

PRODUCT DATASHEET

S500-series

Gas Mass Flow Controller/ Flowmeter

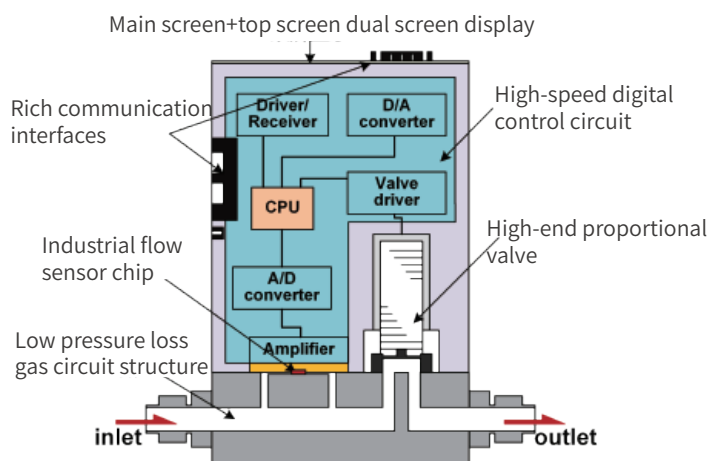


Qingdao Xinnovis Microsystem Technology Co., Ltd.

Tel: 86 400 006 6550

The perfect combination of a new generation of industrial-grade flow sensor chip and advanced gas circuit structure

The S500 series products adopt the industrial-grade advanced flow sensor chip independently developed by the company, combined with the low-voltage loss gas circuit structure, high-speed digital processing circuit and temperature compensation algorithm, and can realize the rapid control of gas flow within the minimum 0.1sccm and maximum 20slm flow range. The product can be equipped with touch screen and independent power supply port, which is perfectly suitable for various application environments such as semiconductor, vacuum coating, laboratory, photovoltaic, analyzer, laboratory, etc.



Advantages

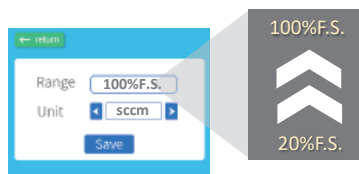
S1 Dual screen display

The front is equipped with a touch color display, and the top is equipped with a bright digital display and address coding switch.



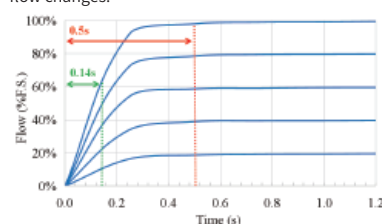
S2 Support range adjustment

On the basis of the factory range, users can adjust the range as needed (it can be adjusted to 20%-100% of the factory range) to better adapt to the application scenario and reduce stock.



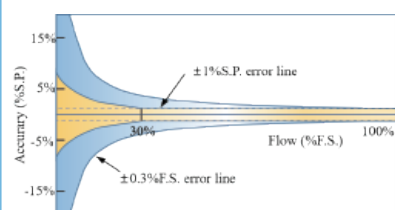
S3 Quick response

1.5ms sensor response time, 0.1~0.5s response time of instrument system to timely capture small flow changes.



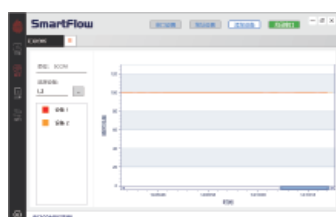
S4 High precision

1.0%-100%F.S. Maintain high accuracy in full range:
0.3%F.S. ($\leq 30\%$ F.S.); 1.0%S.P. ($> 30\%$ F.S.)



S5 Equipped with special host computer S6 Certified product

Equipped with powerful SmartFlow host computer, supporting multiple linkage, convenient for monitoring and equipment configuration.



It has passed the CE&EMC certification of T ü V international organization, or the first-level calibration certificate of the Institute of Metrology, and conforms to many SEMI standards.



