

Pickering - LXI Solutions Map

LOW FREQUENCY MATRICES

Features	High Density						High Power				Low Thermal EMF		Switched Guard Matrix						
	65-219	60-550	60-551	60-553	60-555	60-556	60-552	60-554	60-590	65-221	65-223	65-225	65-227	65-239	60-600	60-510	60-511	65-290	
Model Family	BIRST eBIRST						BIRST eBIRST				BIRST eBIRST				BIRST eBIRST		BIRST eBIRST		
Configurations	Between 10x40 & 50x40 (60x40 with no Y access) or between 10x20 & 50x20 (60x20 with no Y access)	1-Pole: Between 128x8 and 512x8	1-Pole: Between 128x4 and 512x4	1-Pole: Between 256x4 and 1024x4	2-Pole: Between 192x8 and 512x4	2-Pole: Between 192x4 and 512x4	1-Pole: Between 16x64 and 64x64	1-Pole: Between 64x16 and 256x16	40x20 or 40x40 (can be used as Dual 40x20), Includes two "S" buses with Isolation Switching	128x4 to 1536x4, 6 or 12 Analog Buses	64x8 to 768x8, 6 Analog Buses	32x16 to 384x16, 3 Analog Buses	32x32 to 192x32, 1 Analog Bus	Between 10x10 & 60x10 (60x10 with no Y access) or between 8x10 & 48x10 (48x10 with no Y access)	1-Pole: Single 16x16, 16x8, 16x4, 32x8, 32x4, 64x4 or Dual 16x8, 32x4	1-Pole: Single, 56x33, 44x33, 42x33, 28x33 or 14x33	1-Pole: Single, 56x33, 42x33, 28x33 or 14x33	Up to 10 ¹² Ω Isolation Resistance	Up to 768 Crosspoints via Plug-in Modules
Relay Type	Electro-mechanical						Pickering Instrumentation Ruthenium Reed				Electro-mechanical		Ruthenium Reed	Electro-mechanical	Ruthenium Reed				
Max Switch Voltage	220 VDC/125 VAC	300 VDC/250 VAC		150 VDC/100 VAC	300 VDC/250 VAC		300 VDC/250 VAC		150 VDC/100 VAC				125 VDC/250 VAC	400 VDC/250 VAC Cold Switching, 125 VDC/250 VAC Hot Switching	150 VDC/100 VAC	200 VDC/170 VAC	100 V		
Max Switch/Carry Current	2A						1A				8A	10A	0.5A Switch, 1A Carry	1A	250mA				
Max Switch Power	60W						20W				240W/2000VA	300W/2500VA	10W	60W	-				
Typical Operate Time	4 ms	3ms Crosspoint, 6ms Crosspoint + Isolation		4ms Crosspoint, 8ms Crosspoint + Isolation	3ms Crosspoint, 6ms Crosspoint + Isolation		3ms		2ms				10ms	10.5ms	0.5ms	3ms	<2ms		
Connector Type	15-pin D-type & 50-pin D-type	78-pin D-type		160-pin DIN 41612	78-pin D-type		78-pin D-type & 25-pin D-type	50-pin D-type & 25-pin D-type	200-pin LFH				20-pin GMCT	8-pin Power D-type	37-pin D-type & 25-pin D-type		MMCX		
Enclosure Size	2U High, Full Rack Width, 500mm Deep		1U High, Full Rack Width, 500mm Deep				1U High, Full Rack Width, 500mm Deep		2U High, Full Rack Width, 500mm Deep				2U High, Full Rack Width, 500mm Deep	1U High, Full Rack Width, 500mm Deep	2U High, Full Rack Width, 500mm Deep		2U High, Full Rack Width, 500mm Deep		

OPTICAL SWITCHING

Features	Fiber Optic Matrix	Fiber Optic Multiplexers		
	65-280	60-850	60-851	65-281
Model Family	BIRST eBIRST			
Configurations	Up to a Single 16x16 or Dual 5x5 1-Pole Matrix, or a 2x2 Insert/Bypass Switch via Plug-in Addition	Single 8-Channel, Dual 8-Channel, Single 16-Channel or Single 32-Channel	Single 8-Channel, Dual 4-Channel, Dual 8-Channel, Single 16-Channel, Single 32-Channel or Dual 2x2	Up to Single 32-Channel via Plug-in Addition
Switching Technology	MEMS (Micro Electro-Mechanical Systems)	MEMS (Micro Electro-Mechanical Systems)		
Wavelength	1240 nm to 1640 nm	1240 nm to 1640 nm	700 nm to 1700 nm	1240 nm to 1640 nm
Internal Fiber Type	SM 9/125	SM 9/125	MM 62.5/125	SM 9/125
Typical Operate Time	<1ms (Matrix <10ms)	1ms		<1ms
Cycle Rate	500/sec	500/sec		500/sec
Connector Type	FC/APC, FC/PC, SC/PC, ST, LC	FC/APC, FC/PC, SC/PC, MU, LC		SC, ST
Enclosure Size	2U High, Full Rack Width, 500mm Deep	1U High, Full Rack Width, 340mm Deep		2U High, Full Rack Width, 500mm Deep

