USER'S MANUAL

F850 - Sight Flow Indicator & Switch (INSTALLATION & MAINTENANCE)

WISE® WISE Control Inc.
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INSTRUCTION

◎ GENERAL INSTRUCTION FOR USAGE OF "FLOWMETER"

1. GENERAL

For the correct usage of the Flowmeter, Installation, Maintenance, Repair and Inspection shall be done at the site. No matter how excellent in the design and best parts applied in the Flowmeter, not only the flowmeter is bad in its performance but also the whole system is low in the creditability and safety without good consideration on the Process, and well organized work control and maintenance plan.

Hence, due to the Carelessness in installation and maintenance of the Flowmeter in the Process can cause the bad performance or malfunction of the whole system, the correct installation and proper maintenance program shall be set up as a part of the Process and executed by the plan.

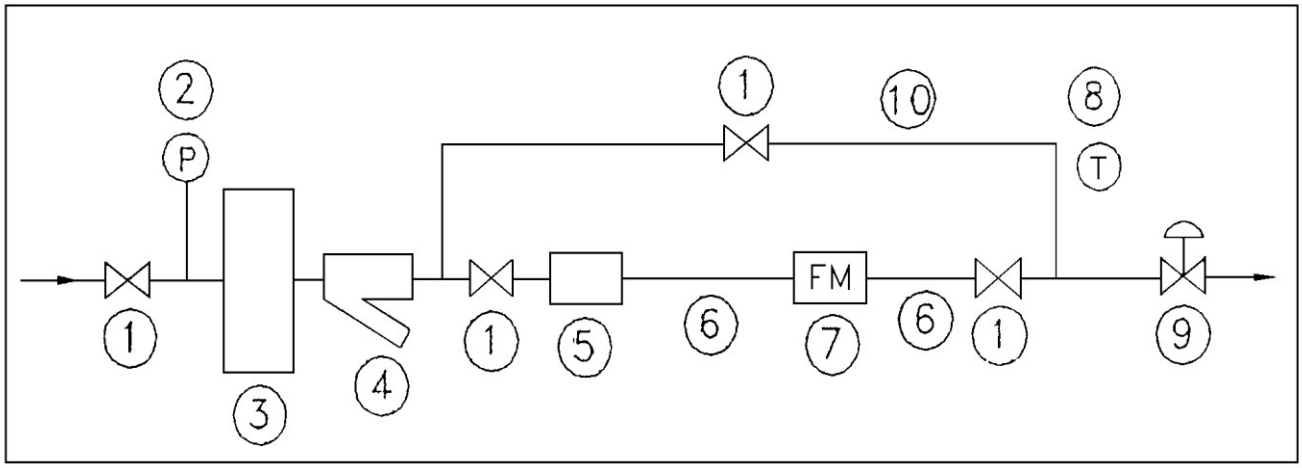
2. INSTALLATION

(1) FLOWMETER DIAGRAM

It is designed the basic piping diagram to maximize the performance of the flowmeter, and it is called "Flowmeter Diagram"

As shown on Fig.1-1, each entity has own role and is required for the accurate measurement of the flow rate.

(FIG. 1-1) Sample of " Flowmeter Diagram"



But, the actual "Flowmeter Diagram"can be differed by the principle of the applied flowmeter and the fluid flow to be measured, then please refer this manual carefully to make the proper diagram. Also simple explanations for each entity are added.

(2) INSTALLATION CONDITION

For the accurate and consistent measurement, it is recommended to install the flowmeter with cautions as the below.

① AMBIENT TEMPERATURE

▷ Install the Flowmeter at the place where the temperature keep in constant or change in small.

▷ The allowable temperature in the installed place shall be complied to the Specification of the Flowmeter.

② ATMOSPHERE

▷ Avoid the place existing the corrosive gas.

▷ Don't let the water flow into the conduit or stay in.

③ Install at the place without or minimized the shock and vibration.

④ Keep enough space for the maintenance and repair.

⑤ Avoid the place existing Electromagnetic Interference.

