changing between Tafonius Mode and Auxiliary mode, the CPAP value is maintained.

Assist Mode

This is feature can be accessed by touching the Inspiratory Flow button at the bottom of the screen. A new small green square button then appears with the word "Assist" on it. The value in this new button is the flow rate in Litres per minute required to trigger a single ventilation phase. Note that therefore the Assist mode is flow-triggered and not pressure-triggered. To use the Assist mode, the Flow Trigger button must be visible and the machine must be set to ventilate by pushing the "Push To Ventilate" button. When this is done the machine will deliver one breath and then begin a wait phase, where the inspiratory flow is measured. If the inspiratory flow matches or exceeds the level set by the Assist button then the full Tidal Volume will be delivered. If a sufficient flow is not detected within a period equal to 3 x the normal breath cycle then a mandatory breath of the full Tidal Volume is delivered. This reduced ventilation rate is shown by the set Respiratory Rate, which will be reduced to one third once the Assist button is pressed. Leaving Assist mode will return the Respiratory Rate to its previous value unless the user has made a change during Assist Mode. The default value for the Assist threshold can be set in the Initial Settings, accessed using the Configure Button and then the Initial Settings tab. To save these settings be sure to save the active Preset, either after the change has been made, or on leaving the program.



Oxygen blending

It is possible to blend oxygen with room air to create fractional inspired oxygen levels of between 0.21 and 1.0. The air required for this blending is acquired from a pump inside of Tafonius. The air is pulled in through a small microbial filter situated on the front panel behind the PC monitor. Tafonius can regulate the addition of air and or oxygen to deliver the correct blend. To use this feature, you will need to turn the manual flow meters for your normal gases off. At the moment the feature expects the use of Oxygen and Air on your machine only. **If you routinely use Nitrous Oxide and this is fitted to your machine the feature will not work properly and should not be used.** To activate the feature, touch the Oxygen button on the middle right of the screen. This brings up the Oxygen Attribute panel and there you will find a small tick-box labelled "Enable", under the legend "FiO2 Control".

Place a tick in this tick-box by touching/clicking on it. This causes two new buttons to appear in the Oxygen button. One is labelled FGF for Fresh Gas Flow and the other is labelled FiO2.



Note that the Oxygen value is shown as Disabled at start-up until the unit has initialised. The feature will not work unless the oxygen sensor has self-calibrated and the Oxygen levels are being measured.

Touch the button labelled FGF and select your total required fresh gas flow, e.g. 5L/min for a 500kg horse. Then touch the FiO2 button and select the required FiO2 value as fraction, e.g. 0.6. The machine will now add gas every 15 seconds equivalent to a minute rate of the set FGF rate. The correct blend of oxygen and air will be added to achieve the desired FiO2 level based on



the measured inspired oxygen level. For this feature to work effectively, you must have a working oxygen sensor and a horse that is either breathing well spontaneously or is being ventilated. This is because the mixing of gases in the circuit is dependent on circulation through the patient circuit and a patient that is not breathing regularly will not mix these gases sufficiently to allow successful control of the mixture. Please note that at any time additional gas can be added using the manual flow meters. The initial values for FGF and FiO₂ can be set in the Initial Settings, accessed using the Configure Button and then the Initial Settings tab. To save these settings, be sure to save the active Preset, either after the change has been made, or on leaving the program.