



Siargo Ltd.



- Mass flow
- Microfluidics
- Pressure
- Gas/chemical



www.Siargo.com

Product catalog

©2022 Edition

Sold in North America by:
Servoflo Corporation
75 Allen Street
Lexington, MA 02472
www.servoflo.com/info@servoflo.com
781-862-9572

The Company

Established in 2004, Siargo is dedicated to MEMS sensing technology and manufactures MEMS flow, microfluidic, pressure and chemical sensors, modules, and system products that are shipped worldwide. Our global technical team is ready to provide timely solutions to your even very special requirements.

Our patented low power thermal sensing (time-of-flight and calorimetry with diffusivity detection) and integrated system technology with IoT capabilities excel in performance for many ready-to-ship and customized applications.

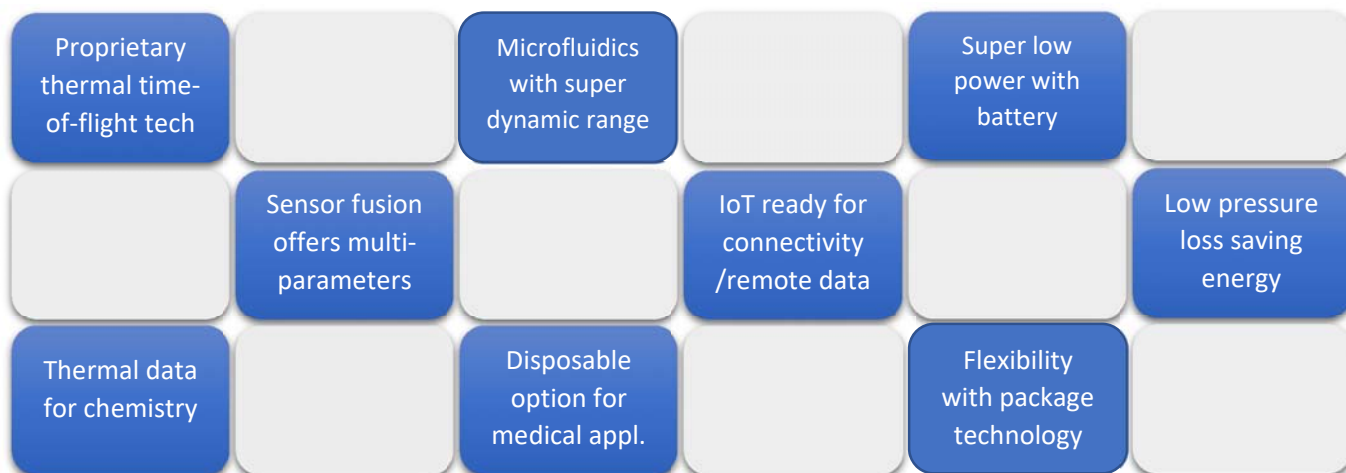
Our products have been deployed to medical, instrumentation, environmental, semiconductor, city utility gas metering, automation, and many others.

We are ISO9001:2015 and ISO13485:2016 certified and we strictly implement the quality management requirements at every single step of our design, engineering and manufacture process.

Innovation fundamental physics driven with smart MEMS process

Quality reliability and performance embedded in every product route

Service timely response and customer satisfactions





The products are manufactured with Siargo's proprietary MEMS sensing technologies. Combined with the packaging and electronics, these products of mass flow, pressure, and chemical sensors/meters offer unique performance tailored for the multi-discipline medical and other industrial applications.

Siargo has been dedicated to developing state-of-the-art MEMS sensors as well as its package technology aiming to enhance the product performance, functions as well as reliability. Our sensors focus on the innovative integrations and product performance that enables various applications in many challenging circumstances. In addition to the stand-alone products that are highlighted in this catalog, we also offer a wide spectrum of customized products, we value the requirements of customers' applications.

Thermal time-of-flight sensing is a unique technology offered by the company. This technology addresses the current demands for fluidic and microfluidic metrology, as well as other gas sensing applications. The large dynamic range, as well as the precision and disposability enable the applications in medical, instrumentation as well as pharmaceutical and life sciences.

Our patented thermal field pressure sensing is especially effective in the measurement of low pressures. It is developed for seamless integration with our other thermal sensing-based sensors, which shall provide a miniaturized package and performance meeting the requirements of many medical applications.

The company also offers a variety of sensor connectivity and IoT options. For a complete solution including Cloud Data and APPs, please contact the manufacturer for additional information and options.

MEMS technology for chemical sensors is also a focal product development by the company. In addition to the thermal conductivity detectors, as well as other chemical sensors such as pH-sensors shall be released recently. Please contact the manufacturer or visit www.Siargo.com for updates or further information.

Contents

Mass flow sensors

FS1015CL	1
FS1100	3
FS4001	5
FS4000	7
FS4100	9
FS4308	11
FS5001L	13
FS6122	15
FS7002	17
FS8000	19
AM1000	21
FS6100	23
FS5200	25

Mass flow meters

MF4000	27
MF4600	29
MF4700	31
MF5100V	33
MF5000	35
MF5100	37
MF5600	39
MF5700	41
MF5709	43

Oxygen and cylinder flow meters

MF5806-G	45
MF5806	47

Utility gas meters

MF-GD	49
MF-HD	51

Microfluidic meters and sensors

LF3000	53
CS3001	55

Pressure sensors

FSP1000	57
FSP2000	59

Accessories

HMF2000	61
CON Evaluation kit	63



FS1015CL Gas Mass Flow Sensor

Production description

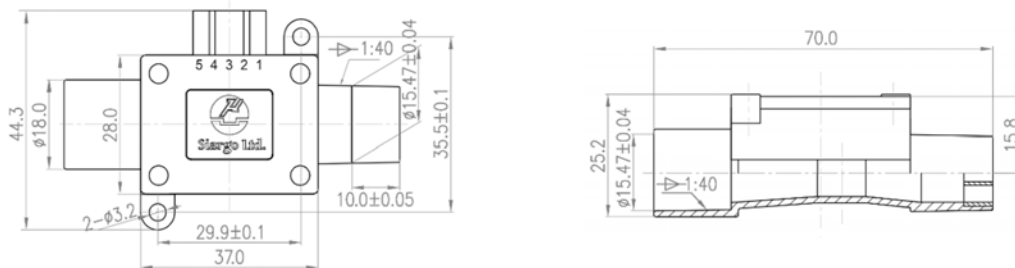
FS1015CL series mass flow sensors are specially designed for medical equipment flow monitor and control applications and are made with Siargo's proprietary MEMS mass flow sensors and smart electronic circuitry. The sensors directly measure mass flow in the designed channel with a very low pressure loss. The current models can be readily applied to ventilators, endoscopes, and anesthesia equipment.

FS1015CL can measure a flow up to 150 SLPM. ISO-15mm medical connection is ready plug-and-play for medical equipment.

Features

- MEMS thermal mass flow sensor
- Excellent rangeability 100:1 with integrated multiple sensing elements
- High stability at null and full scale
- Fast response time
- Low pressure loss
- Medical ISO-15mm connector

Mechanical dimensions

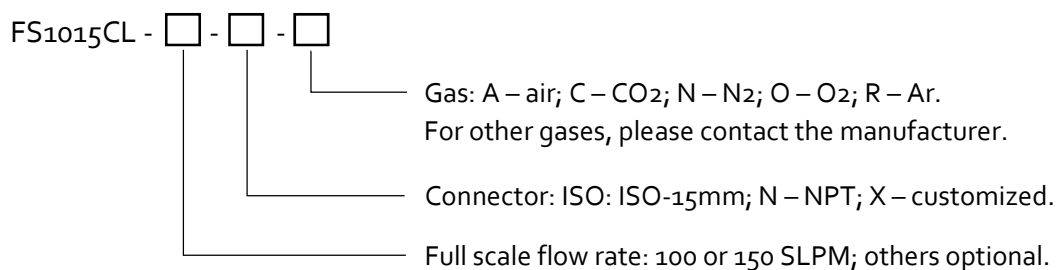


Specifications

Flow range	0 ~ 100, 150	SLPM
Accuracy	$\pm(2.0+0.5FS)$	%
Repeatability	0.5	%
Response time	8.0	msec
Power supply	5.0 ($\pm 5\%$)	Vdc
Output	Linear: 0.5 ~ 4.5 Vdc	
Pressure loss (max.)	1.3 kPa @ 150 SLPM	
Pressure rating	0.2	MPa
Temperature	-10 ~ 55	°C
Humidity	<95 (no condensation)	%RH
Mechanical connection	ISO-15mm	
Pinout	4 pins, AMPMODU MTE, or compatible	
Calibration	Air @ 20°C, 101.325 kPa	
Max. flow change	40	SLPM/sec
Max. overflow	300	SLPM
Weight	21.5	g
Storage temperature	-20 ~ 70	°C

Note: Parameters specified at the calibration conditions.

Product selection



- Note**
1. For CO₂, the max full-scale flow rate is 100 SLPM.
 2. For connectors other than ISO, the total product length will be dependent on the specific connectors.



FS1100 Gas Mass Flow Sensor

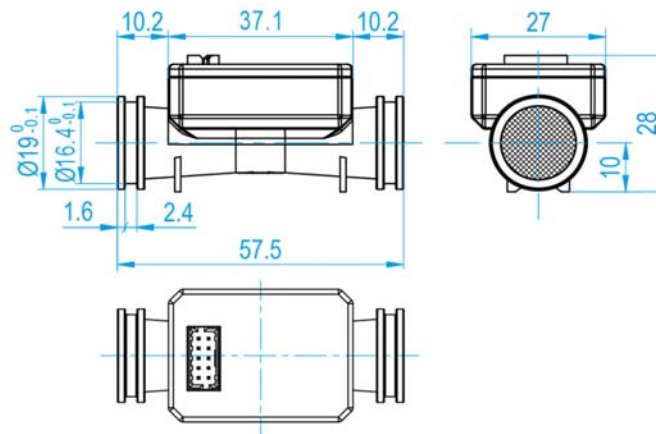
Production description

FS1100 series mass flow sensors are manufactured with Siargo's proprietary MEMS (micro-electro-mechanical systems) calorimetry with diffusivity sensing technologies (***Thermal-D***[®]) that measures the calorimetry and diffusivity of the flow medium. This technology compared to conventional calorimetric sensing offers much better linearity in the full dynamic range, removes gas sensitivities for gases that have similar thermal diffusivities, and increases the measurement accuracy when used with a gas conversion factor. It also simultaneously outputs the instant flow medium temperature data and improves the temperature performance of the thermal sensing approach.

Features

- MEMS calorimetry with diffusivity (***Thermal-D***[®])
- Full scale up to 250 SLPM
- 100:1 dynamic range
- Temperature output

Mechanical dimensions

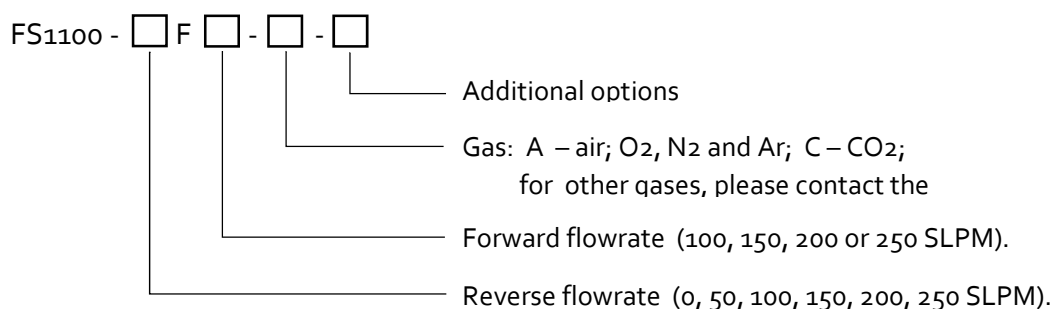


Specifications

Flow range	-250 ~ +250	SLPM
Accuracy (total error band)	$\pm(2.0+0.5FS)$	%
Repeatability	0.5	%
Response time	5	msec
Temperature range	-20 ~ +80	°C
Temperature accuracy (0 ~ 50 °C)	± 2.5	°C
Power supply	5 ($\pm 5\%$)	Vdc
Output	Linear, Analog: 0.5 ~ 2.5Vdc / Digital: I ² C	
Working temperature	-10 ~ +55	°C
Temperature coefficient	± 0.12	%/°C
Pressure rating	0.2	MPa
Warm-up time	500	msec
Humidity	<95 (no condensation)	%RH
Analog null shift	± 30	mVdc
Maximum overflow	300	SLPM
Maximum flow change	40	SLPM/sec

Note: Parameters specified at the calibration conditions.

Product selection



- Note**
1. The default unit of the flow rate is SLPM. For other ranges, please contact the manufacturer.
 2. Example: FS1100-50F250-A is a sensor that measures mass flow rate from reverse 50 to forward 250SLPM, air.



FS4001

Gas Mass Flow Sensor

Production description

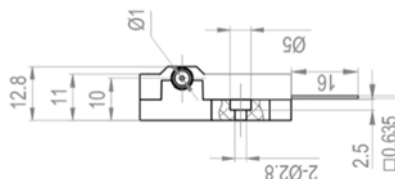
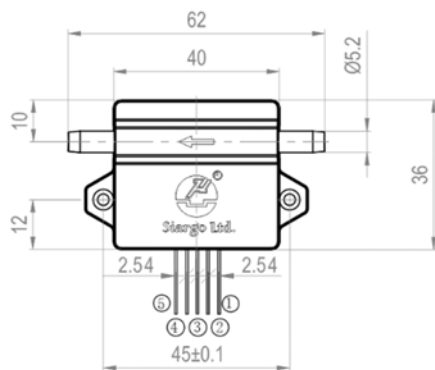
FS4001 series mass flow sensors are designed for instrumentation and process control and are made with Siargo's proprietary MEMS mass flow sensors and smart electronic circuitry. The sensors directly measure mass flow at a sub-liter per minute flow range with high accuracy and fast response time. The current models can also be configured with a small LCD.

FS4001 can measure a full-scale flow as low as 10 sccm and up to 1000 sccm. The barbed connector is easy to connect with a soft tube.

Features

- MEMS thermal mass flow sensor
- Excellent rangeability 100:1 with integrated multiple sensing elements
- High stability at null and full scale
- Fast response time
- Pressure rating to 0.5 MPa (5 bar / 75 PSI)
- Easy installation

Mechanical dimensions

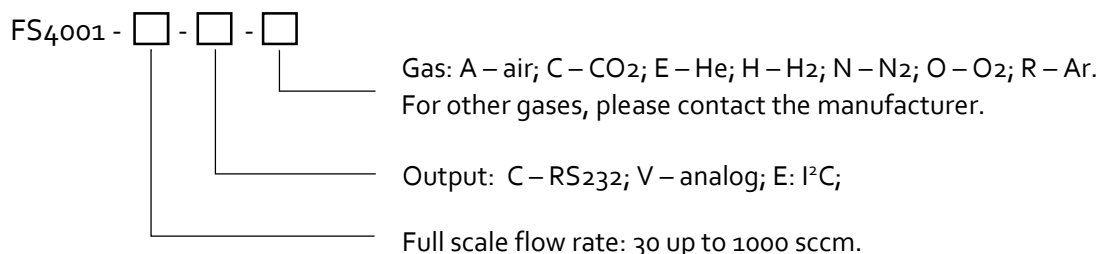


Specifications

Flow range	0 ~ 30, 100, 200, 500, 1000	sccm
Accuracy	$\pm(1.5+0.5FS)$	%
Repeatability	0.5	%
Response time	65 (default; others: 4 / 8 / 16 / 33 / 133)	msec
Power supply	8 ~ 24 (50 mA)	Vdc
Output	Linear: 0.5 ~ 4.5 Vdc / Digital: RS232 / I ² C	
Pressure loss (max.)	0.35 @ 1000 sccm	kPa
Pressure rating	0.5	MPa
Temperature	-10 ~ 55	°C
Humidity	<95 (no condensation)	%RH
Mechanical connection	Barded	
Pinout	5 pins	
Calibration	Air @ 20°C, 101.325 kPa	
Max. flow change	500	sccm/sec
Max. overflow	3000	sccm
Weight	13.5	g
Storage temperature	-20 ~ 70	°C

Note: Parameters specified at the calibration conditions.

