Professional Grade Switches

| Precision | Reliability | Performance |

RF / Microwave Electromechanical Coaxial Switches
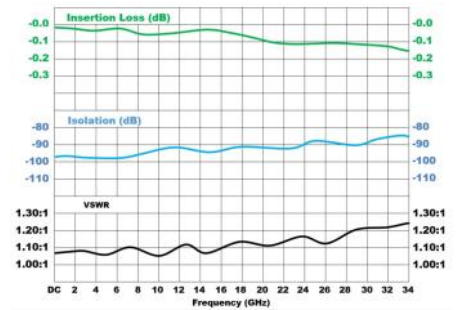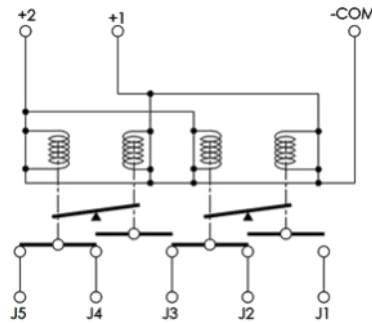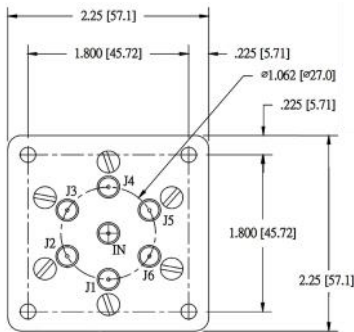
e360 microwave, inc is a diverse RF/Microwave technology provider founded on more than 30 years of experience in innovation, engineering excellence and manufacturing.

Our Value Proposition

We are a RF/Microwave technology focused company. We design, develop and manufacture innovative products at low cost. We build long term partnerships with our customers through product innovation, business alignment, proactive communication and exceptional support. Our engineering and manufacturing capabilities establish e360 microwave as a leader in the industry for design, quality, process control and high volume production.

100Ks Standard Models + Custom = Unlimited Possibilities

e360 microwave offers one of the broadest selections of standard RF/Microwave coaxial switches in the market today. Our standard models meet most of our customer's requirements. When needed, we provide custom solutions quickly and cost effectively. The intrinsic qualities of our switches include excellent RF performance, long life and high repeatability and when coupled with low cost, provides exceptional value.

Markets

We serve all RF and microwave markets ranging from consumer electronics to defense and government agencies to medical and industrial. Typical applications include transmitter and antenna switching, broadband signal routing and product testing from a small engineering lab to full rate high-volume production utilizing automatic test stations.

Service / Support

We strive to provide a high level of service, support and satisfaction. We interact professionally and proactively for efficiency and accuracy. Exceeding your expectations is our objective.

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Fast Service...Fast Delivery...Fast Support

Model Number Example

For features: SPDT, 50Ω Terminations, SMA, Latching, Indicators, Self Cutoff, 26.5GHz, 12VDC, TTL, Transient Diodes, 9 Pin D-Sub, Ruggedized

Use this model number: 1 2 T- S2L5 -2612-T J F - R

X X X - XX XX- XX XX- X _ _ - X

Number of inputs

Number of outputs

Model Type	
Standard	S
Narrow Body (1)	N
Internal Termination (2)	T
External Termination (2)	E

Connector Type	
SMA	S2
SMB	S3
SC	S4
N	N2
TNC	T2
RF Pin	P2
BNC	B2
F (75 ohms)	F2
2.92mm	M2
7/16 DIN	D7
4.3-10 DIN	D4
Special	X2

Actuator Type	
Failsafe	F2
Failsafe, ind	F3
Failsafe, +com	F4
Failsafe, ind, +com	F5
Latching	L2
Latching, ind	L3
Latching, SC	L4
Latching, ind, SC	L5
Latching, +com	L6
Latching, +com, ind	L7
Latching, , +com, SC	L8
Latching, , +com, ind, SC	L9
Normally Open (3)	N2
Normally Open, ind (3)	N3
Normally Open, +com (3)	N4
Normally Open, +com, ind (3)	N5

Special	
L	Lo-PIM
R	Ruggedized
C	Custom Design

Options	
T	TTL Driver
D	TTL Decoder
J	Transient Suppression diodes
A	Auto Reset
F	(4) Solder Pin/Lug (SPDT/TRAN
	9 Pin D-Sub connector (SPDT/TRAN)
	(5) 15 Pin D-Sub connector (SPMT)
H	25 Pin D-Sub connector (SPMT)
P	Solder Pin/Lug (SPMT)
M	Moisture Seal (2 levels available)
X	Special

Actuator Voltage	
05	5 VDC
12	12 VDC
15	15 VDC
18	18 VDC
20	20 VDC
24	24 VDC
28	28 VDC
48	48 VDC

Frequency Range	
03	DC-3 GHz
06	DC-6 GHz
08	DC-8 GHz
12	DC-12 GHz
18	DC-18 GHz
20	DC-20 GHz
22	DC-22 GHz
26	DC-26.5 GHz
33	DC-33 GHz
XX	Special

Notes:
(1) SPDT models only
(2) SPDT and SPMT models, S2 and M2 connectors only
(3) SPMT models only
(4) Solder pins are standard for SPDT and TRAN models, no designation on model number needed
(5) D-Sub 15 pin connector is standard for SPMT models, no designation on model number needed

Standard Electromechanical Coaxial Switches

Power Handling vs. Frequency & Connector Type

Chart showing Power (Watts) vs Frequency (GHz) with three lines:
- SC & SPECIAL SWITCHES
- N & TNC SWITCHES
- STANDARD SMA SWITCHES
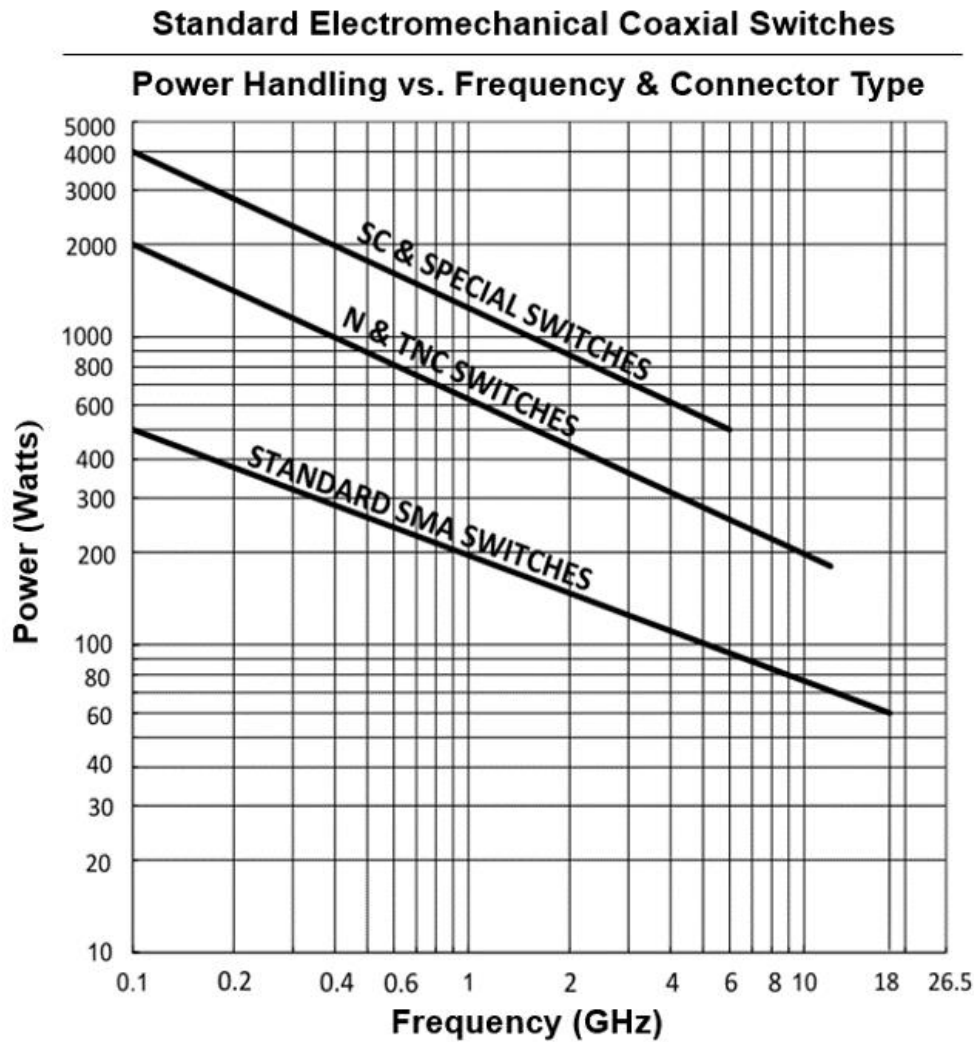
Environment and Test Conditions: ambient temp. +25°C , sea level, load VSWR $\leq$1.20:1, cold-switching.

Note: Contact us for available designs capable of handling higher power and or special requirements

Common Features	Specification
Switch Type	Electromechanical, Coaxial
Operation	Break-Before-Make (*Make-Before-Break available*)
Switching Speed, typical	10-20 ms max., based on model
Characteristic Impedance	50Ω (75Ω designs available)
Operating Temperature	-25°C to +65°C
Extended Operating Temperature	-54°C to +85°C (ruggedized models)
Storage Temperature	-55°C to +100°C
Humidity / Moisture Resistance	Splash or Immersion proof available
Shock	MIL-STD-202 Method 213, cond. D (500g's non-oper)
Vibration	MIL-STD-202 Method 214, cond. D (10g's rms non-oper)

SPDT (Single-Pole-Double-Throw) / 2P3T (Two-Pole-Three-Throw)

We offer a complete line of SPDT switches up to 33.5 GHz. Failsafe and latching models are available with a broad selection of options including indicators, TTL, 50Ω terminations, D-Sub connectors and a wide variety of RF connectors and actuator voltages. Designs for special applications like high power handling, Lo-PIM and customer specific designs are available; priced economical and delivered quickly.

SMA	RF Performance (GHz)	DC - 6	6 - 12	12 - 18 *	18 - 26.5*
	VSWR	1.20:1	1.30:1	1.40:1	1.70:1
	Insertion Loss (dB)	0.20	0.40	0.50	0.60
	Isolation (dB)	70	60	60	50

* Same RF specification for 18 GHz and 26.5 GHz models up to 18 GHz

2.92 mm	RF Performance (GHz)	DC - 6	6 - 12	12 -18	18 - 26	26 - 31	31 - 33.5
	VSWR	1.20:1	1.30:1	1.40:1	1.40:1	1.50:1	1.50:1
	Insertion Loss (dB)	0.20	0.30	0.30	0.40	0.40	0.50
	Isolation (dB)	80	70	70	60	50	40

Type-N	RF Performance (GHz)	DC - 1	1 - 4	4 - 8	8 - 12
	VSWR	1.25:1	1.30:1	1.40:1	1.40:1
	Insertion Loss (dB)	0.30	0.40	0.40	0.50
	Isolation (dB)	90	80	80	70

FEATURES		
Common Mechanical / Environmental	see page 5
CW Power Handling	see page 5
Switch Cycle Life (millions)	2M (Failsafe & Normally Open), 5M (Latching)
Low Insertion Loss	<0.10 dB
High Isolation	>100 dB
Control Connection	Solder Lug/Pin

POPULAR OPTIONS		
(SPDT only)	Yes
Indicators (2M cycle life)	Yes
Internal 50Ω Terminations (2W std)	Yes
TTL Driver / Decoder	Yes / Yes
Self Cutoff (latching models)	Yes
Transient Suppression (TS) Diodes	Yes
Auto Reset	Yes
Positive (+) Common	Yes
Actuator Voltages (Vdc)	5, 12, 15, 18, 20, 24, 28, 48
Splash / Immersion Proof	Yes / Yes
9 Pin D-Sub (Male or Female)	Yes
RF Connectors	SMA, 2.92mm, Type-N, SMB, SC, TNC, RF Pin, BNC, F (75Ω) , 7/16 DIN, 4.3-10 DIN

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SPDT (Single-Pole-Double-Throw) / 2P3T (Two-Pole-Three-Throw)

A SPDT switch has three RF connectors with the center connector typically acting as a common port that is connected (switched) between one of the two other ports where signals can pass in either direction. One version includes internal 50Ω terminations that connects unselected ports to a matched load. 2P3T switches provide two independent input ports switchable between two sets of output ports. For higher power handling applications, Type-N connectors are available as a standard option. These switches as commonly used for lab testing and high volume product testing within specialized ATE systems. Ideal for many end product applications including redundant transmitters, hot stand-by or diversity antenna switching.

