



## INSTRUCTION MANUAL

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CONVEYER FLOW SWITCH

**MODEL:** PAF

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Meanings of indications for safety used in this Instruction Manual are as follows.



**WARNING:** Indicates that improper handling assumes the risk of a fatal or serious injury.



**CAUTION:** Indicates that improper handling assumes the risk of injury or damage to property only.

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## Introduction

1. This instruction manual describes to the proper method for using and adjusting the product. Please be sure to read this manual before using the product. Keep this manual where it is easily accessible for reference as required.
2. This instruction manual describes the standard specifications. If the product you purchased is based on special specifications, the details may differ from the product.
3. The information presented in this instruction manual is subject to change without notice.
4. If you have any questions or notice any errors in this manual, please contact our sales representatives.
5. In the event we modify the product to improve quality, we may sometimes offer alternative parts rather than original parts or an alternate product to our customers. Please understand that the specifications and appearance of the product are subject to change without notice. For more details, please contact our sales representatives.
6. Any modifications or repairs to the product made by the customer will invalidate the warranty, and we shall not be liable for the consequences resulting from the modifications or repairs.

Safety indications used in this instruction manual have the following meanings:



**Warning:** This means that improper handling of the product may lead to death or serious injury.



**Caution:** This means that improper handling of the product may cause injury and physical property damage only.

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## Table of Contents

### Introduction

1. Safety Precautions .....	(1)
2. Outline .....	(2)
3. Specifications .....	(3)
4. How to Mount the Product .....	(4)
5. Mounting the Vane on the Shaft .....	(4)
6. Mounting and Dismounting the Cover ...	(5)
7. Vane Position and Operation Point .....	(5)
8. Wiring .....	(6)
9. Maintenance .....	(7)

## 1. Safety Precautions



### **Warning**

- When wiring, check that no voltage is supplied to wires before starting any wiring work. Failure to do so may result in electric shock, electric leaks, short circuits, or combustion.
- NEVER disassemble the product.
- Do not remove the screws securing the spring case. The spring may pop up.
- Do not store the product where it will be exposed to direct sunlight, rain or water, or hazardous gas or liquids.



