

PRELIMINARY DATA

- Available as a PXI or PXIe Module
- May be Specified With a Mix of High Performance Microwave Relays up to 110 GHz Bandwidth & a Range of Connector Types
- Options Available in 50 Ω or 75 Ω Impedance
- Available Relays Include Transfer, SPDT, SP4T, SP6T, SP8T, SP10T & SP12T in Unterminated & Terminated Versions
- Flexibility in Topology & Specification
- Define the Panel layout with Microwave Switch Design Tool Application
- LED Indication (Configuration Dependant)
- Excellent RF & Repeatability Characteristics
- Relay Cycle Counting Included
- Drivers Supplied for Windows & Linux, Plus Support for Real-time Systems
- PXI Versions Supported by PXI or LXI Chassis
- PXIe Versions Supported by PXI Hybrid or PXIe Chassis
- 3 Year Warranty (110 GHz Options, 1 Year Warranty)

The 40-890 (PXI) and 42-890 (PXIe) range of PXI microwave modules allows users to specify the mix of relay types, frequencies and quantities based on the application requirements within the capabilities of the module driver card. Choose from the extensive relay selection already available in the Pickering microwave range to create a flexible solution.



Representative Images of Microwave Modules

An example configuration could include a combination of two SP6T plus one SPDT relay that can be externally cabled to create a SP12T multiplexer for frequency ranges where a dedicated 12:1 multiplexer is not available.

Flexible solutions can also reduce the chassis slot count by permitting different relay types to be fitted in a single module.

Each flexible build will be assigned a specific part number in the 4x-890 series to provide traceability and to ease the reordering process.

Microwave Switch Design Tool (MSDT)

The MSDT is an on-line application accessed via the [Pickering interfaces website](#) that can be used to generate front panel solutions for flexible products. Users can select from the full range of microwave relays then add LED indicators and graphical features such as components identifiers / logos to create a panel layout suited to the application.

Switch Type	Termination	Bandwidth & Connector Type											
		2.5 GHz DIN 1.6/5.6 (75 Ω)	3 GHz SMA (50 Ω)	6 GHz SMA (50 Ω)	8 GHz N-Type (50 Ω)	12.4 GHz N-Type (50 Ω)	18 GHz SMA (50 Ω)	22 GHz SMA (50 Ω)	26.5 GHz SMA (50 Ω)	40 GHz SMA 2.9 (50 Ω)	50 GHz SMA 2.4 (50 Ω)	67 GHz SMA 1.85 (50 Ω)	110 GHz SMA 1.0 (50 Ω)
Transfer (DPDT)	Unterminated	✓	✓				✓		✓	✓	✓		
SPDT		✓				✓	✓		✓	✓	✓		
SP4T		✓		✓		✓	✓		✓	✓	✓	✓	
SP6T		✓		✓		✓	✓		✓	✓	✓	✓	
SP8T						✓		✓	✓				
SP10T						✓		✓	✓				
SP12T						✓		✓	✓				
SPDT	Terminated						✓		✓	✓	✓		✓
SP4T						✓	✓		✓	✓	✓	✓	
SP6T						✓	✓		✓	✓	✓	✓	
SP8T							✓	✓	✓				
SP10T							✓	✓	✓				
SP12T							✓	✓	✓				

Configuration Restrictions

Whilst offering a high degree of flexibility in relay population there are some restrictions applicable to the flexible configurations.

Mechanical - the maximum number of chassis slots occupied by a single module is six. The relay physical sizes varies between switch types, for details refer to the user manual. Alternately, to assist with visualising the panel layout Pickering's Microwave Switch Design Tool (MSDT) online application can be used to define the relay quantities, types and positions.



LED Energised Path Indicators

Space permitting, each microwave relay fitted to a 4x-890 module has associated frontpanel LED indicators to show the current energised path through the relay, as illustrated in the figure above. This signal path indication greatly simplifies the debug of test application software.



Easy Repair

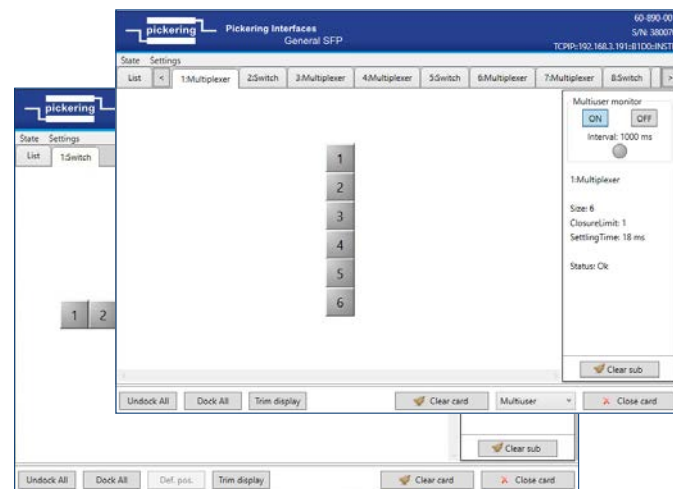
To facilitate fast in-field repair, wherever possible we fit relay types that may be quickly replaced by simply withdrawing them through the front panel.

Electrical - the driver card has twenty-four control lines, grouped both in banks of six or individually with each relay coil typically requiring a single control line. Each SPDT or transfer switches is controlled by an individual drive line. For multiplexers, a single six channel bank is required for SP4T and SP6T multiplexers with higher channel count multiplexers controlled via multiple banks.

Due to the flexible nature of the product range it is recommended that your local sales office is contacted to review your requirements as this will allow for the most efficient relay loading to be determined.

Relay Cycle Counting

To aid with module "health" monitoring all versions are provided with a relay cycle counting cycle feature. The number of operations per contact are stored on the module and can be used to determine if a relay is approaching EOL. This information could allow system connections to be revised so that signals applied to heavily used contacts are swapped with lightly used contacts to prolong the working life of the relay(s).

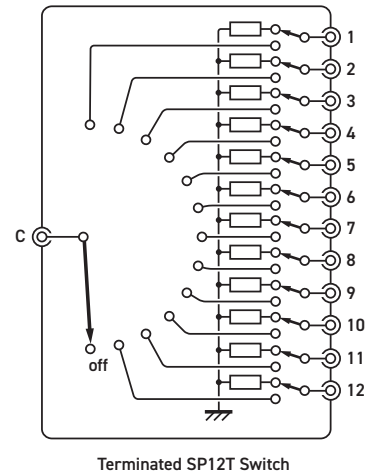
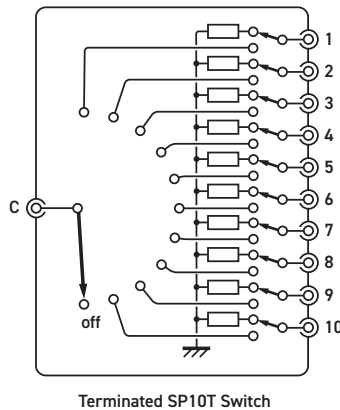
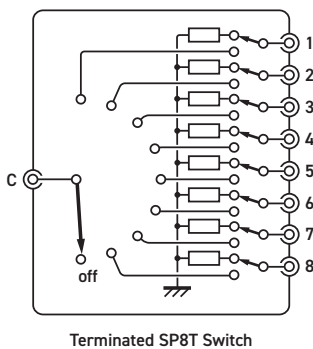
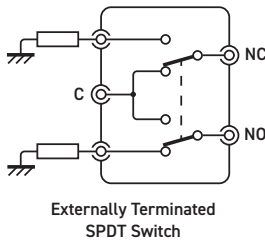
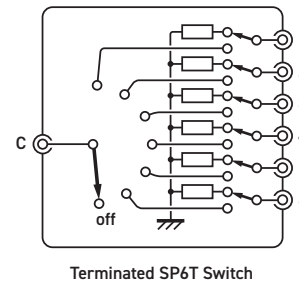
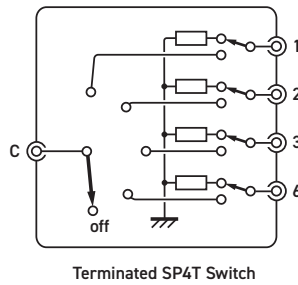
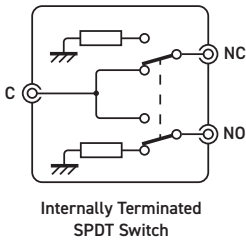
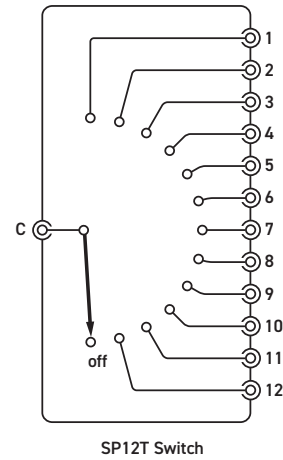
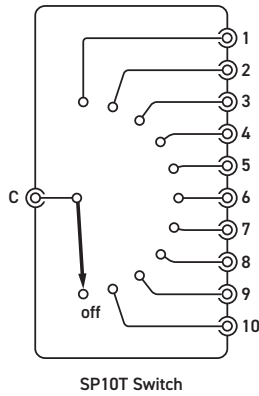
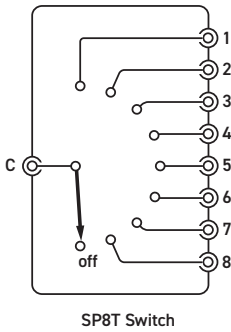
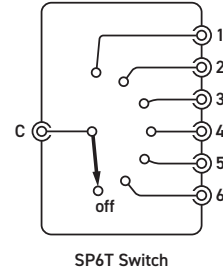
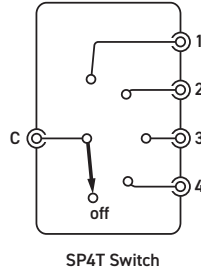
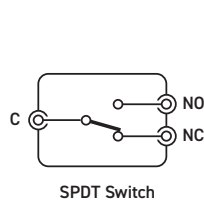
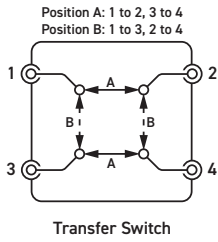


