

Introduction

GO® Switches operate on the principle of magnetic attraction, reacting to ferrous metal or magnetic targets as they come within the switch's sensing range. Although switches vary in design according to their intended applications, all GO Switches use permanent magnets which, when actuated by the presence of a ferrous or magnetic target, change the state of electrical contacts.

Mounting

- Nuclear service GO Switches are unaffected by weld fields and RF interference.
- Nuclear service GO Switches may be mounted adjacent to or surrounded by ferrous metals however the proximity of ferrous metals will affect sensing distance. For the maximum rated sensing distance, avoid mounting near ferrous metals or in a ferrous metal bracket. Use non-ferrous, stainless steel mounting brackets only.
- C7, C8, H7, H8, M7, M8, and R7 Nuclear service GO Switches must be installed with target magnets. Reference sensing ranges in corresponding sections throughout the catalog.
- Sensing and differential of switch may vary depending on target travel direction.
- Avoid contact between target and switch. Configure mounting of switch and/or target so that target passes within the sensing area. Sensing range will vary according to model number and size (mass) of target used.
- For optimum performance, provide sufficient mass of target, and choose the appropriate GO Switch model to match the application requirements for operating frequency, type of load, etc.
- Greater target mass and/or target movement fully into and out of the sensing range will increase contact pressure. This is helpful in low current controls applications.
- For heavy or inductive loads, arc suppression devices, or interposing relays are recommended for contact longevity. Contact factory for specifics.
- Do not use excessive force on external threads when installing. (36 in/lbs. max)
- Configure mounting so bracket dissects switch as close to the middle of the body as possible. This eliminates undue stress caused by heavy cables, connectors, etc.
- Two appropriately sized jam nuts are included with switch. Lock washers are recommended where vibration is present.

Specifications - SPDT

Sensing Distance:
C7, H7, M7, R7: .100 with C-AMS7A
.250 with C-AMS12

Differential: Approx. .020" (.5mm)

Pressure Rating: 2,000 psi

Thread Options: 5/8"-18 UNF

Response time: 8 milliseconds

Temperature Rating:
C7, R7: -40°F (-40°C) to 495°F (257°C)
H7: -40°F (-40°C) to 350°F (177°C)
M7: -40°F (-40°C) to 250°F (121°C)

Contact Material: Palladium silver with Sawtooth® surface configuration

Contacts: Single Pole, Double Throw, Form C.



Electrical Ratings: Resistive
4A @ 120VAC / 1A @ 48VDC
*Consult factory for higher Amp rating requirements

Target Material: Target magnets C-AMS7A or C-AMS12

Enclosure Material: Stainless steel type 303

Conduit Outlet:
C7, R7: 3/4"-14 NPT.
H7, M7: 1/2"-14 NPT.
One location

Repeatability: .002" (0.05mm)
Under identical operating conditions

Specifications - DPDT

Sensing Distance:
C8-H8-M8: .100 with C-AMS7A
.250 with C-AMS12

Differential: Approx. .020" (.5 mm)

Pressure Rating: 2,000 psi

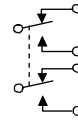
Thread Option: 1"-14 UNF

Response time: 8 milliseconds

Temperature Rating:
C7: -40°F (-40°C) to 495°F (257°C)
H7: -40°F (-40°C) to 350°F (177°C)
M7: -40°F (-40°C) to 250°F (121°C)

Contact Material: Palladium silver with Sawtooth® surface configuration

Contacts: Double Pole Double Throw, 2 Form C.



Electrical Ratings: Resistive
4A @ 120VAC / 1A @ 48VDC
*Consult factory for higher Amp rating requirements

Target Material: Target magnets C-AMS7A or C-AMS12

Enclosure Materials: Stainless Steel type 303

Conduit Outlet: 3/4"-14 NPT. One location

Repeatability: .002" (0.05mm) typical
Under identical operating conditions

Setting Up A Nuclear Service GO Switch For Optimum Performance

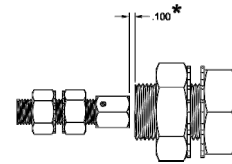
Nuclear service GO Switches use permanent magnets and a push-pull plunger to control a set of mechanical contacts. When a target magnet enters the sensing area of the switch, it attracts the primary magnet, which pulls the connecting rod and common contact. The normally closed and normally open contacts change state.