Product selection



- Note**
1. For CO₂, the max full-scale flow rate is 750 sccm.
 2. Digital and analog interfaces can be selected simultaneously. e.g., CV or EV.



FS4003 and FS4008

Gas Mass Flow Sensor

Production description

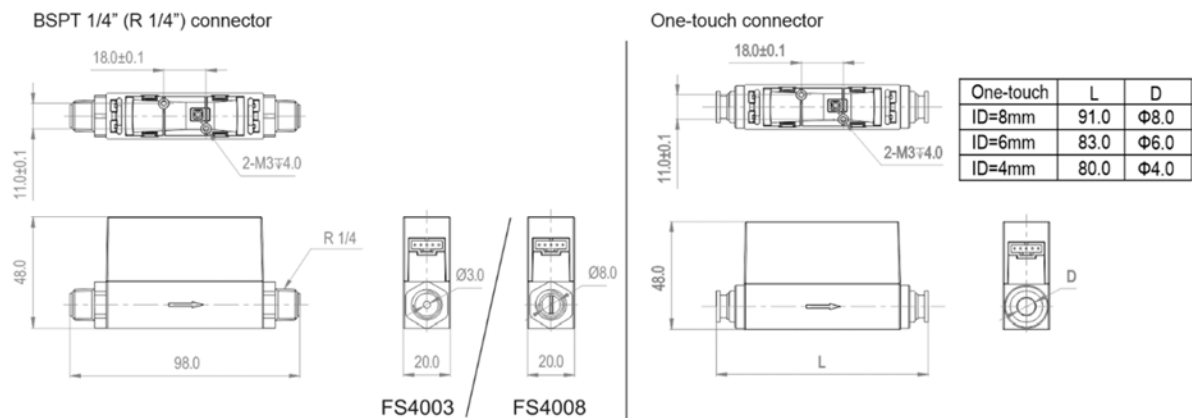
FS4000 series mass flow sensors are designed for general-purpose flow metering and control applications and are made with Siargo's proprietary MEMS mass flow sensors and smart electronic circuitry. The sensors directly measure mass flow with a very low pressure loss. The current models can be readily applied to medical applications such as neonatal ventilator, endoscope, anesthesia equipment; and other applications such as air samplers; and many process control such as welding equipment, and oxygen pressurizer.

FS4000 can measure a flow up to 50 SLPM. The connectors can be fully customized.

Features

- MEMS thermal mass flow sensor
- Excellent rangeability 100:1 with integrated multiple sensing elements
- High stability at null and full scale
- Fast response time
- Low pressure loss
- Fully customizable connectors

Mechanical dimensions



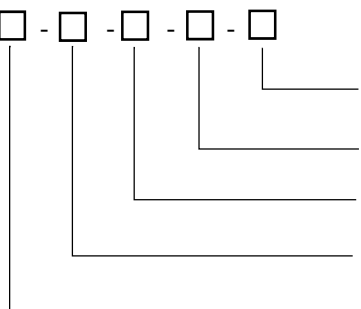
Specifications

Flow range	0 ~ 2, 3, 4, 5 (FS4003) / 0 ~ 10, 20, 30, 40, 50 (FS4008)	SLPM
Accuracy	±(1.5+0.2FS)	%
Repeatability	0.5	%
Response time	10 (default, others: 20...1000)	msec
Power supply	8 ~ 24 (50mA)	Vdc
Output	Linear: 0.5 ~ 4.5 Vdc / Digital: RS485 / RS232	
Pressure loss (max.)	0.1 @5 SLPM (FS4003) / 0.6 @50 SLPM (FS4008)	kPa
Pressure rating	0.5	MPa
Temperature	-10 ~ 55	°C
Humidity	<95 (no condensation)	%RH
Mechanical connection	BSPT 1/4" or One-touch 4 / 6 / 8mm	
Pinout	5 pins, AMPMODU MTE, or compatible	
Calibration	Air @ 20°C, 101.325 kPa	
Max. flow change	4 (FS4003) / 30 (FS4008)	SLPM/sec
Max. overflow	30 (FS4003) / 200 (FS4008)	SLPM
Weight	43 (with BSPT)	g
Storage temperature	-20 ~ 70	°C

Note: Parameters specified at the calibration conditions.

Product selection

FS40 ☐ - ☐ - ☐ - ☐ - ☐



Gas: A – air; B – N₂O; C – CO₂; N – N₂; O – O₂; R – Ar.

For other gases, please contact the manufacturer.

Output: B – RS485; C – RS232; V – analog.

Connector: R – BSPT 1/4"; O₄/O₆/O₈ – one touch; X – customized.

Full scale flow rate: 2, 3, 4, 5 (FS4003); 10, 20, 30, 40, 50 (FS4008).

DN: 03 – FS4003; 08 – FS4008.

- Note**
1. For CO₂ and N₂O, the full-scale flow rate is 80% of air.
 2. Digital and analog interfaces can be selected simultaneously. e.g., BV or CV.



FS4103 and FS4108

Gas Mass Flow Sensor

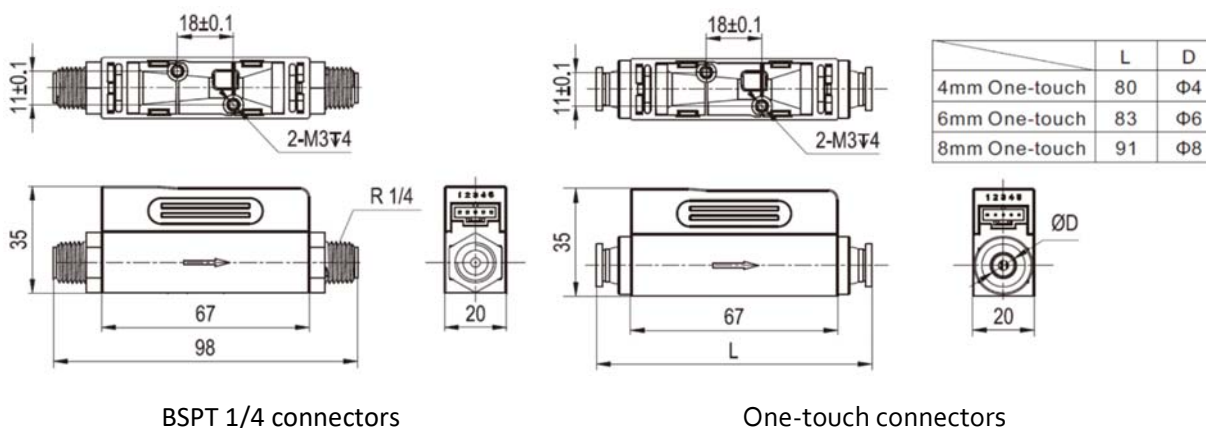
Production description

FS4100 series mass flow sensors are an upgraded version of the third generation of FS4000 sensors that were first released in 2008. It can be applied for several medical equipment such as anesthesia applications, endoscopes, and cancer treatment; industrial applications including welding machines, laser equipment, gas mixture; and many more. The series covers a wide dynamic flow range with a working pressure rating of up to 0.5 MPa (5 bar or 73 PSI), and a compensated temperature ranging from -10 to 55°C.

Features

- MEMS calorimetry with diffusivity sensing (**Thermal-D®**)
- Rangeability 100:1
- Better linearity
- High precision
- Fast response time
- RS485 and I²C interface

Mechanical dimensions

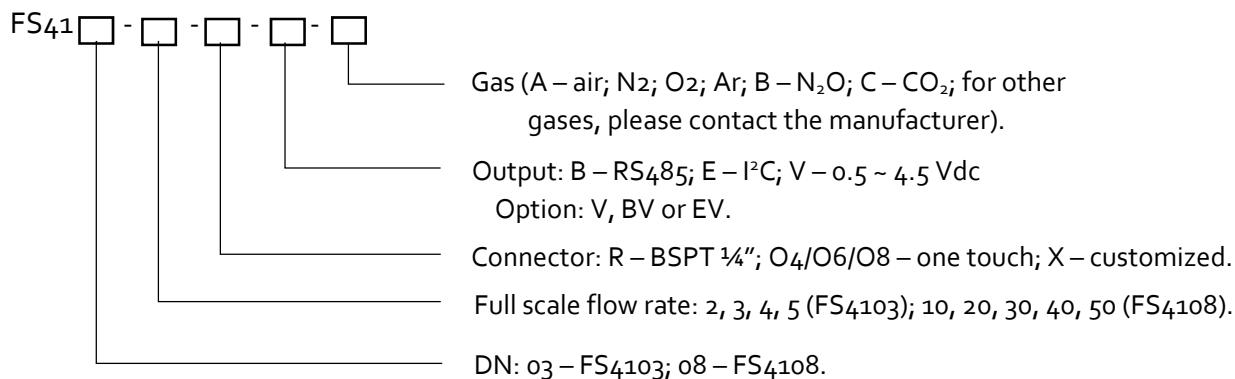


Specifications

Full-scale flow range	2, 3, 4, 5 (FS4103) / 10, 20, 30, 40, 50 (FS4108)	SLPM
Accuracy	$\pm (1.5 + 0.2FS)$	%
Repeatability	0.25	%
Response time	10	msec
Power supply	8 ~ 24 (50 mA)	Vdc
Output	Linear: 0.5 ~ 4.5 Vdc / Digital: RS485 / I ² C	
Pressure loss (max.)	0.1 @5 SLPM (FS4013) / 0.6 @50 SLPM (FS4108)	kPa
Pressure rating	0.5	MPa
Temperature	-10 ~ 55	°C
Humidity	<95 (no condensation)	%RH
Mechanical connection	BSPT 1/4" or One-touch 4 / 6 / 8mm	
Pinout	5 pins, AMPMODU MTE, or compatible	
Calibration	Air @ 20°C, 101.325 kPa	
Max. flow change	4 (FS4103) / 30 (FS4108)	SLPM/sec
Max. overflow	30 (FS4103) / 200 (FS4108)	SLPM
Weight	40 (with BSPT)	g
Storage temperature	-20 ~ 70	°C

Note: Parameters specified at the calibration conditions.

Product selection





FS4308

Gas Mass Flow Sensor

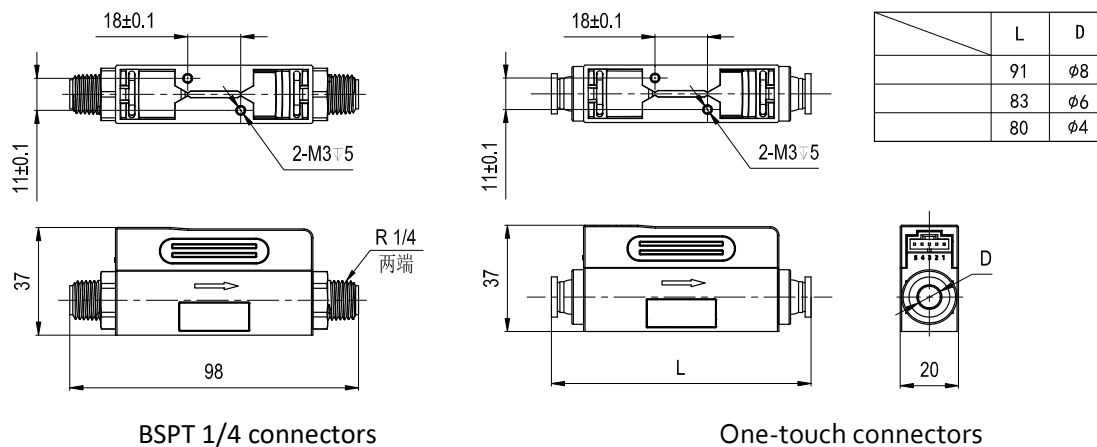
Production description

FS4300 series mass flow sensors are designed for general-purpose precise gas metering, processing monitoring, and/or control. The products have enhanced flow conditioning compared to the FS4008 series which allows more flexibility during installation. Consequently, the products will have a pressure loss about 5 times higher than that for FS4008, but still lower than most of the offers on the market for a similar dynamic range. FS4308 also has a smaller footprint compared to FS4008. It can be applied for pneumatic control, process automation, and other industrial applications where the pressure drop is not a critical parameter. The series covers a wide dynamic flow range with a working pressure rating of up to 1.0 MPa (10 bar or 147 PSI), and a compensated temperature ranging from -10 to 55°C.

Features

- MEMS thermal calorimetry with diffusivity (**Thermal-D®**)
- Wide dynamic flow range
- High precision
- Working pressure rating up to 1.0 MPa
- RS485 and I²C interface

Mechanical dimensions



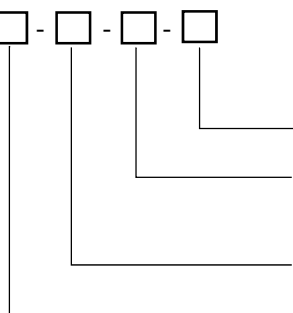
Specifications

Flow range	0 ~ 10, 20, 30, 40, 50	SLPM
Accuracy	$\pm(1.5+0.2FS)$	%
Repeatability	0.5	%
Response time	10	msec
Power supply	8 ~ 24 (50mA)	Vdc
Output	Linear: 1.0 ~ 5.0 Vdc / Digital: RS485 / I ² C	
Pressure loss (max.)	1.85 @50 SLPM (with 8 mm one-touch connector)	kPa
Pressure rating	1.0	MPa
Temperature	-10 ~ 55	°C
Humidity	<95 (no condensation)	%RH
Mechanical connection	BSPT 1/4" or One-touch 4 / 6 / 8mm	
Pinout	5 pins, AMPMODU MTE, or compatible	
Calibration	Air @ 20°C, 101.325 kPa	
Max. flow change	30	SLPM/sec
Max. overflow	200	SLPM
Weight	40 (with BSPT)	g
Storage temperature	-20 ~ 70	°C

Note: Parameters specified at the calibration conditions.

Product selection

FS4308 - ☐ - ☐ - ☐ - ☐



Gas (A – air; N₂, O₂, Ar; B – N₂O; C – CO₂);
for other gases, please contact the manufacturer.

Output: B – RS485; E – I²C; V – analog 1.0 ~ 5.0 Vdc.
Option: V, BV or EV.

Connector: R – BSPT 1/4"; O₄/O₆/O₈ – one touch; X – customized.

Full scale flow rate: 10, 20, 30, 40, 50.



FS5001L

Gas Mass Flow Sensor

Production description

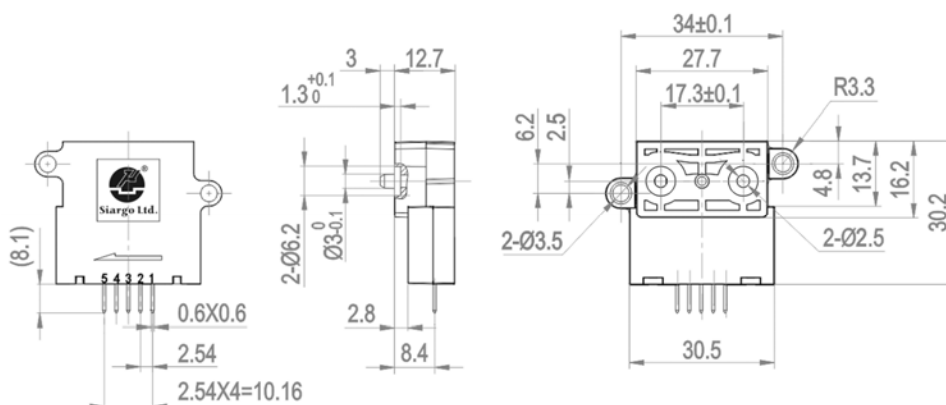
FS5001L series mass flow sensors are designed for general-purpose flow metering and control applications with manifold mounting and are made with Siargo's proprietary MEMS mass flow sensors and smart electronic circuitry. The sensors directly measure mass flow. The current models can be readily applied to an analytical instrument such as gas chromatography; other applications such as air samplers; and many other process control applications.

FS5001L has two versions one for sub-liter per minute flow and another for up to 6 SLPM flow. It can also be used for bypass flow measurement.

