

To prevent accidents arising from the misuse of this instrument, please ensure the operator receives this manual.

Safety Precautions (Be sure to read these precautions before using our products.)

The safety precautions are classified into categories: "Warning" and "Caution".

Depending on circumstances, procedures indicated by  Caution may be linked to serious results, so be sure to follow the directions for usage.



Warning

Procedures which may lead to dangerous conditions and cause death or serious injury, if not carried out properly.



Caution

Procedures which may lead to dangerous conditions and cause superficial to medium injury or physical damage or may degrade or damage the product, if not carried out properly.



Warning

- To prevent an electrical shock or fire, only Shinko or other qualified service personnel may handle the inner assembly.
- To prevent an electrical shock, fire or damage to the instrument, parts replacement may only be undertaken by Shinko or other qualified service personnel.



Safety Precautions

- To ensure safe and correct use, thoroughly read and understand this manual before using this instrument.
- This instrument is intended to be used for industrial machinery, machine tools and measuring equipment. Verify correct usage after purpose-of-use consultation with our agency or main office. (Never use this instrument for medical purposes with which human lives are involved.)
- External protection devices such as overcurrent protection fuse, etc. must be installed, as malfunction of this product could result in serious damage to the system. Proper periodic maintenance is also required.
- This instrument must be used under the conditions and environment described in this manual. Shinko Technos Co., Ltd. does not accept liability for any injury, loss of life or damage occurring due to the instrument being used under conditions not otherwise stated in this manual.



Caution with Respect to Export Trade Control Ordinance

To avoid this instrument from being used as a component in, or as being utilized in the manufacture of weapons of mass destruction (i.e. military applications, military equipment, etc.), please investigate the end users and the final use of this instrument. In the case of resale, ensure that this instrument is not illegally exported.

● Installation Precautions



Caution

This instrument is intended to be used under the following environmental conditions (IEC61010-1): Overvoltage category II, Pollution degree 2

Ensure the mounting location corresponds to the following conditions:

- A minimum of dust, and an absence of corrosive gases
- Few mechanical vibrations or shocks
- No exposure to direct sunlight, an ambient temperature of 0 to 55°C (32 to 131°F) that does not change rapidly, and no icing
- Mount the instrument at the position where granule level actually changes.

- If the granule load is large, mount an adequate guard plate.
- Avoid mounting the instrument under the falling point of granules as well as near the outlet.
- Mount the unit using the Main unit mounting nut.
When it is difficult to set or remove the wing in a hopper, use a flange (sold separately).
- Do not push and insert wing shaft too hard.
Insert it up to the point carefully, and then revolve it manually.

● Wiring Precautions



Caution

This instrument has no built-in power switch and fuse.

It is necessary to install a power switch and fuse near the instrument.

(Recommended fuse: Time-lag fuse, rated voltage 250 V AC, rated current 2 A)