2.05 (52.07) w/TTL
1.30 (33.02) STD
1.50 (38.01)
1.34 (34.04) Narrow Body

2.35 (59.70)
2.50 (63.50)

1.85 (47.00)
2.05 (52.07)

1.85 (47.00)
2.05 (52.07)

Inches (mm)

SMA / 2.92mm Connectors   **Type-N Connectors**   **SMA + 50Ω Terminations**   **2P3T Switch, SMA Connectors**

Standard   **TTL Option**   **Internal 50Ω Terminations & TTL**   **Standard 2P3T Switch**

RF Performance (2.92mm connector)

Typical RF Performance

Insertion Loss (dB)

Isolation (dB)

VSWR
IN - 1
IN - 2

Frequency (GHz)
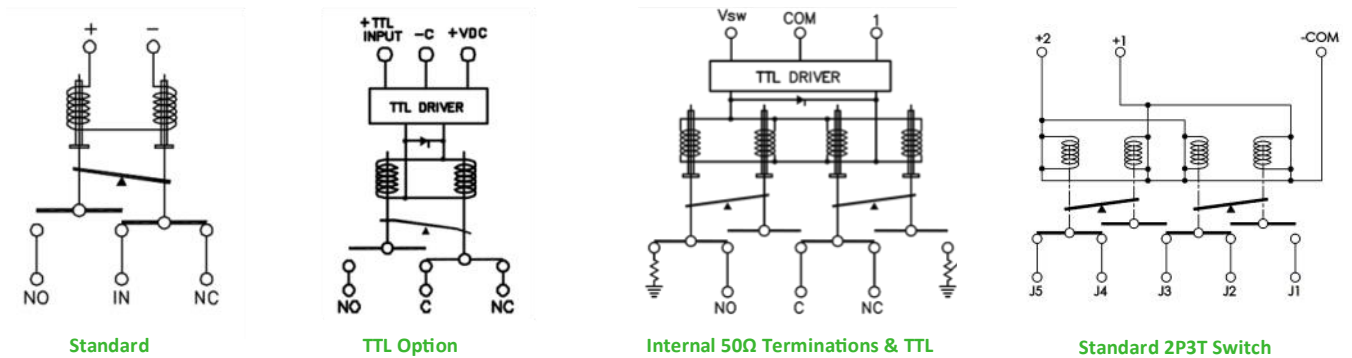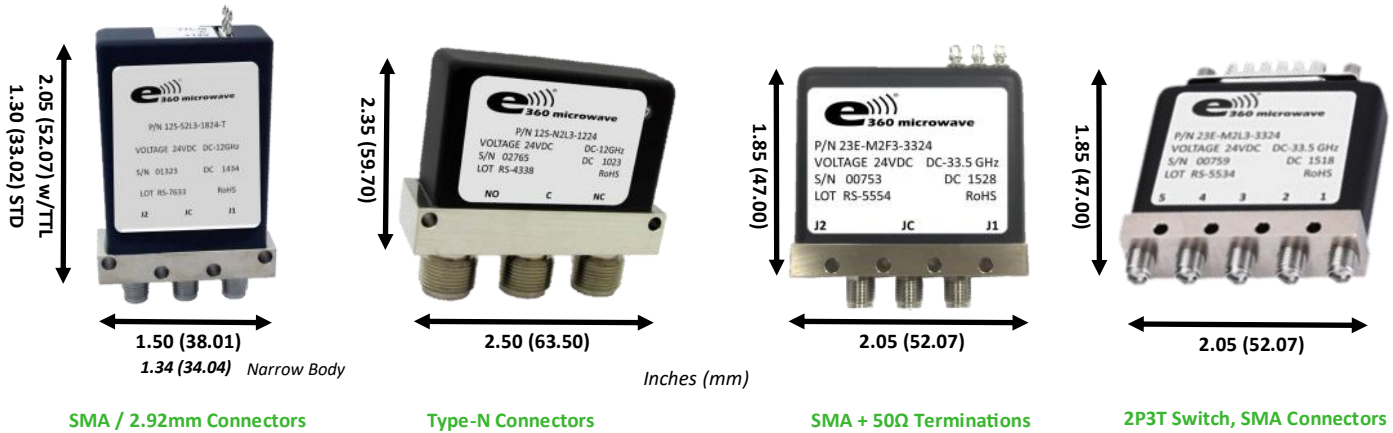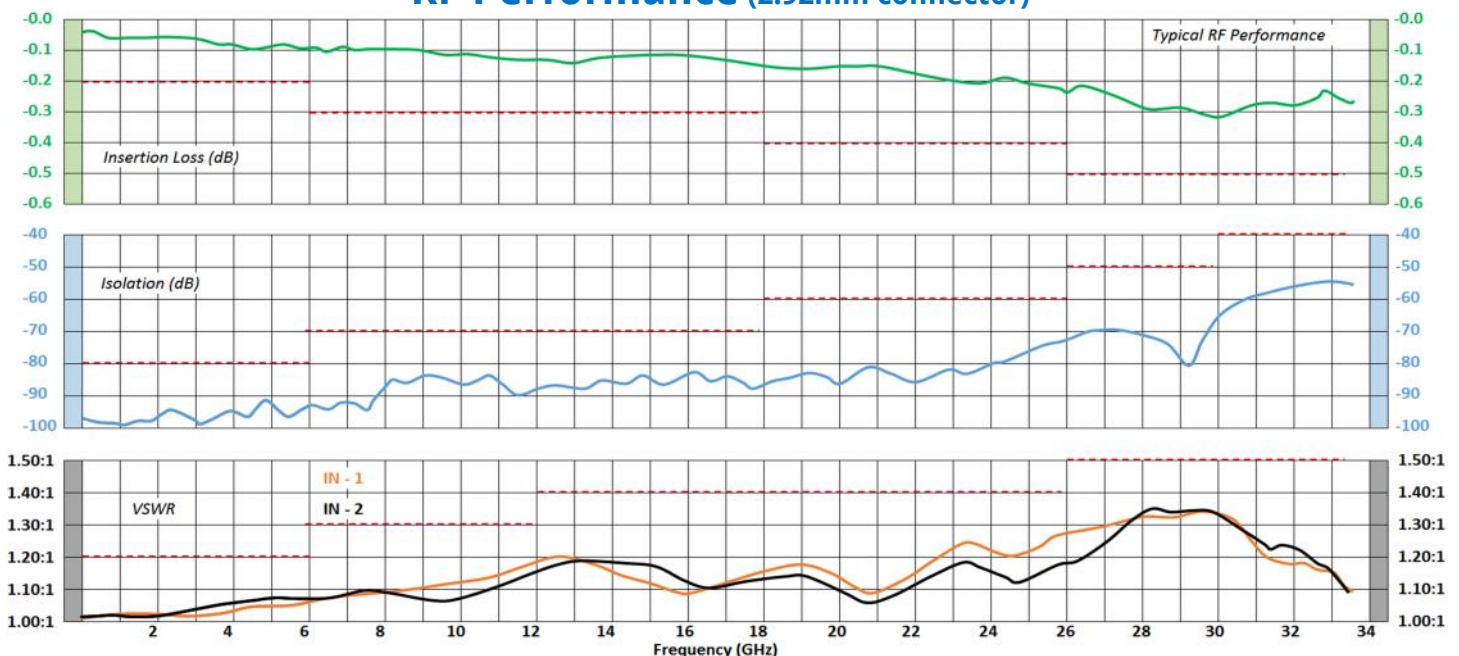
Standard SPDT Models: DC-18.0 GHz

Model Number	Connector	Actuator	Volts (dc)	Features
12S-S2F2-1812	SMA	Failsafe	12	Solder Pins
12S-S2F3-1824-F	SMA	Failsafe	24	Indicators, 9 Pin D-Sub
12S-S2F5-1824-F	SMA	Failsafe	24	+common, Indicators, 9 Pin D-Sub
12S-S2F3-1824-TF	SMA	Failsafe	24	Indicators, TTL, 9 Pin D-Sub
12N-S2F3-1824-F	SMA	Failsafe	24	Narrow body, Indicators, 9 Pin D-Sub
12N-S2F5-1824-TF	SMA	Failsafe	24	Narrow body, Indicators, + common, TTL, 9 Pin D-Sub
12T-S2F3-1824-F	SMA	Failsafe	24	Terminations, Indicators, 9 Pin D-Sub
12T-S2F3-1824-TF	SMA	Failsafe	24	Terminations, Indicators, TTL, 9 Pin D-Sub
12S-S2L2-1812	SMA	Latching	28	Solder Pins
12S-S2L3-1812-F	SMA	Latching	12	Indicators, 9 Pin D-Sub
12S-S2L5-1812-F	SMA	Latching	12	+common, Indicators, 9 Pin D-Sub
12S-S2L3-1812-TF	SMA	Latching	12	Indicators, TTL, 9 Pin D-Sub
12N-S2L3-1824-F	SMA	Latching	24	Narrow body, Indicators, 9 Pin D-Sub
12N-S2L5-1824-TF	SMA	Latching	24	Narrow body, Indicators, self cut-off, TTL, 9 Pin D-Sub
12T-S2L3-1824-F	SMA	Latching	24	Terminations, Indicators, 9 Pin D-Sub
12T-S2L3-1828-TF	SMA	Latching	28	Terminations, Indicators, TTL, 9 Pin D-Sub
12S-S2L7-1828-TF	SMA	Latching	28	+common, indicators, TTL, 9 Pin D-Sub
12S-S2L9-1824-TF	SMA	Latching	24	+common, indicators, self cut-off, TTL, 9 Pin D-Sub
23E-S2F3-1824-F	SMA	Failsafe	24	2P3T, indicators, 9 Pin D-Sub
23E-S2F5-1812-TF	SMA	Failsafe	12	2P3T, indicators, + common, TTL, 9 Pin D-Sub
23E-S2L5-1824-F	SMA	Latching	24	2P3T, indicators, self cut-off, 9 Pin D-Sub
23E-S2L8-1828-TF	SMA	Latching	28	2P3T, + common, self cut-off, TTL, 9 Pin D-Sub

Standard SPDT Switch Models: DC - 26.5 GHz

Model Number	Connector	Actuator	Volts (dc)	Features
12S-S2F3-2624-F	SMA	Failsafe	24	Indicators, 9 Pin D-Sub
12S-S2F5-2624-F	SMA	Failsafe	24	+common, Indicators, 9 Pin D-Sub
12S-S2F3-2624-TF	SMA	Failsafe	24	Indicators, TTL, 9 Pin D-Sub
12N-S2F3-2624-F	SMA	Failsafe	24	Narrow body, Indicators, 9 Pin D-Sub
12N-S2F5-2624-TF	SMA	Failsafe	24	Narrow body, Indicators, + common, TTL, 9 Pin D-Sub
12T-S2F3-2624-F	SMA	Failsafe	24	Terminations, Indicators, 9 Pin D-Sub
12T-S2F3-2624-TF	SMA	Failsafe	24	Terminations, Indicators, TTL, 9 Pin D-Sub
12S-S2L3-2612-F	SMA	Latching	12	Indicators, 9 Pin D-Sub
12S-S2L5-2612-F	SMA	Latching	12	Indicators, self cut-off, 9 Pin D-Sub
12S-S2L3-2612-TF	SMA	Latching	12	Indicators, TTL, 9 Pin D-Sub
12N-S2L5-2624-TF	SMA	Latching	24	Narrow body, Indicators, self cut-off, TTL, 9 Pin D-Sub
12T-S2L3-2624-F	SMA	Latching	24	Terminations, Indicators, 9 Pin D-Sub
12T-S2L3-2628-TF	SMA	Latching	28	Terminations, Indicators, TTL, 9 Pin D-Sub
12S-S2L7-2628-TF	SMA	Latching	28	+common, indicators, TTL, 9 Pin D-Sub
12S-S2L9-2624-TF	SMA	Latching	24	+common, indicators, self cut-off, TTL, 9 Pin D-Sub
23E-S2F3-2624-F	SMA	Failsafe	24	2P3T, indicators, 9 Pin D-Sub
23E-S2F5-2612-TF	SMA	Failsafe	12	2P3T, indicators, + common, TTL, 9 Pin D-Sub
23E-S2L5-2624-F	SMA	Latching	24	2P3T, indicators, self cut-off, 9 Pin D-Sub
23E-S2L8-2628-TF	SMA	Latching	28	2P3T, + common, self cut-off, TTL, 9 Pin D-Sub

Standard models: the models listed are a partial listing of the standard models available. To order a standard model specific for your requirements, see page 3 for the model numbering system or contact us for assistance.

Standard SPDT Models: DC-33.5 GHz

Model Number	Connector	Actuator	Volts (dc)	Features
12S-M2F2-3312	2.92mm	Failsafe	12	Solder Pins
12S-M2F3-3324-F	2.92mm	Failsafe	24	Indicators, 9 Pin D-Sub
12S-M2F5-3324-F	2.92mm	Failsafe	24	+common, Indicators, 9 Pin D-Sub
12S-M2F3-3324-TF	2.92mm	Failsafe	24	Indicators, TTL, 9 Pin D-Sub
12N-M2F3-3324-F	2.92mm	Failsafe	24	Narrow body, Indicators, 9 Pin D-Sub
12N-M2F5-3324-TF	2.92mm	Failsafe	24	Narrow body, Indicators, + common, TTL, 9 Pin D-Sub
12T-M2F3-3324-F	2.92mm	Failsafe	24	Terminations, Indicators, 9 Pin D-Sub
12T-M2F3-3324-TF	2.92mm	Failsafe	24	Terminations, Indicators, TTL, 9 Pin D-Sub
12S-M2L2-3328	2.92mm	Latching	28	Solder Pins
12S-M2L3-3312-F	2.92mm	Latching	12	Indicators, 9 Pin D-Sub
12S-M2L5-3312-F	2.92mm	Latching	12	Indicators, self cut-off, 9 Pin D-Sub
12S-M2L3-3312-TF	2.92mm	Latching	12	Indicators, TTL, 9 Pin D-Sub
12N-M2L3-3324-F	2.92mm	Latching	24	Narrow body, Indicators, 9 Pin D-Sub
12N-M2L5-3324-TF	2.92mm	Latching	24	Narrow body, Indicators, self cut-off, TTL, 9 Pin D-Sub
12T-M2L3-3324-F	2.92mm	Latching	24	Terminations, Indicators, 9 Pin D-Sub
12T-M2L3-3328-TF	2.92mm	Latching	28	Terminations, Indicators, TTL, 9 Pin D-Sub
12S-M2L7-3328-TF	2.92mm	Latching	28	+common, indicators, TTL, 9 Pin D-Sub
12S-M2L9-3324-TF	2.92mm	Latching	24	+common, indicators, self cut-off, TTL, 9 Pin D-Sub
23E-M2F3-3324-F	2.92mm	Failsafe	24	2P3T, indicators, 9 Pin D-Sub
23E-M2F5-3312-TF	2.92mm	Failsafe	12	2P3T, indicators, + common, TTL, 9 Pin D-Sub
23E-M2L5-3324-F	2.92mm	Latching	24	2P3T, indicators, self cut-off, 9 Pin D-Sub
23E-M2L8-3328-TF	2.92mm	Latching	28	2P3T, + common, self cut-off, TTL, 9 Pin D-Sub