### **Caution**

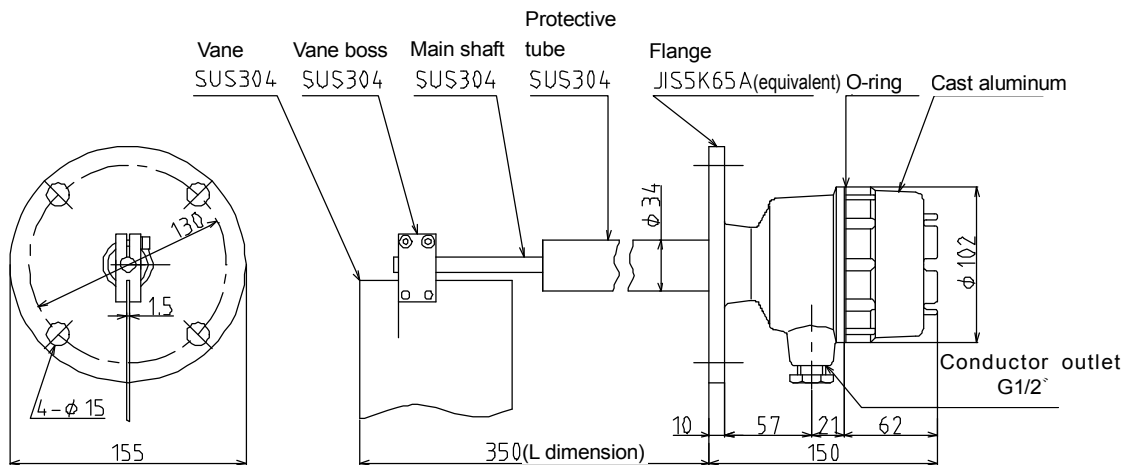
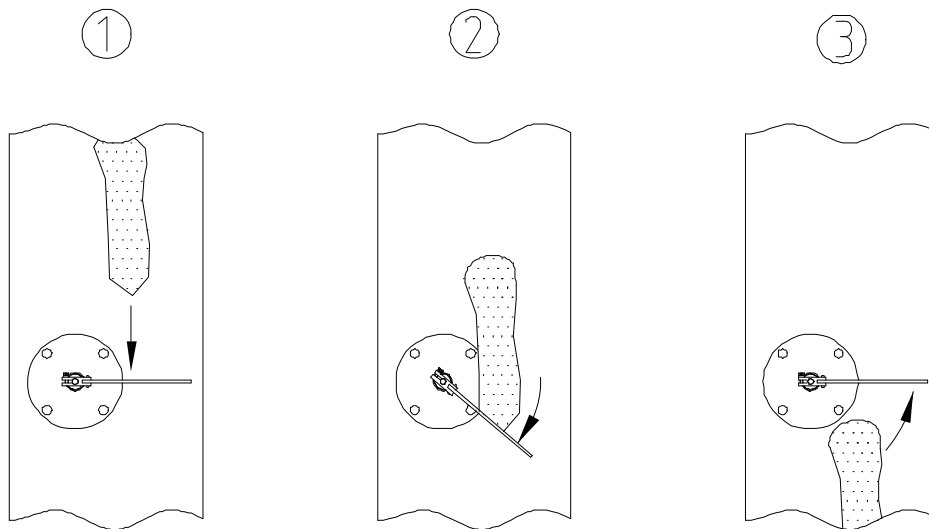
- Be sure to use the product within the range of specifications.  
“Ratings and installation environment such as temperature.”
- Check that the wiring has been implemented properly before supplying electric power.
- Avoid dropping or exposing the product to impacts. Failure to do so may result in damage.
- Thoroughly secure the cover and the conductor outlet to prevent dust and rainwater from entering the product.
- When installing the product, be sure that the conductor outlet faces downward.
- Do not expose the product to a corrosive atmosphere (such as NH<sub>3</sub>, SO<sub>2</sub>, and Cl<sub>2</sub>).

## 2. Outline

This product is a switch that changes the signal when an object pushes the vane held by a spring.

The figure below illustrates an example where the product is installed in a chute.

- ① Normally, the vane is held by the force of the spring.
- ② When an object pushes the vane a certain degree and exceeds the activation angle, the signal changes. The situation is held as long as the object is pushing the vane.
- ③ When the object is gone, the signal returns to its original state.



PAF L = 350 Outline drawing (Standard specifications)

### 3. Specifications

Type		PAF
Mounting method		Flange JIS5K65A (equivalent)
Vane shape (Standard) *1		100 x 140 t = 1.5
L dimension (Standard) *1		350 mm
Material used (main)	Vane	SUS304
	Main shaft	SUS304
	Protective tube	SUS304
	Chassis with flange	Aluminum alloy
	Cover	Aluminum alloy
	Sealing	Nitrile rubber, Teflon
Painting color	Chassis, Cover	10YR7.5/14
Protection ratings		IP – 65 equivalent
Ambient temperature during use		-10°C to +60°C (No condensation or congelation)
Pressure during use		Atmospheric pressure
Conductor outlet		G1/2
Conductor outlet fastening hardware		Matching cable outer diameter $\Phi 5 - 8$ mm
Output		1C
Contact capacity (resistance load)	Standard	250 V AC 10 A ; 250 V DC 0.3 A
	Z type	250 V AC 0.1 A ; 30 V DC 0.1 A
Activation angle (Standard) *1		About 20°
Operating torque		About 20 N·cm
Hysteresis		About 5°
Insulation resistance		100 M $\Omega$ or more (DC 500 V Megger)
Withstand voltage test		AC 1500 V 1 minute
Mass (Standard) *1		2.6 kg

\*1 For specifications other than the standard specifications, check the documents that accompany the product.

#### 4. How to Mount the Product

- Mount the product where the vane can detect the flow of the target object.
- In mounting the product, set the conductor outlet facing downward and use bolts and gaskets complying with the standards.



