
Instructions for Speed switch
ZAXDH-F-S-mA V1.0

ZAX TECH

Zax Technology Co., Ltd

1. Overviews

Through the real-time speed detection of the driven pulley of the belt conveyor, the speed switch can judge whether there is a belt slip fault, and send two-stage alarm signal in time according to the speed change, so as to avoid the loss and the expansion of the accident. This product adopts advanced ARM processor technology and embedded control principle, with stable performance, powerful function and high protection level.

2. Characteristic

2.1. Split design, flexible and convenient installation.

2.2. Four-bit LED digital tube constitutes a display, which shows the running state of the conveyor in real time.

2.3. Adopt programmable design, can set slip alarm point, alarm delay and other parameters according to customer requirements.

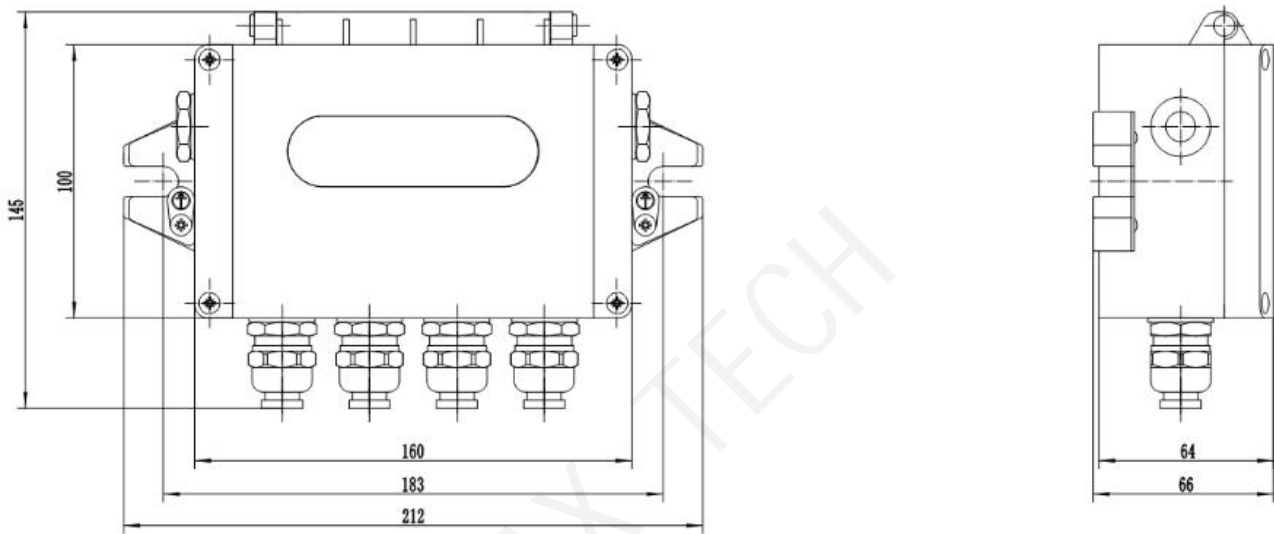
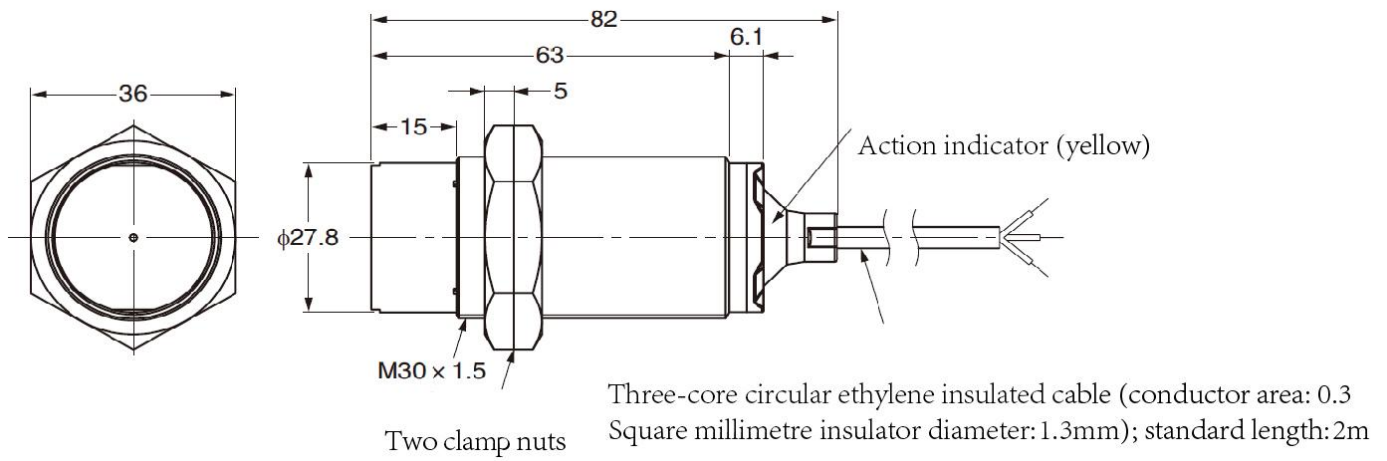
2.4. Advanced sensor technology, 20 mm long detection distance.