Standard SPDT Models: DC-12.0 GHz

Model Number	Connector	Actuator	Volts (dc)	Features
12S-N2F2-1212	Type-N	Failsafe	12	Solder Pins
12S-N2F3-1212-F	Type-N	Failsafe	12	Indicators, 9 Pin D-Sub
12S-N2F5-1224-F	Type-N	Failsafe	24	+ common, indicators, 9 Pin D-Sub
12S-N2F3-1224-TF	Type-N	Failsafe	24	Indicators, TTL, 9 Pin D-Sub
12S-N2F4-1224-TF	Type-N	Failsafe	24	+ common, TTL, 9 Pin D-Sub
12S-N2F5-1228-F	Type-N	Failsafe	28	Indicators, + common, 9 Pin D-Sub
12S-N2F2-1228-F	Type-N	Failsafe	28	9 Pin D-Sub
12S-N2F3-1228-TF	Type-N	Failsafe	28	Indicators, TTL, 9 Pin D-Sub
12S-N2F5-1228	Type-N	Failsafe	28	Indicators, + common, solder Pins
12S-N2L2-1212-F	Type-N	Latching	12	9 Pin D-Sub
12S-N2L3-1212-F	Type-N	Latching	12	Indicators, 9 Pin D-Sub
12S-N2L5-1212-TF	Type-N	Latching	12	Indicators, self cut-off, TTL, 9 Pin D-Sub
12S-N2L7-1224-TF	Type-N	Latching	24	+ common, indicators, TTL, 9 Pin D-Sub
12S-N2L3-1224	Type-N	Latching	24	Indicators, solder pins
12S-N2L5-1224-TD	Type-N	Latching	24	Indicators, self cut-off, TTL, decoders, solder pins
12S-N2L7-1228-TJF	Type-N	Latching	28	+ common, indicators, TTL, TS diodes, 9 Pin D-Sub
12S-N2L3-1228-F	Type-N	Latching	28	Indicators, 9 Pin D-Sub
12S-N2L5-1228-TF	Type-N	Latching	28	Indicators, self cut-off, TTL, 9 Pin D-Sub
12S-N2L9-1212-TJF	Type-N	Latching	12	+ common, indicators, self cut-off, TTL, TS diodes, 9 Pin D-Sub

Available Options: Narrow Body, Indicators, Terminations, TTL, TTL Decoders, positive common, self cut-off, transient suppression diodes, Auto Reset, moisture sealing, D-Sub connectors, 11 types of RF connectors and 8 values of actuator voltages.

TRANSFER Switches

We offer a full compliment of Transfer switches up to 30 GHz. Failsafe and latching models are available with a broad selection of options including indicators, TTL, 50Ω terminations, D-Sub connectors and a wide variety of RF connectors and actuator voltages. Designs for special applications like high power handling, Lo-PIM and customer specific designs are available; priced economical and delivered quickly.

SMA

RF Performance (GHz)	DC - 6	6 - 12	12 - 18
VSWR	1.20:1	1.30:1	1.40:1
Insertion Loss (dB)	0.20	0.30	0.50
Isolation (dB)	70	60	60

Note: Same RF performance for both 18 GHz and 26.5 GHz models up to 18 GHz

2.92 mm

RF Performance (GHz)	DC - 6	6 - 12	12 -18	18 - 30
VSWR	1.20:1	1.30:1	1.40:1	1.60:1
Insertion Loss (dB)	0.20	0.30	0.50	0.80
Isolation (dB)	80	70	65	60

Type-N

RF Performance (GHz)	DC - 1	1 - 4	4 - 12
VSWR	1.25:1	1.25:1	1.70:1
Insertion Loss (dB)	0.20	0.20	0.70
Isolation (dB)	70	70	60

FEATURES

Common Mechanical / Environmental	see page 5
CW Power Handling	see page 5
Switch Cycle Life (millions)	2M (Failsafe & Normally Open), 5M (Latching)
Low Insertion Loss	<0.20 dB
High Isolation	>80 dB
Control Connection	Solder Lug/Pin

POPULAR OPTIONS

Narrow Body (SPDT only)	No
Indicators (2M cycle life)	Yes
Internal 50Ω Terminations (2W std)	No
TTL Driver / Decoder	Yes / Yes
Self Cutoff (latching models)	Yes
Transient Suppression (TS) Diodes	Yes
Auto Reset	Yes
Positive (+) Common	Yes
Actuator Voltages (Vdc)	5, 12, 15, 18, 20, 24, 28, 48
Splash / Immersion Proof	Yes / Yes
9 Pin D-Sub (Male or Female)	Yes
RF Connectors	SMA, 2.92mm, Type-N, SMB, SC, TNC, RF Pin, BNC, F (75Ω) , 7/16 DIN, 4.3-10 DIN

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The TRANSFER switch has four RF ports with two independent and parallel signal paths (J1-J2 & J3-J4). The switching operation simultaneously changes the port connections to a second set of signals paths (J1-J3 & J2-J4). RF signals can pass in either direction from port to port. For higher power handling applications, Type-N connectors are available as a standard option. These switches are commonly used for lab testing and high volume product testing within specialized ATE systems. Ideal for many end product applications including bypass or drop-out switching, signal reversing and function (amplifier, filter, attenuator, etc.) injection.

Inches (mm)
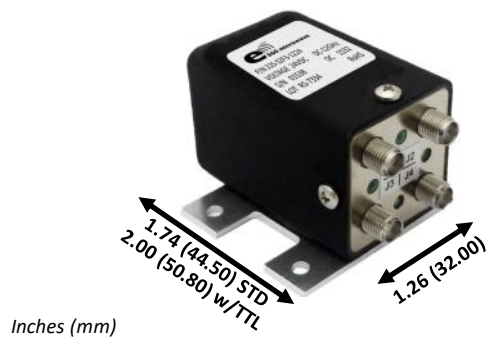
SMA & 2.92mm Connectors

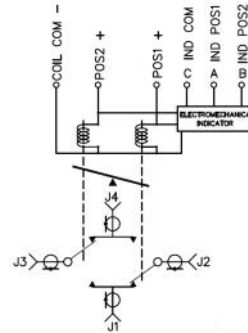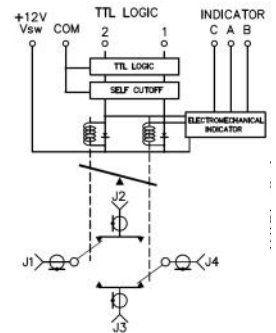**Type-N Connectors**
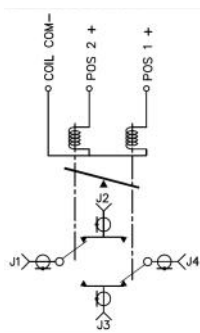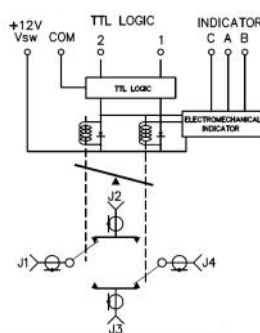
Standard

TTL + Indicators

Indicators

Self Cutoff + TTL + Indicators

RF Performance (2.92mm connector)

Typical RF Performance

Insertion Loss (dB)

Isolation (dB)

VSWR

J1-J3

J4-J2

Frequency (GHz)
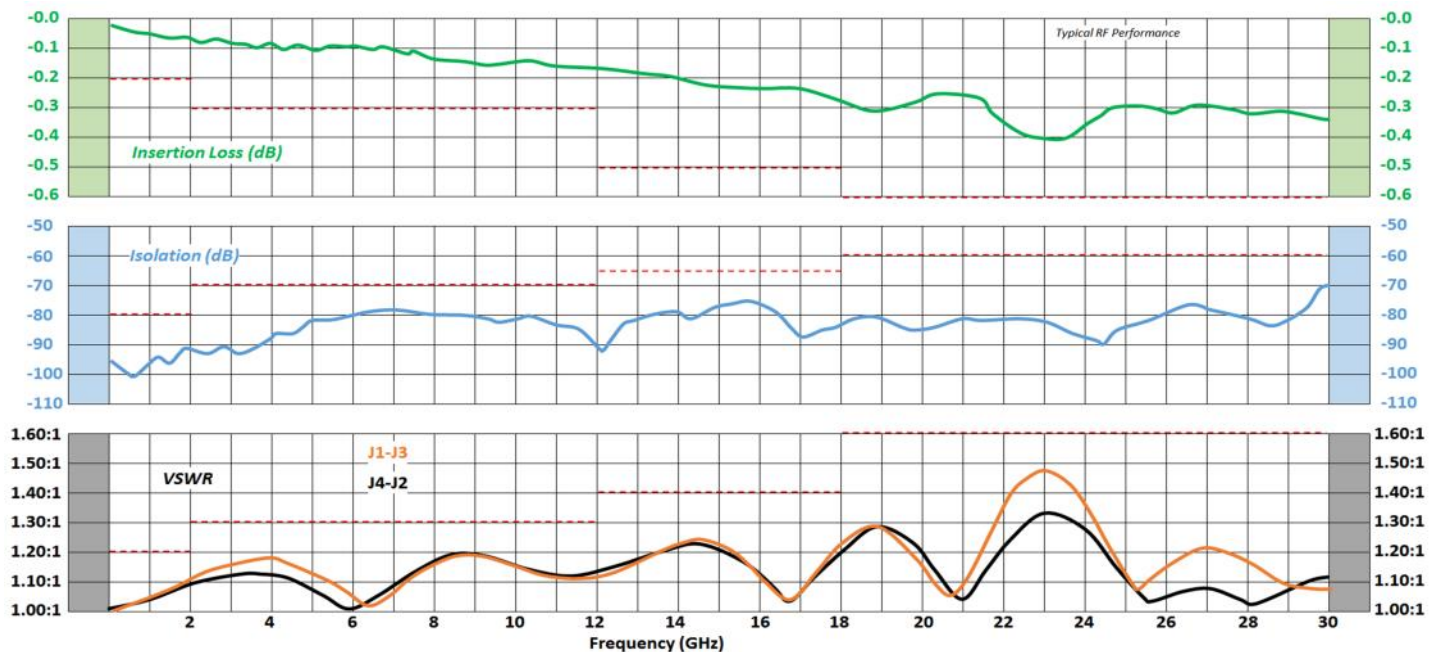
Standard TRANSFER Models: DC-18.0 GHz

Model Number	Connector	Actuator	Volts (dc)	Features
22S-S2F2-1812	SMA	Failsafe	12	Solder Pins
22S-S2F3-1812-F	SMA	Failsafe	12	Indicators, 9 Pin D-Sub
22S-S2F5-1812-F	SMA	Failsafe	12	+common, Indicators, 9 Pin D-Sub
22S-S2F3-1812-TF	SMA	Failsafe	12	Indicators, TTL, 9 Pin D-Sub
22S-S2F3-1824-F	SMA	Failsafe	24	Indicators, 9 Pin D-Sub
22S-S2F5-1824-TF	SMA	Failsafe	24	Indicators, + common, TTL, 9 Pin D-Sub
22S-S2F4-1824-F	SMA	Failsafe	24	+common, 9 Pin D-Sub
22S-S2F3-1824-TF	SMA	Failsafe	24	Indicators, TTL, 9 Pin D-Sub
22S-S2F2-1824	SMA	Failsafe	24	Solder Pins
22S-S2F2-1828	SMA	Failsafe	28	Solder Pins
22S-S2F3-1828-F	SMA	Failsafe	28	Indicators, 9 Pin D-Sub
22S-S2F4-1828-TF	SMA	Failsafe	28	+ common, TTL, 9 Pin D-Sub
22S-S2F5-1828-F	SMA	Failsafe	28	Indicators, + common, 9 Pin D-Sub
22S-S2F5-1828-TF	SMA	Failsafe	28	Indicators, + common, TTL, 9 Pin D-Sub
22S-S2F3-1828-TF	SMA	Failsafe	28	Indicators, TTL, 9 Pin D-Sub
22S-S2L2-1812	SMA	Latching	12	Solder Pins
22S-S2L3-1812-TF	SMA	Latching	12	Indicators, TTL, 9 Pin D-Sub
22S-S2L4-1812-TF	SMA	Latching	12	Self cut-off, TTL, 9 Pin D-Sub
22S-S2L5-1812-F	SMA	Latching	12	Indicators, self cut-off, 9 Pin D-Sub
22S-S2L6-1812-TF	SMA	Latching	12	+ common, TTL, 9 Pin D-Sub
22S-S2L2-1824-F	SMA	Latching	24	9 Pin D-Sub
22S-S2L3-1824-TF	SMA	Latching	24	Indicators, TTL, 9 Pin D-Sub
22S-S2L3-1824-F	SMA	Latching	24	Indicators, 9 Pin D-Sub
22S-S2L5-1824-TF	SMA	Latching	24	Indicators, self cut-off, TTL, 9 Pin D-Sub
22S-S2L7-1828-TF	SMA	Latching	28	+common, indicators, TTL, 9 Pin D-Sub
22S-S2L9-1828-TF	SMA	Latching	28	+common, indicators, self cut-off, TTL, 9 Pin D-Sub
22S-S2L3-1828-F	SMA	Latching	28	Indicators, 9 Pin D-Sub
22S-S2L5-1828-F	SMA	Latching	28	Indicators, self cut-off, 9 Pin D-Sub

Standard TRANSFER Models: DC - 30.0 GHz

Model Number	Connector	Actuator	Volts (dc)	Features
22S-M2F2-3012	2.92mm	Failsafe	12	Solder Pins
22S-M2F3-3012-F	2.92mm	Failsafe	12	Indicators, 9 Pin D-Sub
22S-M2F5-3012-F	2.92mm	Failsafe	12	+common, Indicators, 9 Pin D-Sub
22S-M2F3-3012-TF	2.92mm	Failsafe	12	Indicators, TTL, 9 Pin D-Sub
22S-M2F3-3024-F	2.92mm	Failsafe	24	Indicators, 9 Pin D-Sub
22S-M2F5-3024-TF	2.92mm	Failsafe	24	Indicators, + common, TTL, 9 Pin D-Sub
22S-M2F4-3024-F	2.92mm	Failsafe	24	+common, 9 Pin D-Sub
22S-M2F3-3024-TF	2.92mm	Failsafe	24	Indicators, TTL, 9 Pin D-Sub
22S-M2F2-3024	2.92mm	Failsafe	24	Solder Pins
22S-M2F2-3028	2.92mm	Failsafe	28	Solder Pins
22S-M2F3-3028-F	2.92mm	Failsafe	28	Indicators, 9 Pin D-Sub
22S-M2F4-3028-TF	2.92mm	Failsafe	28	+ common, TTL, 9 Pin D-Sub
22S-M2F5-3028-F	2.92mm	Failsafe	28	Indicators, + common, 9 Pin D-Sub

Standard models: the models listed are a partial listing of the standard models available. To order a standard model specific for your requirements, see page 3 for the model numbering system or contact us for assistance.