⑥ Avoid in the piping occurred the cavitation effect.

⑦ Must keep the required straight line length by the type of the flowmeter.

(3) INSTALLATION

It shall be installed by the instruction specified and flushed the flowmeter prior to the installation.

① Confirm the flow direction with the indication on the flowmeter.

② Use the correct size of the tightening bolts with the Pipe.

③ Install the seal such as gasket to prevent from leaking.

④ Tighten the bolts with the constant force and the diagonal directional sequence.

(4) MAINTENANCE AND CHECK

Generally the maintenance program can be classified by two types; Precautionary program and Post program.

In Precautionary program, it is included in the Internal Check List for the precaution of the malfunction and defect, which is being kept in record, and Occasional Check-out of the cleanness and tightness. Post Program is designed for the reactive of the flowmeter after the

malfunction occurred and is included in the understands of the problem, the investigation of the cause, resolutions and prevention in future. It will be explained in detail at the provisions for the principle of the flowmeter, maintenance and checking method for each type of the flowmeter.

① SEPARATOR

This is the device to reduce the error on reading due to the air or steam included in the fluid flow. It shall be applied in the system using the mass flowmeter.

② STRAINER (FILTER)

This is the device to prevent the damage by collecting the dust, chips, sand or other foreign substances in the fluid flow.

③ FLOW CONDITIONER

This is the device installed at the upstream of the flowmeter in order to minimize the effects on the flowmeter characteristics by removing or reducing the vortex, turbulence and axial flow.

④ STRAIGHT PIPING LINE

It is the straight part of the piping line between the upstream and downstream of the flowmeter for the accuracy of the measurement. This part is required to make the flow stable, and a priority factor to be considered in the design of the piping line.

[The required length of the Straight Piping Line]

Type	Electro Mag. Meter	Ultra Sonic Meter	Vortex Meter	P/D Meter	Turbine Meter	Differ. Press. Meter	Variable Area Meter	Mass Meter
Upstream	5D	10D	15D	N/A	20D	20D	N/A	N/A
Downstream	2D	5D	5D	N/A	5D	5D	5D	N/A

⑤ BY-PASS LINE

It is recommended to design the Piping Line that the maintenance, repair, inspect and calibration of the flowmeter can be done without stopping of the PROCESS.

⑥ FLOW CONTROL VALVE

If the flow control V/V was placed in upstream of the flowmeter, it could be interfered to the flow and the correct measurement could not expected. Hence, it is recommended to install the flow control V/V in downstream, or keep the enough distance from the flowmeter to prevent from effecting on the flow, if installed in upstream.

◈ MODEL: F850 –
SIGHT FLOW INDICATOR & SWITCH ◈

1. GENERAL

The flow condition can be checked through two sides of glasses easily on the body of F850 – SIGHT FLOW INDICATOR & SWITCH.

This type of flow meter has some advantages such as simple structure, easy to handle and wide application from small to large flow. And it has no flapper and Scale for simple flow condition, operation and maintenance.

2. STANDARD FEATURE

(1) DIAMETER : 15A(1/2") ~ 500A(20")

(2) TEST PRESSURE : 10Kgf/㎠G(Max),Option (20kgf/cm2)

(3) MAX TEM'P : 80℃

(4) GLASS : Tempered Glass

3. CHARACTERISTICS

(1) Simple and clear checking the instant flow in piping.

(2) Simple structure and easy installation.

(3) Compact size and available for the large flow measurement.

4. Installation and Maintenance

(1) Install the Flowmeter in matching the Measuring Part with the direction of flow.

(2) Clean up the GLASS Inside periodically.

(3) For the repair of breakage or cleaning of glass, add the "BY Pass function".

(4) Install it with care to protect from any breakage of glass.

(5) Use the proper Standard Bolts and Nuts for installing it.

(6) Check out its packing seals before being connected to flanges of a piping system.

(7) Check it out if a connecting flange of a piping system is proper with.