Manual Control

The 4x-890 is supplied with soft front panels for each of the fitted relays, as shown here. These enable graphical manual control of the switches to simplify application software development and debug.

PRELIMINARY DATA

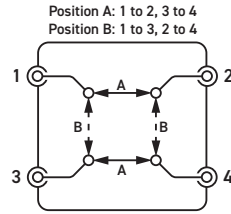
Available Switch Types



PRELIMINARY DATA

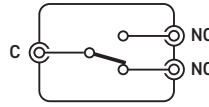
PRELIMINARY DATA

Specifications - Transfer Switches



Bandwidth	2.5 GHz	3 GHz	18 GHz	26.5 GHz	40 GHz	50 GHz
Characteristic Impedance	75 Ω	50 Ω	50 Ω	50 Ω	50 Ω	50 Ω
Connector Type	1.6/5.6	SMA	SMA	SMA	SMA-2.9	SMA-2.4
Operate Time	15 ms	15 ms	15 ms	15 ms	15 ms	15 ms
Insertion Loss	0.2 dB - 1 GHz 0.3 dB - 2.5 GHz	0.2 dB - 3 GHz	0.2 dB - 3 GHz 0.3 dB - 8 GHz 0.4 dB - 12.4 GHz 0.5 dB - 18 GHz	0.2 dB - 3 GHz 0.3 dB - 8 GHz 0.4 dB - 12.4 GHz 0.5 dB - 18 GHz 0.7 dB - 26.5 GHz	0.3 dB - 6 GHz 0.4 dB - 12.4 GHz 0.5 dB - 18 GHz 0.7 dB - 26.5 GHz 0.8 dB - 40 GHz	0.3 dB - 6 GHz 0.4 dB - 12.4 GHz 0.5 dB - 18 GHz 0.7 dB - 26.5 GHz 0.8 dB - 40 GHz 1.1 dB - 50 GHz
Isolation	80 dB - 1 GHz 70 dB - 2.5 GHz	80 dB - 3 GHz	80 dB - 3 GHz 70 dB - 8 GHz 65 dB - 12.4 GHz 60 dB - 18 GHz	80 dB - 3 GHz 70 dB - 8 GHz 65 dB - 12.4 GHz 60 dB - 18 GHz 50 dB - 26.5 GHz	70 dB - 6 GHz 60 dB - 12.4 GHz 60 dB - 18 GHz 55 dB - 26.5 GHz 50 dB - 40 GHz	70 dB - 6 GHz 60 dB - 12.4 GHz 60 dB - 18 GHz 55 dB - 26.5 GHz 50 dB - 40 GHz 50 dB - 50 GHz
VSWR	1.2:1 - 1 GHz 1.3:1 - 2.5 GHz	1.2:1 - 3 GHz	1.2:1 - 3 GHz 1.3:1 - 8 GHz 1.4:1 - 12.4 GHz 1.5:1 - 18 GHz	1.2:1 - 3 GHz 1.3:1 - 8 GHz 1.4:1 - 12.4 GHz 1.5:1 - 18 GHz 1.7:1 - 26.5 GHz	1.3:1 - 6 GHz 1.4:1 - 12.4 GHz 1.5:1 - 18 GHz 1.7:1 - 26.5 GHz 1.9:1 - 40 GHz	1.3:1 - 6 GHz 1.4:1 - 12.4 GHz 1.5:1 - 18 GHz 1.7:1 - 26.5 GHz 1.9:1 - 40 GHz 2.0:1 - 50 GHz
RF Average Carry Power at 25 °C	400 W - 1 GHz 240 W - 2.5 GHz	240 W - 3 GHz	240 W - 3 GHz 150 W - 8 GHz 120 W - 12.4 GHz 100 W - 18 GHz	240 W - 3 GHz 150 W - 8 GHz 120 W - 12.4 GHz 100 W - 18 GHz 40 W - 26.5 GHz	80 W - 6 GHz 60 W - 12.4 GHz 50 W - 18 GHz 20 W - 26.5 GHz 10 W - 40 GHz	40 W - 6 GHz 30 W - 12.4 GHz 25 W - 18 GHz 15 W - 26.5 GHz 5 W - 40 GHz 3 W - 50 GHz
Expected Life (operations)	2.5 million	2.5 million	2.5 million	2.5 million	2.5 million	2.5 million

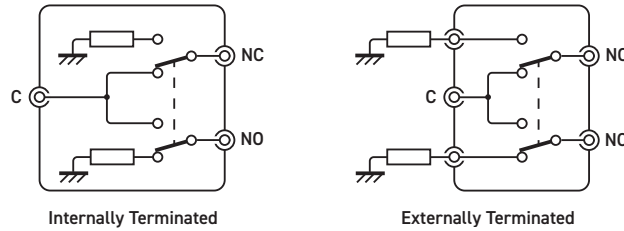
Specifications - Unterminated SPDT Switches



