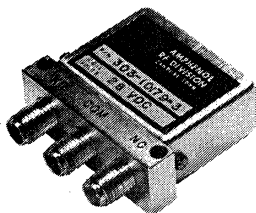


## COAXIAL SWITCHES



AMPHENOL

## 303 Series/High Isolation Miniature &amp; Standard Size Microwave Coaxial Switches



## AMPHENOL 303 SERIES

High Isolation Miniature  
Fail-Safe 1P2T

## Broadband Miniature Switch Series Offering State-of-the-Art Characteristics through 18 GHz

Ideally suited for applications where crosstalk interference must be kept to an absolute minimum, Amphenol's miniature 303 Series provides uniform characteristics through KU band (18 GHz) with isolation of 60 dB minimum, VSWR of 1.5:1 maximum and insertion loss of 0.5 dB maximum. When operating at lower frequencies, isolation can be greater than 90 dB with 0.2 dB insertion loss and VSWR of 1.2:1.

New Amphenol SMA connectors... offering significantly better electrical and mechanical performance than competitive designs... contribute to the switch's high reliability and fine electrical performance. The miniature 1P2T weight only 2 ozs. and, excluding terminals, is less than 1½ inches high by 1½ inches wide by ½ inch. In addition to its compact design and reliable RF performance, this switch is capable of operating in environments where temperatures reach 100°C.

## Standard Size 303 Series Switches offering High Isolation Qualities through 12.4 GHz

Amphenol's 303 Series of standard size switches is constantly expanding. Cataloged here are a representative collection of the more popular variations. Many combinations of these basic items are available. The ideal switching device tailored for your specific application can be selected from the options described in the table of General Characteristics. This is true of the miniature size 303 Series as well. Whatever combination of specifications you select... whether other coil voltage, hermetic sealing, auxiliary contacts, cut-throat latching, etc... the same high isolation and uniform RF performance characteristic of Amphenol's 303 Switch Series will prevail.

## RF PERFORMANCE

Frequency (GHz)	VSWR (Max.)	Isolation (dB)	Insertion Loss (Max.)
<b>MINIATURE SIZE</b>			
0-3.0	1.2	>90 dB	0.2 dB
3.0-8.0	1.3	>80 dB	0.3 dB
8.0-12.4	1.4	>70 dB	0.4 dB
12.4-18.0	1.5	>60 dB	0.5 dB
<b>STANDARD SIZE</b>			
0-3.0	1.3	>80 dB	0.25 dB
3.0-6.0	1.4	>75 dB	0.35 dB
6.0-10.0	1.5	>65 dB	0.50 dB
10.0-12.4	1.5	>60 dB	0.50 dB
<b>MINIATURE ECONOMY AND 1P1T SHUTTER</b>			
0-3.0	1.3	>80 dB	0.25 dB
3.0-8.0	1.4	>70 dB	0.35 dB
8.0-12.4	1.5	>60 dB	0.50 dB

## RF POWER @ STP (watts CW)

Freq. (GHz)	SMA	N & TNC	Freq. (GHz)	SMA	N & TNC
0.1	400W	1000W	5.0	50W	100W
0.4	200W	500W	10.0	35W	70W
1.0	120W	280W	12.0	30W	60W
3.0	70W	145W	18.0	24W	45W

GENERAL CHARACTERISTICS  
ELECTRICAL

## FREQUENCY RANGE

Miniature Size: 0-18.0 GHz  
Others: 0-12.4 GHz

## CONNECTORS

Miniature Size: SMA  
Standard Size: N, TNC, SMA

SWITCHING TIME: 15 mS (maximum)

SWITCHING ACTION: Break before make

## 28 VDC COIL RESISTANCE

1P2T Fail-Safe: Miniature 250 ohms  
Standard 200 ohms  
1P2T Latching: Miniature 150 ohms  
Transfer: Miniature Latching 18 ohms  
Standard Fail-Safe 90 ohms  
1P2T Economy: 200 ohms  
1P1T Shutter: 135 ohms

(Also available with 6, 12, 48, 110 VDC and 115 VAC coils.)

## MECHANICAL

LIFE: 1 x 10<sup>6</sup> cycles minimum

## WEIGHT

1P2T: Miniature 2 oz., standard 7 oz.  
Transfer: Miniature 5 oz., standard 8 oz.  
1P2T economy 3½ oz.  
1P1T shutter 4 oz.

## ENVIRONMENTAL (MIL-S-3928B)

## TEMPERATURE RANGE

1P2T Miniature -55°C to 100°C. Others -55°C to 85°C  
(higher temperature operation available upon request).