Features

- MEMS thermal mass flow sensor
- Excellent rangeability 100:1 with integrated multiple sensing elements
- High stability at null and full scale
- Fast response time
- Pressure rating to 0.5 MPa (5 bar or 75 PSI)
- Manifold installation

Mechanical dimensions



Specifications

Flow range	0 ~ 200 / 0 ~ 500, 1000 / 0 ~ 4000, 6000 / 0~10000, 15000	sccm
Accuracy	±(2.0+0.5FS)	%
Repeatability	0.5	%
Response time	10 (default, others: 5...1000)	msec
Power supply	8 ~ 24 (50mA)	Vdc
Output	Linear: 0.5 ~ 4.5 Vdc / Digital: I ² C	
Pressure loss (max.)	0.5 kPa @200sccm / 0.9 kPa @1000 sccm / 3.5 kPa @6000 sccm	
Pressure rating	-0.08 ~ 0.5	MPa
Temperature	-10 ~ 55	°C
Humidity	<95 (no condensation)	%RH
Pinout	5 pins	
Calibration	Air @ 20°C, 101.325 kPa	
Max. flow change	150 (200 sccm) / 500 (1000 sccm) / 3000 (6000 sccm)	sccm/sec
Max. overflow	1 (200sccm) / 3 (1000 sccm) / 18 (6000 sccm)	SLPM
Weight	12.5	g
Storage temperature	-20 ~ 70	°C

Note: Parameters specified at the calibration conditions.

Product selection

FS5001L - ☐ - ☐ - ☐

Gas: A – air; C – CO₂; E – He; H – H₂; N – N₂; O – O₂; R – Ar.
For other gases, please contact the manufacturer.

Output: E – I²C; V – analog.

Full scale flow rate: 200, 500, 1000, 4000, 6000, 10000, 15000.

Note: For CO₂, the full-scale flow rate is 80% of air.



FS6122

Gas Multi-parameter Sensors

Production description

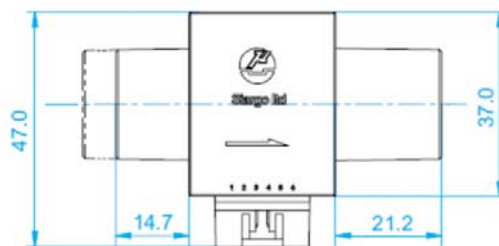
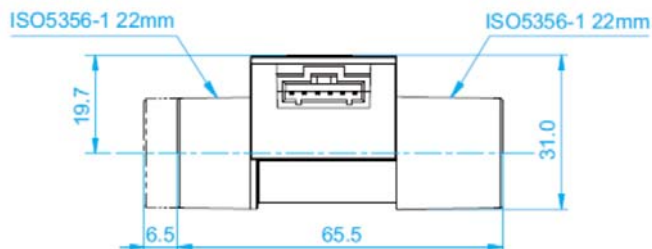
FS6122 series mass flow sensors offer a unique solution for multi-parameter flow measurement with mass flow, gauge pressure, temperature, and humidity. It is designed for medical respiratory equipment and can also be applied for general-purpose flow metering and control applications. The sensors were designed with a super-low pressure loss. The current models can be readily applied to medical applications such as a ventilator, respiratory analyzers, CPAP, and other applications such as environmental monitoring; and many process control applications.

FS6122 can measure a uni- or bi-directional flow up to 250 SLPM, and ± 100 cmH₂O gauge pressure, as well as temperature and relative humidity. The connectors can be fully customized.

Features

- MEMS thermal mass flow, gauge pressure, and temperature/humidity sensors
- Excellent rangeability 100:1 with integrated multiple sensing elements
- Very fast response time of 1.8 msec.
- Super-low pressure loss
- Compact form factor
- Fully customizable connectors

Mechanical dimensions



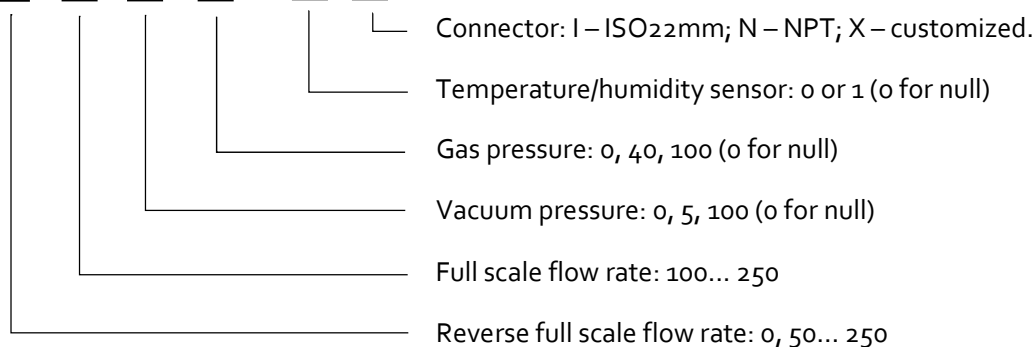
Specifications

Flow	Range	±250 / 0 ~ 100...250	SLPM
	Accuracy	±(2.5+0.5FS)	%
Pressure	Range	±100 / -5 ~ 100 / -5 ~ 40 (gauge)	cmH ₂ O
	Accuracy	±1.0	%
Temperature	Range	-10 ~ 60	Vdc
	Accuracy	±0.5	%
Humidity*	Range	0 ~ 100 (no condensation)	%RH
	Accuracy	±2.0 (20 ~ 80%RH); ±5.0, others	%
	Humidity response	5.0 (25 ~ 75%RH)	sec
Other	Response time	1.8	msec
	Power supply	5.0 (±5%)	Vdc
	Compensation range	-5 ~ 60	°C
	Output	I ² C / 0.5 ~ 4.5 Vdc linear flow or pressure	
	Mechanical	ISO22mm or adapters	
	Pinout	6 pins, AMPMODU MTE, or compatible	
	Calibration	Air @ 20°C, 101.325 kPa (flow, pressure)	
	Storage temperature	-20 ~ 70	°C

Note: Parameters specified at the calibration conditions. For detailed specifications, refer to the manual. Humidity sensing may require long sensing stable time, not recommended for nonessential applications.

Product selection

FS6122 - ☐ F ☐ - ☐ P ☐ -TH ☐ - ☐



Note: Connector selection can be left blank for ISO22mm.



FS7002

Gas Mass Flow Sensor

Production description

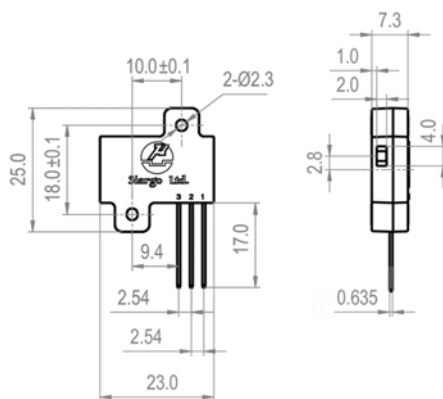
FS7002 series mass flow sensors are designed for general-purpose flow metering and control applications and are made with Siargo's proprietary MEMS mass flow sensors and smart electronic circuitry. The sensors directly measure mass flow with a very miniaturized package. The current models can be readily applied to vent passage monitor, fan or motor monitor, open space airflow, and clogging detection. It is also an enabler for applications for oxygen delivery and other gas delivery in a small space.

FS7002 has 2 versions, FS7002 is the nonlinear version with analog output, and FS7002L is the linear version with I²C output. FS7002 can measure a flow speed of up to 15 m/sec.

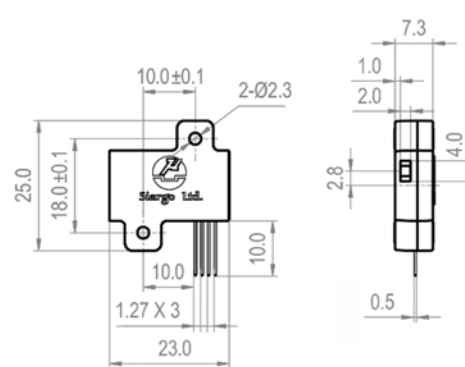
Features

- MEMS thermal mass flow sensor
- Excellent rangeability over 100:1
- Open space airspeed metering or monitoring
- Fast response time
- Linearized digital output
- Fully customizable connectors

Mechanical dimensions



FS7002



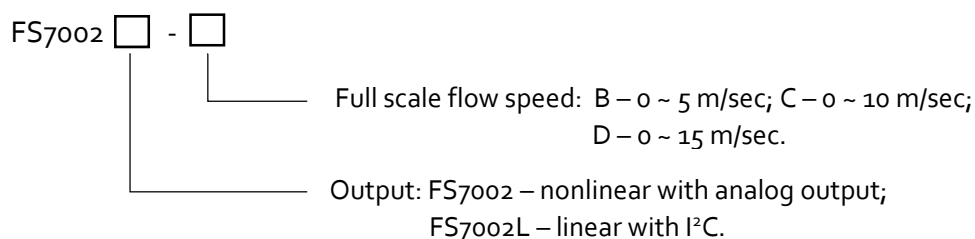
FS7002L

Specifications

Flow range	0 ~ 5, 10, 15	m/sec
Repeatability	± 3 FS% (0 ~ 5 m/sec) / ± 2 FS% (0 ~ 10, 15 m/sec)	
Response time	20	msec
Power supply	5.0 ($\pm 5\%$)	Vdc
Output	Analog, nonlinear (FS7002) / Digital: I ² C, linear (FS7002L)	
Offset (FS7002)	0.2 ~ 0.8	Vdc
Full scale (FS7002)	2.5 ~ 3.3	Vdc
Working temperature	-10 ~ 70	°C
Humidity	<95 (no condensation)	%RH
Mechanical connection	Flat	
Pinout	3 pins (FS7002) / 4 pins (FS7002L)	
Calibration (FS7002L)	Air @ 20°C, 101.325 kPa	
Weight	3	g
Storage temperature	-20 ~ 70	°C

Note: Parameters specified at the calibration conditions.

Product selection



Note: The sensor can be customized for bi-directional flow sensing. Contact the manufacturer for details.



FS8000

Gas Mass Flow Sensor

Production description

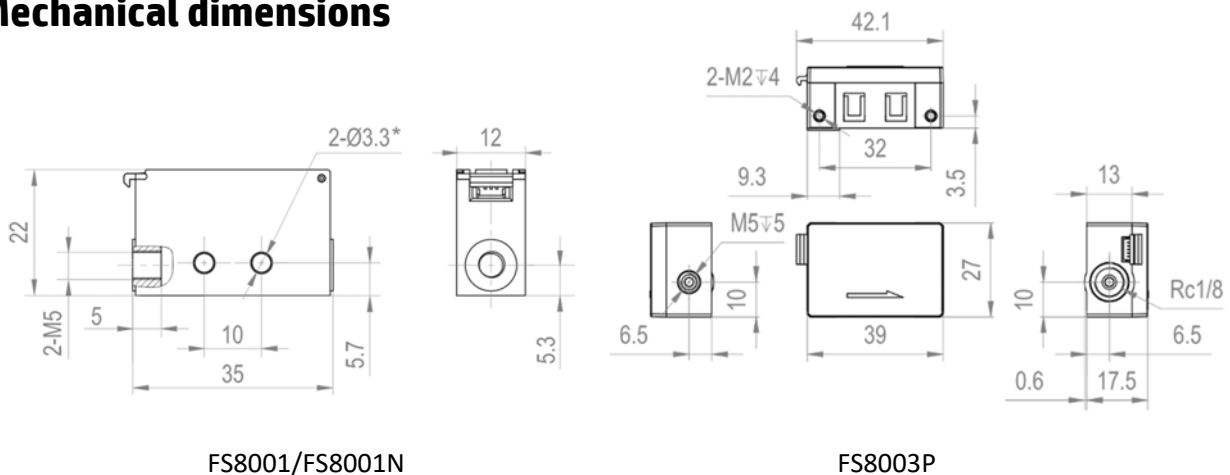
FS8000 series mass flow sensors are designed for general-purpose flow metering and control applications and are made with Siargo's proprietary MEMS mass flow sensors and smart electronic circuitry. The sensors directly measure mass flow with a very fast response time. The current models can be readily applied to high throughput automation equipment control such as semiconductor die attachment; and other applications such as air samplers, leakage detection, and air sprayer.

FS8000 offers primarily the mass flow rate measurements of a full scale from 30 to 500 sccm with a dynamic range of 100:1 for FS8001 and up to 6 SLPM for FS8003P.

Features

- MEMS thermal mass flow sensor
- Excellent rangeability 100:1 with integrated multiple sensing elements
- Extreme fast response time
- Trace flow detection
- Compact form factor

Mechanical dimensions

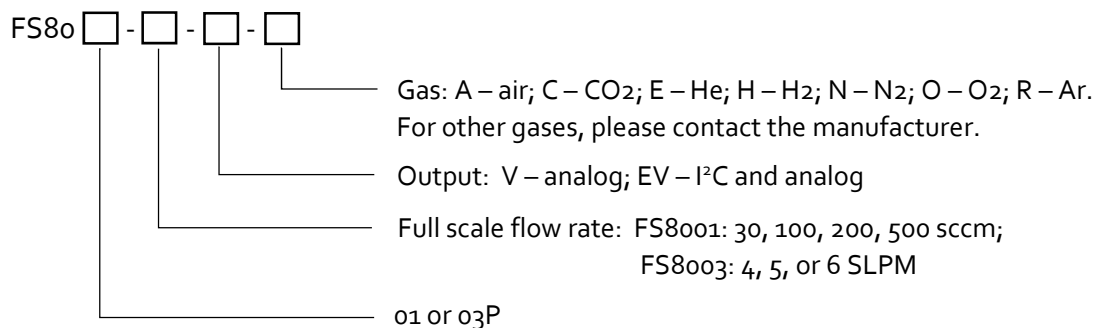


Specifications

Flow range	(FS8001) (FS8001N) (FS8003P)	0 ~ 30, 100, 200, 500 sccm 0 ~ 500 sccm 0 ~ 4, 5, 6 SLPM	
Accuracy		$\pm(2.0+0.5FS)$	%
Repeatability		1.0	%
Response time		5 (FS8001 / FS8003P) 1 (FS8001N)	msec
Power supply		8 ~ 24 (50mA)	Vdc
Output	(FS8001 / FS8003P) (FS8001N)	Linear: 0.5 ~ 4.5 Vdc / Digital: I ² C Nonlinear, Analog: 1.0 (± 0.025) ~ 5.0 (± 0.1) Vdc	
Pressure rating		0.5	MPa
Temperature		-10 ~ 55	°C
Humidity		<95 (no condensation)	%RH
Null shift		<30	mV
Full span shift		± 0.12	%/°C
Mechanical connection	(FS8001/FS8001N) (FS8003P)	M5 BSPT 1/8" (inlet); M5 (outlet)	
Pinout	(FS8001 / FS8003P) (FS8001N)	SM05B-SRSS-TB (JST) SM03B-SRSS-TB (JST)	
Calibration		Air @ 20°C, 101.325 kPa	
Weight		13.5	g
Storage temperature		-20 ~ 70	°C

Note: Parameters specified at the calibration conditions.

Product selection



Note FS8001 nonlinear model does not have options, the model is named FS8001N.



AM1000

Station Gas Probe

Production description

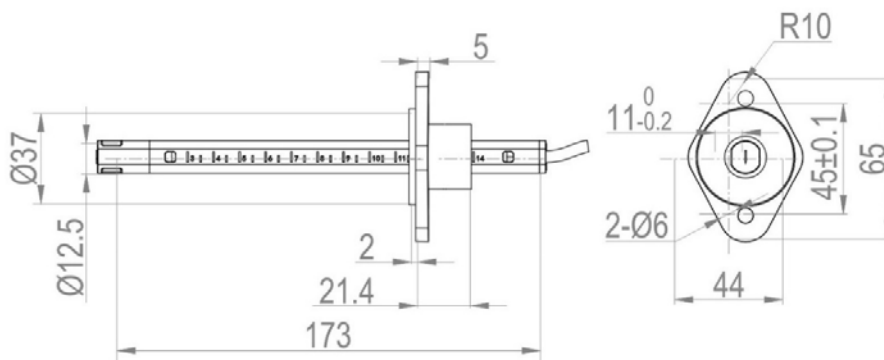
AM1000 series station gas probes are designed for general-purpose flow metering and control applications and are made with Siargo's proprietary MEMS mass flow sensors and smart electronic circuitry. The probe integrates the flow, temperature, and humidity sensors into a probe that can measure multiple parameters in an open space or inside a closed conduit with a large diameter. Applications include sports equipment, environmental station, HVAC, equipment server station, and others such as the insertion flow meter.

