

## ДАТЧИКИ МАССОВОГО РАСХОДА

### ТЕХ. ХАРАКТЕРИСТИКИ

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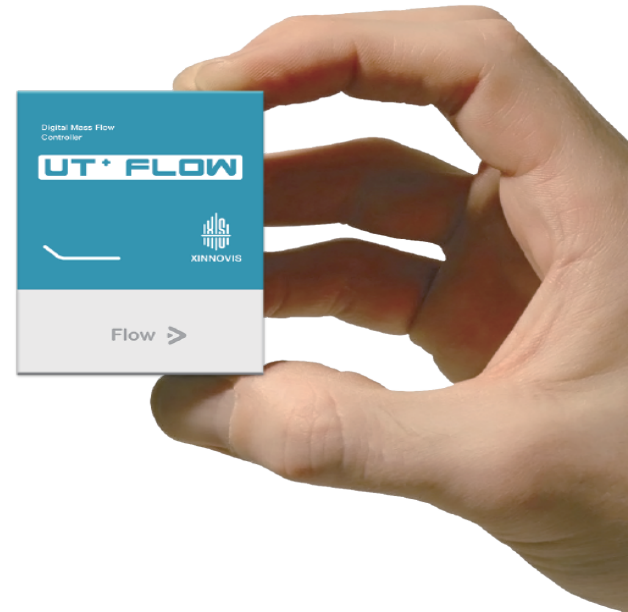
Киргизия +996(312)96-26-47

Адрес: <https://xinnovis.nt-rt.ru> || эл.почта: [xsn@nt-rt.ru](mailto:xsn@nt-rt.ru)

### Integrated Gas Mass Flow Controller

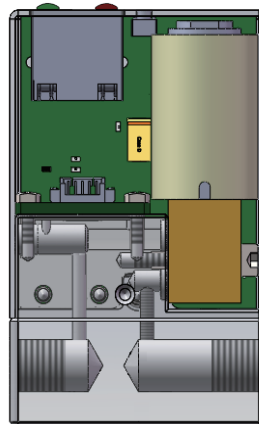
MFC-UT (Mass Flow Controller) series products are integrated and compact, which are based on the advanced industrial flow sensor chip, combined with high-speed digital processing technology and intelligent compensation algorithm.

This series product constructed with high-end electromagnetic proportional valve, aero aluminum alloy gas seat, high accuracy solenoid chips. Compared with traditional mass flow controller, MFC-UT products are with integrated designing, which make the product greatly compact and can be installed in small space and portable devices. This series products are better suitable for limit space installation devices.



### Features

- Integrated structure and easy for installation
- Superior zero stability
- Insensitive to temperature & pressure
- Good repeatability and reproducibility
- Superfast response speed
- High-end proportional solenoid valves

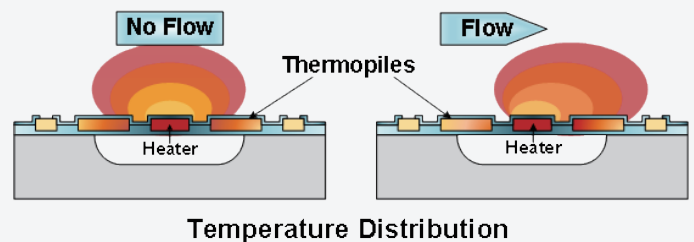


### Applications

- aerospace
- vaccum coating
- food and drug
- gas analyser
- operation processing
- burning control

### Working principle of MEMS flow sensor chip

Developed based on Thomas' theory "Heat absorption or release of a gas is proportional to its mass flow". When there is no gas flow, the temperature field is symmetrically distributed with Heater as the center; when there is gas flow, the temperature field distribution shifts, which leads to a temperature difference between upstream and downstream thermopiles. By measuring the temperature difference, the mass flow through the chip surface can be calculated.