2.5. Non-contact, non-fragile components, long service life.

3. Parameter table

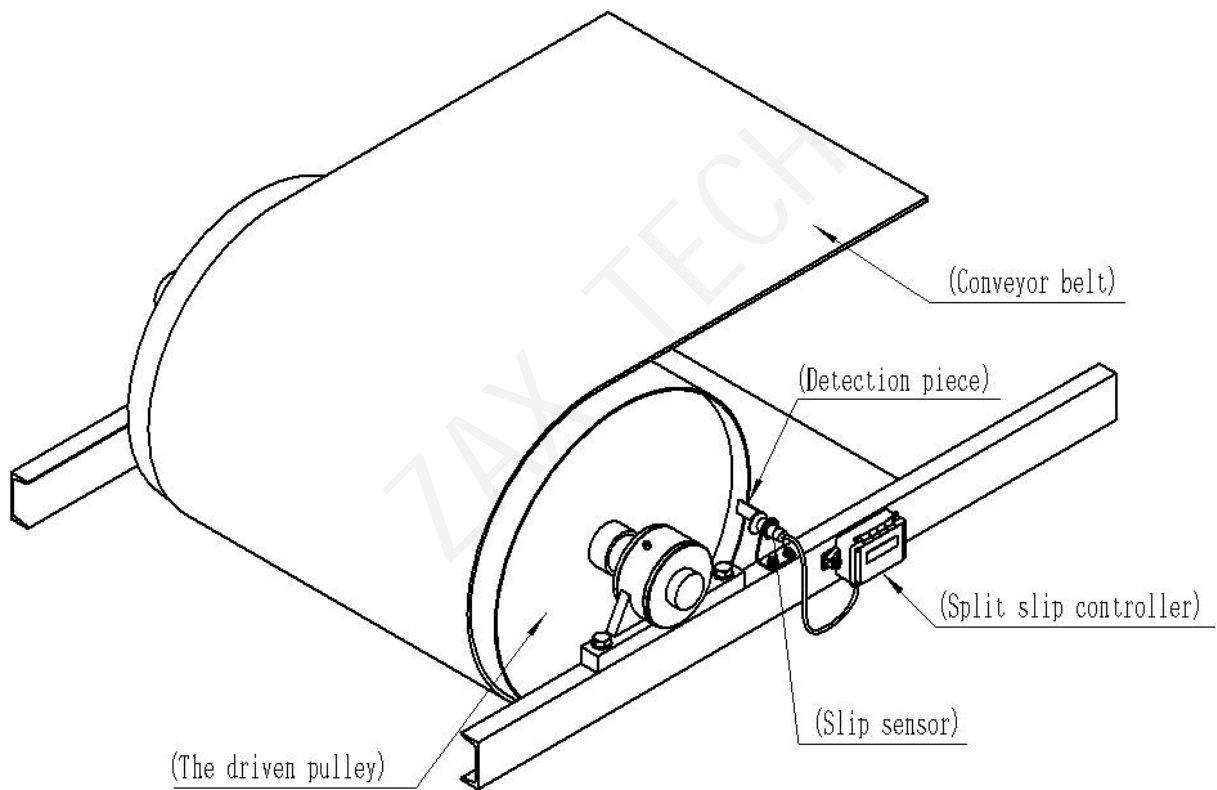
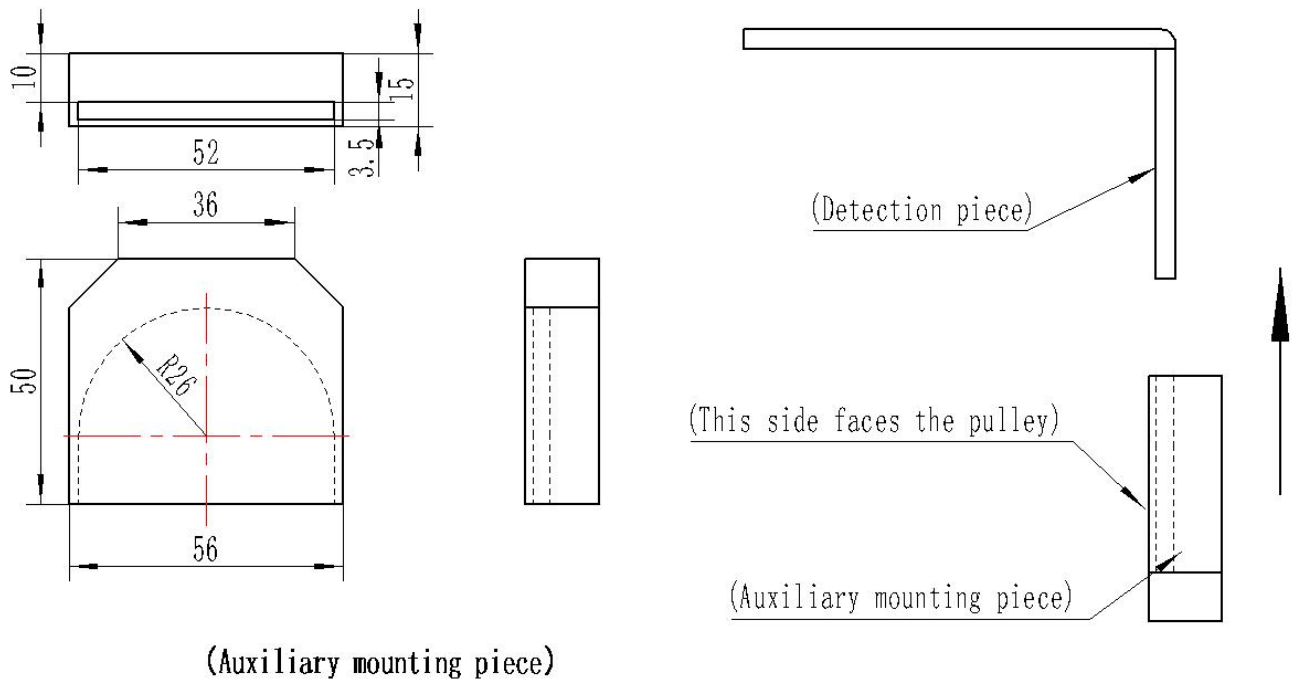
Ambient temperature	-40°C~50°C
Relative humidity	0~95%
Atmospheric pressure	80 kPa ~110kPa
Working voltage	AC220V 50/60HZ
Power consumption of the whole machine	15W
Output mode and quantity	2 × SPDT
Contact rating	AC250V 3A DC30V 3A
Analog output	4-20mA
Optimum detection distance of sensor head	10mm
Alarm threshold	Alarm1 : Speed reduced by 10% Alarm2 : Speed reduced by 50% <Adjust before order>
Start delay	0~99 S <Adjust before order>
Protection leve	IP67
Display mode	4-bit LED digital tube and indicator
Outlet nozzle diameter	12mm

4. Structure features and main dimensions



Appearance size chart(Units: mm)

5. Installation indication



Installation indication diagram

6. Installation instructions

6.1. WARNING :

6.1.1. Do not live operation.

6.1.2. This product is non-explosion-proof products, please do not use in inflammable and explosive environment.

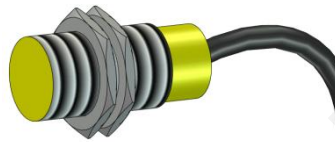
6.1.3. The grounding end of the shell must be grounded, otherwise the speed switch will not be protected against anti-thunder and anti-surge, and the service life will be reduced.

