



# Installation and Maintenance Manual

## IFW5 Series Diaphragm Type Flow Switch

For future reference, please keep this manual in a safe place

This manual should be read in conjunction with the current product catalogue

### Safety Instructions

These safety instructions are intended to prevent a hazardous situation and/or equipment damage. These instructions indicate the level of potential hazard by label of "Caution", "Warning" or "Danger". To ensure safety, be sure to observe ISO4414 (Note1), JIS B 8370 (Note2) and other safety practices.

Note 1: ISO 4414: Pneumatic fluid power – Recommendations for the application of equipment to transmission and control systems.

Note 2: JIS B 8370: Pneumatic system axiom.

**CAUTION** : Operator error could result in injury or equipment damage.

**WARNING**: Operator error could result in serious injury or loss of life.

**DANGER** : In extreme conditions, there is a possible result of serious injury or loss of life.

### WARNING

#### 1. The compatibility of pneumatic equipment is the responsibility of the person who designs the pneumatic system or decides its specifications.

Since the products specified here are used in various operating conditions, their compatibility for the specific pneumatic system must be based on specifications or after analysis and/or tests to meet your specific requirements.

#### 2. Only trained personnel should operate pneumatically operated machinery and equipment.

Compressed air can be dangerous if an operator is unfamiliar with it. Assembly, handling or repair of pneumatic systems should be performed by trained and experienced operators.

#### 3. Do not service machinery/equipment or attempt to remove component until safety is confirmed.

- 1) Inspection and maintenance of machinery/equipment should only be performed after confirmation of safe locked-out control positions.
- 2) When equipment is to be removed, confirm the safety process as mentioned above. Switch off air and electrical supplies and exhaust all residual compressed air in the system.
- 3) Before machinery/equipment is re-started, ensure all safety measures to prevent sudden movement of cylinders etc. (Bleed air into the system gradually to create back-pressure, i.e. incorporate a soft-start valve).

#### 4. Contact SMC if the product is to be used in any of the following conditions:

- 1) Conditions and environments beyond the given specifications, or if product is used outdoors.
- 2) Installations in conjunction with atomic energy, railway, air navigation, vehicles, medical equipment, food and beverage, recreation equipment, emergency stop circuits, press applications, or safety equipment.
- 3) An application which has the possibility of having negative effects on people, property, or animals, requiring special safety analysis.

### CAUTION

Ensure that the air supply system is filtered to 5 micron.

### Specifications

Fluid	Water & *non-corrosive liquid
Operating pressure	1–6 kgf/cm <sup>2</sup>
Proof pressure	12 kgf/cm <sup>2</sup>
Operating temperature	5–60°C
Operation	Diaphragm
Electrical entry	Conduit, terminal conduit
Insulation	100M $\Omega$ or more (at DC500V)
Voltage proof	1500V AC for one min.
Contact	Conduit: 1ab, terminal conduit 1a or 1b
Body material in contact with fluid material	Brass

\*When using, contact an SMC representative.

### Micro-switch ratings

Load Voltage	Non-inductive load (A)				Inductive load (A)			
	Resistance load		Lamp load		Inductive load		Motor load	
	N.C	N.O	N.C	N.O	N.C	N.O	N.C	N.O
125V AC	5	5	1.5	0.7	4	4	2.5	1.3
250V AC	5	5	1.0	0.5	4	4	1.5	0.8
8V DC	7	5	3	3	5	4	3	3
14V DC	5	5	3	3	4	4	3	3
30V DC	5	5	3	3	4	4	3	3
125V DC	0.4	0.4	0.1	0.1	0.4	0.4	0.1	0.1
250V DC	0.3	0.3	0.05	0.05	0.3	0.3	0.05	0.05

### Model

Model	Flow range $\ell$ /min	Hysteresis $\ell$ /min	Port size
IFW510	1–10	1 or less	$\frac{3}{8}$ • $\frac{1}{2}$ • $\frac{3}{4}$
IFW520	10–20	1.5 or less	$\frac{1}{2}$ • $\frac{3}{4}$
IFW550	20–50	3 or less	$\frac{3}{4}$

### Installation

#### WARNING

Ensure all AIR and POWER supplies are ISOLATED before installing a switch.

Avoid installations where water can enter the switch housing.

#### CAUTION

Mount the switch ensuring that the flow direction coincides with the flow direction arrow on the body.

Switch can be mounted in any direction.



