Please read “Terms and Conditions” from the following URL before ordering and use.

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

Azbil Corporation
Advanced Automation Company

Yamatake Corporation changed its name to Azbil Corporation on April 1, 2012.

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URL: https://www.azbil.com

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azbil

Environment-Resistant Switches

Excellent performance in harsh metalworking environments

Photoelectric switches | **Proximity switches** | **Limit switches**

**Highly penetrating water-soluble coolants have serious effects on the resin and rubber materials used in many kinds of switches.
Cracking of resin materials and cracking of rubber materials due to swelling or hardening, together with corrosion and breaking of springs, all of which normally occur due to deterioration with age, are increasingly occurring in a shorter period of time, necessitating early product replacement.
Azbil offers various switches equipped with countermeasures against highly penetrating water-soluble coolants.**

Coolant immersion test (500-hour accelerated product life test)

Oil type	JIS classification	Oil name	Model H2B	Model FL7M-_____C
Water-soluble cutting fluid (emulsion)	A1 No.1 equivalent	EC50-T3	Pass	Pass
Water-soluble cutting fluid (soluble/synthetic)	A2 No.1 equivalent	PFS760	Pass	Pass

Anti-Coolant Countermeasures

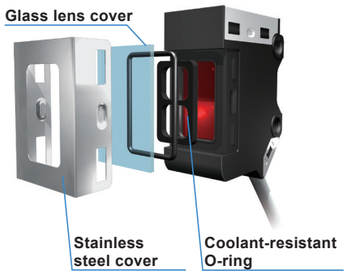
Photoelectric switches

Problems ▶ Mist coolants are often used near photoelectric sensors. Since most sensors are made of resin, coolant intrusion through cracks in the case or lens, attenuation of light intensity, and similar problems occur after a short period of time, and the number of such cases is increasing.

Structural reinforcement to resist coolants

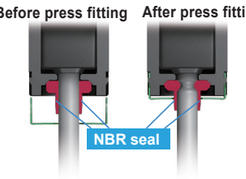
Protection for switch housing

Protection for optical parts

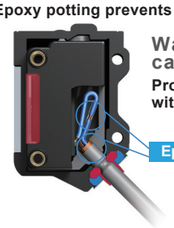


Protection for cable interior

Cable port
High sealing performance by press-fit NBR seal



Cable interior
Epoxy potting prevents water intrusion



Water intrusion via cable relay terminal
Products can be used with 10 m cable

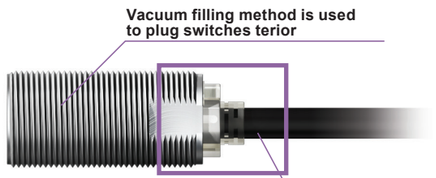
Model H2B environment-resistant photoelectric switches

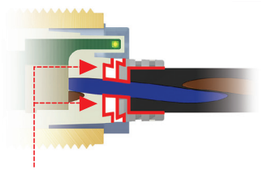
- No more need to worry about cracked cases or attenuation of light due to lens fogging
- High sealing performance ensures normal operation even after 500-hour immersion heat cycle test

Proximity switches

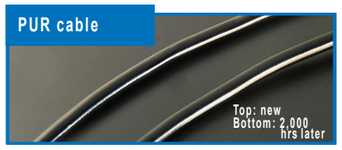
Problems ▶
- Disconnection following cable deterioration and hardening
- Cable failure, etc. caused by coolant penetration

The number of problems occurring after a short period of time is increasing.





General-purpose oil-resistant cable



Withstands coolant attack!

The cable is securely bonded to the molded material at the end of the cable and to the filler material (indicated by red lines). This is very effective in preventing any coolant that has penetrated the cable from reaching the main circuit board.

Model FL7M-_ _ _ _ _C environment-resistant proximity switches

- Greatly enhanced sealing performance through elimination of cable deterioration caused by water-soluble coolants
- Resistance to cable hardening has been significantly improved
- Passes coolant immersion test (500 hours at 70 °C)

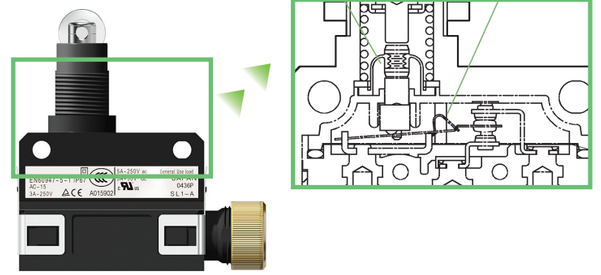
Limit switches

Problems ▶
- Internal plunger cup seal deteriorates, causing insulation failure
- Springs break due to corrosion, causing faulty operation

The number of problems occurring after a short period of time is increasing.

Integrally molded seal (pin/rubber)
Structure that does not easily crack during sliding
Coolant is shut out

Cobalt alloy C springs resist corrosion

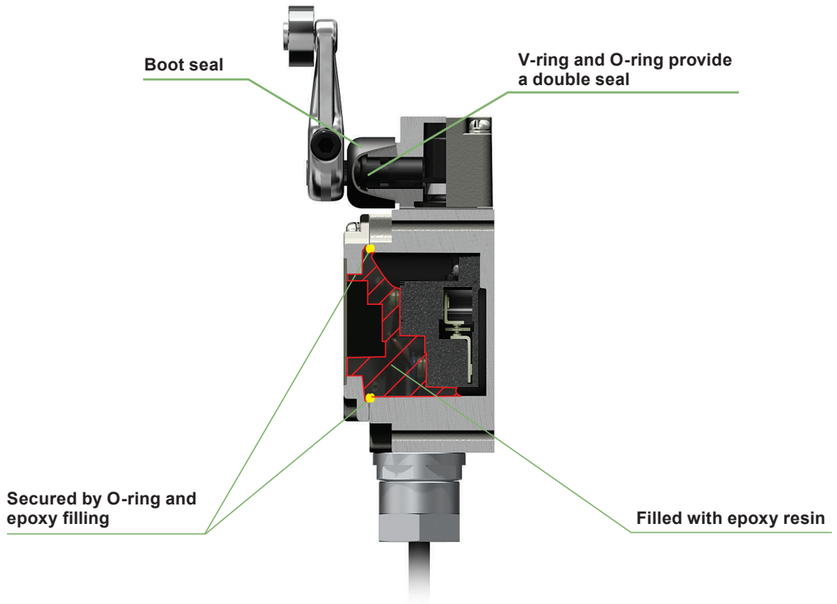


Various types are available

Model	Actuator type
SL1-AC	Roller plunger
SL1-BC	Boot seal roller plunger
SL1-DC	Cross roller plunger
SL1-EC	Long roller plunger
SL1-HC	Plunger
SL1-PC	Short roller lever

Model SL1-_C senvironment-resistant limit switch

- New cup seal shape remedies problem of cracking followed by insulation deterioration
- Cobalt alloy C springs resist corrosion by coolant



Model 1LS-J_ _ _-MD03 environment-resistant limit switch

- V-ring and O-ring between the head and shaft provide a double seal
- The internal switch terminals, the cable core, and the conduit section are filled with epoxy resin after the connector is tightened
- The joint between the housing and cover is sealed by O-ring and epoxy resin filling