AM1000 can measure a flow speed of up to 30 m/sec with remote data and optional wireless data.

Features

- MEMS thermal mass flow sensor, with optional temperature and humidity data
- Excellent rangeability 100:1 with integrated multiple sensing elements
- Insertion or open space measurement
- RS485 Modbus or optional wireless data
- Easy installation
- Fully customizable digital data interface

Mechanical dimensions

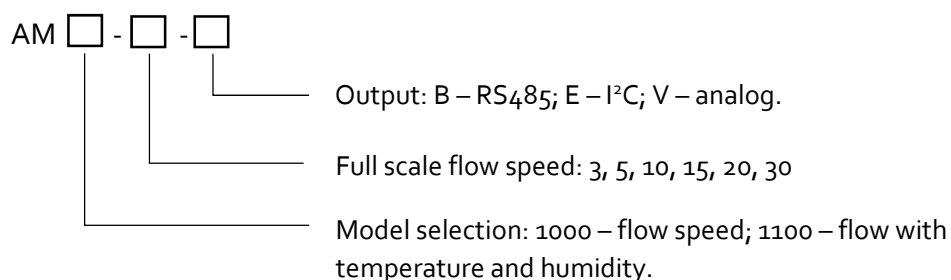


Specifications

Flow range	0 ~ 3, 5, 10, 15, 20, 30	m/sec
Accuracy	±2.5	%FS
Repeatability	1.0	%
Humidity	0 ~ 100	%RH
Humidity accuracy	±2.0 (20 ~ 80%RH), otherwise ±5.0	%RH
Humidity resolution	0.7	%RH
Response time (humidity)	5.0	sec
Temperature	-20 ~ 60	°C
Temperature accuracy	±0.5	°C
Response time (flow and temperature)	20	msec
Operation temperature	-20 ~ 65	°C
Output	Analog: 0.5 ~ 4.5Vdc, linear / Digital: RS485; I ² C	
Power supply	8 ~ 24 (15 mA)	Vdc
Power and data cable	5 color-coded cable, 0.5m	
Weight	41	g
Calibration	Air @ 20°C, 101.325 kPa	
Storage temperature	-20 ~ 70	°C

Note: Parameters specified at the calibration conditions.

Product selection



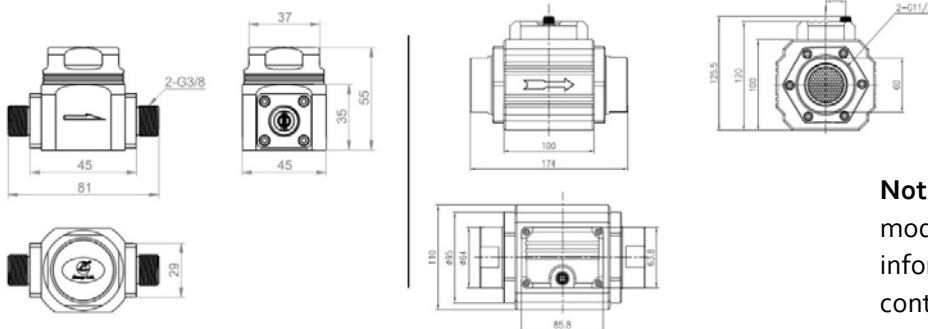
Note: For the wireless data option, please contact the manufacturer.

Gas Multi-parameter Sensor

FS6100 series mass flow sensors offer a unique solution for multi-parameter flow measurement with mass flow, gauge pressure, temperature, and humidity. It is designed for industrial process measurement and can also be applied for general-purpose flow metering and control applications, such as compressed air where high flow rate data are required. The current models can be readily applied to food and beverage processes, industrial air management, and many process control applications.

Features

- ## Mechanical dimensions



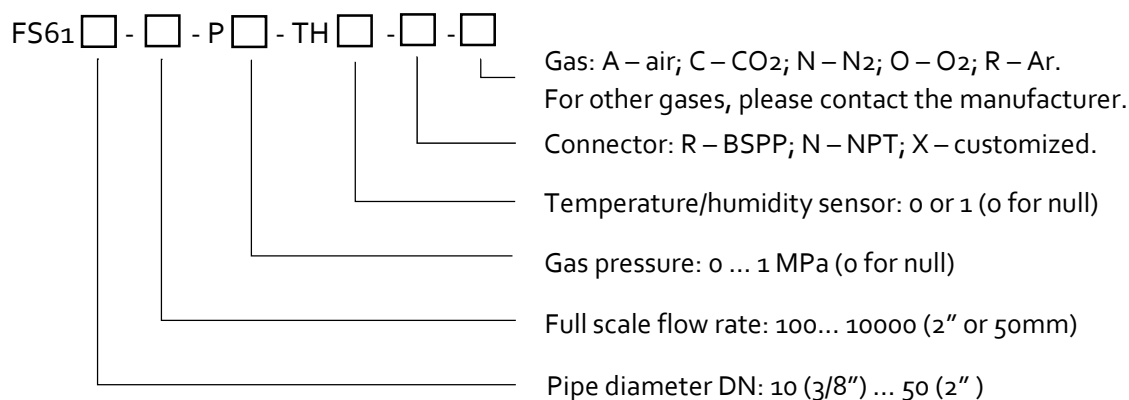
Page 23

Specifications

Flow	Range	0 ~ 100 (FS6110) / 0 ~ 10000 (FS6150)	SLPM
	Accuracy	$\pm(2.0+0.5FS)$	%
Pressure	Range	0 ~ 1.0 (gauge)	MPa
	Accuracy	± 1.0	%
Temperature	Range	-10 ~ 60	°C
	Accuracy	± 0.5	%
Humidity*	Range	0 ~ 100 (no condensation)	%RH
	Accuracy	± 2.0 (20 ~ 80%RH); ± 5.0 , others	%
	Humidity response	5.0 (25 ~ 75%RH)	sec
	Other response time	50	msec
	Power supply	8 ~ 24	Vdc
	Compensation range	-5 ~ 60	°C
	Output	I ² C / RS485 / 4 ~ 20 mA	
	Mechanical	BSPP / NPT	
	Pinout	6 pins, AMPMODU MTE, or compatible	
	Calibration	Air @ 20°C, 101.325 kPa (flow, pressure)	
	Storage temperature	-20 ~ 70	°C

Note: Parameters specified at the calibration conditions. For detailed specifications, refer to the manual. Humidity sensing may require long sensing stable time, not recommended for nonessential applications.

Product selection



Note: The full-scale flow rate of CO₂ is 80% of that for air.



FS5200

Gas Mass Flow Sensor

Production description

FS5200 series mass flow sensors are designed for general-purpose flow metering and control applications and are made with Siargo's proprietary MEMS mass flow sensors and smart electronic circuitry. The sensors directly measure mass flow with a very low pressure loss. The current models can be readily applied to oil and gas process monitor, leakage detection; and other applications such as an alternative to the bubble flow meter.

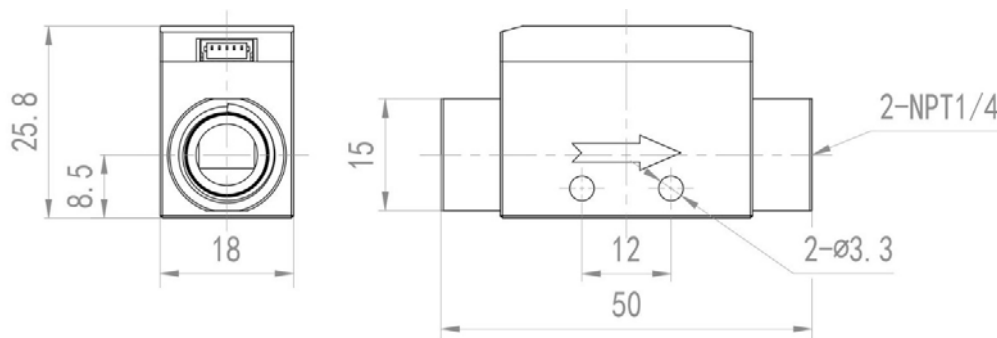
FS5200 can measure a flow down to 0.2 sccm and up to 300 SLPM. The connectors can be fully customized.

Features

- MEMS thermal mass flow sensor
- Excellent rangeability 100:1 with integrated multiple sensing elements
- Highly sensitive at trace flow
- Fast response time
- Low pressure loss
- Fully customizable connectors

Mechanical dimensions

Example: 20 sccm full-scale special package



Specifications

Flow range	0 ~ 20	sccm
	0 ~ 300	SLPM
Accuracy	$\pm(1.5+0.2FS)$	%
Repeatability	0.25	%
Response time	200	msec
Power supply	8 ~ 24 (50mA)	Vdc
Output	Linear analog: 0.5 ~ 4.5 Vdc / Digital: I ² C	
Pressure loss (max.)	0.03 @ 20 sccm	kPa
Pressure rating	1.0	MPa
Temperature	-10 ~ 55	°C
Humidity	<95 (no condensation)	%RH
Mechanical connection	NPT, BSPP, or customized	
Pinout	SM05B-SRSS-TB (JST)	
Calibration	Air @ 20°C, 101.325 kPa	
Weight	350 (SS304)	g
Storage temperature	-20 ~ 70	°C

Note: Parameters specified at the calibration conditions.

Product selection

FS52 ☐ - ☐ - ☐ - ☐

Gas: A – air; C – CO₂; N – N₂; O – O₂; R – Ar.
For other gases, please contact the manufacturer.

Connector: N – NPT; B – BSPP; X – customized.

Full scale flow rate: 20 sccm ... 300 SLPM

DN: 01 – 1mm; 12 (1/2"), or customized.

Note: For CO₂ and N₂O, the full-scale flow rate is 80% of air.



MF4003 and MF4008

Gas Mass Flow Meter

Production description

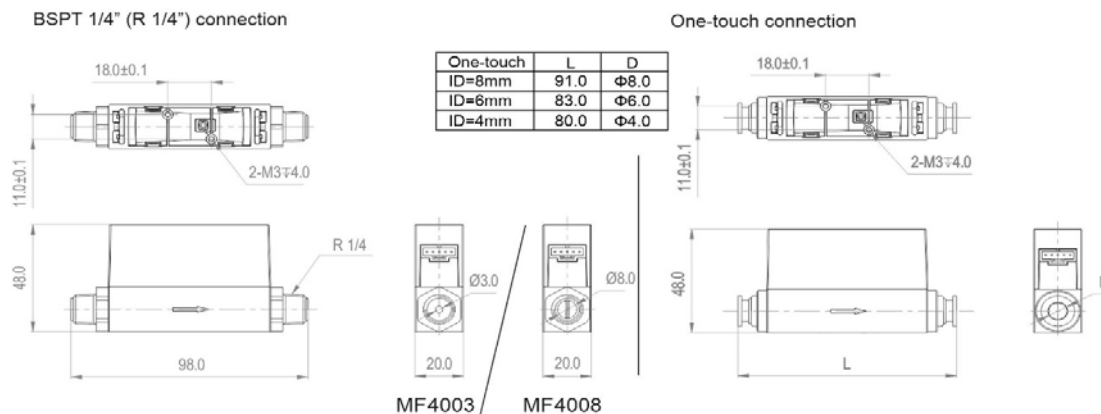
MF4000 series mass flow meters are designed for general-purpose flow metering and control applications and are made with Siargo's proprietary MEMS mass flow sensors and smart electronic circuitry. The meters directly measure mass flow with a very low pressure loss. The current models have built an easy-access menu keyboard that allows the user to program the meter for a variety of functions. Applications such as lab flow meters; equipment panels and many process control such as welding equipment, and oxygen pressurizer.

MF4000 can measure a flow up to 50 SLPM. The connectors can be fully customized.

Features

- MEMS thermal mass flow meter
- Excellent rangeability 100:1 with integrated multiple sensing elements
- Built-in keyboard for easy programming
- Fast response time
- Low pressure loss
- Fully customizable connectors

Mechanical dimensions



Specifications

Flow range	0 ~ 2, 3, 4, 5 (MF4003) / 0 ~ 10, 20, 30, 40, 50 (MF4008)	SLPM
Accuracy	$\pm(1.5+0.2FS)$	%
Repeatability	0.25	%
Response time	10 (default, others: 20...1000)	msec
Power supply	8 ~ 24 (50mA)	Vdc
Output	Linear: 0.5 ~ 4.5 Vdc / Digital: RS485 / RS232	
Pressure loss (max.)	0.1 @5 SLPM (MF4003) / 0.6 @50 SLPM (MF4008)	kPa
Pressure rating	0.5	MPa
Temperature	-10 ~ 55	°C
Humidity	<95 (no condensation)	%RH
Mechanical connection	BSPT 1/4" or One-touch 4 / 6 / 8mm	
Pinout	5 pins, AMPMODU MTE, or compatible	
Calibration	Air @ 20°C, 101.325 kPa	
Max. flow change	4 (MF4003) / 30 (MF4008)	SLPM/sec
Max. overflow	30 (MF4003) / 200 (MF4008)	SLPM
Weight	50 (with BSPT)	g
Storage temperature	-20 ~ 70	°C

Note: Parameters specified at the calibration conditions.

Product selection

MF400 ☐ - ☐ - ☐ - ☐ - ☐

Gas: A – air; B – N₂O; C – CO₂; N – N₂; O – O₂; R – Ar.
For other gases, please contact the manufacturer.

Output: B – RS485; C – RS232; V – analog.

Connector: R – BSPT 1/4"; O₄/O₆/O₈ – one touch; X – customized.

Full scale flow rate: 2, 3, 4, 5 (MF4003); 10, 20, 30, 40, 50 (MF4008).

DN: 03 – MF4003; 08 – MF4008.

Note: For CO₂ and N₂O, the full-scale flow rate is 80% of air.



MF4600

Gas Mass Flow Meter

Production description

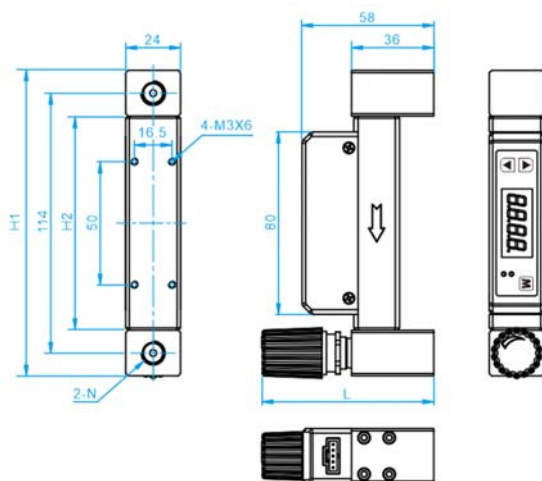
MF4600 series mass flow meters are designed for general-purpose flow metering and control applications and are made with Siargo's proprietary MEMS mass flow sensors and smart electronic circuitry. The meters directly measure mass flow with a very low pressure loss. The current models are dimensioned and built with a precision manual control valve that allows the seamless replacement of mechanical process control rotameters.

MF4600 can measure a flow up to 50 SLPM. The connectors can be fully customized.

