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- In stock / Ready-to-ship
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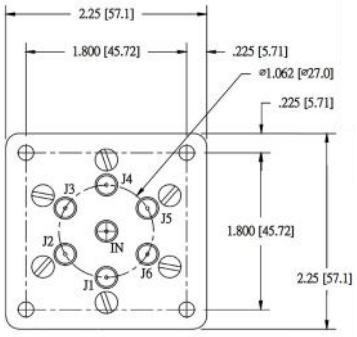
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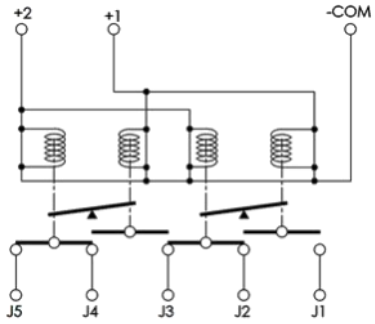
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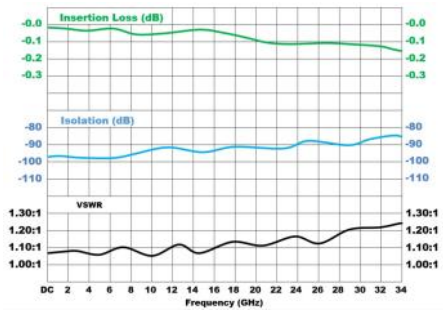
Switch Selection Guide

Professional Grade Switches

Precision | **Reliability** | **Performance**













RF / Microwave Electromechanical Coaxial Switches

About e360microwave, inc.



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
	(4) Solder Pin/Lug (SPDT/TRAN
F	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

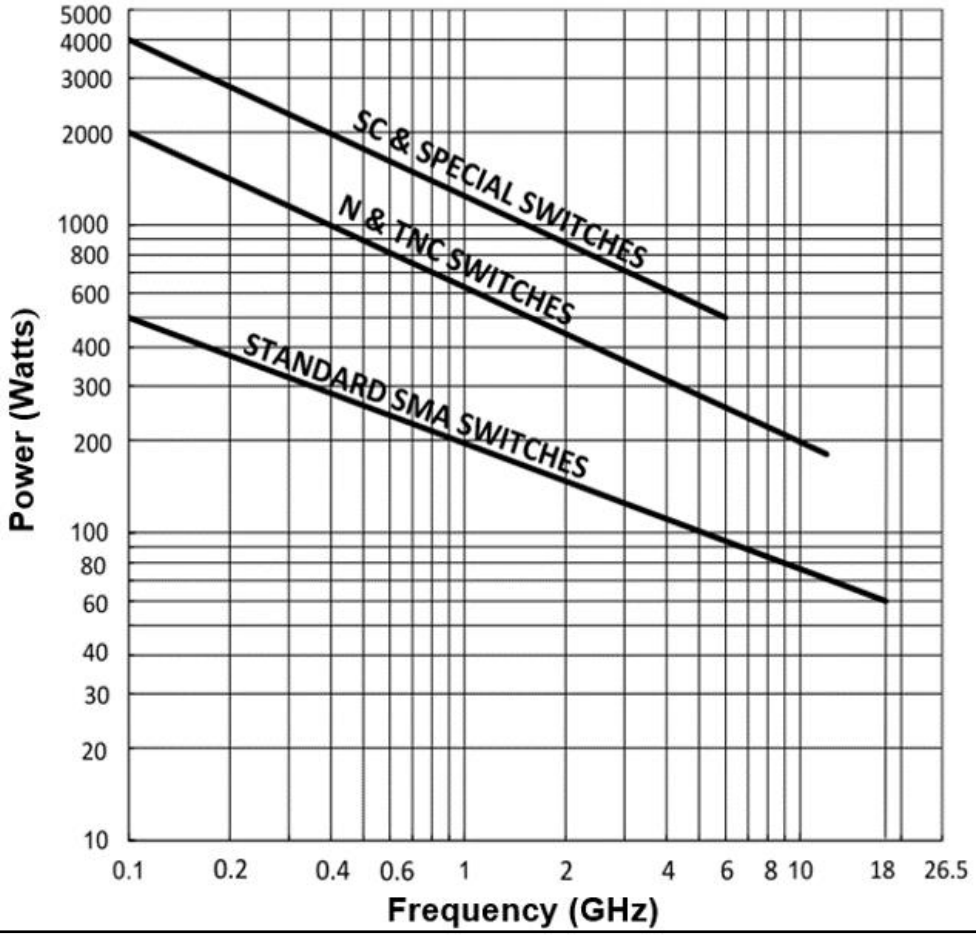
Notes:
(1) SPDT models only
(2) SPDT and SPMT models, S2 and M2 connectors only
(3) SPMT models only
(4) Solder pins are standard for SPDT and TRAN models, no designation on model number needed
(5) D-Sub 15 pin connector is standard for SPMT models, no designation on model number needed

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RF Power Handling (CW)

Standard Electromechanical Coaxial Switches

Power Handling vs. Frequency & Connector Type



Environment and Test Conditions: ambient temp. +25°C , sea level, load VSWR ≤1.20:1, cold-switching.

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

Mechanical / Environmental

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

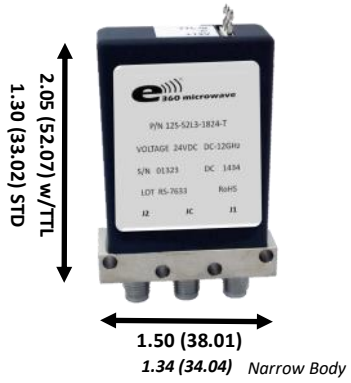
POPULAR OPTIONS

(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.