MOISTURE RESISTANCE: 10 day cycle

## SHOCK

MIL-STD-202D, Method 202C  
Test Condition A, 15 G's peak

## VIBRATION

Test Condition A  
55 to 2000 Hz @ ± 10 G's

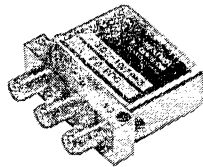
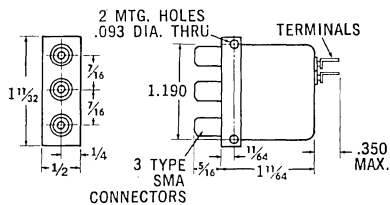
HERMETIC SEALING: Available when required

MINIATURE SIZE (28 VDC COIL)		Fail-Safe (Non-Latching)	Cut-Throat Latching	Fail-Safe with Aux. Contacts	Manual
Connector	Function	AMPHENOL PART NUMBERS			
SMA	1P2T	303-10179-3	303-10179-23	303-10179-53	—
	1P2T Economy	303-10116-3	—	—	—
	Transfer	303-11022-3	303-11022-23	303-11022-53	303-11028

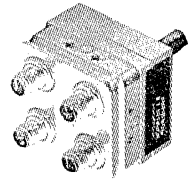
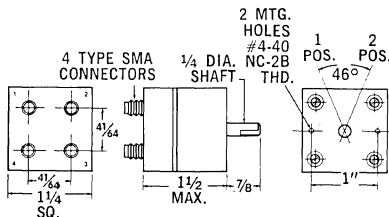
STANDARD SIZE (28 VDC COIL)		Fail-Safe (Non-Latching)	Fail-Safe with Aux. Contacts	Manual
Connectors	Function	AMPHENOL PART NUMBERS		
TNC	1P1T Shutter	303-10969-3	—	—
	1P2T	303-10168-3	303-10168-53	303-10171
	Transfer	303-11020-3	303-11020-53	—
N	1P2T	303-10167-3	303-10167-53	303-10170
	Transfer	303-11017-3	303-11017-53	—
SMA	1P2T	303-10166-3	303-10166-53	303-10175
	Transfer	303-11016-3	303-11016-53	—

■ Also available with 6, 12, 48, 110 VDC and 115 VAC Coils.

# MINIATURE SIZE TRANSFER MANUAL

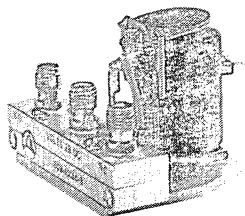
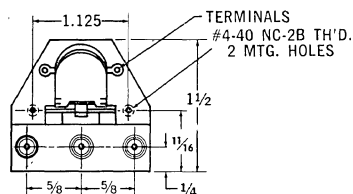


**303-10179-3**

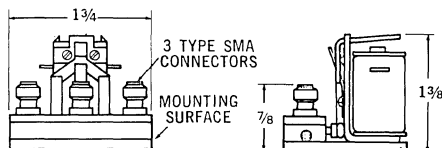


**303-11028**

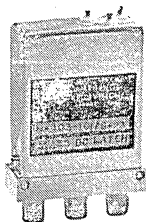
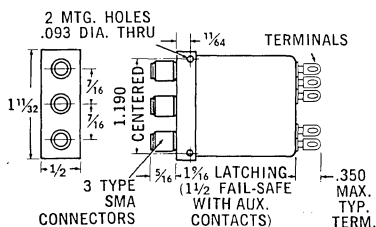
## MINIATURE SIZE 1P2T ECONOMY VERSION



303-10116-3

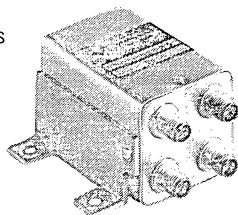
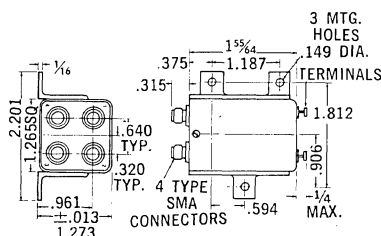


## MINIATURE SIZE 1P2T LATCHING AND FAIL-SAFE WITH AUXILIARY CONTACTS



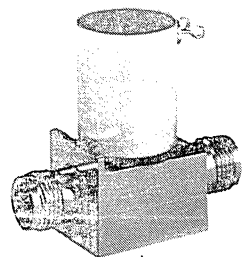
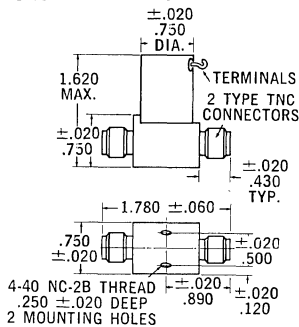
303-10179-23

## MINIATURE SIZE TRANSFER LATCHING



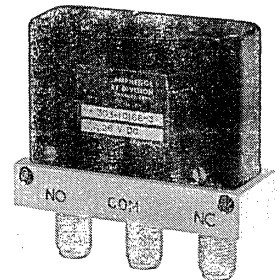
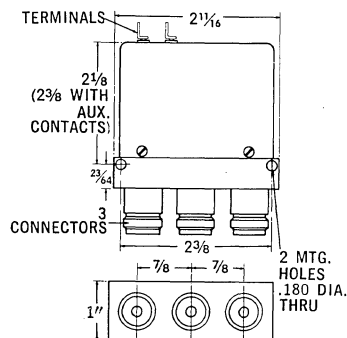
303-11022-23

