



**DowKey®
Microwave**
CORPORATION

The DowKey 169 Series SPDT switch is the smallest of the DowKey coaxial RF relays. The switch is manufactured with gold plated contacts to provide reliable RF performance to 1 GHz.

Typical applications for the 169 Series include:

- Military Communications
- Commercial Radio
- Transmit/Receive Switching
- Antenna Switching
- Conditions where size and weight are critical parameters



**DowKey® 169 Series
SPDT Switch**

Specifications :

Operating Voltage:
(across temperature range)
12 Vdc (11-14 Vdc)
28 Vdc (24-32 Vdc)

Coil Current (Nominal):
12 Vdc 171 mA
28 Vdc 96 mA

Operate Time:
20 mS maximum

Operating Temperature:
0°C to +65°C

Mechanical Life, Cycles:
1 x 10⁶ minimum

Nominal Weight:
4.5 oz., (125g.)

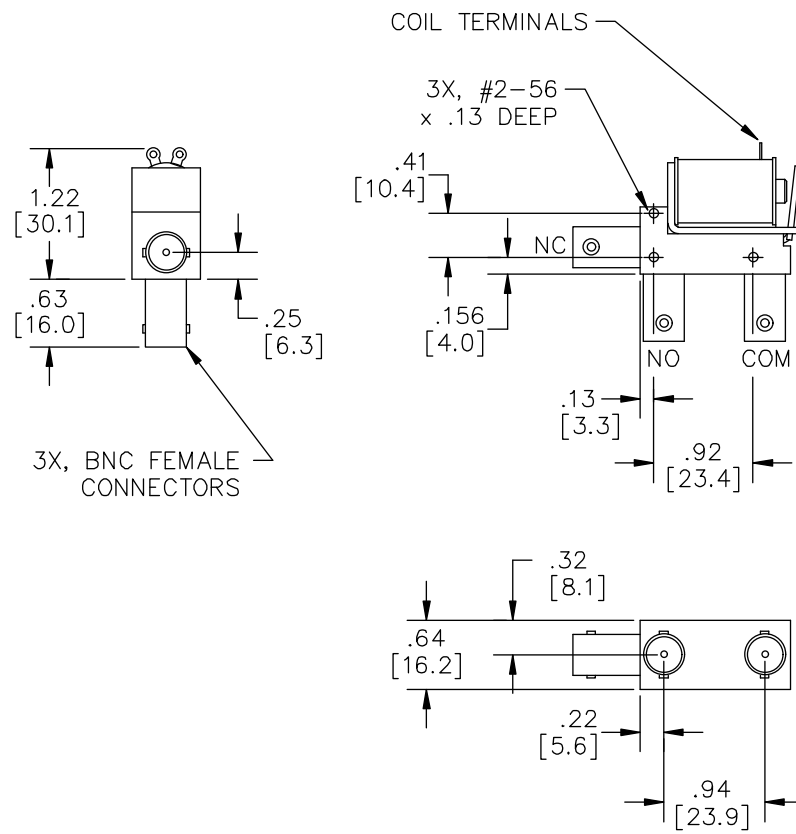
RF Characteristics

Frequency MHz	VSWR (max)	Isolation dB (min)	Ins. Loss dB (max)	RF Power Watts (max)
50	1.03	50	0.03	150
100	1.06	50	0.05	100
400	1.12	45	0.10	75
1,000	1.25	35	0.15	50
2,000	1.50	30	0.30	25

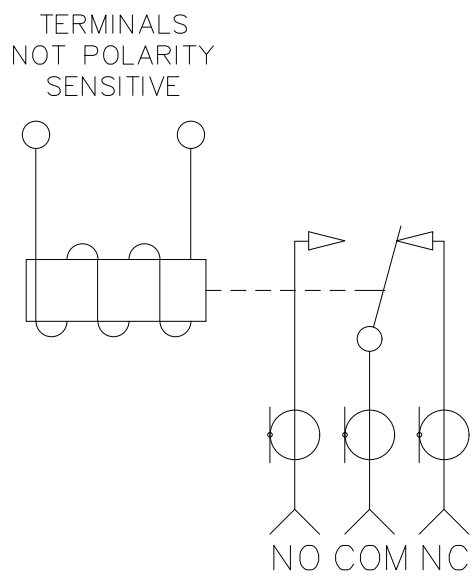
Connectors and Part Numbers

Nominal Coil Voltage	Connector Type	Part Number
12 Vdc	BNC	169-2203
28 Vdc	BNC	169-2302

Mechanical



Electrical





**DowKey®
Microwave**
CORPORATION

The DowKey 260 Series is a standard DPDT switch with six connectors, allowing two of four straight-through paths from two inputs. The 260B is identical in construction, except that there is an internal connection between the N/C contacts, leaving only four connectors. The 260B Series is widely used to insert or by-pass a circuit element (such as an amplifier or filter) in a transmission path between two normally connected elements. Both are available with a choice of actuator coils, connector options, and a pair of form "C" auxiliary contacts.



Typical applications for the 260 & 260B Series include:

- Inserting a Linear Amplifier Between an Exciter and an Antenna
- Filter, Attenuator, or Amplifier By-Pass Switching
- Insert Filters or Attenuators in a Transmission Path
- Dual Simultaneous Transmit/Receive or Antenna Switching

DowKey® 260 Series DPDT & 260B Series By-Pass Switch

Specifications :

Operating Voltage:
(across temperature range)
12 Vdc (11-14 Vdc)
26.5 Vdc (24-32 Vdc)

Coil Current (Nominal):
12 Vdc 250 mA
26.5 Vdc 110 mA

Operate Time:
25 mS maximum

Operating Temperature:
0°C to +65°C

Mechanical Life, Cycles:
1 x 10⁶ minimum

Nominal Weight:
12..0 oz., (340g.)

RF Characteristics

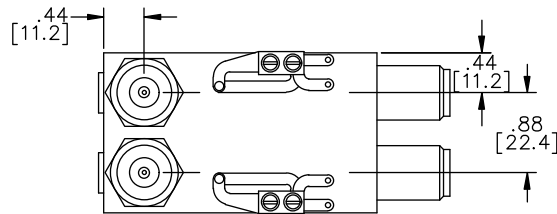
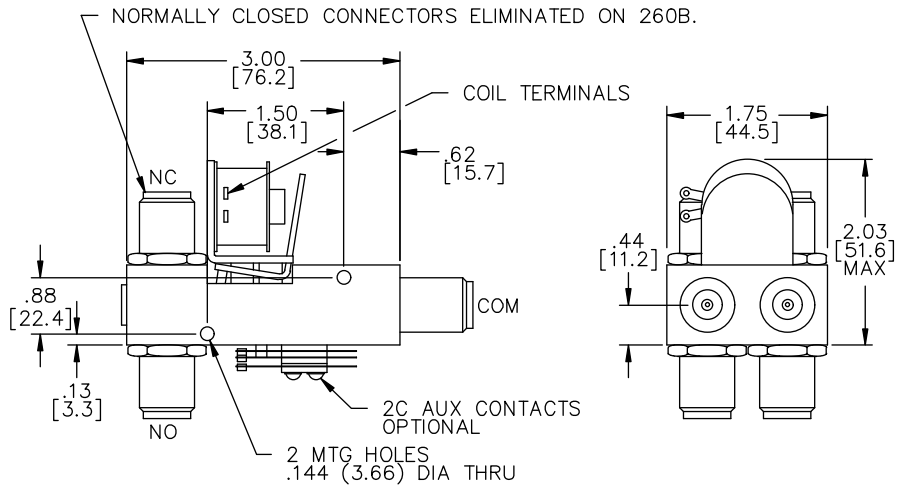
Frequency MHz	VSWR (max)	Isolation dB (min)	Ins. Loss dB (max)	RF Power Watts (max)
0-50	1.05	40	0.04	1,000
50-100	1.08	35	0.05	1,000
100-400	1.15	25	0.10	1,000-500
400-1,000	1.20	18	0.15	500-350

Connectors and Part Numbers

Nominal Coil Voltage	Connector Type	DPDT	with 2 "C" Ind. Contacts	By-Pass	with 2 "C" Ind. Contacts
12 Vdc	N	260-2201	260-220142	260B-2201	260B-220142
26.5 Vdc	N	260-2301	260-230142	260B-2301	260B-230142
115 Vac	N	260-2601	260-260142	260B-2601	260B-260142
12 Vdc	BNC	260-2202	260-220242	260B-2202	260B-220242
26.5 Vdc	BNC	260-2302	260-220242	260B-2202	260B-220242
115 Vac	BNC	260-2602	260-220242	260B-2202	260B-220242
12 Vdc	UHF*	260-2204	260-220442	260B-2204	260B-220442
26.5 Vdc	UHF*	260-2304	260-230442	260B-2304	260B-230442
115 Vac	UHF*	260-2604	260-260442	260B-2604	260B-260442

*Not recommended for applications above 300 MHz.

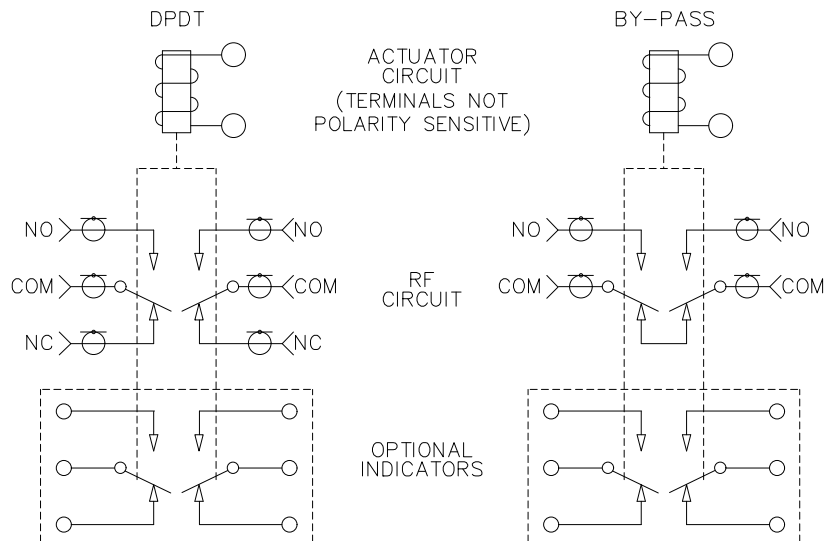
Mechanical



TYPICAL CONNECTOR LENGTHS

CONN. DIM.	N 01	UHF 04	BNC 02
(Shown)			
COM.	0.50 [12.7]	0.50 [12.7]	0.70 [17.8]
NC, NO	0.70 [17.8]	0.70 [17.8]	0.60 [15.2]

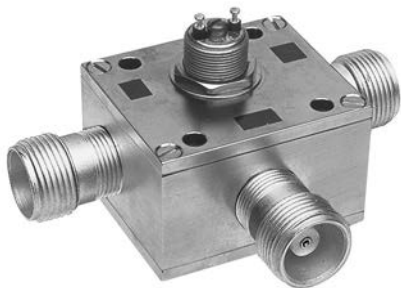
Electrical



310 Series SPDT High Power Vacuum Coaxial Switch



**DowKey®
Microwave**
CORPORATION



DowKey® 310 Series SPDT Switch

Specifications :

Operating Voltage:

(across temperature range)

12 Vdc (11-14 Vdc)

28 Vdc (24-32 Vdc)

Coil Current (Nominal):

12 Vdc 150 mA

28 Vdc 84 mA

Switching Time:

8 mS maximum

Operating Temperature:

-25°C to +65°C

Mechanical Life, Cycles:

1 x 10⁶ minimum

Nominal Weight:

9.0 oz., (260g.)