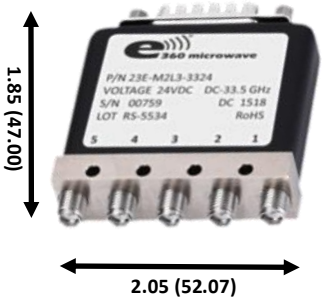
SMA / 2.92mm Connectors



Type-N Connectors

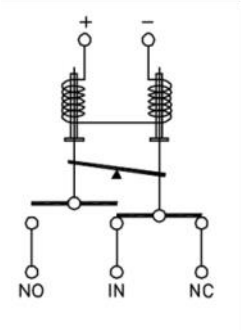


SMA + 50Ω Terminations

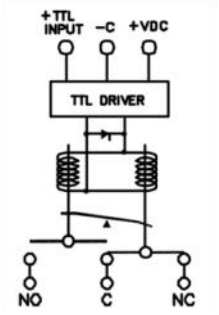


2P3T Switch, SMA Connectors

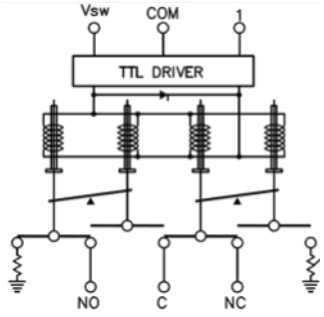
Inches (mm)



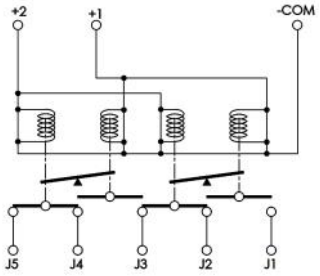
Standard



TTL Option

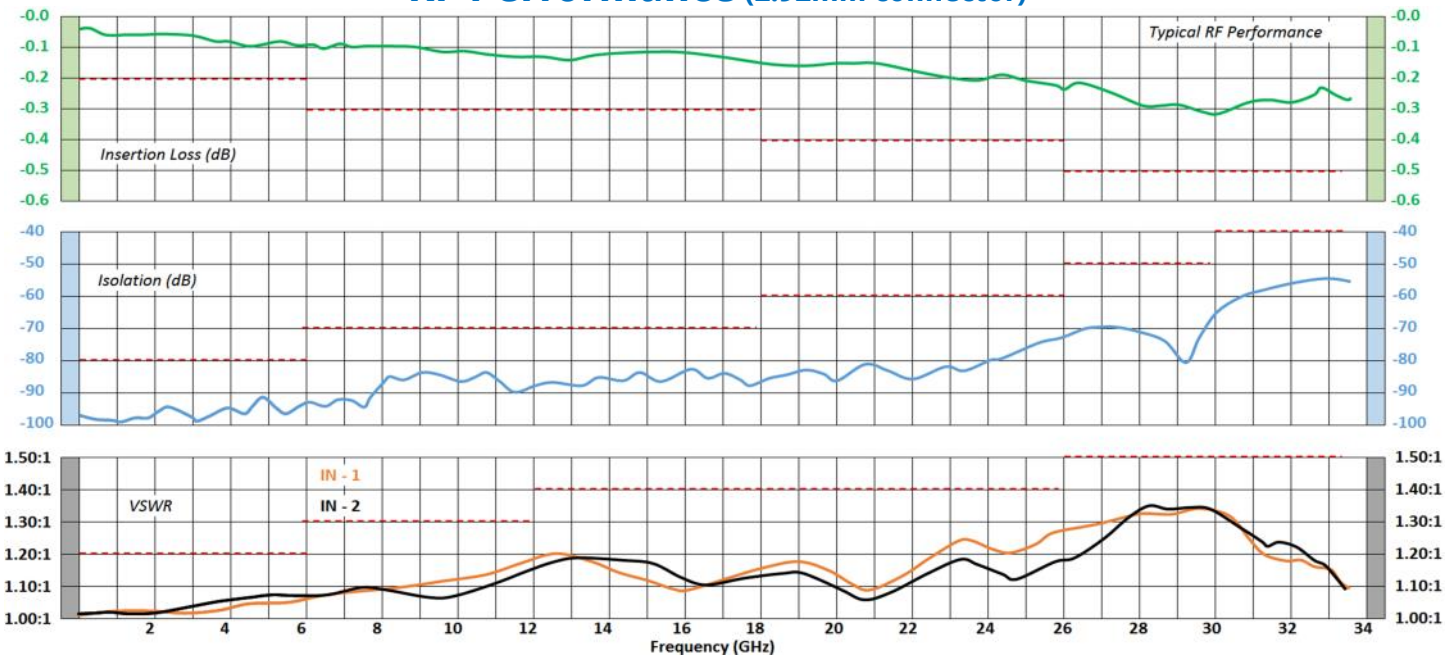


Internal 50Ω Terminations & TTL



Standard 2P3T Switch

RF Performance (2.92mm connector)



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.

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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.

Artisan Technology Group is an independent supplier of quality pre-owned equipment

Gold-standard solutions

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We buy equipment

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Visit us at **artisantg.com** for more info on price quotes, drivers, technical specifications, manuals, and documentation.

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