

SG-40 Series User's Manual

KOREA FLOW METER IND.CO.,LTD.

<http://www.kometer.co.kr>

■ DESCRIPTION

SG-40 Series is a product designed to be suitable for viscous fluid and oil flowmeters by designing flapper guide rod directly on the instrument part and measuring from small flow to large flow range by supplementing the existing magnetic coupling method.

■ SWITCH

1. Plunger operating range and symbol description

Lever operating range	Symbol	Contents	Explanation
	OF	Operating Force	The required force (max 25g) moving from the free position (FP) to the operating position (OP)
	RF	Reverse Force	The force (min 6g) required to move from the operating limit position (TTP) to the return position
	PT	Movement to motion	A moving distance or a moving angle (max 1.6 mm) from the free position FP to the operating position (OP).
	MD	Movement of hysteresis	The moving distance or moving angle from the operating position (OP) to the return position
	OT	Movement after operation	The movement distance from the operation position (OP) to the operation limit position or the angle of view (min 0.8 mm)
	OP	Operating Point	The actuator position (14.7 mm $\pm$ 0.5) when the a contact is in the free position (FP)
	FP	Free point	Actuator position when no force is applied to the actuator at the top
	TTP	Operating limit position	Actuator position when the actuator reaches stop
	RP	Return location	Actuator position when the a contact is off at the operating position (OP)
	TT	Whole movement	The moving distance or the moving angle from the free position (FP) to the operating limit position

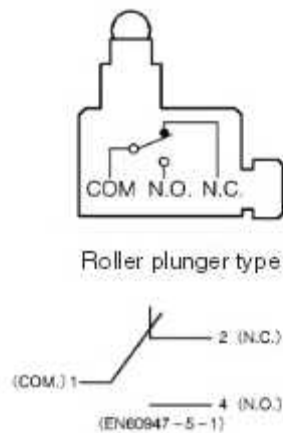
2. Micro switch Specification and Performance

List		Contents
Allowable operating speed		0.1 mm ~ 1 m / sec
Opening / Closing Frequency	Mechanical	240 times / min
	Electrical	20 times / min
Insulation Resistance		100M Ω or more (DC500V insulation resistance meter)
Contact resistance		15m Ω or less (initial value)
Withstand voltage	Between live parts	1,000VAC(50/60Hz) 1 minute
	Between non-live parts	1,500VAC(50/60Hz) 1 minute
Vibration	Malfunction	10-55Hz double amplitude: 1.5mm 3-axis direction
Shock	Durability	About 100G (1000m/s ²)
	Malfunction	About 5G(50m/s ²)
Life Span	Mechanical	More than 1 million times
	Electrical	Over 100,000 times (at rated load)
Ambient temperature		-25 °C ~ 80 °C (without icing)
Ambient humidity		45 ~85%
IP Grade		IP X0

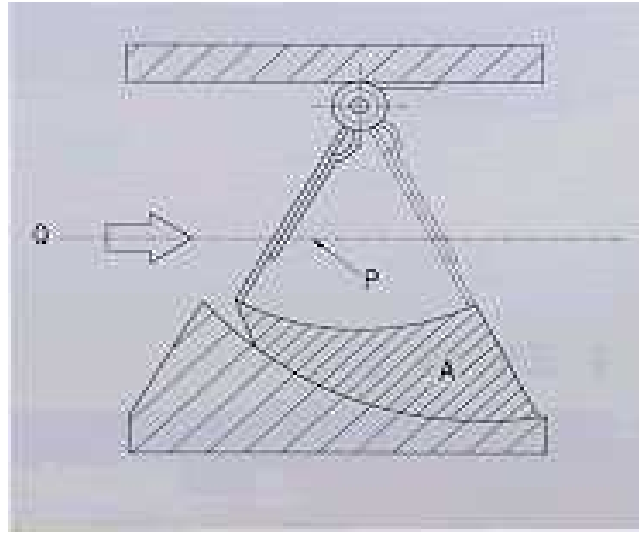
3. Electrical Specifications

85-250 V~, 50/60 Hz, 20 W and DC 30V, 5A

4. Structure & Internal contact circuit diagram



■ Principle of Measurement



Applying the principle of area type flowmeter, if a flapper is installed in a spring so that the angle of the inside of the body can be displaced and a fluid flows along the channel, differential pressure will occur before and after the flapper, and the position of the flapper will change. According to this displacement, the flapper stops at the position where the fluid passes and the force of the spring. This internal shape displaces the angle of the flapper, and the angular displacement of the flapper is proportional to the flow rate.

$$Q = ac$$

$$Q = ac \sqrt{\frac{2gK}{Af}}$$

Q : Volumetric flow

a : Fluid passing area

c : coefficient

g : Gravitational acceleration

k : Spring Force

Af : Flapper Hydraulic area

r : Fluid specific weight

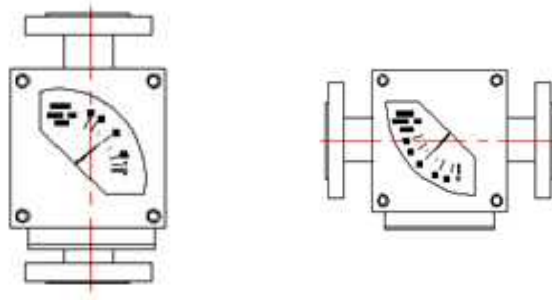
■ Installation

1. Direction

Vertical and horizontal flow direction on piping can be made either vertical or horizontal piping. Please refer to the drawings when ordering.