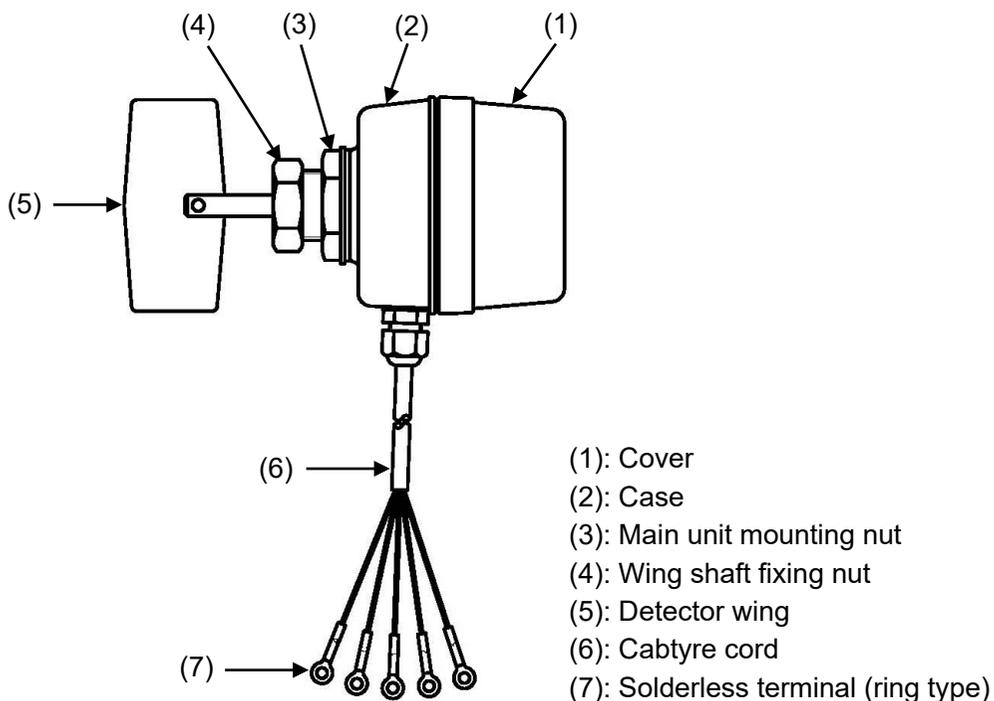
● Operation and Maintenance Precautions



Caution

- Do not touch live terminals. This may cause electrical shock or problems in operation.
- Turn the power supply to the instrument OFF before retightening the terminal or cleaning. Working on or touching the terminal with the power switched ON may result in severe injury or death due to electrical shock.
- Use a soft, dry cloth when cleaning the instrument.
(Alcohol based substances may tarnish or deface the unit.)
- Do not strike or scratch it with a hard object or put pressure on it.

1. Name of Sections



(Fig. 1.1)

2. Mounting to Hopper

2.1 Site Selection and Precautions

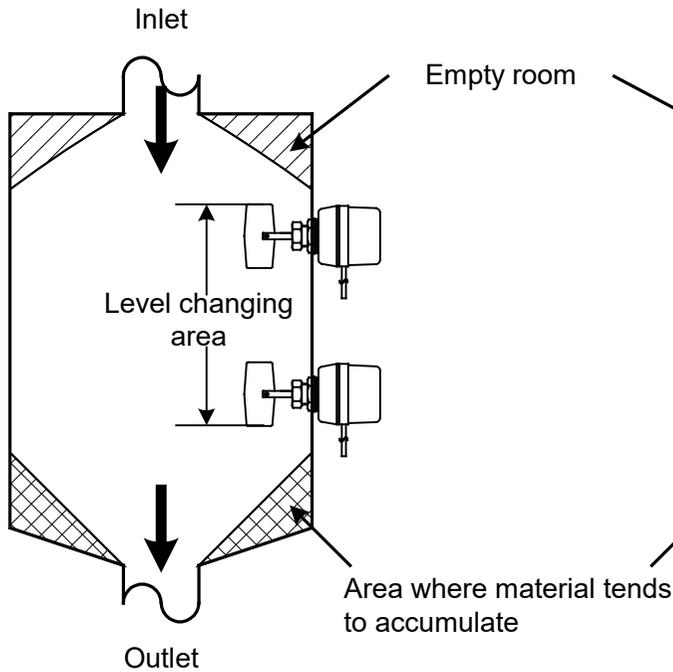
Ensure the mounting location corresponds to the following conditions, and follow precautions below.

- (1) A minimum of dust, and an absence of corrosive gases
- (2) Few mechanical vibrations or shocks
- (3) No exposure to direct sunlight, an ambient temperature of 0 to 55°C (32 to 131°F) that does not change rapidly, and no icing
- (4) Mount the instrument at the position where granule level actually changes.
- (5) If the granule load is large, mount an adequate guard plate.
- (6) Avoid mounting the instrument under the falling point of granules as well as near the outlet.
- (7) Mount the unit using the Main unit mounting nut.
When it is difficult to set or remove the wing in a hopper, use a flange (sold separately).
- (8) Do not push and insert wing shaft too hard.
Insert it up to the point carefully, and then revolve it manually.

2.2 Mounting Examples

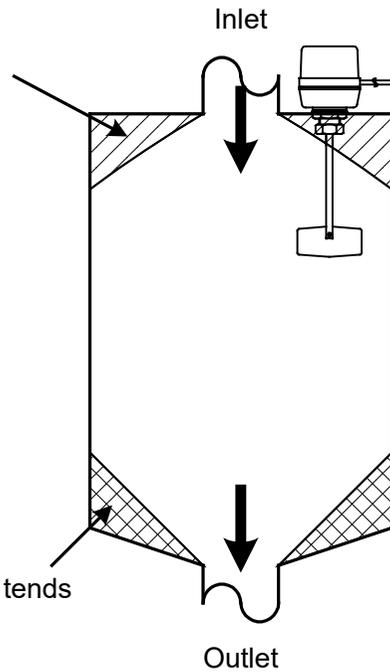
[Good example]

• Horizontal mounting



(Fig.2.2-1)

