TopWorx™ engineers are happy to provide technical assistance on GO™ Switch products. However, it is the customer's responsibility to determine the safety and suitability of the product in their application. It is also the customer's responsibility to install the switch using the current electrical codes in their region.

C7, C8, H7, H8, M7,M8, R7, SV7 **SWITCH** 

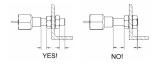


#### Introduction

GO<sup>™</sup> Safety Related Switches operate on the principle of magnetic attraction. reacting to 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 magnetic target, change the state of electrical contacts

#### Mounting

- Nuclear service GO Switches are immune to EMC and RF interference.
- Use non-ferrous, stainless steel mounting brackets only. Consult factory for available mounting kits. For the maximum rated sensing distance. avoid mounting near ferrous metals or in a ferrous metal bracket.
- C7. C8. H7. H8. M7.M8. R7 and SV-7 nuclear service GO Switches must be installed with TopWorx qualified target magnets. Reference sensing ranges in corresponding sections throughout the catalog.
- Sensing and differential of switch may vary depending on target travel direction.
- Configure mounting of the switch and/or target so that target passes within the sensing area without physically contacting the switch. Sensing range will vary according to switch and target mode.
- Caution: Do not use excessive force on external threads when installing. The switch threads need to be properly torqued as indicated below when mounted to any fixture. Over-torqueing or under-torqueing the switch threads may cause the switch to operate improperly. TopWorx recommends a torque value of 35lbs - ft. (47.45 Nm) with a tolerance of + /- 2 lbs.- ft. (2.71
- The switch must be mounted on the bracket and bolted close to the end of its threads, near its center of mass. This eliminates undue stress caused by heavy cables, connectors, etc.



- For heavy or inductive loads, arc suppression devices, or interposing relays are recommended for contact longevity. Contact factory for specifics. ■ Installation must use included Jam
- nuts and Lock washers. ■ Recommended installation distance is equal to the half of published sens-

ing distance per switch.

Coaxial Sensing Distance w/ C-AMS7A Target Average Sensing 0.150" ± 0.020" (3.81 mm ± 0.51 mm)

± 0.25 mm)

Target

Pressure Rating At Sensing Surface: 2.000 psi (137.89 bar)

Thread Options: 5/8"-18 UNF (Consult TopWorx for metric thread options)

SV7: -40°C (-40°F) to 200°C (392°F) H7: -40°C (-40°F) to 175°C (347°F) M7: -40°C (-40°F) to 150°C (302°F) ATEX (all except SV7): -40°C (-40°F) to

Contact Material: Palladium silver with Sawtooth surface configuration

Contacts: Single Pole, Double Throw. Form C.



4A @ 120VAC / 1A @ 48VDC ATEX (all except SV7): 4A @ 120VAC / 3A @ 24VDC

C-AMS7A or C-AMS12

C7 & R7 Specifications - SPDT Coaxial Sensing Distance w/ C-AMS7A Target

Average Sensing 0.100" ± 0.020" (2.54  $mm \pm 0.51 \, mm$ )

± 0.25 mm

Coaxial Sensing Distance w/C-AMS12 Target Average Sensing 0.250" ± 0.025" (6.35

mm ± 0.64 mm)

Pressure Rating At Sensing Surface: 2.000 psi (137.89 bar)

Thread Options: 5/8"-18 UNF (Consult TopWorx for metric thread options)

**Operating Temperature:** 

C7. R7: -40°C (-40°F) to 200°C (392°F) ATEX: -40°C (-40°F) to 150°C (302°F)

Contact Material: Palladium silver with Sawtooth surface configuration

Contacts: Single Pole, Double Throw,



Electrical Ratings: Resistive 4A @ 120VAC / 1A @ 48VDC ATEX: 4A @ 120VAC / 3A @ 24VDC

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

Enclosure Material: SS type 303 or 316L (RCC-EK1+)

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

C8. H8. & M8 Specifications - DPDT Coaxial Sensing Distance w/ C-AMS7A Target

Average Sensing 0.100" ± 0.020" (2.54 mm ± 0.51mm)

mm ± 0.25mm)

Coaxial Sensing Distance w/C-AMS12 Target

Average Sensing 0.250" ± 0.025" (6.35 mm ± 0.64 mm) Average Reset 0.031" ± 0.015" (0.79 mm ± 0.38 mm)

Pressure Rating At Sensing Surface: 2,000 psi (137.89 bar)

Thread Option: 1"-14 UNF (Consult TopWorx for metric thread options)

Operating Temperature: C8: -40°C (-40°F) to 200°C (392°F) H8: -40°C (-40°F) to 175°C (347°F) M8: -40°C (-40°F) to 150°C (302°F)

ATEX: -40°C (-40°F) to 150°C (302°F) Contact Material: Palladium silver with Sawtooth surface configuration

Contacts: Double Pole Double Throw,



**Electrical Ratings: Resistive** 4A @ 120VAC / 1A @ 48VDC ATEX: 3A @ 120VAC / 1A @ 24VDC

\*Consult factory for higher Amp rating require-

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

Enclosure Materials: SS type 303 Conduit Outlet: 3/4"-14 NPT. One

location

## Ex d IIC T3 Gb; Ex





tb IIIC T200°C Db (Tamb - 40°C to + 150°C) Baseefa08ATEX0360X IECEx BAS 08.0122X

120VAC/4A AND 24VDC/3A FOR SPDT SWITCHES 120VAC/3A AND 24VDC/1A FOR DPDT SWITCHES PLEASE NOTE: THE SV7 SWITCH IS NOT CERTIFIED BY ATEX OR IECEX.