The DowKey 310 Series SPDT relays have high power handling capability in a small package. The ability to handle up to 3 KW at low frequencies (up to 30 MHz) is achieved with vacuum-enclosed contacts, minimizing noise and losses. This rugged switch is capable of "hot" switching 1 KW at 30 MHz with the optional special Tungsten-Molybdenum contacts to avoid pitting when switched with RF power applied. (It should be noted that even with heavy-duty construction, hot-switching will reduce the typical operational life of 1,000,000 cycles significantly - to approximately 10,000 cycles)

Typical applications for the 310 Series include:

- High Power Transmitter Switching
- Radar Pulse Forming Networks
- Phased Array Antenna Systems
- UHF/VHF Communications Systems
- Magnetic Resonance Imaging Systems

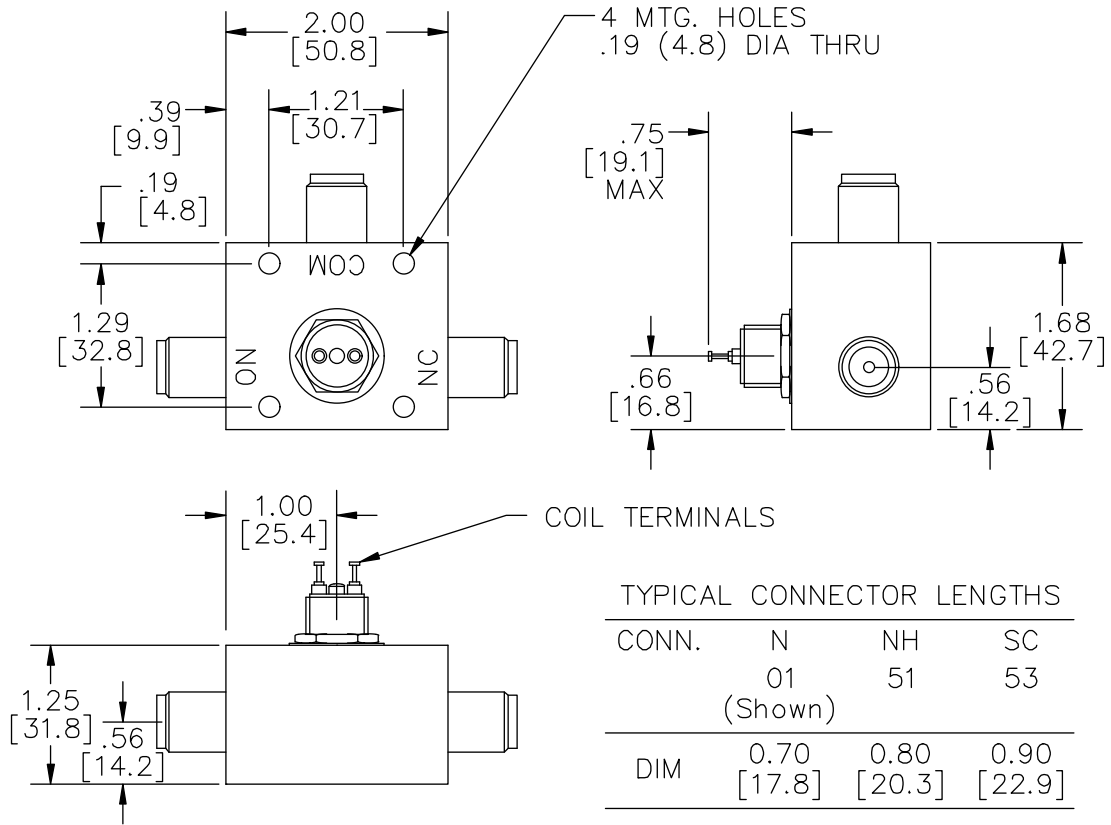
RF Characteristics

Frequency MHz	VSWR (max)	Isolation dB (min)	Ins. Loss dB (max)	RF Power Watts (CW)
30	1.05	35	0.07	3,000
50	1.06	30	0.08	2,300
100	1.08	25	0.09	2,000
400	1.10	17	0.10	850

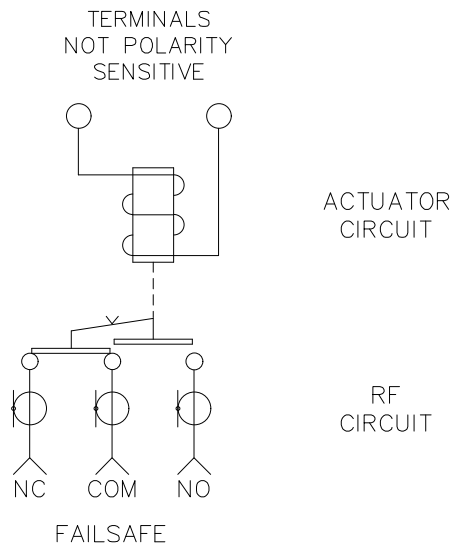
Connectors and Part Numbers

Nominal Coil Voltage	Connector Type	Part Number
12 Vdc	N	310-2201
28 Vdc	N	310-2301
115 Vac	N	310-2601
12 Vdc	HN	310-2251
28 Vdc	HN	310-2351
115 Vac	HN	310-2651
12 Vdc	SC	310-2253
28 Vdc	SC	310-2353
115 Vac	SC	310-2653

Mechanical



Electrical





DowKey/TRANSCO

Standard RF, Microwave and Waveguide Switches

Cross Reference Guide

TRANSCO PART NUMBERS AND FEDERAL STOCK NUMBERS PER MIL S 3928

<u>Slash No.</u>	<u>Option No.</u>	<u>TPI Part No.</u>	<u>FSN 5985-</u>
MIL-S-3928/7-	-01	C6N2A1	-
	-02	CON2AB	552-9040
	-03	C4N2AB	548-3715
	-04	C6N3A1	-
	-05	C4N3AB	539-6133
	-06	CON6AB	754-9860
	-07	C4N6AB	989-5364
	-08	C6N6A1	-
	-09	11600	-
	-10	13300	783-5769
	-12	CON3AB	-
	-17	11300	504-8506
	-18	11100	557-5208
	-19	11400	-
	-20	11200	557-5721
	-21	11800	586-7023
	-22	CON4AB	448-0300
	-24	14100	501-1886
	-25	300C00100	-
	-26	300C00200	241-3503

MIL-S-3928/9-	-01	1460-820	518-0832
	-04	M1460-H22	401-2883
	-05	M1460-H20	439-5691
	-06	1460-20-95	512-5297
	-07	1460-3-96	296-5334
	-08	1460-6-96	813-0833
	-09	1460-830-95	-
	-10	1460-22-95	-
	-11	1460-822	296-6729
	-12	1460-6	504-6639
	-13	M1460-H30	01-097-3720
	-14	M1460-HA3	01-118-8463
	-15	M1460-HA6	763-3823

<u>Slash</u>	<u>No.Option</u>	<u>No.TPI Part</u>	<u>No.FSN 5985</u>	
MIL-S-3928/10-	-04	810C00100	272-7325 123-8438*	
	-05	810C00200	433-6758 01-017-5236*	
	-06	810C05200	-	
	-07	315C05200	-	
	-08	310C00200	246-9414	
	-09	810C00300	009-3691-0	
	-09	810C00300	617-2436	
	-10	300C00200	241-3503	
	MIL-S-3928/15-	-01	919C70100	477-0060* 433-8301
		-06	900C70100	155-0122
-07		909C7010	150-8559	
-08		909C70200	022-9059	
-09		919C72700	-	
-10		919C70200	621-6997	
-01		919C70100-8	01-043-0781	
-07		909C70100-8	01-092-9506	
-08		909C70200-8	022-9059	
-10		919C70200-8	00-150-8559	
MIL-S-3928/17-		-02	144C70100	01-106-0807* 01-042-0669
			144C70600	275-7009
MIL-S-3928/18-	-01	146C70100	172-8187 01-086-0592*	
	-02	146C70600	005-2503	
	-01	146C70100-8		
	-02	146C70600-8		
MIL-S-3928/19-	-01	700C70900	009-6619	
	-02	710C70100	125-9895	
	-05	710C71400	-	
	-02	710C70100-8	01-106-3305	
	-05	710C71400-8	625-9681	
MIL-S-3928/20-	-01	820C31700	-	
	-03	810C30900	417-0532	
	-04	910C90700	006-4308	
	-06	900C31500	619-7145	
	-07	810C30100	248-2974 01-116-4495*	
	-08	800C30200	325-6104	
		with diodes	01-021-4686	
MIL-S-3928/21-	-01	700C30200	139-1745 01-100-8860*	
	-02	310C30800	630-6674	
	-03	300C30200	-	

*Multiple federal stock numbers

Coaxial Switch

Type DO

Description

The Type DO Latching SPDT Switch has RF geometry optimized for SMA connectors and operates over a 0-18GHz frequency band. It is magnetically latched and available with or without actuator cut-off circuitry. It is also available with or without indicating switches. DowKey's design mechanically links indicating switches to the rotating armature for positive indication.

Actuator features:

1. Balanced rotating armature
2. Reliable actuation with low current
3. Positive latching with permanent magnets

A single voltage pulse of 20 milliseconds is all that is required to change positions; no holding power is required to maintain a position.

Magnetic latching offers distinct advantages over other mechanisms since it uses no springs or mechanical detents which are prone to fatigue and wear. Transco considers magnetic latching to be the optimum design for applications which require high vibration levels, environmental extremes, long life and reliability.

This switch is part of the Type D family of switches featuring different RF connectors and frequencies.

Type	Conn.	Freq.
D	N & TC	12 GHz
DO	SMA	18 GHz
DX	SC	6 GHz
DO	3 5 mm	26.5GHz

Standard Products

P/N	Schematic
909C70 1 00*	1
909C70200**	2
909C71100	3
909C71200	4

* Meets MIL-S-3928/15-07
 ** Meets MIL-S-3928/15-08

Special Configuration

Actuating Voltage Mounting Configuration
 Transient Circuit Terminal Location
 TTL Logic Circuit

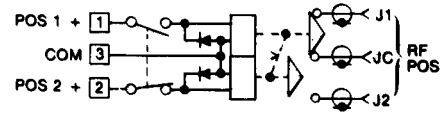
(For dimensions and circuit diagrams see pages 106 and 107)

