

New naming of Dräger Medical Anesthesia Ventilation Modes

I. Situation

1. **Twenty years** ago anesthesia ventilators had mainly **two modes**: Controlled ventilation (IPPV) and Man./Spont.

Today, with Primus and ZEUS, the Ventilators have a **multitude of individual modes**.

For instance in PRIMUS the following modes are possible:

**IPPV; SIMV(VC), SIMV(VC)+PS
PCV; SIMV(PC), SIMV(PC)+PS
PS
MAN./ SPONT.**

These modes have also different names in different countries.

2. The term **IPPV** has been used for a long time. We have observed that young doctors, not knowing the historical reasons, don't understand the signification of IPPV. IPPV means Intermittent **Positive Pressure Ventilation**. "Positive pressure ventilation", strictly speaking means volume controlled as well as pressure controlled ventilation. For pediatrics or in neonatology IPPV means pressure controlled ventilation. But in anesthesia or in the intensive care unit IPPV is used as synonym for volume controlled ventilation. Therefore there is **no clear understanding of IPPV**.

3. There is also **no consistency** between nomenclature from **manufacturer** to **manufacturer**, so we have different names for pressure support, causing confusion:

PSV (Pressure Support Ventilation), ASB (Assisted Spontaneous Breathing) and IHS Inspiratory Help System.

Therefore we tried to overcome this situation.

II New names as consequence

1. No use of abbreviations

Nowadays, in nearly each country of the world we may have different terms and abbreviations

in different languages. We hope that not using abbreviations makes it easier to understand the meaning of ventilation modes.

2. Volume Mode and Pressure Mode

For the controlled ventilation modes (if the patient is relaxed) we use the name **Volume Mode**, every time the user sets a volume on the ventilator and the name **Pressure Mode**, every time the user sets an inspiratory pressure on the ventilator.

3. Pressure Support Mode

Because we introduced pressure support in Dräger anesthesia machines the first time, we used the name Pressure Support Mode. So all customers should understand this, if the patient breathes spontaneously and the ventilator supports the spontaneous breathing efforts.

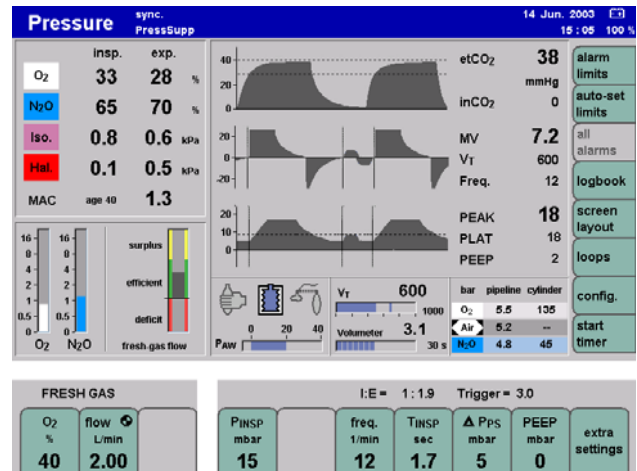
4. Synchronized Mode

If we use the "Trigger" as an additional feature in a controlled ventilation mode and the patient partially breathes spontaneously, we call this synchronized Mode. SIMV (VC) is called **Volume Mode Synchronized**. SIMV (PC) is called **Pressure Mode Synchronized**. In this way we have a mixture of controlled ventilation and spontaneous breathing. If every spontaneous effort is supported by pressure support and in between we have a synchronized volume controlled stroke, we call this Volume Mode Sync. Press. Supp.

5. AutoFlow™

In ZEUS® we have two volume modes

- The classical mode with constant inspiration low called **Volume Mode const. Flow** (former IPPV)



- Volume mode which determines automatically the level of inspiratory flow in such a way, that the smallest inspiratory pressure is used to guarantee the set volume based on a breath by breath feedback control loop. This mode is called **Volume Mode auto Flow**

By this way we reduce the complexity having only four names for basic ventilation modes to start an anesthesia ventilator.

- Volume mode
- Pressure mode
- Pressure support mode
- Manual/ spontaneous mode

We hope that this helps to make simple and more transparent, the common understanding of the same ventilation modes in different parts of the world and in different languages.

III. Where you find these new names

In the Dräger Medical anesthesia workstations **Primus** and **ZEUS®** you will find these new names.

For Fabius GS, and Fabius Tiro will get the new names in a future software version.

PD Dr. E. Siegel