The **sensing distance** recommended by TopWorx is the maximum distance between the switch and target magnet trip point. The **differential**, also known as deadband or hysteresis, is the distance that the target magnet must move from the sensing area in order to allow the switch to reset.

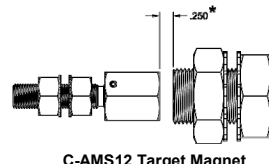
To apply the Nuclear service GO Switch and obtain the least differential, the direction the target approaches the switch must be considered.

The measurements shown are nominal depending on the size of target magnet used in the application.

Once the switch is set, the GO Switch will maintain calibration for life. **Set it and forget it!**



C-AMS7A Target Magnet



C-AMS12 Target Magnet

*Average sensing distance before testing

Attachment of Conduit or Cable

Attach conduit or cable correctly.

- When using long runs of conduit or cable, place supports close to the switch to avoid pulling switch out of position.
- If switch is mounted on a moving part, be sure flexible conduit is long enough to allow for movement, and positioned to eliminate binding or pulling.
- For installation in hazardous locations, check local electrical codes.
- All conduit connected electrical devices, including GO Switches, should be mounted as in **Figure 2 (below)**. A drip loop with provision for water to escape is recommended.

For hazardous locations install per Electrical Code. Dry contact devices, such as GO Switch, maybe installed intrinsically safe with matched barrier. When installed as explosion proof, lead seal fittings required within 18" of switch.

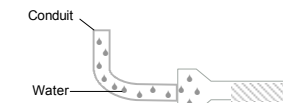


Figure 1. Not recommended

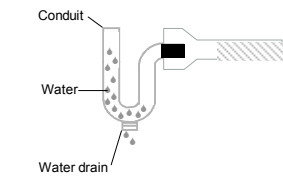


Figure 2. Recommended

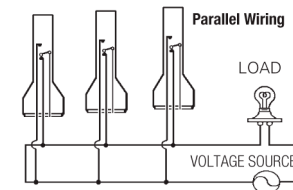
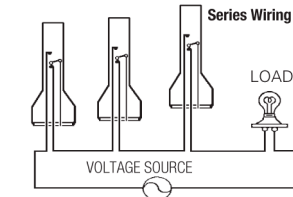
All GO Switches are "pure" contact switches, meaning they have no voltage drop when closed, nor do they have any leakage current when open. For multi-unit installation, switches may be wired in series or parallel, as shown below.

Series Wiring

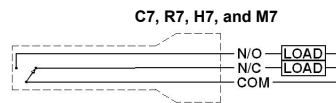
Any number of GO Switches may be wired in series, without voltage drop. By contrast, solid state switches have about two volts drop across the switch when operated. In a 12 volt solid state system with four switches in series, 8 volts is dropped across the switches. Only 4V is left to operate the load. When using GO Switches, 12V is still available to operate the load.

Parallel Wiring

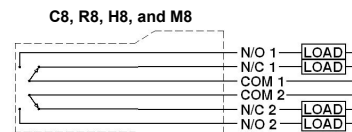
When solid state switches are placed in parallel, there is about 100 microamps leakage through each switch. If ten solid state switches were wired in parallel, the total leakage current would be 1000 microamps or one milliamp - sufficient current to indicate an "ON" condition to a programmable logic controller (PLC). Any number of GO® Switches may be wired in parallel, with no current leakage and without drawing operating current.



GO SWITCH HOOK-UP DIAGRAMS



SPDT (Form C) Contacts
May be wired Form A (N/O) or B (N/C)



DPDT (2 Form C) Contacts

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GO
SWITCH

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