6.2. Prepare materials :

6.2.1. Mounting bracket



6.2.2. Slipping sensor



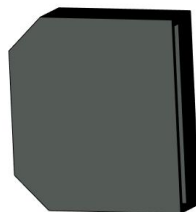
6.2.3. Fastener 2 sets (M10×35)



6.2.4. Detection piece



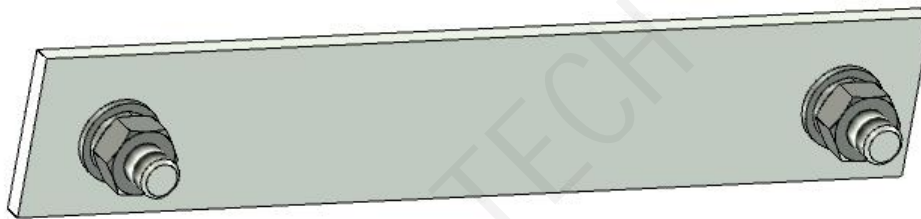
6.2.5. Auxiliary mounting piece



6.2.6. Split slip controller

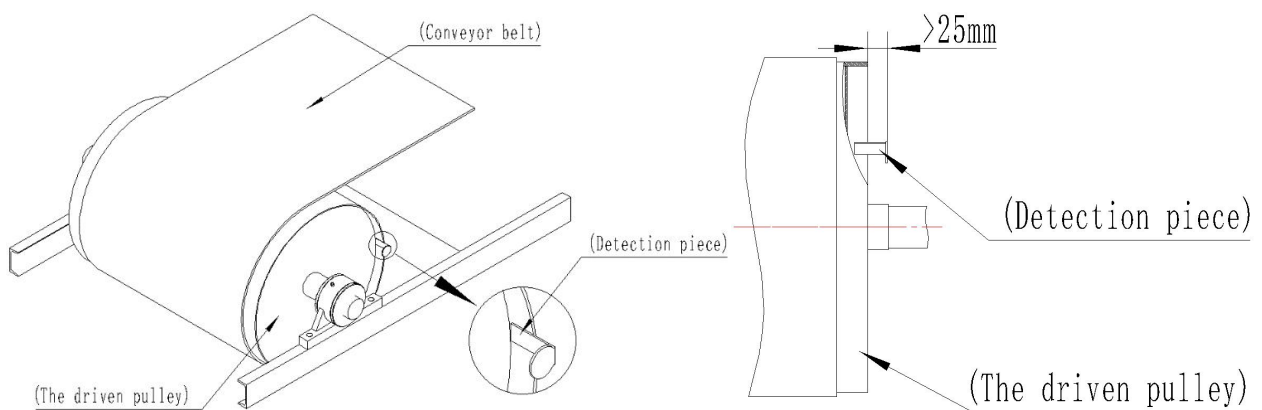


6.2.7. Controller mounting bracket

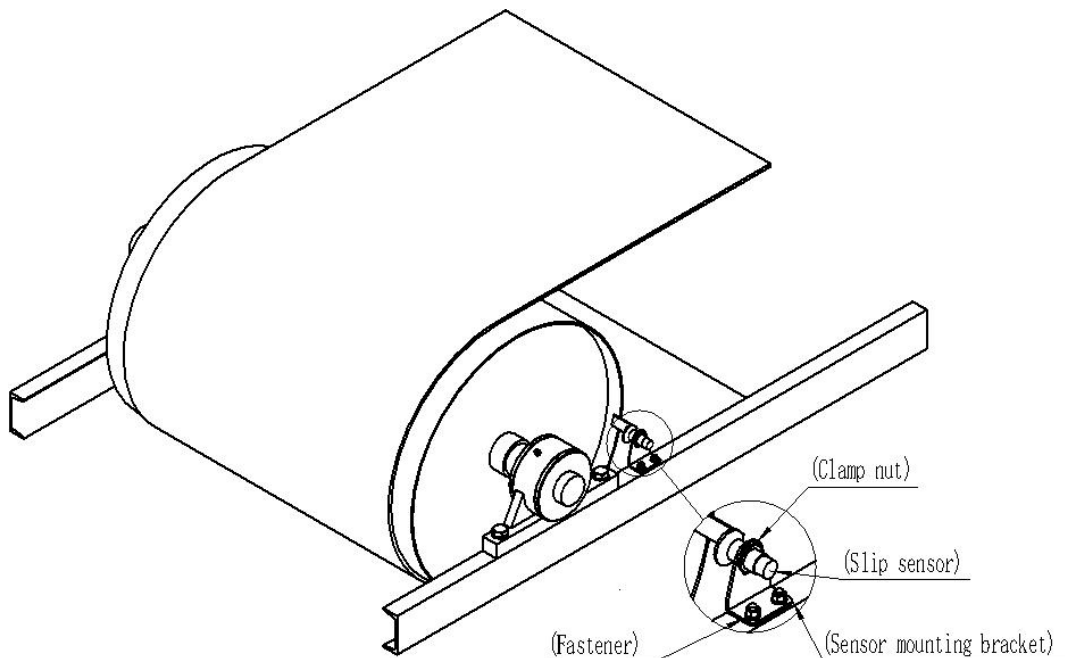


6.3. Installation steps :

6.3.1. Weld the detection piece on the driven pulley, the edge distance between the detection piece and the driven pulley should be greater than 25 mm.

