TECHNICAL GUIDANCE

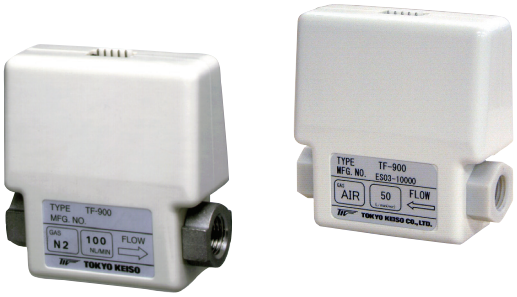
BEST COST EFFECTIVE

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

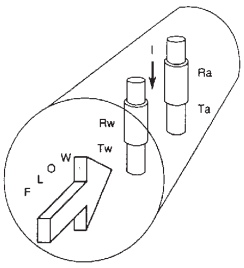
- ❏ Low cost, High performance
- ❏ Light and compact design
- ❏ High-speed response
  0.5 sec. for 90 %
- ❏ Easy maintenance
  No by-pass tube used.
- ❏ Supporting instruments are ready

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

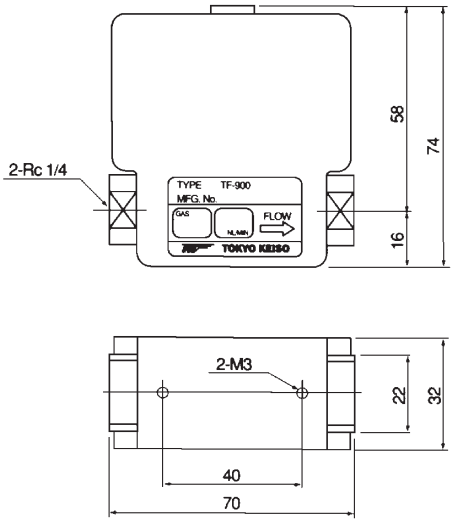
Temperature detection sensor **Ra** and velocity detection sensor **Rw** are installed in the gas flow path of **TF-900 MINI THERMAL MASS FLOWMETER**. The internal electronics circuits keep the temperature gap between **Rw** (**Tw**) and **Ra** (**Ta** = Gas temp.) constant by supplying electric current **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.



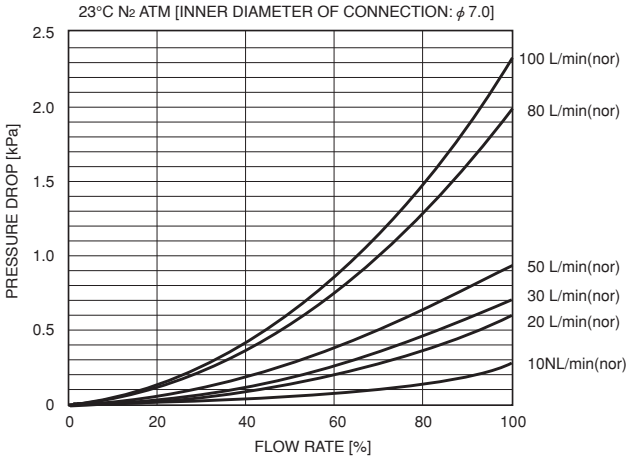
MODEL CODE

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

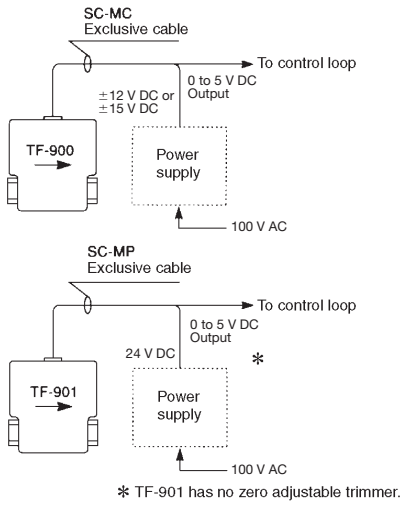


PRESSURE DROP



APPLICATIONS

● **With standard power supply unit**

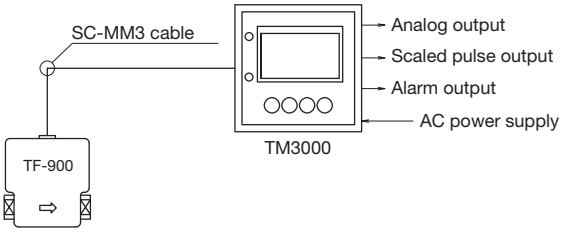


* TF-901 has no zero adjustable trimmer.

● **With TM3000series converter unit**

All necessary functions, i.e. power supply, indication, totalization, alarm contacts, etc. are provided in one TM3000 series mini converter unit.

Connection with mass flowmeter



EXCLUSIVE CABLES

Cable Code	To connect power supply	Standard length	Max length
SC-MM3	TM3000 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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