Specifications

Parameters	
Requirements	Clean, Dry and non-corrosive
Gas type	Air, N ₂ , O ₂ , CO ₂ , He, H ₂ , CH ₄ , Ar, etc
Full scale ^①	(0~10, 20, 50, 100, 200, 500) sccm (0~1, 2, 5, 10, 20) slm
Accuracy	0.3%F.S. ^② (≤ 30% F.S.) 1.0%S.P. ^③ (> 30% F.S.)
Range Ratio	100:1
Response time ^④	≤ 0.5s
Repetition Accuracy	≤ ±0.2%F.S.
Resolution Ratio	≤20sccm, 0.001sccm ≤100sccm and >20sccm, 0.01sccm ≤1000sccm and >100sccm, 0.1sccm >1000sccm, 1sccm
Leakage rate	≤1×10 ⁻¹⁰ Pa m ³ /s He
Max.withstand pressure	9.8 bar
Environmental requirements	
Operating Temp.	0~50 °C
Operating Humidity	10%~90%R.H. (No ice or frost)
Operating Pressure ^⑤	≥ 2slm, 0.5~4 bar <2slm, 0.5~6 bar (Specific range related)
Storage Temp.	-20~85°C

Electric parameters	
Power voltage	DC24V
Power consumption	≤ 4.0 W
Starting time	≤ 1 s
Communication interface	
Interface type	D-SUB9, RJ45
Analog control	0-5V or 4-20mA
Digital control	RS485 or RS232
Digital signal	
Interface type	D-SUB9, RJ45
Communication Rate	9600, 38400, 115200(Default)
Protocol	Modbus-RTU
Address	1 (Default)~99
Mechanical parameters	
Connector type	Full range, 17.5*17.5mm flange + G1/4 internal thread
Gas connect material	316L Stainless steel, FKM rubber, Silica
Main material	Foundation:316L Stainless steel Shell:Aluminum alloy
Sealing material	FKM rubber
Weight	0.95kg

Remarks

* Unless otherwise stated, this product is calibrated under the following conditions: N₂, temperature 25 °C, 2.5bar differential pressure (inlet 3.5bar absolute pressure, outlet 1bar absolute pressure), horizontally placed and installed.

* Recommend to install a straight pipe section with proper size at the inlet end, otherwise the accuracy may be deviated.

* Recommend to match the largest possible joint at the inlet and outlet ends to avoid causing additional pressure loss.

① The range shown is optional for N₂.

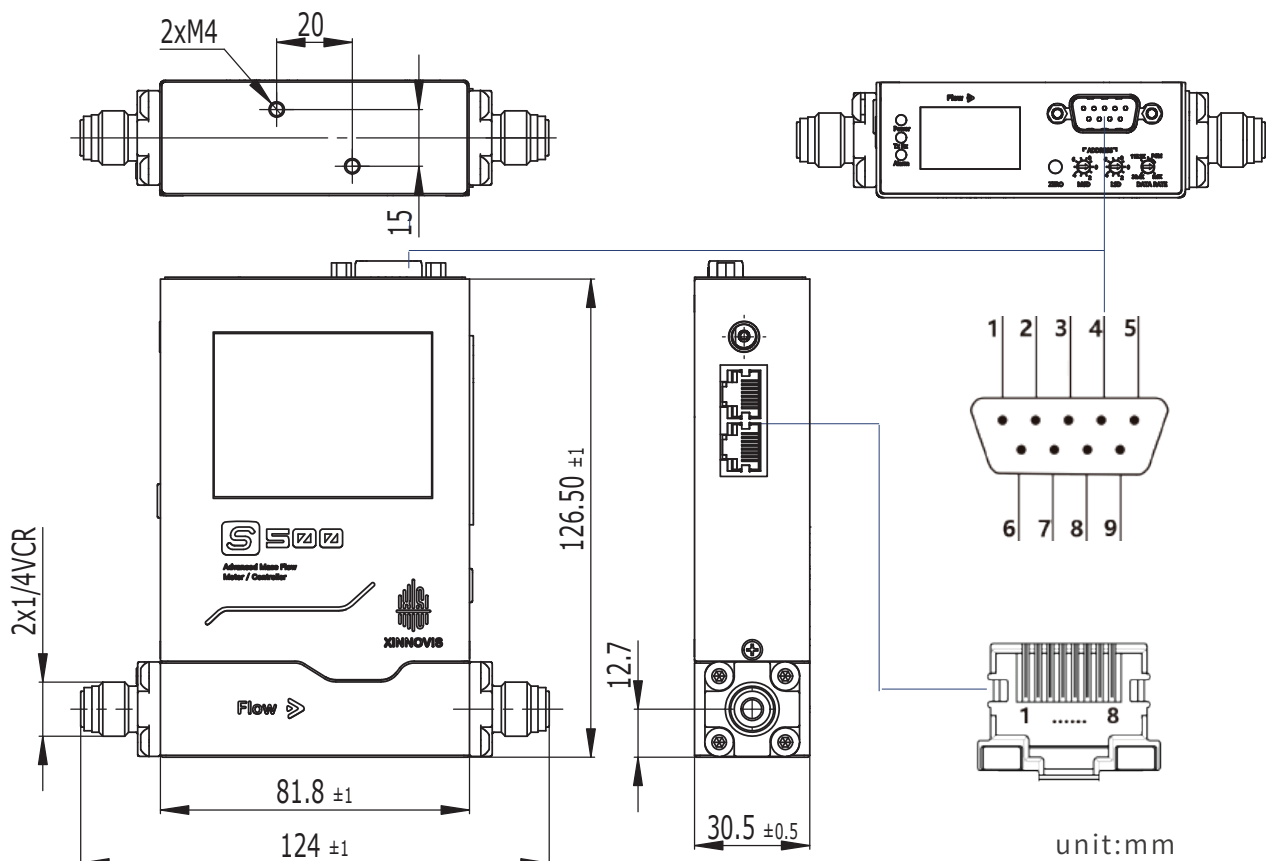
② %F.S. is the percentage of error to full range.

