

SW-21 Compact Magnetic Switch



Magnetic Level Indicator

Flap-11 Magnetic Level Indicator series products are designed based on law of equilibrium in U connected vessels and magnetic coupling effect to achieve real-time level measurements and display. As the liquid level in the vessel varies up or down, the magnetic float in the connected chamber rises or falls with it. Because of the magnetic coupling effect, the float with a permanent magnet actuates the magnetic interacted flaps in the display panel which is mounted beside the chamber. The associated flaps will flip 180 degree to indicate the liquid level. The front and back surface of flaps are coated with two colors respectively (usually red and white). Generally when the liquid level in the vessel rises, the float moves up and makes the associated magnetic flaps flip from white to red, and when the liquid level in the vessel drops, the associated magnetic flaps will be flipped from red to white. The interface between the red and the white flaps is the actual indicated liquid level in the vessel. Appropriate materials should be selected carefully for the chamber and the float according to the chemical properties of the measured medium. In addition, the weight, volume and structure of the float have to be put into consideration according to the density of measured liquid in order to achieve the best accuracy of the measurement.

Jiwei Flap-11 Magnetic Level Indicator series products possess the features and strength of the similar products in the market. But on top of that, we have carried out extensive study on common problems of existing products in the market, and developed innovative techniques in design and production process to overcome the problems. We have been focusing on details of the manufacturing technologies, strict control of the production flow and quality inspection to ensure our products reach the highest level possible on quality and reliability. Jiwei has applied for 7 patents (invention patents and utility patents) on Flap-11, of which 5 have been authorized and 2 are under approval.

For Flap-11 series products, the base of the indicator is made of aluminum alloy for high temperature; Front protective cover is made of glass panel or acrylic sheet; The end fittings and glass sealing process for the indicator are unique designed; The ingress protection rating of the products exceeds national standard IP54 and higher level IP65 or IP66/IP67 are achieved and selectable for various applications. And the innovative designed magnetic coupling system between the float and flaps greatly improves the reliability of the magnetic coupling system and avoids some flaps being mistakenly flipped and causing false reading.

F4 (PTFE)/F46 (FEP) lined chamber is available for Flap-11 Magnetic Level Indicator series product. It is manufactured in special developed lining technologies with multiple patents. F4 (PTFE) lined chamber meets the requirements of majority of level measurement applications for strong corrosive liquids with poor permeability and F46 (FEP) lined chamber is suitable for strong corrosive liquids with good permeability, such as liquid chlorine or bromine water.

Compared with the similar products of other brands in the market, Our Flap-11 Magnetic Level Indicator series products have the following advantages:

- Distinctive design with broader display panel and magnetic flaps greatly increases the visual distance and viewing angle of the instrument. With larger sharp scale and digits, display panel

appears beautiful and elegant outlook.

- Exceeds national standard IP54, higher Level of Ingress Protection IP65 and IP66/67 are selectable for different applications.
- Explosion proof approvals for Flameproof Enclosure and Intrinsic Safety, including SW-11Magnetic Switch, SW-21 Compact Magnetic Switch and Reed-11 Remote Transmitters.
- Optional F4 (PTFE)/F46 (FEP) lined chamber manufactured with multiple patented technologies suits for wider range of corrosive liquid level measurement.
- With accessories such as steam / vacuum jacket, electric heater, thermal insulator for applications under various complex working conditions.



Flap-11 series products have four models for measuring various liquids with different chemical properties:

Flap-11S Economical: 304 stainless steel materials are used to make it practical and economical. It meets requirements for majority of industrial conditions and can be applied for mild corrosive liquids level measurement.

Flap-11A Standard: 316L stainless steel is used, with stronger corrosion resistance, suitable for majority of weak corrosive liquids.

Flap-11P Lined model: The chamber is made of 304/316L stainless steel with F4/F46 lining, suitable for strong corrosive liquids.

Flap-11C Plastic: The chamber is made of plastic PP. It is suitable for low pressure strong corrosive liquids.

Meanwhile, Jiwei also developed SW-11 Magnetic Switch, SW-21 Compact Magnetic Switch, and Reed-11 Remote Transmitter to use with Flap-11 Magnetic Level Indicator. Panel-11 Indicator,

Magnetic switch or Remote transmitter combined with Flap-11 magnetic level indicator series products can fulfill automatic remote level control.

SW-11 Magnetic Switch: Purchased high quality high power reed switch in international market as its core component, the external housing is fully made of aluminum alloy.