## STANDARD SIZE 1P1T SHUTTER



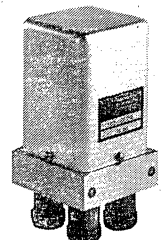
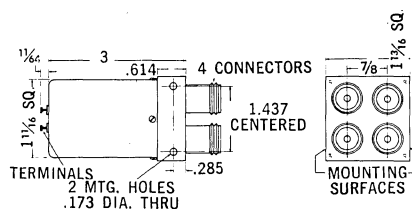
**303-10969-3**

## STANDARD SIZE 1P2T FAIL-SAFE AND AUXILIARY CONTACT VERSION



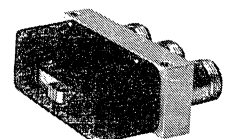
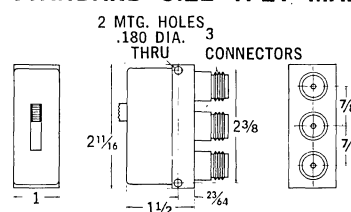
303-10168-3

## STANDARD SIZE TRANSFER



303-11017-3

## STANDARD SIZE 1P2T MANUAL



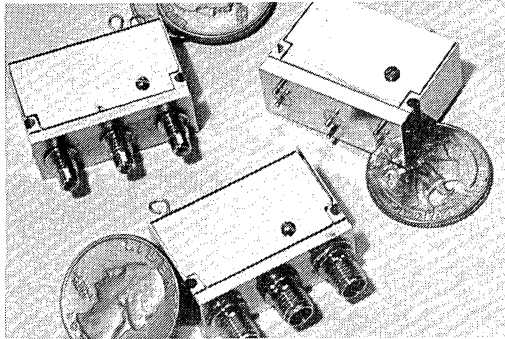
303-10170

## COAXIAL SWITCHES

**BUNKER  
RAMO**

# AMPHENOL

## MINIform / Sub-Miniature, High Power, Microwave Coaxial Switches



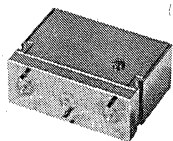
**For Applications Requiring Minimum Size,  
High Power, Minimum Crosstalk and Low Cost**

Amphenol 303 Series MINIforn is the industry's most inexpensive miniature high-power, high-performance line of microwave coaxial switches—offering for the first time superior operational performance through six GHz in an economical unit weighing only 1.2 ounces.

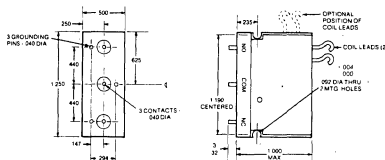
The switches are the smallest and least expensive of this type ever introduced by Amphenol and are designed to outperform all comparable offerings by industry available until now. Displacing less than one-half cubic inch volume, the tiny switches' ratings include performance through 150 watts below specified frequency limitations, offering immediate physical and operational compatibility for a host of signalling, communications and EDP matrix switching applications.

Amphenol 303 Series MINIfORM switches are 1P2T configurations offered in choice of three popular termination styles:

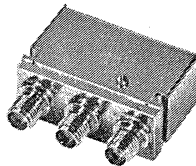
**PRINTED  
CIRCUIT**



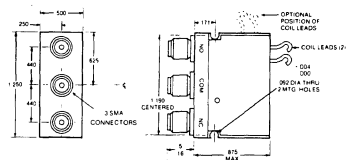
Coil Volts	AMPHENOL Part No.
12 VDC	303-10001-2
28 VDC	303-10001-3



**CONNECTORS**  
(SMA shown)

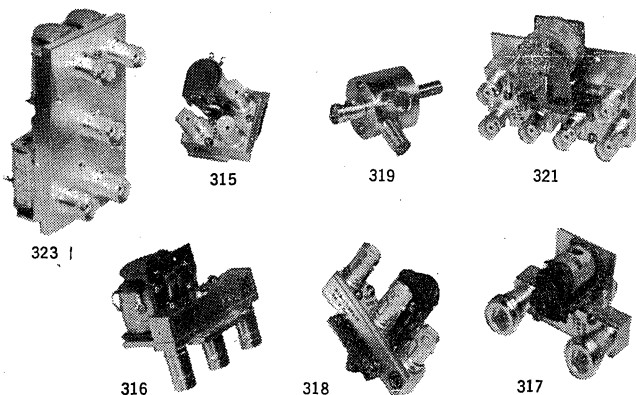


Coil Volts	SMA Conn.	27 Series
12 VDC	303-10002-3	303-10003-2
28 VDC	303-10002-3	303-10003-3



## Coaxial Relays

Precision coax units. Maximum time to operate and release is 20 milliseconds. Gold-plated, fine silver contacts assure reliable low-level operation. Minimum life expectancy is 1,000,000 cycles, when switch is operated at speeds of less than 10 Hz. Switches are impedance matched to 50-ohm cable, though loss



is negligible with 75-ohm cable. Operation is break-before-make. All materials are corrosion resistant.