## Specifications

Parameters	
Requirements	Clean, dry and non-corrosive
Gas type	Air, N <sub>2</sub> , O <sub>2</sub> , CO <sub>2</sub> , He, H <sub>2</sub> , CH <sub>4</sub> , Ar, etc.
Full scale	(0~20, 50, 100, 200, 500) SCCM (0~1, 2, 5, 10) SLM
Accuracy	0.8%F.S. or 1.0%S.P. which one is bigger
Control range	100:1
Response time	≤ 0.5s
Repeatability	±0.2%S.P.
Leakage rate	1 × 10 <sup>-10</sup> Pa m <sup>3</sup> /s He
Max.withstand pressure	9.8 bar
Environmental requirements	
Operating temp.	0~50 °C
Operating Humidity	10%~90%R.H. (no icing, no frost)
Operating pressure	≥ 2SLM, 0.5~4 bar < 2SLM, 0.5~6 bar
Storage temp.	-20~85°C
Electric parameters	
Power voltage	DC24V, Ripple≤50mV
Power consumption	≤ 2.7W
Startup time	≤ 1 s

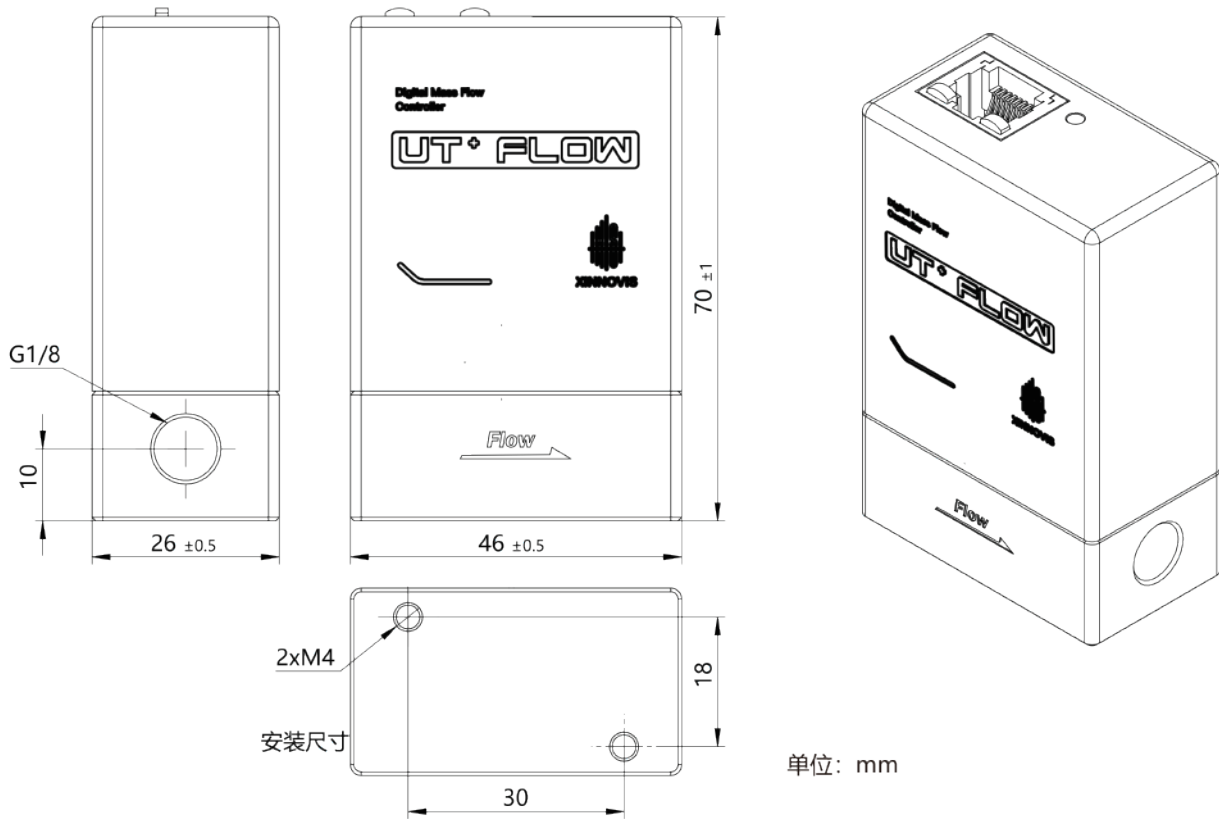
Communication interface	
Interface type	D-SUB9
Analog	0~5V, 4~20mA
Digital	RS485, RS232
Digital signal (RS485)	
Interface type	D-SUB9
Com. rate	4800, 9600(Default),14400, 19200, 38400, 56000, 57600, 115200, 115200 128000, 230400, 256000, 460800, 500000 (Can be modified by instruction or upper computer)
protocol	RS485 (Modbus-RTU default, Private protocols can be customized)
Address	1(Default)~250 (Can be modified by instruction or upper computer)
Mechanical parameters	
Connector	Compressing sleeve: 8mm, 1/4inch, 1/8inch VCR: 1/4 in. Others are optional.
Body material	Gas channel: 316L Stainless steel Shell: Aluminum alloy
Wetted material	FKM rubber
Weight	0.90kg