	2.5 GHz	12.4 GHz	18 GHz	26.5 GHz	40 GHz	50 GHz	67 GHz
Bandwidth	2.5 GHz	12.4 GHz	18 GHz	26.5 GHz	40 GHz	50 GHz	67 GHz
Characteristic Impedance	75 Ω	50 Ω	50 Ω	50 Ω	50 Ω	50 Ω	50 Ω
Connector Type	1.6/5.6	N-type	SMA	SMA	SMA-2.9	SMA-2.4	SMA-1.85
Operate Time	10 ms	10 ms	10 ms	10 ms	10 ms	10 ms	15 ms
Insertion Loss	0.2 dB - 1 GHz 0.3 dB - 2.5 GHz	0.15 dB - 1 GHz 0.2 dB - 2 GHz 0.25 dB - 3 GHz 0.35 dB - 8 GHz 0.5 dB - 12.4 GHz	0.15 dB - 3 GHz 0.2 dB - 8 GHz 0.25 dB - 12.4 GHz 0.35 dB - 18 GHz	0.15 dB - 3 GHz 0.2 dB - 8 GHz 0.25 dB - 12.4 GHz 0.35 dB - 18 GHz 0.5 dB - 26.5 GHz	0.3 dB - 6 GHz 0.4 dB - 12.4 GHz 0.5 dB - 18 GHz 0.7 dB - 26.5 GHz 0.8 dB - 40 GHz	0.3 dB - 6 GHz 0.4 dB - 12.4 GHz 0.5 dB - 18 GHz 0.7 dB - 26.5 GHz 0.8 dB - 40 GHz 1.1 dB - 50 GHz	0.3 dB - 6 GHz 0.4 dB - 12.4 GHz 0.5 dB - 18 GHz 0.7 dB - 26.5 GHz 0.8 dB - 40 GHz 1.1 dB - 50 GHz 1.1 dB - 67 GHz
Isolation	80 dB - 1 GHz 70 dB - 2.5 GHz	85 dB - 1 GHz 80 dB - 2 GHz 75 dB - 3 GHz 70 dB - 8 GHz 60 dB - 12.4 GHz	80 dB - 3 GHz 75 dB - 8 GHz 65 dB - 12.4 GHz 60 dB - 18 GHz	80 dB - 3 GHz 75 dB - 8 GHz 65 dB - 12.5 GHz 60 dB - 18 GHz 55 dB - 26.5 GHz	70 dB - 6 GHz 60 dB - 12.4 GHz 60 dB - 18 GHz 55 dB - 26.5 GHz 50 dB - 40 GHz	70 dB - 6 GHz 60 dB - 12.4 GHz 60 dB - 18 GHz 55 dB - 26.5 GHz 50 dB - 40 GHz 50 dB - 50 GHz	70 dB - 6 GHz 60 dB - 12.4 GHz 60 dB - 18 GHz 55 dB - 26.5 GHz 50 dB - 40 GHz 50 dB - 50 GHz 50 dB - 67 GHz
VSWR	1.2:1 - 1 GHz 1.3:1 - 2.5 GHz	1.15:1 - 1 GHz 1.2:1 - 2 GHz 1.25:1 - 3 GHz 1.35:1 - 8 GHz 1.5:1 - 12.4 GHz	1.1:1 - 3 GHz 1.2:1 - 8 GHz 1.2:1 - 12.4 GHz 1.4:1 - 18 GHz	1.1:1 - 3 GHz 1.2:1 - 8 GHz 1.2:1 - 12.4 GHz 1.4:1 - 18 GHz 1.5:1 - 26.5 GHz	1.3:1 - 6 GHz 1.4:1 - 12.4 GHz 1.5:1 - 18 GHz 1.7:1 - 26.5 GHz 1.9:1 - 40 GHz	1.3:1 - 6 GHz 1.4:1 - 12.4 GHz 1.5:1 - 18 GHz 1.7:1 - 26.5 GHz 1.9:1 - 40 GHz 1.9:1 - 50 GHz	1.3:1 - 6 GHz 1.4:1 - 12.4 GHz 1.5:1 - 18 GHz 1.7:1 - 26.5 GHz 1.9:1 - 40 GHz 1.9:1 - 50 GHz 1.9:1 - 67 GHz
RF Average Carry Power at 25°C	400 W - 1 GHz 240 W - 2.5 GHz	700 W - 1 GHz 500 W - 2 GHz 400 W - 3 GHz 250 W - 8 GHz 200 W - 12.4 GHz	240 W - 3 GHz 150 W - 8 GHz 120 W - 12.4 GHz 100 W - 18 GHz	240 W - 3 GHz 150 W - 8 GHz 120 W - 12.4 GHz 100 W - 18 GHz 40 W - 26.5 GHz	80 W - 6 GHz 60 W - 12.4 GHz 50 W - 18 GHz 20 W - 26.5 GHz 10 W - 40 GHz	80 W - 6 GHz 60 W - 12.4 GHz 50 W - 18 GHz 20 W - 26.5 GHz 10 W - 40 GHz 5 W - 50 GHz	80 W - 6 GHz 60 W - 12.4 GHz 50 W - 18 GHz 20 W - 26.5 GHz 10 W - 40 GHz 5 W - 50 GHz 3 W - 67 GHz
Expected Life (operations)	5 million	1 million	10 million	10 million	10 million	10 million	1 million

PRELIMINARY DATA

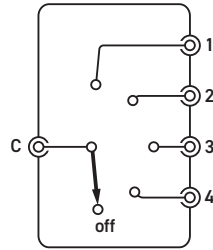
Specifications - Terminated SPDT Switches



	18 GHz	26.5 GHz	40 GHz	50 GHz (Externally Terminated Only)	110 GHz (Externally Terminated Only)
Bandwidth	18 GHz	26.5 GHz	40 GHz	50 GHz (Externally Terminated Only)	110 GHz (Externally Terminated Only)
Characteristic Impedance	50 Ω	50 Ω	50 Ω	50 Ω	50 Ω
Connector Type	SMA	SMA	SMA-2.9	SMA-2.4	SMA-1.0
Operate Time	10 ms	10 ms	10 ms	10 ms	20 ms
Insertion Loss	0.2 dB - 3 GHz 0.3 dB - 8 GHz 0.4 dB - 12.4 GHz 0.5 dB - 18 GHz	0.2 dB - 3 GHz 0.3 dB - 8 GHz 0.4 dB - 12.4 GHz 0.5 dB - 18 GHz 0.7 dB - 26.5 GHz	0.3 dB - 6 GHz 0.4 dB - 12.4 GHz 0.5 dB - 18 GHz 0.7 dB - 26.5 GHz 0.8 dB - 40 GHz	0.3 dB - 6 GHz 0.4 dB - 12.4 GHz 0.5 dB - 18 GHz 0.7 dB - 26.5 GHz 0.8 dB - 40 GHz 1.1 dB - 50 GHz	0.8 dB to 20 GHz 1.4 dB to 50 GHz 1.8 dB to 67 GHz 2.2 dB to 90 GHz 2.5 dB to 110 GHz
Isolation	80 dB - 3 GHz 70 dB - 8 GHz 60 dB - 12.4 GHz 60 dB - 18 GHz	80 dB - 3 GHz 70 dB - 8 GHz 60 dB - 12.4 GHz 60 dB - 18 GHz 55 dB - 26.5 GHz	70 dB - 6 GHz 60 dB - 12.4 GHz 60 dB - 18 GHz 55 dB - 26.5 GHz 50 dB - 40 GHz	70 dB - 6 GHz 60 dB - 12.4 GHz 60 dB - 18 GHz 55 dB - 26.5 GHz 50 dB - 40 GHz 50 dB - 50 GHz	70 dB to 20 GHz 70 dB to 50 GHz 60 dB to 67 GHz 60 dB to 90 GHz 50 dB to 110 GHz
VSWR	1.2:1 - 3 GHz 1.3:1 - 8 GHz 1.4:1 - 12.4 GHz 1.5:1 - 18 GHz	1.2:1 - 3 GHz 1.3:1 - 8 GHz 1.4:1 - 12.4 GHz 1.5:1 - 18 GHz 1.7:1 - 26.5 GHz	1.3:1 - 6 GHz 1.4:1 - 12.4 GHz 1.5:1 - 18 GHz 1.7:1 - 26.5 GHz 1.9:1 - 40 GHz	1.3:1 - 6 GHz 1.4:1 - 12.4 GHz 1.5:1 - 18 GHz 1.7:1 - 26.5 GHz 1.9:1 - 40 GHz 1.9:1 - 50 GHz	1.5:1 to 20 GHz 1.8:1 to 50 GHz 1.9:1 to 67 GHz 2.0:1 to 90 GHz 2.2:1 to 110 GHz
Terminator Power Handling*	1 W				
RF Average Carry Power at 25 °C	240 W - 3 GHz 150 W - 8 GHz 120 W - 12.4 GHz 100 W - 18 GHz	240 W - 3 GHz 150 W - 8 GHz 120 W - 12.4 GHz 100 W - 18 GHz 40 W - 26.5 GHz	80 W - 6 GHz 60 W - 12.4 GHz 50 W - 18 GHz 20 W - 26.5 GHz 10 W - 40 GHz	80 W - 6 GHz 60 W - 12.4 GHz 50 W - 18 GHz 20 W - 26.5 GHz 10 W - 40 GHz 5 W - 50 GHz	35 W to 18 GHz 10 W to 40 GHz 3 W to 67 GHz 2 W to 90 GHz 1 W to 110 GHz
Expected Life (operations)	2 million	2 million	2 million	2 million	0.5 million

* For versions with external terminations, the terminators can be removed and replaced with higher power loads.