5. Troubleshooting

※ Prior to install the Flowmeter, Flushing the Piping Line shall be done.
The Strainer is recommended to install in the front of Flowmeter.

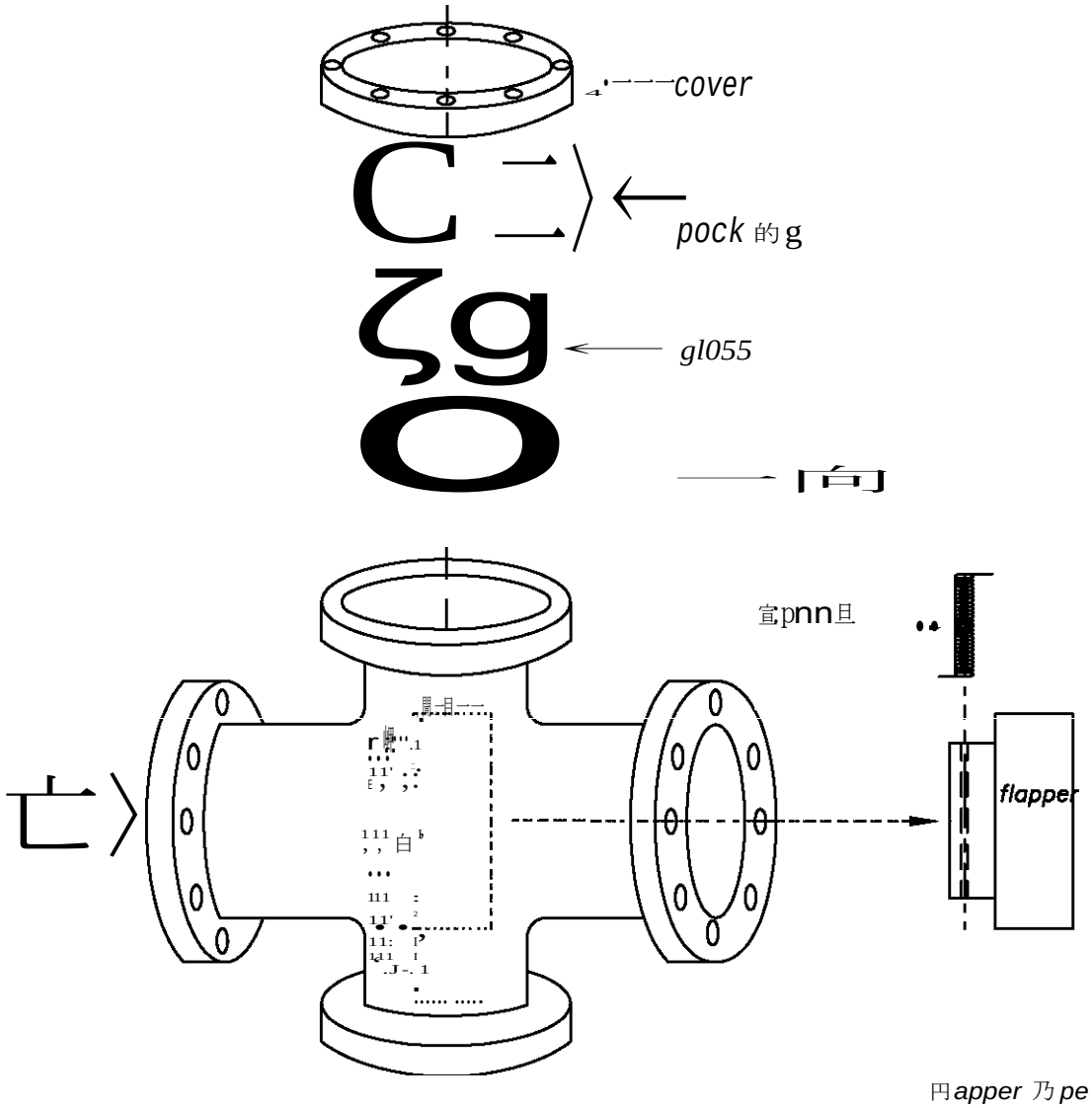
Q1] If there is any leakage from the glass,
A1. Check the omission of the seal (packing) from the glass.
A2. Tighten down the bolts of glass part.
A3. Check out any corrosion of seal and replace it if there is
a corrosion on seal.