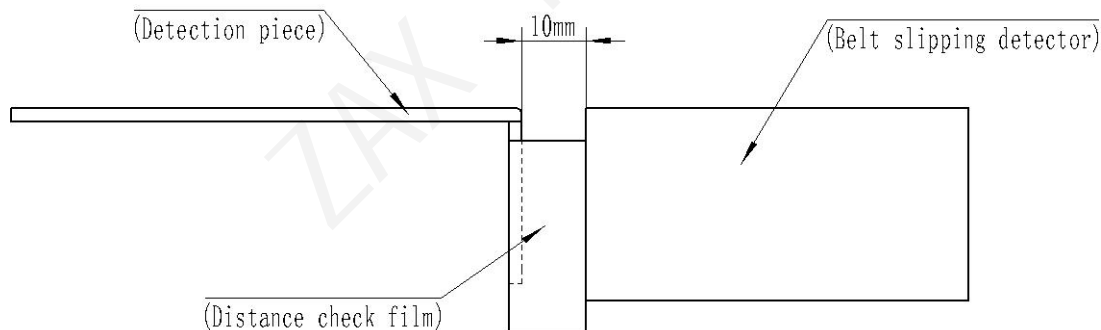


6.3.2. As shown in the figure, the slipping sensor is mounted on the conveyor frame and fixed with fastener.



6.3.3. Put the auxiliary mounting piece on the detection piece, adjust the position of the slipping sensor to make its sensing area fully fit the auxiliary mounting piece, and then fix the sensor with the fastener. Remove the auxiliary mounting piece after finish mounting, at this time, the optimal detection distance between the sensor sensing area and the detection piece is 10 mm.

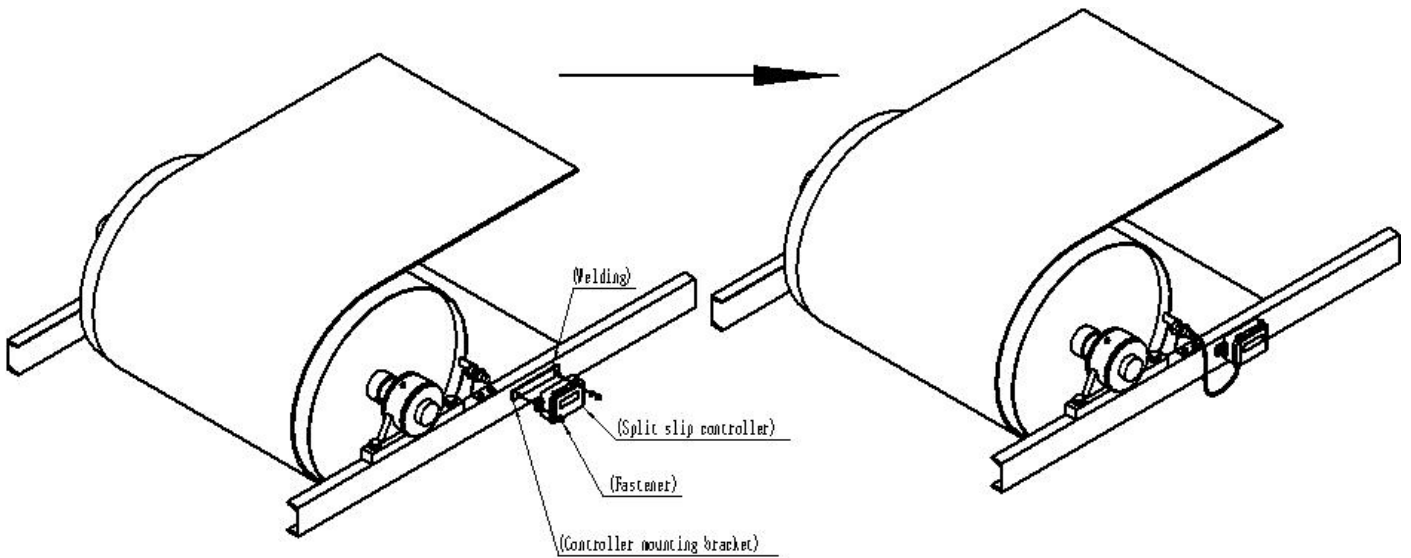
(Optimum detection distance 10 mm)