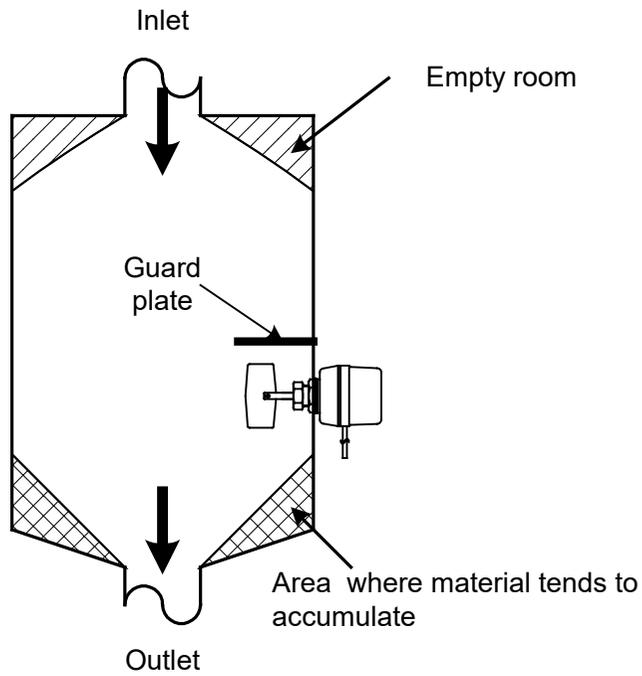
• Vertical mounting



(Fig.2.2-2)

• **For large loading**

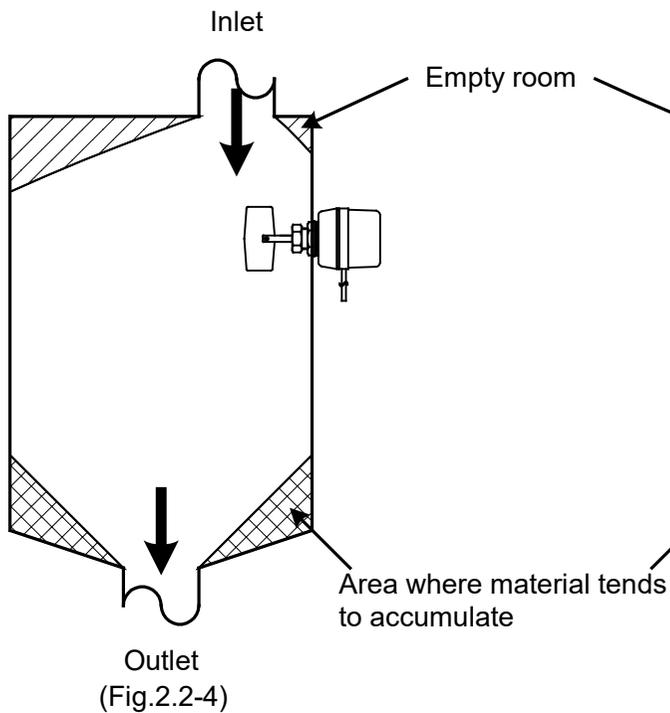
(Mount the guard plate when the granule loading is large.)



(Fig.2.2-3)

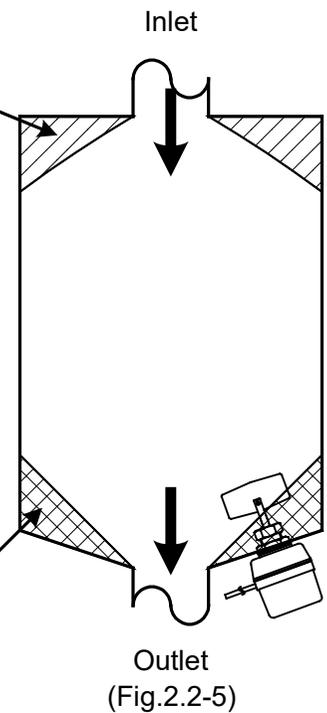
[Bad example]

• Under the inlet



(Fig.2.2-4)

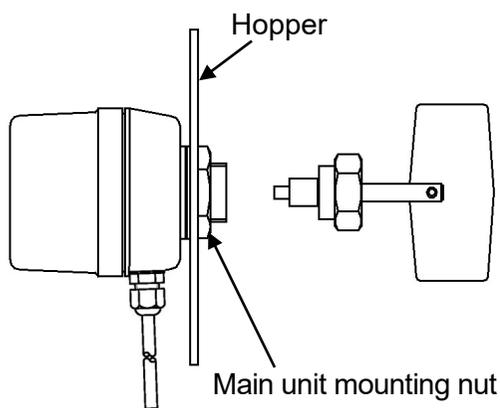
• Near the outlet



(Fig.2.2-5)