### Note

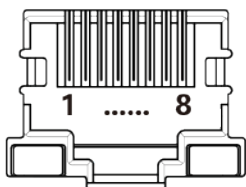
- \* Unless otherwise stated, this product is calibrated under the following conditions: N<sub>2</sub>, temperature 25°C, 2 bar pressure difference(inlet 3 bar absolute pressure , outlet 1 bar absolute pressure), horizontally placed and installed.
  - \* Recommend to install a straight pipe section of appropriate size at the inlet. Otherwise, the accuracy may be biased.
  - \* Suggest the interface connector should be as large as possible to avoid extra pressure loss.
- ① The range shown is the optional range of N<sub>2</sub>.
  - ② %F.S. is the percentage of error value to full range.
  - ③ %S.P. is the error value to setting point.
  - ④ Response time means the time need to reach to the setting point within ±2%.
  - ⑤ Working pressure is the pressure difference between inlet and outlet.

### Dimensions

Remark: the dimension will be different according to flow range



### Communication



RJ45 instrument pin sequence number

RJ45 instrument pin sequence number	Line sequence definition
1	/
2	/
3	/
4	RS485-A
5	RS485-B
6	/
7	GND
8	POWER

### Selection Guide

Code	Gas type (clean, dry, non-corrosive)	
UT-01	Nitrogen	
UT-02	air	
UT-03	Oxygen	
UT-04	arbon dioxide	
UT-05	Argon	
UT-06	Methane	
UT-07	Methane	
UT-08	Methane	
Example	Code	Flow Range
UT-01-C010	C010	10 sccm
	C020	20 sccm
	C050	50 sccm
	C100	100 sccm
	C200	200 sccm
	C500	500 sccm
	L001	1 slpm
	L002	2 slpm
	L005	5 slpm
	L010	10 slpm
	L020	20 slpm
	Example	Code
UT-01-C010-DG	DG	RS485
	DM	RS485,0-5V outside convert
Example	Code	Outside connector type
UT-01-C010-DG-TM8	TM8	8mm compression fitting
	TM6	6mm compression fitting
	TG1	1/8 in. compression fitting
	TG2	1/4 in. compression fitting
	VC4	1/4 in.VCR
	KC8	8mm fast-plug

Note: All inside screw thread are in G1/4 and can't accept customization. If you do not need the outside fittings in above table or need other types, please contact us.

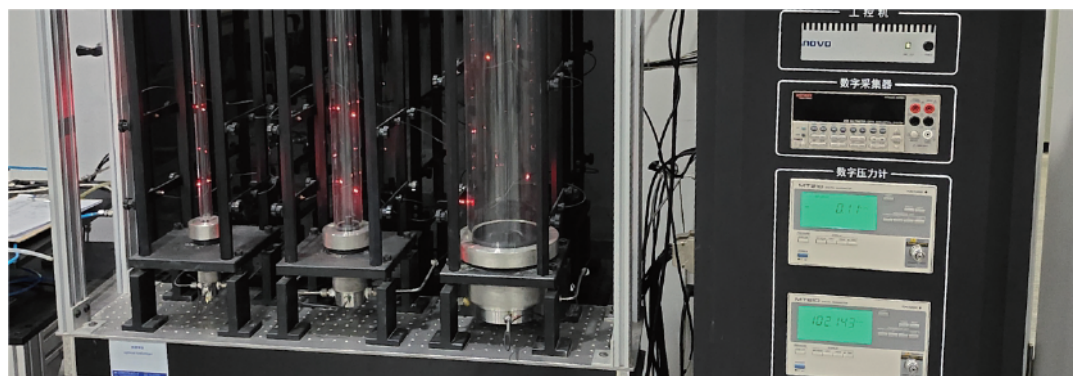
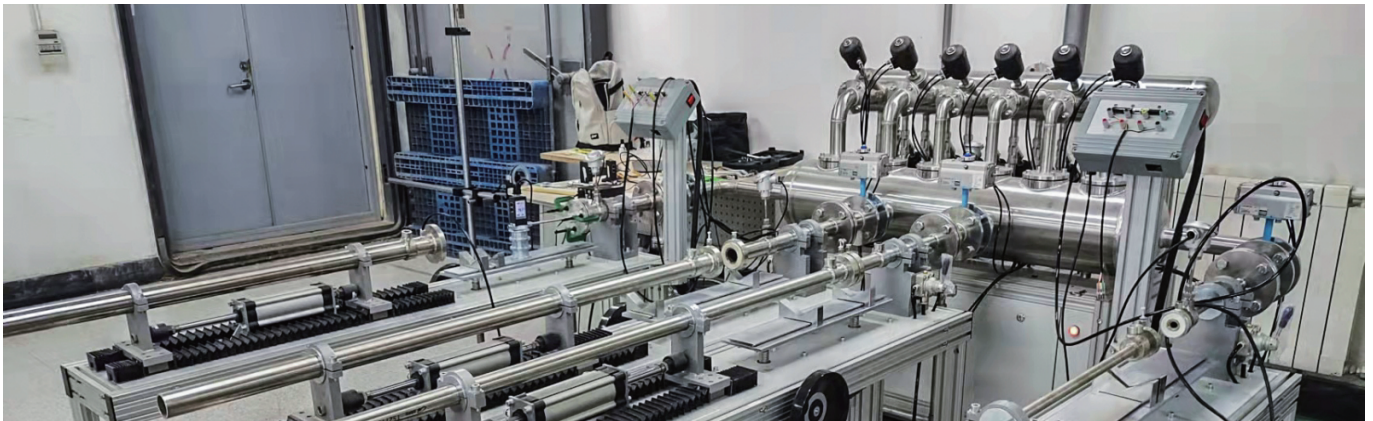
## Service

