DowKey® Microwave CORPORATION

Available with two types of internal drive electronics (Binary Decoding or MOSFET Pulse Latching), these SP3T and SP4T IN-LINE Series Multithrow Switches are ideal for test equipment and simple switch matrix applications. Featuring excellent insertion loss and isolation performance through 18 GHz, along with the DowKey INTELLIGENT RELAY internal electronics, the 433 and 443 Series are suitable for many systems applications.

Typical applications for the 433-443 Series include:

- Test Equipment Band Selection
- Switch Matrixes

DowKey® 433 & 443 Series INTELLIGENT RELAY SP3T & SP4T IN-LINE

Specifications :

Operating Voltage:
(across temperature range)
15 Vdc (14-17 Vdc)
28 Vdc (24-32 Vdc)

Coil Current (Nominal):
15 Vdc 187 mA
28 Vdc 177 mA

Switching Time:
15 mS maximum

Operating Temperature:
0ºC to +65ºC

Mechanical Life, Cycles:
1 x 10^6 minimum

RF Connectors:
SMA-Female Only

RF Characteristics

Frequency GHz	VSWR (max)	Isolation dB (min)	Ins. Loss dB (max)	RF Power Watts (CW)
0-1	1.50	80	0.20	100
1-4	1.50	70	0.30	50
4-8	1.50	65	0.40	25
8-12	1.60	60	0.50	15
12-18	2.00	60	1.00	10

Power handling capability is for through path only. Optional internal termination is limited to 500 milliwatts dissipation

Connectors and Part Numbers

Terminations None	Terminations 50Ω	Descriptions
SP3T Switches		
433-320802C	433-320803C	12 Vdc Coil, MOSFET Drivers, Pulse Latching
433-330802C	433-330803C	28 Vdc Coil, MOSFET Drivers, Pulse Latching
433-420802E	433-420803E	12 Vdc Coil, Binary Decoding, with ENABLE, Latching, Self-Cutoff
433-420802E	433-420803E	28 Vdc Coil, Binary Decoding, with ENABLE, Latching, Self-Cutoff
SP4T Switches		
443-320802C	443-320803C	12 Vdc Coil, MOSFET Drivers, Pulse Latching
443-330802C	443-330803C	28 Vdc Coil, MOSFET Drivers, Pulse Latching
443-420802E	443-420803E	12 Vdc Coil, Binary Decoding, with ENABLE, Latching, Self-Cutoff
443-420802E	443-430803E	28 Vdc Coil, Binary Decoding, with ENABLE, Latching, Self-Cutoff

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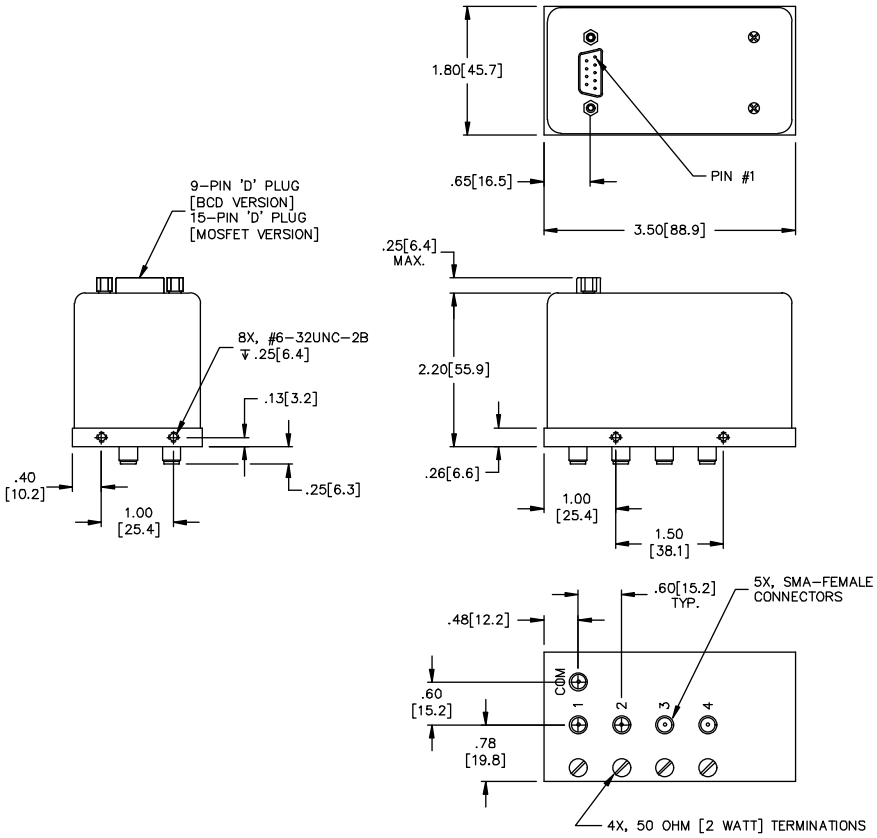
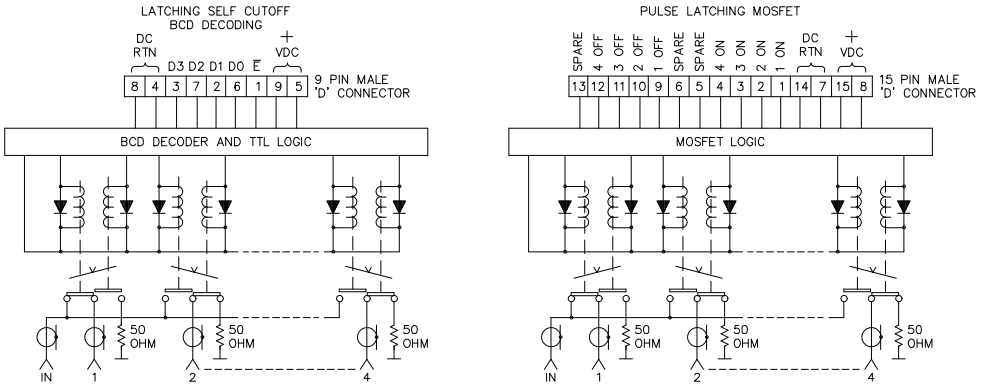
Mechanical



Electrical



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DowKey® Microwave CORPORATION

Available with either CMOS Binary logic decoding circuits or MOSFET pulse latching electronics, these DowKey INTELLIGENT RELAY Multithrow Switches were designed to simplify the physical construction and reduce the amount of supporting (logic and switch driver) electronics required to implement complex switch assemblies. These SP7T and SP10T DowKey INTELLIGENT RELAY IN-LINE Multithrow Switches are ideal for complex switch matrix or test equipment applications.

Typical applications for the 473-4A3 Series include:

- Test Equipment Band Selection
- Switch Matrixes

DowKey® 473 to 4A3 Series INTELLIGENT RELAY SP7T & SP10T IN-LINE

RF Characteristics

Frequency GHz	VSWR (max)	Isolation dB (min)	Ins. Loss dB (max)			RF Power Watts (CW)
			1-3	4-6	7-10	
0-2	1.50	80	0.20	0.30	0.40	50
2-8	1.50	70	0.40	0.50	0.80	25
8-12	1.50	65	0.50	0.70	1.00	15
12-18	2.00	60	1.00	1.50	2.00	10

Power handling capability is for through path only. Optional internal termination is limited to 500 milliwatts dissipation

Specifications :

Operating Voltage:
(across temperature range)
15 Vdc (14-17 Vdc)
28 Vdc (24-32 Vdc)

Coil Current (Nominal):
15 Vdc 187 mA
28 Vdc 177 mA

Switching Time:
15 mS maximum

Operating Temperature:
0ºC to +65ºC

Mechanical Life, Cycles:
1 x 10^6 minimum

RF Connectors:
SMA-Female Only

Connectors and Part Numbers

Terminations None	Terminations 50Ω	Descriptions
SP7T Switches		
473-320802C	473-320803C	12 Vdc Coil, MOSFET Drivers, Pulse Latching
473-330802C	473-330803C	28 Vdc Coil, MOSFET Drivers, Pulse Latching
473-420802E	473-420803E	12 Vdc Coil, Binary Decoding, with ENABLE, Latching, Self-Cutoff
473-420802E	473-430803E	28 Vdc Coil, Binary Decoding, with ENABLE, Latching, Self-Cutoff
SP8T Switches		
483-320802C	483-320803C	12 Vdc Coil, MOSFET Drivers, Pulse Latching
483-330802C	483-330803C	28 Vdc Coil, MOSFET Drivers, Pulse Latching
483-420802E	483-420803E	12 Vdc Coil, Binary Decoding, with ENABLE, Latching, Self-Cutoff
483-430802E	483-430803E	28 Vdc Coil, Binary Decoding, with ENABLE, Latching, Self-Cutoff
SP9T Switches		
493-320802C	493-320803C	12 Vdc Coil, MOSFET Drivers, Pulse Latching
493-330802C	493-330803C	28 Vdc Coil, MOSFET Drivers, Pulse Latching
493-420802E	493-420803E	12 Vdc Coil, Binary Decoding, with ENABLE, Latching, Self-Cutoff
493-430802E	493-430803E	28 Vdc Coil, Binary Decoding, with ENABLE, Latching, Self-Cutoff
SP4T Switches		
4A3-320802C	4A3-320803C	12 Vdc Coil, MOSFET Drivers, Pulse Latching
4A3-330802C	4A3-330803C	28 Vdc Coil, MOSFET Drivers, Pulse Latching
4A3-420802E	4A3-420803E	12 Vdc Coil, Binary Decoding, with ENABLE, Latching, Self-Cutoff
4A3-430802E	4A3-430803E	28 Vdc Coil, Binary Decoding, with ENABLE, Latching, Self-Cutoff