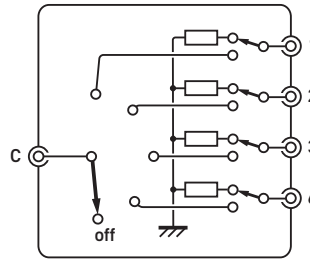
Specifications - Unterminated SP4T Switches



Bandwidth	2.5 GHz	6 GHz	12.4 GHz	18 GHz	26.5 GHz	40 GHz	50 GHz	67 GHz
Characteristic Impedance	75 Ω	50 Ω	50 Ω	50 Ω	50 Ω	50 Ω	50 Ω	50 Ω
Connector Type	1.6/5.6	SMA	N-type	SMA	SMA	SMA-2.9	SMA-2.4	SMA-1.85
Operate Time	15 ms	10 ms	15 ms	10 ms	10 ms	10 ms	10 ms	10 ms
Insertion Loss	0.2 dB -1 GHz 0.3 dB -2.5 GHz	0.2 dB -3 GHz 0.3 dB -6 GHz	0.2 dB -3 GHz 0.35 dB -8 GHz 0.5 dB -12.4 GHz	0.2 dB -3 GHz 0.3 dB -8 GHz 0.4 dB -12.4 GHz 0.5 dB -18 GHz	0.2 dB -3 GHz 0.3 dB -8 GHz 0.4 dB -12.4 GHz 0.5 dB -18 GHz 0.6 dB -26.5 GHz	0.2 dB -3 GHz 0.3 dB -8 GHz 0.4 dB -12.4 GHz 0.5 dB -18 GHz 0.7 dB -26.5 GHz 1.1 dB -40 GHz	0.2 dB -6 GHz 0.4 dB -12.4 GHz 0.5 dB -18 GHz 0.7 dB -26.5 GHz 0.9 dB -40 GHz 1.2 dB -50 GHz	0.3 dB -6 GHz 0.4 dB -12.4 GHz 0.5 dB -18 GHz 0.7 dB -26.5 GHz 0.9 dB -40 GHz 1.2 dB -65 GHz 1.7 dB -67 GHz
Isolation	80 dB -1 GHz 70 dB -2.5 GHz	80 dB -3 GHz 70 dB -6 GHz	80 dB -3 GHz 70 dB -8 GHz 60 dB -12.4 GHz	80 dB -3 GHz 70 dB -8 GHz 60 dB -12.4 GHz 60 dB -18 GHz	80 dB -3 GHz 70 dB -8 GHz 60 dB -12.4 GHz 60 dB -18 GHz 55 dB -26.5 GHz	80 dB -3 GHz 70 dB -8 GHz 60 dB -12.4 GHz 60 dB -18 GHz 55 dB -26.5 GHz 45 dB -40 GHz	70 dB -6 GHz 60 dB -12.4 GHz 60 dB -18 GHz 55 dB -26.5 GHz 50 dB -40 GHz 50 dB -50 GHz	70 dB -6 GHz 60 dB -12.4 GHz 60 dB -18 GHz 55 dB -26.5 GHz 50 dB -40 GHz 50 dB -50 GHz 50 dB -67 GHz
VSWR	1.2:1 -1 GHz 1.3:1 -2.5 GHz	1.2:1 -3 GHz 1.3:1 -6 GHz	1.2:1 -3 GHz 1.35:1 -8 GHz 1.5:1 -12.4 GHz	1.2:1 -3 GHz 1.3:1 -8 GHz 1.4:1 -12.4 GHz 1.5:1 -18 GHz	1.2:1 -3 GHz 1.3:1 -8 GHz 1.4:1 -12.4 GHz 1.5:1 -18 GHz 1.6:1 -26.5 GHz	1.2:1 -3 GHz 1.3:1 -8 GHz 1.4:1 -12.4 GHz 1.5:1 -18 GHz 1.7:1 -26.5 GHz 2.2:1 -40 GHz	1.3:1 -6 GHz 1.4:1 -12.4 GHz 1.5:1 -18 GHz 1.7:1 -26.5 GHz 1.9:1 -40 GHz 2.2:1 -50 GHz	1.3:1 -6 GHz 1.4:1 -12.4 GHz 1.5:1 -18 GHz 1.7:1 -26.5 GHz 1.9:1 -40 GHz 2.2:1 -50 GHz 2.2:1 -67 GHz
RF Average Carry Power at 25°C	400 W -1 GHz 240 W -2.5 GHz	250 W -3 GHz 170 W -6 GHz	400 W -3 GHz 250 W -8 GHz 200 W -12.4 GHz	250 W -3 GHz 150 W -8 GHz 120 W -12.4 GHz 100 W -18 GHz	250 W -3 GHz 150 W -8 GHz 120 W -12.4 GHz 100 W -18 GHz 40 W -26.5 GHz	60 W -3 GHz 35 W -8 GHz 30 W -12.4 GHz 25 W -18 GHz 15 W -26.5 GHz 5 W -40 GHz	40 W -6 GHz 30 W -12.4 GHz 25 W -18 GHz 15 W -26.5 GHz 5 W -40 GHz 3 W -50 GHz	40 W -6 GHz 30 W -12.4 GHz 25 W -18 GHz 15 W -26.5 GHz 5 W -40 GHz 3 W -50 GHz 1 W -67 GHz
Expected Life (operations)	2 million	10 million	2 million	10 million	10 million	2 million	2 million	2 million

PRELIMINARY DATA

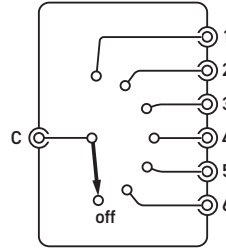
Specifications - Terminated SP4T Switches



	12.4 GHz	18 GHz	26.5 GHz	40 GHz	50 GHz	67 GHz
Bandwidth	12.4 GHz	18 GHz	26.5 GHz	40 GHz	50 GHz	67 GHz
Characteristic Impedance	50 Ω	50 Ω	50 Ω	50 Ω	50 Ω	50 Ω
Connector Type	N-type	SMA	SMA	SMA-2.9	SMA-2.4	SMA-1.85
Operate Time	15 ms	15 ms	15 ms	15 ms	15 ms	10 ms
Insertion Loss	0.2 dB - 3 GHz 0.35 dB - 8 GHz 0.5 dB - 12.4 GHz	0.2 dB - 3 GHz 0.3 dB - 8 GHz 0.4 dB - 12.4 GHz 0.5 dB - 18 GHz	0.2 dB - 3 GHz 0.3 dB - 8 GHz 0.4 dB - 12.4 GHz 0.5 dB - 18 GHz 0.7 dB - 26.5 GHz	0.2 dB - 6 GHz 0.4 dB - 12.4 GHz 0.5 dB - 18 GHz 0.7 dB - 26.5 GHz 1.1 dB - 40 GHz	0.2 dB - 6 GHz 0.4 dB - 12.4 GHz 0.5 dB - 18 GHz 0.7 dB - 26.5 GHz 0.9 dB - 40 GHz 1.2 dB - 50 GHz	0.3 dB - 6 GHz 0.4 dB - 12.4 GHz 0.5 dB - 18 GHz 0.7 dB - 26.5 GHz 0.9 dB - 40 GHz 1.4 dB - 65 GHz 1.7 dB - 67 GHz
Isolation	80 dB - 3 GHz 70 dB - 8 GHz 60 dB - 12.4 GHz	80 dB - 3 GHz 70 dB - 8 GHz 60 dB - 12.4 GHz 60 dB - 18 GHz	80 dB - 3 GHz 70 dB - 8 GHz 60 dB - 12.4 GHz 60 dB - 18 GHz 55 dB - 26.5 GHz	70 dB - 6 GHz 60 dB - 12.4 GHz 60 dB - 18 GHz 55 dB - 26.5 GHz 50 dB - 40 GHz	70 dB - 6 GHz 60 dB - 12.4 GHz 60 dB - 18 GHz 55 dB - 26.5 GHz 50 dB - 40 GHz 50 dB - 50 GHz	70 dB - 6 GHz 60 dB - 12.4 GHz 60 dB - 18 GHz 55 dB - 26.5 GHz 50 dB - 40 GHz 50 dB - 50 GHz 50 dB - 67 GHz
VSWR	1.2:1 - 3 GHz 1.35:1 - 8 GHz 1.5:1 - 12.4 GHz	1.2:1 - 3 GHz 1.3:1 - 8 GHz 1.4:1 - 12.4 GHz 1.5:1 - 18 GHz	1.2:1 - 3 GHz 1.3:1 - 8 GHz 1.4:1 - 12.4 GHz 1.5:1 - 18 GHz 1.7:1 - 26.5 GHz	1.3:1 - 6 GHz 1.4:1 - 12.4 GHz 1.5:1 - 18 GHz 1.7:1 - 26.5 GHz 2.2:1 - 40 GHz	1.3:1 - 6 GHz 1.4:1 - 12.4 GHz 1.5:1 - 18 GHz 1.7:1 - 26.5 GHz 1.9:1 - 40 GHz 2.2:1 - 50 GHz	1.3:1 - 6 GHz 1.4:1 - 12.4 GHz 1.5:1 - 18 GHz 1.7:1 - 26.5 GHz 1.9:1 - 40 GHz 2.2:1 - 50 GHz 2.2:1 - 67 GHz
Terminator Power Handling	1 W each, 3W total					
RF Average Carry Power at 25 °C	400 W - 3 GHz 250 W - 8 GHz 200 W - 12.4 GHz	240 W - 3 GHz 150 W - 8 GHz 120 W - 12.4 GHz 100 W - 18 GHz	240 W - 3 GHz 150 W - 8 GHz 120 W - 12.4 GHz 100 W - 18 GHz 40 W - 26.5 GHz	40 W - 6 GHz 30 W - 12.4 GHz 25 W - 18 GHz 15 W - 26.5 GHz 5 W - 40 GHz	40 W - 6 GHz 30 W - 12.4 GHz 25 W - 18 GHz 15 W - 26.5 GHz 5 W - 40 GHz 3 W - 50 GHz	40 W - 6 GHz 30 W - 12.4 GHz 25 W - 18 GHz 15 W - 26.5 GHz 5 W - 40 GHz 3 W - 50 GHz 1 W - 67 GHz
Expected Life (operations)	2 million	2 million	10 million	2million	2 million	2 million