SW-21 Compact Magnetic Switch: Purchased high quality high power reed switch in international market as its core component; designed with a lightweight compact structure and a skillful layout, only 35mm in width and 120mm in length.

Reed-11 Remote Transmitter: High quality microprocessor in international market is purchased as its core component. 304 stainless steel is used for the external tube to improve the corrosion resistance and reliability of the product.

Panel-11 Indicator : The base of the Indicator is made of aluminum alloy profile. We offer different types of indicator which designed with different level of Ingress Protections as IP65 and IP66/67 for different applications. Compared with those in the market, our display panel in Panel-11 is designed with broader width which greatly increases the visual distance and viewing angle of the product. With larger sharp scale and digits, the indicator appears beautiful and elegant outlook. Furthermore, the innovative design of the magnetic coupling structure between the magnetic flaps and the magnetic float greatly improves the reliability of the indicator.

Among the above accessories, SW-11 Magnetic Switch, SW-21 Compact Magnetic Switch and Reed-11 Remote Transmitter are all certified for the highest level of explosion protection achieved so far in the field, including Flameproof Enclosure: Ex d IIC T6 Gb and Intrinsic Safety: Ex ia IIC T6 Ga.

SW-21 Compact Magnetic Switch

Overview

The compact and lightweight are the most prominent features of SW-21 Compact Magnetic Switch (with 35mm in width and 120mm in length). SW-21 has been approved for dual explosion-proof certifications (Flameproof Enclosure: Ex d IIC T6 and Intrinsic safety: Ex ia IIC T6). And high quality high-power reed switch is used as its core component. Jiwei holds a utility patent (NO. 201821348285.8) on SW-21. SW-21 is used with Flap-11 Magnetic Level Indicator for remote alarm as well. The magnetic float in the chamber rises or falls with the up and down of the liquid level in the vessel. When the magnetic float approaches the magnetic switch, the permanent magnetic steel in the magnetic float triggers the reed switch in SW-21 to change its open/close status. The state of the reed is locked by the internal magnetic mechanism to fulfill the alarm function.



SW-21 Compact Magnetic Switch is designed with a single-pole double-throw (SPDT) reed switch. It supports three types of output: (1)SPDT closed or open, (2)initial open and closed hold and (3)initial closed and open hold for overflow or dry-run alarm and protection

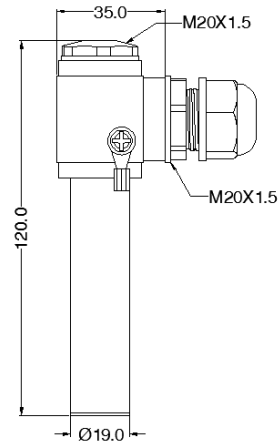
Features

- Skillful configuration, compact and lightweight with delicate appearance
- Purchased high quality high-power reed switches with higher current rating and longer service time in international market.
- The chamber is made of 304 stainless steel to provide corrosion resistance and durability.
- Approved for explosion proof certifications, including Flameproof Enclosure (Ex d IIC T6) and Intrinsic Safety (Ex ia IIC T6).
- With high Ingress protection level: IP66/67

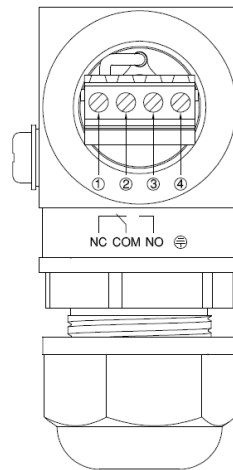
Technical data

Output	Switch signal (lockable)
Power supply	220VAC, 1.0/2.0A
	24VDC, 1.5/2.5A
Switching capacity	60VA
Process temperature	-50°C ~ 150°C
Ambient temperature	-40 ~ 70 °C
Explosion-proof	Flameproof Enclosure: Ex d IIC T6
	Intrinsic safety: Ex ia IIC T6
Ingress Protection rating	IP66/67
Cable entry	M20x1.5

Dimensional drawings



Wiring plan



- ① close ② com ③ open ④ ground

Order information

SW-21



- 1: SPDT, N.C. or N.O., selectable
(only Flameproof Enclosure explosion protection available)
2: Initial open, closed (Hold)
3: Initial closed, open (Hold)

- N:None explosion hazard
D:Flameproof Enclosure (Ex d IIC T6)
I:Intrinsic Safety (Ex ia IIC T6)