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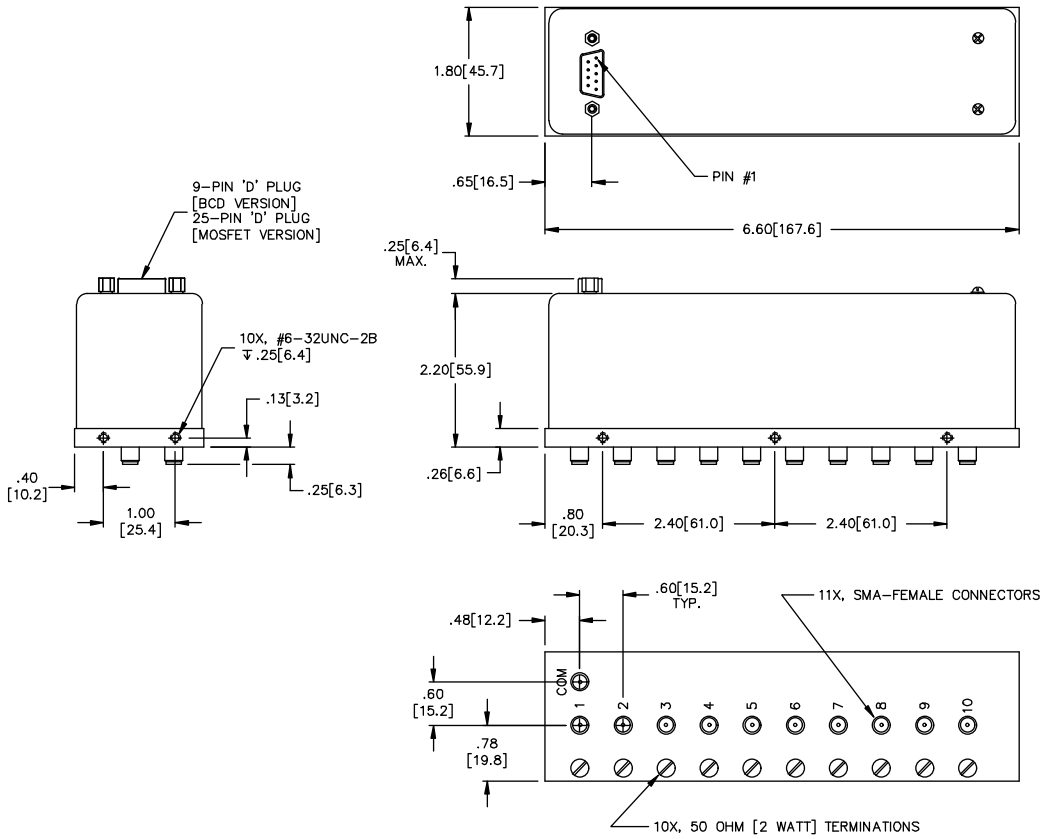
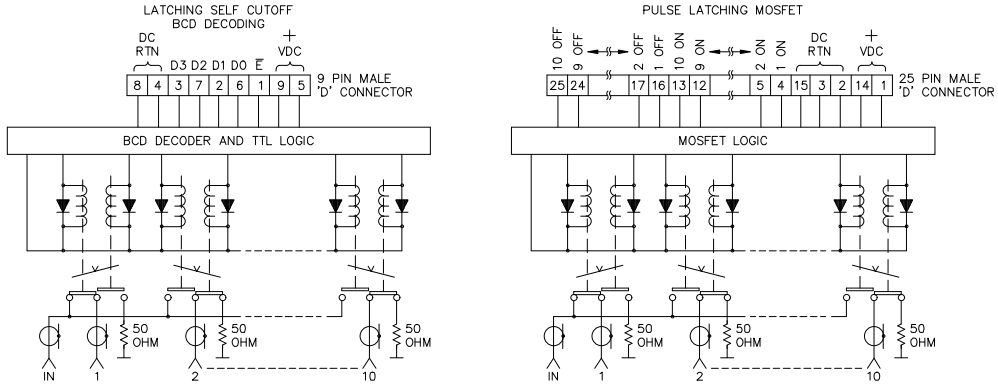
Mechanical



Electrical



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DowKey® Microwave CORPORATION

Available with either 15 Vdc or 28 Vdc actuator coils, these DowKey INTELLIGENT RELAY IN-LINE Series SP12T Multithrow Switches are available with internal binary decoding CMOS logic circuits with latching self cut-off drivers. The IN-LINE construction has the common port in the center of the RF cavity to provide excellent electrical performance through 18 GHz. The 4C3 Series switches are ideal for large switch matrix or complicated automatic test equipment switching applications.

Typical applications for the 4C3 Series include:

- Test Equipment Band Selection
- Switch Matrixes

DowKey® 4C3 Series INTELLIGENT RELAY SP12T IN-LINE

Specifications :

Operating Voltage:
(across temperature range)
15 Vdc (14-17 Vdc)
28 Vdc (24-32 Vdc)

Coil Current (Nominal):
15 Vdc 187 mA
28 Vdc 177 mA

Switching Time:
15 mS maximum

Operating Temperature:
0ºC to +65ºC

Mechanical Life, Cycles:
1 x 10^6 minimum

RF Connectors:
SMA-Female Only

RF Characteristics

Frequency GHz	VSWR (max)	Isolation dB (min)	Ins. Loss dB (max)			RF Power Watts (CW)
			1-4	5-8	9-12	
0-2	1.50	80	0.20	0.30	0.40	50
2-8	1.50	70	0.40	0.50	0.60	25
8-12	1.60	60	0.50	0.60	0.80	15
12-18	2.00	60	1.00	1.50	2.00	10

Power handling capability is for through path only. Optional internal termination is limited to 500 milliwatts dissipation

Connectors and Part Numbers

Terminations		Descriptions
None	50Ω	
SP7T Switches		
4C3-420802E	4C3-420803E	12 Vdc Coil, Binary Decoding, with ENABLE, Latching, Self-Cutoff
4C3-430802E	4C3-430803E	28 Vdc Coil, Binary Decoding, with ENABLE, Latching, Self-Cutoff

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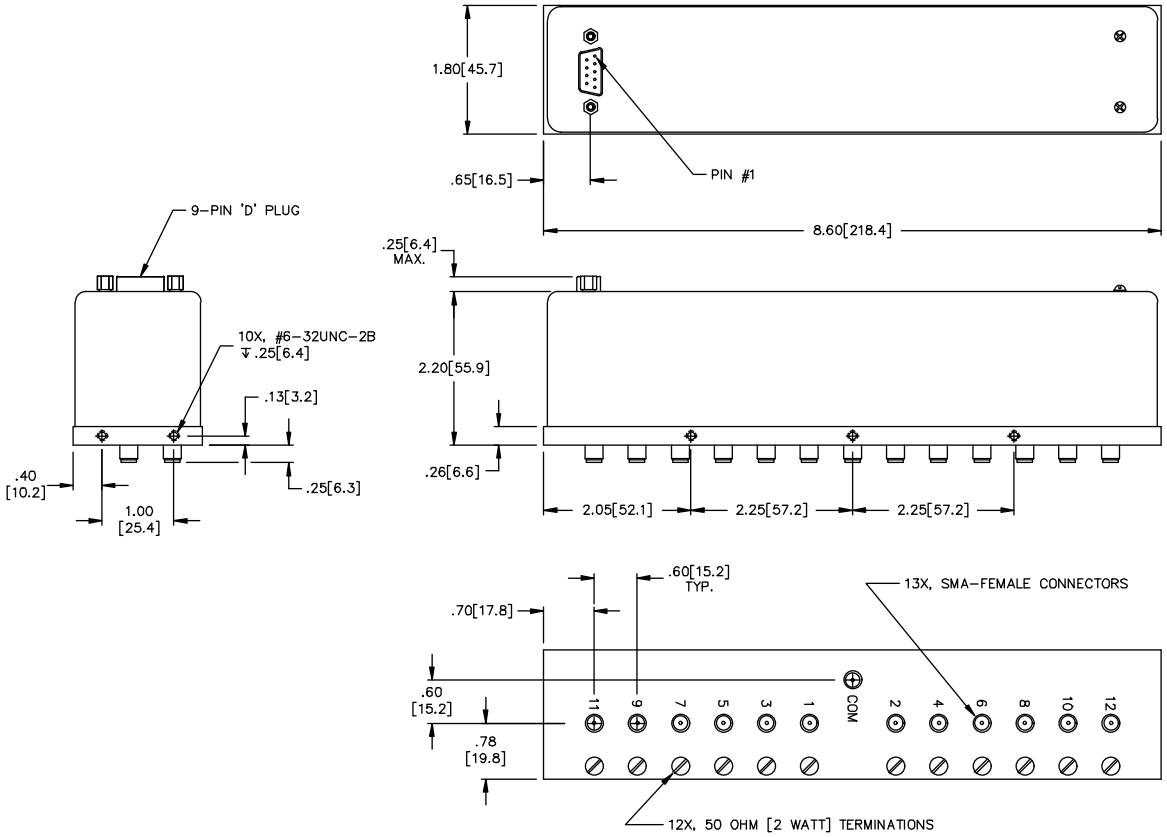
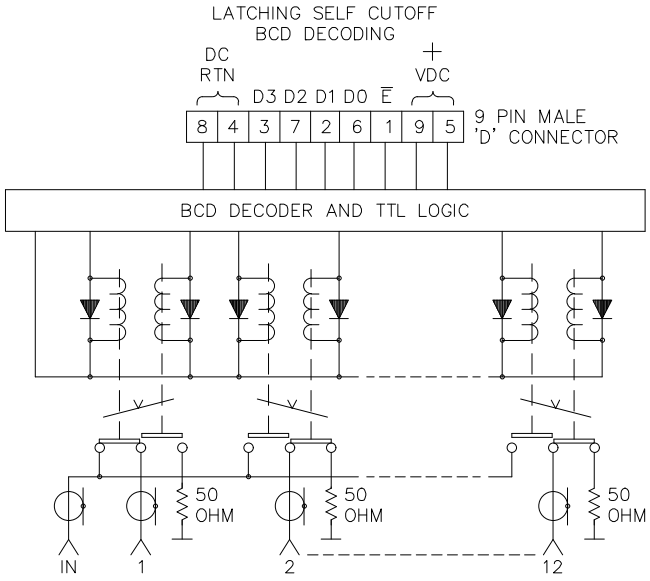
Mechanical



Electrical



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DowKey® Microwave CORPORATION

This DPDT switch is two SPDT relays (similar to the DowKey 164 Series) mounted together on a common plate with a single actuating coil. The connectors are all opposite the mounting surface, allowing easy access and flush-mount capability. With excellent RF performance, this low cost dual relay is suitable for most general purpose switching applications.

Typical applications for the 46 Series include:

- RF and Microwave Communications
- Dual-Monitor Video Switching
- Magnetic Resonance Imaging Systems
- RF and Video Switching

DowKey® 46 Series DPDT Switch

Specifications :

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

Coil Current (Nominal):
12 Vdc 250 mA
28 Vdc 114 mA

Operate Time:
20 mS maximum

Operating Temperature:
0ºC to +65ºC

Mechanical Life, Cycles:
1 x 10^6 minimum

Nominal Weight:
9.5 oz., (270g.)