PRELIMINARY DATA

Specifications - Unterminated SP6T Switches

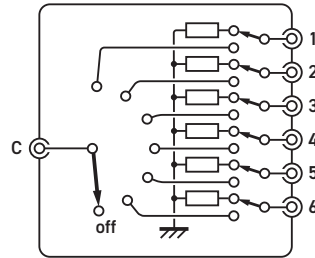


Bandwidth	2.5 GHz	6 GHz	12.4 GHz	18 GHz	26.5 GHz	40 GHz	50 GHz	67 GHz
Characteristic Impedance	75 Ω	50 Ω	50 Ω	50 Ω	50 Ω	50 Ω	50 Ω	50 Ω
Connector Type	1.6/5.6	SMA	N-type	SMA	SMA	SMA-2.9	SMA-2.4	SMA-1.85
Operate Time	15 ms	10 ms	15 ms	10 ms	10 ms	10 ms	10 ms	10 ms
Insertion Loss	0.2 dB - 1 GHz 0.3 dB - 2.5 GHz	0.2 dB - 3 GHz 0.3 dB - 6 GHz	0.2 dB - 3 GHz 0.35 dB - 8 GHz 0.5 dB - 12.4 GHz	0.2 dB - 3 GHz 0.3 dB - 8 GHz 0.4 dB - 12.4 GHz 0.5 dB - 18 GHz	0.2 dB - 3 GHz 0.3 dB - 8 GHz 0.4 dB - 12.4 GHz 0.5 dB - 18 GHz 0.6 dB - 26.5 GHz	0.2 dB - 3 GHz 0.3 dB - 8 GHz 0.4 dB - 12.4 GHz 0.5 dB - 18 GHz 0.7 dB - 26.5 GHz 1.1 dB - 40 GHz	0.2 dB - 6 GHz 0.4 dB - 12.4 GHz 0.5 dB - 18 GHz 0.7 dB - 26.5 GHz 0.9 dB - 40 GHz 1.2 dB - 50 GHz	0.3 dB - 6 GHz 0.4 dB - 12.4 GHz 0.5 dB - 18 GHz 0.7 dB - 26.5 GHz 0.9 dB - 40 GHz 1.2 dB - 65 GHz 1.7 dB - 67 GHz
Isolation	80 dB - 1 GHz 70 dB - 2.5 GHz	80 dB - 3 GHz 70 dB - 6 GHz	80 dB - 3 GHz 70 dB - 8 GHz 60 dB - 12.4 GHz	80 dB - 3 GHz 70 dB - 8 GHz 60 dB - 12.4 GHz 60 dB - 18 GHz	80 dB - 3 GHz 70 dB - 8 GHz 60 dB - 12.4 GHz 60 dB - 18 GHz 55 dB - 26.5 GHz	80 dB - 3 GHz 70 dB - 8 GHz 60 dB - 12.4 GHz 60 dB - 18 GHz 55 dB - 26.5 GHz 45 dB - 40 GHz	70 dB - 6 GHz 60 dB - 12.4 GHz 60 dB - 18 GHz 55 dB - 26.5 GHz 50 dB - 40 GHz 50 dB - 50 GHz	70 dB - 6 GHz 60 dB - 12.4 GHz 60 dB - 18 GHz 55 dB - 26.5 GHz 50 dB - 40 GHz 50 dB - 50 GHz 50 dB - 67 GHz
VSWR	1.2:1 - 1 GHz 1.3:1 - 2.5 GHz	1.2:1 - 3 GHz 1.3:1 - 6 GHz	1.2:1 - 3 GHz 1.35:1 - 8 GHz 1.5:1 - 12.4 GHz	1.2:1 - 3 GHz 1.3:1 - 8 GHz 1.4:1 - 12.4 GHz 1.5:1 - 18 GHz	1.2:1 - 3 GHz 1.3:1 - 8 GHz 1.4:1 - 12.4 GHz 1.5:1 - 18 GHz 1.6:1 - 26.5 GHz	1.2:1 - 3 GHz 1.3:1 - 8 GHz 1.4:1 - 12.4 GHz 1.5:1 - 18 GHz 1.7:1 - 26.5 GHz 2.2:1 - 40 GHz	1.3:1 - 6 GHz 1.4:1 - 12.4 GHz 1.5:1 - 18 GHz 1.7:1 - 26.5 GHz 1.9:1 - 40 GHz 2.2:1 - 50 GHz	1.3:1 - 6 GHz 1.4:1 - 12.4 GHz 1.5:1 - 18 GHz 1.7:1 - 26.5 GHz 1.9:1 - 40 GHz 2.2:1 - 50 GHz 2.2:1 - 67 GHz
RF Average Carry Power at 25°C	400 W - 1 GHz 240 W - 2.5 GHz	250 W - 3 GHz 170 W - 6 GHz	400 W - 3 GHz 250 W - 8 GHz 200 W - 12.4 GHz	250 W - 3 GHz 150 W - 8 GHz 120 W - 12.4 GHz 100 W - 18 GHz	250 W - 3 GHz 150 W - 8 GHz 120 W - 12.4 GHz 100 W - 18 GHz 40 W - 26.5 GHz	60 W - 3 GHz 35 W - 8 GHz 30 W - 12.4 GHz 25 W - 18 GHz 15 W - 26.5 GHz 5 W - 40 GHz	40 W - 6 GHz 30 W - 12.4 GHz 25 W - 18 GHz 15 W - 26.5 GHz 5 W - 40 GHz 3 W - 50 GHz	40 W - 6 GHz 30 W - 12.4 GHz 25 W - 18 GHz 15 W - 26.5 GHz 5 W - 40 GHz 3 W - 50 GHz 1 W - 67 GHz
Expected Life (operations)	2 million	10 million	2 million	10 million	10 million	2 million	2 million	2 million