2. Piping Installation Tips

When attaching the horizontal piping, please attach so that the scale surface is vertical.



3. Check flow direction of flow s / w and install it according to fluid flow direction.

4. Electrical wiring is based on the micro switch specifications.

5. Contact setting

- Open the instrument cover.
- Insert the + driver into the setting hole and turn it counterclockwise.
- Set the contact point to the setting value and turn the screwdriver clockwise to fix it.
- Fit the cover completely closed.

6. If there is heavy debris in the fluid, be sure to install the strainer in front of Flow s / w.

7. Ambient temperature during installation should not exceed 70 °C.

8. Avoid places with severe vibration and if not, fix them firmly. (It shortens the malfunction and life of instrument.)

■ Maintenance

1. Malfunction

1-1 The flow rate changes, but the instructions are fixed.

- a. Flow is less than flow meter capacity.
- b. Foreign matter caught between the flapper (assembly number 5) and the taper.
- c. Crim phenomenon between shaft (assembly number 10) and pointer (assembly 28).
- d. Operate the flowmeter above the operating temperature.

1-2 Flow error is large.

- a. When making a flow meter, the fluid and the fluid being used are different.
- b. The straight pipe section of the front and rear of the flowmeter is 5D*3D or less.
- c. Flowmeter operating temperature differs from production temperature.
- d. There is a foreign substance inside the flowmeter, which obstructs the operation of the flapper.
- e. Use a fluid that corrodes the inside of the flowmeter.

2. Resolution

1-1 Malfunction 1-1 When b occurs, remove the flowmeter from the pipe and check the movement of the flapper.

When the operation of the flapper is obstructed, remove the foreign matter from the inside of the flapper.

1-2 Malfunction 1-1 When c occurs, tighten (tighten bolt 29 for assembly).

1-3 If other problems arise, ask the manufacturer.

■ Entretien

1. Dysfonctionnement

1-1 Le débit change, mais les instructions sont fixes.

une. Le débit est inférieur à la capacité du débitmètre.

b. Matières étrangères coincées entre le clapet (numéro d'assemblage 5) et le cône.

c. Phénomène de crimage entre arbre (numéro d'assemblage 10) et pointeur (assemblage 28).

ré. Faire fonctionner le débitmètre au-dessus de la température de fonctionnement.

1-2 L'erreur de flux est grande.

une. Lors de la fabrication d'un débitmètre, le fluide utilisé est différent.

b. La section de tuyau droite à l'avant et à l'arrière du débitmètre est de 5D * 3D ou moins.

c. La température de fonctionnement du débitmètre diffère de la température de production.

ré. Il y a une substance étrangère à l'intérieur du débitmètre qui gêne le fonctionnement du clapet.

e. Utilisez un fluide corrosif à l'intérieur du débitmètre.

2. résolution

1-1 Dysfonctionnement 1-1 Lorsque b se produit, retirez le débitmètre du tuyau et vérifiez le mouvement du clapet.

Lorsque le fonctionnement du clapet est obstrué, retirez les corps étrangers de l'intérieur du clapet.

1-2 Dysfonctionnement 1-1 Lorsque c se produit, serrez (serrez le boulon 29 pour l'assemblage).

1-3 Si d'autres problèmes surviennent, demandez au fabricant.

■ Precautions

1. The product is not certified by IP, so that it may be put at risk when exposed to adverse conditions. Therefore, we highly recommend that you should install the product checking a surrounding environment before using this product. We are not responsible unless you do not follow the rule.

2. For additional wiring to the product, use a 22 AWG AC INTERNAL wire that is UL1007 certified. If you use any other wire, there may be a problem with the product and no responsibility of KOREA FLWOMETER.

■ Précautions

1. Le produit n'est pas certifié par IP, de sorte qu'il peut être mis en danger lorsqu'il est exposé à des conditions défavorables. Par conséquent, nous vous recommandons vivement d'installer le produit en vérifiant l'environnement avant d'utiliser ce produit. Nous ne sommes pas responsables sauf si vous ne respectez pas la règle.

2. Pour un câblage supplémentaire vers le produit, utilisez un câble INTERNE AC 22 AWG certifié UL1007. Si vous utilisez un autre fil, il peut y avoir un problème avec le produit et aucune responsabilité de KOREA FLWOMETER.