RF Characteristics

Frequency MHz	VSWR (max)	Isolation dB (min)	Ins. Loss dB (max)	RF Power Watts (CW)
0-50	1.03	60	0.03	150
50-100	1.05	52	0.04	150-125
100-200	1.07	45	0.05	125-100
200-400	1.12	40	0.10	100-75
400-1,000	1.20	30	0.15	75-50

Connectors and Part Numbers

Nominal Coil Voltage	Connector Type	Standard
12 Vdc	BNC	46-2202
28 Vdc	BNC	46-2302
115 Vac	BNC	46-2602
12 Vdc	TNC	46-2203
28 Vdc	TNC	46-2303
115 Vac	TNC	46-2603

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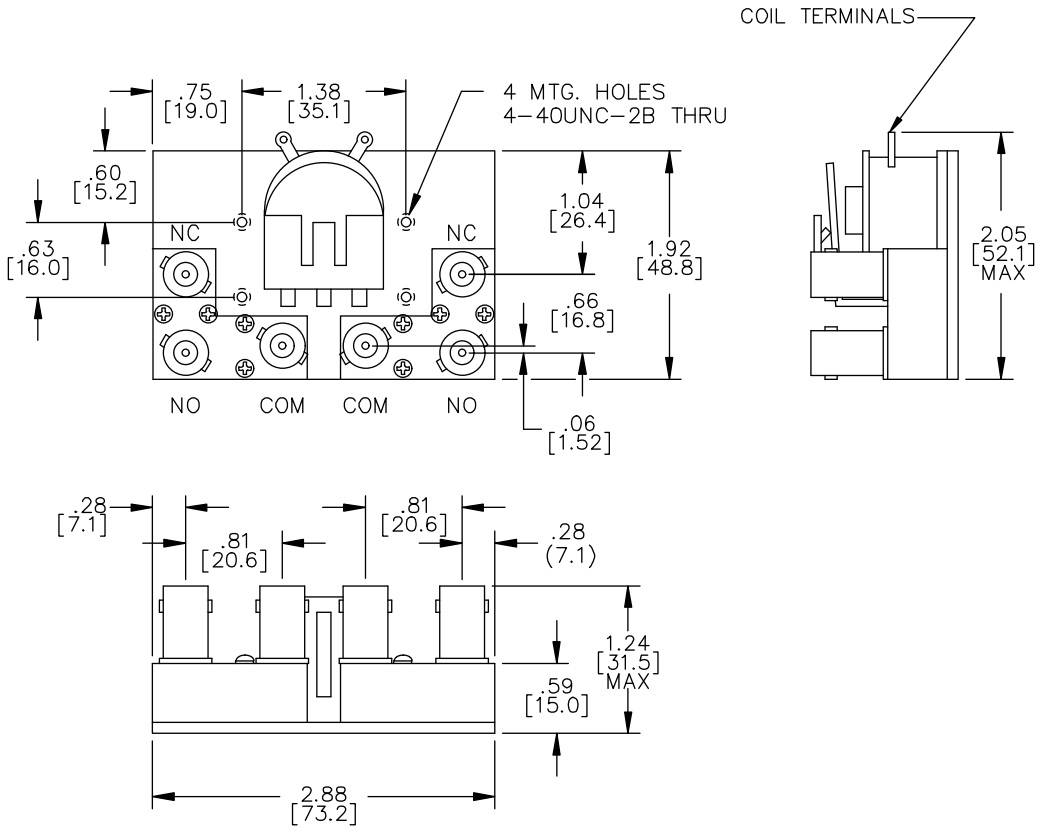
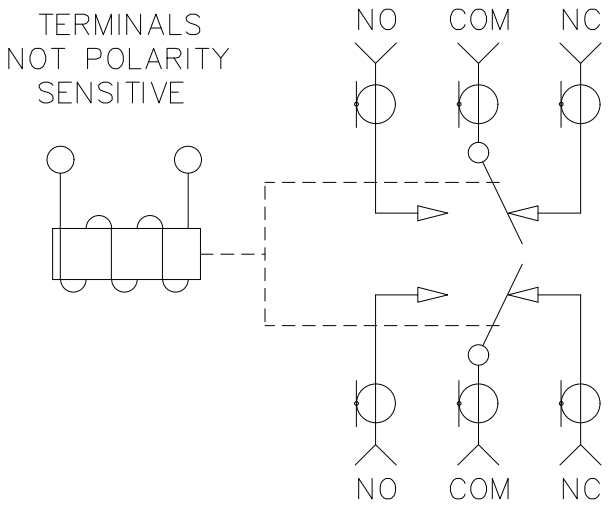
Mechanical



Electrical



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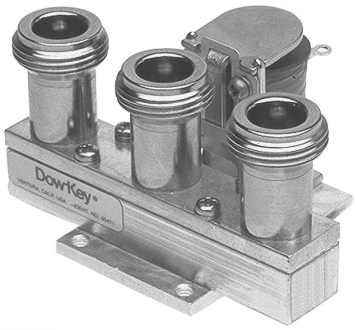
With a maximum power rating of 150 Watts CW, these medium size switches can be used in a variety of switching functions. The DowKey 54 Series switches have all connectors mounted on the same plane as the power coil, and this switch may be flush mounted on any available surface. The 54 Series switches are manufactured with gold-plated silver contacts and a two-blade construction which achieves a minimum of 50 dB isolation at 50 MHz and 35 dB isolation at 3 GHz. Also available are different connector locations as the 55, 56 and 62 Series. All configurations have the same RF performance as the 54 Series.



DowKey® 54 Series SPDT Switch

Typical applications for the 54 Series include:

- Low Frequency Signal Switching
- Test Equipment
- Television Broadcast Equipment
- Medium Power Amplifier Switching, up to 500 Watts at UHF

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:
0ºC to +65ºC

Mechanical Life, Cycles:
1 x 10^6 minimum

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

RF Characteristics

Frequency MHz	VSWR Grounded (max)	VWSR Non-Grounded (max)	Isolation Grounded dB (min)	Isolation Non-Grounded dB (min)	Ins. Loss dB (max)	RF Power Watts (CW)
50	1.05	1.05	75	55	0.10	150
100	1.06	1.06	70	50	0.10	125
200	1.07	1.07	64	42	0.10	100
400	1.10	1.15	60	38	0.10	100
1,000	1.15	1.20	55	32	0.20	75
2,000	1.20	1.25	48	29	0.30	50
3,000	1.30	1.40	35	--	0.40	25

Connectors and Part Numbers

Nominal Coil Voltage	Connector Type	Grounded	Non-Grounded	50Ω Termination	75Ω Termination
12 Vdc	N	54-220101	54-220102	54-220103	54-220104
28 Vdc	N	54-230101	54-230102	54-230103	54-230104
115 Vac	N	54-260101	54-260102	54-260103	54-260104
12 Vdc	BNC	54-220201	54-220202	54-220203	54-220204
28 Vdc	BNC	54-230201	54-230202	54-230203	54-230204
115 Vac	BNC	54-260201	54-260202	54-260203	54-260204
12 Vdc	TNC	54-220301	54-220302	54-220303	54-220304
28 Vdc	TNC	54-230301	54-230302	54-230303	54-230304
115 Vac	TNC	54-260301	54-260302	54-260303	54-260304

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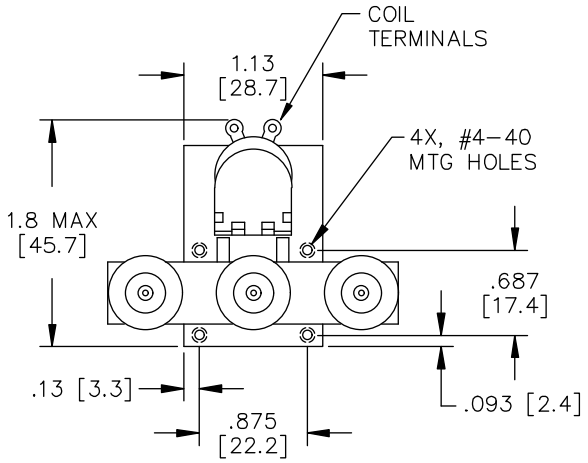
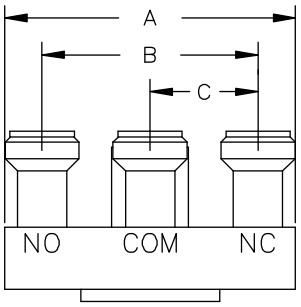
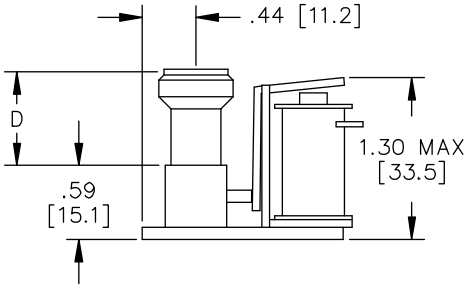
Mechanical



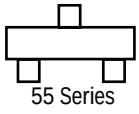
TYPICAL CONNECTOR LENGTHS

CONN. DIM.	N 01 (Shown)	BNC 02	TNC 03
A	2.350 [59.7]	2.000 [50.8]	2.000 [50.8]
B	1.750 [44.5]	1.560 [39.6]	1.560 [39.6]
C	.875 [22.2]	.780 [19.8]	.780 [19.8]
D	.760 [19.3]	.635 [16.1]	.635 [16.1]

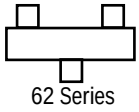




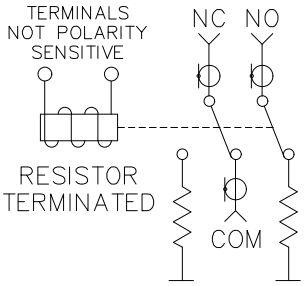
Available Options

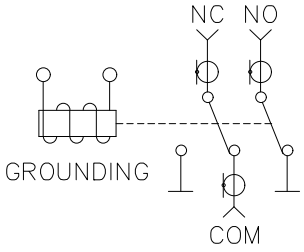

55 Series

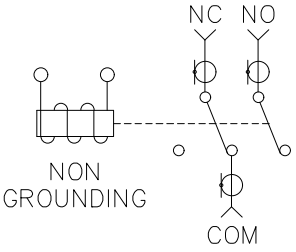

56 Series


62 Series

Electrical







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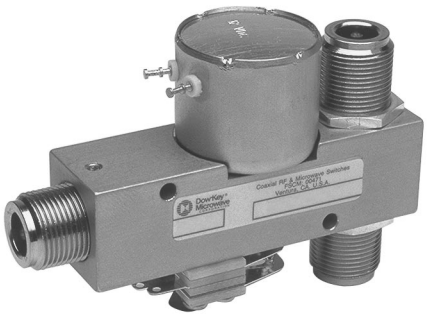
The DowKey 60 Series coaxial relays are ruggedly constructed and designed for operation to a maximum power level of 1 kilowatt. They have been the standard for air traffic control and two way radio systems for over forty years.

Also available in the 60 Series is a patented, high isolation option ("G" option) for transmit-receive applications. This option leaves the unused input open, and increases the isolation on the N/C connector to 85 dB at frequencies up to 500 MHz. This option reduces the maximum power rating of the N/C connector to 20 Watts, and will increase the VSWR of this terminal above approximately 400 MHz. They are available with or without two form "C" auxiliary contacts.