PRELIMINARY DATA

PRELIMINARY DATA

Specifications - Terminated SP6T Switches



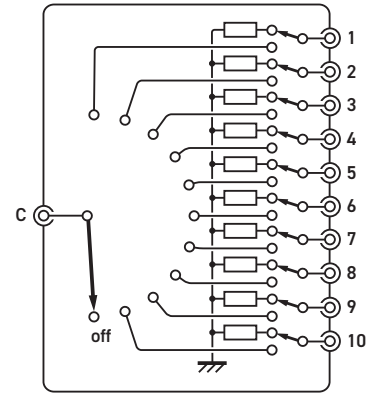
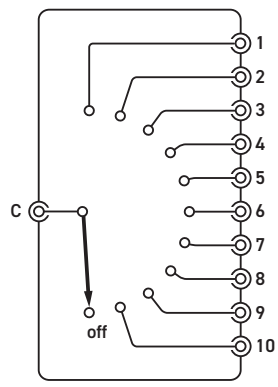
Bandwidth	12.4 GHz	18 GHz	26.5 GHz	40 GHz	50 GHz	67 GHz
Characteristic Impedance	50 Ω	50 Ω	50 Ω	50 Ω	50 Ω	50 Ω
Connector Type	N-type	SMA	SMA	SMA-2.9	SMA-2.4	SMA-1.85
Operate Time	15 ms	15 ms	15 ms	15 ms	15 ms	10 ms
Insertion Loss	0.2 dB - 3 GHz 0.35 dB - 8 GHz 0.5 dB - 12.4 GHz	0.2 dB - 3 GHz 0.3 dB - 8 GHz 0.4 dB - 12.4 GHz 0.5 dB - 18 GHz	0.2 dB - 3 GHz 0.3 dB - 8 GHz 0.4 dB - 12.4 GHz 0.5 dB - 18 GHz 0.7 dB - 26.5 GHz	0.2 dB - 6 GHz 0.4 dB - 12.4 GHz 0.5 dB - 18 GHz 0.7 dB - 26.5 GHz 1.1 dB - 40 GHz	0.2 dB - 6 GHz 0.4 dB - 12.4 GHz 0.5 dB - 18 GHz 0.7 dB - 26.5 GHz 0.9 dB - 40 GHz 1.2 dB - 50 GHz	0.3 dB - 6 GHz 0.4 dB - 12.4 GHz 0.5 dB - 18 GHz 0.7 dB - 26.5 GHz 0.9 dB - 40 GHz 1.4 dB - 65 GHz 1.7 dB - 67 GHz
Isolation	80 dB - 3 GHz 70 dB - 8 GHz 60 dB - 12.4 GHz	80 dB - 3 GHz 70 dB - 8 GHz 60 dB - 12.4 GHz 60 dB - 18 GHz	80 dB - 3 GHz 70 dB - 8 GHz 60 dB - 12.4 GHz 60 dB - 18 GHz 55 dB - 26.5 GHz	70 dB - 6 GHz 60 dB - 12.4 GHz 60 dB - 18 GHz 55 dB - 26.5 GHz 50 dB - 40 GHz	70 dB - 6 GHz 60 dB - 12.4 GHz 60 dB - 18 GHz 55 dB - 26.5 GHz 50 dB - 40 GHz 50 dB - 50 GHz	70 dB - 6 GHz 60 dB - 12.4 GHz 60 dB - 18 GHz 55 dB - 26.5 GHz 50 dB - 40 GHz 50 dB - 50 GHz 50 dB - 67 GHz
VSWR	1.2:1 - 3 GHz 1.35:1 - 8 GHz 1.5:1 - 12.4 GHz	1.2:1 - 3 GHz 1.3:1 - 8 GHz 1.4:1 - 12.4 GHz 1.5:1 - 18 GHz	1.2:1 - 3 GHz 1.3:1 - 8 GHz 1.4:1 - 12.4 GHz 1.5:1 - 18 GHz 1.7:1 - 26.5 GHz	1.3:1 - 6 GHz 1.4:1 - 12.4 GHz 1.5:1 - 18 GHz 1.7:1 - 26.5 GHz 2.2:1 - 40 GHz	1.3:1 - 6 GHz 1.4:1 - 12.4 GHz 1.5:1 - 18 GHz 1.7:1 - 26.5 GHz 1.9:1 - 40 GHz 2.2:1 - 50 GHz	1.3:1 - 6 GHz 1.4:1 - 12.4 GHz 1.5:1 - 18 GHz 1.7:1 - 26.5 GHz 1.9:1 - 40 GHz 2.2:1 - 50 GHz 2.2:1 - 67 GHz
Terminator Power Handling	1 W each, 3W total					
RF Average Carry Power at 25 °C	400 W - 3 GHz 250 W - 8 GHz 200 W - 12.4 GHz	240 W - 3 GHz 150 W - 8 GHz 120 W - 12.4 GHz 100 W - 18 GHz	240 W - 3 GHz 150 W - 8 GHz 120 W - 12.4 GHz 100 W - 18 GHz 40 W - 26.5 GHz	40 W - 6 GHz 30 W - 12.4 GHz 25 W - 18 GHz 15 W - 26.5 GHz 5 W - 40 GHz	40 W - 6 GHz 30 W - 12.4 GHz 25 W - 18 GHz 15 W - 26.5 GHz 5 W - 40 GHz 3 W - 50 GHz	40 W - 6 GHz 30 W - 12.4 GHz 25 W - 18 GHz 15 W - 26.5 GHz 5 W - 40 GHz 3 W - 50 GHz 1 W - 67 GHz
Expected Life (operations)	2 million	2 million	10 million	2million	2 million	2 million

PRELIMINARY DATA

	Specifications - Unterminated SP8T Switches			Specifications - Terminated SP8T Switches	
Bandwidth	8 GHz	18 GHz	26.5 GHz	18 GHz	26.5 GHz
Characteristic Impedance	50 Ω	50 Ω	50 Ω	50 Ω	50 Ω
Connector Type	N-type	SMA	SMA	SMA	SMA
Operate Time	15 ms	15 ms	15 ms	15 ms	15 ms
Insertion Loss	0.3 dB - 3 GHz 0.5 dB - 8 GHz	0.2 dB - 3 GHz 0.3 dB - 8 GHz 0.4 dB - 12.4 GHz 0.55 dB - 16 GHz 0.6 dB - 18 GHz	0.2 dB - 3 GHz 0.3 dB - 8 GHz 0.4 dB - 12.4 GHz 0.55 dB - 16 GHz 0.6 dB - 18 GHz 0.7 dB - 22 GHz 1.1 dB - 26.5 GHz	0.2 dB - 3 GHz 0.3 dB - 8 GHz 0.4 dB - 12.4 GHz 0.55 dB - 16 GHz 0.6 dB - 18 GHz	0.2 dB - 3 GHz 0.3 dB - 8 GHz 0.4 dB - 12.4 GHz 0.55 dB - 16 GHz 0.6 dB - 18 GHz 0.7 dB - 22 GHz 1.1 dB - 26.5 GHz
Isolation	80 dB - 3 GHz 70 dB - 8 GHz	80 dB - 3 GHz 70 dB - 8 GHz 60 dB - 12.4 GHz 60 dB - 16 GHz 60 dB - 18 GHz	80 dB - 3 GHz 70 dB - 8 GHz 60 dB - 12.4 GHz 60 dB - 16 GHz 60 dB - 18 GHz 60 dB - 22 GHz 55 dB - 26.5 GHz	80 dB - 3 GHz 70 dB - 8 GHz 60 dB - 12.4 GHz 60 dB - 16 GHz 60 dB - 18 GHz	80 dB - 3 GHz 70 dB - 8 GHz 60 dB - 12.4 GHz 60 dB - 16 GHz 60 dB - 18 GHz 60 dB - 22 GHz 55 dB - 26.5 GHz
VSWR	1.3:1 - 3 GHz 1.5:1 - 8 GHz	1.2:1 - 3 GHz 1.3:1 - 8 GHz 1.4:1 - 12.4 GHz 1.5:1 - 16 GHz 1.6:1 - 18 GHz	1.2:1 - 3 GHz 1.3:1 - 8 GHz 1.4:1 - 12.4 GHz 1.5:1 - 16 GHz 1.6:1 - 18 GHz 1.7:1 - 22 GHz 2.0:1 - 26.5 GHz	1.2:1 - 3 GHz 1.3:1 - 8 GHz 1.4:1 - 12.4 GHz 1.5:1 - 16 GHz 1.6:1 - 18 GHz	1.2:1 - 3 GHz 1.3:1 - 8 GHz 1.4:1 - 12.4 GHz 1.5:1 - 16 GHz 1.6:1 - 18 GHz 1.7:1 - 22 GHz 2.0:1 - 26.5 GHz
Terminator Power Handling	-			1 W each, 3W total	
RF Average Carry Power at 25°C	400 W - 3 GHz 250 W - 8 GHz	240 W - 3 GHz 150 W - 8 GHz 120 W - 12.4 GHz 110 W - 16 GHz 100 W - 18 GHz	240 W - 3 GHz 150 W - 8 GHz 120 W - 12.4 GHz 110 W - 16 GHz 100 W - 18 GHz 90 W - 22 GHz 40 W - 26.5 GHz	240 W - 3 GHz 150 W - 8 GHz 120 W - 12.4 GHz 110 W - 16 GHz 100 W - 18 GHz	240 W - 3 GHz 150 W - 8 GHz 120 W - 12.4 GHz 110 W - 16 GHz 100 W - 18 GHz 90 W - 22 GHz 40 W - 26.5 GHz
Expected Life (operations)	2 million	2 million	2 million	2 million	2 million