RF Circuit: SPDT
Actuator: Latching
Connector: SMA
Frequency: 0-18GHz

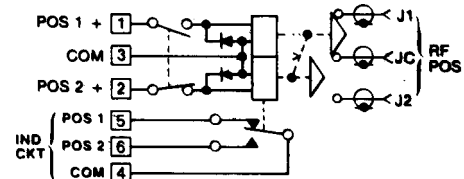


Schematic

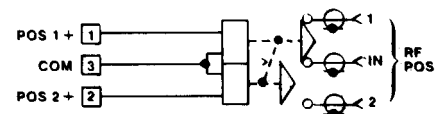
#1. Latching



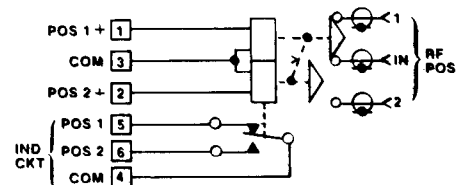
2. Latching with Indicator



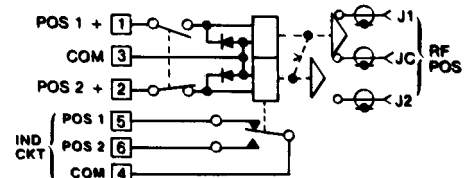
3. Pulse Latching



4. Pulse Latching w/ Indicator

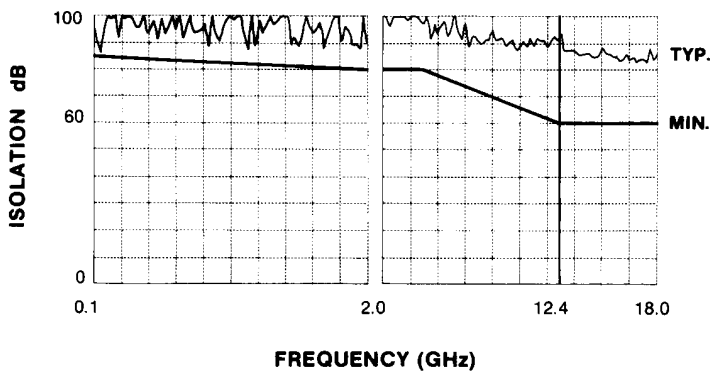
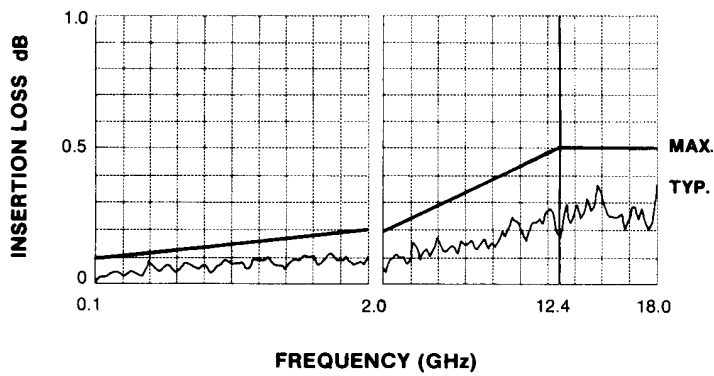
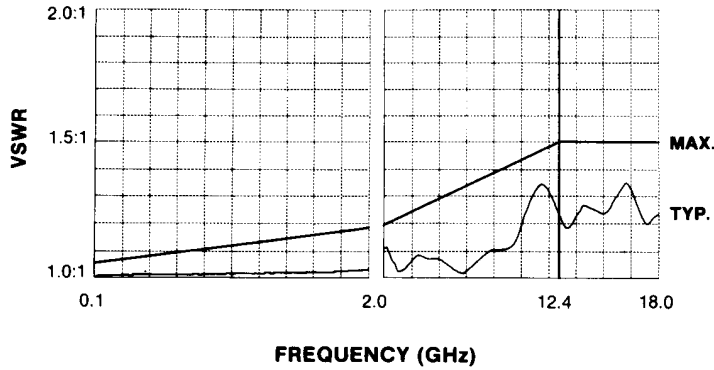


5. Latching w/ Indicator



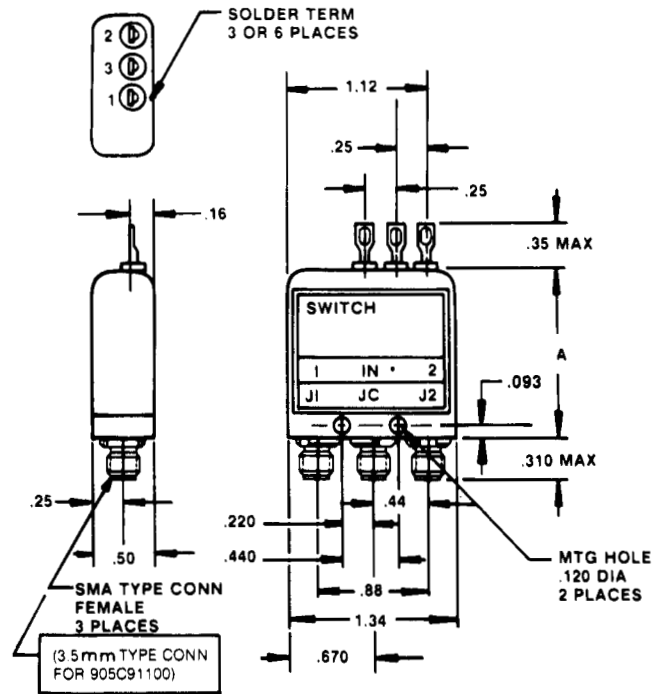
Specifications

Typical RF data of a production switch; computer printouts below:



Voltage: 20 to 30Vdc
 Coil Resistance: 310 ± 10 Ohms @ 20°C
 Current: 95mA max @ 28Vdc and 20°C
 Switching Time: 20 milliseconds
 RF Contacts: break-before-make
 Impedance: 50 Ohms nominal
 Temperature: -55°C to 85°C
 Vibration: 20g's sine/random
 Life: 1,000,000 cycles min
 Weight: 909C70100 } 1.5 oz.
 909C71100 }
 909C70200 } 2.0 oz.
 909C71200 }

Dimensions



Lower Frequency

At 10MHz, typical values are:

Isolation: 100dB

VSWR: 1.05:1

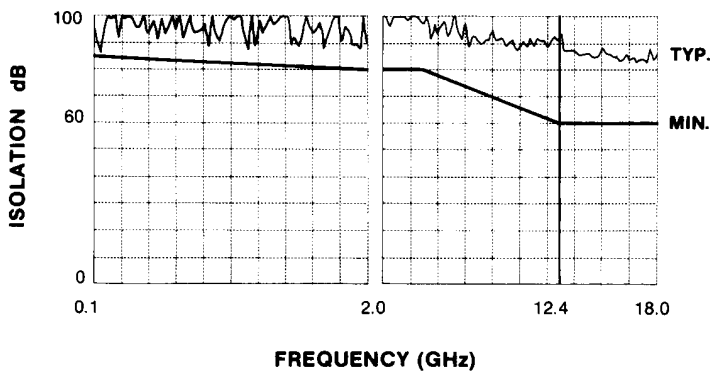
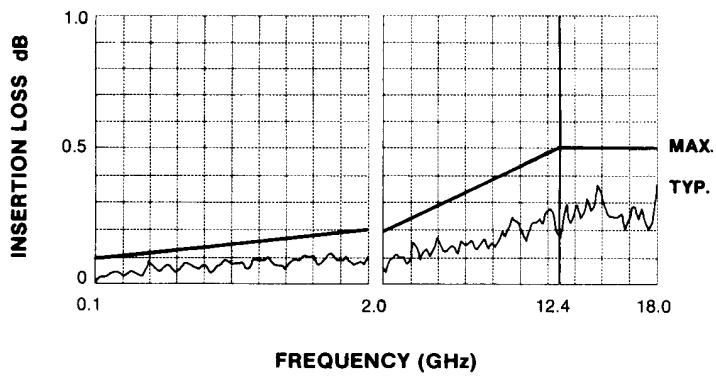
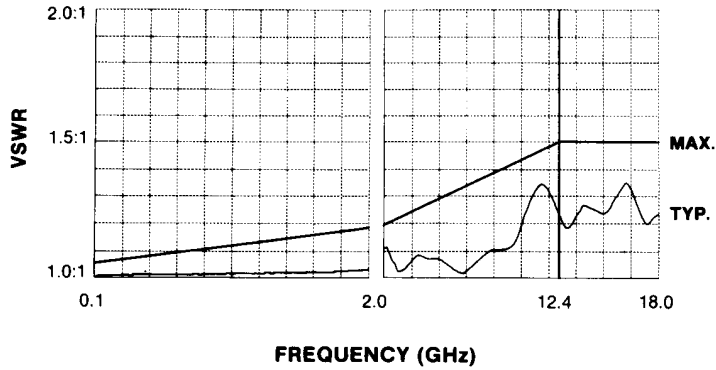
Insertion Loss: 0.05dB

Because of the inherently good RF performance at lower frequencies, this product line is not tested below 2GHz except upon request.

P/N	A
909C70100	1.30
909C71100	
905C91100	
909C70200	1.50
909C71200	

Specifications

Typical RF data of a production switch; computer printouts below:



Lower Frequency

At 10MHz, typical values are:

Isolation: 100dB

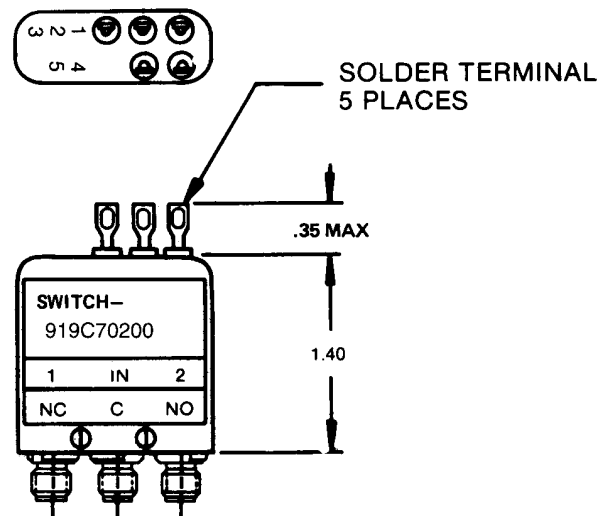
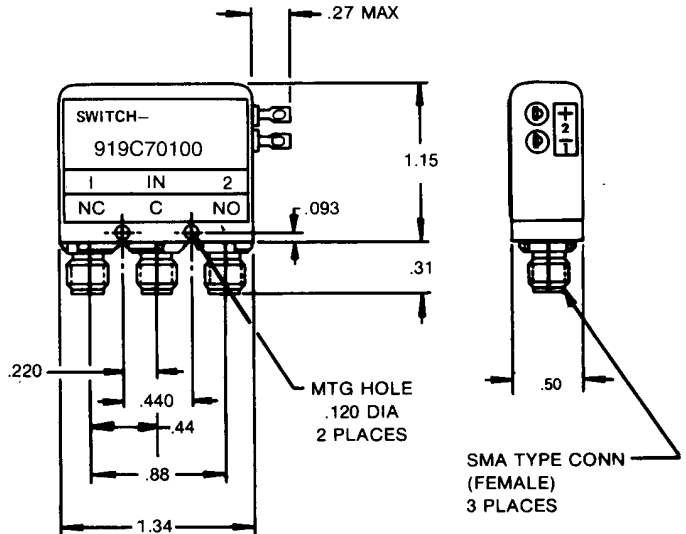
VSWR: 1.05:1

Insertion Loss: 0.05dB

Because of the inherently good RF performance at lower frequencies, this product line is not tested below 2GHz except upon request.

Voltage: 20 to 30Vdc
 Coil Resistance: 290 Ohms min.
 Current: 100mA max @ 28Vdc and 20°C
 Switching Time: 20 milliseconds
 RF Contacts: break-before-make
 Impedance: 50 Ohms nominal
 Temperature: -55°C to 85°C
 Vibration: 20g's sine/random
 Life: 1,000,000 cycles min
 Weight: 919C70100 1.25 oz. max.
 919C70200 1.35 oz. max.

Dimensions



Coaxial Switch

Type DO

Description

The type DO latching and failsafe switches have RF geometry optimized for 3.5mm connectors and operate over a 0-26.5GHz frequency band. The latching model is magnetically latched and available with or without actuator cutoff circuitry. Both latching and failsafe models are available with or without indicators. DowKey's design mechanically links indicating switches to the rotating armature for positive indication.

Standard Products

P/N	Schematic	Type
905C90100	1	Latching
905C90100	2	Latching w/l.C.
905C91100	3	Pulse Latching
905C91200	4	Pulse Latching w/l.C.
915C90100	5	failsafe
915C90200	6	failsafe w/l.C.