Units meet applicable portions of military connector specs as follows: BNC — Mil-C-3608 and N — Mil-C-71.

Part No.	Termination	Function	Connectors	Frequency (MHz)	RF Power (W)	Coil Volts	Coil Ohms
315-10002-3	Open	SPDT	BNC	1000	100	26 DC	280
316-10082-3	Short	SPDT	BNC	2000	100	26 DC	280
316-10082-6	Short	SPDT	BNC	2000	100	120 DC	6000
316-10102-8	Short	SPDT	BNC	2000	100	115 AC	550
317-10202-3	Short	SPDT	BNC	2000	100	26 DC	280
317-10215-8	Short	SPDT	BNC	2000	100	115 AC	550
317-10242-3	Short	SPDT	N	2000	100	26 DC	280
317-10242-8	Short	SPDT	N	2000	100	115 AC	550
317-10255-8	Short	SPDT	N	2000	100	115 AC	550
318-10407-3	Open	SPDT	BNC	2000	100	26 DC	280
318-10381	Short	SPDT	BNC	2000	100	lever manual	—
318-10382-3	Short	SPDT	BNC	2000	100	26 DC	280
318-11165-3	Res.	SPDT	BNC	2000	100	26 DC	280
318-11576-8	Res.	SPDT	BNC	2000	100	115 AC	550
319-11141	Open	SPDT	BNC	2000	100	rotary manual	—
320-10931-3	Open	SPDT	N	3000	1000	26 DC	200
321-11062	Open	DPDT	BNC	1000	100	lever manual	—
321-11064-3	Open	DPDT	BNC	1000	100	26 DC	200
322-11431	Open	1P4T	BNC	3000	100	rotary manual	—
323-11651-3	Open	1P4T	BNC	1000	100	26 DC	280
322-11442	Open	1P6T	BNC	3000	100	rotary manual	—
325-11635-3	Short	1P6T	BNC	400	100	26 DC	280
325-11641-3	Open	1P6T	BNC	400	100	26 DC	280