Features

- MEMS thermal mass flow meter
- Excellent rangeability 100:1 with integrated multiple sensing elements
- Built-in keyboard and manual control valve
- Fast response time
- Low pressure loss
- Fully customizable connectors

Mechanical dimensions



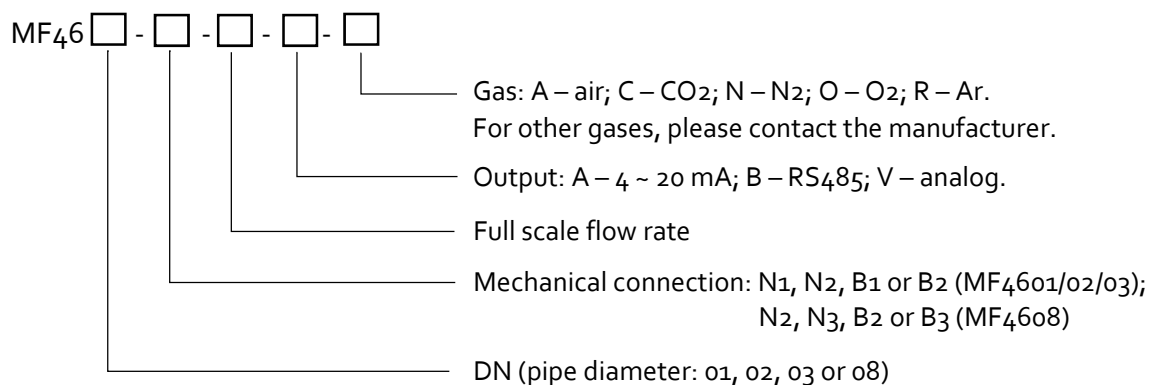
Model	DN (mm)	N *	L**	H1	H2
MF4601	1.0	NPT 1/8" ~ 1/4" BSPT 1/8" ~ 1/4"	88	138	90
MF4602	2.0	NPT 1/8" ~ 1/4" BSPT 1/8" ~ 1/4"	73 ~ 80	134	94
MF4603	3.0	NPT 1/8" ~ 1/4" BSPT 1/8" ~ 1/4"	73 ~ 80	134	94
MF4608	8.0	NPT 1/4" ~ 3/8" BSPT 1/4" ~ 3/8"	73 ~ 80	138	90

Specifications

Flow range	0 ~ 100, 200 (MF4601) / 0 ~ 500, 1000 (MF4602) / 0 ~ 2, 5 (MF4603) / 0 ~ 10, 20, 50 (MF4608)	sccm SLPM
Accuracy	±(2.5+0.5FS)	%
Repeatability	0.75	%
Response time	10 (default, others: 20...1000)	msec
Power supply	8 ~ 24 (50mA)	Vdc
Output	Linear: 4 ~ 20 mA / 0.5 ~ 4.5 Vdc / Digital: RS485	
Display	4 digits, 2 status LED	
Resolution	0.001 / 0.01 / 0.1 / 1.0	sccm/SLPM
Pressure rating	1.0	MPa
Temperature	-10 ~ 55	°C
Humidity	<95 (no condensation)	%RH
Mechanical connection	NPT-F or BSPT-F	
Pinout	5 pins, AMPMODU MTE, or compatible	
Calibration	Air @ 20°C, 101.325 kPa	
Max. flow change	0.3 (MF4601) / 1 (MF4602) / 4 (MF4603) / 30 (MF4608)	SLPM/sec
Max. overflow	2 (MF4601) / 6 (MF4602) / 30 (MF4603) / 200 (MF4608)	SLPM
Storage temperature	-20 ~ 70	°C

Note: Parameters specified at the calibration conditions.

Product selection





MF4700

Gas Mass Flow Meter

Production description

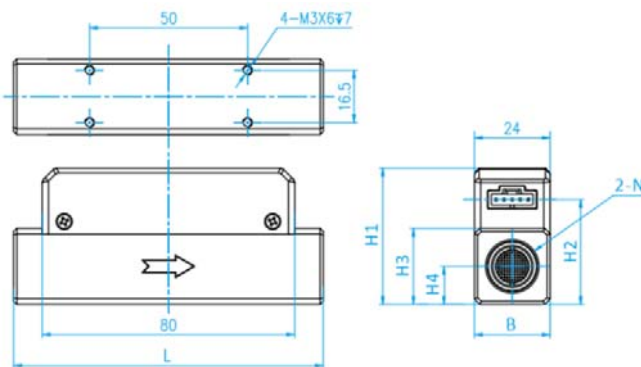
MF4700 series mass flow meters are operated with Siargo's proprietary MEMS calorimetric mass flow sensors together with smart control electronics. The sensor surface is passivated with silicon nitride ceramic materials together with water/oilproof nano-coating for performance and reliability. The meter body is made of either aluminum alloy or stainless steel that is available for applications of most gases.

MF4700 is designed for general purpose precise industrial gas processing monitor, or control. The meter series cover a wide dynamic flow range with a working pressure rating of up to 1.0 MPa, and a temperature ranging from -10 to 55°C.

Features

- MEMS thermal mass flow meter
- Excellent rangeability 100:1 with integrated multiple sensing elements
- Built-in keyboard
- Aluminum alloy or stainless steel
- Fully customizable connectors

Mechanical dimensions



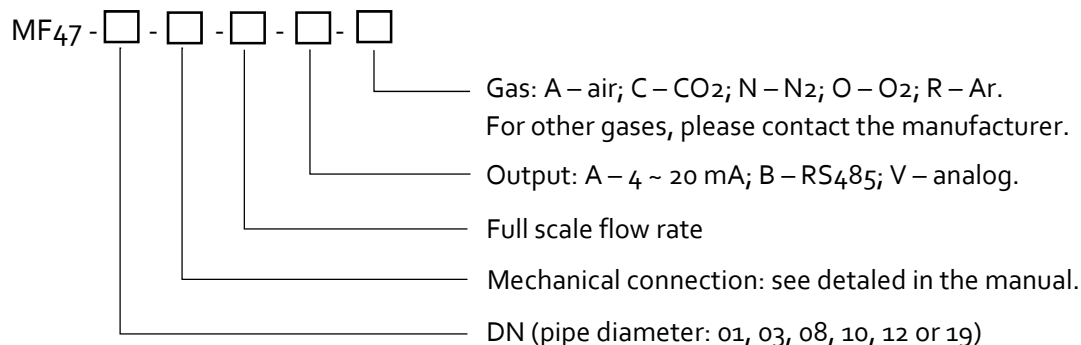
Model	L	B	H ₁	H ₂	H ₃	H ₄	N
MF4701 MF4703	98	24	43	29	20	10	NPT 1/8", BSPT 1/8"
MF4708	98	24	47	33	24	12	NPT 3/8", BSPT 3/8"
MF4710	118	30	53	39	30	15	G 1/2" (BSPP 1/2")

Specifications

Flow range	0 ~ 100, 200, 500 (MF4701)	sccm
	/ 0 ~ 1, 2, 5 (MF4703) / 0 ~ 10, 20, 50 (MF4708)	SLPM
	/ 0 ~ 100 (MF4710) / 0 ~ 200, 300 (MF4712)	SLPM
	/ 0 ~ 500, 800, 1000 (MF4719)	SLPM
Accuracy	±(2.5+0.5FS)	%
Repeatability	0.75	%
Response time	10 (default, others: 20...1000)	msec
Power supply	8 ~ 24 (50mA)	Vdc
Output	Linear: 4 ~ 20 mA / 0.5 ~ 4.5 Vdc / Digital: RS485	
Display	4 digits, 2 status LED	
Resolution	0.001 / 0.01 / 0.1 / 1.0	sccm/SLPM
Pressure rating	1.0	MPa
Temperature	-10 ~ 55	°C
Humidity	<95 (no condensation)	%RH
Mechanical connection	NPT or BSPT	
Pinout	5 pins, AMPMODU MTE, or compatible	
Calibration	Air @ 20°C, 101.325 kPa	
Max. flow change	1 (MF4701) / 4 (MF4703) / 30 (MF4708)	SLPM/sec
	60 (MF4710) / 100 (MF4712) / 300 (MF4719)	
Max. overflow	6 (MF4701) / 30 (MF4703) / 200 (MF4708)	SLPM
	400 (MF4710) / 600 (MF4712) / 2000 (MF4719)	
Storage temperature	-20 ~ 70	°C

Note: Parameters specified at the calibration conditions.

Product selection



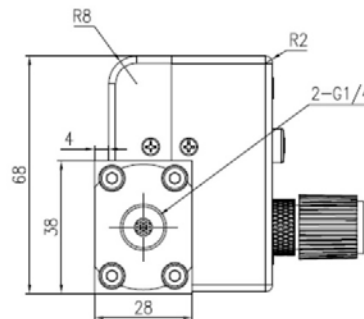
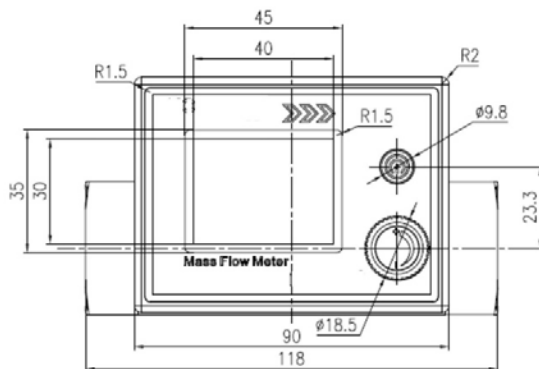
Gas Mass Flow Meter

MF5100V can measure a flow up to 50 SLPM. The connectors can be fully customized.

Features

- MEMS thermal mass flow meter with power management
- Excellent rangeability 100:1 with integrated multiple sensing elements
- Mobile applications with long operation
- Fast response time
- Precise step or continuous control
- Customer programmable alarm and other functions

Mechanical dimensions

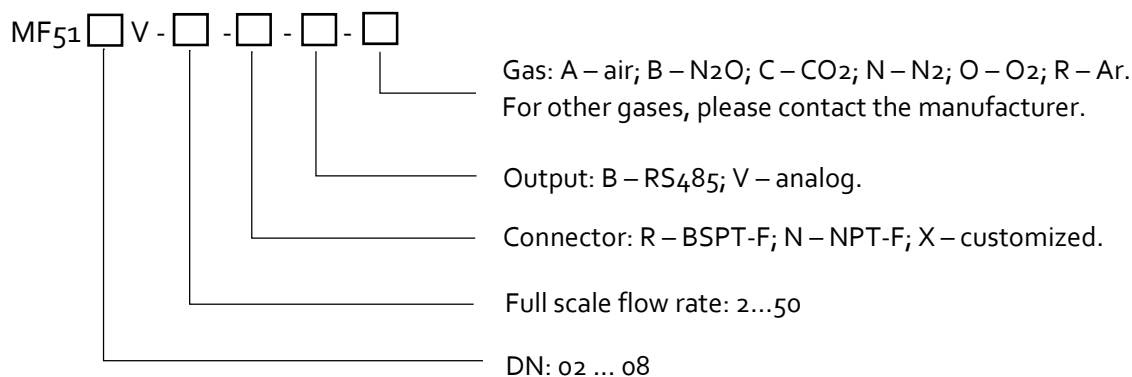


Specifications

Flow range	0 ~ 2...50	SLPM
Accuracy	$\pm(1.5+0.2FS)$	%
Repeatability	0.25	%
Response time	200	msec
Power supply	Lithium ion C-Cell / 8 ~ 24 Vdc	
Battery life	>2 (normal usage)	Year
Output	LCD 6 digital / RS485 Modbus	
Pressure sensitivity	Null	
Pressure rating	0.8	MPa
Temperature	-10 ~ 55	°C
Humidity	<95 (no condensation)	%RH
Mechanical connection	BSPT / NPT	
Pinout	5 pins, M8	
Calibration	Air @ 20°C, 101.325 kPa	
Valve	NS1.5 (29.8), SS	
Protection	IP50	
Storage temperature	-20 ~ 70	°C

Note: Parameters specified at the calibration conditions.

Product selection



Note: For CO₂ and N₂O, the full-scale flow rate is 80% of air.



MF5000

Gas Mass Flow Meter

Production description

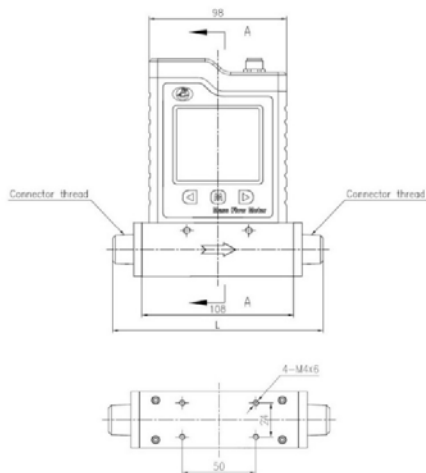
MF5000 series mass flow meters are designed for general-purpose flow metering and control applications and are made with Siargo's proprietary MEMS mass flow sensing technology and smart electronic circuitry. The meters directly measure mass flow with a very low pressure loss. It has a wide spectrum of selections in pipe diameter, range, gas type, etc. The current models can be readily applied to industrial gas process and control, gas; and other applications in laboratory and test benches

MF5000 can measure a flow from 0.15 up to 800 SLPM. The connectors can be fully customized.

Features

- MEMS thermal mass flow meter
- Excellent rangeability 100:1 with integrated multiple sensing elements
- Fast response time
- Low pressure loss
- Fully customizable connectors

Mechanical dimensions



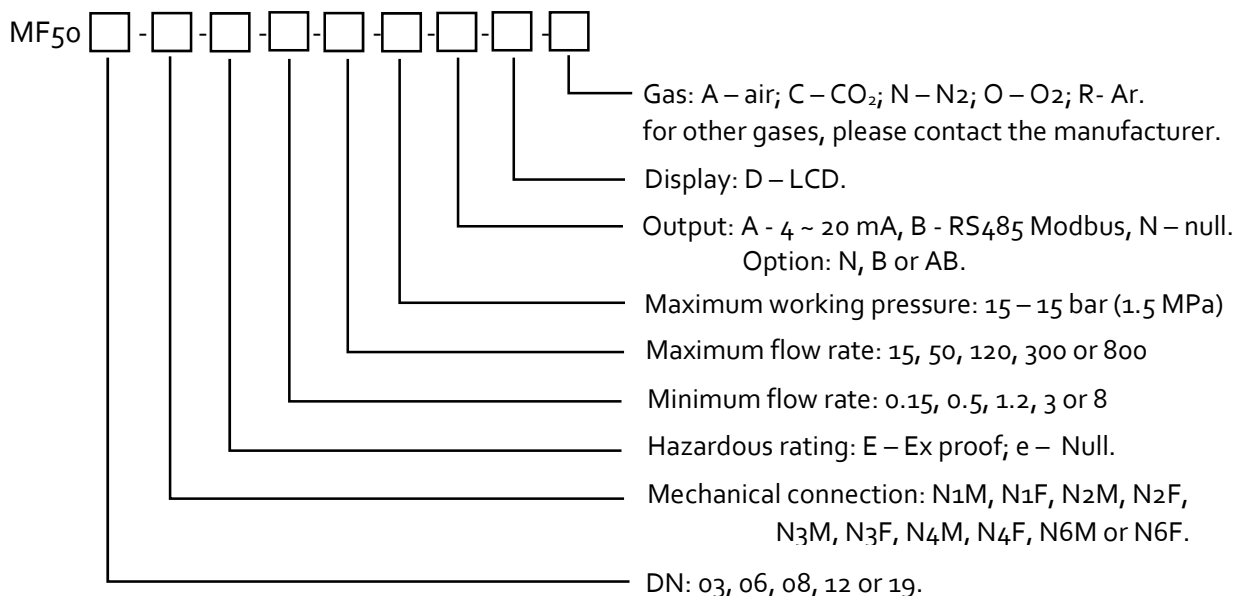
Model	DN (mm)	D (M or F)	L
MF5003	3	NPT 1/8"	138
MF5006	6	NPT 1/4"	144
MF5008	8	NPT 3/8"	144
MF5012	12	NPT 1/2"	150
MF5019	19	NPT 3/4"	182.5

Specifications

Flow range	0 ~ 15 (MF5003) / 0 ~ 50 (MF5006) / 0 ~ 120 (MF5008) / 0 ~ 300 (MF5012) / 0 ~ 800 (MF5019)	SLPM
Accuracy	$\pm(1.5+0.5FS)$	%
Repeatability	0.5	%
Power supply	12 ~ 24 (50mA)	Vdc
Output	RS485 Modbus / 4 ~ 20 mA	
Pressure rating	1.5	MPa
Temperature	-20 ~ 60	°C
Humidity	<95 (no condensation)	%RH
Pinout	M12	
Calibration	Air @ 20°C, 101.325 kPa	
Hazardous rating	Ex ia IIC T4 Gb	

Note: Parameters specified at the calibration conditions.

Product selection





MF5100

Gas Mass Flow Meter

Production description

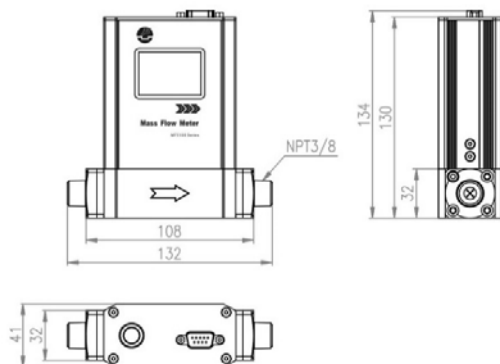
MF5100 series mass flow meters are designed for a large dynamic range (200:1) and high accuracy of 1.5% reading in flow metering and control applications. With Siargo's proprietary MEMS mass flow sensing technology, the meter can automatically recognize the registered gases and be powered with a lithium-ion battery for long-lasting operation. The current models can be readily applied to applications with multiple gas process control and flow efficiency calibration, as well as applications requiring mobile power.