③ %S.P. is the percentage of error to set value.

④ Response time refers to the time required to reach the set value within ± 2%.

⑤ Working pressure refers to the differential pressure between air inlet and air outlet (1 bar absolute pressure), for more details, pls contact us.

Dim. and Comm.



D-SUB9 Line sequence definition

D-SUB9 Equipment Side Pin No.	Line sequence definition
1	Please do not connect
2	Analog output
3	Power (DC24v)
4	Power supply ground
5	RS485-A or RS232-TX
6	Analog Input
7	Analog ground
8	Analog ground
9	RS485-B or RS232-RX

RJ45 Line sequence definition

RJ45 Equipment Side Pin No.	Line sequence definition
1	Power supply ground
2	Power supply ground
3	Please do not connect
4	RS485-B or RS232-RX
5	RS485-A or RS232-TX
6	Please do not connect
7	Please do not connect
8	Please do not connect

Selection Guide

Code example:S500-01-C100-D4-TM8	Code	Example
Model		
MFC (with valve) MFM (without valve)	S500 S500M	S500
Gas type		
Code N2 Air O2 CO2 Ar CH4 H2 He	01 02 03 04 05 06 07 08	01
Range ①		
10 sccm 20 sccm 50 sccm 100 sccm 200 sccm 500 sccm 1 slm 5 slm 10 slm 20 slm	C010 C020 C050 C100 C200 C500 L001 L005 L010 L020	C100
Communication Protocol		
RS485 RS232 0-5V 4-20mA	D4 D2 A5 A4	D4
Connector type		
6mm Ferrule 8mm Ferrule 1/8in Ferrule 1/4in.Ferrule 1/4in.VCR 8mm Quick Connect	TM6 TM8 TG8 TG4 VC4 KC8	TM8

① Optional ranges of N2 are shown.

Remarks: G1/4 internal thread is used inside the product, and customization is not supported.
If the gas, range, joint type, etc, you require are not shown in the table, please contact us.