## RF SWITCHES

BUNKER  
RAMO

AMPHENOL

## Series 360 DYNAFORM FUNCTIONS AND PART NUMBERS

Conn.	Term.	Schematic	Coil Volts	SPDT Outline Dwg. A	SPDT Outline Dwg. B	DPDT Outline Dwg. C	DPDT Outline Dwg. D	Transfer Outline Dwg. E
BNC	SH	1	26 DC 110 DC 115 AC	360-11891-12 360-11891-34 360-11891-45	360-11891-13 360-11891-35 360-11891-46	360-11896-12 360-11896-34 360-11896-45	360-11896-13 360-11896-35 360-11896-46	
	NS	2	26 DC 110 DC 115 AC	360-11891-14 360-11891-36 360-11891-47	360-11891-15 360-11891-37 360-11891-48	360-11896-14 360-11896-36 360-11896-47	360-11896-15 360-11896-37 360-11896-48	
	50 Ω RT	3	26 DC 110 DC 115 AC	360-11891-16 360-11891-38 360-11891-49	360-11891-17 360-11891-39 360-11891-50	360-11896-16 360-11896-38 360-11896-49	360-11896-17 360-11896-39 360-11896-50	
	75 Ω RT	3	26 DC 110 DC 115 AC	360-11891-18 360-11891-40 360-11891-51	360-11891-19 360-11891-41 360-11891-52	360-11896-18 360-11896-40 360-11896-51	360-11896-19 360-11896-41 360-11896-52	
	95 Ω RT	3	26 DC 110 DC 115 AC	360-11891-20 360-11891-42 360-11891-53	360-11891-21 360-11891-43 360-11891-54	360-11896-20 360-11896-42 360-11896-53	360-11896-21 360-11896-43 360-11896-54	
	TRANS	4	26 DC 110 DC 115 AC					360-11891-22 360-11891-44 360-11891-55
	SH	1	26 DC 110 DC 115 AC	360-11892-12 360-11892-34 360-11892-45	360-11892-13 360-11892-35 360-11892-46	360-11897-12 360-11897-34 360-11897-45	360-11897-13 360-11897-35 360-11897-46	
	NS	2	26 DC 110 DC 115 AC	360-11892-14 360-11892-36 360-11892-47	360-11892-15 360-11892-37 360-11892-48	360-11897-14 360-11897-36 360-11897-47	360-11897-15 360-11897-37 360-11897-48	
	50 Ω RT	3	26 DC 110 DC 115 AC	360-11892-16 360-11892-38 360-11892-49	360-11892-17 360-11892-39 360-11892-50	360-11897-16 360-11897-38 360-11897-49	360-11897-17 360-11897-39 360-11897-50	
	75 Ω RT	3	26 DC 110 DC 115 AC	360-11892-18 360-11892-40 360-11892-51	360-11892-19 360-11892-41 360-11892-52	360-11897-18 360-11897-40 360-11897-51	360-11897-19 360-11897-41 360-11897-52	
TNC	SH	1	26 DC 110 DC 115 AC	360-11890-12 360-11890-34 360-11890-45	360-11890-13 360-11890-35 360-11890-46	360-11895-12 360-11895-34 360-11895-45	360-11895-13 360-11895-35 360-11895-46	
	NS	2	26 DC 110 DC 115 AC	360-11890-14 360-11890-36 360-11890-47	360-11890-15 360-11890-37 360-11890-48	360-11895-14 360-11895-36 360-11895-47	360-11895-15 360-11895-37 360-11895-48	
	50 Ω RT	3	26 DC 110 DC 115 AC	360-11890-16 360-11890-38 360-11890-49	360-11890-17 360-11890-39 360-11890-50	360-11895-16 360-11895-38 360-11895-49	360-11895-17 360-11895-39 360-11895-50	
	75 Ω RT	3	26 DC 110 DC 115 AC	360-11890-18 360-11890-40 360-11890-51	360-11890-19 360-11890-41 360-11890-52	360-11895-18 360-11895-40 360-11895-51	360-11895-19 360-11895-41 360-11895-52	
	95 Ω RT	3	26 DC 110 DC 115 AC	360-11890-20 360-11890-42 360-11890-53	360-11890-21 360-11890-43 360-11890-54	360-11895-20 360-11895-42 360-11895-53	360-11895-21 360-11895-43 360-11895-54	
	TRANS	4	26 DC 110 DC 115 AC					360-11890-22 360-11890-44 360-11890-55
	SH	1	26 DC 110 DC 115 AC	360-11890-12 360-11890-34 360-11890-45	360-11890-13 360-11890-35 360-11890-46	360-11895-12 360-11895-34 360-11895-45	360-11895-13 360-11895-35 360-11895-46	
	NS	2	26 DC 110 DC 115 AC	360-11890-14 360-11890-36 360-11890-47	360-11890-15 360-11890-37 360-11890-48	360-11895-14 360-11895-36 360-11895-47	360-11895-15 360-11895-37 360-11895-48	
	50 Ω RT	3	26 DC 110 DC 115 AC	360-11890-16 360-11890-38 360-11890-49	360-11890-17 360-11890-39 360-11890-50	360-11895-16 360-11895-38 360-11895-49	360-11895-17 360-11895-39 360-11895-50	
	75 Ω RT	3	26 DC 110 DC 115 AC	360-11890-18 360-11890-40 360-11890-51	360-11890-19 360-11890-41 360-11890-52	360-11895-18 360-11895-40 360-11895-51	360-11895-19 360-11895-41 360-11895-52	
N	SH	1	26 DC 110 DC 115 AC	360-11890-12 360-11890-34 360-11890-45	360-11890-13 360-11890-35 360-11890-46	360-11895-12 360-11895-34 360-11895-45	360-11895-13 360-11895-35 360-11895-46	
	NS	2	26 DC 110 DC 115 AC	360-11890-14 360-11890-36 360-11890-47	360-11890-15 360-11890-37 360-11890-48	360-11895-14 360-11895-36 360-11895-47	360-11895-15 360-11895-37 360-11895-48	
	50 Ω RT	3	26 DC 110 DC 115 AC	360-11890-16 360-11890-38 360-11890-49	360-11890-17 360-11890-39 360-11890-50	360-11895-16 360-11895-38 360-11895-49	360-11895-17 360-11895-39 360-11895-50	
	75 Ω RT	3	26 DC 110 DC 115 AC	360-11890-18 360-11890-40 360-11890-51	360-11890-19 360-11890-41 360-11890-52	360-11895-18 360-11895-40 360-11895-51	360-11895-19 360-11895-41 360-11895-52	
	95 Ω RT	3	26 DC 110 DC 115 AC	360-11890-20 360-11890-42 360-11890-53	360-11890-21 360-11890-43 360-11890-54	360-11895-20 360-11895-42 360-11895-53	360-11895-21 360-11895-43 360-11895-54	
	TRANS	4	26 DC 110 DC 115 AC					360-11890-22 360-11890-44 360-11890-55
	SH	1	26 DC 110 DC 115 AC	360-11890-12 360-11890-34 360-11890-45	360-11890-13 360-11890-35 360-11890-46	360-11895-12 360-11895-34 360-11895-45	360-11895-13 360-11895-35 360-11895-46	
	NS	2	26 DC 110 DC 115 AC	360-11890-14 360-11890-36 360-11890-47	360-11890-15 360-11890-37 360-11890-48	360-11895-14 360-11895-36 360-11895-47	360-11895-15 360-11895-37 360-11895-48	
	50 Ω RT	3	26 DC 110 DC 115 AC	360-11890-16 360-11890-38 360-11890-49	360-11890-17 360-11890-39 360-11890-50	360-11895-16 360-11895-38 360-11895-49	360-11895-17 360-11895-39 360-11895-50	
	75 Ω RT	3	26 DC 110 DC 115 AC	360-11890-18 360-11890-40 360-11890-51	360-11890-19 360-11890-41 360-11890-52	360-11895-18 360-11895-40 360-11895-51	360-11895-19 360-11895-41 360-11895-52	