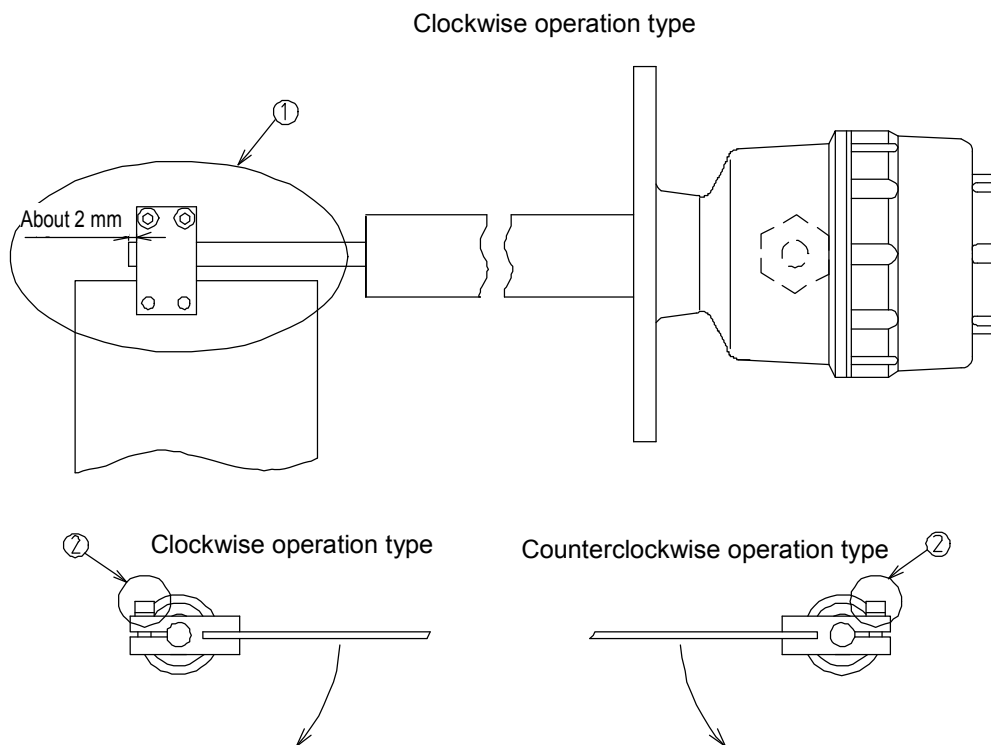
#### Caution

In mounting the product, be sure that the conductor outlet faces downward. Failure to do so may lead to intrusion of rainwater resulting in failure.

#### 5. Mounting the Vane onto the Shaft

The method of mounting the vane varies depending on the direction of operation. Check the specifications before starting work.

- ① Insert the vane onto the main shaft so that it is horizontal to the conductor output. The main shaft should protrude by 2 mm.
- ② Tighten the hexagonal socket head bolts (M5) to secure the vane.



## 6. Mounting and Dismounting the Cover

- The cover employs threaded mounting.
- To dismount the cover, loosen the screw while paying close attention to the O-ring. In mounting the cover, check that the O-ring is free from distortion and then firmly screw the cover on.



### Caution

Be sure that the cover is thoroughly and tightly screwed on.