* Meets MIL-S-3928

Special Configuration

Actuating Voltage Mounting Configuration
 Transient Circuit Terminal Location
 TTL Logic Circuit

(For dimensions and circuit diagrams see pages 106 and 107)



RF Circuit: SPDT

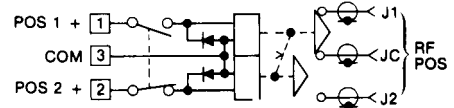
Actuator: Latching and Failsafe

Connector: *3.5mm

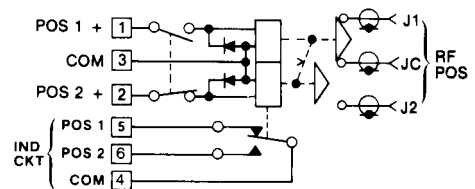
Frequency: 0-26.5GHz

Schematic

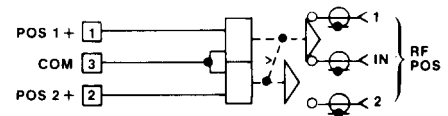
#1. Latching



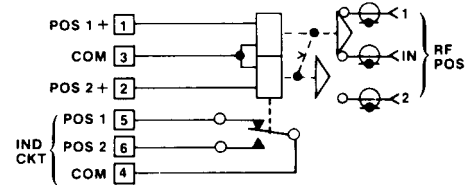
2. Latching with Indicator



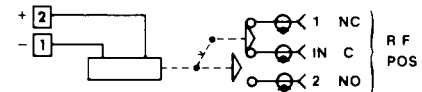
3. Pulse Latching



4. Pulse Latching w/ Indicator

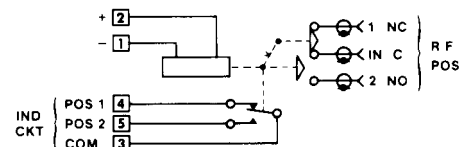


5. Failsafe



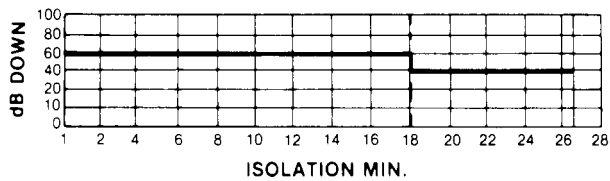
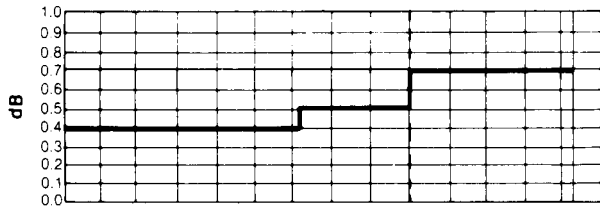
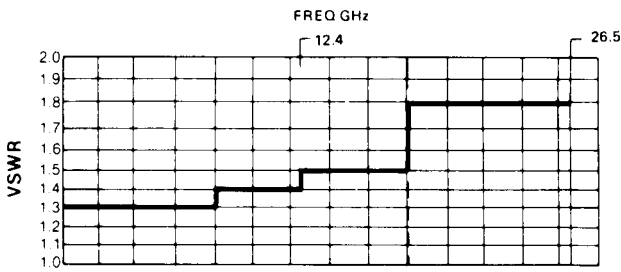
ENERGIZE TO CONNECT IN TO 2 (POS 2)
 SHOWN IN FAILSAFE POSITION (POS 1)

6. Failsafe w/Indicator



ENERGIZE TO CONNECT IN TO 2 (POS 2)
 SHOWN IN FAILSAFE POSITION (POS 1)

RF Characteristics

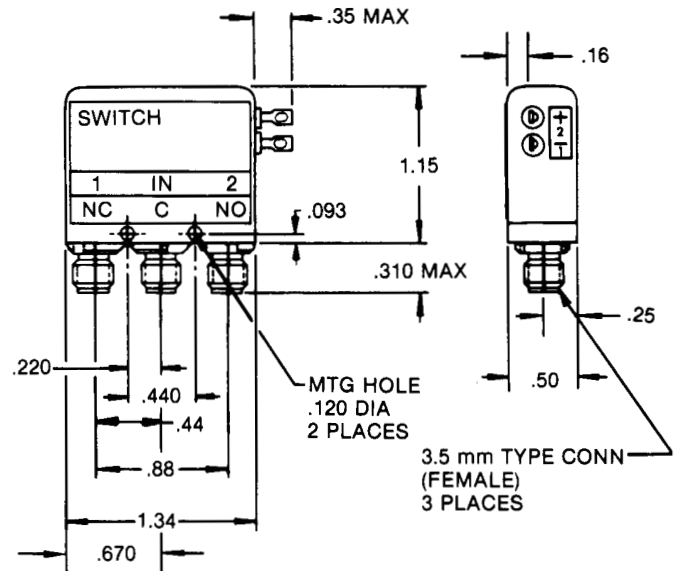


Voltage:	20 to 30Vdc
Coil Resistance:	310 ± 15 Ohms @ 20°C
Current:	95mA max @ 28Vdc and 20°C
Switching Time:	20 milliseconds
RF Contacts:	break-before-make
Impedance:	50 Ohms nominal
Temperature:	-55°C to 85°C
Vibration:	20g's sine/random
Life:	1,000,000 cycles min
Weight:	905C90100 Latching 1.5 oz.
	905C90200 Latching w/l.C. 2.0 oz.
	905C91100 Pulse Latching 1.5 oz.
	905C91200 Pulse Latching w/l.C. 2.0 oz.
	915C90100 failsafe 1.25 oz.
	915C90200 failsafe w/l.C. 1.35 oz.

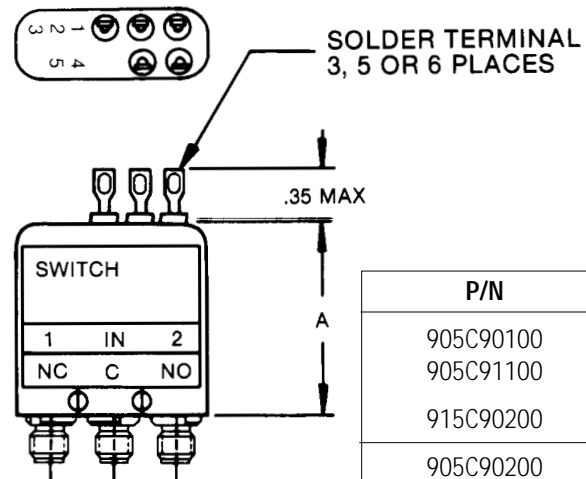
Characteristics of failsafe Models

Coil Resistance	290 Ohms min.
Current	120mA max @ 28Vdc and 20°C

Dimensions - failsafe



Latching and failsafe with indicator



P/N	A
905C90100	1.30
905C91100	1.30
915C90200	1.40
905C90200	1.50
905C91200	1.50

Specifications subject to change without notice

Lower Frequency

At 10MHz, typical values are:

Isolation: 100dB

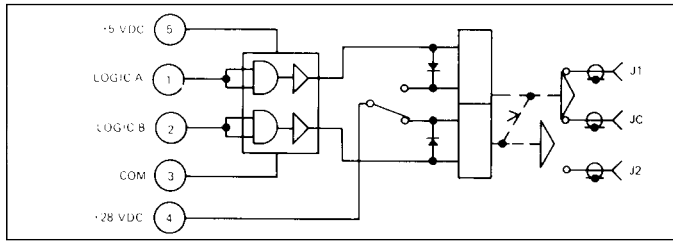
VSWR: 1.05:1

Insertion Loss: 0.05dB

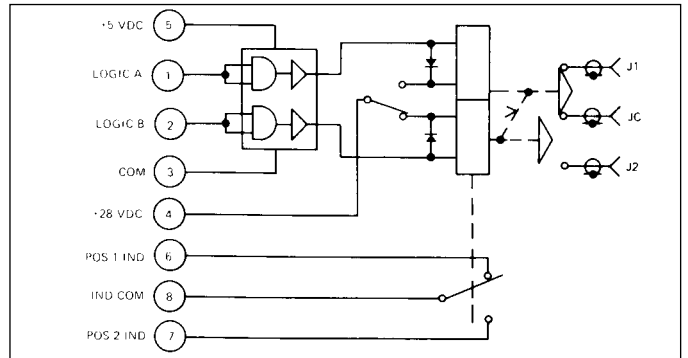
Because of the inherently good RF performance at lower frequencies, this product line is not tested below 2GHz except upon request.