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Standard TRANSFER Models: DC-30.0 GHz cont'd

Model Number	Connector	Actuator	Volts (dc)	Features
22S-M2F5-3028-F	2.92mm	Failsafe	28	Indicators, + common, 9 Pin D-Sub
22S-M2F5-3028-TF	2.92mm	Failsafe	28	Indicators, + common, TTL, 9 Pin D-Sub
22S-M2F3-3028-TF	2.92mm	Failsafe	28	Indicators, TTL, 9 Pin D-Sub
22S-M2L2-3012	2.92mm	Latching	12	Solder Pins
22S-M2L3-3012-TF	2.92mm	Latching	12	Indicators, TTL, 9 Pin D-Sub
22S-M2L4-3012-TF	2.92mm	Latching	12	Self cut-off, TTL, 9 Pin D-Sub
22S-M2L5-3012-F	2.92mm	Latching	12	Indicators, self cut-off, 9 Pin D-Sub
22S-M2L6-3012-TF	2.92mm	Latching	12	+ common, TTL, 9 Pin D-Sub
22S-M2L2-3012-F	2.92mm	Latching	12	9 Pin D-Sub
22S-M2L3-3024-TF	2.92mm	Latching	24	Indicators, TTL, 9 Pin D-Sub
22S-M2L3-3024-F	2.92mm	Latching	24	Indicators, 9 Pin D-Sub
22S-M2L5-3024-TF	2.92mm	Latching	24	Indicators, self cut-off, TTL, 9 Pin D-Sub
22S-M2L7-3024-TF	2.92mm	Latching	24	+common, indicators, TTL, 9 Pin D-Sub
22S-M2L9-3024-TF	2.92mm	Latching	24	+common, indicators, self cut-off, TTL, 9 Pin D-Sub
22S-M2L3-3028-F	2.92mm	Latching	28	Indicators, 9 Pin D-Sub
22S-M2L5-3028-F	2.92mm	Latching	28	Indicators, self cut-off, 9 Pin D-Sub
22S-M2L7-3028-TF	2.92mm	Latching	28	+common, indicators, TTL, 9 Pin D-Sub
22S-M2L9-3028-TF	2.92mm	Latching	28	+common, indicators, self cut-off, TTL, 9 Pin D-Sub
22S-M2L8-3028-TF	2.92mm	Latching	28	+common, self cut-off, TTL, 9 Pin D-Sub
22S-M2L9-3028-TF	2.92mm	Latching	28	+common, indicators, self cut-off, TTL, 9 Pin D-Sub
22S-M2L3-3028-F	2.92mm	Latching	28	Indicators, 9 Pin D-Sub
22S-M2L5-3028-F	2.92mm	Latching	28	Indicators, self cut-off, 9 Pin D-Sub

Standard TRANSFER Models: DC-12.0 GHz

Model Number	Connector	Actuator	Volts (dc)	Features
22S-N2F2-1212	Type-N	Failsafe	12	Solder Pins
22S-N2F3-1212-F	Type-N	Failsafe	12	Indicators, 9 Pin D-Sub
22S-N2F5-1224-F	Type-N	Failsafe	24	Indicators, + common, 9 Pin D-Sub
22S-N2F3-1224-TF	Type-N	Failsafe	24	Indicators, TTL, 9 Pin D-Sub
22S-N2F4-1224-TF	Type-N	Failsafe	24	+ common, TTL, 9 Pin D-Sub
22S-N2F5-1228-F	Type-N	Failsafe	28	Indicators, + common, 9 Pin D-Sub
22S-N2F2-1228-F	Type-N	Failsafe	28	9 Pin D-Sub
22S-N2F3-1228-TF	Type-N	Failsafe	28	Indicators, TTL, 9 Pin D-Sub
22S-N2F5-1228	Type-N	Failsafe	28	Indicators, + common, solder Pins
22S-N2L2-1212-F	Type-N	Latching	12	9 Pin D-Sub
22S-N2L3-1212-F	Type-N	Latching	12	Indicators, 9 Pin D-Sub
22S-N2L5-1212-TF	Type-N	Latching	12	Indicators, self cut-off, TTL, 9 Pin D-Sub
22S-N2L7-1224-TF	Type-N	Latching	24	+ common, indicators, TTL, 9 Pin D-Sub
22S-N2L3-1224	Type-N	Latching	24	Indicators, solder pins
22S-N2L5-1224-TD	Type-N	Latching	24	Indicators, self cut-off, TTL, decoders, solder pins
22S-N2L7-1228-TJF	Type-N	Latching	28	+ common, indicators, TTL, TS diodes, 9 Pin D-Sub
22S-N2L3-1228-F	Type-N	Latching	28	Indicators, 9 Pin D-Sub
22S-N2L5-1228-TF	Type-N	Latching	28	Indicators, self cut-off, TTL, 9 Pin D-Sub
22S-N2L9-1228-TJF	Type-N	Latching	28	+ common, indicators, self cut-off, TTL, TS diodes, 9 Pin D-Sub

Available Options: Narrow Body, Indicators, Terminations, TTL, TTL Decoders, positive common, self cut-off, transient suppression diodes, Auto Reset, moisture sealing, D-Sub connectors, 11 types of RF connectors and 8 values of actuator voltages.

SP3T - SP6T (Single-Pole-Multi -Throw) Switches

The workhorse of many ATE systems is the SPMT switch in the SP4T and SP6T configuration. With broadband frequency coverage up to 26.5 GHz and designs for failsafe, latching or normally open operation, we offer one of the broadest selections of SPMT switches in the market today. Many options are available which indicators, TTL, 50Ω terminations, D-Sub connectors and a variety of RF connectors and actuator voltages. Designs for special application like high power handling, Lo-PIM and customer specific designs are available; priced economical and delivered quickly.

	RF Performance (GHz)	DC - 6	6 - 12	12 - 18	
SMA	VSWR	1.20:1	1.30:1	1.40:1	
	Insertion Loss (dB)	0.15	0.25	0.40	
	Isolation (dB)	80	80	80	

	RF Performance (GHz)	DC - 6	6 - 12	12 -18	18 - 26.5
SMA	VSWR	1.25:1	1.40:1	1.50:1	1.80:1
	Insertion Loss (dB)	0.20	0.40	0.50	0.80
	Isolation (dB)	70	60	60	50

	RF Performance (GHz)	DC - 1	1 - 4	4 - 8	8 - 12
Type-N	VSWR	1.25:1	1.40:1	1.45:1	1.70:1
	Insertion Loss (dB)	0.30	0.40	0.40	0.70
	Isolation (dB)	70	60	60	60

FEATURES	Common Mechanical / Environmental	see page 5
	CW Power Handling	see page 5
	Switch Cycle Life (millions)	2M (Failsafe & Normally Open), 5M (Latching)
	Low Insertion Loss	<0.20 dB
	High Isolation	>80 dB
	Control Connection	15 Pin D-Sub Connector

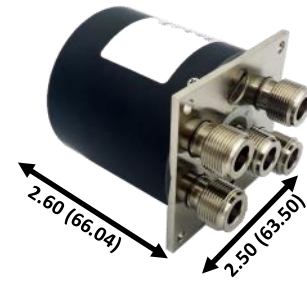|		
POPULAR OPTIONS	Narrow Body (SPDT only)	No
	Indicators (2M cycle life)	Yes
	Internal 50Ω Terminations (2W std)	Yes
	TTL Driver / Decoder	Yes / Yes
	Self Cutoff (latching models)	Yes
	Transient Suppression (TS) Diodes	Yes
	Auto Reset	Yes
	Positive (+) Common	Yes
	Actuator Voltages (Vdc)	5, 12, 15, 18, 20, 24, 28, 48
	Splash / Immersion Proof	Yes / Yes
	9 Pin D-Sub (Male or Female)	Yes
	RF Connectors	SMA, Type-N, SC, TNC, F (75Ω) , 7/16 DIN, 4.3-10 DIN

A single-pole-multi-throw switch has a single input port (single-pole) centered in a circle of three or more ports (multi-throw). Although RF signals can pass in either direction from input to output and visa versa, SPMT switches are generally used to route signals from an input to one of multiple outputs at random or sequentially. Employing multiple SPMT and SPDT switches in a matrix topology affords a high degree of versatility and optimization for high speed and high performance testing requirements. Adding TTL and TTL Decoders simplifies the programming and control of the switches and selecting models with 50Ω terminations eliminates the undesirable effects of an open port such as oscillation or signal reflections. For higher power handling applications, Type-N connectors are available as a standard option. SPMT switches are commonly used for lab testing and high volume end product testing in specialized ATE systems or RF drawers.

2.50 (63.50)   2.25 (57.10)

Inches (mm)

SMA + Internal Terminations

2.00 (50.80)   1.75 (44.50)

SMA + Standard Body

2.60 (66.04)   2.50 (63.50)

Type-N Connectors
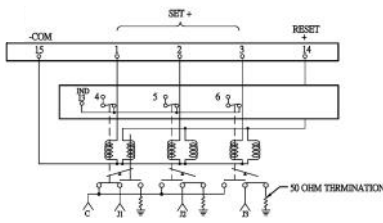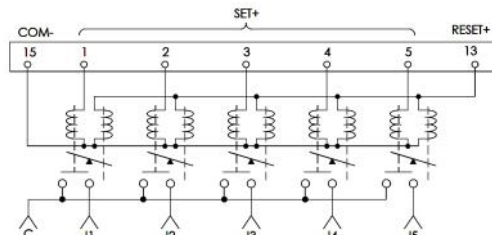
Standard

Standard SP6T
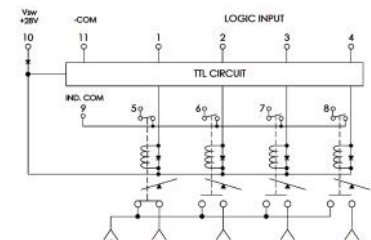
Latching: Self Cutoff, TTL, Indicators

RF Performance (2.92mm connector)

Typical RF Performance

Insertion Loss (dB)

Isolation (dB)

VSWR   J1-J3   J4-J2

Frequency (GHz)
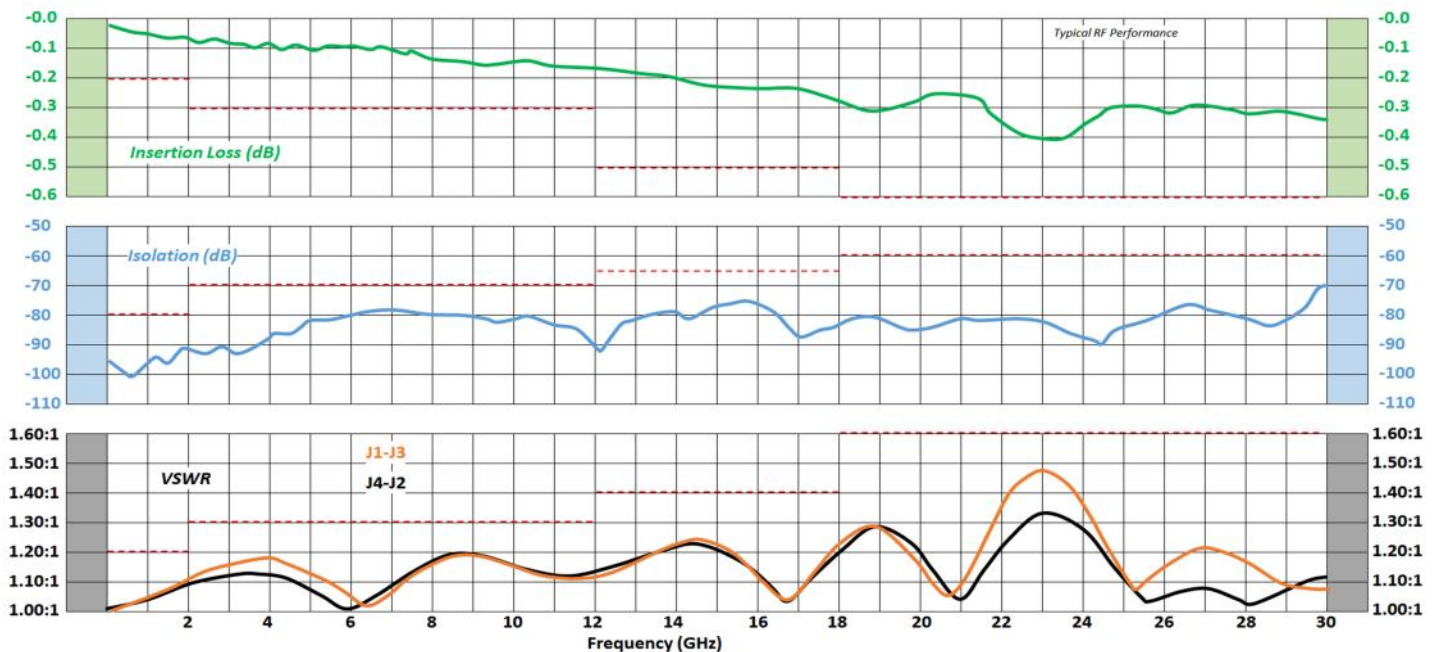
Standard SP3T-SP6T Models: DC-18.0 GHz