MF5100 can measure a flow up to 100 SLPM. The connectors can be fully customized.

Features

- MEMS thermal mass flow meter
- Excellent rangeability 200:1 with integrated multiple sensing elements
- High accuracy of 1.5% reading
- Fast response time
- Battery-powered with the long-lasting operation
- Fully customizable connectors

Mechanical dimensions



Note: The current three models have the identical mechanical dimensions.

Specifications

Flow range	0 ~ 30 (MF5106) / 0 ~ 50 (MF5108) / 0 ~ 100 (MF5110)	SLPM
Initial flow rate	0.01 / 0.01 / 0.02	SLPM
Accuracy	±1.5	%
Repeatability	0.25	%
Response time	250	msec
Long term stability	< 1.0	%/year
Power supply	D-Cell 19Ah lithium ion / 8 ~ 24 Vdc (external)	
Battery life	> 2	Year
Output*	LCD / Digital: RS485 / Pulse	
Pressure rating	1.0	MPa
Burst pressure	1.5	MPa
Temperature	-10 ~ 55	°C
Humidity	<95 (no condensation)	%RH
Pinout	DB9	
Mechanical connection	NPT – M 3/8"	
Calibration	Air @ 20°C, 101.325 kPa	
Weight	< 1.0	kg
Storage temperature	-20 ~ 70	°C

Note: 1. Parameters specified at the calibration conditions.

2. RS485 Modbus / pulse output requires an external power model. 4 ~ 20 mA and voltage output are optional.



MF5600 Gas Mass Flow Meter

Production description

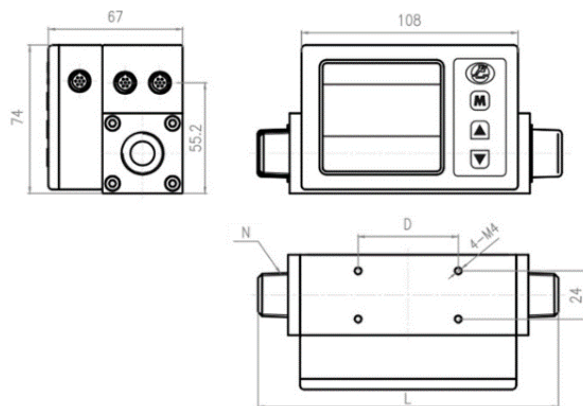
MF5600 series mass flow meters are designed for general-purpose flow metering and control applications where a detachable meter head is required for some distance data reading. The meters directly measure mass flow with a very low pressure loss. The current models can be readily applied to hospital oxygen delivery management, industrial process monitoring, and gauge; and other applications such as welding gas equipment, and food and beverage process.

MF5600 can measure a flow up to 800 SLPM. The connectors can be fully customized.

Features

- MEMS thermal mass flow meter
- Excellent rangeability 100:1 with integrated multiple sensing elements
- Detachable meter head for distance data reading
- Fast response time
- Low pressure loss
- Fully customizable connectors

Mechanical dimensions



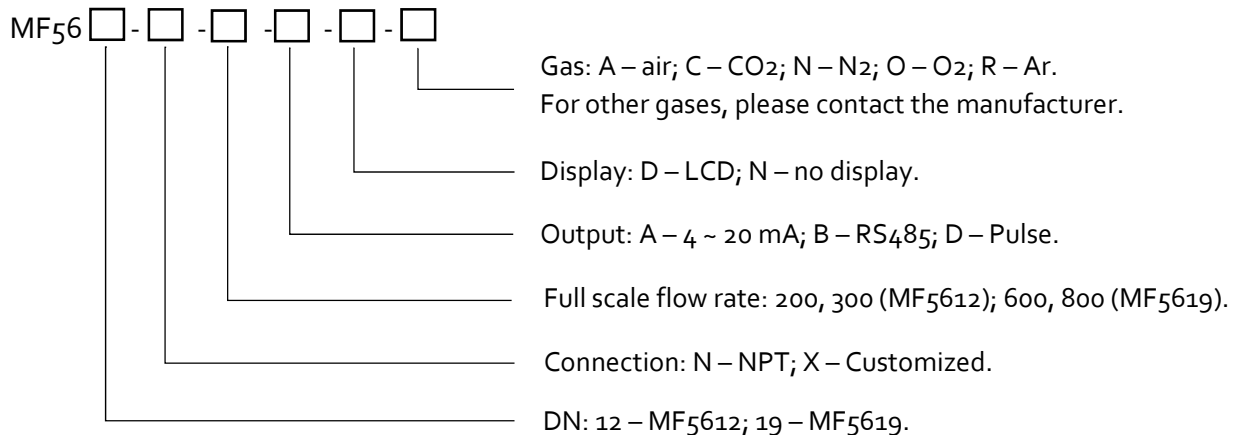
	D	L	N
MF5612	50	150	NPT1/2"
MF5619	70	182.5	NPT3/4"

Specifications

Flow range	0 ~ 200, 300 (MF5612) / 0 ~ 600, 800 (MF5619)	SLPM
Initial flow rate	0.3 (MF5612) / 0.8 (MF5619)	SLPM
Accuracy	$\pm(1.5+0.5FS)$	%
Repeatability	0.5	%
Power supply	12 ~ 24 (50 mA)	Vdc
Output	RS485 / 4 ~ 20 mA / Pulse	
Pressure rating	1.0	MPa
Temperature	-10 ~ 55	°C
Humidity	<95 (no condensation)	%RH
Mechanical connection	NPT-M 1/2" (MF5612) / NPT-M 3/4" (MF5619)	
Cable	LCD cable / data cable	
Calibration	Air @ 20°C, 101.325 kPa	
Storage temperature	-20 ~ 70	°C

Note: Parameters specified at the calibration conditions.

Product selection



Note 1. For CO₂ and N₂O, the full-scale flow rate is 80% of air.

2. Cable order code: **IC7 -150** – data cable; **IC7-30-IC7 / IC7 -200-IC7** – detachable display cable.
Numerical is the length of the cable in cm.



MF5700

Gas Mass Flow Meter

Production description

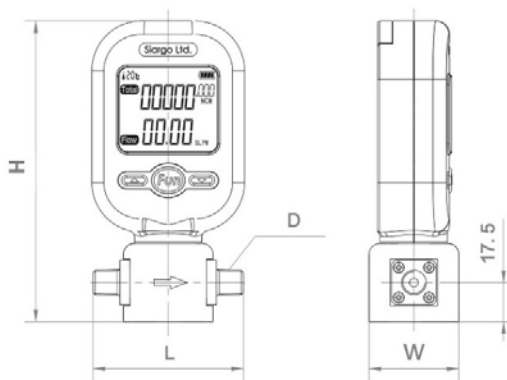
MF5700 series mass flow meters are designed for general-purpose flow metering and control applications enabled by IoT or wireless data while having the mobile power option. With Siargo's proprietary MEMS mass flow sensing technology and smart electronic circuitry, the products offer unprecedented cost-effectiveness with performance. The sensors directly measure mass flow with a very low pressure loss, opt with various wireless transmissions, and control the ON/OFF valve. The current models can be readily applied to many process applications.

MF5700 can measure a flow up to 200 SLPM. The mechanical connectors can be fully customized.

Features

- MEMS thermal mass flow meter enabled with IoT
- Excellent rangeability 80:1 with integrated multiple sensing elements
- Control ON/OFF valve
- User programmable functions
- Mobile power option by 4-AA batteries
- Fully customizable mechanical connectors

Mechanical dimensions



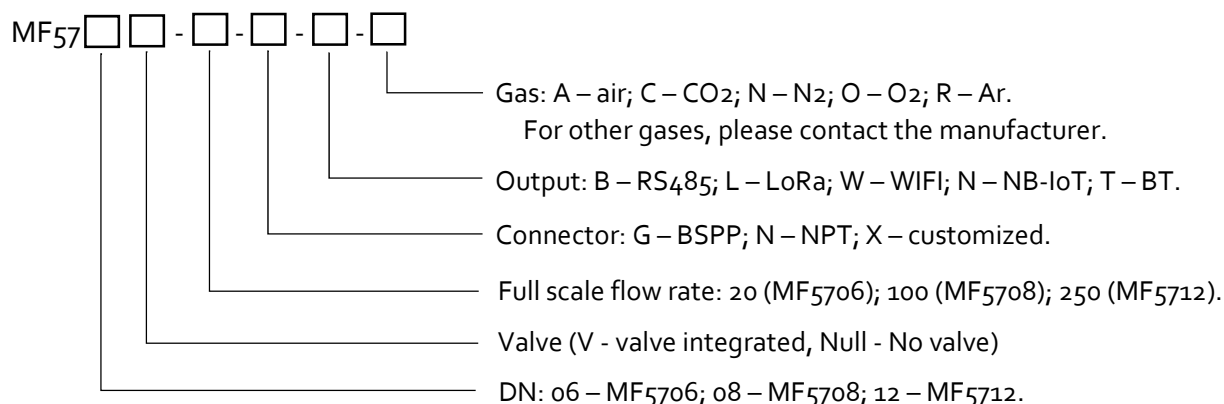
	L	W	H	D
MF5706	61	34	127	1/4"
MF5708	81	45	134	3/8"
MF5712	90	45	141	1/2"

Specifications

Flow range	0 ~ 20 (MF5706) / 0 ~ 100 (MF5708) / 0 ~ 250 (MF5712)	SLPM
Accuracy	$\pm(2.0+0.5FS)$	%
Repeatability	0.5	%
Response time	< 2.0 on battery	sec
Power supply	4-AA batteries (LR6) / 5 ~ 24 Vdc with AC adapter	
Output	RS485 Modbus	
Wireless	LoRa / WIFI / NB-IoT / BT LE	
Pressure rating	0.8	MPa
Temperature	-10 ~ 55	°C
Humidity	<95 (no condensation)	%RH
Mechanical connection	BSPP or NPT	
Data interface	USB Type-C	
User program	Front face, 3 keys, or via Modbus	
Calibration	Air @ 20°C, 101.325 kPa	
Storage temperature	-20 ~ 70	°C

Note: Parameters specified at the calibration conditions.

Product selection



Note: Only one of the wireless options can be selected for each model.



MF5900

Gas Mass Flow Meter

Production description

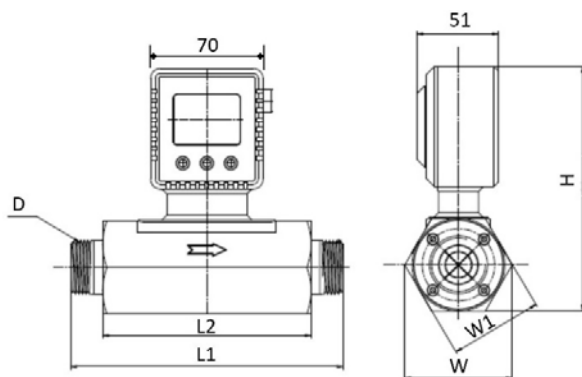
MF5900 series mass flow meters are designed for general-purpose flow metering and control applications and are made with Siargo's proprietary MEMS thermal time-of-flight sensing technology and smart electronic circuitry. The meters will measure mass flow while having very high sensitivity at low flow, meter selective gases without requiring the gas transfer data. The current models allow the user to program various functions and can be readily applied to low-flow natural gas and process metering, and other process control applications.

MF5900 can measure a flow up to 5000 SLPM with a 2" pipe. The connectors can be customized.

Features

- MEMS thermal time-of-flight sensing technology
- Excellent rangeability 100:1 with integrated multiple sensing elements
- Multi-gas capability
- Fast response time
- User programmable functions
- Fully customizable connectors

Mechanical dimensions



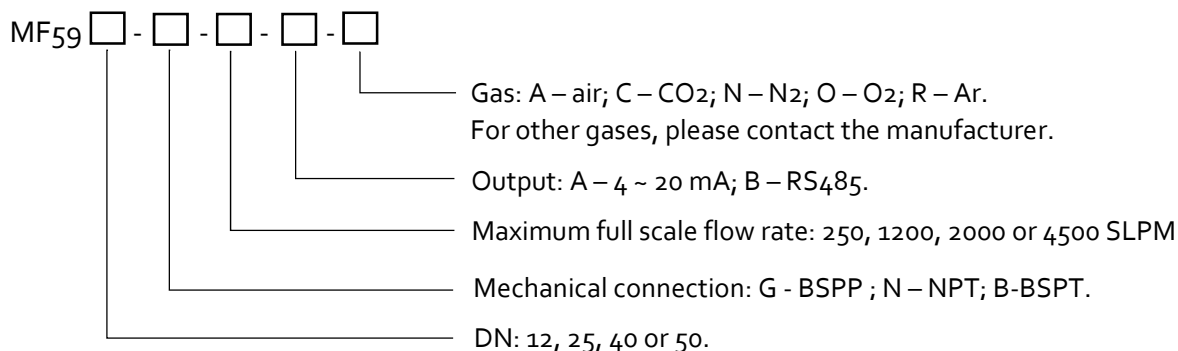
	L1	L2	W	W1	H	D
MF5912	170	130	61	58	147	NPT 1/2"
MF5925	170	130	67	58	153	NPT 1"
MF5940	173	130	75	68	163	NPT 1-1/2"
MF5950	200	150	76	68	165	NPT 2"

Specifications

Flow range	0 ~ 250 (MF5912) / 0 ~ 1200 (MF5925) / 0 ~ 2000 (MF5940) / 0 ~ 4500 (MF5950)	SLPM
Accuracy	$\pm(1.5+0.25FS)$	%
Repeatability	0.5	%
Response time	200	msec
Power supply	8 ~ 24 (50mA)	Vdc
Output	RS485 Modbus / 4 ~ 20 mA	
Pressure loss (max.)	<1.6 @ 1000 SLPM (MF5725)	kPa
Pressure rating	0.8	MPa
Temperature	-10 ~ 55	°C
Humidity	<95 (no condensation)	%RH
Mechanical connection	NPT-F	
Pinout	M12	
Protection	IP66 (NEMA 4x)	
Calibration	Air @ 20°C, 101.325 kPa	
Storage temperature	-20 ~ 70	°C

Note: Parameters specified at the calibration conditions.

Product selection



Note: For CO₂, the full-scale flow rate is 80% of air.



MF5806-G

Gas Cylinder Mass Flow Meter

Production description

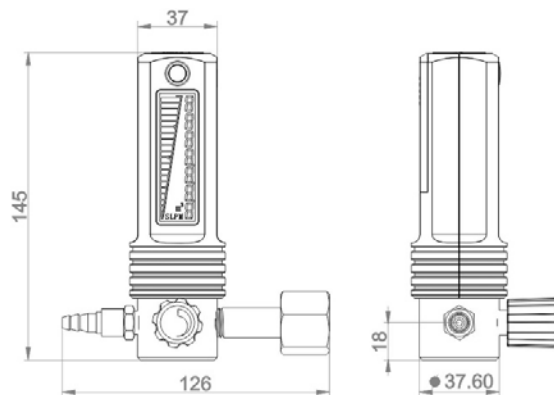
MF5806-G series gas cylinder mass flow meters are designed for gas cylinder management that is enabling smart IoT data management for cylinder status and logistics. The meters are directly engaged to a gas cylinder pressure regulator streaming the gas usage data and locations to the designated Cloud. The current models can be readily applied to medical oxygen cylinders for home care, industrial gases for a semiconductor process, construction welding processes, fast-food chain stores, and many more.

MF5806-G can be configured with various IoT networks, and other parameters can also be fully customized.

Features

- MEMS thermal mass flow meter with IoT
- Excellent rangeability 100:1 for precise usage metering
- Fast response time
- Mobile power options
- Fully customizable meter design

Mechanical dimensions



Note: The example shown here is a design for a medical oxygen cylinder meter for homecare. Other cylinder or customer specified application will have different dimensions.