DowKey® 60 Series SPDT Switch

Typical applications for the 60 Series include:

- Transmit-Receive Switching
- Communication Antenna Switching
- Video Switching
- Hot Standby Transmitters or Receivers

Specifications :

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

Coil Current (Nominal):
12 Vdc 250 mA
28 Vdc 108 mA

Operate Time:
20 mS maximum

Operating Temperature:
0ºC to +65ºC

Mechanical Life, Cycles:
1 x 10^6 minimum

Nominal Weight:
12.0 oz., (340g.)

RF Characteristics

Frequency MHz	VSWR (max)	Isolation dB (min)	Ins. Loss dB (max)	RF Power Watts (CW)
50	1.10	40	0.10	1,000
100	1.15	35	0.15	1,000
400	1.30	25	0.20	500
1,000	1.60	20	0.25	350

Connectors and Part Numbers

Nominal Coil Voltage	Connector Type	SPDT	SPDT w/DPDT Aux. Contacts	"G" Option	"G" Option w/DPDT Aux. Con.
12 Vdc	N	60-2201	60-220142	60-2225	60-222542
28 Vdc	N	60-2301	60-230142	60-2325	60-232542
115 Vac	N	60-2601	60-260142	60-2625	60-262542
12 Vdc	BNC	60-2202	60-220242	60-2226	60-222642
28 Vdc	BNC	60-2302	60-230242	60-2326	60-232642
115 Vac	BNC	60-2602	60-260242	60-2626	60-262642
12 Vdc	UHF*	60-2204	60-220442	60-2228	60-222842
28 Vdc	UHF*	60-2304	60-230442	60-2328	60-232842
115 Vac	UHF*	60-2604	60-260442	60-2628	60-262842

*Not recommended for applications above 300 MHz.

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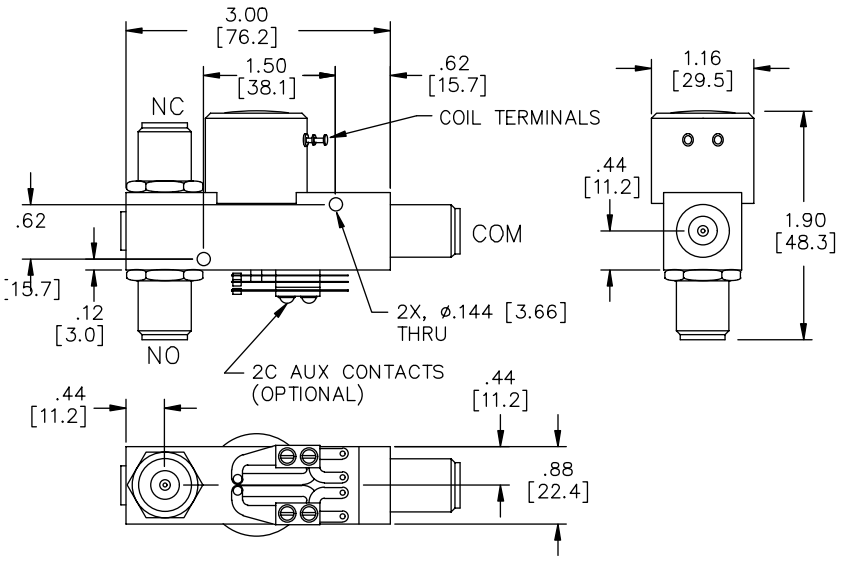
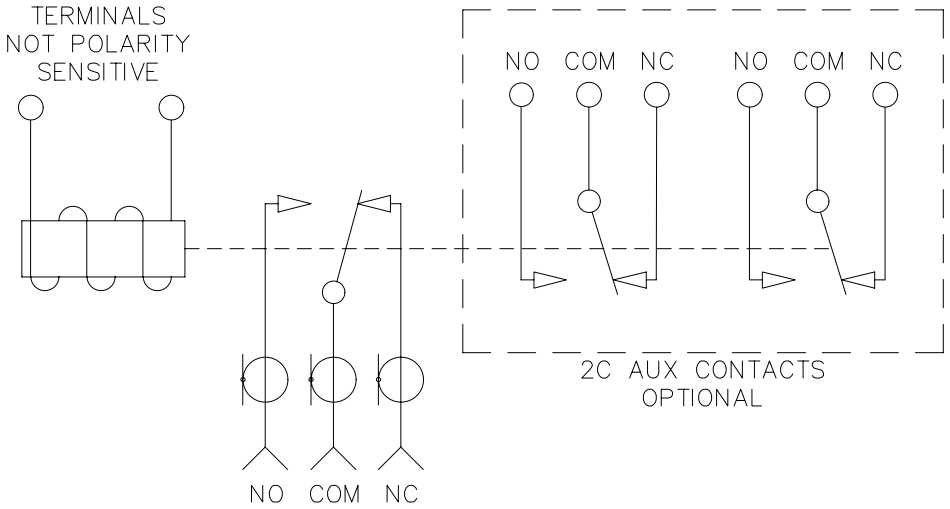
Mechanical



TYPICAL CONNECTOR LENGTHS

CONN. DIM.	N 01 (Shown)	BNC 02	UHF 04	C 05	N"G" 25	BNC"G" 26	UHF"G" 28
NC	0.70 [17.8]	0.60 [15.2]	0.70 [17.8]	0.70 [17.8]	1.20 [30.5]	1.20 [30.5]	1.00 [25.4]
NO	0.70 [17.8]	0.60 [15.2]	0.70 [17.8]	0.70 [17.8]	0.70 [17.8]	0.60 [15.2]	0.70 [17.8]
COMMON	0.50 [12.7]	0.70 [17.8]	0.50 [12.7]	0.50 [12.7]	0.50 [12.7]	0.70 [17.8]	0.50 [12.7]

Electrical



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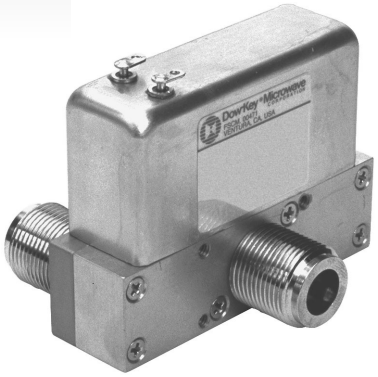
The DowKey 63 Series SPDT Failsafe Relay provides an enclosed actuator for use in environments where dust or moisture may be encountered.

Typical applications for the 63 Series include:

- ILS Air Traffic Control Equipment
- UHF/UHF Standby Transmitters and Receivers



DowKey® 63 Series SPDT Failsafe Switches

Specifications :

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

Coil Current (Nominal):
12 Vdc 255 mA
28 Vdc 112 mA

Operate Time:
20 mS maximum

Operating Temperature:
-25ºC to +65ºC

Mechanical Life, Cycles:
1 x 10^6 minimum

Nominal Weight:
6.0 oz., (170g.)

RF Characteristics

Frequency GHz	VSWR (max)	Isolation dB (min)	Ins. Loss dB (max)	RF Power Watts (CW)
0-.5	1.10	70	0.10	150-100
.5-2	1.30	50	0.20	100-75
2-3	1.40	45	0.30	75-50

Connectors and Part Numbers

Nominal Coil Voltage	Connector Type	Failsafe Standard SPDT
12 Vdc	N	63-2201
28 Vdc	N	63-2301

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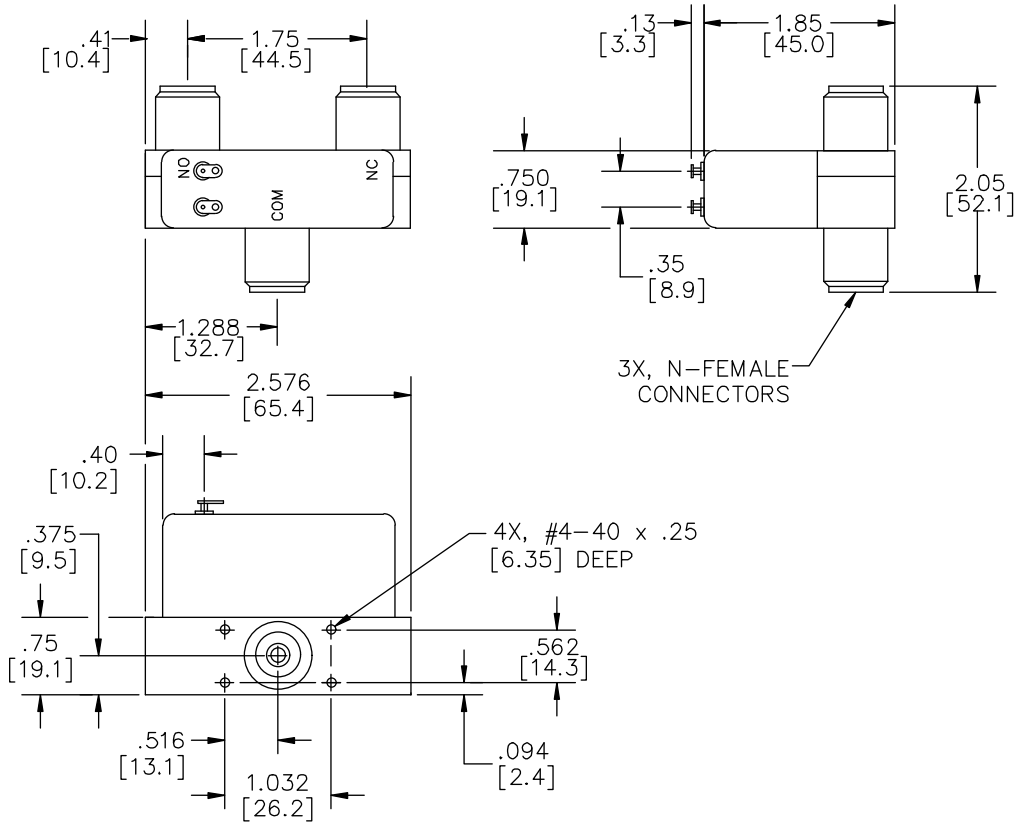
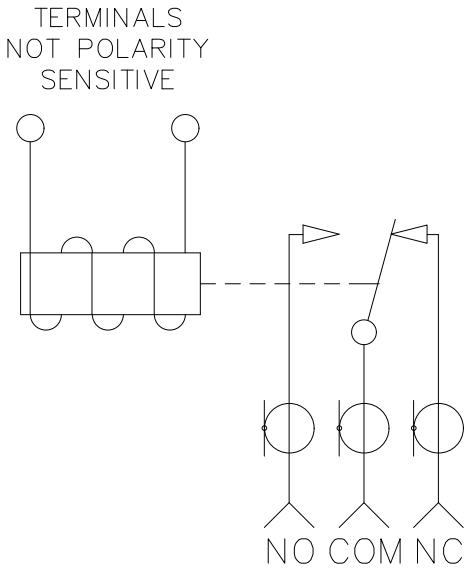
Mechanical



Electrical



DowKey® Microwave CORPORATION

The DowKey 64 Series SPDT Transfer Failsafe Relay provides an enclosed actuator for use in environments where dust or moisture may be encountered.