Q2] If there is any leakage from connected flange of BODY,
A1. Check the omission of the seal (packing) from connected flange.
A2. Tighten down the bolts of flange part.
A3. Check out any corrosion of seal and replace it if there is
a corrosion on seal.

Q3] If it is impossible to check the Flow condition through the glasses,
A1. Open the Upper cover and disassemble the GLASS.
A2. Clean the inside of GLASS with soft cloths or brush.

Q4] If there is any breakage of glass on it,
A1. Tighten down the connecting bolts of the glass.
A2. Remove a breakage glass and replace a proper glass.
A3. Replace a glass seal too if necessary.

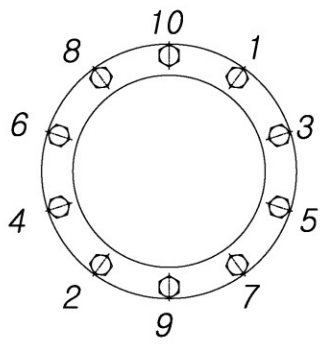
6. The parts' drawings of Sight Glass



7. How to replace Glass and other parts

(1) Unscrew bolts slowly with proper strength. Unscrew bolts in the numerical order from No.1 to No.10 such as e.g. below.

e.g.)



The order for unscrewing bolts

1-2-3-4-5-6-7-8-9-10

(2) Take out the cover from the Sight-Glass.

(3) Remove the packing seal which protects the Glass on outside slowly.

(4) Take out the glass slowly to avoid getting any damage, and put it down on a safety area to prevent scratches on the glass.

(5) Remove the packing seal which protects the glass on inside slowly.

(6) Remove and replace a damaged part from the Sight-Glass.

(7) Wash the disassembled parts of Sight-Glass with clean water, remove and dry moisture from parts fully.

(8) Assemble the parts in reverse order correctly.

(9) Tighten up the bolts in reverse order again. At the first time to tighten up the bolts, it should be tighten up bolts to adhere closely to glass properly with equal strength. And at the second time, tighten up the bolts firmly with equal strength again to finish up.