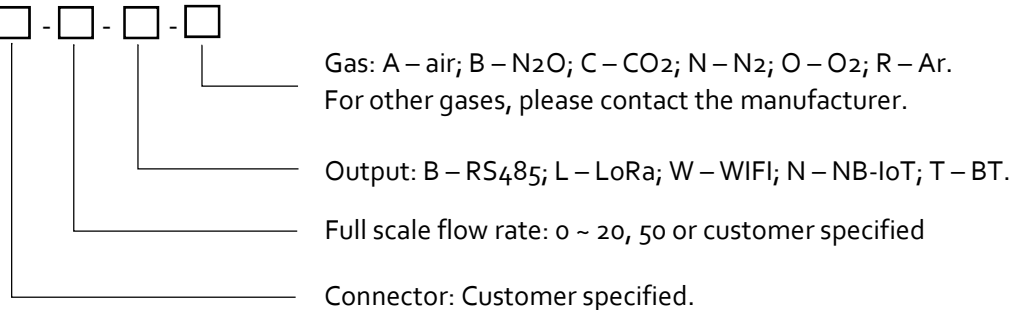
Specifications

Flow range	0 ~ 20, 50 or customer specified	SLPM
Accuracy	$\pm(2.0+0.5FS)$	%
Repeatability	0.5	%
Response time	< 2.0 (on battery)	sec
Power supply	2-AA (LR6) or 6 ~ 24Vdc adapter	
Battery life	2300 hours continuous without wireless	
Output	RS485 Modbus with external power	
Wireless data	LoRa / WIFI / NB-IoT / BT LE	
Pressure rating	0.5	MPa
Temperature	-10 ~ 55	°C
Humidity	<95 (no condensation)	%RH
Pressure loss	< 500	Pa
Mechanical connection	Optional pressure regulator, regional version	
Data pinout	miniUSB	
User program	1 key on the meter or wired / wireless	
Calibration	Air @ 20°C, 101.325 kPa	
Storage temperature	-20 ~ 70	°C

Note: Parameters specified at the calibration conditions.

Product selection

MF5806-G-□ - □ - □ - □



Note: For CO₂ and N₂O, the full-scale flow rate is 80% of air.



MF5806E1

Oxygen Mass Flow Meter

Production description

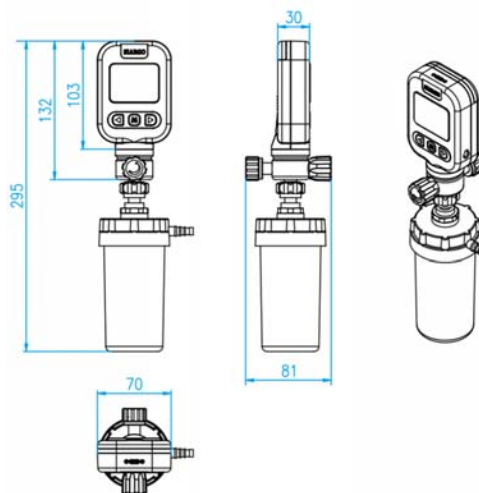
MF5806E1 oxygen mass flow meters are designed to replace the mechanical rotameter used in hospital or homecare oxygen therapy. The meter integrates the SpO₂ sensor and an electrically actuated ON/OFF valve providing the ultimate solution for oxygen therapy that automatically controls the oxygen delivery with remote data. It also helps to significantly reduce the probability of cross-infection during medical staff attendance.

MF5806E1 can measure a flow up to 20 SLPM, with parameters fully customizable.

Features

- MEMS thermal mass flow meter integrated with SpO₂ sensor
- Fully automatic oxygen therapy enabler
- Remote data and remote controllable procedure
- Mobile power option with long life
- Cross infection prevention
- Fully customizable key parameters.

Mechanical dimensions



Specifications

Flow range	0.3 ~ 15	SLPM
Accuracy	±2.0	%FS
Repeatability	0.5	%FS
Response time	< 2.0 (on battery)	sec
Power supply	3-AA rechargeable batteries / 8~24 Vdc	
Battery life	3000 hours continuous without wireless	
Output	RS485 Modbus with external power	
Wireless data	LoRa	
Maximum pressure	0.5	MPa
Working temperature	-5 ~ +55	°C
Humidity	<95%RH, no condensation	
Pressure loss	5.7 kPa (@10 SLPM)	
Mechanical connection	DISS or customer specified	
Valve	Manual control valve	
User program	3 keys on the meter or wired / wireless	
Calibration	Air @ 20°C, 101.325 kPa	
Storage temperature	-20 ~ +70	°C

Note: Parameters specified at the calibration conditions.



MF-GD

Utility Gas Mass Flow Meter

Production description

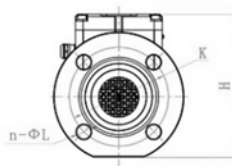
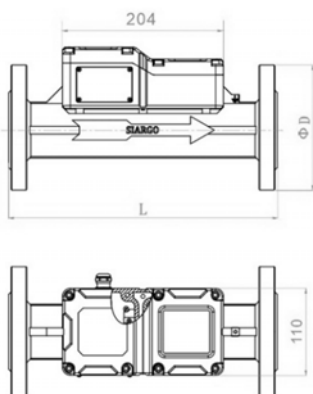
MF-GD series utility gas mass flow meters were first introduced in 2009 and the current version is the 3rd generation of the company's MEMS utility gas meters designed for city natural gas metering. The current upgrades include automatic gas recognition, a new mechanical design with a flanged connection, better power management, and enhanced long-term reliability. The products are also deployed for control and improvement of burner efficiency using natural gases.

MF-GD covers most of the models for commercial city gas metering applications.

Features

- MEMS thermal mass flow sensing with temperature and pressure compensation
- Excellent rangeability >100:1 with integrated multiple-sensing elements
- Automatic gas recognition
- Remote data or IoT ready
- Mobile power enabled
- Enhanced mechanical strength

Mechanical dimensions



Model	L	H	ΦD	n-ΦL	ΦK
MF25GD	300	156	115	4-Φ14	85
MF40GD	320	175	150	4-Φ18	110
MF50GD	340	181	165	4-Φ18	125
MF80GD	340	215	200	8-Φ18	160

Specifications

Accuracy	$\pm(1.5+0.25FS)$	%
Rangeability	100:1	
Pressure rating	0.2	MPa
Temperature, gas	-20 ~ 65	°C
Temperature, environment	-40~60	°C
Humidity	<95 (no condensation)	%RH
Power supply*	2 x D-Cell lithium-ion, 19Ah (L3638A)	
Battery life	> 36	Month
Realtime clock	10	Year
Output	RS485 Modbus or pulsed with 8 ~ 24Vdc	
Mechanical**	Flanged, ASME B16.5-2099 MOD	
Protection	IP66	
Hazardous rating	Ex ia II C T4	
Calibration	Air @ 20°C, 101.325 kPa	
Storage temperature	-20 ~ 70	°C

Note 1. Due to air freight restrictions, battery assembly is required with the manufacturer-provided parts.
2. Also in compliance with EN1092-1-2007, MOD

Product selection

Model	DN (mm)	Flow range (m³/h)			
		-1	-2	-3	-4
MF25GD	25	0.10 ~ 10	0.16 ~ 16	0.25 ~ 25	0.40 ~ 40
MF40GD	40	0.25 ~ 25	0.40 ~ 40	0.65 ~ 65	--
MF50GD	50	0.40 ~ 40	0.65 ~ 65	0.80 ~ 80	--
MF80GD	80	1.0 ~ 100	1.6 ~ 160	--	--

Note: For other gases and flow ranges, please contact the manufacturer. For example, if applied to CO₂ measurement, a model selection can be MF25GD-30-B-C: 30 is the maximum flow rate (80% of air); and B for RS485 Modbus; C for CO₂.



MF-HD

LPG Mass Flow Meter

Production description

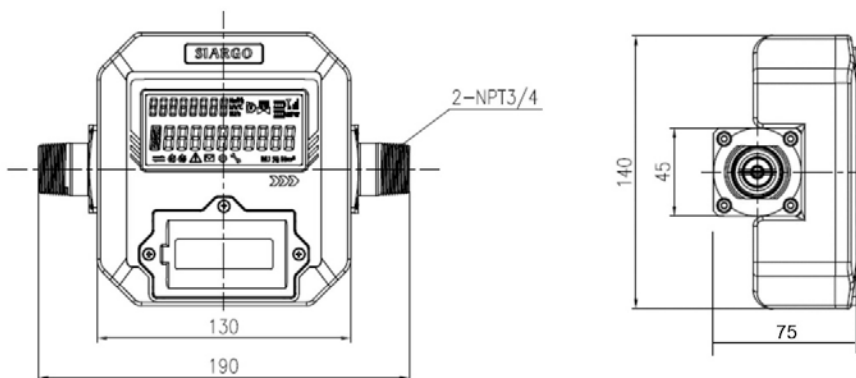
MF-HD series LPG mass flow meters are designed for LPG cylinder fuel metering for city commercial or residential applications. The meters are powered by a battery and directly measure the mass flow of the consumed fuel in a cylinder and transmit the data wirelessly to a designated Cloud or data center. It facilitates the supplier's logistics and manufacturing process while preventing the shortage for the users.

MF-HD can measure a flow up to 16 m³/h (600 SCFH).

Features

- MEMS thermal mass flow meter for LPG or similar applications
- Excellent rangeability 150:1
- Mobile power enabled
- NB-IoT or other wireless data
- Low pressure loss

Mechanical dimensions



MF19HD

Specifications

Flow range (LPG)	0 ~ 10, 16	m³/h
(Air)	0 ~ 24, 36	
Accuracy (LPG)	Class 1.5	
(Air)	±(1.5 + 0.25FS)%	
Working pressure	50 ~ 150	kPa
Temperature, gas	-20 ~ 55	°C
Temperature, environment	-40 ~ 60	°C
Humidity	<95 (no condensation)	%RH
Power supply	5 years minimal, lithium-ion battery, 3.6V, 19AH 3 year, communication battery, 3.6V, 19AH	
Battery life	> 5	Year
Realtime clock	10	Year
Data interface	RS485 Modbus, BTLE, or customized	
Mechanical	NPT 3/4" or NPT 1"	
Protection	IP66	
Hazardous rating	Ex ib II B T ₃ Gb	
Calibration	Air @ 20°C, 101.325 kPa	
Storage temperature	-30 ~ 70	°C

Product selection

For LPG

	DN	Mechanical connection	Min flow rate (m³/h)	Max flow rate (m³/h)
MF19HD G6	19	NPT 3/4" or BSPT 3/4"	0.06	10
MF25HD G10	25	NPT 1" or BSPT 1"	0.10	16

For other gases

MF ☐ HD ☐ - ☐ - ☐ - ☐

- Gas: A – air, N₂, Ar, O₂; X – others
- Output: B – RS485 Modbus / BTLE
- Mechanical connection: N – NPT; B – BSPT
- Full scale flow rate: 24, 36 m³/h (400, 600 SLPM)
- DN: 19 or 25



LF3000

Microfluidic Meters & Sensors

Production description

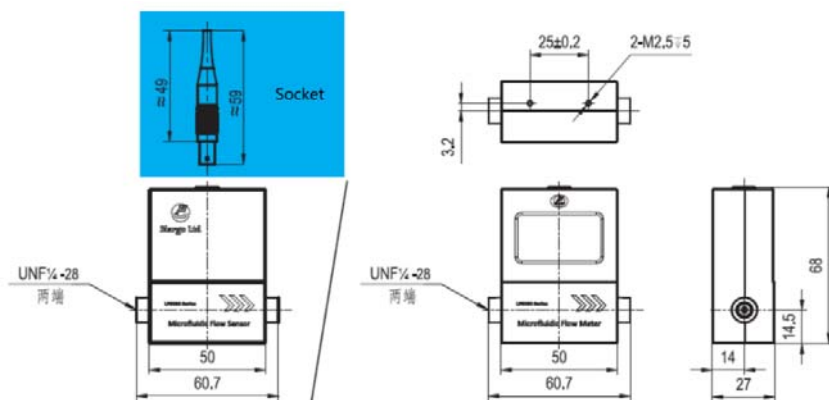
LF3000 series microfluidic flow meters and sensors are designed for general-purpose microfluidic flow metering and control applications and are made with Siargo's proprietary MEMS thermal time-of-flight sensing technology and smart electronic circuitry that offers excellent reliability and rangeability. The current models can be readily applied to medicine, bioscience, health care, pharmaceutical process, fuel cells, and many others. Disposable options are available upon contacting the manufacturer.

LF3000 can measure a flow from 500 nL/min up to 500 mL/min (sccm).

Features

- MEMS thermal time-of-flight sensing technology
- Large rangeability over 100:1 with integrated multiple-sensing elements
- Excellent reliability
- Fast response time
- Alternative sensing for other parameters
- Disposable alternative design

Mechanical dimensions



LF3000M

LF3000S

Specifications

Flow range	0 ~ 5 / 0 ~ 50 / 0 ~ 500	sccm
Accuracy	$\pm(2.0+0.5FS)$	%
Repeatability	0.5	%
Response time	200 (others programmable)	msec
Power supply	8 ~ 15	Vdc
Pressure rating	0.8	MPa
Temperature	5 ~ 50	°C
Output	Linear: 0.5 ~ 4.5 Vdc / Digital: I ² C / IO-Link	
Wireless	BT LE	
Display	OLED	
Mechanical connection	1/4"-28 flat bottom M	
Pinout	M8	
Calibration	DI - water @ 20°C, 101.325 kPa	
Wetted materials	PEEK, SiNx, Stainless steel	
Protection	IP50	
Weight	<220 with display	g
Storage temperature	-20 ~ 70	°C

Note: Parameters specified at the calibration conditions.

Product selection

LF3 ☐ - ☐ - ☐ - ☐ - ☐

Medium: W – water; A – IPA; M – Methanol; X – customized (please contact the manufacturer).

Wireless: B – Bluetooth; L – LoRa; N – null.

Output: V – analog; A – 4 ~ 20 mA; B – RS485; E – I²C.

Connection: U – 1/4"-28; C – compression; X- customized.

Full scale range: ...005 / ...050 / ...500 + M: meter; S – Sensor.

Note: For a special range, please contact the manufacturer.



CS3001

Liquid Concentration Sensor

Production description

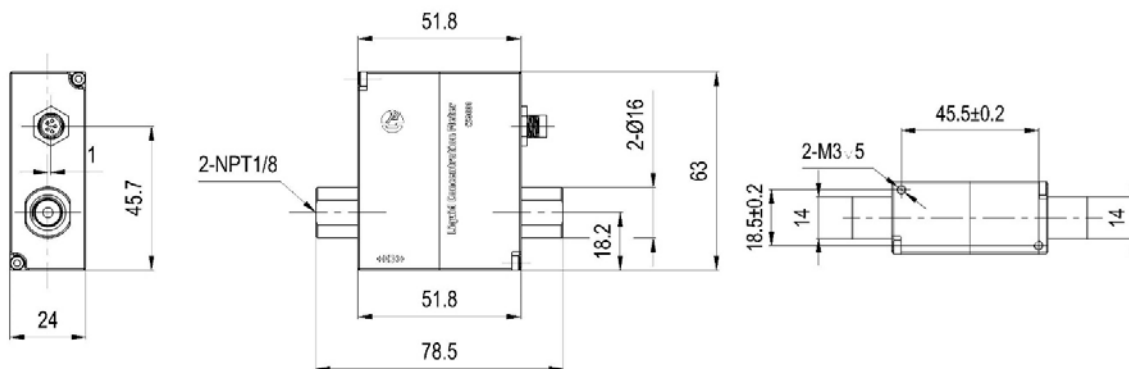
CS3001 liquid concentration sensors are designed for general-purpose liquid concentration measurement and control applications and are made with Siargo's proprietary MEMS thermal sensing technology and smart electronic circuitry. The sensors measure the liquid concentration of a two-fluid mixture. The current models can be readily applied to a methanol fuel cell, food and beverage process monitor, and other chemicals, agriculture, and diesel applications.

CS3001 can measure 0 ~ 100%wt. or 0 ~ 100%Vol. with high precision.