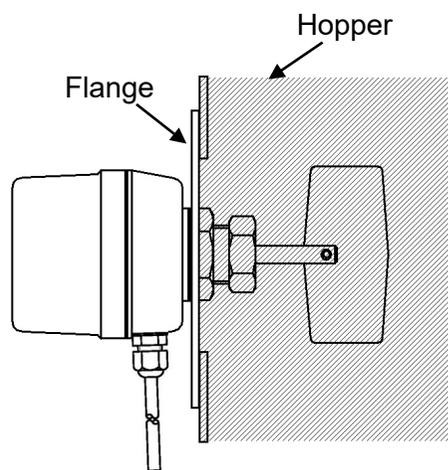
● **Nut and flange mounting**

[Nut Mounting]



(Fig.2.2-6)

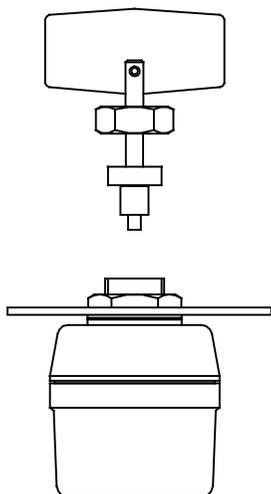
[Flange Mounting]



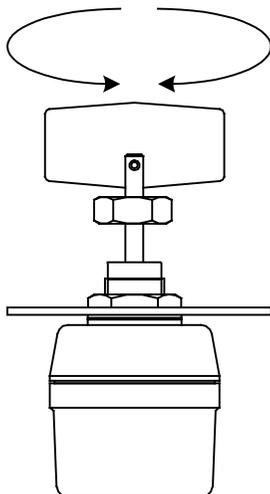
(Fig.2.2-7)

When using the LV-300 with a flange, make a hole on the hopper which enables the wing to enter.

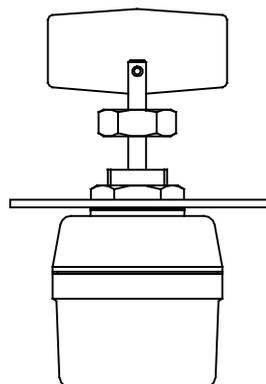
2.3 Mounting of Wing Shaft



(Fig.2.3-1)



(Fig.2.3-2)



(Fig.2.3-3)

Insert the wing shaft up to the point where it can be inserted fully to the end position. When it is difficult to insert the wing shaft to the end, revolve the wing shaft manually clockwise or counterclockwise. See (Fig.2.3-2).

Tighten the wing shaft with the fixing nut. See (Fig.2.3-3).

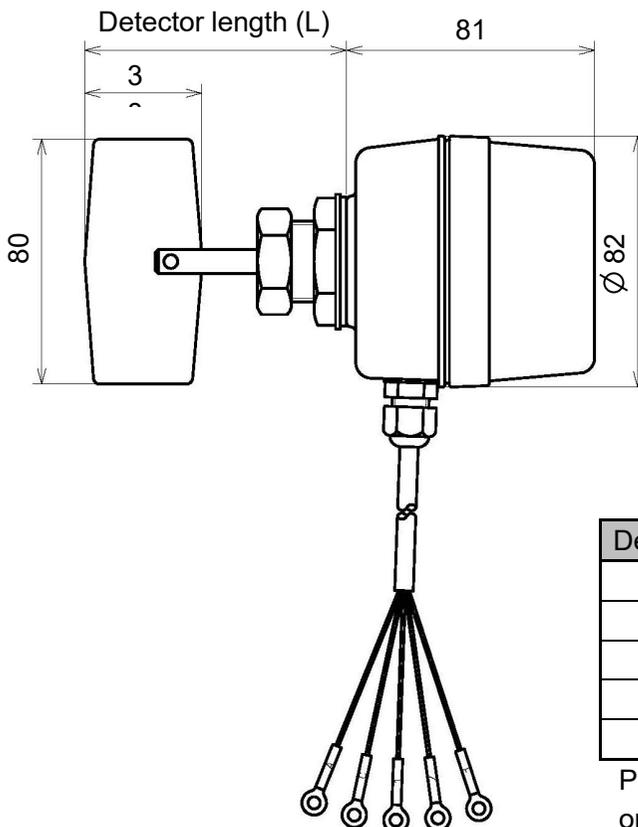
Notice

Tighten the Wing shaft fixing nut and Main unit mounting nut with the specified torque as shown below, otherwise the screws will be damaged.

