

Hall Effect Proximity Switch CYKP8-02CL0

A Hall Effect proximity switch is a non-contact electronic switch, which consist of a permanent magnet or ferromagnetic part as trigger intermediary and a Hall Effect sensor IC. The Hall sensor IC detects the change of the magnet field when the permanent magnet comes in the close proximity to it and generates an electric signal. This signal is amplified and rectified to control the output signal of the switch.

Compared with magneto-electric, optoelectronic and capacitive proximity switches, Hall proximity switches have the advantages of good output wave shape, high stability, low costs, unaffected by oil, dirt and vibration, and wide operating temperature etc. They are very suitable for integrating in PC systems and various kinds of industrial control equipments, and are optimal switches for position control, speed measurement, counting, direction detection and automatic protection etc.

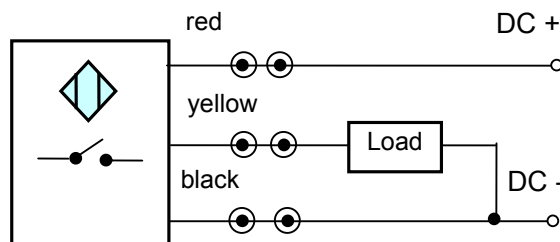
General Properties

| | | | |
|-------------------------|-------------------------|-------------------------|----------------------|
| Ambient temperature: | -25°C ~ +125°C | Ambient humidity: | 35%~95% |
| Max. supply current: | ≤ 25mA | Reverse supply voltage: | ≤ -35V |
| Frequency range: | 0~50KHz | Position repeatability: | 0.02mm |
| Overcurrent indication: | Red LED | Sensing object: | Magnet S-pole |
| Max. output current: | 20mA | Power supply: | 4.5 – 24V |
| Max. sensing distance: | 8mm | Max. voltage drop: | 0.4V |
| Output type | OC, PNP, open single | Case material: | Brass, chrome plated |
| Isolation voltage: | AC 1500V, 50/60Hz, 1min | Cylinder with Screw | M8 x0.75 |

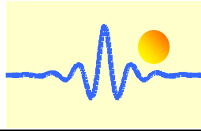
OC: Output transistor without any inner connected resistor. An outer resistor must be connected to the output for applications.

| Operation Point (Gauss) | | | Release Point (Gauss) | | | Hysteresis (Gauss) | | |
|-------------------------|------|-----|-----------------------|------|-----|--------------------|------|-----|
| Min | typ. | Max | Min | typ. | Max | Min | typ. | Max |
| 70 | 200 | 350 | 50 | 140 | 330 | 20 | 60 | 80 |

Connection



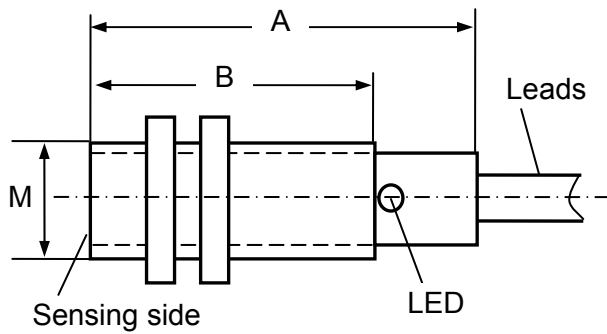
R: Pull-up resistor, 1k ~ 10k, normally 2k~3k



Mounting Dimensions

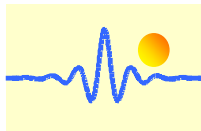


| Diameter | Screw pitch | Length | Length of leads |
|----------|-------------|--------|-----------------|
| M8 | 0.75 | 20mm | 650mm |



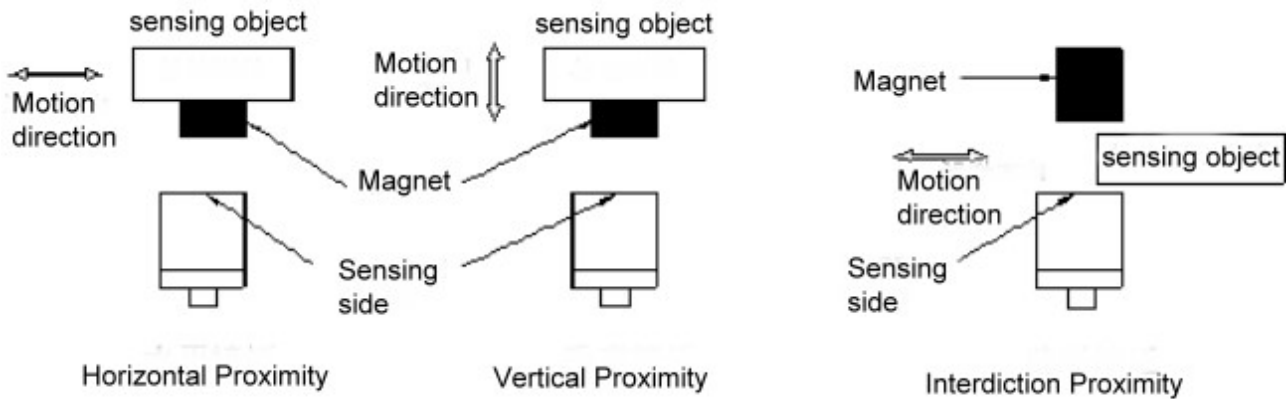
| | |
|------------|-----------|
| Case Style | L0 |
| A (mm) | 20 |
| B (mm) | 15 |
| M (mm) | M8 x 0.75 |





Application Notes

1) Application Methods



2) Magnets

The magnets can be selected according to the maximum sensing distance. The following table show some standard NdFeB and SmCo magnets for the applications.

SmCo Magnets (maximum working temperature: 250°C – 350°C)

| Type | Dimensions | Type | Dimensions | Type | Dimensions | Type | Dimensions |
|------|-------------|------|-------------|-------|------------|-------|------------|
| B1-S | 4×3.3×(1.5) | B4-S | 4.5×4.5×(4) | D8-S | Φ8×(3.5) | D15-S | Φ15×(6) |
| B2-S | 5×4×(2.2) | D3-S | Φ3×(5) | D10-S | Φ10×(6) | D18-S | Φ18×(8) |
| B3-S | 5×5×(2.5) | D6-S | Φ6×(3.5) | D12-S | Φ12×(4) | | |

NdFeB Magnets (maximum working temperature: 80°C – 200°C)

| Type | Dimensions | Type | Dimensions | Type | Dimensions | Type | Dimensions |
|------|-------------|------|-------------|-------|------------|-------|------------|
| B1-N | 4×3.3×(1.5) | B4-N | 4.5×4.5×(4) | D8-N | Φ8×(3.5) | D15-N | Φ15×(6) |
| B2-N | 5×4×(2.2) | D3-N | Φ3×(5) | D10-N | Φ10×(6) | D18-N | Φ18×(8) |
| B3-N | 5×5×(2.5) | D6-N | Φ6×(3.5) | D12-N | Φ12×(4) | | |

Magnetization direction: in height direction (dimension in bracket)

Maximum sensing distance of magnets (T=25°C)

| Magnet type (N or S) | B1 | B2 | B3 | B4 | D3 | D6 | D8 | D10 | D12 | D15 | D18 |
|-----------------------|-----|-----|-----|-----|-----|-----|-----|------|------|------|------|
| Sensing distance (mm) | 3.0 | 4.0 | 5.0 | 6.0 | 3.0 | 7.0 | 9.0 | 12.0 | 12.0 | 16.0 | 20.0 |

For further info visit please website: <http://www.cy-magnetics.com>