### Benefits

- Fast delivery, prestigious pre-sales and after-sales services;
- Tailored product configuration according to environment conditions;
- Economical, help clients to save purchasing and maintenance cost;
- Distinguished stability and long time service life;
- Professional research and development team, which can provide great technical support and guarantee;
- Based on the principle of MEMS thermal conduction, the gas flow rate can be measured with high precision, which is not affected by environmental parameters such as temperature and pressure.

### Calibration

In the calibration process, we have several high-end equipment, such as piston standard flow device (accuracy  $\pm 0.3\%$  S.P.), sonic nozzle standard flow device (accuracy  $\pm 0.13\%$  S.P.), Fluke Molbox flow device (accuracy  $\pm 0.125\%$  S.P.), they help to ensure product accuracy





## Safety & Warranty

### Safety

When products are used for harmful gas or explosive gas, it must be strictly follow the operation instructions or consult with Xinnovis technicians. For the latest information on product applications, please contact with Xinnovis or visit our website. Strong corrosive or fluoride gases may affect the normal operation or even damage of the product. The products have been sealed and underwent leakproof testing before package. The operation under high pressure must follow the limits of the product instructions, otherwise it will cause leakage and safety problems.

Note:Unauthorized alteration or improper operation of the product without Xinnovis permission can cause unforeseen damage, personal injury and other harmful consequences. Xinnovis will not take any responsibility.

### Warranty

The product must be installed, operated and maintained strictly in accordance with the proper methods under the normal working conditions described in the specification. Product warranty period, 365 days free warranty from the date of delivery. Products which have been repaired or replaced, the warranty period is 90 days or extension of the original warranty period (whichever is the longer).

Xinnovis Microsystem Technology Co., Ltd (hereinafter referred to as Xinnovis) shall not be liable for any direct or indirect damage and loss caused by installation, disassembly and replacement (but not limited to installation, disassembly and replacement). In order to avoid unnecessary disputes, clients should return their questionable products to Xinnovis. After Xinnovis confirms the problem, it determines the maintenance or replacement. The returning fee and possible risks are at client's expense. Xinnovis undertake the cost and possible risks of returning the product to clients. All sales contracts of Xinnovis confirm that clients automatically accept this warranty and the limited liability of Xinnovis. Only Xinnovis has the right to change, revise warranty conditions or decide not to implement its terms.

Note that warranty clauses do not apply in the following conditions:

- 1)The product has been altered, modified, in an abnormal (or otherwise) environment as specified in the specification and in any other situation which may be considered as abnormal operation;
- 2)not the original product of Xinnovis.

## Env. requirement

For packaging box, filling materials, anti-static bags and other materials, please classify them into paper, plastic and other garbage. For items that reach service life, please refer to the relevant national scrapping regulations for electronic and electrical products.

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