8. Suggestions in handling the product

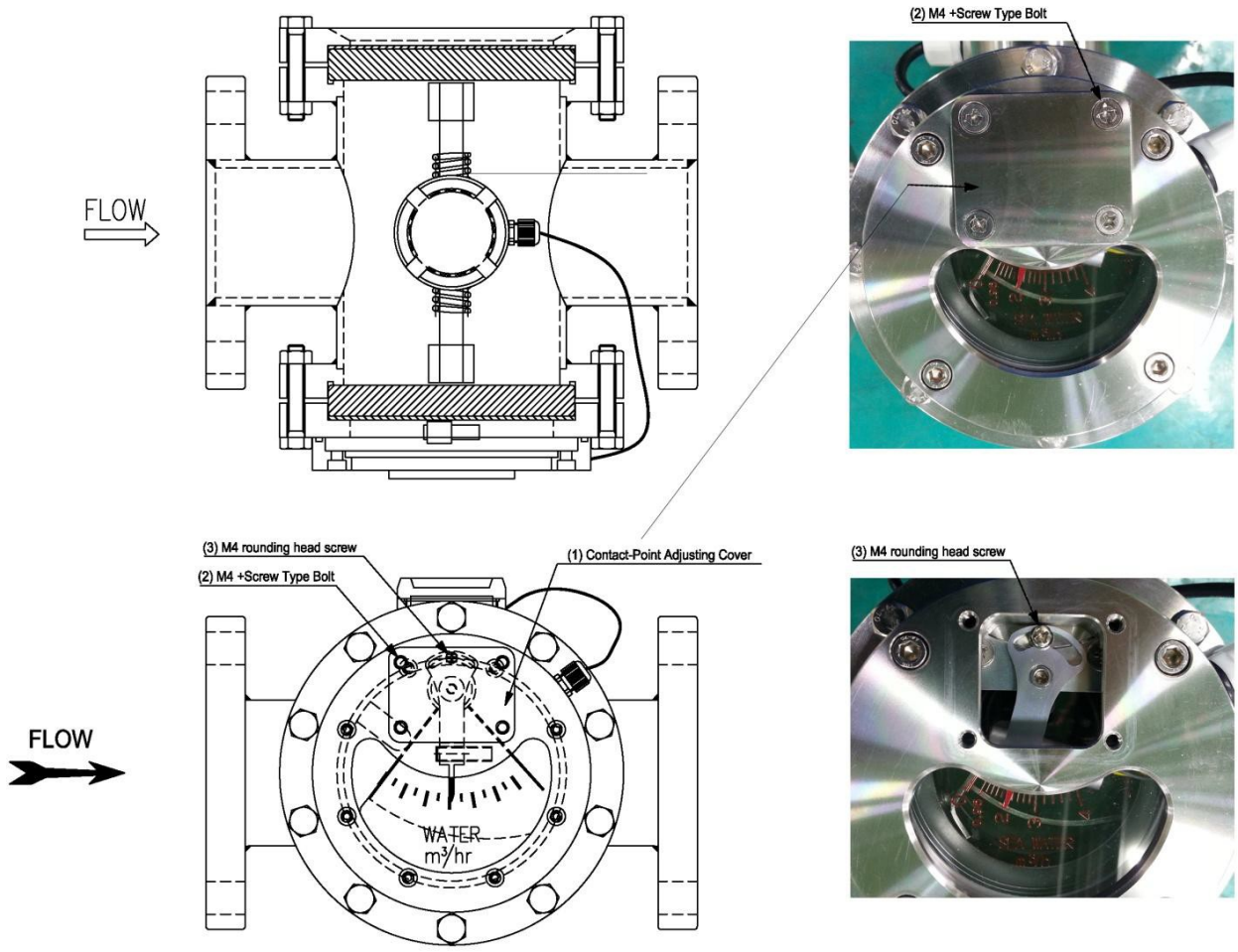
(1) Do not expose products at extremely high temperature or low temperature for long time. It would be caused by being decreased efficiency and having damage.

(2) Before you move a product to other place, you should have to protect glass parts of it with impact protection from glass damage.

(3) Do not give a strong shock on the glass. It can be broken.

(4) Do not operate the product if there is any scratch or crack on the glass of it continuously. It can be caused by damage. Stop to operate the product and replace a proper glass of it immediately.

9. Drawing



How to adjust the point of contact.

1. Unscrew four of "M4", +typed bolts(No.2) for "Contact-point Adjusting Cover(No.1)" completely.
2. Loosen a screw of M4 rounding-head bolt(No.3) a little bit and adjust the contact-point carefully.
3. After adjusting the contact-point, screw M4 rounding-head bolt(No.3) again.
4. Screw all of M4, +typed bolts(No.2) again.

Notice

This product's sensor is for Lead-switch method which can be operated by "Magnet".

Please check inside of glasses for the product often during operating it. If there is any foreign material such as "iron filings" on the flapper installed with "Magnet" of product, please take it apart carefully and remove foreign material completely.

In case that there is a cumulative foreign material on the flapper, a flapper can't be displayed a correct flow rate because it can be stopped by a cumulative foreign material.

10. WIRING DIAGRAM

N, C	COM	N, O

Purple Yellow Gray

(CABLE COLOR)

** Wiring Method**

For “LOW” state, connect NC and COM to set it up.

** Switch Specification**

Contact Reed Switch : Self Holding Type

Max Switching Power : 10VA

Max Switching Current : 0.3Amp

Max Switching Voltage : 10VDC : 75VDC

Temperature Range : -10 ~ 60℃

Breakdown Voltage : MIN 150VDC

Form : 1-SPDT(Low Point)

Sensor : Reed Switch