Model Number	SPMT	Connector	Actuator	Volts (dc)	Features
14S-S2N2-1812-P	SP4T	SMA	Normally Open	12	Solder Pins
14S-S2N3-1812	SP4T	SMA	Normally Open	12	Indicators, 15 Pin D-Sub
16S-S2N5-1812	SP6T	SMA	Normally Open	12	+common, Indicators, 15 Pin D-Sub
16S-S2N3-1812-T	SP6T	SMA	Normally Open	12	Indicators, TTL, 15 Pin D-Sub
14S-S2N3-1824	SP4T	SMA	Normally Open	24	Indicators, 15 Pin D-Sub
14S-S2N5-1824-T	SP4T	SMA	Normally Open	24	Indicators, + common, TTL, 15 Pin D-Sub
16S-S2N4-1824	SP6T	SMA	Normally Open	24	+common, 15 Pin D-Sub
16S-S2N3-1824-T	SP6T	SMA	Normally Open	24	Indicators, TTL, 15 Pin D-Sub
16S-S2N2-1824-P	SP6T	SMA	Normally Open	24	Solder Pins
14S-S2N2-1828-P	SP4T	SMA	Normally Open	28	Solder Pins
14S-S2N3-1828	SP4T	SMA	Normally Open	28	Indicators, 15 Pin D-Sub
14S-S2N4-1828-T	SP4T	SMA	Normally Open	28	+ common, TTL, 15 Pin D-Sub
16S-S2N5-1828	SP6T	SMA	Normally Open	28	Indicators, + common, 15 Pin D-Sub
16S-S2N5-1828-T	SP6T	SMA	Normally Open	28	Indicators, + common, TTL, 15 Pin D-Sub
16S-S2N3-1828-T	SP6T	SMA	Normally Open	28	Indicators, TTL, 15 Pin D-Sub
14S-S2L2-1812-P	SP4T	SMA	Latching	12	Solder Pins
14S-S2L3-1812-T	SP4T	SMA	Latching	12	Indicators, TTL, 15 Pin D-Sub
16S-S2L4-1812-T	SP6T	SMA	Latching	12	Self cut-off, TTL, 15 Pin D-Sub
16S-S2L5-1812	SP6T	SMA	Latching	12	Indicators, self cut-off, 15 Pin D-Sub
16S-S2L6-1812-T	SP6T	SMA	Latching	12	+ common, TTL, 15 Pin D-Sub
14S-S2L2-1824	SP4T	SMA	Latching	24	15 Pin D-Sub
14S-S2L3-1824-T	SP4T	SMA	Latching	24	Indicators, TTL, 15 Pin D-Sub
16S-S2L3-1824	SP6T	SMA	Latching	24	Indicators, 15 Pin D-Sub
16S-S2L5-1824-T	SP6T	SMA	Latching	24	Indicators, self cut-off, TTL, 15 Pin D-Sub
14S-S2L7-1828-T	SP4T	SMA	Latching	28	+common, indicators, TTL, 15 Pin D-Sub
14S-S2L9-1828-T	SP4T	SMA	Latching	28	+common, indicators, self cut-off, TTL, 15 Pin D-Sub
16S-S2L3-1828	SP6T	SMA	Latching	28	Indicators, 15 Pin D-Sub
16S-S2L5-1828	SP6T	SMA	Latching	28	Indicators, self cut-off, 15 Pin D-Sub

Standard SP3T-SP6T Models: DC - 26.5 GHz

Model Number	SPMT	Connector	Actuator	Volts (dc)	Features
14S-S2N2-3012-P	SP4T	SMA	Normally Open	12	Solder Pins
14S-S2N3-3012	SP4T	SMA	Normally Open	12	Indicators, 15 Pin D-Sub
16S-S2N5-3012	SP6T	SMA	Normally Open	12	+common, Indicators, 15 Pin D-Sub
16S-S2N3-3012-TF	SP6T	SMA	Normally Open	12	Indicators, TTL, 15 Pin D-Sub
14S-S2N3-3024	SP4T	SMA	Normally Open	24	Indicators, 15 Pin D-Sub
14S-S2N5-3024-TF	SP4T	SMA	Normally Open	24	Indicators, + common, TTL, 15 Pin D-Sub
16S-S2N4-3024	SP6T	SMA	Normally Open	24	+common, 15 Pin D-Sub
16S-S2N3-3024-TF	SP6T	SMA	Normally Open	24	Indicators, TTL, 15 Pin D-Sub
16S-S2N2-3024-P	SP6T	SMA	Normally Open	24	Solder Pins
14S-S2N2-3028-P	SP4T	SMA	Normally Open	28	Solder Pins
14S-S2N3-3028	SP4T	SMA	Normally Open	28	Indicators, 15 Pin D-Sub
16S-S2N4-3028-T	SP6T	SMA	Normally Open	28	+ common, TTL, 15 Pin D-Sub
16S-S2N5-3028	SP6T	SMA	Normally Open	28	Indicators, + common, 15 Pin D-Sub

Standard models: the models listed are a partial listing of the standard models available. To order a standard model specific for your requirements, see page 3 for the model numbering system or contact us for assistance.

Model Number	SPMT	Connector	Actuator	Volts (dc)	Features
16S-S2N5-3028	SP6T	SMA	Normally Open	28	Indicators, + common, 15 Pin D-Sub
16S-S2N5-3028-T	SP6T	SMA	Normally Open	28	Indicators, + common, TTL, 15 Pin D-Sub
16S-S2N3-3028-T	SP6T	SMA	Normally Open	28	Indicators, TTL, 15 Pin D-Sub
14S-S2L2-3012-P	SP4T	SMA	Latching	12	Solder Pins
14S-S2L3-3012-T	SP4T	SMA	Latching	12	Indicators, TTL, 15 Pin D-Sub
16S-S2L4-3012-T	SP6T	SMA	Latching	12	Self cut-off, TTL, 15 Pin D-Sub
16S-S2L5-3012	SP6T	SMA	Latching	12	Indicators, self cut-off, 15 Pin D-Sub
16S-S2L6-3012-T	SP6T	SMA	Latching	12	+ common, TTL, 15 Pin D-Sub
16S-S2L2-3012	SP6T	SMA	Latching	12	15 Pin D-Sub
14S-S2L3-3024-T	SP4T	SMA	Latching	24	Indicators, TTL, 15 Pin D-Sub
14S-S2L3-3024	SP4T	SMA	Latching	24	Indicators, 15 Pin D-Sub
16S-S2L5-3024-T	SP6T	SMA	Latching	24	Indicators, self cut-off, TTL, 15 Pin D-Sub
16S-S2L7-3024-T	SP6T	SMA	Latching	24	+common, indicators, TTL, 15 Pin D-Sub
16S-S2L9-3024-T	SP6T	SMA	Latching	24	+comm, indicators, self cut-off, TTL, 15 Pin D-Sub
14S-S2L3-3028	SP4T	SMA	Latching	28	Indicators, 15 Pin D-Sub
14S-S2L5-3028	SP4T	SMA	Latching	28	Indicators, self cut-off, 15 Pin D-Sub
16S-S2L7-3028-T	SP6T	SMA	Latching	28	+common, indicators, TTL, 15 Pin D-Sub
16S-S2L9-3028-T	SP6T	SMA	Latching	28	+comm, indicators, self cut-off, TTL, 15 Pin D-Sub
16S-S2L8-3028-T	SP6T	SMA	Latching	28	+common, self cut-off, TTL, 15 Pin D-Sub
16S-S2L9-3028-T	SP6T	SMA	Latching	28	+comm, indicators, self cut-off, TTL, 15 Pin D-Sub
16S-S2L3-3028	SP6T	SMA	Latching	28	Indicators, 15 Pin D-Sub
16S-S2L5-3028	SP6T	SMA	Latching	28	Indicators, self cut-off, 15 Pin D-Sub

Standard SP3T-SP6T Models: DC-12.0 GHz

Model Number	SPMT	Connector	Actuator	Volts (dc)	Features
14S-N2N2-1212-P	SP4T	Type-N	Normally Open	12	Solder Pins
16S-N2N3-1212	SP6T	Type-N	Normally Open	12	Indicators, 15 Pin D-Sub
14S-N2N5-1224	SP4T	Type-N	Normally Open	24	Indicators, + common, 15 Pin D-Sub
16S-N2N3-1224-T	SP6T	Type-N	Normally Open	24	Indicators, TTL, 15 Pin D-Sub
16S-N2N4-1224-T	SP6T	Type-N	Normally Open	24	+ common, TTL, 15 Pin D-Sub
14S-N2N5-1228	SP4T	Type-N	Normally Open	28	Indicators, + common, 15 Pin D-Sub
14S-N2N2-1228	SP4T	Type-N	Normally Open	28	15 Pin D-Sub
16S-N2N3-1228-T	SP6T	Type-N	Normally Open	28	Indicators, TTL, 15 Pin D-Sub
16S-N2N5-1228-P	SP6T	Type-N	Normally Open	28	Indicators, + common, solder Pins
14S-N2L2-1212	SP4T	Type-N	Latching	12	15 Pin D-Sub
16S-N2L3-1212	SP6T	Type-N	Latching	12	Indicators, 15 Pin D-Sub
16S-N2L5-1212-T	SP6T	Type-N	Latching	12	Indicators, self cut-off, TTL, 15 Pin D-Sub
14S-N2L7-1224-T	SP4T	Type-N	Latching	24	+ common, indicators, TTL, 15 Pin D-Sub
16S-N2L3-1224-P	SP6T	Type-N	Latching	24	Indicators, solder pins
16S-N2L5-1224-TP	SP6T	Type-N	Latching	24	Indicators, self cut-off, TTL, solder pins
14S-N2L7-1228-TJ	SP4T	Type-N	Latching	28	+ comm, indicators, TTL, TS diodes, 15 Pin D-Sub
16S-N2L3-1228	SP6T	Type-N	Latching	28	Indicators, 15 Pin D-Sub
16S-N2L5-1228-T	SP6T	Type-N	Latching	28	Indicators, self cut-off, TTL, 15 Pin D-Sub
16S-N2L9-1228	SP6T	Type-N	Latching	28	+comm, indicators, self cut-off, 15 Pin D-Sub

Available Options: Narrow Body, Indicators, Terminations, TTL, TTL Decoders, positive common, self cut-off, transient suppression diodes, Auto Reset, moisture sealing, D-Sub connectors, 11 types of RF connectors and 8 values of actuator voltages.

SP7T - SP8T (7 or 8 Position) Switches

The next larger available SPMT switches have up to 8 output ports. Each path has a characteristic impedance of 50 ohms with low insertion loss and high isolation. With broadband frequency coverage up to 18.0 GHz and designs for failsafe, latching or normally open operation, we offer one of the broadest selections of SPMT switches in the market today. Many options are available which include indicators, TTL, 50Ω terminations, D-Sub connectors and a variety of RF connectors and actuator voltages. Designs for special applications like high power handling, low insertion loss or special RF connectors are available and are priced economical and delivered quickly.

SMA	RF Performance (GHz)	DC - 6	6 - 12	12 - 18
	VSWR	1.25:1	1.40:1	1.50:1
	Insertion Loss (dB)	0.20	0.40	0.50
	Isolation (dB)	70	60	60

Type-N	RF Performance (GHz)	DC - 1	1 - 4	4 - 8
	VSWR	1.25:1	1.40:1	1.70:1
	Insertion Loss (dB)	0.30	0.40	0.55
	Isolation (dB)	70	60	60

FEATURES		
Common Mechanical / Environmental	see page 5
CW Power Handling	see page 5
Switch Cycle Life (millions)	2M (Failsafe & Normally Open), 5M (Latching)
Low Insertion Loss	<0.10 dB
High Isolation	>80 dB
Control Connection	15 Pin D-Sub Connector

POPULAR OPTIONS		
Narrow Body (SPDT only)	No
Indicators (2M cycle life)	Yes
Internal 50Ω Terminations (2W std)	Yes
TTL Driver / Decoder	Yes / Yes
Self Cutoff (latching models)	Yes
Transient Suppression (TS) Diodes	Yes
Auto Reset	Yes
Positive (+) Common	Yes
Actuator Voltages (Vdc)	5, 12, 15, 18, 20, 24, 28, 48
Splash / Immersion Proof	Yes / Yes
9 Pin D-Sub (Male or Female)	Yes
RF Connectors	SMA, Type-N, TNC, F (75Ω)

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See section "SP3T-SP6T switches" for a general description and use of SPMT switches. Employing SPMT switches with 7 or 8 output ports can simplify switching networks in a compact space with reduced insertion losses. SPMT and SPDT switches in a matrix topology affords a high degree of versatility and optimization for high speed and high performance testing requirements. Adding TTL and TTL Decoders simplifies the programming and control of the switches and selecting models with 50Ω terminations eliminates the undesirable effects of an open port such as oscillation or signal reflections. For higher power handling applications, Type-N connectors are available as a standard option. SPMT switches are commonly used for lab testing and high volume end product testing in specialized ATE systems and or RF drawers.

