

# LAMBDA MASSFLOW

## Gas flow controller and meter

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LAMBDA MASSFLOW thermal gas flow controller and meter, specially **designed to use with MINIFOR** laboratory bioreactor and fermentor. However, **it can also be used independently**, since all its functions can be controlled from the front panel of the MASSFLOW.

MASSFLOW allows precise metering or reproducible flow rate regulation of the desired gases (Air, O<sub>2</sub>, CO<sub>2</sub>, N<sub>2</sub>,...).

- Stand-alone instrument; stand-alone MASSFLOW units controlled by PNet software or used together with MINIFOR fermentor-bioreactor
- High-quality laminar mass flow sensor
- Mass flow cell shows minimal pressure drop
- Linearity error less than  $\pm 3\%$  reading
- Repeatability better than  $\pm 0.5\%$  reading
- Programmable gas flow rate (controller only) and volume totalizer (Pump-flow INTEGRATOR)

### PRECISE REGULATION



MASSFLOW with proprietary proportional needle valve provides precise measurement independent of pressure, temperature or humidity

### AUTOMATIC GAS MIX



MINI-4-GAS, gas-mixing module allows a flexible and controlled supply of different gases with PNet software for mammalian cell cultures

### O<sub>2</sub> ENRICHMENT



MASSFLOW gas flow controller for the high cell density bacterial and yeast cultures under optimized fed-batch fermentation processes

# Types of MASSFLOW controller and meter

MASSFLOW gas flow controller		MASSFLOW gas flow meter (only)		
<b>MASSFLOW 5000</b> <i>Art. No.: 8071</i>	<b>MASSFLOW 500</b> <i>Art. No.: 8072</i>	<b>MASSFLOW 5000-s</b> <i>Art. No.: 8071-s</i>	<b>MASSFLOW 500-s</b> <i>Art. No.: 8072-s</i>	<b>MASSFLOW 500-hs</b> <i>Art. No.: 8072-hs</i>
<b>Flow range:</b> 0 - 5 l/min in 0.01 l/min steps <i>(controller)</i>	<b>Flow range:</b> 0 - 500 ml/min in 1 ml/min steps <i>(controller)</i>	<b>Flow range:</b> 0 - 5 l/min in 0.01 l/min steps <i>(meter only)</i>	<b>Flow range:</b> 0 - 500 ml/min in 1 ml/min steps <i>(meter only)</i>	<b>Flow range:</b> 0 - 99.9 ml/min in 0.1 ml/min steps and 100 - 500 ml/min in 1 ml/min steps <i>(meter only)</i>
<b>Gases:</b> Air / N <sub>2</sub> / O <sub>2</sub> or CO <sub>2</sub> / Ar	<b>Gases:</b> Air / N <sub>2</sub> / O <sub>2</sub> or CO <sub>2</sub> / Ar / He / H <sub>2</sub>	<b>Gases:</b> Air / O <sub>2</sub> / N <sub>2</sub> or others	<b>Gases:</b> Air / O <sub>2</sub> / N <sub>2</sub> or others	<b>Gases:</b> Air / O <sub>2</sub> / N <sub>2</sub> or others
<b>Programmable:</b> 99 steps of flow rate, time & pause	<b>Programmable:</b> 99 steps of flow rate, time & pause	<b>Meter only</b>	<b>Meter only</b>	<b>Meter only</b>
<b>Remote control:</b> 0 – 10 V; ON/OFF; RS-485 or RS-232	<b>Remote control:</b> 0 – 10 V; ON/OFF; RS-485 or RS-232	RS-485 or RS-232 connection	RS-485 or RS-232 connection	RS-485 or RS-232 connection

## Technical specifications

<b>Type</b>	LAMBDA MASSFLOW – microprocessor-controlled gas flow controller (controller only) and gas flow meter
<b>Accuracy</b>	± 3% reading or 1 digit
<b>Repeatability</b>	± 0.5 % reading or 1 digit
<b>Flow range</b>	
MASSFLOW 5000	0 - 5.00 l/min in 0.01 l/min steps (controller)
MASSFLOW 500	0 - 500 ml/min in 1 ml/min steps (controller)
MASSFLOW 5000-s	0 - 5.00 l/min in 0.01 l/min steps (meter only)
MASSFLOW 500-s	0 - 500 ml/min in 1 ml/min steps (meter only)
MASSFLOW 500-hs	Auto-range: 0 - 99.9 ml/min in 0.1 ml/min steps and 100 - 500 ml/min in 1 ml/min steps (meter only)
<b>Calibration</b>	N <sub>2</sub> /Air (pre-calibrated sensors for other gases available on request)
<b>Non-volatile memory</b>	storage of all settings
<b>Maximum pressure</b>	0.2 MPa (2 bar)
<b>Power supply</b>	90–240 V/50–60 Hz AC plug-in power supply with DC 12V/24W output; possible field operation on 12 V accumulator (Plug types: AU, EU, UK, US)
<b>Interface</b>	RS-485 or RS-232 (optional)
<b>Remote control</b>	0-10 V; (option 0-20 or 4-20 mA) (controller only)
<b>Dimensions</b>	10.5 (W) × 8 (H) × 17 (D) cm
<b>Weight</b>	800 g
<b>Safety</b>	CE, meets IEC 1010/1 norm for laboratory instrument
<b>Operation temperature</b>	0 – 40 °C
<b>Operation humidity</b>	0-90% RH, not condensing

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