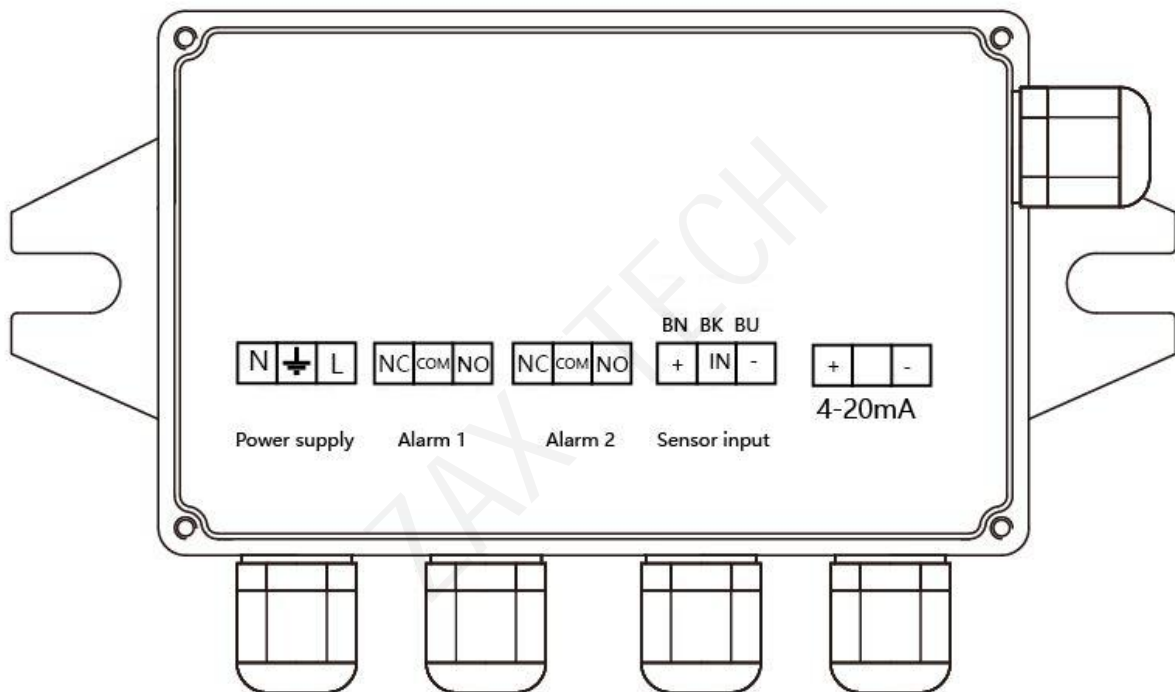
(Remove the "distance check film" after installation)

The sensor shall be mounted on the conveyor frame near the driven pulley. Each speed switch is equipped with a detection piece when it leaves the factory. It must be installed in the pulley detection position (the detection part can only be installed with one detection piece). The distance between the sensor and the detection piece should be maintained at about 10 mm to ensure the detection accuracy.