Schematic

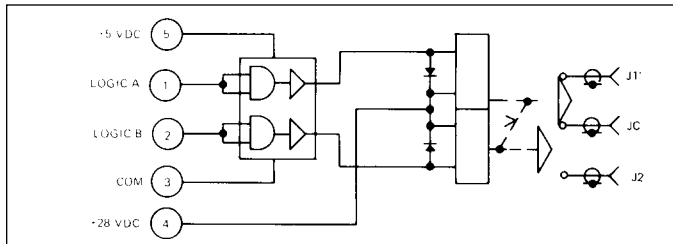
909C70100-30 - 905C90100-30



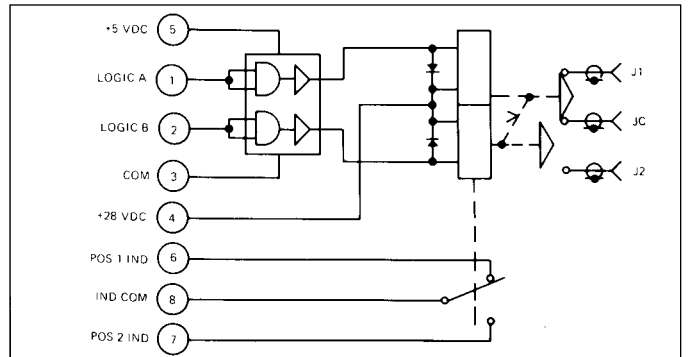
909C70200-30 - 905C90200-30



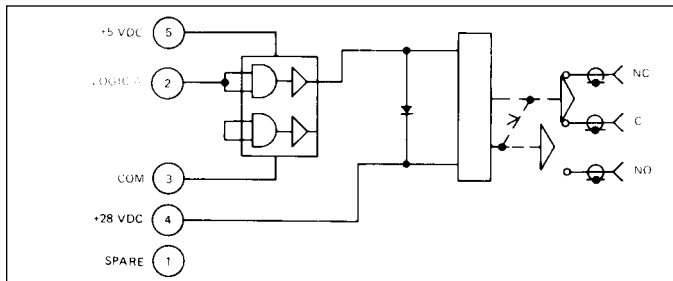
909C71100-30 - 905C91100-30



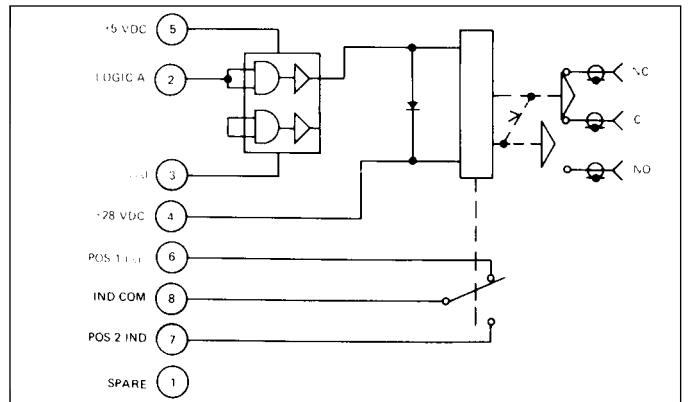
909C71200-30 - 905C91200-30



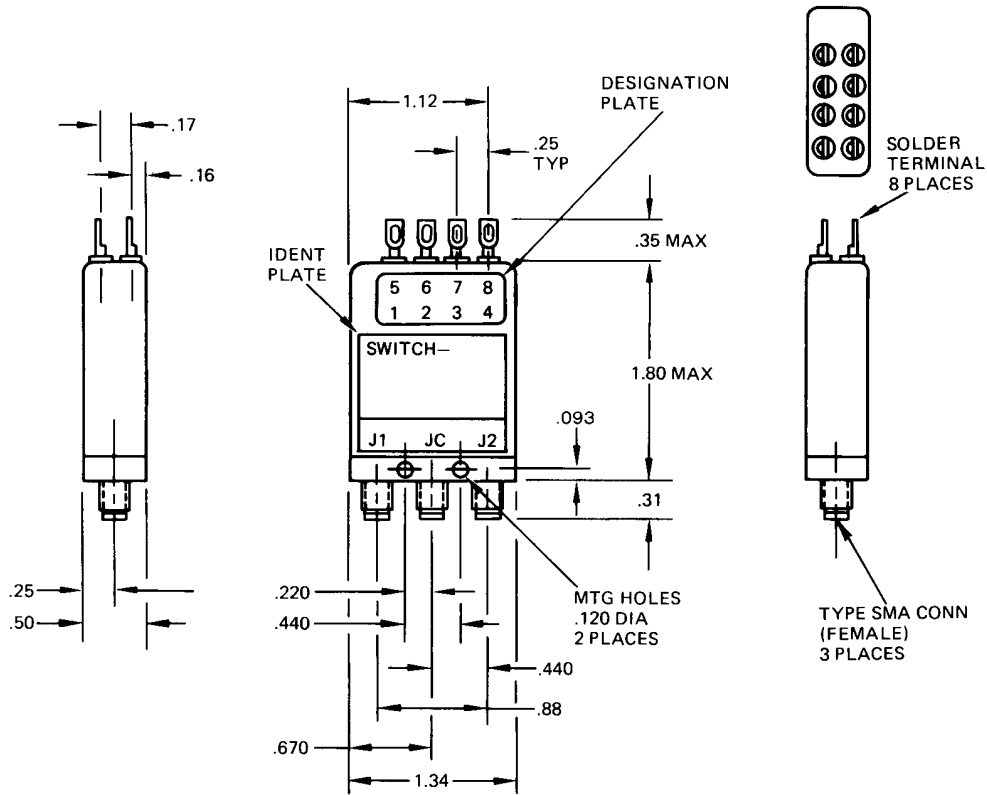
919C70100-30 - 915C90100-30



919C70200-30 - 915C90200-30



Dimensions



Logic Truth Table

Voltage

28Vdc	20 to 30Vdc
5Vdc	4.5 to 5.5Vdc
Logic 0	0 to 4Vdc
Logic 1	2.4 to 5.5Vdc pulse width 20ms at 20Vdc

Coil Current:	120mA max at 28Vdc, 20°C
Switching Time, Max:	20ms at 20Vdc

909C70200-30
 909C70100-30
 909C71100-30
 909C71200-30
 905C90100-30
 905C90200-30
 905C91100-30
 905C91200-30

Logic Truth Table		
RF Path	Logic Signal	
	A	B
In 1	1	0
In 2	0	1

919C70100-30
 919C70200-30
 915C90100-30
 915C90200-30

Logic Truth Table		
RF Path	Logic Signal	
	A	
In 1	0	
In 2	1	

Coaxial Switch

Type D

Description

The Type D Latching SPDT Switch has RF geometry optimized for N and TNC connectors and operates over a 0-12.4GHz frequency band. It is magnetically latched and available with or without an actuator cut-off circuit. It is also available with or without indicating switches. DowKey's design mechanically links indicating switches to the rotating armature for positive indication.

Actuator features:

1. Balanced rotating armature
2. Reliable actuation with low current
3. Positive latching with permanent magnets

A single voltage pulse of 50 milliseconds is all that is required to change positions; no holding power is required to maintain a position.

Magnetic latching offers distinct advantages over other mechanisms since it uses no springs or mechanical detents which are prone to fatigue and wear. DowKey considers magnetic latching to be the optimum design for applications which require high vibration levels, environmental extremes, long life and reliability.

This switch is part of the DowKey family of switches. Other types in this family are referenced below.

RF Circuit: SPDT
Actuator: Latching
Connector: TNC & N
Frequency: 0-12.4GHz



Type	Conn.	Freq.
DO	SMA	18 GHz
DX	SC	6.5 GHz

Meets MIL-S-3928

Standard Products

P/N	Conn.	Schematic
805C00100	N	1
805C00200	N	2
805C01100	N	3
805C01200	N	4
805C30100	TNC	1
805C30200*	TNC	2
805C31100	TNC	3
805C31200	TNC	4

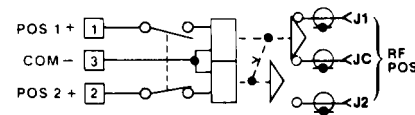
Meets MIL-S-3928/20-08

Special Configuration

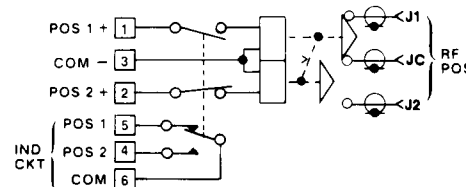
DC-Power Plug TTL Logic
 Transient Circuit Terminal Location

Schematic

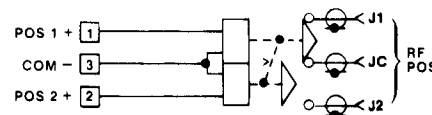
#1. Latching



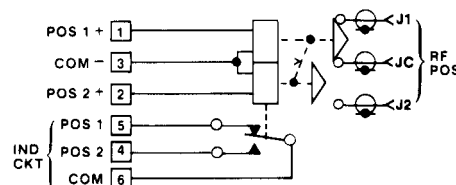
2. Latching with Indicator



3. Pulse Latching



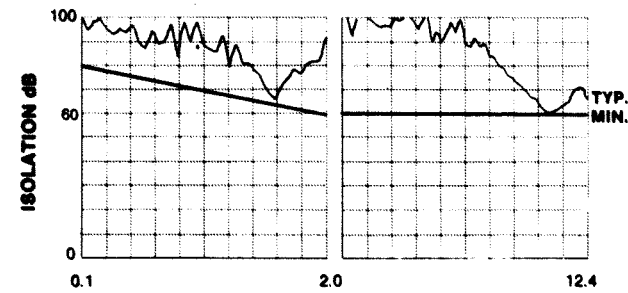
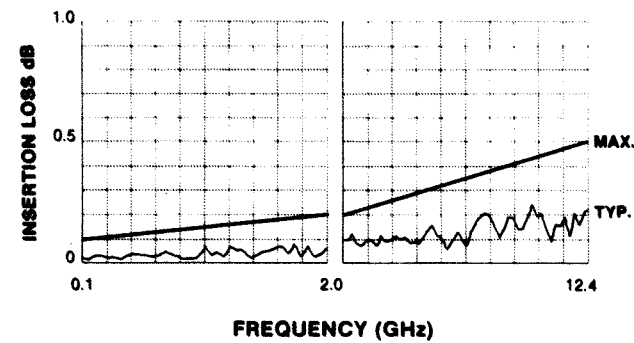
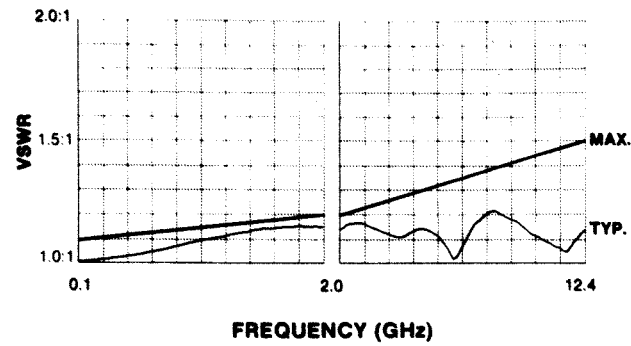
4. Pulse Latching w/ Indicator



Specifications

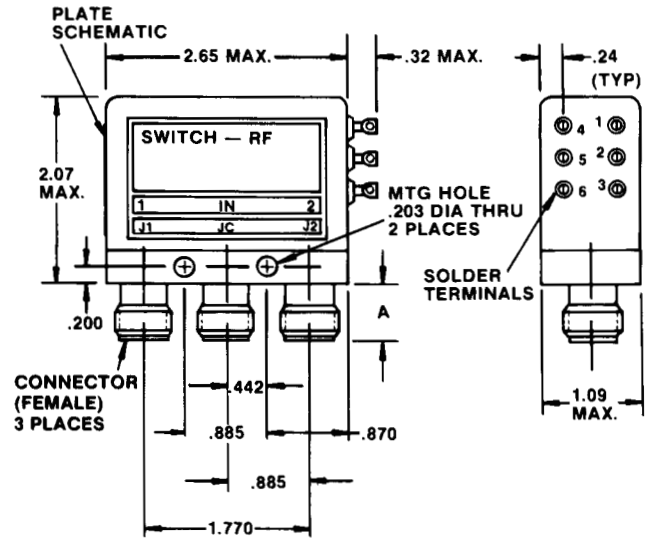
Typical RF data of a production switch; computer printouts below:

Type N Shown



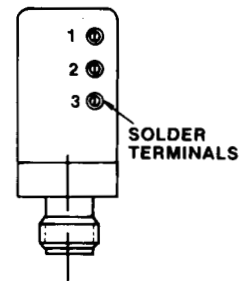
Actuator Voltage: 20 to 30Vdc
 Coil Resistance: 95 ± 5 Ohms @ 20°C
 Current: 0.31 amps max. @ 28Vdc
 Switching Time: 20 milliseconds
 RF Contacts: break-before-make
 Impedance: 50 Ohms nominal
 Temperature: -55°C to 85°C
 Vibration: 20g's sine/random
 Life: 100,000 cycles min
 Weight: 8.2 oz. max.

Dimensions



805C00200 SHOWN

CONN	A
N	.60
TNC	.56



805C00100 SHOWN

Lower Frequency

At 10MHz, typical values are:

Isolation: 100dB

VSWR: 1.05:1

Insertion Loss: 0.05dB

Because of the inherently good RF performance at lower frequencies, this product line is not tested below 2GHz except upon request.

Coaxial Switch

Type D

Description

The Type D Coaxial SPDT Switch has RF geometry optimized for TNC and N connectors and operates over a 0-12.4GHz frequency band. It is also available with or without indicators. DowKey's design mechanically links indicating switches to the rotating armature for positive indication.

Actuator features:

1. Balanced rotating armature
2. Lower current required to develop the actuating torque.
3. Dual holding power - permanent magnet plus electromagnet

This design features a dual magnetic field for high efficiency and long life reliability...and excellent shock/vibration characteristics.

This switch is part of the DowKey family of switches. Other types in this family are referenced below.