COIL  
CHARACTERISTICS

@ 20°C

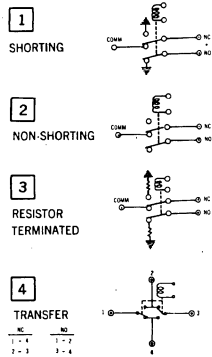
Nominal Voltage	Operating Range	Resistance, ohms ±10%
26 DC	20 - 32	260 ohms
110 DC	85 - 130	5100 ohms
115 AC (50 - 400 Hz)	90 - 130	1500 ohms thru diodes

## ELECTRICAL CHARACTERISTICS

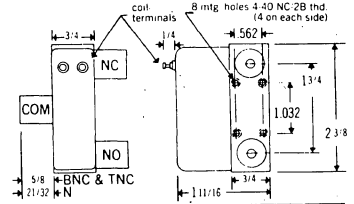
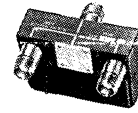
Conn.	Term.	Typical VSWR (Frequency GHz)							Typical Crosstalk - db (Frequency GHz)						
		.03	0.2	0.4	1.0	2.0	4.0	6.0	.03	0.2	0.4	1.0	2.0	4.0	6.0
BNC	SH	1.03	1.06	1.08	1.10	1.20	1.25	1.35	70	66	60	53	42	30	20
	NS	1.03	1.06	1.08	1.10	1.21	1.27	1.40	50	45	41	30	27	24	18
	50 Ω RT	1.03	1.06	1.08	1.14	1.25	1.50	—	40	35	31	24	17	14	—
	75 Ω RT	1.03	1.06	1.08	1.14	1.25	1.50	—	40	35	31	24	17	14	—
	95 Ω RT	1.03	1.06	1.08	1.14	1.25	1.50	—	40	35	31	24	17	14	—
TNC	SH	1.03	1.06	1.08	1.10	1.20	1.25	1.35	70	66	60	53	42	35	25
	NS	1.03	1.06	1.08	1.10	1.21	1.27	1.40	51	43	41	30	27	26	21
	50 Ω RT	1.03	1.06	1.08	1.14	1.25	1.50	—	40	35	31	24	17	14	—
	75 Ω RT	1.03	1.06	1.08	1.14	1.25	1.50	—	40	35	31	24	17	14	—
	95 Ω RT	1.03	1.06	1.08	1.14	1.25	1.50	—	40	35	31	24	17	14	—
N	SH	1.03	1.04	1.07	1.10	1.15	1.18	1.30	70	66	60	53	42	35	25
	NS	1.03	1.04	1.07	1.10	1.17	1.20	1.35	51	43	41	30	27	26	21
	50 Ω RT	1.03	1.05	1.08	1.12	1.18	1.50	—	41	35	31	24	17	14	—
	75 Ω RT	1.03	1.05	1.08	1.12	1.18	1.50	—	39	32	30	23	16	14	—
	95 Ω RT	1.03	1.05	1.08	1.12	1.18	1.50	—	37	31	29	22	15	14	—

NOTE: High frequency electrical characteristics are typical values (not maximum) as measured in a 50 ohm circuit and may be used for most design analyses. For more exacting applications, maximum values in the frequency range may be obtained upon request. SWR measured to common with a matched 50 ohm termination. For additional specifications request Amphenol RF Switches Catalog SS-1.

