



TECHNICAL GUIDANCE

BEST COST EFFECTIVE

TF-900 Series

MINI THERMAL MASS FLOWMETER

OUTLINE

TF-900 MINI THERMAL MASS FLOWMETERS are developed in the extreme priority for very competitive price. TF-900 has not been influenced by the change in temperature and pressure, and can directly measure mass flow rate of Air, Nitrogen and Oxygen. Low price is realized by reconsidering design thoroughly with high performance.

TF-900 MINI THERMAL MASS FLOWMETERS are designed and developed to offer the remote indication and control of gas flow process where glass tube Purgemeters have been commonly used.



FEATURES

- ❑ Low cost, High performance
- ❑ Light and compact design
- ❑ High-speed response
0.5 sec. for 90 %
- ❑ Easy maintenance
No by-pass tube used.
- ❑ Supporting instruments are ready

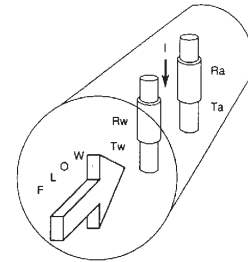
STANDARD SPECIFICATION

MODEL	TF-900S/TF-901S	TF-900P/TF-901P
FLUID	Air, N ₂ , O ₂	
SCALE RANGE	Min. 0 to 10 L/min (nor)	
	Max. 0 to 100 L/min (nor)	
OUTPUT	0 to 5 V DC	
ACCURACY	±3 %F.S. (at 25°C)	
RANGE ABILITY	1 : 20	
GAS TEMP	0 to 60°C	0 to 50°C
GAS PRESS	-0.07 to 1.0 MPa	-0.07 to 0.5 MPa
TEMP CHANGE EFFECT	Within ±0.1 % F.S./°C	
MATERIAL	BODY	SCS14 POLYACETAL
	SENSOR	SUS316, PFA, CTFE, GLASS, PT, POLYAMIDE, Ni
	SEAL	FKM
HOUSING	ABS resin (In-door use)	
PROCESS CONNECTION	Rc1/4	
POWER SUPPLY	TF-900	±12 V DC or ±15 V DC, +150 mA, -20 mA
	TF-901	24 V DC (22 to 27 V DC), 150 mA
ELECTRIC CONNECTION	Exclusive cable with connector	

OPERATION PRINCIPLE

Temperature detection sensor **Ra** and velocity detection sensor **Rw** are installed in the gas flow path of **TF-900 MINI THERMAL MASS FLOWMETER**. The internal electronics circuits keep the temperature gap between **Rw (Tw)** and **Ra (Ta = Gas temp.)** constant by supplying electric current **I**. The transferred heat from **Ra** to passed gas (**Rw, I**) is proportional to the mass flow rate of the gas to be measured which can be calculated from supplied current **I**. The detection principle is completely free from the change of gas pressure and the change of temperature. It is compensated by internal software and finally the measurement is totally independent of any operating conditions.

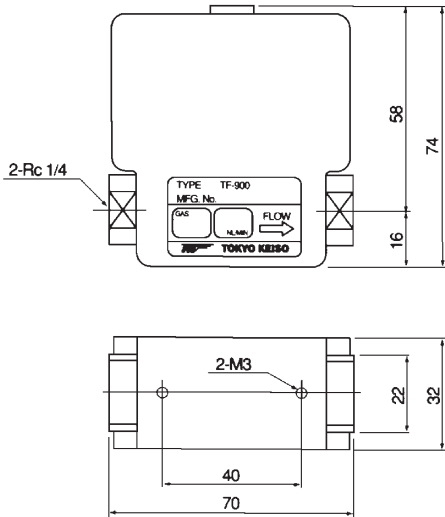
The flow rate is calculated from the supplied current **I** and output in the form of 0 to 5 V DC signal.



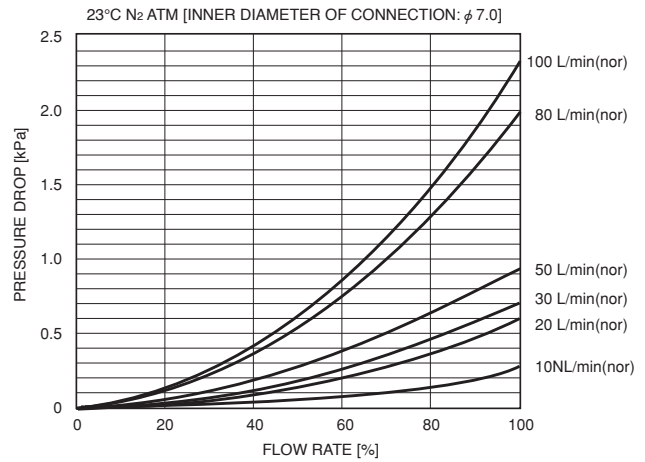
MODEL CODE

MODEL CODE		DESCRIPTION
TF-90	□ □ - □ □ □ □ - □ □ □ □	
POWER SUPPLY	0	±12 V DC or ±15 V DC
	1	24 V DC (22 to 27 V DC)
MATERIAL	S	SCS14
	P	POLYACETAL
SCALE RANGE	100	0 to 10 L/min (nor)
	200	0 to 20 L/min (nor)
	300	0 to 30 L/min (nor)
	500	0 to 50 L/min (nor)
	800	0 to 80 L/min (nor)
	101	0 to 100 L/min (nor)
CONNECTION RATING	P	Rc (female screw)
CONNECTION SIZE	04	1/4"

DIMENSION

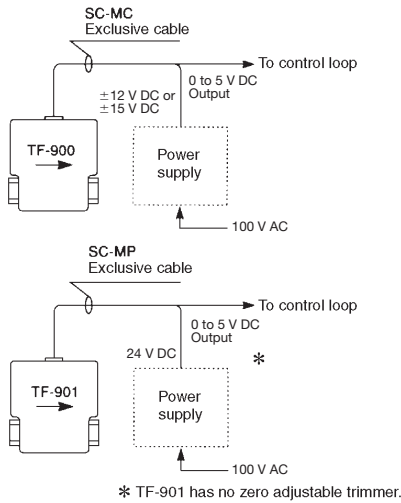


PRESSURE DROP



APPLICATIONS

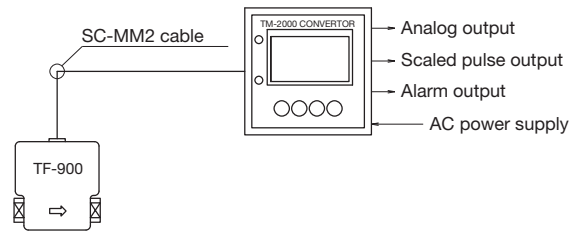
● With standard power supply unit



● With TM-2000series converter unit

All necessary functions, i.e. power supply, indication, totalization, alarm contacts, etc. are provided in one TM-2000 series mini converter unit.

Connection with mass flowmeter



EXCLUSIVE CABLES

Cable Code	To connect power supply	Standard length	Max length
SC-MM2	TM-2000 Mini converter unit	2 m	100 m
SC-MC	±12 V DC or ±15 V DC	2 m	100 m
SC-MP	24 V DC (22 to 27 V DC)	2 m	100 m

* Specification is subject to change without notice.



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