Type	Conn.	Freq.
DO	SMA	18 GHz
DX	SC	6.5 GHz

RF Circuit: SPDT
Actuator: Failsafe
Connector: TNC & N
Frequency: 0-12.4GHz



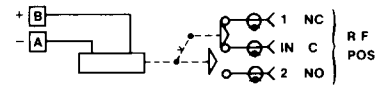
Standard Products

P/N	Conn.	Schematic
810C00100	N	1
810C00200	N	2
810C30100	TNC	1
810C30200	TNC	2

Meets MIL-S-3928/10-04 (810C00100)
 MIL-S-3928/10-05 (810C00200)

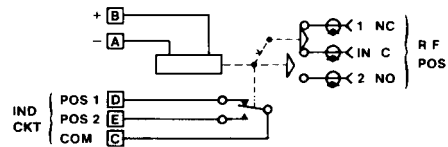
Schematic

#1. Failsafe



SHOWN IN FAIL-SAFE POSITION (NC)
 ENERGIZE TO CONNECT POSITION 2 (NO)

2. Failsafe with Indicator Circuit



SHOWN IN FAIL-SAFE POSITION (NC)
 ENERGIZE TO CONNECT POSITION 2 (NO)

Special Configuration

Actuating Voltage TTL Logic Circuit
 Transient Circuit Terminal Location
 Mounting Configuration

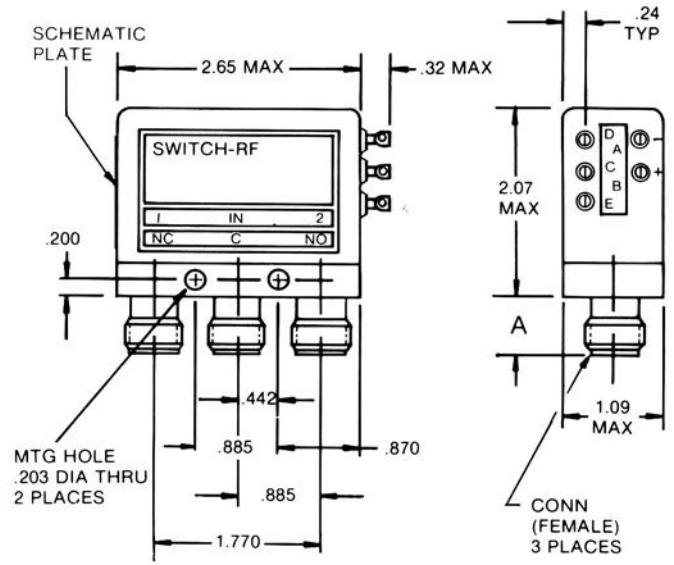
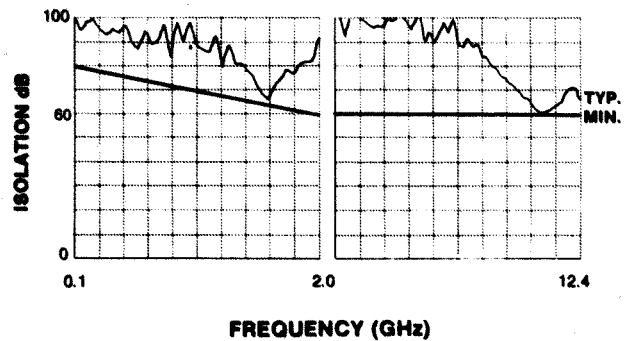
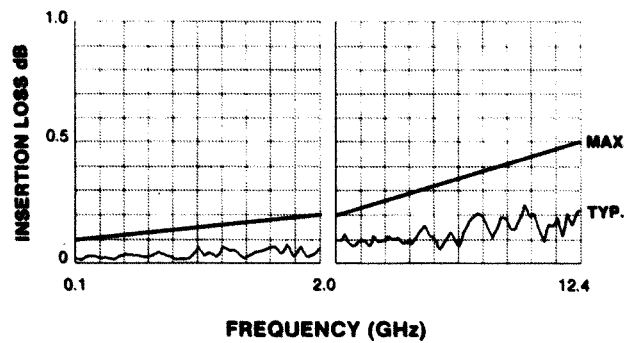
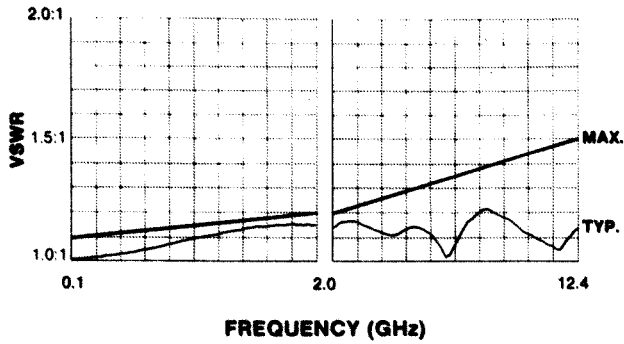
Specifications

Typical RF data of a production switch; computer printouts below:

Type N Shown

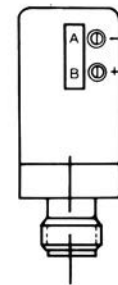
Actuator Voltage: 20 to 30Vdc
 Coil Resistance: 190 ± 10 Ohms @ 20°C
 Current: 160 amps max. @ 28Vdc and 20°C
 Switching Time: 20 milliseconds max. RF to RF
 RF Contacts: break-before-make
 Impedance: 50 Ohms nominal
 Temperature: -55°C to 85°C
 Vibration: 20g's sine/random
 Life: 1,000,000 cycles min
 Weight: 8.2 oz. max.

Dimensions



810C00200 SHOWN

CONN	A
N	.60
TNC	.56



810C00100 SHOWN

Lower Frequency

At 10MHz, typical values are:

Isolation: 100dB

VSWR: 1.05:1

Insertion Loss: 0.05dB

Because of the inherently good RF performance at lower frequencies, this product line is not tested below 2GHz except upon request.

Coaxial Switch

Type DT

Description

The Type DT Coaxial Switch has RF geometry optimized for TNC connectors and operates over a 0-12.4GHz frequency band. This type switch is in a smaller package than Type D and is available in Latching or failsafe models, with or without indicators.

Latching models use a magnetic latching actuator with cut-off circuitry. This switch draws current for approximately 30 milliseconds to change position; no holding power is required to maintain a position.

The failsafe models feature dual holding power...a permanent magnet plus electromagnet for low current with high efficiency.

This switch is part of the DowKey family of switches. Other types in this family are referenced below.

Type	Conn.	Freq.
D	N &TC	1 2.4 GHz
DO	SMA	1 8 GHz
DX	SC	6.5 GHz



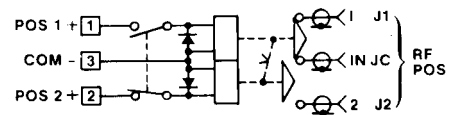
Standard Products

P/N	Schematic
900C30100	1
900C30200	2
910C30100	3
910C30200	4

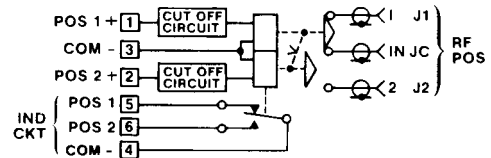
* Meets MIL-S-3928/15

Schematic

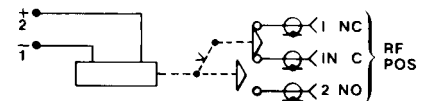
#1. Latching



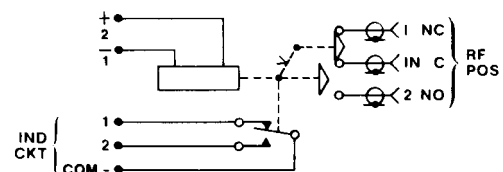
2. Latching with Indicator



3. Failsafe



4. Failsafe w/ Indicator



Specifications

Typical RF data of a production switch; computer printouts below:

Type TNC Shown

Voltage: 20 to 30Vdc
 Switching Time: 20 milliseconds max @ 28Vdc
 RF Contacts: break-before-make
 Impedance: 50 Ohms nominal
 Temperature: -55°C to 85°C
 Vibration: 20g's sine/random
 Life: 100,000 cycles min
 Weight: 4 oz. max.

Latching Models

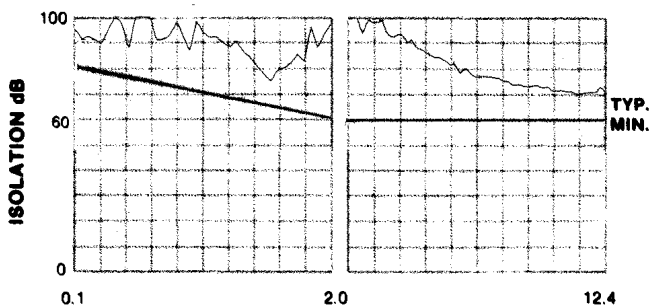
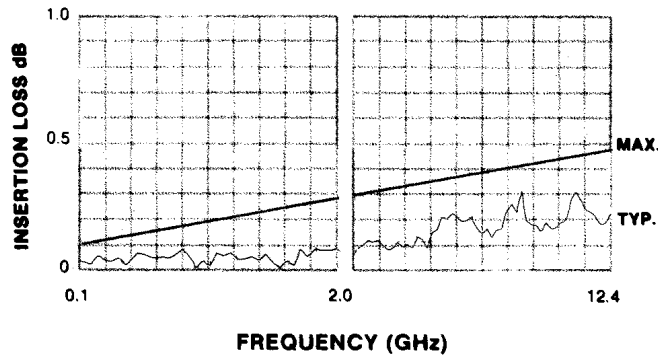
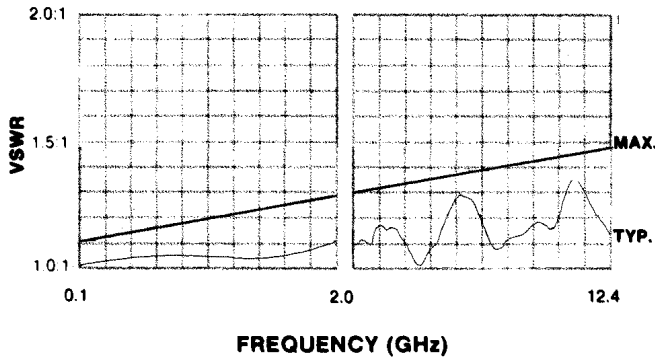
900C30100 and 900C30200

Coil Resistance: 55 ± 5 Ohms @ 20°C
 Current: 510mA max @ 28Vdc and 20°C

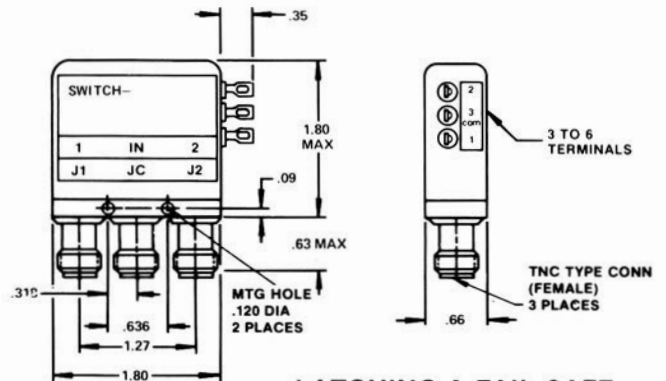
failsafe Models

910C30100 and 910C30200

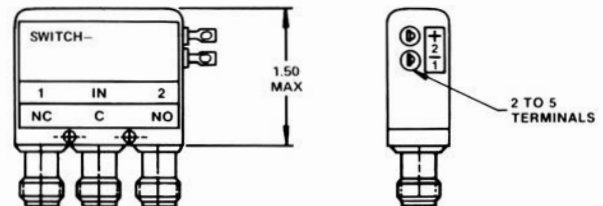
Coil Resistance: 115 ± 5 Ohms @ 20°C
 Current: 280mA max @ 28Vdc and 20°C



Dimensions



**LATCHING & FAIL-SAFE
With Indicating Switches**



FAIL-SAFE Without Indicating Switches
 DIM. NOT SHOWN ARE SAME AS ABOVE

Lower Frequency

At 10MHz, typical values are:

Isolation: 100dB

VSWR: 1.05:1

Insertion Loss: 0.05dB

Because of the inherently good RF performance at lower frequencies, this product line is not tested below 2GHz except upon request.