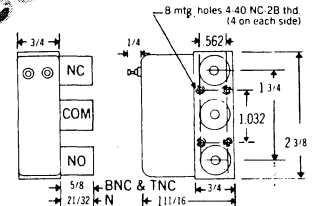
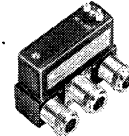
## SCHEMATICS



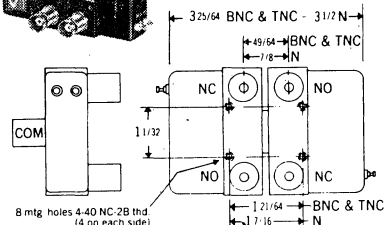
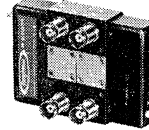
## A SPDT



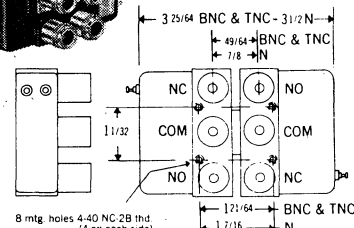
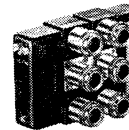
## B SPDT



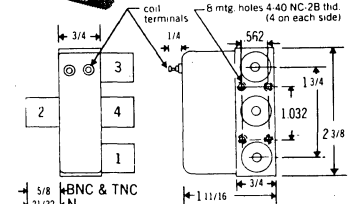
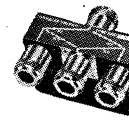
## C DPDT



## D DPDT



## E TRANSFER



# PUSHBUTTON SWITCHES & KEYBOARDS

BUNKER  
RAMO

AMPHENOL

**WIDE CHOICE OF DISPLAY SCREENS**  
**SINGLE SECTION DISPLAY SCREENS**  
**Single-section type.** Has transparent cap, transparent legend insert and translucent colored base.

Amphenol Part Number 1 Piece	Amphenol Part Number 3 Piece	Color
602-A101	602-A201	WHITE
602-A102	602-A202	RED
602-A103	602-A203	YELLOW
602-A104	602-A204	GREEN
602-A105	602-A205	BLUE

## 3 PIECE DISPLAY SCREENS

**Two-section types.** Have transparent caps and legend inserts. Translucent colored bases have either lateral or longitudinal split. Silicone rubber light baffles prevent spillage from one section to another.

Amphenol Lateral	Part Number Longitudinal	Colors
602-A306	602-A406	WHITE-WHITE
602-A307	602-A407	WHITE-RED
602-A308	602-A408	WHITE-YELLOW
602-A309	602-A409	WHITE-GREEN
602-A310	602-A410	WHITE-BLUE
602-A311	602-A411	RED-RED
602-A312	602-A412	RED-YELLOW
602-A313	602-A413	RED-GREEN
602-A314	602-A414	RED-BLUE
602-A315	602-A415	YELLOW-YELLOW
602-A316	602-A416	YELLOW-GREEN
602-A317	602-A417	YELLOW-BLUE
602-A318	602-A418	GREEN-GREEN
602-A319	602-A419	GREEN-BLUE
602-A320	602-A420	BLUE-BLUE

**Three and four section types.** Available in any combination of white, red, yellow, green and blue.

## LEGEND SERVICE

AMPHENOL provides legend service on the inserts supplied with three-piece screens. Contact your AMPHENOL representative for ordering information.

## COLOR FILTERS

Silicon rubber filters are available to fit over the lamp for projected color.

Amphenol Part Number	Color
602-F11	WHITE
602-F12	RED
602-F13	YELLOW
602-F14	GREEN
602-F15	BLUE
602-F16	AMBER

## LAMPS AND LAMP VOLTAGES

Each Series 602 assembly will accept four T 1 1/4 miniature flanged base lamps available in 6, 14 and 28 volts; long-life or standard.

Voltage	6	14	28
Long-Life	602-K11	602-K12	602-K13
Standard	602-K14	602-K15	602-K16

## LAMP AND FILTER TOOL

Part Number 602-P3T09

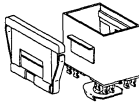
## INDICATORS

Used when an indicator light is desired, without switching function. Fixed bracket holds the display screen at the same height as the operator indicator unit. Available in either barrier mount or flange mount styles; they utilize the same panel cutout, screens and barriers as operator indicators.

Amphenol Part Number Barrier Mounted	Amphenol Part Number Flange Mounted	Barrier Type	Number of Sockets
602-D102	602-D302	Short	A and C
602-D104	602-D304	Short	A, B, C and D
602-D202	602-D402	Long	A and C
602-D204	602-D404	Long	A, B, C and D

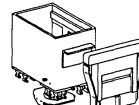
## OPERATOR-INDICATORS

Units accept switch modules, provide both indication and switching. Barriers serve as mounting devices and separate the display screens to prevent accidental operation. Flange mounted units are supplied with spring clip mounting devices ready-attached. Can be individually installed or replaced.



