

# THE NEW CONFIGURABLE AND EXPANDABLE GAS MODULE OF OUR F0-BABY AND F1 BENCHTOP BIOREACTORS WILL UNLOCK THE POTENTIAL OF YOUR BIOPROCESS

## CONTACT DETAILS

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Deciding the configuration of your bioreactor can be a challenging process, especially when looking for a benchtop system to take the first steps at this scale. For that reason, configurability and expandability are the main factors to consider in this situation, so the optimization of your process does not get compromised due to a rigid and closed system. Bionet's products are built around this idea, and the new gas module for F0 and F1 bioreactors is the jewel in the crown.

## ARE YOU ASSESSING YOUR PRIORITIES? DON'T LET THIS SLIP AWAY!

Versatility is a must to find the right conditions to optimize the process. Performance is also key, to enhancing the reproducibility of these conditions introduced from the software interface, especially when talking about gas requirements. And last but not least, making a high initial investment to opt for all the possibilities in your bioprocess can also be a limiting factor, which is why future expandability is key. For these reasons, the new gas module developed by Bionet for F0 and F1 laboratory bioreactors will be the best solution for any process.

## "FINE-CONFIGURE" YOUR GAS MODULE SYMPHONY

To configure the gas module the main aspects to be considered are: how many gases will be used simultaneously, which gases will those be, the way they are going to be introduced into the bioreactor (sparger or overlay), and the flow range required for each gas. The gas module can work with air, oxygen, carbon dioxide, and nitrogen.

There are two variations of the ROSITA software product: ROSITA 1.12 and ROSITA 2.0 software. In ROSITA 1.12 the gas module can include up to 4 mass flow controllers (MFC), while in 2.0 it can include one extra MFC, up to 5. There are three types of gas lines (G): fixed sparger, fixed overlay, or selectable, so the possible options would be:

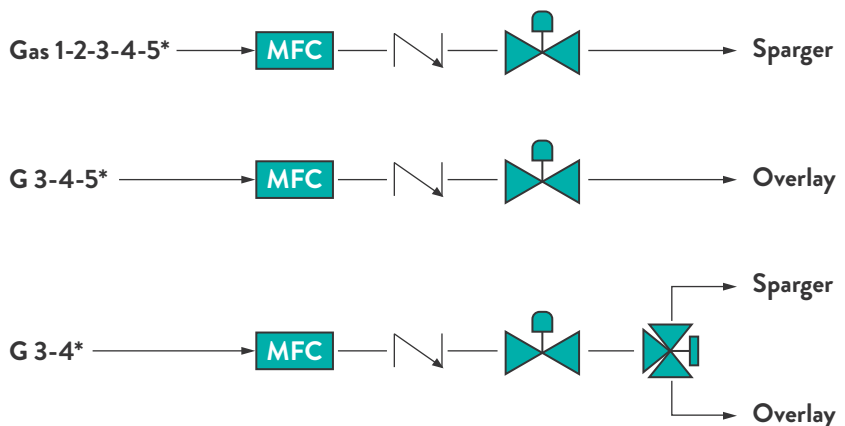


Figure 1. Different types of gas lines available.  
\*Only in ROSITA 2.0

With the new gas module is possible to combine these two aeration inlets, as 2 lines are fixed for sparger while the other 3 can be either for sparger or overlay, allowing for multiple combinations. With this variety of options, the needs of your process will be easily met.

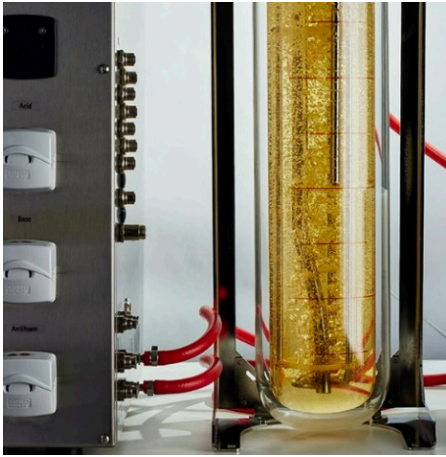


Figure 2. F1 airlift vessel.

The supplied flow of each gas depends mainly on the working volume, and the cell type. For that reason, for each gas line is possible to select a mass flow controller with low, mid, or high flow, adjusting to the specific needs of each gas:

| Flow rates (slpm) |               |
|-------------------|---------------|
| High              | 0,2 - 18 slpm |
| Mid               | 0,1 - 9 slpm  |
| Low               | 0,02 - 2 slpm |

slpm: standard liters per minute

In Rosita 2.0 there are almost 21.000 combinations possible, so to make your life easier we recommend taking a look at our [Expert References: How to use the Bionet gas module on an F0/F1 optimally for my process?](#) where you can find valuable information from our experience and literature for configuring the gas module based on your process needs and characteristics.

## EXPAND THE FRONTIERS OF YOUR PROCESS

Another important feature of the gas module is that it has been designed around the idea of after-sales expansion and/or modification.

As a process is being optimized many factors might need to be adjusted or modified in order to reach the optimal conditions, and an aspect such as critical as gassing has to be suitable for it, so that is what Bionet has done.

Thanks to this, you will not have to worry about sending the equipment back to the factory or even consider the purchase of a new bioreactor no matter the changes that need to be done.

## LOOKING FOR PERFORMANCE? WE'VE GOT YOUR BACK

When it comes to bioreactors, performance is another key aspect for obtaining reliable results. At Bionet we take this very seriously, as we are constantly testing our new developments to get the best out of them and, in this case, it translates into a gas module that guarantees precision, accuracy, and reproducibility.

The precision and accuracy of the mass flow controllers ensure that the desired flow rates are maintained with minimal fluctuations, which is essential for controlling the growth conditions. In addition, these mass flow controllers have a 100:1 turndown ratio that provides the flexibility to adjust gas flow rates over a wide range without compromising the reproducibility of the set conditions.