**Mating connector
to be 5/8" diameter**

Coaxial Switch

Type DX

Description

The Type DX Coaxial Switches are designed for high average power applications over a 0-6.5GHz frequency band. They use SC connectors with one inch center-to-center spacing.

These switches utilize HCl (heat conducting dielectric) to increase the average power handling capabilities. Test results on a large number of components employing HCl have consistently indicated a CW power rating 2.5 times greater than obtainable with conventional low-loss dielectric materials.

These switches are available in latching or failsafe models, with or without indicating switches.

The latching models use DowKey's Type D switch magnetic latching actuator featuring a balanced rotating armature.

The failsafe models use DowKey's Type D switch failsafe actuator featuring dual holding power...a permanent magnet and electromagnet.

This switch is part of a DowKey family of switches. Other types in this family are referenced below.

Type	Conn.	Freq.
D	N &TNC	1 2.4 GHz
DO	SMA	1 8 GHz

Standard Products

P/N	Schematic
800C51100	1
800C51200	2
810C51100	3
810C51200	4
800C50100	
800C50200	①
* Meets MIL-S-3928	②

① Same as schematic 1 with the addition of current cutoff circuit.

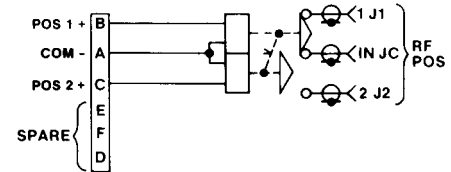
② Same as schematic 2 with the addition of current cutoff circuit.

RF Circuit: SPDT High Power
Actuator: Latching and Failsafe
Connector: SC
Frequency: 0-6.5GHz

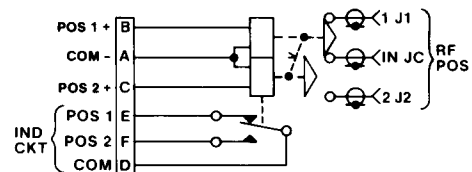


Schematic

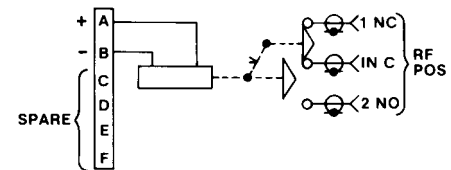
#1. Pulse Latching



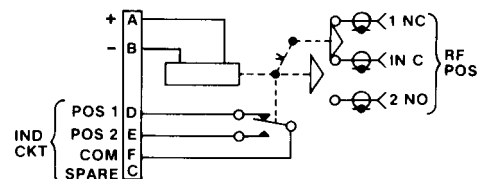
2. Pulse Latching with Indicator



3. Failsafe

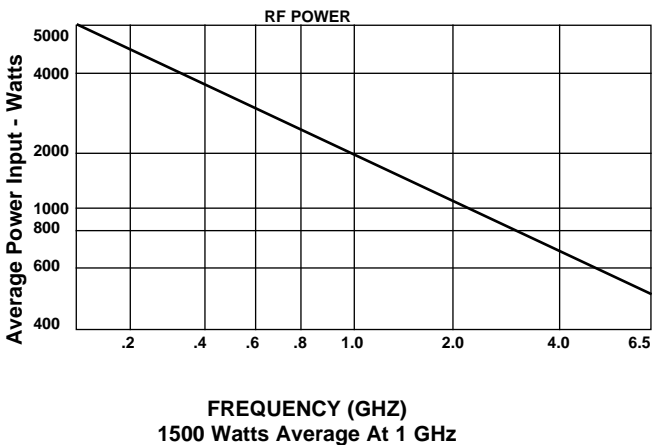
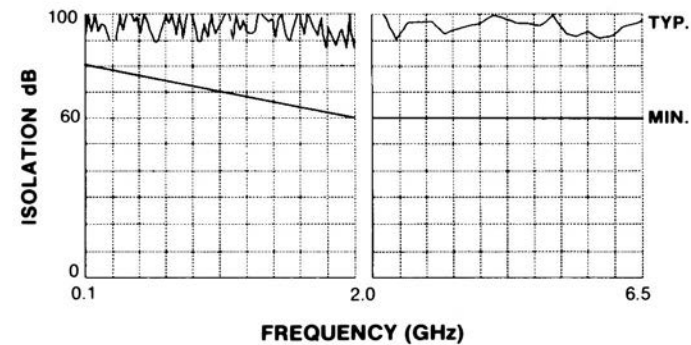
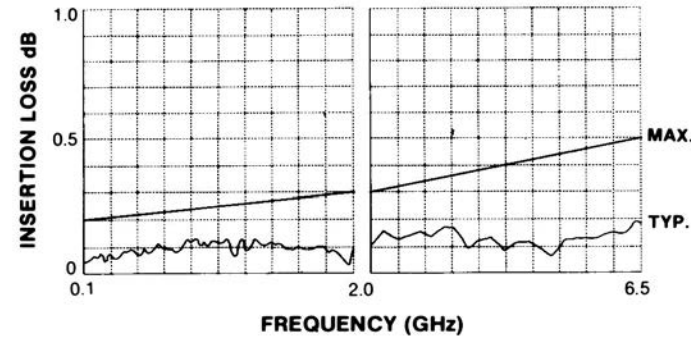
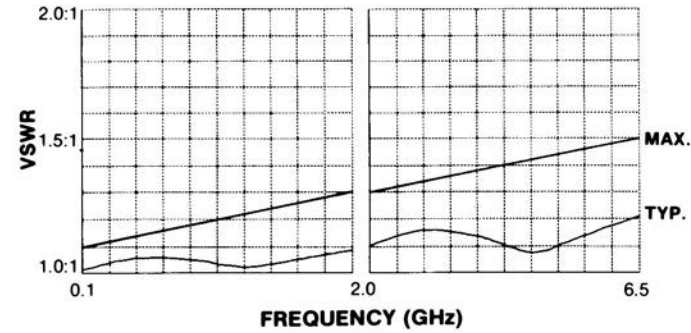


4. Failsafe w/ Indicator



Specifications

Typical RF data of a production switch; computer printouts below:



Voltage: 20 to 30Vdc
 RF Contacts: break-before-make
 Impedance: 50 Ohms nominal
 Temperature: -55°C to 85°C
 Vibration: 10g's sine/random
 Life: 100,000 cycles min
 Weight: 8.5 oz. max.

Latching Models

800C51100 and 800C51200

800C50100 and 800C50200

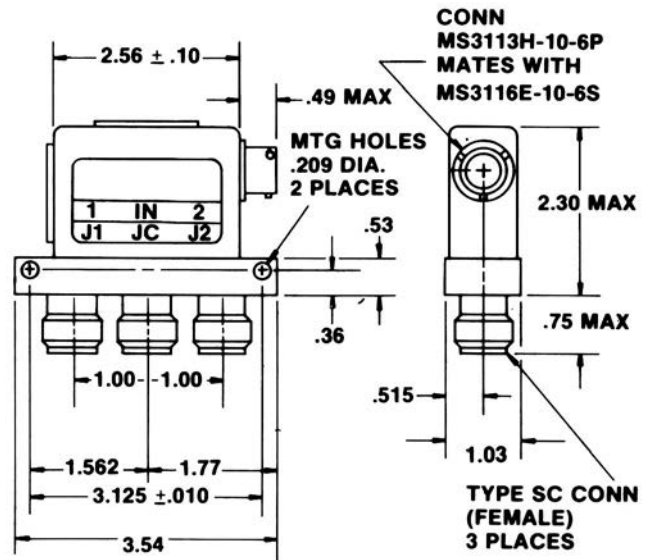
Coil Resistance: 95 ± 5 Ohms @ 20°C
 Current: 320mA max @ 28Vdc and 20°C
 Switching Time: 20mS max @ 28Vdc and 20°C

failsafe Models

810C51100 and 810C51200

Coil Resistance: 310 ± 5 Ohms @ 20°C
 Current: 280mA max @ 28Vdc and 20°C
 Switching Time: 30mS max @ 28Vdc and 20°C

Dimensions



At 10MHz, typical values are:

Isolation: 100dB

VSWR: 1.05:1

Insertion Loss: 0.05dB

Because of the inherently good RF performance at lower frequencies, this product line is not tested below 2GHz except upon request.

Coaxial Switch

Type PD

Description

The Type PD Switch has the RF contact operation of make-before-break for switching under RF power. The Type PD Switch is available in latching or failsafe models with or without indicating switches.

MBB: Contacts arranged so the closing contacts make before interrupting the closed circuit. This type always has both circuits closed for an instant.

The MBB option offers an advantage in some high power switching applications because the maximum VSWR is limited to a value slightly in excess of 2:1. The BBM type presents a momentary infinite VSWR during switching.

The failsafe model features the same actuator design as the failsafe Type D Switch.

This switch has been tested 63,000 cycles under the following conditions with no measurable effect on the performance specifications.

Power	Frequency	Cycles
25 W CW	3350MHz	3,000
150 W CW	250MHz	20,000
	1087MHz	40,000

4KW pk., 5 W average.

These are not maximum ratings. Please contact DowKey/Transco regarding a switch to test in your system.

Standard Products

P/N	Conn	Schematic
808C00100	N	1 } Latching
808C00200	N	2 } Latching
818C00100	N	3 } failsafe
818C00200	N	4 } failsafe
808C30100	TNC	1 } Latching
808C30200	TNC	2 } Latching
818C30100	TNC	3 } failsafe
818C30200	TNC	4 } failsafe

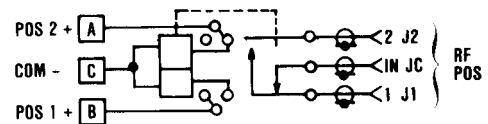
* Meets MIL-S-3928

RF Circuit: SPDT (MBB)
Actuator: Latching and Failsafe
Connector: TNC & N
Frequency: 0-12.4GHz