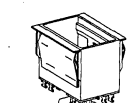
## LONG BARRIER MOUNTS

Part Number	Number of Sockets
602-B202	A and C
602-B204	A, B, C and D



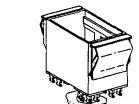
## SHORT BARRIER MOUNTS

Part Number	Number of Sockets
602-B102	A and C
602-B104	A, B, C and D



## LONG SIDE FLANGE MOUNTS

Part Number	Number of Sockets
602-B402	A and C
602-B404	A, B, C and D



## SHORT SIDE FLANGE MOUNTS

Part Number	Number of Sockets
602-B302	A and C
602-B304	A, B, C and D

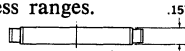
## LENGTH OF PANEL CUTOUT

Number of Units	Type of Operator Indicator			
	Long Barrier*	Short Barrier*	Long Flange*	Short Flange*
1	1.187	1.421	1.102	.862
2	2.197	2.677	2.195	1.717
3	3.212	3.932	3.290	2.570
4	4.224	5.186	4.384	3.424
5	5.240	6.440	5.479	4.279
6	6.256	7.697	6.574	5.134
7	7.268	8.949	7.668	5.988
8	8.283	10.207	8.763	6.843
9	9.299	11.461	9.857	7.697
10	10.311	12.713	10.952	8.552
11	11.327	13.968	12.046	9.406
12	12.342	16.224	13.140	10.260

\* Nominal dimensions in inches, tolerance  $\pm 0.010$ . Add .165 inch to length for each optional spacing barrier used with flange mount units.

## MOUNTING BARRIERS

Molded color barriers are available in two panel thickness ranges.



Barrier Type	Panel Thick.	Black	Gray	White	Red
Short	0.06" to 0.19"	602-E10B	602-E10G	602-E10W	602-E10R
	0.19" to 0.31"	602-E30B	602-E30G	602-E30W	602-E30R
Long	0.06" to 0.19"	602-E20B	602-E20G	602-E20W	602-E20R
	0.19" to 0.31"	602-E40B	602-E40G	602-E40W	602-E40R

## OPTIONAL SPACING BARRIERS

Spacing barriers, not necessary for mounting are used to color code groupings and to prevent accidental actuation of adjacent switches.

Barrier Type	Black	Gray	White	Red
Short	602-H10B	602-H10G	602-H10W	602-H10R
Long	602-H20B	602-H20G	602-H20W	602-H20R

## AMPHENOL KEYBOARDS

Most keyboard applications have very special requirements. Surprisingly few are alike. So we build a custom keyboard — one that's made to meet your specs in every way. Just call your Amphenol Sales Engineer and tell him what you need, and we'll take it from there.

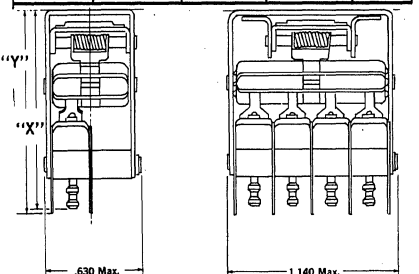
## MULTI-SPDT SWITCH MODULES

Electrical ratings:

Voltage	Non-inductive Load (A)			
	Resistive Load		Lamp Load	
	Normally Closed	Normally Open	Normally Closed	Normally Open
110-125 VAC	5	5	1.5	0.7
220-250 VAC	5	5	1	0.5
28 VDC	5	5	3	3

Voltage	Inductive Load (A)			
	Inductive Load		Motor Load	
	Normally Closed	Normally Open	Normally Closed	Normally Open
110-125 VAC	4	4	2.5	1.3
220-250 VAC	4	4	1.5	0.8
28 VDC	4	4	3	3

Alternate Action Amphenol Silver Contacts	Action Part Number Gold Contacts	Momentary Action Amphenol Silver Contacts	Momentary Action Part Number Gold Contacts	No. of Circuits
602-C151	602-C152	602-C111	602-C112	1
602-C161	602-C162	602-C121	602-C122	2
602-C171	602-C172	602-C131	602-C132	3
602-C181	602-C182	602-C141	602-C142	4



Switch Type	Dim. "X"	Dim. "Y"
Alternate	1.300	1.330
Momentary	1.000	1.040

## COMPACT SPDT-DPDT SWITCH MODULES

Miniature units with quick-connect terminals for fast, easy wiring. Assemblies built up from short flange operator units should have spacing barriers between them to prevent mechanical interference.

Electrical ratings:

Rated Voltage	Non-inductive Load (A)		Inductive Load (A)	
	Resistive Load	Lamp Load	Inductive Load	Motor Load
110-125 VAC	15	3	10	4
220-250 VAC	15	2	10	3
28 VDC	10	4	6	4

Amphenol Part Number	Number of Circuits
602-C211	1
602-C221	2

Note: Maximum depth of switch behind panel when completely assembled is 3.047".

## 601 SERIES — KEYBOARD SWITCH

Variations

	Part No.
Spadetop for sloped keyboard	601-R111A
Octagonal top for sloped keyboard	601-R211A
Spadetop for stepped keyboard	601-R311A

Other variations are available.

Contact your sales engineer for details.

## Electrical Characteristics

Contact resistance (initial):	0.200 ohms max.
Contact rating (SPNO):	
Max. contact voltage:	125 vdc (resistive)
Max. contact current:	500 ma dc (resistive)
Max. contact power:	10 watts (resistive)
Voltage breakdown:	300 volts ac, 60 Hz