Typical applications for the 64 Series include:

- ILS Air Traffic Control Equipment
- UHF/UHF Standby Transmitters and Receivers

DowKey® 64 Series Transfer Relay

Specifications :

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

Coil Current (Nominal):
12 Vdc 255 mA
28 Vdc 112 mA

Operate Time:
20 mS maximum

Operating Temperature:
-25ºC to +65ºC

Mechanical Life, Cycles:
1×10^6 minimum

Nominal Weight:
7.0 oz., (198g.)

RF Characteristics

Frequency GHz	VSWR (max)	Isolation dB (min)	Ins. Loss dB (max)	RF Power Watts (CW)
0-0.5	1.10	30	0.10	150-100
0.5-1.5	1.20	25	0.20	100-50
1.5-3.0	1.40	20	0.40	50-25

Connectors and Part Numbers

Nominal Coil Voltage	Connector Type	Failsafe Standard Transfer
12 Vdc	N	64-2201
28 Vdc	N	64-2301

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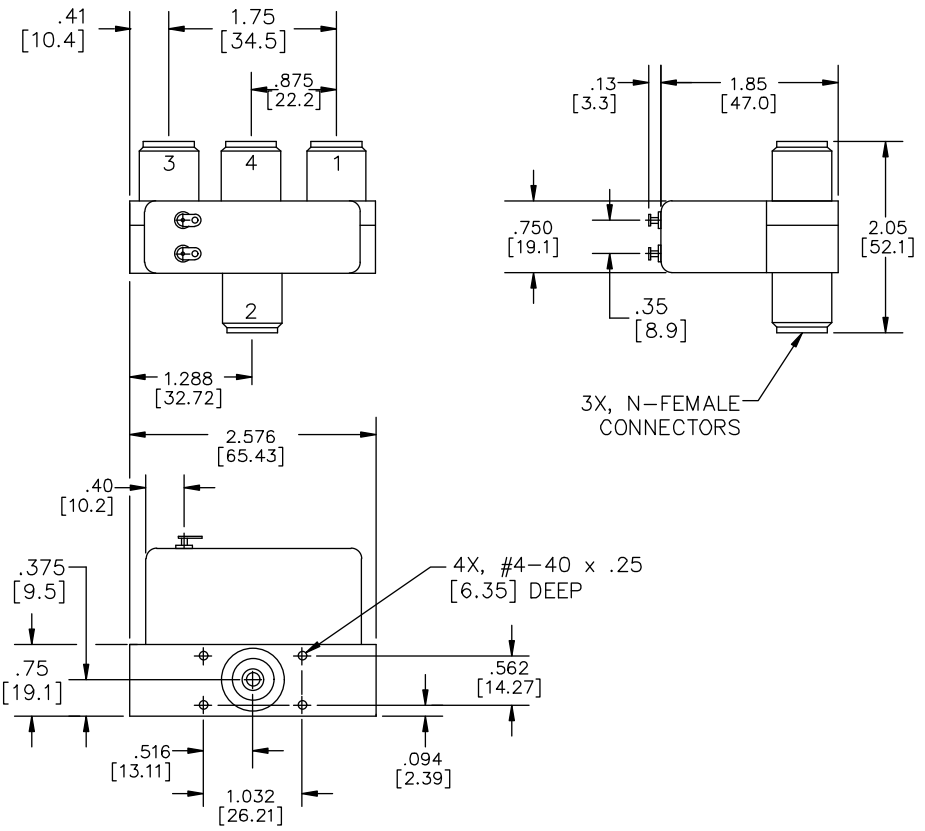
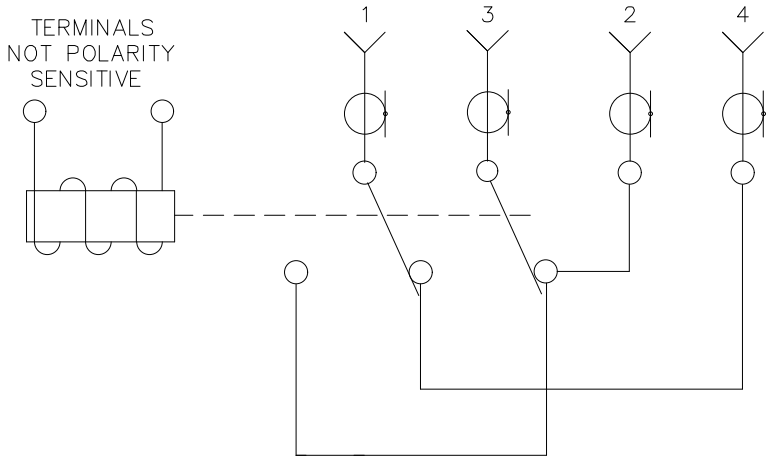
Mechanical



Electrical



SHOWN IN DE-ENERGIZED POSITION

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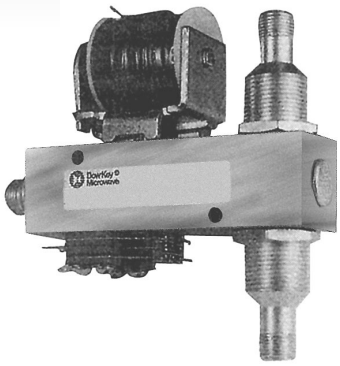
DowKey® Microwave CORPORATION

The DowKey 66 Series switch was developed to meet high isolation switching requirements of the cable television industry. Isolation of greater than 90 dB is achieved up to 500 MHz through the unique 75 Ohm connectors, which have a double break design to completely isolate the unused input from the RF cavity, leaving the input lead open (not grounded). The relay is designed for baseband video source switching, using the auxiliary contacts for audio signals. The 66 Series can be used for a variety of studio switching applications, eliminating the need to stock more than one type of relay.



DowKey® 66 Series SPDT Switch

Typical applications for the 66 Series include:

- IF Switching
- UHF/VHF Channel Switching
- Studio or Cable Head-End
- Video Source Selection

Specifications :

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

Coil Current (Nominal):
12 Vdc 265 mA
26.5 Vdc 150 mA

Operate Time:
25 mS maximum

Operating Temperature:
0ºC to +65ºC

Mechanical Life, Cycles:
1×10^6 minimum

Nominal Weight:
10.0 oz., (283g.)

RF Characteristics

Frequency MHz	VSWR (max)	Isolation dB (min)	Ins. Loss dB (max)	RF Power Watts (CW)
50	1.05	100	0.04	100
100	1.10	100	0.06	100
300	1.30	95	0.10	40
500	1.65	90	0.20	20

Connectors and Part Numbers

Nominal Coil Voltage	Connector Type	Standard SPDT	SPDT with 2 "C" Contacts
12 Vdc	F*	66-2272	66-227242
26.5 Vdc	F*	66-2372	66-237242

*** Not recommended for use with RG-6 cable.**

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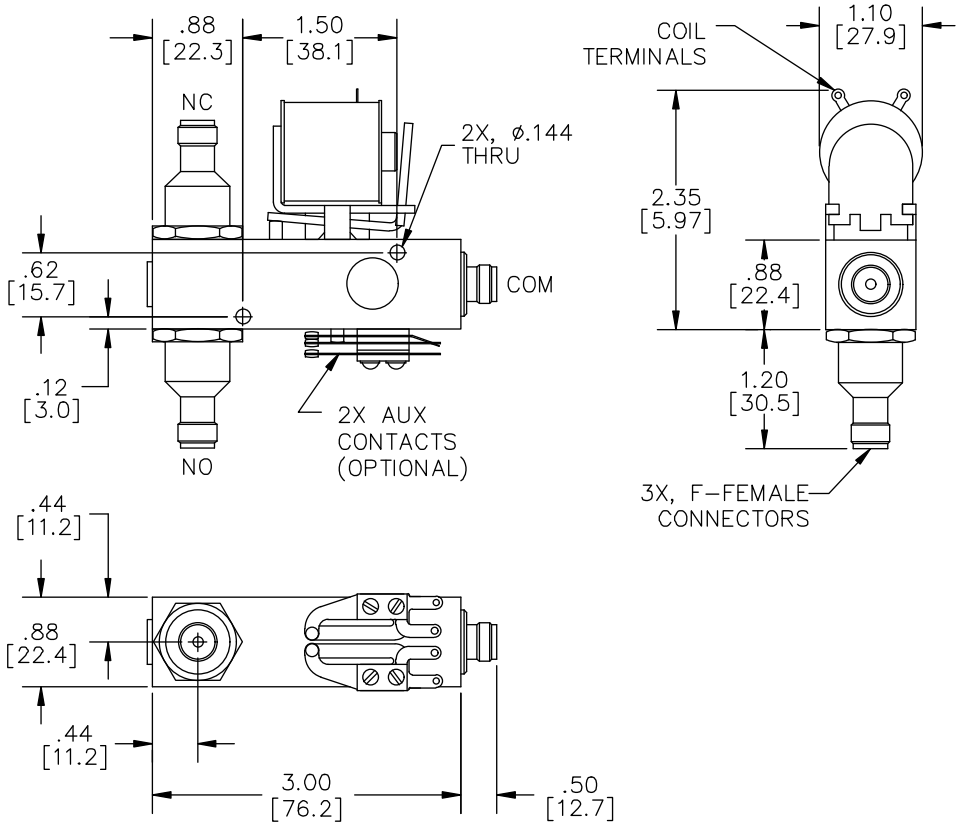
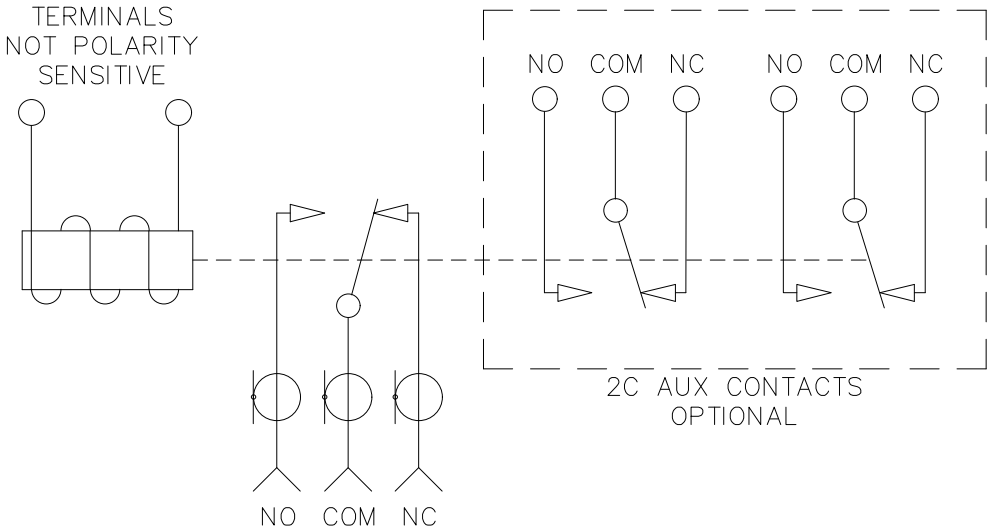
Mechanical