Inches (mm)

SMA + Standard Body

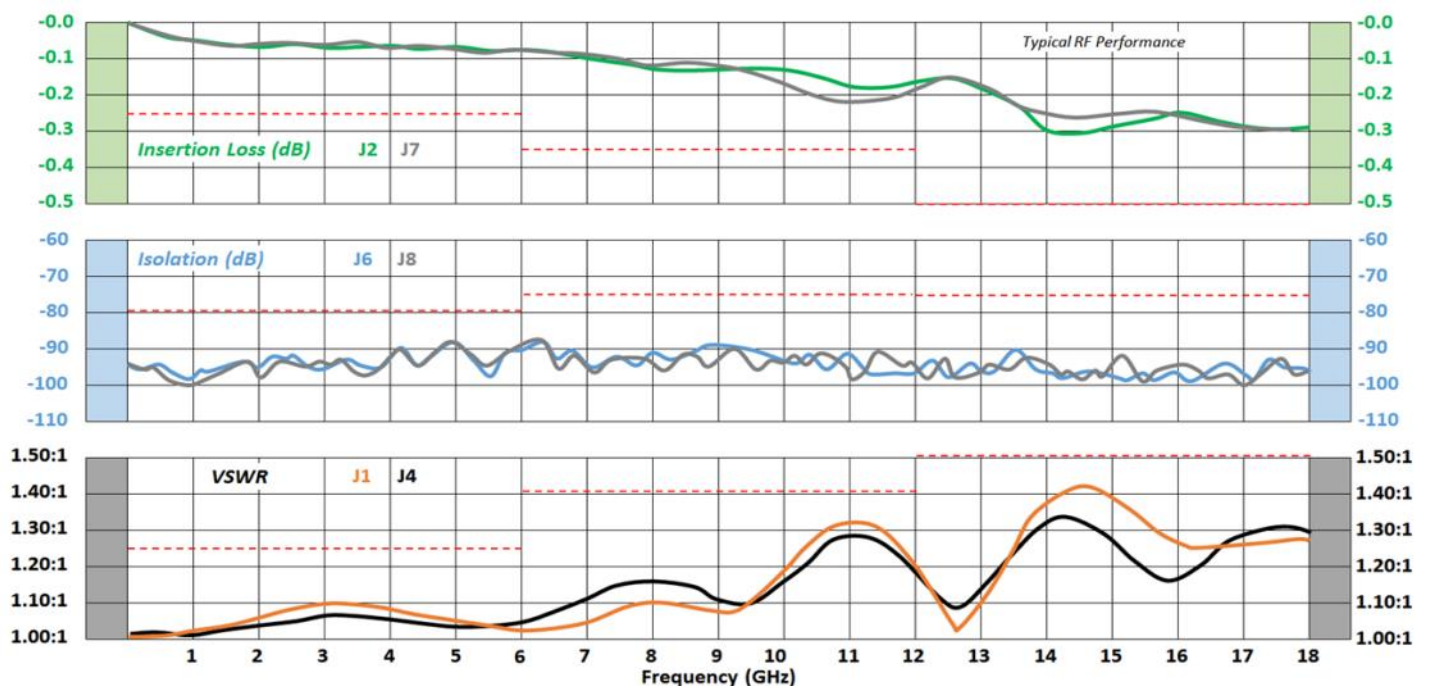**SMA + Internal Terminations**

Type-N Connectors
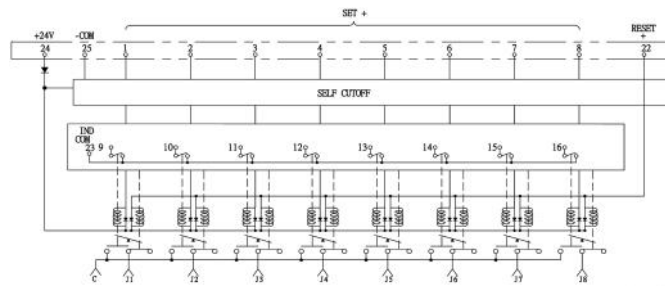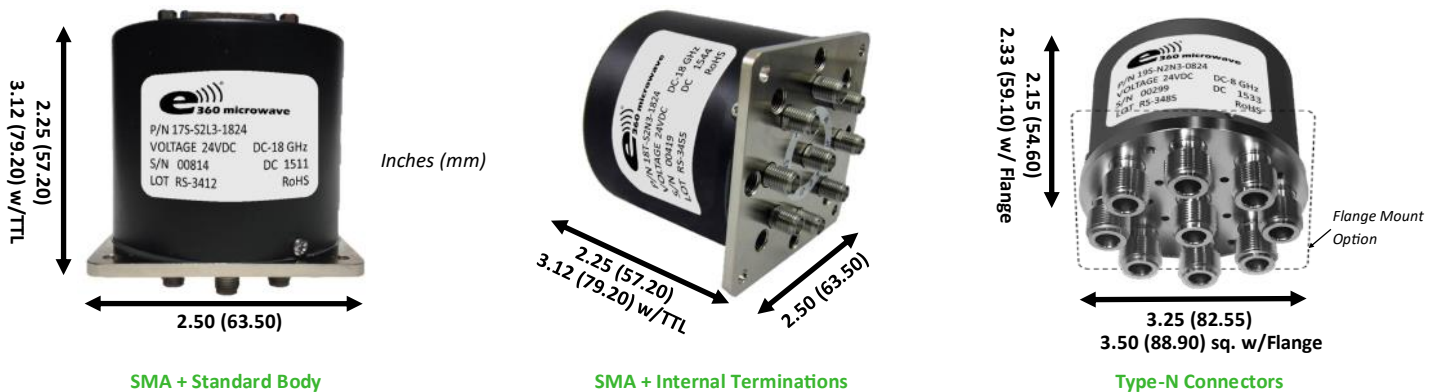
SP8T: Latching, Self Cutoff, Indicators, 25 Pin D-Sub (Reset Position)
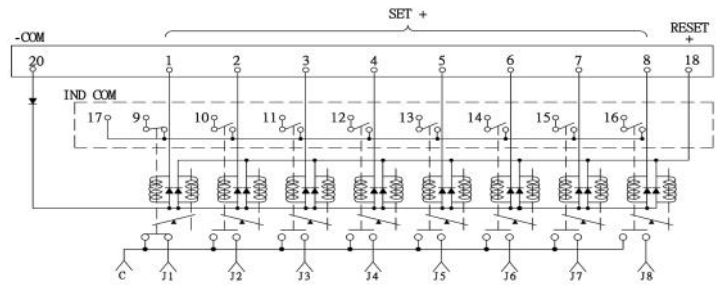
SP8T: 50Ω terminations, 15 pin D-Sub, (Position J1)

RF Performance (SMA connector)

Typical RF Performance

Insertion Loss (dB)   J2   J7

Isolation (dB)   J6   J8

VSWR   J1   J4

Frequency (GHz)

Standard SP7T-SP86T Models: DC-18.0 GHz

Model Number	SPMT	Connector	Actuator	Volts (dc)	Features
17S-S2N2-1812-P	SP7T	SMA	Normally Open	12	Solder Pins
17S-S2N3-1812	SP7T	SMA	Normally Open	12	Indicators, 15 Pin D-Sub
18S-S2N5-1812	SP8T	SMA	Normally Open	12	+common, Indicators, 15 Pin D-Sub
18S-S2N3-1812-T	SP8T	SMA	Normally Open	12	Indicators, TTL, 15 Pin D-Sub
17S-S2N4-1812-P	SP7T	SMA	Normally Open	12	+ common, Solder Pins
17S-S2N3-1812-TD	SP7T	SMA	Normally Open	12	Indicators, TTL, Decoder, 15 Pin D-Sub
18S-S2N5-1812-T	SP8T	SMA	Normally Open	12	+common, Indicators, TTL, 15 Pin D-Sub
18S-S2N4-1812-T	SP8T	SMA	Normally Open	12	+common, TTL, 15 Pin D-Sub
17S-S2N3-1824	SP7T	SMA	Normally Open	24	Indicators, 15 Pin D-Sub
17S-S2N5-1824-T	SP7T	SMA	Normally Open	24	Indicators, + common, TTL, 15 Pin D-Sub
18S-S2N4-1824	SP8T	SMA	Normally Open	24	+common, 15 Pin D-Sub
18S-S2N3-1824-T	SP8T	SMA	Normally Open	24	Indicators, TTL, 15 Pin D-Sub
18S-S2N2-1824-P	SP8T	SMA	Normally Open	24	Solder Pins
17S-S2N3-1824-P	SP7T	SMA	Normally Open	24	Indicators, Solder Pins
17S-S2N5-1824-TD	SP7T	SMA	Normally Open	24	Indicators, + common, TTL, Decoder, 15 Pin D-Sub
18S-S2N4-1824-T	SP8T	SMA	Normally Open	24	+common, TTL, 15 Pin D-Sub
18S-S2N3-1824-TF	SP8T	SMA	Normally Open	24	Indicators, TTL, 15 Pin D-Sub
18S-S2N2-1824-P	SP8T	SMA	Normally Open	24	Solder Pins
17S-S2N2-1828-P	SP7T	SMA	Normally Open	28	Solder Pins
17S-S2N3-1828	SP7T	SMA	Normally Open	28	Indicators, 15 Pin D-Sub
17S-S2N4-1828-T	SP7T	SMA	Normally Open	28	+ common, TTL, 15 Pin D-Sub
18S-S2N5-1828	SP8T	SMA	Normally Open	28	Indicators, + common, 15 Pin D-Sub
18S-S2N5-1828-T	SP8T	SMA	Normally Open	28	Indicators, + common, TTL, 15 Pin D-Sub
18S-S2N3-1828-T	SP8T	SMA	Normally Open	28	Indicators, TTL, 15 Pin D-Sub
17S-S2N2-1828-P	SP7T	SMA	Normally Open	28	Solder Pins
17S-S2N3-1828	SP7T	SMA	Normally Open	28	Indicators, 15 Pin D-Sub
18S-S2N4-1828-T	SP8T	SMA	Normally Open	28	+ common, TTL, 15 Pin D-Sub
18S-S2N5-1828-TD	SP8T	SMA	Normally Open	28	Indicators, + common, TTL, Decoder, 15 Pin D-Sub
17S-S2L2-1812-P	SP7T	SMA	Latching	12	Solder Pins
17S-S2L3-1812-T	SP7T	SMA	Latching	12	Indicators, TTL, 15 Pin D-Sub
18S-S2L4-1812-T	SP8T	SMA	Latching	12	Self cut-off, TTL, 15 Pin D-Sub
18S-S2L5-1812	SP8T	SMA	Latching	12	Indicators, self cut-off, 15 Pin D-Sub
18S-S2L6-1812	SP8T	SMA	Latching	12	+ common, 15 Pin D-Sub
17S-S2L3-1812-TP	SP7T	SMA	Latching	12	Indicators, TTL, Solder Pins
18S-S2L4-1812-T	SP8T	SMA	Latching	12	Self cut-off, TTL, 15 Pin D-Sub
18S-S2L5-1812	SP8T	SMA	Latching	12	Indicators, self cut-off, 15 Pin D-Sub
18S-S2L6-1812-T	SP8T	SMA	Latching	12	+ common, TTL, 15 Pin D-Sub
18S-S2L2-1812	SP8T	SMA	Latching	12	15 Pin D-Sub
17S-S2L8-1812-P	SP7T	SMA	Latching	12	+ common, self cut-off, Solder Pins
17S-S2L3-1824-T	SP7T	SMA	Latching	24	Indicators, TTL, 15 Pin D-Sub
18S-S2L3-1824	SP8T	SMA	Latching	24	Indicators, 15 Pin D-Sub
18S-S2L5-1824-T	SP8T	SMA	Latching	24	Indicators, self cut-off, TTL, 15 Pin D-Sub
17S-S2L2-1824	SP7T	SMA	Latching	24	15 Pin D-Sub
18S-S2L7-1824-T	SP8T	SMA	Latching	24	+common, indicators, TTL, 15 Pin D-Sub
17S-S2L4-1824-T	SP7T	SMA	Latching	24	Self cut-off, TTL, 15 Pin D-Sub
17S-S2L3-1824	SP7T	SMA	Latching	24	Indicators, 15 Pin D-Sub
18S-S2L8-1824-T	SP8T	SMA	Latching	24	+ common, self cut-off, TTL, 15 Pin D-Sub

Standard models: the models listed are a partial listing of the standard models available. To order a standard model specific for your requirements, see page 3 for the model numbering system or contact us for assistance.