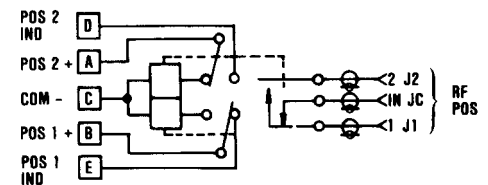


Schematic

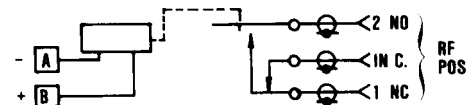
#1. Latching



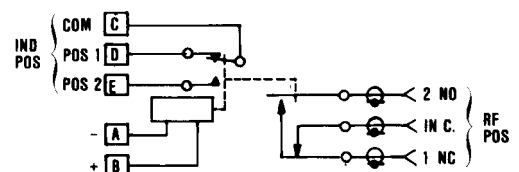
2. Latching with Indicator



3. Failsafe



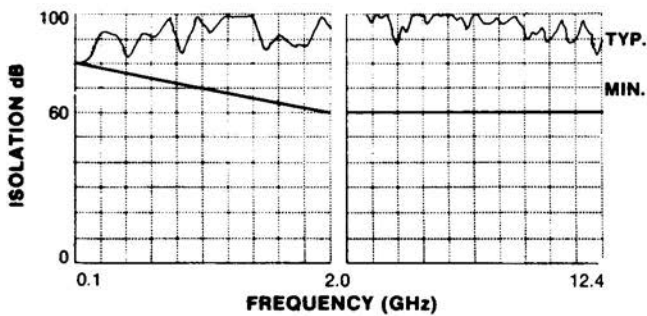
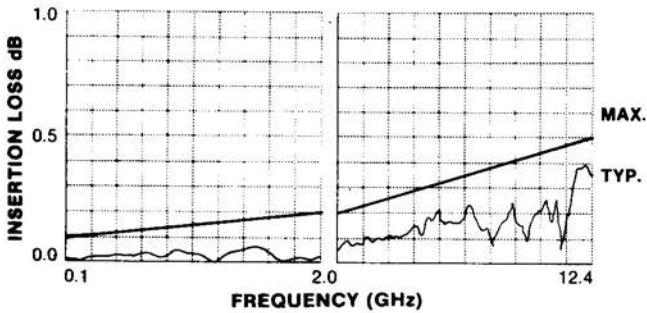
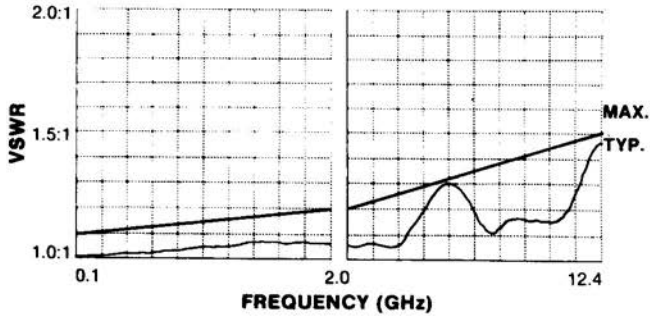
4. Failsafe w/ Indicator



Specifications

Typical RF data of a production switch; computer printouts below:

Type N shown



Lower Frequency

At 10MHz, typical values are:

Isolation: 80dB

VSWR: 1.05:1

Insertion Loss: 0.05dB

Because of the inherently good RF performance at lower frequencies, this product line is not tested below 2GHz except upon request.

Voltage: 20 to 30Vdc
 Switching Time: 30 milliseconds max @ 28Vdc
 RF Contacts: break-before-make
 Time in MBB Pos: 2mS approx.
 Impedance: 50 Ohms nominal
 Temperature: -55°C to 85°C
 Vibration: 20g's sine/random
 Life: 100,000 cycles min
 Weight: 8 oz. max.

Latching Models

808C00100 and 808C00200

808C30100 and 808C30200

Coil Resistance: 55 ± 5 Ohms @ 20°C

Current: .51 amp @ 28Vdc and 20°C

failsafe Models

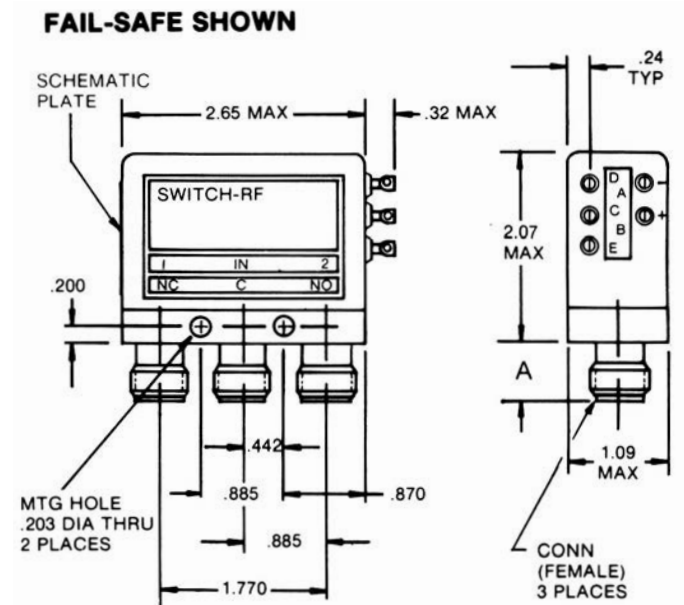
818C00100 and 818C00200

818C30100 and 818C30200

Coil Resistance: 100 ± 5 Ohms @ 20°C

Current: .28 amp @ 28Vdc and 20°C

Dimensions



Coaxial Switch

Type HO

Description

The Type HO Coaxial Switch has RF geometry optimized for SMA connectors and operates over a 0-18GHz frequency band. It is magnetically latched and available with or without an actuator cut-off circuit. It is also available with or without indicators. DowKey's design mechanically links indicating switches to the rotating armature for positive indication.

Actuator features:

1. Balanced rotating armature
2. Reliable actuation with low current
3. Positive latching with permanent magnets
4. Basic design concept qualified for space applications.

A single voltage pulse of 20 milliseconds is all that is required to change positions; no holding power is required to maintain a position.

Magnetic latching offers distinct advantages over other mechanisms since it uses no springs or mechanical detents which are prone to fatigue and wear. DowKey considers magnetic latching to be the optimum design for applications which require high vibration levels, environmental extremes, long life and reliability.

This switch is part of a DowKey family of switches. Other types in this family are referenced below.

Type	Conn.	Freq.
H	N	12.4GHz
HT	TNC	12.4GHz
HX	SC	6.5GHz

Standard Products

P/N	Schematic
700C70100	1
700C70200	2
700C71100	3
700C71200	4

Meets MIL-S-3928

Special Configuration

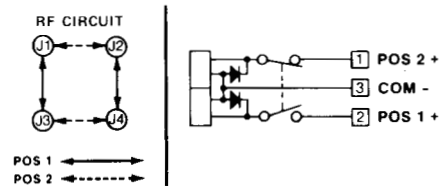
Actuating Voltage	TTL Logic Circuit
Transient Circuit	Terminal Location
Power Plug	Mounting Configuration

RF Circuit: Transfer
Actuator: Latching
Connector: SMA
Frequency: 0-18GHz

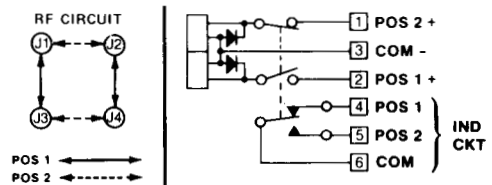


Schematic

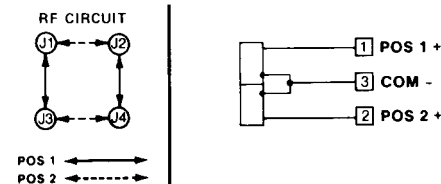
#1. Latching



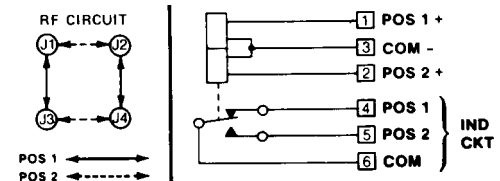
2. Latching with Indicator Circuit



3. Pulse Latching

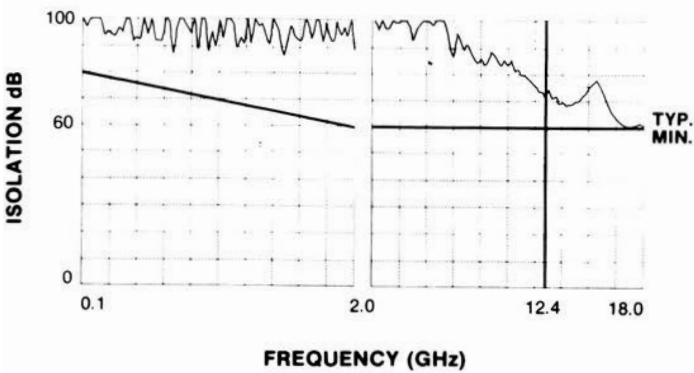
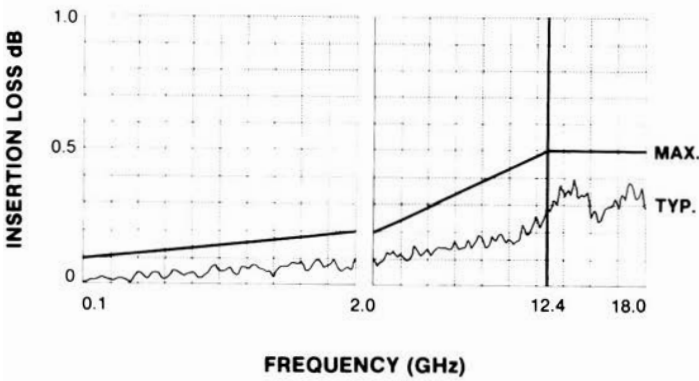
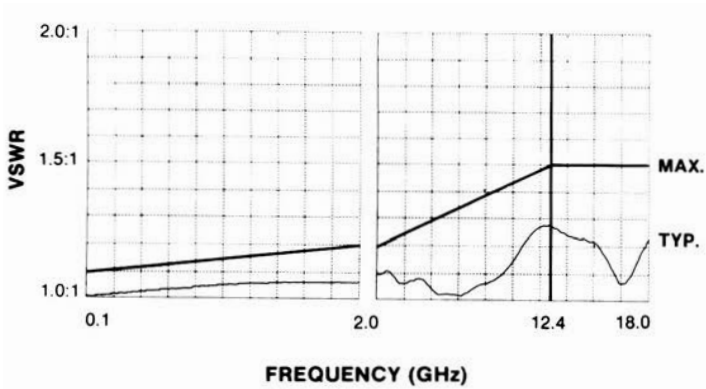


4. Pulse Latching w/ Indicator Circuit



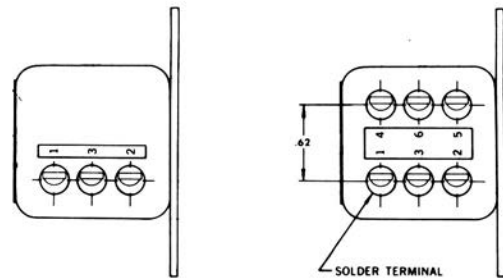
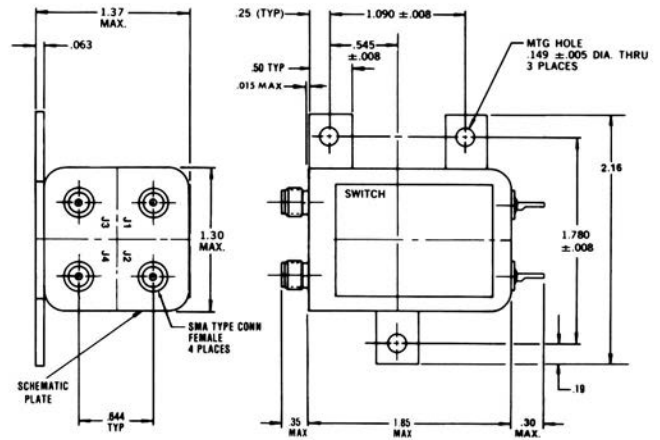
Specifications

Typical RF data of a production switch; computer printouts below:



Actuator Voltage: 20 to 30Vdc
 Coil Resistance: 500 ± 50 Ohms @ 20°C
 Current: 65 mA max. @ 28Vdc and 20°C
 Switching Time: 20 milliseconds @
 28Vdc and 20°C
 RF Contacts: break-before-make
 Impedance: 50 Ohms nominal
 Temperature: -55°C to 85°C
 Vibration: 20g's sine/random
 Life: 100,000 cycles min
 Weight: 3.5 oz. max.

Dimensions



Lower Frequency

At 10MHz, typical values are:

Isolation: 100dB

VSWR: 1.05:1

Insertion Loss: 0.05dB

Because of the inherently good RF performance at lower frequencies, this product line is not tested below 2GHz except upon request.