#### Attachment of Conduit or Cable

Attach conduit or cable correctly

fixture. During seismic testing, the stainless steel conduit (with PEEK cable) was supported at 3.28 ft (1 m) from the back of the switch while the Rockbestos or PEEK cables were supported at 1 ft (0.305 m) away from the back of the switch. seismic testing of the C7 switch with EGS QDC and flex conduit, the flex conduit information

### Setting Up A Nuclear Service GO Switch For

Nuclear service GO Switches use permanent magnets and a push-pull plunger to control a set of dry 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 average reset, 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 (axial, radial).

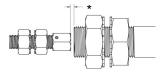
The measurements shown are nominal depending on the size of target magnet used in the application. Consult the coaxial sensing distance for each switch model

With proper mounting, once the switch is set, the GO Switch will maintain calibra-

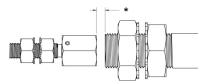
See illustration below for correct switch alignment.

#### C-AMS7A Target Magnet

**Optimum Performance** 



#### C-AMS12 Target Magnet



\*Refer to switch specifications for average sensing distance.

The target magnet threads need to be properly torqued when mounted to any fixture. The target magnets were mounted at a torque value of 35lbs-ft (47.45 Nm) with a tolerance of + /- 2 lbs.-ft. (2.71 Nm) during seismic testing.





The switch conduit or cable needs to be properly supported when mounted to any EGS Flex conduit and support kit are available from TopWorx as an option. During was supported 15" from the QDC interface. Please consult factory for more detailed

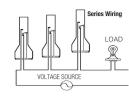
#### Attachment of Conduit or Cable Cont.

- If the 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
- All conduit connected switches should be installed using proper installation methods.
- The GO Switch must have a qualified QDC, a qualified sealed stainless steel conduit, or other types of qualified accepted seal when used in submerged applications or exposed to 100% humidity. For LOCA DBA type submergence, however. only the C7 switch has been qualified for this application.
- The EGS Gen 3 field side connector O-ring (QualTech Part No. 2-021) must be replaced after being disconnected. Per Qualtech Report No. TR -23009-14 RevA, the O-ring qualified life at continuous operation, without disconnection, is 25.1 years at 144.14 F (62.3 C)

All GO Switches are "pure" contact switches, meaning they have negligible 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 to the right.

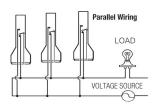
#### Series Wiring

Any number of GO Switches may be wired in series, without voltage drop



#### Parallel Wiring

Any number of GO<sup>™</sup> Switches may be wired in parallel, with no current leakage and without drawing operating current.



#### **Special Conditions** for Safe Use

The field side wires should be protected against damage and terminated to a terminal or junction box suitable for the conditions of use

Due to the GO Switch's sealed construction, field service is not available. Refer to our trouble shooting guide for a possible solution. If problem persists, please contact the factory directly.

N/C Red   N/O Blue   COM Black   GND Green		C7 & R7 SPDT 4 COND. Peek Cable	
COM Black	N/C		Red
	N/O		Blue
GND Green	COM		Black
	GND		Green

C8, H8, & M8 DPDT 7 COND. Peek Cable & EGS Connector		
N/C1	Red	
N/O1	Blue	
COM1	Black	
N/C2	Yellow	
N/O2	Brown	
COM2	Natural	
GND	Green	

N/O B White COM C Black		
N/O B White COM C Black		EGS 4 Pin Connector
COM C Black	N/C	A Red
	N/O	B White
GND D Green	COM	C Black
	GND	D Green

Page 1

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

GO SWITCH HOOK-UP DIAGRAMS C7, R7, H7, M7, and SV7

H7. M7. & SV7 Specifications - SPDT

Average Reset 0.023" ± 0.010" (0.58 mm Average Reset 0.023" ± 0.010" (0.58 mm Average Reset 0.023" ± 0.010" (0.58 mm

Coaxial Sensing Distance w/C-AMS12

Average Sensing 0.350" ± 0.025" (8.89 mm ± 0.64 mm)

Average Reset 0.031" ± 0.015" (0.79 mm Average Reset 0.031" ± 0.015" (0.79 mm

Operating Temperature:

150°C (302°F)

Electrical Ratings: Resistive

\*Consult factory for higher Amp rating require-

Target Material: Target magnets

Conduit Outlet: 1/2"-14 NPT. One

Enclosure Material: SS type 303

\*Consult factory for higher Amp rating require-

#### C8. H8. and M8



DPDT (2 Form C) Contacts

# IOM



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