Precautions

1. It is absolutely not allowed to be used in the atmosphere with explosive gas as it has no anti-explosion structure.
2. It is not allowed to be used in the situation with magnetism, otherwise it will cause wrong action of the switch or reduce the magnetism of the magnet ring in side of the cylinder.
3. Not be used in the environment that is always eroded by water.
4. Not be used in the environment that has coolant, detergent, oil or chemicals.
5. Never use in the environment that temperature changes in circle. Or it will has bad influence on the inner part of the switch.
7. Overvoltage absorbing components shall be inserted in the situation that direct drive relay and electromagnetic value occurs overvoltage load.
8. If a relay is used as a switch for power supply, an additional capacitance should be connected between V+ and ground so as to suppress inrush current. (The capacitance is recommended to be greater than 100 μF under 50 Volt.)

Specifications

<table>
<thead>
<tr>
<th>Model</th>
<th>Two Wire</th>
<th>NPN</th>
<th>PNP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voltage</td>
<td>10~28V DC</td>
<td>5~30V DC</td>
<td></td>
</tr>
<tr>
<td>Operating temperature</td>
<td>-10~70℃</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Output</td>
<td>2.5~100mA</td>
<td>30V/200mA Max.</td>
<td></td>
</tr>
<tr>
<td>Contact capacity</td>
<td>2.8W Max.</td>
<td>6.0W Max.</td>
<td></td>
</tr>
<tr>
<td>Inner current consumption</td>
<td>3mA Max.</td>
<td>5mA Max.</td>
<td></td>
</tr>
<tr>
<td>Inner drop voltage</td>
<td>2.7V Max.</td>
<td>0.7V Max.</td>
<td></td>
</tr>
<tr>
<td>Leakage current</td>
<td>0.05mA Max.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Switching frequency</td>
<td>1000Hz</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Circuit protection</td>
<td>Reverse polarity protection, surge protection</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Store temperature range</td>
<td>-20~80℃</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Enclosure rating</td>
<td>IP65</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Ordering code

DMS □ □ □

Model of sensor switch
G : G type
H : H type
E : E type

Output&Model
Blank : General type of 2-wire
N : Waterproof type of NPN 3-wire
P : Waterproof type of PNP 3-wire

Connecting way
020 : length of wire is 2m
030 : length of wire is 3m
050 : length of wire is 5m

How to correctly select switch

1. Confirmation of specification
   Load current, voltage, temperature and impact performance beyond the scope of specification in product sample are not allowed to used to avoid poor action or damage of magnetic switch.

2. Confirmation of distance
   The distance between two cylinders shall be longer than 40mm to prevent wrong action caused by magnetic interfere between two magnetic switches when the cylinders with magnet are horizontally used.

3. Confirmation of action speed of the cylinder
   Magnetic switch is set in the middle position of the stroke. What shall be noticed is that may be nodrive load action exists if the speed of piston is too fast and the action duration of magnetic switch becomes shorter under the situation the load is driven by electrical signal sent by magnetic switch when piston passes through. If the speed of piston is higher than the maximum allowable speed, magnetic switch with time-extending function shall be selected.

4. Confirmation of the length of wiring
   Magnetic switch with no contact
   The wiring which has no effect on the function shall be within 100m.

5. Confirmation of internal voltage drop of magnetic switch
   Magnetic switch with no contact
   The internal voltage drop of linear magnetic switch with no contact is generally larger than that of magnetic switch with contact. When switches are connected in series, as there is internal resistance in LED, pay attention to the raising of voltage drop when n switches are connected in series, the voltage drop is n time of the voltage of one switch. If the switch is used under the specified voltage, all magnetic switches can work normally, but load may not act. What must be affirmed is that the load voltage shall be above the lowest operating voltage, which shall meet the following formula: internal voltage drop of power voltage switch + loaded lowest operating voltage.
**Attention**

1. Notice of the leaked current
   - Magnetic switch with contact
     When all linear magnetic switches with no contact are disconnected, if the leaked current of internal circuit action passes through load, the requests are load action current (cut current inputted into controller) / leaked current. If the request is not met, the switch will always stay in power supply situation and can not be cut off. In this situation, any three-line switch shall be used. When N switches parallel, the leaked current of signal switch.

2. Never directly use the load produced by overvoltage
   - Magnetic switch with no contact
     Though there is a zener diode that is used for protection of overvoltage in the output part of magnetic switch with no contact the repeated effect of pulse voltage may damage components. Overvoltage absorbing components (ex: diode in output part of magnetic switch with no contact, the repeated effect of pulse voltage may damage components. Overvoltage absorbing components (ex: diode) shall be inserted in the situation that direct drive relay and electromagnetic value occurs overvoltage load.