Electrical



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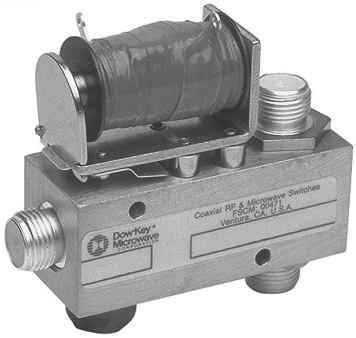
DowKey® Microwave CORPORATION

These medium size, light-weight relays are designed and manufactured with gold plated RF contacts and silver plated outer conductors which give good RF performance to 1 GHz (Isolation is greater than 30 dB, Insertion loss is less than 0.15 dB). Available with either 50 Ohm BNC connectors or 75 Ohm type "F" connectors, the "T" shaped configuration has the common connector at one end of the RF cavity block and the N/O and N/C connectors 180° apart on the opposite end. Other options include type TNC connectors.



DowKey® 77 Series SPDT Switch

Typical applications for the 77 Series include:

- Military Communications
- Commercial and Industrial Communications
- CATV/MATV/CCTV Switching

Specifications :

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

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

Operate Time:
35 mS maximum

Operating Temperature:
0ºC to +65ºC

Mechanical Life, Cycles:
1 x 10^6 minimum

Nominal Weight:
3.5 oz., (99g.)

RF Characteristics

Frequency MHz	VSWR (max)	Isolation dB (min)	Ins. Loss dB (max)	RF Power Watts (CW)
50	1.05	50	0.03	150
100	1.10	45	0.04	100
400	1.20	40	0.10	75
1,000	1.50	30	0.15	50

Connectors and Part Numbers

Nominal Coil Voltage	Connector Type	Standard SPDT	SPDT wit 1 "C" Aux. Contact
12 Vdc	BNC	77-2202	77-220232
26.5 Vdc	BNC	77-2302	77-230232
115 Vac	BNC	77-2602	77-260232
12 Vdc	F*	77-2232	77-227242
26.5 Vdc	F*	77-2332	77-237242
115 Vac	F*	77-2632	77-263242

*** Not recommended for use with RG-6 cable.**

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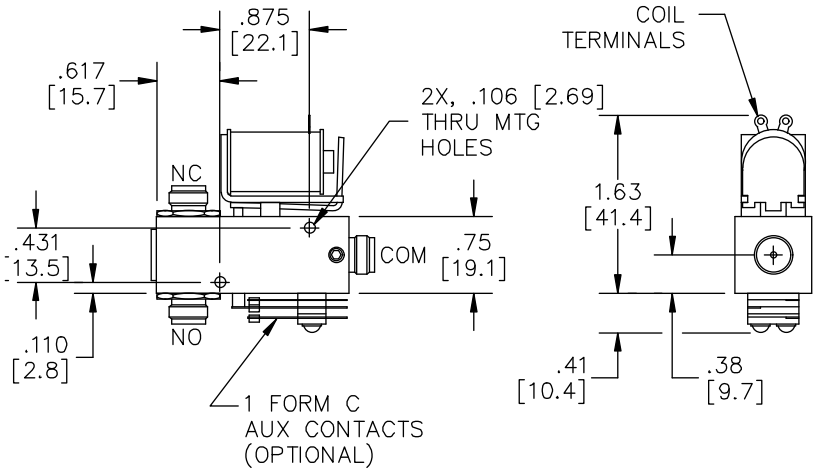
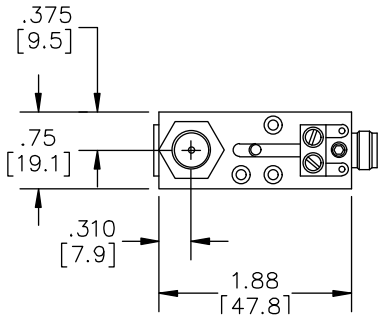
Mechanical

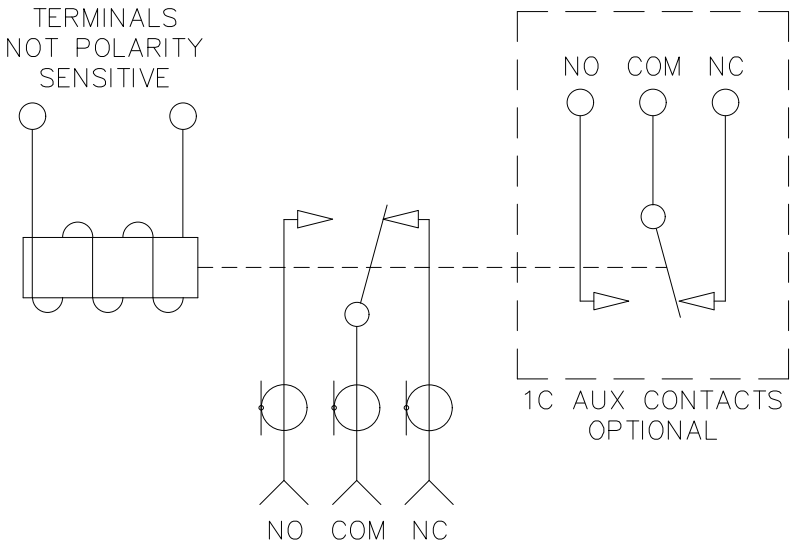




TYPICAL CONNECTOR LENGTHS

CONN.	BNC 02	TNC 03	F 32 (SHOWN)
NC	.50 [12.7]	.50 [12.7]	.30 [7.62]
NO	.50 [12.7]	.50 [12.7]	.30 [7.62]
COM	.50 [12.7]	.50 [12.7]	.20 [5.08]

Electrical



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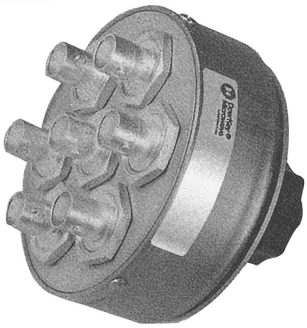
DowKey® Microwave CORPORATION

These DowKey manually operated switches are constructed with coaxial switching members rather than wafer switches. They are offered in SPDT, DPDT, SP3T, SP4T, and SP6T configurations, with the unused ports open (non-grounding). With RF power handling capabilities of 1 KW at 50 MHz and 60 dB isolation, the relay is ideal for use in low frequency, high power situations where signal integrity is a critical parameter and switching time of less importance.



DowKey® 78 Series Manual Multithrow Switch

Typical applications for the 78 Series include:

- Military/Commercial RF Communications
- Laboratory Test Equipment
- Video Viewing "Carrell" or Audition Room Source Selection
- Patch Panels

Specifications :

Operating Temperature:
0ºC to +65ºC
Normal Weight:
10.0 oz., (283g.)

RF Characteristics

Frequency MHz	VSWR (max)	Isolation dB (min)	Ins. Loss dB (max)	RF Power Watts (CW)
50	1.10	60	0.03	1,000
100	1.15	55	0.05	1,000
225	1.25	45	0.10	600
450	1.45	40	0.15	450

Connectors and Part Numbers

Connector Type	SPDT	DPDT	SP3T	SP4T	SP6T
N	78-0201	78-0701	78-0301	78-0401	78-0601
BNC	78-0202	78-0702	78-0302	78-0402	78-0602
UHF	78-0204	78-0704	78-0304	78-0404	78-0604

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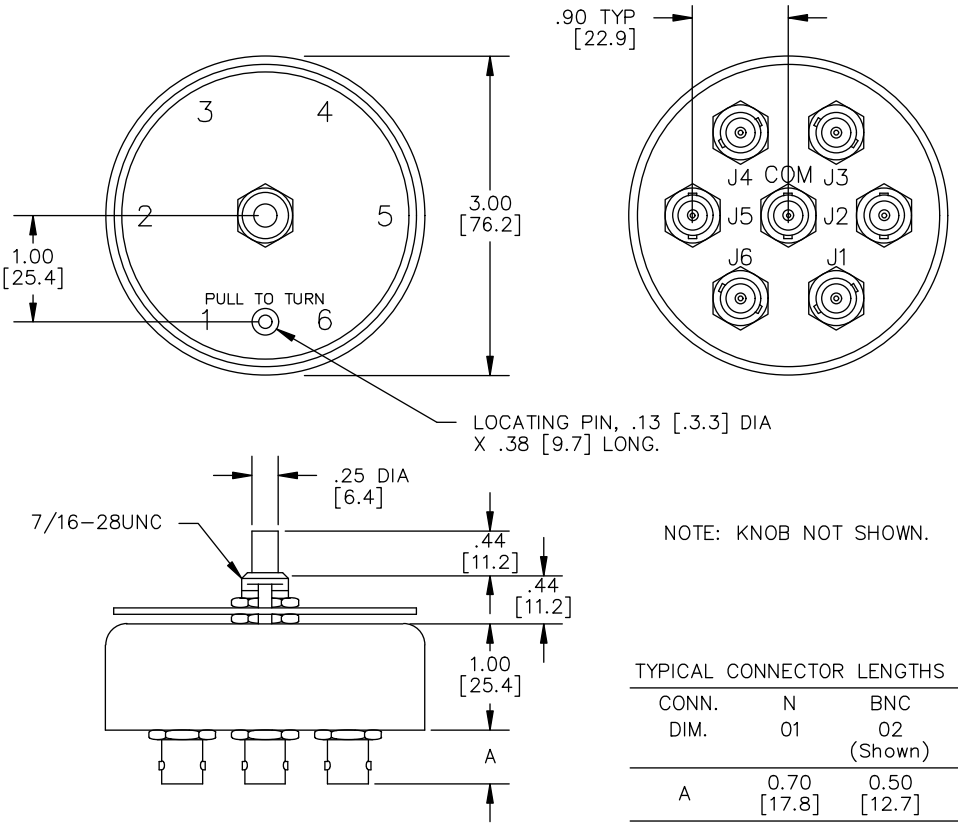
Mechanical



NOTE: KNOB NOT SHOWN.