PRELIMINARY DATA

Specifications - Unterminated SP10T Switches	Specifications - Terminated SP10T Switches
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	8 GHz	18 GHz	22 GHz	18 GHz	22 GHz
Bandwidth	8 GHz	18 GHz	22 GHz	18 GHz	22 GHz
Characteristic Impedance	50 Ω	50 Ω	50 Ω	50 Ω	50 Ω
Connector Type	N-type	SMA	SMA	SMA	SMA
Operate Time	15 ms	15 ms	15 ms	15 ms	15 ms
Insertion Loss	0.3 dB - 3 GHz 0.5 dB - 8 GHz	0.2 dB - 3 GHz 0.3 dB - 8 GHz 0.4 dB - 12.4 GHz 0.5 dB - 15.5 GHz 0.7 dB - 18 GHz	0.2 dB - 3 GHz 0.3 dB - 8 GHz 0.4 dB - 12.4 GHz 0.5 dB - 15.5 GHz 0.7 dB - 18 GHz 0.8 dB - 22 GHz	0.2 dB - 3 GHz 0.3 dB - 8 GHz 0.4 dB - 12.4 GHz 0.5 dB - 15.5 GHz 0.7 dB - 18 GHz	0.2 dB - 3 GHz 0.3 dB - 8 GHz 0.4 dB - 12.4 GHz 0.5 dB - 15.5 GHz 0.7 dB - 18 GHz 0.8 dB - 22 GHz
Isolation	80 dB - 3 GHz 70 dB - 8 GHz	80 dB - 3 GHz 70 dB - 8 GHz 60 dB - 12.4 GHz 60 dB - 15.5 GHz 55 dB - 18 GHz	80 dB - 3 GHz 70 dB - 8 GHz 60 dB - 12.4 GHz 60 dB - 15.5 GHz 55 dB - 18 GHz 55 dB - 22 GHz	80 dB - 3 GHz 70 dB - 8 GHz 60 dB - 12.4 GHz 60 dB - 15.5 GHz 55 dB - 18 GHz	80 dB - 3 GHz 70 dB - 8 GHz 60 dB - 12.4 GHz 60 dB - 15.5 GHz 55 dB - 18 GHz 55 dB - 22 GHz
VSWR	1.3:1 - 3 GHz 1.5:1 - 8 GHz	1.2:1 - 3 GHz 1.3:1 - 8 GHz 1.4:1 - 12.4 GHz 1.5:1 - 15.5 GHz 1.7:1 - 18 GHz	1.2:1 - 3 GHz 1.3:1 - 8 GHz 1.4:1 - 12.4 GHz 1.5:1 - 15.5 GHz 1.7:1 - 18 GHz 1.8:1 - 22 GHz	1.2:1 - 3 GHz 1.3:1 - 8 GHz 1.4:1 - 12.4 GHz 1.5:1 - 15.5 GHz 1.7:1 - 18 GHz	1.2:1 - 3 GHz 1.3:1 - 8 GHz 1.4:1 - 12.4 GHz 1.5:1 - 15.5 GHz 1.7:1 - 18 GHz 1.8:1 - 22 GHz
Terminator Power Handling		-		1 W each, 3 W total	
RF Average Carry Power at 25°C	400 W - 3 GHz 250 W - 8 GHz	240 W - 3 GHz 150 W - 8 GHz 120 W - 12.4 GHz 110 W - 15.5 GHz 100 W - 18 GHz	240 W - 3 GHz 150 W - 8 GHz 120 W - 12.4 GHz 110 W - 15.5 GHz 100 W - 18 GHz 60 W - 22 GHz	240 W - 3 GHz 150 W - 8 GHz 120 W - 12.4 GHz 110 W - 15.5 GHz 100 W - 18 GHz	240 W - 3 GHz 150 W - 8 GHz 120 W - 12.4 GHz 110 W - 15.5 GHz 100 W - 18 GHz 60 W - 22 GHz
Expected Life (operations)	2 million	2 million	2 million	2 million	2 million

PRELIMINARY DATA

	Specifications - Unterminated SP12T Switches		Specifications - Terminated SP12T Switches
Bandwidth	8 GHz	18 GHz	18 GHz
Characteristic Impedance	50 Ω	50 Ω	50 Ω
Connector Type	N-type	SMA	SMA
Operate Time	15 ms	15 ms	15 ms
Insertion Loss	0.5 dB - 3 GHz 1.0 dB - 8 GHz	0.2 dB - 3 GHz 0.4 dB - 8 GHz 0.6 dB - 12.4 GHz 0.7 dB - 15.5 GHz 0.8 dB - 18 GHz	0.2 dB - 3 GHz 0.4 dB - 8 GHz 0.6 dB - 12.4 GHz 0.7 dB - 15.5 GHz 0.8 dB - 18 GHz
Isolation	70 dB - 3 GHz 60 dB - 8 GHz	80 dB - 3 GHz 70 dB - 8 GHz 60 dB - 12.4 GHz 60 dB - 15.5 GHz 55 dB - 18 GHz	80 dB - 3 GHz 70 dB - 8 GHz 60 dB - 12.4 GHz 60 dB - 15.5 GHz 55 dB - 18 GHz
VSWR	1.35:1 - 3 GHz 1.7:1 - 8 GHz	1.2:1 - 3 GHz 1.4:1 - 8 GHz 1.6:1 - 12.4 GHz 1.7:1 - 15.5 GHz 1.8:1 - 18 GHz	1.2:1 - 3 GHz 1.4:1 - 8 GHz 1.6:1 - 12.4 GHz 1.7:1 - 15.5 GHz 1.8:1 - 18 GHz
Terminator Power Handling	-		1 W each, 3 W total
RF Average Carry Power at 25 °C	400 W - 3 GHz 250 W - 8 GHz	240 W - 3 GHz 150 W - 8 GHz 120 W - 12.4 GHz 110 W - 15.5 GHz 100 W - 18 GHz	240 W - 3 GHz 150 W - 8 GHz 120 W - 12.4 GHz 110 W - 15.5 GHz 100 W - 18 GHz
Expected Life (operations)	2 million	2 million	2 million

Mechanical Characteristics

40-890 - 1 to 6 chassis slots (depending upon the configuration)
3U PXI (CompactPCI card).

42-890 - 1 to 6 chassis slots (depending upon the configuration)
3U PXIe, compatible with PXIe hybrid slot.

3D models for all versions in a variety of popular file formats are available on request.

Connectors

40-890 - PXI bus via 32-bit P1/J1 backplane connector.

42-890 - PXIe bus via XJ3 and XJ4 backplane connectors.

Signals via front panel connectors as detailed in the table on page 1.

PXI & CompactPCI Compliance - 40-890

The module is compliant with the PXI Specification 2.2. Local Bus, Trigger Bus and Star Trigger are not implemented. Uses a 33 MHz 32-bit backplane interface.

PXIe Compliance - 42-890

The module is compliant with the PXIe Specification 1.0. Local Bus, Trigger Bus & Star Trigger are not implemented.

Safety & CE Compliance

All modules are fully CE compliant and meet applicable EU directives:

Low-voltage safety EN61010-1:2010,
EMC Immunity EN61326-1:2013,
Emissions EN55011:2009+A1:2010.

Operating/Storage Conditions

Operating Temperature:	0 °C to +55 °C
Humidity:	Up to 90 % non-condensing
Altitude:	5000 m
Storage Temperature:	-20 °C to +75 °C
Humidity:	Up to 90 % non-condensing
Altitude:	15000 m

Product Order Codes

PXI Flexible Microwave Module	40-890-XXX*
PXIe Flexible Microwave Module	42-890-XXX*

*XXX corresponds to a unique three digit suffix that will be assigned by the factory to a particular microwave switching module configuration, for example:

4x-890-001 = SP4T 40 GHz (2), SPDT 40 GHz (1) unterminated
 4x-890-002 = SP4T-T 40 GHz (2), SPDT 40 GHz (1) unterminated
 4x-890-003 = SP6T 26.5 GHz (2), SPDT 26.5 GHz (1) unterminated
 4x-890-004 = SP6T-T 26.5 GHz (2), SPDT 26.5 GHz (1) unterminated
 4x-890-005 = SP6T 40 GHz (2), SPDT 40 GHz (1) unterminated
 4x-890-006 = SP6T-T 40 GHz (2), SPDT 40 GHz (1) unterminated
 (4x- corresponds to the bus interface, 40- for PXI, 42- for PXIe).

Note: The above example part numbers represent only a small selection of the wide range of configurations available.

Product Customization

Pickering modules are designed and manufactured on our own flexible manufacturing lines, giving complete product control and enabling simple customization to meet very specific requirements.