6.3.4. As shown in the figure, install the split slip controller on the conveyor frame and tighten it with fastener.



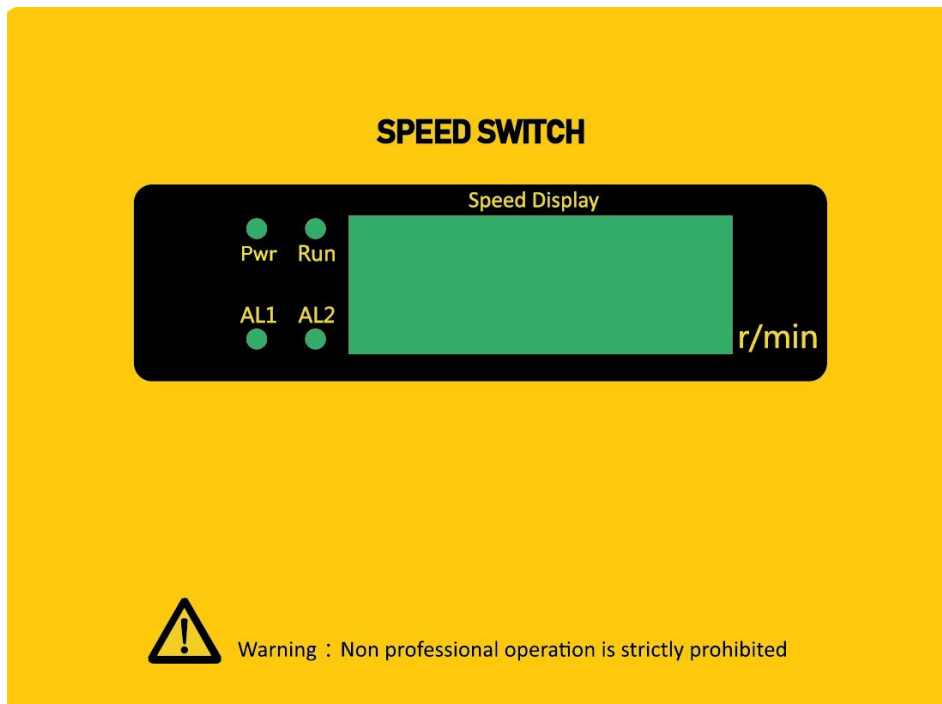
6.4. Wiring principle



Speed switch wiring diagram

The power terminal is connected with power input, the alarm 1 slips slight alarm, the alarm 2 slips serious, the sensor input terminal + connects brown, the terminal IN connects black, the terminal - connects blue. The 4-20mA analog signal represents the belt speed change, 4mA is the stop or slip alarm state, 12mA is the 100% belt speed running state, 20mA is the 200% belt speed running state.

6.5. Definition of indicator light



6.5.1. Pwr: power indication.

6.5.2. Run: When the pulley rotates, the indicator lights flicker. The flickering speed is related to the pulley speed. Always on or off, the machine stops or the distance between the sensor head and the detection piece is too large.

6.5.3. AL1: Alarm 1 alarm indication.

6.5.4. AL 2: Alarm 2 alarm indication.

7. Working principle

Using the principle that the running speed of the driven pulley is the same as the conveyor belt detect the speed of the driven pulley. A detection piece is installed on the inner face of the driven pulley. The detector detects the rotational speed of the pulley. When there is a slip between the conveyor belt and the pulley, the rotational speed falls below the alarm point. The device sends out a switch signal and the user can using this signal as an alarm or interlocking signal, the upper conveyor or discharge outlet can stop feeding to this conveyor.

Speed switch workflow: It starts to judge whether the conveyor belt is running after the power is switched on; If the conveyor belt does not operate, alarm 1 and 2 relays will output alarm signals about 15 seconds after it power on, and at the same time, the indicator light of alarm 1 and 2 will flicker. The conveyor belt is in normal operation If it is switched on, It will start automatic learning standard speed of conveyor belt after the start delay (default 10 seconds), holding time at this stage approximately 30 seconds (actual use time is related with conveyor belt running speed, the faster the speed, the shorter the time), after the standard speed learning is completed it will be stored, digital tube displays real-time speed (R/M), then it starts detect the conveyor belt running speed in real-time, and real-time measurement results compared with the standard speed, when the running speed of the conveyor is drops by 10% than the standard value, alarm 1 relay will act, and the indicator light of alarm 1 will be on; when the running speed is drops by 50% than the standard value, alarm 2 relay will act, and the indicator light of alarm 2 will be on. When the conveyor

belt starts again, the speed switch detects the conveyor belt running, alarm 1 and alarm 2 relays reset simultaneously, and the alarm 1 indicator light and alarm 2 indicator light go out.

8. Maintain

- 8.1. Check the distance between sensor and detection piece regularly;
- 8.2. Check whether the detector mounting bracket is firm and reliable.

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