TYPICAL CONNECTOR LENGTHS

CONN. DIM.	N 01	BNC 02 (Shown)	UHF 04
A	0.70 [17.8]	0.50 [12.7]	0.70 [17.8]

Electrical

CONNECTOR LOCATIONS

SWITCH TYPE	CONNECTORS USED	ROTATIONAL STOPS
SPDT	J3, J4, C	YES
SP3T	J1. J3, J5, C	NO
SP4T	J1, J2, J3, J4, C	YES
SP6T	J1, J2, J3, J4, J5, J6, C	NO
DPDT	J1, J2, J3, J4, J5, J6	YES

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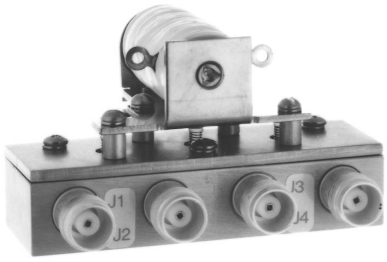
DowKey® Microwave CORPORATION

The DowKey Microwave 79 Series bypass relays offer superior RF performance and an economical alternative to microwave transfer switches in applications to 3 GHz.

Typical applications for the 79 Series include:

- Amplifier Bypass
- Power Monitor Circuit
- Switch/Filter



DowKey® 79 Series Bypass Switches

Specifications :

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

Coil Current (Nominal):
12 Vdc 300 mA
28 Vdc 258 mA

Operate Time:
35 mS maximum

Operating Temperature:
0ºC to +65ºC

Mechanical Life, Cycles:
1 x 10^6 minimum

Nominal Weight:
7.0 oz., (200g.)

RF Characteristics

Frequency GHz	VSWR (max)	Isolation dB (min)	Ins. Loss dB (max)	RF Power Watts (CW)
0-1	1.10	80	0.05	500-200
1-2	1.15	70	0.10	200-100
2-3	1.25	60	0.20	100-50

Connectors and Part Numbers

Nominal Coil Voltage	Connector Type	Failsafe Standard
12 Vdc	TNC	79-2203
28 Vdc	TNC	79-2303

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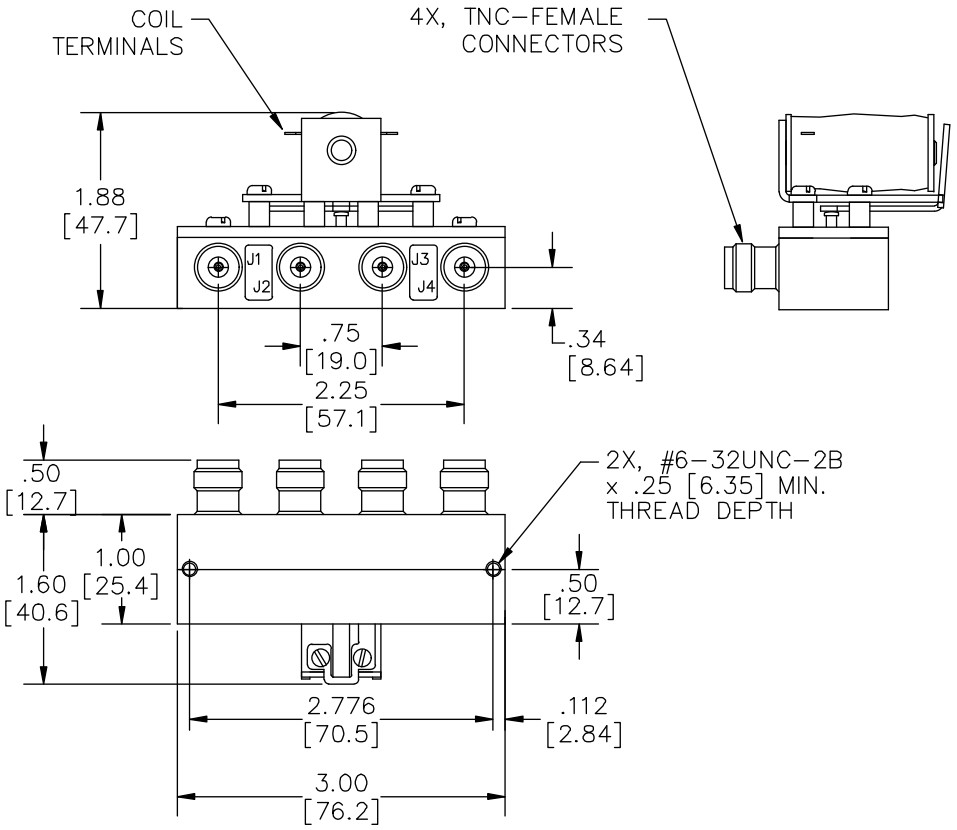
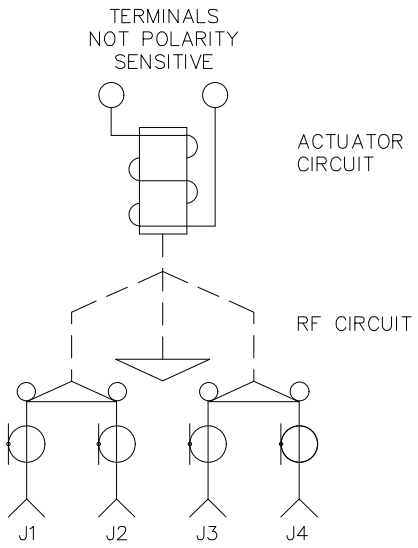
Mechanical



Electrical



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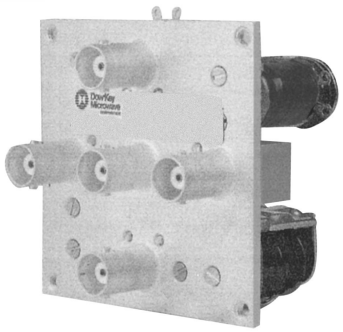
DowKey® Microwave CORPORATION

The DowKey 116 Series are small multiple-position switches designed for applications where one or more inputs or outputs are required to be connected simultaneously. Each position has its own actuating solenoid, and each port may be grounded or non-grounded in the de-energized state. RF performance is excellent and remains stable to approximately 3 GHz. Grounding the unused positions increases isolation.

Typical applications for the 116 Series include:

- Military Communications Equipment
- Multiple Video Monitor Switching
- Multiple Test Monitor Switching



DowKey® 116 Series SP4T Switch

Specifications :

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

Coil Current (Nominal):
12 Vdc 380 mA
28 Vdc 96 mA

Operate Time:
25 mS maximum

Operating Temperature:
0ºC to +65ºC

Mechanical Life, Cycles:
1 x 10^6 minimum

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

RF Characteristics

Frequency MHz	VSWR (max)	Isolation Grounding dB (min)	Isolation Non-Grounding dB (min)	Ins. Loss dB (max)	RF Power Watts (CW)
50	1.02	60	45	0.02	200
100	1.02	55	40	0.03	200
400	1.05	50	35	0.05	100
1,000	1.10	35	25	0.10	65
2,000	1.20	30	20	0.15	45

Connectors and Part Numbers

Nominal Coil Voltage	Connector Type	SP4T Grounding	SP4T Non-Grounding
12 Vdc	N	116-220101	116-220102
28 Vdc	N	116-230101	116-230102
12 Vdc	BNC	116-220201	116-220202
28 Vdc	BNC	116-230201	116-230202
12 Vdc	TNC	116-220301	116-220302
28 Vdc	TNC	116-230301	116-230302

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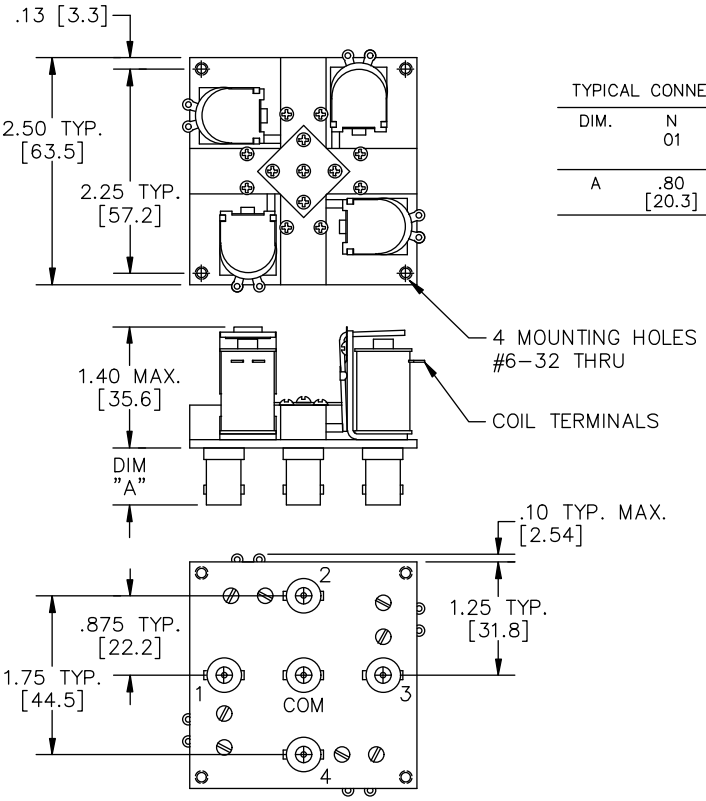
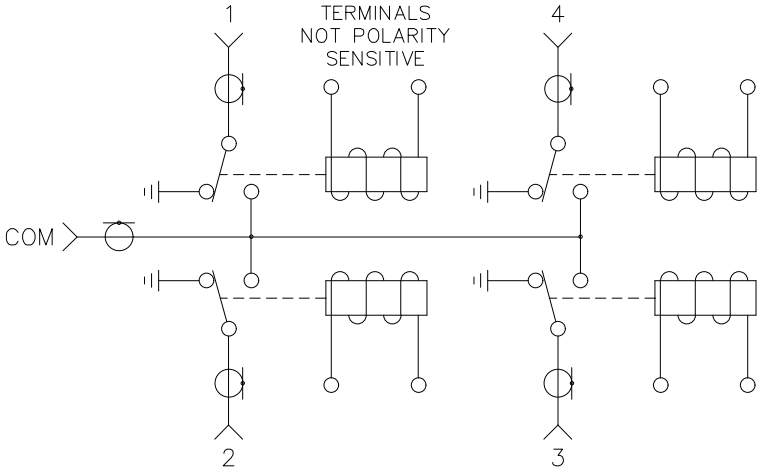
Mechanical



TYPICAL CONNECTOR LENGTHS

DIM.	N 01	BNC 02 (SHOWN)	TNC 03
A	.80 [20.3]	.60 [15.2]	.60 [15.2]

Electrical



GROUNDING TYPE. SHOWN IN DE–ENERGIZED POSITION

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DowKey® Microwave CORPORATION

The DowKey 164 Series has all connectors and the actuator assembly mounted on the same plane so that the switch can be flush-mounted on a panel or cabinet wall. With good performance to 1 GHz, these switches have numerous general purpose uses.

