

# Microfluidic Controller

## PG-MFC light series

### Introduction:

PreciGenome microfluidic pressure/flow control system (PG-MFC light series) provides pulse-free precise positive and negative pressure. Stable constant flow rates can be set and controlled when used in conjunction with external liquid flow sensors. The microfluidic pressure controller operates in a wide range with fast response time and accuracy.

The light version of pressure controller comes with standalone software, which provides user-friendly interface for users to configure instrument control parameters.

### System Benefits:

- Compact and portable design
- Precise and accurate pressure/flow outputs
- Air flow rate monitoring; air leakage detection
- Easy connection with Luer lock standard connectors
- Compatible with PreciGenome pinch/isolation valves, rotary valves, high-speed imaging system
- Controllable liquid flow rate output with flow sensors (optional)
- Controlled sample volume injection with external liquid flow sensors (optional)
- OEM service and module integration available
- CAN, USB and digital IO ports available



### System Contents:

- PG-MFC controller light version, 1 pc
- Power supply 110/220V, 1 pc
- Microfluidic Luer Lock Fittings Kit for Pressure Controller Connection, 2 sets
- Liquid flow rate sensor (optional)
- Microfluidic reservoir kit, 1.5/2ml, 15ml, 50ml, 100/200ml (optional)
- Microfluidic reservoir connectors, up to 230ul, 30/pack (optional)

### Applications:

- Liquid handling
- Automatic reagent distribution, sequential injection of reagents with controlled volume
- Instrumentation for point of care testing,
- Analytical Instrumentation
- Droplets generation & applications (dPCR, single cell encapsulation, NGS target sample enrichment, etc.)
- Organic /polymer syntheses, nanoparticle syntheses, such as PLGA, liposome synthesis
- Drug transportation study
- Cell culture and cell perfusion
- Organs-on-a-chip
- Other microfluidics applications to manipulate fluids

[www.precigenome.com/pressure-flow-controller](http://www.precigenome.com/pressure-flow-controller)



**System Specifications:**

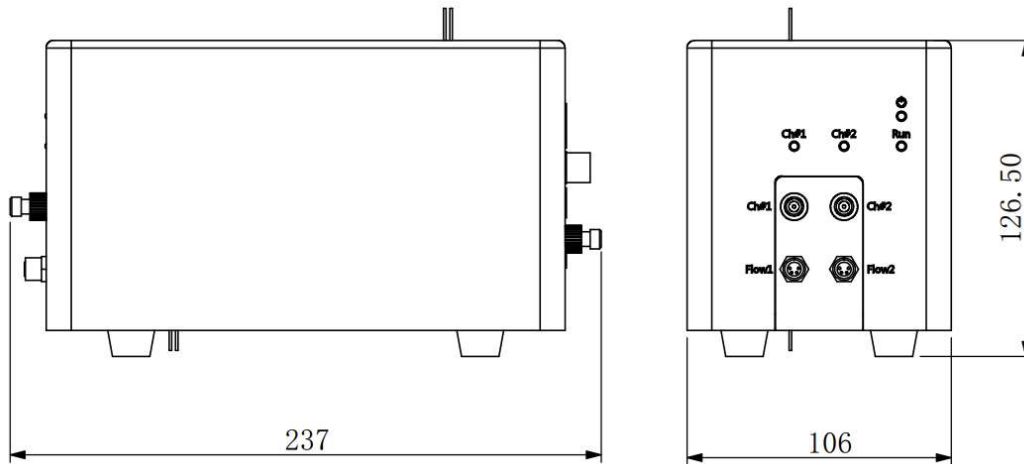
- Pressure sensor accuracy of  $\pm 0.25\%$  FSS BFSL (Full-Scale Span Best Fit Straight Line), sensor resolution: 0.0061 %
- Pressure stability: 0.05 %
- Flow rate repeatability: below 1% of the measured value
- Highest liquid flow sensitivity down to  $<1 \mu\text{l}/\text{min}$
- Maximum flow rate for water-based liquids: 10 ml/min;
- Maximum flow rate for hydrocarbons: 80 ml/min

Table of detailed specifications for different models

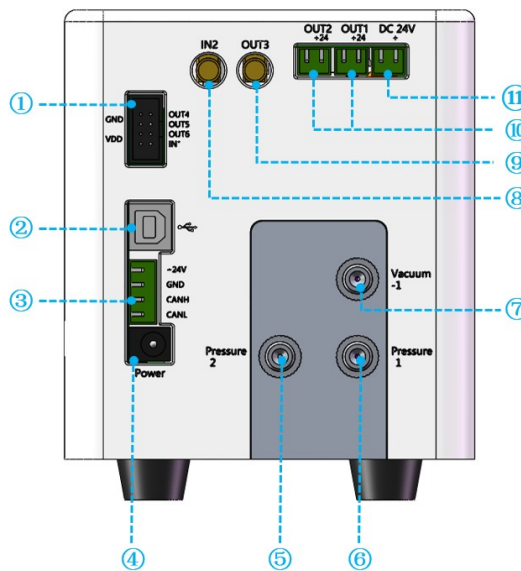
Specifications	PG-MFC-LT-1CH	PG-MFC-LT-2CH
Output channels	1 channel	2 channels
Pressure output connection type	Luer lock (Female)	Luer lock (Female)
External pressure input connection type	Luer lock (Female)	Luer lock (Female)
Number of independent channels	1	2
Independent channel 1 output pressure range	-7psi to 13psi (using external pressure source)	-7psi to 13psi (using external pressure source)
Independent channel 2 output pressure range	N/A	0 to 30psi (using external pressure source)
Pressure accuracy	0.25% (Full scale)	
Pressure stability	< 0.01%	
Pressure stabilization time	< 0.2s (no external load)	
External pressure source	-14 to 30psi, non-corrosive, non-flammable, dry and oil free gases	
Reagent compatibility	Reagents can't flow into the instrument	
Power supply	110-240V	
Software	Provide separate software (Windows OS)	
Interface	CAN, USB, digital I/O	
Flow rate measurement and control	Capable of connecting with external liquid flow sensor to measure flow rates and achieve flow rate control. 5 types of flow sensors with different flow rate ranges can be chosen: $0 \pm 5\text{ml}/\text{min}$ , $0 \pm 1\text{ml}/\text{min}$ , $0 \pm 80\mu\text{l}/\text{min}$ , and ultra low flow rate $0 \pm 8\mu\text{l}/\text{min}$ and $0 \pm 1.5\mu\text{l}/\text{min}$	

**Dimensions:**

Unit: mm



**Electrical Connections:**



- ① Digital I/O ( 3.3V )
- ② USB to serial port
- ③ CAN
- ④ Power switch
- ⑤ Channel 2 Luer connector for external pressure source
- ⑥ Channel 1 Luer connector for external pressure source
- ⑦ Channel 1 Luer connector for external vacuum pump
- ⑧ Trigger input ( 3.3 - 24V )
- ⑨ Trigger output (No load capacity)
- ⑩ Controllable 24V output
- ⑪ DC 24V output

**Warning: Hot plugging is not supported**