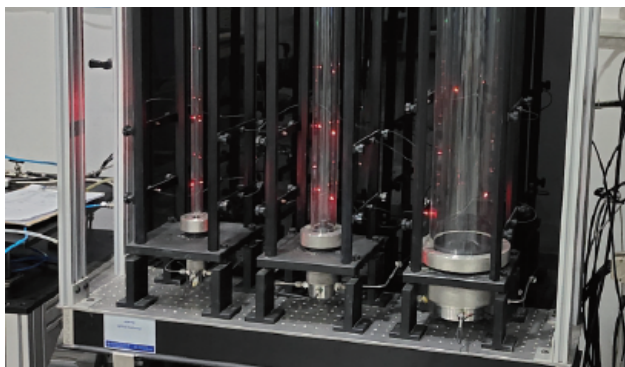
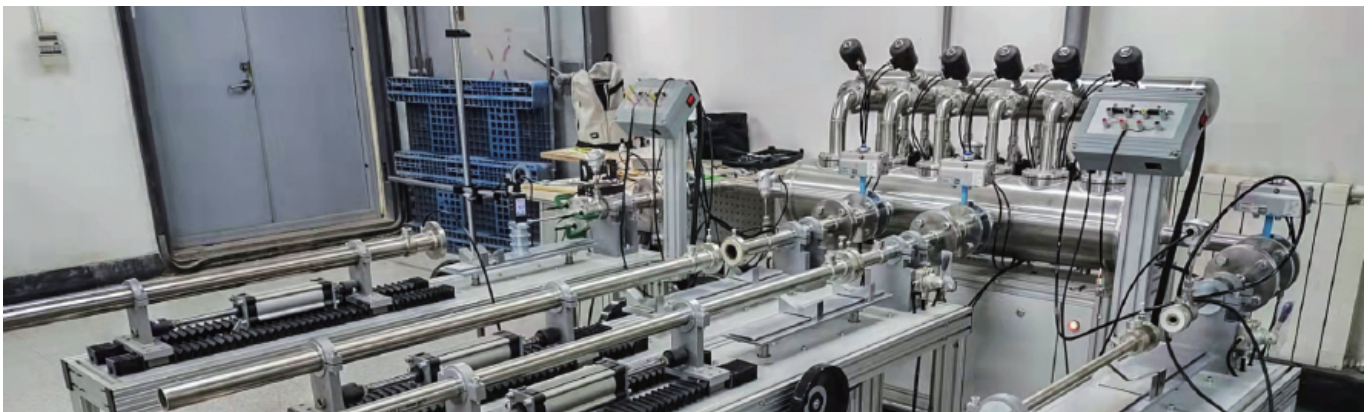
Services

Customer Benefits

- Short delivery time, quick response to orders
- Superior product stability, lower maintenance costs, Improve service life
- Cost-effective, Reduce customer purchasing cost
- Adjust the product configuration according to the on-site use environment
- Strong R&D and technical support team, to provide users with professional pre-sales and after-sales service

Calibration Service

In the process of calibration, it has a number of high-end equipment, such as piston standard flow device (accuracy of 0.3% R.D.), sonic nozzle standard flow device (accuracy of 0.13% R.D.), American Fluke Molbox flow device (accuracy of 0.125% R.D.), to ensure product accuracy.



Safety And Warranty

safety use

When the product is used for hazardous gas or explosive gas, it must strictly follow the product instructions or consult the company's technical personnel. For the latest information about the product application, please contact the manufacturer or visit the company's website. The product has been sealed and leak proof test has been carried out before packing. It must be used under high pressure according to the restrictions of the product instructions, otherwise it will cause leakage and safety problems. When the product is used for hazardous gas or explosive gas, it must strictly follow the product instructions or consult the company's technical personnel. For the latest information about the product application, please contact the manufacturer or visit the company's website. The product has been sealed and leak proof test has been carried out before packing. It must be used under high pressure according to the restrictions of the product instructions, otherwise it will cause leakage and safety problems.

Note: The company will not be responsible for any unforeseen damage, personal injury and other harmful consequences caused by any change or improper use of this product without the company's permission.

product warranty

The product must be installed, used and maintained in strict accordance with the correct method under the normal working conditions specified in the manual. The product warranty period is 365 days from the date of delivery. For repaired or replaced products, the warranty period is 90 days or extension of the original warranty period (Whichever is longer) .

Xinnovis Microsystem Technology Co.,Ltd(hereinafter referred to as Qingdao Xinnovis) shall not be liable for any direct and indirect damages and losses caused by the installation, disassembly and replacement (but not limited to the installation, disassembly and replacement). In order to avoid unnecessary disputes, the user should return the problematic products to the company. After the company confirms the problem, the company will decide to repair or replace it. The user shall bear the costs and possible risks of delivering the product to Qingdao

Xinnovis, and Qingdao Xinnovis shall bear the costs and possible risks of returning the product to the customer. All sales contracts of Qingdao Xinnovis confirm that the user automatically accepts this warranty condition and the limited liability of Qingdao Xinnovis. Only Qingdao Xinnovis has the right to change, amend the warranty conditions or decide not to implement its terms.

Note that the following conditions do not apply to the warranty:

- 1) The product is changed, modified, in an abnormal environment (or otherwise) specified in the manual and any other circumstances that can be considered as abnormal use.
- 2) Not the original product of Xinnovis.

Env. requirement

For the unpacked packaging box, filling materials, anti-static bags and other wastes, please classify them according to paper, plastic and other wastes. For the products that have reached the service life, please refer to the relevant national scrapping regulations for electronic and electrical products.



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Company website



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