Typical applications for the 164 Series include:

- Military Communications
- Test Equipment
- Magnetic Resonance Imaging Equipment
- Video and RF Switching

DowKey® 164 Series SPDT Switch

Specifications :

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

Coil Current (Nominal):
12 Vdc 172 mA
28 Vdc 96 mA

Operate Time:
20 mS maximum

Operating Temperature:
0ºC to +65ºC

Mechanical Life, Cycles:
1 x 10^6 minimum

Nominal Weight:
4.5 oz., (127g.)

RF Characteristics

Frequency MHz	VSWR (max)	Isolation dB (min)	Ins. Loss dB (max)	RF Power Watts (CW)
0-50	1.03	50	0.03	150
50-100	1.05	50	0.04	150-125
100-200	1.07	45	0.05	125-100
200-400	1.12	40	0.10	100-75
400-1,000	1.20	30	0.15	75-50

Connectors and Part Numbers

Nominal Coil Voltage	Connector Type	164 Series
12 Vdc	BNC	164-2202
28 Vdc	BNC	164-2302
115 Vac	BNC	164-2602
12 Vdc	TNC	164-2203
28 Vdc	TNC	164-2303
115 Vac	TNC	164-2603

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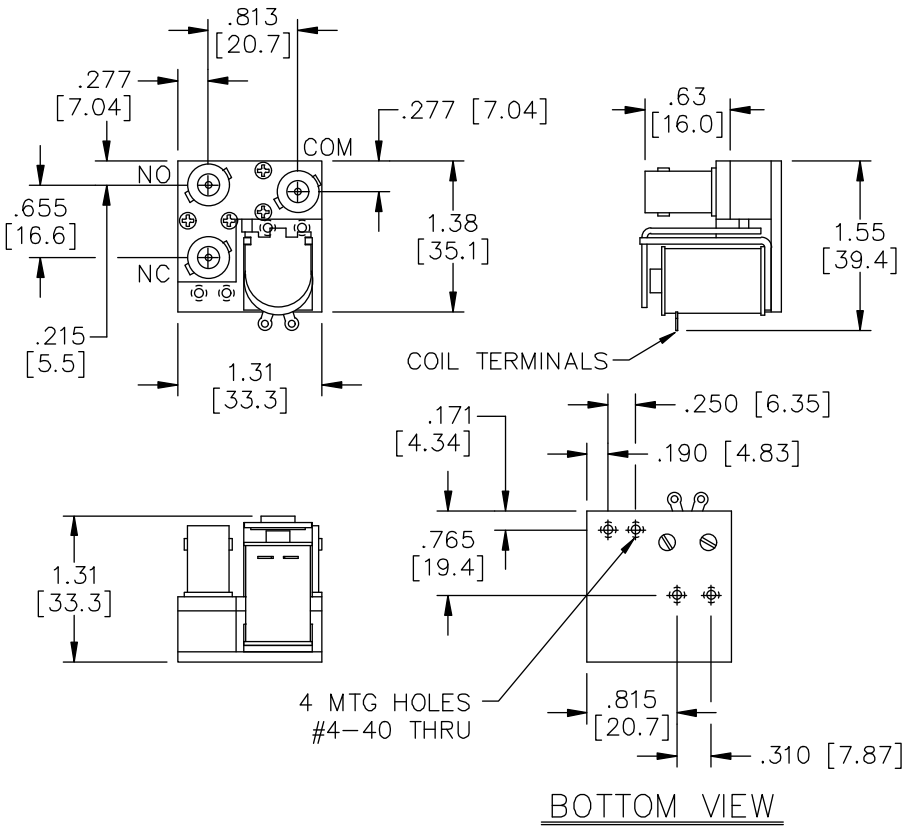
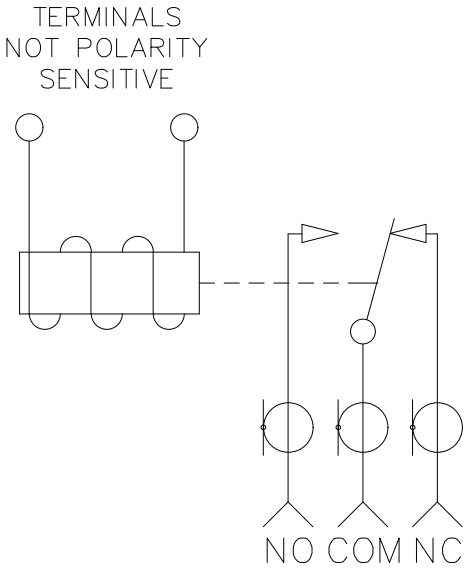
Mechanical



Electrical



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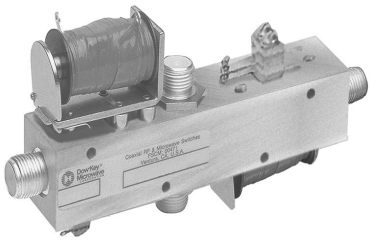
DowKey® Microwave CORPORATION

The DowKey 167 Series transfer relay is designed for high power operation, and is capable of handling up to 2 kilowatts at 30 MHZ. The switch has two coils which can be operated in parallel for break before make transfer. When the coils are operated separately, make before break switching can be accomplished to either 2 or 4. All models have a DPDT set of auxiliary contacts.

Typical applications for the 167 Series include:

- Switching Two Transmitters Between an Antenna and Dummy Load
- Reversing the Feed Phase for Directional Antennas
- High Power Amplifier Transfer and By-Pass Switching



DowKey® 167 Series Transfer Switches

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:
25 mS maximum

Operating Temperature:
0ºC to +65ºC

Mechanical Life, Cycles:
1 x 10^6 minimum

Nominal Weight:
12.0 oz., (340g.)

RF Characteristics

Frequency MHz	VSWR (max)	Isolation dB (min)	Ins. Loss dB (max)	RF Power Watts (max)*
0-25	1.05	45	0.04	2,000
25-50	1.05	45	0.05	2,000-1,500
50-100	1.08	40	0.06	1,500-1,000
100-300	1.12	30	0.08	1,000-600
300-500	1.15	25	0.10	600-450
500-1,000	1.50	20	0.50	400-300

*Power ratings shown are for cold switching. RF power must be removed prior to the switching cycle.

Connectors and Part Numbers

Nominal Coil Voltage	Connector Type	Part Number
12 Vdc	N	167-220142
28 Vdc	N	167-230142
115 Vac	N	167-260142
12 Vdc	UHF**	167-220442
28 Vdc	UHF**	167-230442
115 Vac	UHF**	167-260442

** Not recommended for applications above 300 MHz.

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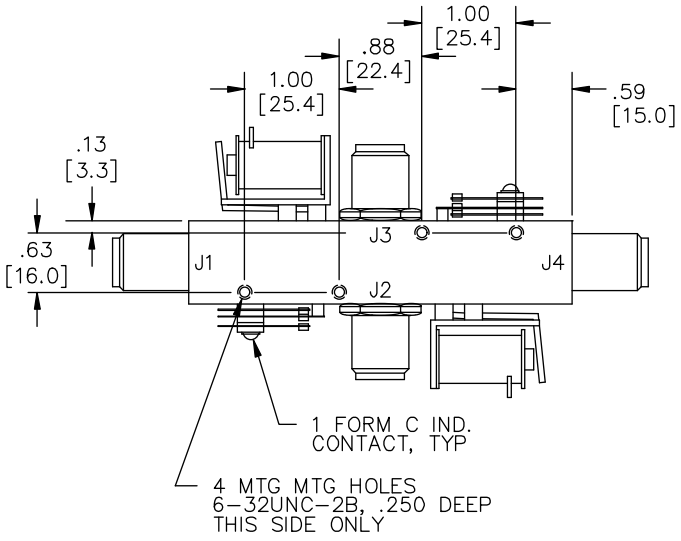
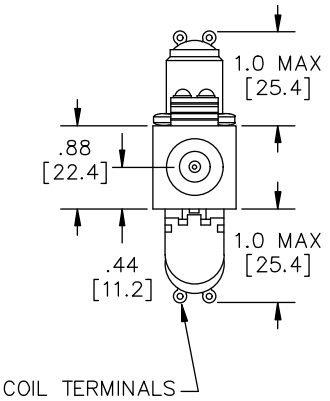
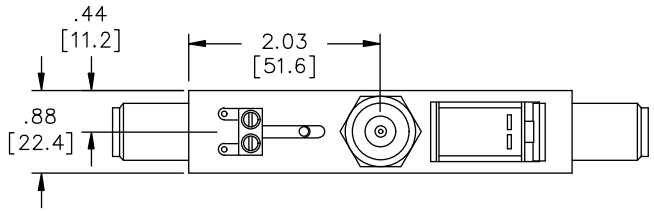
Mechanical



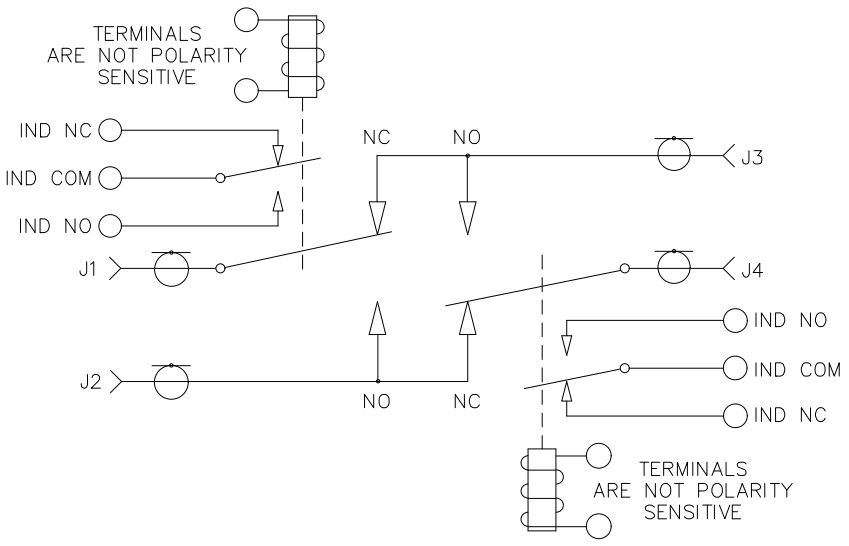




TYPICAL CONNECTOR LENGTHS

CONN. DIM.	N 01 (Shown)	UHF 04
J1,J4	0.60 [16.0]	0.60 [16.0]
J2,J3	0.70 [17.8]	0.70 [17.8]

Electrical



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