

# SONIMIX 7000 PROGRAMMABLE GAS BLENDER WITH MASS FLOW CONTROLLERS

The SONIMIX 7000 have been specially developed for the calibration and linearity checking of stack gas monitors. The SONIMIX 7000 uses the latest technology of Mass Flow Controllers in order to generate simple or complex mixtures of gases with high accuracy and repeatability. The SONIMIX devices have been designed with an integrated active purge system and the systematic suppression of dead volumes in order to obtain fast response time. Using the SONIMIX 7000 it is possible to greatly decrease the number of cumbersome and expensive gas cylinders, which reduces the costs, saves time and reduces errors. The SONIMIX 7000 is totally compatible with the US EPA methods and can be easily linked with National Standards (NIST, METAS, UKAS...).

Each MFC is factory calibrated at 11 points by a traceable primary flow standards. The internal processor interpolates these values in order to obtain high linearity. The internal processor calculates the concentration of the mixture and corrects the different gas flow in function of the nature of the used gases. In addition the dilution steps are computed using the calibration data of each MFC. This method ensures an accuracy of 0.5% for each gas flow and an accuracy of 1.5% (of set point) for the concentration. In order to save time, all critical parameters such as type and composition of alimentering gases, working units (% , ppm, ppb) are stored in the EEPROM.

The SONIMIX has an user friendly LCD interface. The gas mixer can be used in a "flow mode" or "concentration mode". In addition, the recalibration and tracability of each MFC can be easily performed by the user with the "reference mode" (this particular menu is protected with a password).

The SONIMIX 7000 has also a RS 232 serial interface and a Windows based software is also available as option.

In the **Multi Range** configuration, the SONIMIX 7000 generates binary gas mixtures but offers a wide concentration range.

As example with a

1000 ppm CO gas cylinder:

The Multi range model will generate

100 ppm to 1000 ppm CO  
10 ppm to 100 ppm CO  
1 ppm to 10 ppm CO

Other ranges are also possible\*



The **Basic model** is the most simple configuration for a gas mixer. This model generate binary gas mixture with a dynamic range of 10.

As example with a

1000 ppm CO gas cylinder:

The Basic model will generate

100 ppm to 1000 ppm CO

Of course, other ranges are also possible\* :

An inlet multiplexor is also available as option.

\* The different ranges must be defined before the production of the device. A change of range can only be performed at LNI

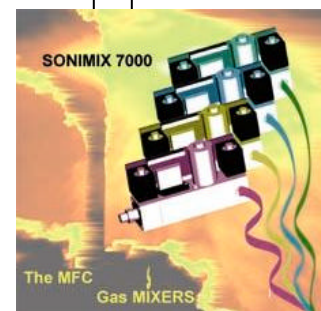
In the **multigas** configuration, the SONIMIX 7000 generates a gas mixture made of 6 different types of gases\*\*

As example :

10 ppm to 100 ppm CO  
10 ppm to 100 ppm SO2  
25 ppm to 250 ppm NO  
2 ppm to 25 ppm NO2  
1 ppm to 10 ppm H2S

Balance : Air or Nitrogen

\*\* The number of components must be between 2 and 6 and must be defined before the production of the device. A change of the components number is still possible but can only be performed at LNI



**TECHNICAL DATA:**

Gas alimentation :

Diluted lines Pure or premixed dry gases, low corrosive premixed gases such as CO, SO<sub>2</sub>, NO, CL<sub>2</sub>, H<sub>2</sub>S, ..... in Air or N<sub>2</sub>  
 Carrier line Dry air coming from a SONIMIX Zero Air Generator or from an Air or N<sub>2</sub> gas cylinder.

Inlet pressure : 3 bar rel (~43PSI). (other values upon request)

Outlet pressure: atmospheric  
 900 mbar rel (~13 PSI) as option

Flow Range of each MFC : maximum range : 2 to 20 NL/min  
 minimum range : 1 to 10 Ncc/min

Dynamic range of MFC : 10 ( 10% to 100% of the full scale )

Number of MFC : 2 to 6 MFC

Total flow Dependant on the number of MFC's

Accuracy of MFC: 0.5% of set point  
 Repeatability: 0.5% of set point

Warm Up time : less than 25 minutes

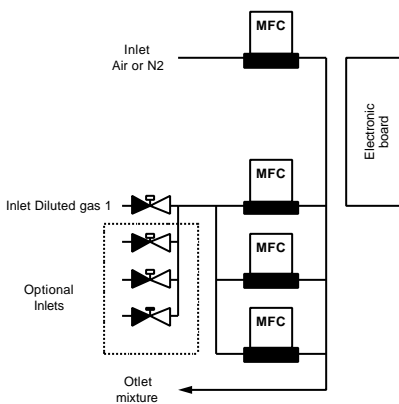
Stabilisation Time of the mixture : less than 1 minute (Once the device has warmed up)

Leak tight : less than 10<sup>-7</sup>mbar L/s, checked by He detection

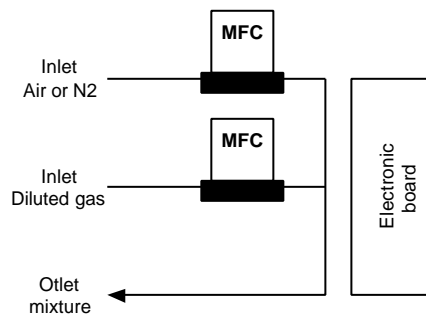
Power consumption: 25W for the basic model  
 220V AC / 50 Hz

Casing : 1/2 19" portable (or 19" for rack) ,3U, 500 mm  
 Fittings : Double ring system 1/4" swagelock, 316 L

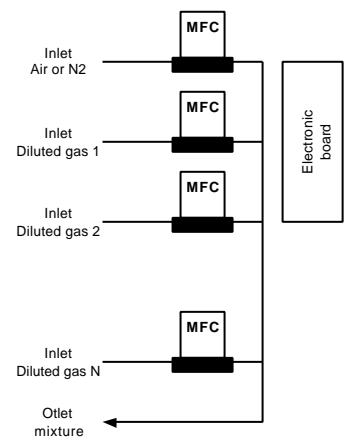
**The multi range**



**The basic model**



**The multi gas**



MD Scientific is authorized distributor in Denmark for LNI-Schmidlin  
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