Customization can include:

- Alternative switch types
- Mixture of switch types
- Alternative number of switches
- Different performance specifications

All customized products are given a unique part number, fully documented and may be ordered at any time in the future. Please contact your local sales office to discuss.

Support Products

Mating Connectors & Cabling

For connection accessories for the 4x-890 modules please refer to the [90-011D](#) RF Cable Assemblies data sheet where a complete list and documentation can be found, or refer to the Connection Solutions catalog.

Chassis Compatibility

The PXI versions of this module are compatible with the following chassis types:

- All chassis conforming to the 3U PXI and 3U Compact PCI (cPCI) specification
- Legacy and Hybrid Peripheral slots in a 3U PXI Express (PXIe) chassis
- Pickering Interfaces LXI or LXI/USB Modular Chassis

The PXIe versions of this module are compatible with the following chassis types:

- All chassis conforming to the 3U PXIe specification
- PXIe and Hybrid Peripheral slots in a 3U PXI Express (PXIe) chassis

Chassis Selection Guide

PXI and PXIe (with PXIe and/or Hybrid slots) Chassis from any Vendor:

- Mix our 1000+ PXI/PXIe switching & simulation modules with any vendor's PXI/PXIe instrumentation
- Embedded or remote Windows PC control
- Real-time Operating System Support
- High data bandwidths, especially with PXI Express
- Integrated module timing and synchronization



Pickering LXI or LXI/USB Modular Chassis Only accept our PXI Switching & Simulation Modules:

- Choose from 1000+ Pickering PXI Modules
- Ethernet or USB control enables remote operation
- Low-cost control from practically any controller
- LXI provides manual control via Web browsers
- Driverless software support
- Power sequencing immunity
- Ethernet provides chassis/controller voltage isolation
- Independence from Windows operating system



PRELIMINARY DATA

Connectivity Solutions

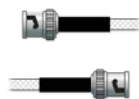
We provide a full range of supporting cable and connector solutions for all our switching products—20 connector families with 1200+ products. We offer everything from simple mating connectors to complex cables assemblies and terminal blocks. All assemblies are manufactured by Pickering and are guaranteed to mechanically and electrically mate to our modules. These accessories are detailed in Connector Accessories data sheets, where a complete list and documentation can be found for each accessory.



Connectors & Backshells



Multi-way Cable Assemblies



RF Cable Assemblies



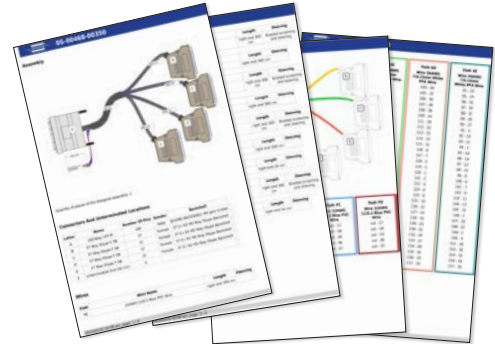
Breakouts



Connector Blocks

We also offer customized cabling and have a free online **Cable Design Tool** that can be used to create custom cable solutions for many applications.

- Fully supported on modern browsers and tablet operating systems.
- Built-in tutorials and videos allow you to get quickly up to speed.
- Store cable assemblies in the Cloud and develop over time.
- Each cable design has a downloadable PDF documentation file detailing all specifications



Start designing your custom cabling, go to pickeringtest.com/cdt

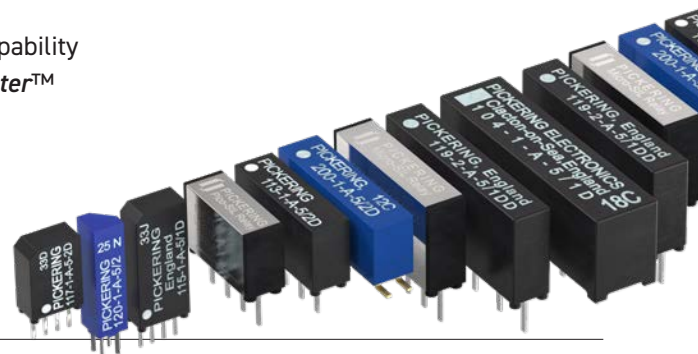
Mass Interconnect

We recommend the use of a mass interconnect solution when an Interchangeable Test Adapter (ITA) is required for PXI/LXI based test systems. Our modules are fully supported by Virginia Panel and MacPanel.

Pickering Reed Relays

We are the only switch provider with in-house reed relay manufacturing capability via our Relay Division. These instrument grade reed relays feature **SoftCenter™** technology, ensuring long service life and repeatable contact performance.

To learn more go to pickeringrelay.com



PRELIMINARY DATA

Programming

Pickering provide kernel, IVI and VISA (NI & Keysight) drivers which are compatible with all Microsoft supported versions of Windows and popular older versions.

For more information go to pickeringtest.com/os

The VISA driver support is provided for LabVIEW Real Time Operating Systems (Pharlap and Linux-RT). For other RTOS support contact Pickering. These drivers may be used with a variety of programming environments and applications including:

- Pickering Interfaces Switch Path Manager
- National Instruments products (LabVIEW, LabWindows/CVI, Switch Executive, MAX, TestStand, VeriStand, etc.)
- Microsoft Visual Studio products (Visual Basic, Visual C++)
- Programming Languages C, C++, C#, Python
- Keysight VEE and OpenTAP
- Mathworks MATLAB, Simulink
- Marvin ATEasy
- MTQ Testsolutions Tecap Test & Measurement Suite

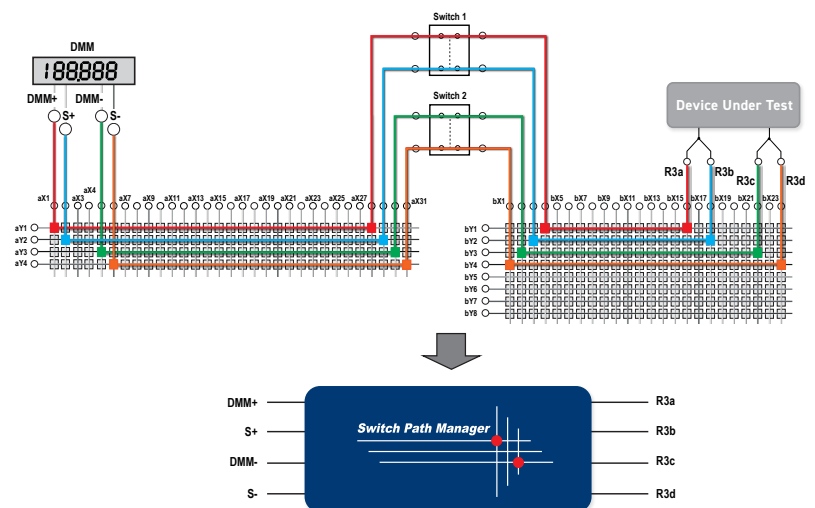
Drivers for popular Linux distributions are available, other environments are also supported, please contact Pickering with specific enquiries. We provide Soft Front Panels (SFPs) for our products for familiarity and manual control, as well as comprehensive documentation and example programs to help you develop test routines with ease.

To learn more about software drivers and development environments go to pickeringtest.com/software

Signal Routing Software

Our signal routing software, Switch Path Manager, automatically selects and energizes switch paths through Pickering switching systems. Signal routing is performed by simply defining test system endpoints to be connected together, greatly accelerating Test System software development.

To learn more go to pickeringtest.com/spm



PRELIMINARY DATA

Diagnostic Relay Test Tools

eBIRST Switching System Test Tools are designed specifically for our PXI, PCI or LXI products, these tools simplify switching system fault-finding by quickly testing the system and graphically identifying the faulty relay.

To learn more go to pickeringtest.com/ebirst



Three Year Warranty & Guaranteed Long-Term Support

All standard products manufactured by Pickering Interfaces are warranted against defective materials and workmanship for three years from the date of delivery to the original purchaser. Extended warranty and service agreements are available with various levels for your requirements. Although we offer a 3-year warranty as standard, we also include guaranteed long-term support—with a history of supporting our products for typically 15-20 years.

To learn more go to pickeringtest.com/support

Available Product Resources

We have a library of resources including success stories, product and support videos, articles and white papers as well as application-specific brochures to assist you. We have also published reference books on switching technology and the PXI and LXI standards.

To view, download or request any of our product resources go to pickeringtest.com/resources

