

Proximity Switch (DC 3-wire)

Model FL2-4_ / FL2-7_ / FL2-12_ / FL2-20_

User's Manual

Thank you for purchasing this product.

This manual contains information for ensuring the safe and correct use of the product. Those designing or maintaining equipment that uses this product should first read and understand this manual.

Be sure to keep it nearby for handy reference.

Please read the "Terms and Conditions" from the following URL before ordering or use:

<https://www.azbil.com/products/factory/order.html>

NOTICE

Please make sure that this manual is available to the user of the product.

Unauthorized duplication of this user's manual in part or in whole is forbidden. The information and specifications in this manual are subject to change without notice.

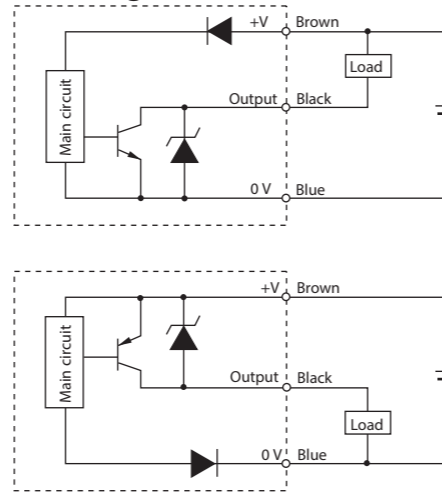
Considerable effort has been made to ensure that this manual is complete and accurate, but if you should find an omission or error, please contact us.

In no event is Azbil Corporation liable to anyone for any indirect, special, or consequential damages as a result of using this product.

Specifications

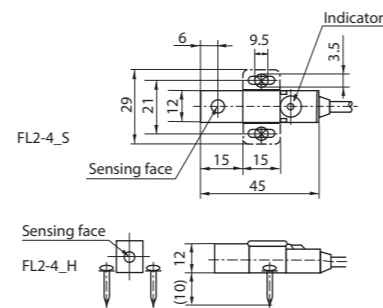
Model number	FL2-4_	FL2-7_	FL2-12_	FL2-20_
Sensing distance	4 mm	7 mm	12 mm	20 mm
Setting distance	0 to 2.8 mm	0 to 4.9 mm	0 to 8.4 mm	0 to 14 mm
Standard target	SPCC 18 x 18 x 1	SPCC 25 x 25 x 1	SPCC 40 x 40 x 1	SPCC 50 x 50 x 1
Hysteresis	10% max. of the sensing distance			
Supply voltage	10 to 30 V DC			
Leakage current	15 mA or less			
Output	Load current: 200 mA or less Saturation Voltage: 1 V or less			
Switching frequency	200 Hz	300 Hz	50 Hz	
Indicator	Red LED			
Ambient temperature range	-25 to +70 °C			
Insulation resistance	50 MΩ or more (at 500 V DC)			
Dielectric strength	500 V AC 1 min.			
Protective structure	IP67 (IEC Standard)			

Circuit and wiring

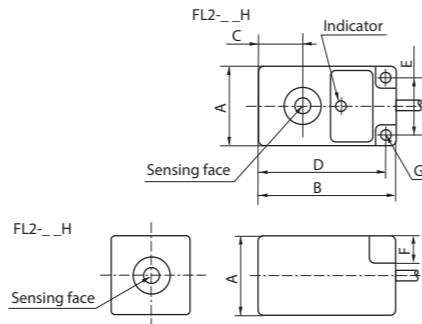


Dimensions

● FL2-4_



● FL2-4_Q, FL2-7_, FL2-12_, FL2-20_



Model number	A	B	C	D	E	F	G
FL2-4_	15	32	6	24.5	10	4.5	3.2x3.6
FL2-7_	20	38	10	34.5	13.5	7	ø4.2
FL2-12_	30	52.5	15	49	22	9	ø4.2
FL2-20_	40	53	20	47	30	11	ø5.2

Unit: mm

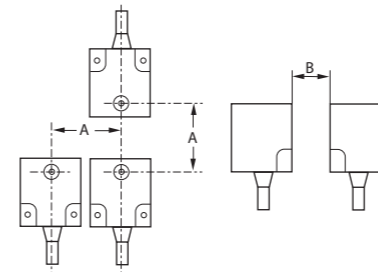
Mutual Interference

Erroneous operation due to mutual interference is caused when the switches are installed in parallel or facing each other. Separate the switches by at least the distance specified in the table below.

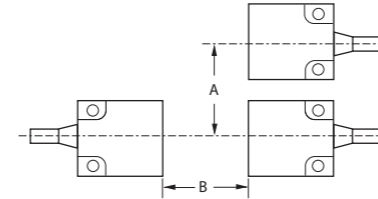
When using a standard and a different-frequency type one by one, the distance of A and B can be reduced to a half of the value of the table.

Model number	A (mm)	B (mm)
FL2-4_	30	40
FL2-7_	80	80
FL2-12_	200	200
FL2-20_	300	300

● FL2-_S



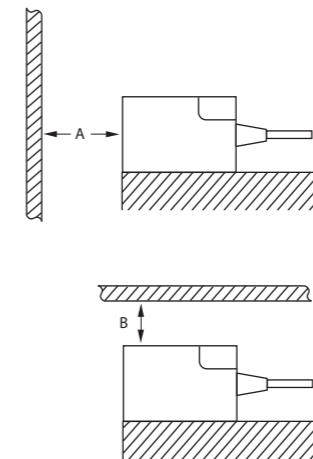
● FL2-_H



Influence from Nearby Metal Objects

If a metal object other than the workpiece is located nearby, this switch's sensing distance characteristics will change. Keep the minimum distances between the switch and metal objects shown in the table below.

Model number	A (mm)	B (mm)
FL2-4_H	20	10
FL2-4_S	10	20
FL2-7_H	30	15
FL2-7_S	15	30
FL2-12_H	50	25
FL2-12_S	25	50
FL2-20_H	80	40
FL2-20_S	40	80



Handling Precautions

- Do not pull the cord at excessive force. The acceptable pulling force is 100 N between the case and the cord. (80 N for φ4 cord)
- Do not hit nor rub the switch.
- Do not use the switch outdoors, or at such place where it is splashed with water and oil, or it is surrounded by chemicals (solvent, acid, alkali, etc.).
- If bending the cord, keep R=30 mm at least.
- Keep the other end of the cord from wetting with water or oil, or it may cause penetration and switch failure.

Wiring Precautions

- Route the wires of the switch separately from power lines or through an exclusive conduit. (Otherwise, the electrical noise or surge may cause a wrong operation or damage.)
- If the extension of the cord is necessary, use a 0.3 mm² minimum cord of 100 m maximum length.
- When using a commercially available switching regulator, ground the FG (Frame Ground) and G (Ground) terminals. Otherwise, the switching noise may cause a wrong operation.
- When using a load to generate a transient current, connect a currentlimit resistor between the load and the output terminal. (Otherwise, the short-circuit protection may function.)