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Standard SP7T-SP8T Models: DC-18.0 GHz cont'd

Model Number	SPMT	Connector	Actuator	Volts (dc)	Features
18S-S2L9-1824-T	SP8T	SMA	Latching	24	+comm, indicators, self cut-off, TTL, 15 Pin D-Sub
18S-S2L5-1828	SP8T	SMA	Latching	28	Indicators, self cut-off, 15 Pin D-Sub
17S-S2L7-1828-T	SP7T	SMA	Latching	28	+common, indicators, TTL, 15 Pin D-Sub
17S-S2L9-1828-T	SP7T	SMA	Latching	28	+comm, indicators, self cut-off, TTL, 15 Pin D-Sub
18S-S2L3-1828	SP8T	SMA	Latching	28	Indicators, 15 Pin D-Sub
17S-S2L3-1828	SP7T	SMA	Latching	28	Indicators, 15 Pin D-Sub
17S-S2L5-1828	SP7T	SMA	Latching	28	Indicators, self cut-off, 15 Pin D-Sub
18S-S2L7-1828-T	SP8T	SMA	Latching	28	+common, indicators, TTL, 15 Pin D-Sub
18S-S2L9-1828	SP8T	SMA	Latching	28	+comm, indicators, self cut-off, 15 Pin D-Sub
18S-S2L8-1828-T	SP8T	SMA	Latching	28	+common, self cut-off, TTL, 15 Pin D-Sub
18S-S2L9-1828-T	SP8T	SMA	Latching	28	+comm, indicators, self cut-off, TTL, 15 Pin D-Sub
18S-S2L3-1828-T	SP8T	SMA	Latching	28	Indicators, TTL, 15 Pin D-Sub
18S-S2L5-1828-T	SP8T	SMA	Latching	28	Indicators, self cut-off, TTL, 15 Pin D-Sub

Standard SP7T-SP8T Models: DC-12.0 GHz

Model Number	SPMT	Connector	Actuator	Volts (dc)	Features
17S-N2N2-1212-P	SP7T	Type-N	Normally Open	12	Solder Pins
18S-N2N3-1212	SP8T	Type-N	Normally Open	12	Indicators, 15 Pin D-Sub
17S-N2N4-1212-P	SP7T	Type-N	Normally Open	12	+ common, Solder Pins
18S-N2N5-1212	SP8T	Type-N	Normally Open	12	Indicators, +common, 15 Pin D-Sub
18S-N2N5-1212-T	SP8T	Type-N	Normally Open	12	Indicators, +common, TTL, 15 Pin D-Sub
17S-N2N2-1224-P	SP7T	Type-N	Normally Open	24	Solder Pins
18S-N2N3-1224-T	SP8T	Type-N	Normally Open	24	Indicators, TTL, 15 Pin D-Sub
18S-N2N4-1224-T	SP8T	Type-N	Normally Open	24	+ common, TTL, 15 Pin D-Sub
17S-N2N5-1224	SP7T	Type-N	Normally Open	24	Indicators, + common, 15 Pin D-Sub
18S-N2N5-1224-T	SP8T	Type-N	Normally Open	24	Indicators, + common, TTL, 15 Pin D-Sub
17S-N2N5-1228	SP7T	Type-N	Normally Open	28	Indicators, + common, 15 Pin D-Sub
17S-N2N2-1228	SP7T	Type-N	Normally Open	28	15 Pin D-Sub
18S-N2N3-1228-T	SP8T	Type-N	Normally Open	28	Indicators, TTL, 15 Pin D-Sub
18S-N2N5-1228-TP	SP8T	Type-N	Normally Open	28	Indicators, + common, TTL, solder pins
17S-N2L2-1212	SP7T	Type-N	Latching	12	15 Pin D-Sub
18S-N2L3-1212	SP8T	Type-N	Latching	12	Indicators, 15 Pin D-Sub
18S-N2L5-1212-T	SP8T	Type-N	Latching	12	Indicators, self cut-off, TTL, 15 Pin D-Sub
17S-N2L2-1212-P	SP7T	Type-N	Latching	12	Solder Pins
18S-N2L3-1212-T	SP8T	Type-N	Latching	12	Indicators, TTL, 15 Pin D-Sub
18S-N2L7-1212-T	SP8T	Type-N	Latching	12	+ common, indicators, TTL, 15 Pin D-Sub
17S-N2L7-1224-T	SP7T	Type-N	Latching	24	+ common, indicators, TTL, 15 Pin D-Sub
18S-N2L3-1224-P	SP8T	Type-N	Latching	24	Indicators, solder pins
18S-N2L5-1224-TP	SP8T	Type-N	Latching	24	Indicators, self cut-off, TTL, solder pins
17S-N2L5-1224-T	SP7T	Type-N	Latching	24	Indicators, self cut-off, TTL, 15 Pin D-Sub
18S-N2L4-1224-TP	SP8T	Type-N	Latching	24	Self cut-off, TTL, solder pins
18S-N2L7-1224-TP	SP8T	Type-N	Latching	24	+ common, indicators, TTL, solder pins
17S-N2L7-1228-TJ	SP7T	Type-N	Latching	28	+ comm, indicators, TTL, TS diodes, 15 Pin D-Sub
18S-N2L3-1228	SP8T	Type-N	Latching	28	Indicators, 15 Pin D-Sub
18S-N2L5-1228-T	SP8T	Type-N	Latching	28	Indicators, self cut-off, TTL, 15 Pin D-Sub
18S-N2L9-1228	SP8T	Type-N	Latching	28	+comm, indicators, self cut-off, 15 Pin D-Sub

Available Options: Narrow Body, Indicators, Terminations, TTL, TTL Decoders, positive common, self cut-off, transient suppression diodes, Auto Reset, moisture sealing, D-Sub connectors, 11 types of RF connectors and 8 values of actuator voltages.

SP9T - SP12T (9, 10, 11 or 12 Position) Switches

The largest of the SPMT switch family provides up to 12 output ports. Each path has a characteristic impedance of 50 ohms with low insertion loss and high isolation. With broadband frequency coverage up to 20.0 GHz and designs for failsafe, latching or normally open operation, we offer one of the broadest selections of SPMT switches in the industry. Many options are available which include indicators, TTL, 50Ω terminations, D-Sub connectors and a variety of RF connectors and actuator voltages. Designs for special applications like high power handling, low insertion loss or special RF connectors are available and are priced economical and delivered quickly.

SP9T - SP10T (9 & 10 Position) Switches

	RF Performance (GHz)	DC - 6	6 - 12	12 - 18	18 - 20
SMA	VSWR	1.25:1	1.35:1	1.60:1	1.80:1
	Insertion Loss (dB)	0.25	0.35	0.50	0.80
	Isolation (dB)	80	75	75	70

SP11T - SP12T (11 & 12 Position) Switches

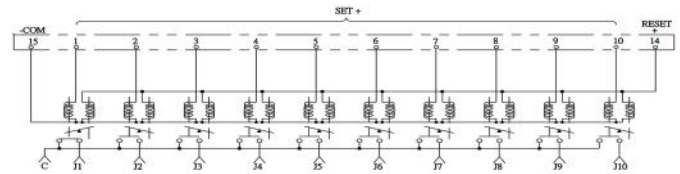|	RF Performance (GHz)	DC - 6	6 - 12
SMA	VSWR	1.30:1	1.50:1
	Insertion Loss (dB)	0.30	0.60
	Isolation (dB)	80	75

FEATURES	Common Mechanical / Environmental	see page 5
	CW Power Handling	see page 5
	Switch Cycle Life (millions)	2M (Failsafe & Normally Open), 5M (Latching)
	Low Insertion Loss	<0.10 dB
	High Isolation	>80 dB
	Control Connection	15 Pin D-Sub Connector

POPULAR OPTIONS	Narrow Body (SPDT only)	No
	Indicators (2M cycle life)	Yes
	Internal 50Ω Terminations (2W std)	Yes
	TTL Driver / Decoder	Yes / Yes
	Self Cutoff (latching models)	Yes
	Transient Suppression (TS) Diodes	Yes
	Auto Reset	Yes
	Positive (+) Common	Yes
	Actuator Voltages (Vdc)	5, 12, 15, 18, 20, 24, 28, 48
	Splash / Immersion Proof	Yes / Yes
	9 Pin D-Sub (Male or Female)	Yes
	RF Connectors	SMA, Type-N

See section "SP3T-SP6T switches" for a general description and use of SPMT switches. Employing SPMT switches with 9 to 12 output ports greatly simplifies switching networks for a very compact solution with reduced insertion losses. SP9T and SP10T switches provide broadband frequency coverage up to 20 GHz. Our largest SPMT switches, SP11T and SP12T, offer durability and broadband coverage up to 12 GHz. SPMT and SPDT switches in a matrix topology affords a high degree of versatility and optimization for high speed and high performance testing requirements. Adding TTL and TTL Decoders simplifies the programming and control of the switches and selecting models with 50Ω terminations eliminates the undesirable effects of an open port such as oscillation or signal reflections. For higher power handling applications, Type-N connectors are available as a standard option. SPMT switches are commonly used for lab testing and high volume end product testing in specialized ATE systems or RF drawers.

Inches (mm)

3.20 (81.28) w/TTL
2.80 (71.12)

2.25 (51.20)

SP9T-SP10T Standard

3.30 (83.82) w/TTL
2.25 (57.15)

3.10 (78.74)

SP9T-SP10T w/50Ω Terminations

3.30 (83.82) w/TTL
2.25 (57.15)

3.10 (78.74)

SP11T-SP12T w/50Ω Terminations
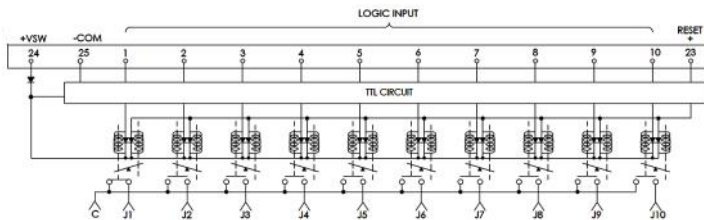
SP10T: Latching, TTL control, 25 pin D-Sub Connector (Position J1)

SP10T: Latching, 15 pin D-Sub Connector (Position J1)

RF Performance (SMA connector, SP10T)

Typical RF Performance

Insertion Loss (dB) J1   J4

Isolation (dB) J7   J10

VSWR   J2   J9
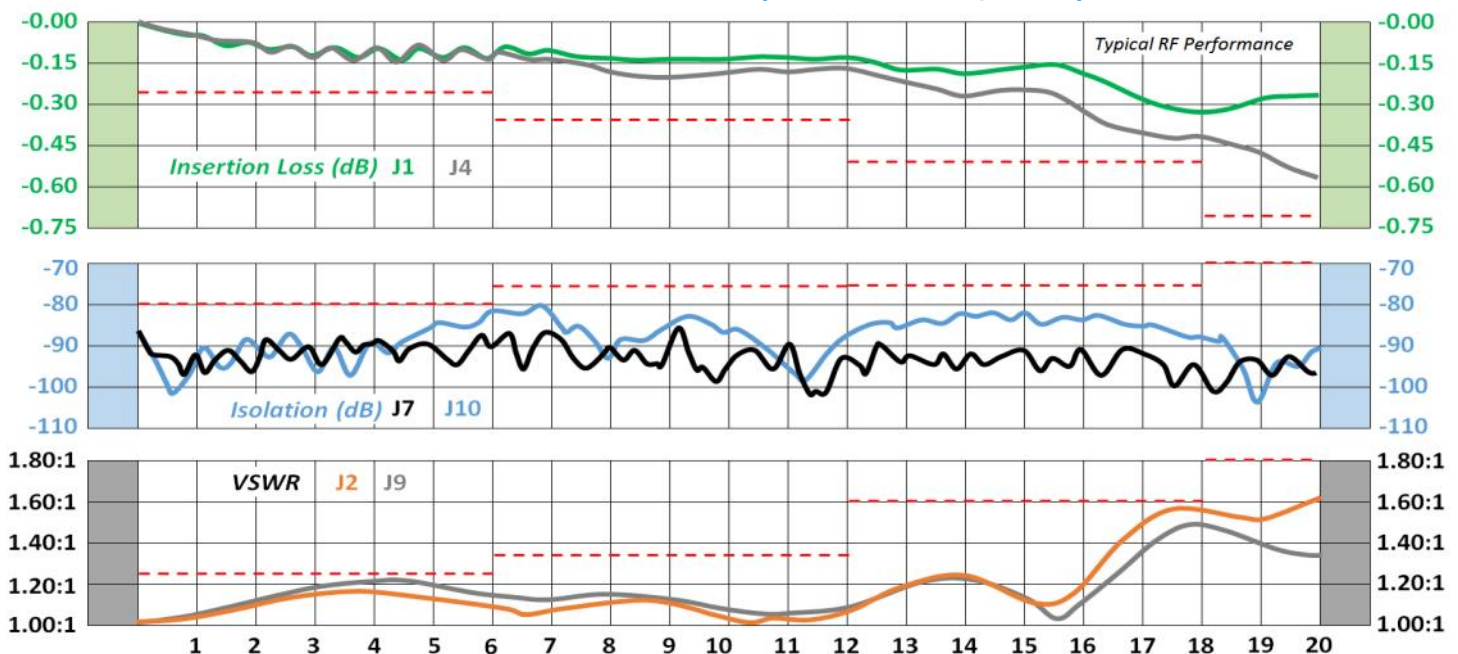
Standard SP9T-SP10T Models: DC-20.0 GHz