3. Situation that uses interlock circuit
   - Machinery type protection function is set to prevent faults. Machinery signal is turned into switch signal through sensors which are used together with magnetic switch signal and forms dual interlock mode, whose credibility is higher.
   - Maintenance and examination shall be carried out termly to make sure the switch signal and forms dual interlock mode, whose credibility is higher.

**Wiring of sensor switch**

1. Wire cannot bear the repeated bend force and stretching force to prevent breakage.
2. Make sure that the power is supplied after connecting the load for two-line type switch, the current will burn the switch instantly when the power is supplied if the load is not connected.
3. No poor insulation (joint with other circuit, poor earthing and terminal connection) in wire is allowed to prevent the damage to switch caused by current passing through the switch.
4. It is not allowed to make a wiring with a parallel power line and high voltage line or use one wiring pipe to prevent wrong action of the magnetic switch caused by interference of control circuit.
5. Short circuit is not allowed in the load of the switch.
6. Please notice that never make a wrong wiring
   - Magnetic switch with no contact
     For three-line switch, there is protection for circuit once the power is reversely connected (that is “+” and “-” of the power is mutually replaced). When “+” is connected with blue line and “-” is connected with black line, the switch will be damaged.

**Maintenance and service of sensor switch**

Regularly maintain and examine the follow point to prevent wrong action of the switch:

1. The switch shall be adjusted to the right additional position to fasten the small screw when the installed small screw for tightening the switch is loose or the additional position shifts.
2. To examine whether the wire has damage. The damage to wire will cause poor insulation. If there is damage, the switch shall be changed or the wire shall be repaired.
3. To avoid machinery damage
   - Switch shall not fall down or impact or bear over great impact (switch with contact shall be smaller than 300m/s) when it is installed. Though the nounomen of the switch is not damaged, its inside may be damaged and occur wrong action.
4. The wire of the switch shall not move with the action of cylinder
   - The wire is easy to break, and if the force is added to the inside of the switch, the internal components of the switch may be damaged; therefore, the wire of the switch is absolutely not allowed to move with the action of cylinder.
5. Clamping torque shall be within the allowable scope when the switch is installed. If the clamping torque is excessively high, the installed screw, accessories and switches may be damaged. If the clamping torque is insufficient, the additional position of the switch may shift.
6. Switch shall be installed in the middle position of the action scope
   - Action scope refers to the scope of the switch connection. Adjust the additional position of the magnetic switch as the piston is stopped in the center of the action scope. If the switch is installed near the two terminals of the action scope, which is the limit of the one-off the switch, the action of the switch is not steady.

**Connection method**

A. 2 wire reed switch type connection

1. General connection:
   - When connecting 2 wire switch, load must be connected in series with the sensor to prevent damaged. Connect the brown wire in series load with positive (+) and the blue wire to negative (-) of DC power source, otherwise the LED will not light.

2. Series connection (And):
   - When 2 wire switches in series (AND) use, the voltage drop will be added up. (Typical V drop about 2.5V per switch), when series too many switches, excessive voltage drop will cause non-operation of the load.

3. Parallel connection (OR):
   - When 2 wire switch in parallel (OR) use, the current flow to the switch will be shared when switches all in active. When connection too many switches in parallel use, possible concurrent operation will causes dim or off LED due to lower current distribution. The quantity of switches in parallel due to the current of load.
B.3 wire solid state NPN type connection

1. General connection:
   When connecting 3 wire switches, it must connect to DC Power source. Pay attention to the wiring of black wire. Wrong connect will damage the switch. Connect brown wire to the positive (+) and the blue to the negative (-). The black wire must series load and to positive (+) only.

2. Parallel connection (OR):
   When 3 wire solid state switches in parallel (OR) use. Leakage current will be added up. When parallel too many switches in use, possibly cause wrong operation due to lower load current. The quantity of switches in parallel due to the current of load.

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C.3 wire solid state PNP type connection

1. General connection:
   When connecting 3 wire switches, it must connect to DC power source. Pay attention to the wiring of black wire. Wrong connect will damage the switch. Connect brown wire to the positive (+) and the blue to the negative (-). The black wire must series load and to negative (-) only.

2. Parallel connection (OR):
   When 3 wire solid state switches in parallel (OR) use. Leakage current will be added up. When parallel too many switches in use, possibly cause wrong operation due to lower load current. The quantity of switches in parallel due to the current of load.