Features

- MEMS thermal time-of-flight sensing technology
- Extended rangeability covering 0 ~ 100%
- Excellent reliability and stability
- Fast response time
- Long lifetime
- Fully customizable packages

Mechanical dimensions

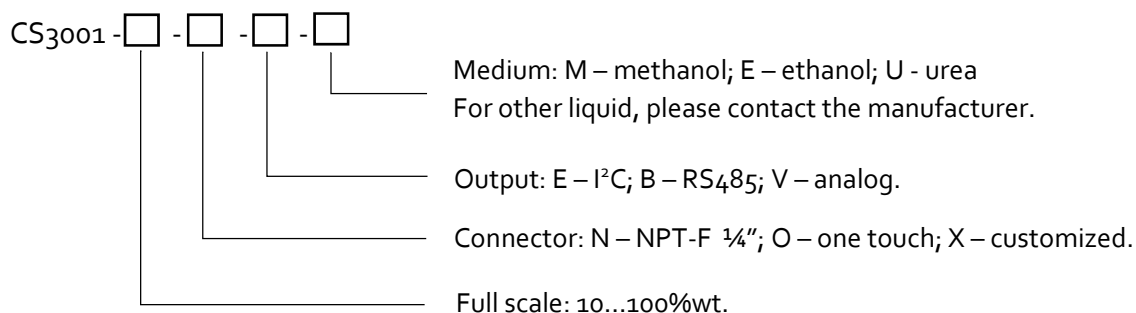


Specifications

Concentration range	0 ~ 100	%wt.
Accuracy	±2.0	%
Repeatability	0.5	%
Response time	100	msec
Power supply	8 ~ 24 (50mA)	Vdc
Output	Linear: 0.5 ~ 4.5 Vdc / Digital: I ² C / RS485	
Pressure rating	0.8	MPa
Temperature	5 ~ 60	°C
Mechanical connection	NPT-F ¼" or customized	
Pinout	M5	
Protection	IP67	
Wetted materials	SS 304, silicon nitride	
Calibration	20°C, 101.325 kPa	
Weight	300	g
Storage temperature	-20 ~ 70	°C

Note: Parameters specified at the calibration conditions.

Product selection





FSP1000

Gas Differential Pressure Sensor

Production description

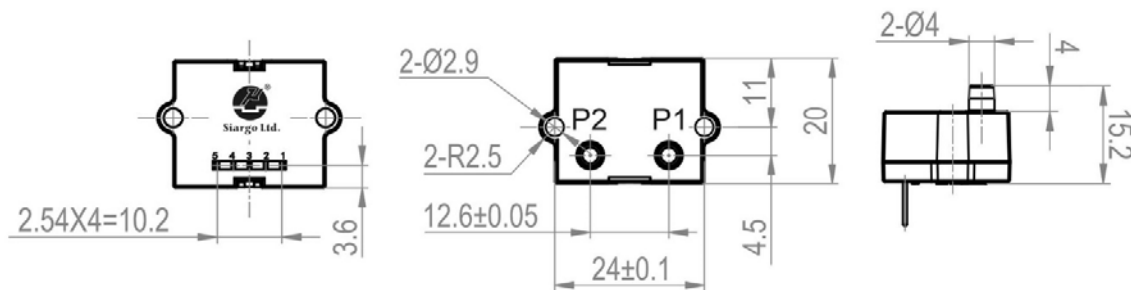
FSP1000 differential pressure sensors are designed for low differential pressure measurements and are made with Siargo's proprietary MEMS sensing technology. The sensors measure uni- or bi-directional differential pressure with flow passing through. The current models can be readily applied to medical applications such as a CPAP ventilators, HVAC control, and many others.

FSP1000 can measure as low as 2 Pa, and up to 500 Pa differential pressure.

Features

- MEMS thermal sensing technology
- Highly sensitive at a very low differential pressure
- Small form factor
- Fast response time
- Cost-effective with bidirectional sensing

Mechanical dimensions

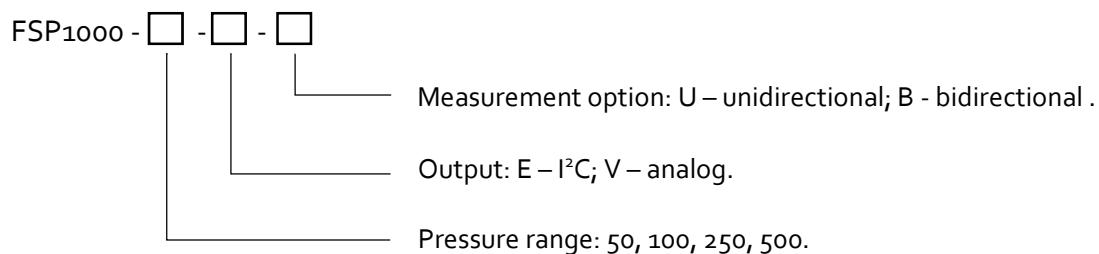


Specifications

Pressure range	2 ~ 50, 100, 250, 500 / $\pm(2 \sim 50, 100, 250, 500)$	Pa
Accuracy	$\pm(2.0+0.8FS)$	%
Repeatability	0.5	%
Response time	20	msec
Power supply	3.0 ~ 3.6 (10mA)	Vdc
Output	Linear: 0.4 ~ 2.4 Vdc / Digital: I ² C	
Output resolution	Analog – 12bit / Digital – 14 bit	
Pressure rating	0.2	MPa
Temperature	-5 ~ 65	°C
Humidity	<95 (no condensation)	%RH
Altitude correction	Not required	
Mechanical connection	Barbed	
Pinout	5 pins	
Pneumatic flow resistance	<95mL/min @500 Pa	
Vibration	20g; MIL-STD-883E, Method 2002.4	
Calibration	Air @ 20°C, 101.325 kPa	
Storage temperature	-20 ~ 70	°C

Note: Parameters specified at the calibration conditions.

Product selection

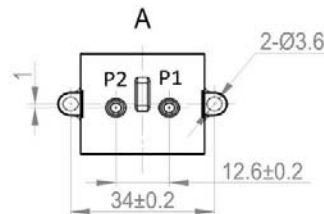


Note: Default output is I²C; analog is optional.

Gas Dual Pressure Sensor

FSP2000 series dual pressure sensors offer the unique combination of a differential and a gauge pressure sensor utilizing the MEMS thermal and piezo sensing technology with smart electronic circuitry. The designed sensing ranges allow it can be readily applied to medical applications such as a CPAP ventilator for both flow and gauge pressure measurement with a small footprint per the direction of the CPAP development.

- MEMS thermal and piezo sensing technology
- Excellent form factor with integrated multiple sensing elements
- High stability at null and full scale
- Fast response time
- High sensitivity at low pressure



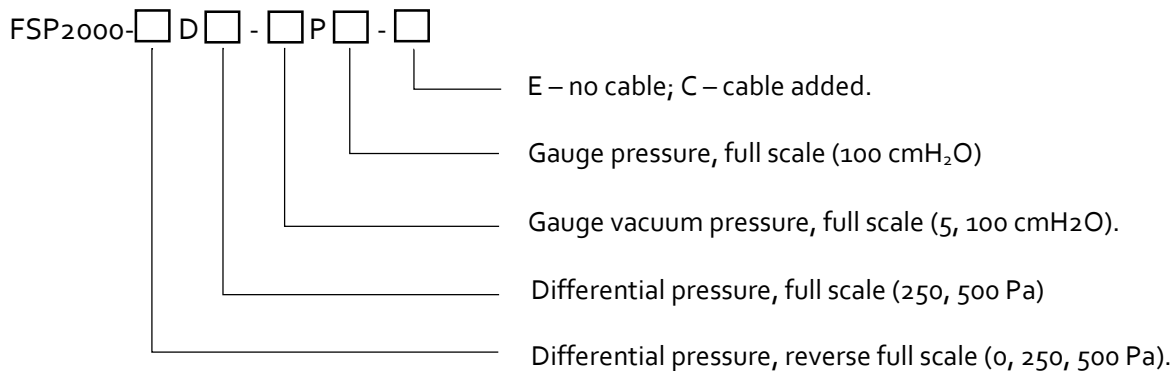
Page 59

Specifications

Differential pressure	250 / 500 / ± 250 / ± 500	Pa
Gauge pressure	-5 ~ 100 / ± 100	cmH ₂ O
Accuracy, differential pressure*	$\pm(2.0+0.5FS)$	%
Accuracy, gauge pressure	$\pm 1.0FS$	%
Response time	1.8	msec
Repeatability	± 0.5	%
Compensated temperature range	-5 ~ +65	°C
Pressure rating	50	kPa
Altitude correction	Fully compensated	
Warm-up time (max)	10	sec
Humidity	0 ~ 100 (no condensation)	%RH
Power supply, voltage	3.0 ~ 5.5	Vdc
Power supply, minimal current	10	mA
Pneumatic flow resistance	<95	sccm@500Pa
Output	Linear, I ² C	
Vibration	20g; MIL-STD-883E, Method 2002.4.	
Storage temperature	-20 ~ 75	°C

Note: Parameters specified at the calibration conditions.

Product selection





HMF2000

Portable Gas Mass Flow Meter

Production description

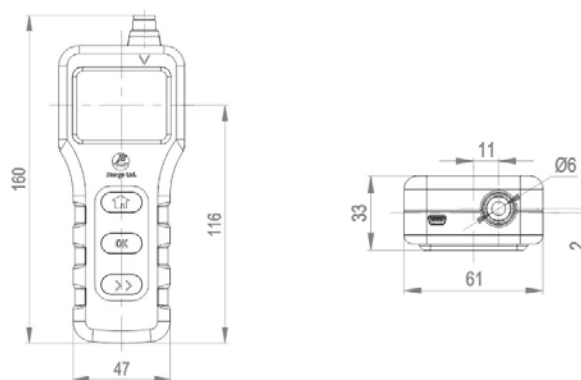
HMF2000 series portable mass flow meters are designed for general-purpose flow metering and control/adjustment applications and are made with Siargo's proprietary MEMS mass flow sensing technology and smart electronic circuitry. The meters directly measure mass flow with built-in multi-gas parameters. The current models can be readily applied to the on-site service of a spectrometer and other equipment.

HMF2000 can measure a flow up to 1000 sccm for air, O₂, N₂, Ar, He, and H₂.

Features

- MEMS thermal mass flow sensor
- Excellent rangeability 100:1 with integrated multiple sensing elements
- Multi-gas parameters with dual channels
- Fast response time
- Mobile power
- Support data storage and download

Mechanical dimensions



Specifications

Flow range	0 ~ 1000	sccm
Accuracy	$\pm(2.0+0.5FS)$	%
Repeatability	0.5	%
Response time	8.0	msec
Power supply	6F22 battery or external power 6 ~ 12Vdc	
Data port	RS485 / I ² C / BT LE	
Display	Dual channels, LCD	
Pressure rating	0.4	MPa
Temperature	0 ~ 50	°C
Humidity	<95 (no condensation)	%RH
Mechanical connection	One-touch	
Pinout	miniUSB	
Programmable functions	3 key front face	
Calibration	Air @ 20°C, 101.325 kPa	
Weight	200	g
Protection	IP40	
Storage temperature	-20 ~ 70	°C

Note: Parameters specified at the calibration conditions.

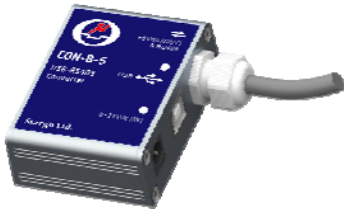
Product selection

HMF2000 - ☐ - ☐ - ☐

Gas: A – air; H – H₂; C – CO₂; N – N₂; O – O₂; R – Ar; E-He.
For other gases, please contact the manufacturer.

Output: B – RS485; E – I²C; T – BT LE.

Connector: O – one touch; N – NPT; B – BSPT.



CON Product Evaluation Kit

Production description

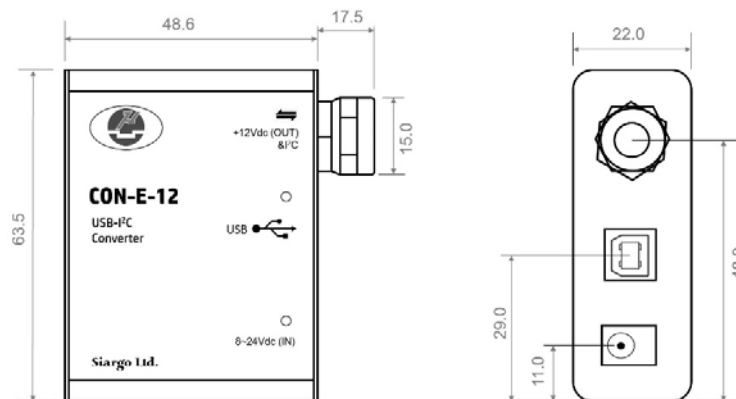
CON series converters convert the digital output (RS485, RS232, and I²C) output of Siargo's current products into a format that can be directly read by a Microsoft Windows-based personal computer via the USB. And the software that allows the user to evaluate the performance and basic functions of the specific product. For some simple applications, this Kit provides a plug-and-play option.

This series of Kits are matching to the complete product family.

Features

- For easy evaluation of the product's basic performance and functions
- Plug-and-play for simple applications
- Microsoft Windows-based software
- All cables are included
- Work with multiple devices
- Limited customization optional

Mechanical dimensions

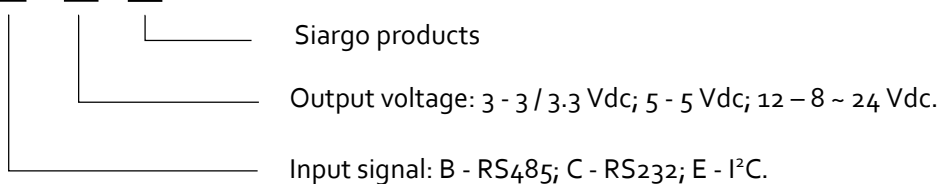


Specifications

Input	RS485 / RS232 / I ² C
Output	USB
Power supply	PC USB or external 8 ~ 24Vdc
Software	Microsoft Windows 8.0 and above compatible, downloadable
USB cable for data	Included, 1.5m.
Cable for product	Included, 0.5 ~ 2 m, depending on the product cable
Power adapter	110 ~ 240 Vac to 8 ~ 24Vdc included.

Product selection

CON - ☐ - ☐ - ☐



Model	Applicable product(s)			
CON-B-12	FS4000 (RS485); FS4100; FS6100 AM1000 (RS485); MF4000 (RS485); MF4600;	MF4700; MF5000; MF5100; MF5100V MF5600; MF5700;	MF5806E1 MF5806-G; MF5900; MF-GD; MF-HD MF2000;	LF6000 (RS485). CS3001 (RS485); HMF2000 (RS485)
CON-C-12	FS4001 (RS232);	FS4000 (RS232);	MF4000 (RS232).	
CON-E-3	FSP1000;	FSP2000.		
CON-E-5	FS6122;	FSP2000.		
CON-E-12	FS4001 (I ² C); FS5001L;	FS8001; FS8003P;	AM1000 (I ² C); LF6000 (I ² C);	CS3001 (I ² C); HMF2000 (I ² C).

Note: Please make sure your product's configuration, and select the correct model for your order.

Order and Sales Contact

Siargo Ltd.

3100 De La Cruz Boulevard, Suite 210
Santa Clara, California, USA
Tel : +1(408)9690368
Email: Sales@Siargo.com



Servoflo Corp.

75 Allen Street
Lexington, MA 02421
USA
781-7803527



Marubeni Info Sys.

Semicond. Solution Dept.
3-8-2 Okubo, Shinjuku-ku
Tokyo 169-0072
+81-3-42434160
+81-06-63955529
Siargo@marubeni-sys.com



Instr. Indus. Serv./2IS

21 Rue Pierre de Fermat
ZAC. Portes de Muret
31600 Muret
+33-06 42700276
2IS@orange.fr



IDENTIC GmbH

In der Siedlerruh 24
69123 Heidelberg
+49-(0)6221-7509777
info@identic.de



Bell Flow Systems Ltd.

Unit 7, Swan Business Centre;
Osier Way
Buckingham, Bucks MK18 1TB
+44 (0) 1280 817304
mail@bellflowsystems.co.uk



Wooil Flucon Co. Ltd.

306-1 Bundang Technopark
D-dong; Pangyo-ro 700,
Bundang-gu, Seongnam City,
13516 Korea
+82 0317988743
hakang@wooilflucon.com