Model Number	SPMT	Connector	Actuator	Volts (dc)	Features
19S-S2N2-2012	SP9T	SMA	Normally Open	12	15 Pin D-Sub
19S-S2N3-2012	SP9T	SMA	Normally Open	12	Indicators, 15 Pin D-Sub
110S-S2N5-2012	SP10T	SMA	Normally Open	12	+common, Indicators, 15 Pin D-Sub
110S-S2N3-2012-T	SP10T	SMA	Normally Open	12	Indicators, TTL, 15 Pin D-Sub
19S-S2N4-2012	SP9T	SMA	Normally Open	12	+ common, 15 Pin D-Sub
19S-S2N3-2012-TD	SP9T	SMA	Normally Open	12	Indicators, TTL, Decoder, 15 Pin D-Sub
110S-S2N5-2012-T	SP10T	SMA	Normally Open	12	+common, Indicators, TTL, 15 Pin D-Sub
110S-S2N4-2012-T	SP10T	SMA	Normally Open	12	+common, TTL, 15 Pin D-Sub
19S-S2N3-2024	SP9T	SMA	Normally Open	24	Indicators, 15 Pin D-Sub
19S-S2N5-2024-T	SP9T	SMA	Normally Open	24	Indicators, + common, TTL, 15 Pin D-Sub
110S-S2N4-2024	SP10T	SMA	Normally Open	24	+common, 15 Pin D-Sub
110S-S2N3-2024-T	SP10T	SMA	Normally Open	24	Indicators, TTL, 15 Pin D-Sub
110S-S2N2-2024	SP10T	SMA	Normally Open	24	15 Pin D-Sub
19S-S2N3-2024	SP9T	SMA	Normally Open	24	Indicators, 15 Pin D-Sub
19S-S2N5-2024-TD	SP9T	SMA	Normally Open	24	Indicators, + common, TTL, Decoder, 15 Pin D-Sub
110S-S2N4-2024-T	SP10T	SMA	Normally Open	24	+common, TTL, 15 Pin D-Sub
110S-S2N3-2024-TD	SP10T	SMA	Normally Open	24	Indicators, TTL, decoders, 15 Pin D-Sub
110S-S2N2-2024-T	SP10T	SMA	Normally Open	24	TTL, 15 Pin D-Sub
19S-S2N2-2028	SP9T	SMA	Normally Open	28	15 Pin D-Sub
19S-S2N3-2028	SP9T	SMA	Normally Open	28	Indicators, 15 Pin D-Sub
19S-S2N4-2028-T	SP9T	SMA	Normally Open	28	+ common, TTL, 15 Pin D-Sub
110S-S2N5-2028	SP10T	SMA	Normally Open	28	Indicators, + common, 15 Pin D-Sub
110S-S2N5-2028-T	SP10T	SMA	Normally Open	28	Indicators, + common, TTL, 15 Pin D-Sub
110S-S2N3-2028-T	SP10T	SMA	Normally Open	28	Indicators, TTL, 15 Pin D-Sub
19S-S2N2-2028-T	SP9T	SMA	Normally Open	28	TTL, 15 Pin D-Sub
19S-S2N3-2028	SP9T	SMA	Normally Open	28	Indicators, 15 Pin D-Sub
110S-S2N4-2028-T	SP10T	SMA	Normally Open	28	+ common, TTL, 15 Pin D-Sub
110S-S2N5-2028-TD	SP10T	SMA	Normally Open	28	Indicators, + common, TTL, Decoder, 15 Pin D-Sub
19S-S2L2-2012	SP9T	SMA	Latching	12	15 Pin D-Sub
19S-S2L3-2012-T	SP9T	SMA	Latching	12	Indicators, TTL, 15 Pin D-Sub
110S-S2L4-2012	SP10T	SMA	Latching	12	Self cut-off, 15 Pin D-Sub
110S-S2L5-2012	SP10T	SMA	Latching	12	Indicators, self cut-off, 15 Pin D-Sub
110S-S2L6-2012	SP10T	SMA	Latching	12	+ common, 15 Pin D-Sub
19S-S2L4-2012-T	SP9T	SMA	Latching	12	Self cut-off, TTL, 15 Pin D-Sub
110S-S2L4-2012-T	SP10T	SMA	Latching	12	Self cut-off, TTL, 15 Pin D-Sub
110S-S2L5-2012-T	SP10T	SMA	Latching	12	Indicators, self cut-off, TTL, 15 Pin D-Sub
110S-S2L6-2012-T	SP10T	SMA	Latching	12	+ common, TTL, 15 Pin D-Sub
110S-S2L2-2012	SP10T	SMA	Latching	12	15 Pin D-Sub
19S-S2L8-2012	SP9T	SMA	Latching	12	+ common, self cut-off, 15 Pin D-Sub
19S-S2L3-2024-T	SP9T	SMA	Latching	24	Indicators, TTL, 15 Pin D-Sub
110S-S2L3-2024	SP10T	SMA	Latching	24	Indicators, 15 Pin D-Sub
110S-S2L5-2024-T	SP10T	SMA	Latching	24	Indicators, self cut-off, TTL, 15 Pin D-Sub
19S-S2L2-2024	SP9T	SMA	Latching	24	15 Pin D-Sub
110S-S2L7-2024-T	SP10T	SMA	Latching	24	+common, indicators, TTL, 15 Pin D-Sub
19S-S2L4-2024-T	SP9T	SMA	Latching	24	Self cut-off, TTL, 15 Pin D-Sub
19S-S2L3-2024	SP9T	SMA	Latching	24	Indicators, 15 Pin D-Sub
110S-S2L8-2024-T	SP10T	SMA	Latching	24	+ common, self cut-off, TTL, 15 Pin D-Sub

Standard models: the models listed are a partial listing of the standard models available. To order a standard model specific for your requirements, see page 3 for the model numbering system or contact us for assistance.

Standard SP9T-SP10T Models: DC-20.0 GHz cont'd

Model Number	SPMT	Connector	Actuator	Volts (dc)	Features
110S-S2L9-2024-T	SP10T	SMA	Latching	24	+comm, indicators, self cut-off, TTL, 15 Pin D-Sub
110S-S2L5-2028	SP10T	SMA	Latching	28	Indicators, self cut-off, 15 Pin D-Sub
19S-S2L7-2028-T	SP9T	SMA	Latching	28	+common, indicators, TTL, 15 Pin D-Sub
19S-S2L9-2028-T	SP9T	SMA	Latching	28	+comm, indicators, self cut-off, TTL, 15 Pin D-Sub
110S-S2L3-2028	SP10T	SMA	Latching	28	Indicators, 15 Pin D-Sub
19S-S2L3-2028	SP9T	SMA	Latching	28	Indicators, 15 Pin D-Sub
19S-S2L5-2028	SP9T	SMA	Latching	28	Indicators, self cut-off, 15 Pin D-Sub
110S-S2L7-2028-T	SP10T	SMA	Latching	28	+common, indicators, TTL, 15 Pin D-Sub
110S-S2L9-2028	SP10T	SMA	Latching	28	+comm, indicators, self cut-off, 15 Pin D-Sub
110S-S2L8-2028-T	SP10T	SMA	Latching	28	+common, self cut-off, TTL, 15 Pin D-Sub
110S-S2L9-2028-T	SP10T	SMA	Latching	28	+comm, indicators, self cut-off, TTL, 15 Pin D-Sub
110S-S2L3-2028-T	SP10T	SMA	Latching	28	Indicators, TTL, 15 Pin D-Sub
110S-S2L5-2028-T	SP10T	SMA	Latching	28	Indicators, self cut-off, TTL, 15 Pin D-Sub

Standard SP11T-SP12T Models: DC-12.0 GHz

Model Number	SPMT	Connector	Actuator	Volts (dc)	Features
111S-S2N2-1212	SP11T	SMA	Normally Open	12	15 Pin D-Sub
112S-S2N3-1212	SP12T	SMA	Normally Open	12	Indicators, 15 Pin D-Sub
111S-S2N4-1212	SP11T	SMA	Normally Open	12	+ common, 15 Pin D-Sub
112S-S2N5-1212	SP12T	SMA	Normally Open	12	Indicators, +common, 15 Pin D-Sub
112S-S2N5-1212-T	SP12T	SMA	Normally Open	12	Indicators, +common, TTL, 15 Pin D-Sub
111S-S2N2-1224-T	SP11T	SMA	Normally Open	24	TTL, 15 Pin D-Sub
112S-S2N3-1224-T	SP12T	SMA	Normally Open	24	Indicators, TTL, 15 Pin D-Sub
112S-S2N4-1224-T	SP12T	SMA	Normally Open	24	+ common, TTL, 15 Pin D-Sub
111S-S2N5-1224	SP11T	SMA	Normally Open	24	Indicators, + common, 15 Pin D-Sub
112S-S2N5-1224-T	SP12T	SMA	Normally Open	24	Indicators, + common, TTL, 15 Pin D-Sub
111S-S2N5-1228	SP11T	SMA	Normally Open	28	Indicators, + common, 15 Pin D-Sub
111S-S2N2-1228	SP11T	SMA	Normally Open	28	15 Pin D-Sub
112S-S2N3-1228-T	SP12T	SMA	Normally Open	28	Indicators, TTL, 15 Pin D-Sub
112S-S2N5-1228-T	SP12T	SMA	Normally Open	28	Indicators, + common, TTL, 15 Pin D-Sub
111S-S2L2-1212	SP11T	SMA	Latching	12	15 Pin D-Sub
112S-S2L3-1212	SP12T	SMA	Latching	12	Indicators, 15 Pin D-Sub
112S-S2L5-1212-T	SP12T	SMA	Latching	12	Indicators, self cut-off, TTL, 15 Pin D-Sub
111S-S2L2-1212-T	SP11T	SMA	Latching	12	TTL, 15 Pin D-Sub
112S-S2L3-1212-T	SP12T	SMA	Latching	12	Indicators, TTL, 15 Pin D-Sub
112S-S2L7-1212-T	SP12T	SMA	Latching	12	+ common, indicators, TTL, 15 Pin D-Sub
111S-S2L7-1224-T	SP11T	SMA	Latching	24	+ common, indicators, TTL, 15 Pin D-Sub
112S-S2L3-1224	SP12T	SMA	Latching	24	Indicators, 15 Pin D-Sub
112S-S2L5-1224-T	SP12T	SMA	Latching	24	Indicators, self cut-off, TTL, 15 Pin D-Sub
111S-S2L5-1224-T	SP11T	SMA	Latching	24	Indicators, self cut-off, TTL, 15 Pin D-Sub
112S-S2L4-1224-T	SP12T	SMA	Latching	24	Self cut-off, TTL, 15 Pin D-Sub
112S-S2L9-1224	SP12T	SMA	Latching	24	+ common, indicators, self cut-off, 15 Pin D-Sub
111S-S2L7-1228-T	SP11T	SMA	Latching	28	+ comm, indicators, TTL, 15 Pin D-Sub
112S-S2L3-1228	SP12T	SMA	Latching	28	Indicators, 15 Pin D-Sub
112S-S2L5-1228-T	SP12T	SMA	Latching	28	Indicators, self cut-off, TTL, 15 Pin D-Sub
112S-S2L9-1228	SP12T	SMA	Latching	28	+comm, indicators, self cut-off, 15 Pin D-Sub

Available Options: Narrow Body, Indicators, Terminations, TTL, TTL Decoders, positive common, self cut-off, transient suppression diodes, Auto Reset, moisture sealing, D-Sub connectors, 11 types of RF connectors and 8 values of actuator voltages.

High Power Switches

Cold Switching and hot switching, from a few watts to several kilo watts, we specialize in high power designs for test stations and end product applications. Depending upon the requirements we have standard high power models available or we will design a high power switch with the appropriate RF connector and internal features that will provide reliable and consistent performance throughout the testing application. Contact us to review your requirements for a quote.

Low Passive Intermodulation (Lo-PIM)

e360microwave is a leading supplier of ultra-low passive intermodulation performance switches. Available in a variety of configurations and connector solutions including SMA, Type-N, 7/16 DIN and 4.3–10 mini DIN.

Our switches are commonly used in infrastructure applications as well as the testing of other components and cabling.

Our low PIM switches are ideal for ensuring overall system PIM performance remains at a low level. Designed for long life and repeatability, these switches reduce costs and provide excellent reliability. High isolation reduces cross talk between adjacent channels for overall system signal integrity. Contact us for our Lo-PIM switch brochure or to review of your requirements.



LOW PIM 7/16 Connector Switch

Switch Matrices

We offer standard RF switch matrix systems comprised of discrete switches, micro controller and keypad operation with USB and RS-232 inputs for serial communication and control. These matrices are excellent general purpose, low cost solutions for lab testing. Our custom RF switch matrix systems meet customers' specific requirements with blocking or non-blocking operation, signal conditioning (amplification, filtering, attenuation, etc.) and GUI interface and control. Either solution is available as 19" rack mountable modules or durable stand alone enclosures.

Popular applications for RF matrices are ATE systems, ground systems and communication systems supporting government, aerospace, industrial and consumer electronic markets. Contact us for our switch matrix brochure or to review of your requirements.

Custom Designs

Full custom designs for specific requirements; mechanical, electrical, RF performance or operation are available. As an alternative to full custom designs, semi-custom designs based on modification of a standard product are a good choice for low cost and fast delivery while offering unique performance and operation. Full custom designs have the potential to maximize the performance, size and function of the switch for a special application. Full custom and semi-custom designs are available for small and moderate quantities as well as extremely high volumes. We welcome the opportunity to design and build full custom and semi-custom products for our customers. Contact us to review your requirements and for a competitive quote.
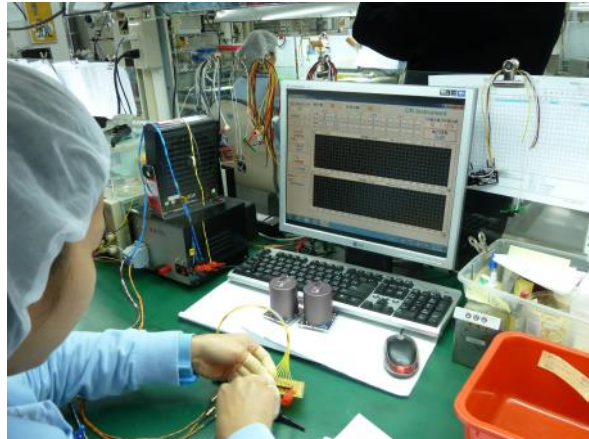
100,000 sq. ft. world class manufacturing

This is an exceptional facility for manufacturing RF/Microwave technology with class 10,000 clean rooms, laminar flow assembly stations, test stations with the latest network analyzers and on site processes for plating, precision machining, injection molding and metrology. Our capacity is approximately 15,000 switches per month.

Quality

Quality is vital to our business because we value our customers' loyalty and our reputation. We strive to provide products and services which meet or exceed expectations. We are committed to continuous improvement and have established a Quality Management System which provides a framework for measuring and improving our performance on an on-going basis.

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✓ *for longer*

✓ *more reliably*

✓ *and save cost*

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