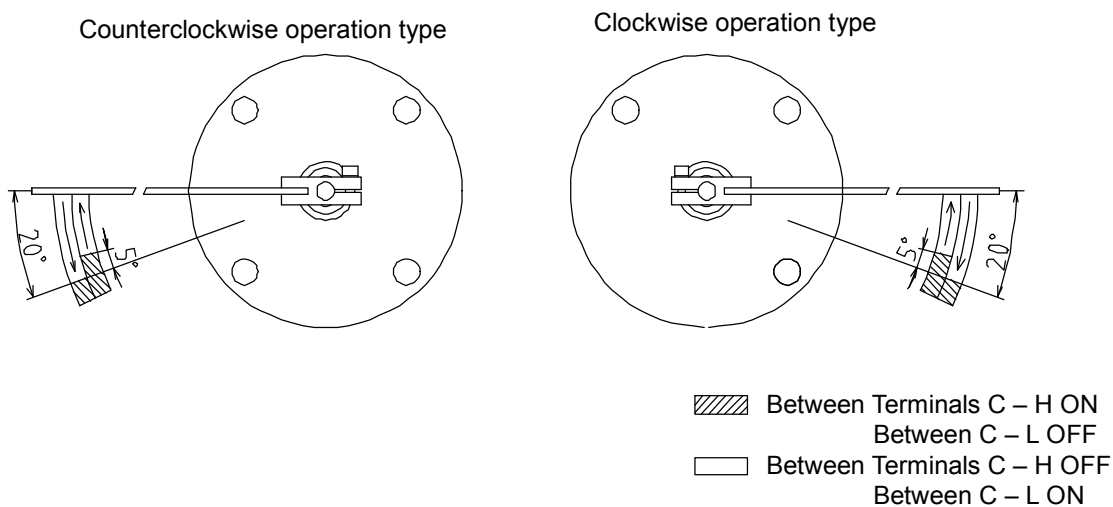
Failure to do so may lead to intrusion of rainwater and dust resulting in failure when the product is used outdoors.

## 7. Vane Position and Operating Point

Passage alarm switches are available in clockwise and counterclockwise directional operation type. Check the specifications and then refer to the description below.

If the vane is positioned at , terminals C and H are conductive.

The following figure shows the switching of contacts assuming an activation point of 20°.



## 8. Wiring

### 8-1 Wires and tubes used

- When using tubes, employ flexible tubes or plica tubes to facilitate later inspections. In this case, remove the fastening hardware of the conductor outlet and use #17 box connector for thick steel applications. With connectors for thin steel applications, the screw does not fit.
- When using a cable, secure the cable by tightening the fastening hardware of the conductor outlet firmly. Use cable with a finished outer diameter of  $\Phi 5-8$  mm.
- Use cable with twisted core wires. Wire size of  $0.5 \text{ mm}^2$  is recommended.
- The terminal block uses 6 mm wide M3 screws for mounting. The crimp terminal size of R1.25 - 3 is recommended.
- Proper size for the conductor outlet fastening hardware is  $\Phi 5-8.0$  mm.



#### **Caution**

After wiring, tighten the conductor outlet fastening hardware firmly. Insufficient tightening may lead to intrusion of rainwater and dust resulting in failure.



#### **Caution**

Be sure to use the proper size cable. Use of the wrong size cable may lead to intrusion of rainwater and dust resulting in failure.



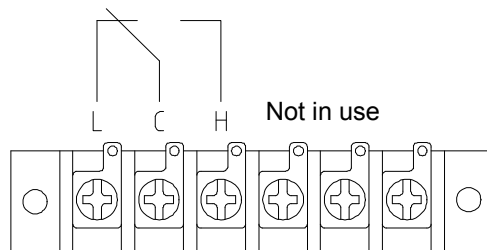
## 8-2 Connection



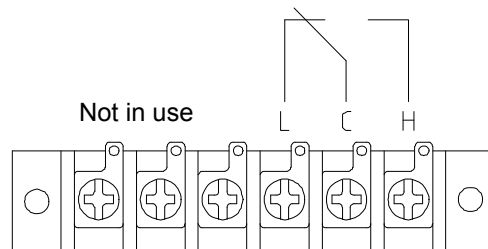
### Warning

Check that no voltage is supplied between the cables to be connected before starting any wiring. Failure to do so may result in electric shock, electric leaks, short circuits, or combustion.

- Check the terminal alignment shown below to implement correct wiring.
- Clockwise operation type (No detection status)



- Counterclockwise operation type (No detection status)



## 9. Maintenance

During the periodic checks, inspect the following items:

- Check that the chassis cover is tightly secured. A loose cover may lead to intrusion of rainwater and dust resulting in failure.
- Check that the fixed screws are tight and not loose.
- Check that the vane, main shaft, and protective tube have no bends.