(Table 2.3-1)

	Appropriate Torque	Maximum Torque
Wing shaft fixing nut	15 N•m	Within 30 N•m
Main unit mounting nut	20 N•m	Within 30 N•m

2.4 External Dimensions (Scale: mm)

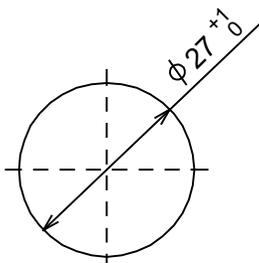


(Fig 2.4-1)

Detector Length (L)	Mounting Direction
85 mm	—
100 mm	—
150 mm	—
200 mm	Vertical mounting
250 mm	Vertical mounting

Please specify the detector length when ordering.

2.5 Hopper Cutout (Scale: mm)



(Fig 2.5-1)

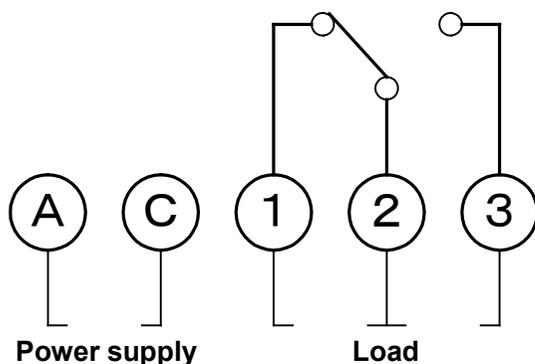
3. Terminal Arrangement

Warning

Turn the power supply to the instrument OFF before wiring and checking.
Working on or touching the terminal with the power switched ON may result in severe injury or death due to electrical shock.

Caution

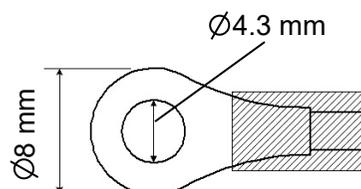
This instrument has no built-in power switch and fuse.
It is necessary to install a power switch and fuse near this instrument.
(Recommended fuse: Time-lag fuse, rated voltage 250 V AC, rated current 2 A)



Terminal Code	Lead Wire Color
A	White
C	Orange (Yellow)
1	Black
2	Brown
3	Green

● **Solderless terminal for the cable cord**

Use a solderless terminal (ring type) in which an M4 screw fits as shown in (Fig. 3-1).



(Fig. 3-1)

4. Operation and Action

4.1 Operation

When mounting to the hopper and wiring are completed, check the action as follows.

(1) Turn the power supply to this instrument ON.

(2) Detector wing starts to revolve with no load.

Between terminals ① and ②: Conductive

Between terminals ② and ③: Open

(3) When the load is added to the detector wing, the wing stops rotating.

Between terminals ① and ②: Open

Between terminals ② and ③: Conductive

4.2 Action Explanation

When granule resistance is applied to the detector wing, the wing stops because the granule resistance keeps it from revolving.

Micro switch between terminals ② and ③ for internal load is conducted by the bar fixed on the motor.

When the granule resistive load is given, power supply for the motor is disconnected because the micro-switch for the motor operates.

When the granule level lowers, the detector wing is exposed, granule resistance does not work and the detector wing starts to revolve with the motor.

Micro switch between terminals ① and ② for internal load is conducted at this time.

5. Specifications

Name: Level switch
Model: LV-300
Torque: Detecting torque: 0.049 N•m (0.5 kg•cm) minimum (fixed)
Number of revolution: 1 min⁻¹ (60Hz)
Power supply voltage: 100 V, 110 V, 115 V, 200 V, 220/230 V, 240 V AC (Must be specified)
50/60 Hz
Allowable voltage fluctuation range: ±15% of the power supply voltage
Contact capacity: 3 A 250 V AC (resistive load)
Ambient temperature: 0 to 55°C
Detector length: 85, 100, 150, 200, 250 mm (Must be specified)
Mounting: Nut screwing (Mounting part thickness: Maximum 7 mm)
Material:

Case, Cover: Aluminum die-cast
Detector shaft: Stainless steel, ϕ 8.0 mm
Detector wing: Stainless steel, t1.5 mm

Lead wire: 5-core cabtyre cord, Length: 2 m

Weight (Including cabtyre cord 2 m):

Detector Length	85 mm	100 mm	150 mm	200 mm	250 mm
Weight	Approx. 645 g	Approx. 650 g	Approx. 670 g	Approx. 690 g	Approx. 710 g

Color: Case, Cover: 7.5BG4/2.5 (Munsell value)

Drip-proof/Dust-proof structure: IP66 (excluding parts from the Main unit mounting nut to detector wing)

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