Fig 1

### Construction (Fig 2)

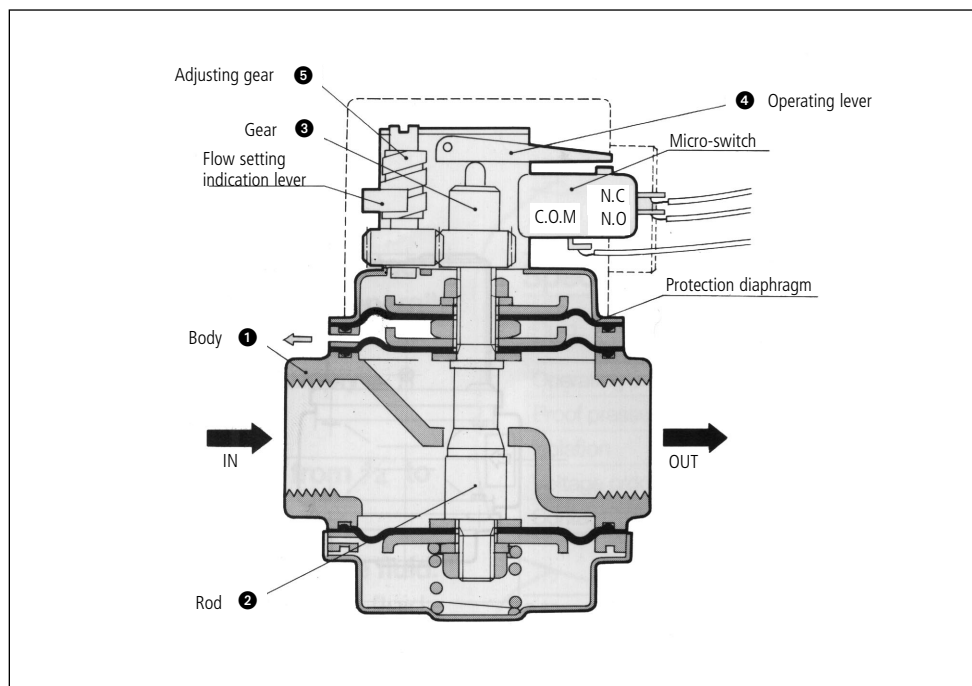


Fig 2

#### Parts list

No.	Description	Material
1	Body	Brass
2	Rod	Brass
3	Gear	Polyacetal
4	Operating lever	Steel
5	Adjusting gear	Polyacetal

#### Micro switch terminals (Fig 3)

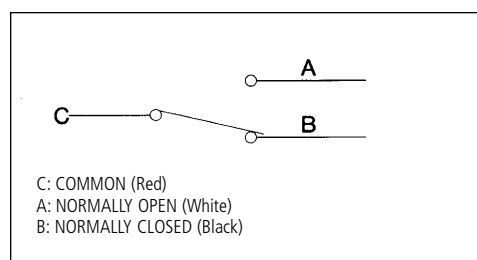


Fig 3

#### Maintenance

#### WARNING

Ensure all AIR and POWER supplies are ISOLATED before any maintenance work is carried out.

#### Switch adjustment (Fig 4)

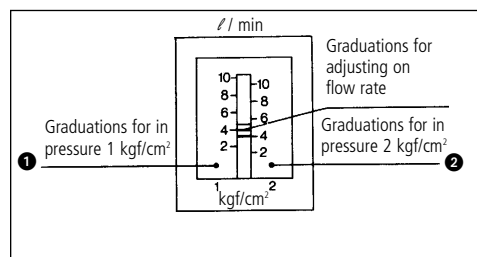


Fig 4

#### Flow adjustment

Remove the rubber grommet from the upper cover (retain) using a small screwdriver, rotate the flow adjusting gear 5 (Fig 2).

NOTE: Rotating clockwise will increase flow rate. Rotating anti-clockwise will decrease flow rate.

For pressure of 1 kgf/cm<sup>2</sup> use the left hand graduations 1 (Fig 4).  
For pressure of 2 kgf/cm<sup>2</sup> use right hand graduations 2 (Fig 4).

Adjust the flow rate to create the ON indication.

NOTE: It is not possible to adjust the flow rate for pressures 2 kgf/cm<sup>2</sup> ~ 6 kgf/cm<sup>2</sup>. Check ON signal flow rate by means of a flow meter fitted on the switch output.

#### Hysteresis

NOTE: An OFF signal may result from a flow rate less than shown on the graduations.

#### Operating flow

NOTE: Sufficient range should be provided between the adjusted flow and the operating flow to avoid fluctuations.

For additional information please contact your local SMC office, see details below:

When you enquire about the product, please contact the following

#### SMC Corporation:

ENGLAND	Phone 01908-563888	GERMANY	Phone 6103-402-0
ITALY	Phone 02-92711	FRANCE	Phone 1-64-76-10-00
HOLLAND	Phone 020-6255525	SWEDEN	Phone 08-7088590
SWITZERLAND	Phone 052-34-0022	AUSTRIA	Phone 02262-62-280
SPAIN	Phone 945-290600	IRELAND	Phone 01-4501822
GREECE	Phone 01-3426076	DENMARK	Phone 8738-0800
FINLAND	Phone 358-0-6750033	NORWAY	Phone 67-13-4080
BELGIUM	Phone 03-234-14-44	POLAND	Phone 48-22-6131847
TURKEY	Phone 212-2211512		