HIGH VOLTAGE SWITCHES

Features	SPST Switch	Matrices			Multiplexer
	65-233	60-310	60-311	65-218	65-231
Model Family	BIRST eBIRST				
Configurations	Up to 300 SPST Switches by Plugin Addition	2-Pole: Single 100x2, 200x2 or 300x2	2-Pole: Single, Dual or Triple 75x4	1-Pole: Up to a Hex 50x4 or 300x4 by 50x4 Plugin Addition	1-Pole: Up to a 288 to 1 MUX by Plugin Addition
Relay Type	Tungsten Reed	High Voltage Rhodium Reed	Electro-mechanical	Electro-mechanical	Tungsten Reed
Max Switch Voltage	9kV	750VDC Working/1000VDC Typical Cold Switching, 500VDC Hot Switching	750VDC Continuous/1000VDC Pulse Cold Switching, 220VDC/250VAC Hot Switching	Up to 1000VDC	9kV
Max Switch/Carry Current	0.25A	1A	2A Cold Switching, 1A Hot Switching	2A Switch, 2A Carry	0.25A
Max Switch Power	50W	10W	30W Hot Switching	60W	50W
Typical Operate Time	3ms	0.5ms	3ms Crosspoint, 6ms Crosspoint + Isolation	<5ms	3ms
Connector Type	REDEL S Series (51-Pin) HV	50-pin High Voltage D-type & 9-pin High Voltage D-type			REDEL S Series (51-Pin) HV
Enclosure Size	2U High, Full Rack Width, 500mm Deep	2U High, Full Rack Width, 500mm Deep	3U High, Full Rack Width, 500mm Deep	2U High, Full Rack Width, 500mm Deep	2U High, Full Rack Width, 500mm Deep

RF & MICROWAVE MATRICES

Features	Video Matrix	High Frequency Matrix	Wideband Matrix	RF Matrix - 1 GHz			RF Matrix - 2.4GHz			Microwave Matrix	
	60-711	60-760	65-110A	60-730	60-731	60-732	60-770	60-771	60-772	60-750	60-751
Model Family	BIRST eBIRST										
Configurations	Single or Dual 24x8 (Software Configurable)	Single or Dual 24x8 (Software Configurable)	RF Matrix with Sizes Between 24x8 and 104x8 or Between 16x16 and 104x16	32x16 Terminated, 24x16 Terminated, 16x16 Terminated	32x8 Terminated, 24x8 Terminated, 16x8 Terminated, 8x8 Terminated	32x4 Terminated, 24x4 Terminated, 16x4 Terminated, 8x4 Terminated	32x16 Terminated, 24x16 Terminated, 16x16 Terminated	32x8 Terminated, 24x8 Terminated, 16x8 Terminated, 8x8 Terminated	32x4 Terminated, 24x4 Terminated, 16x4 Terminated, 8x4 Terminated	Single or Dual 3x3, Single or Dual 4x4, Single 8x4, Optional Loop-thru and/or Terminations	Single 3x3, Single 4x4, Optional Loop-thru and/or Terminations
Impedance	75 Ω	50 Ω	50 Ω	75 Ω			50 Ω			50 Ω	50 Ω
Frequency Range	DC to 25 MHz	DC to 50 MHz (Useable to 100 MHz)	200 MHz Useable to 500 MHz	DC to 1 GHz (Useable to 1.5 GHz)			DC to 2.4 GHz			DC to 10 GHz	DC to 18 GHz
Insertion Loss	<0.75 dB	<1 dB	<1 dB to 50 MHz	<2.5 dB			<2.5 dB			<2.5 dB	<3 dB
Max Power	30W	10W	0.25W (Limited by Termination Resistors)	0.125W (Limited by Termination Resistors)			0.5W (Limited by Termination Resistors)			100W (1W for Termination Resistors)	
Typical Operate Time	3ms	3ms	5ms	3ms			3ms			18ms	
Relay Type	Electro-mechanical	Electro-mechanical	Electro-mechanical	Electro-mechanical			Electro-mechanical			Microwave Relay	
Connector Type	SMB, MCX or BNC	SMB or BNC	SMB	F-type			SMA			SMA	
Enclosure Size	1U High, Full Rack Width, 340mm Deep or 2U High, Full Rack Width, 500mm Deep	1U High, Full Rack Width, 340mm Deep or 2U High, Full Rack Width, 500mm Deep	4U High, Full Rack Width, 500mm Deep	6U High, Full Rack Width, 500mm Deep	3U High, Full Rack Width, 500mm Deep	2U or 3U High, Full Rack Width, 500mm Deep	6U High, Full Rack Width, 500mm Deep	3U High, Full Rack Width, 500mm Deep	2U High, Full Rack Width, 500mm Deep	2U High, Full Rack Width, 500mm Deep	

RF & MICROWAVE MULTIPLEXERS

Features	Video MUX	RF MUX - High Isolation	Microwave MUX						Microwave Switch	
	60-721A	60-722	60-800	60-801	60-802	60-803	60-820	60-890	60-891	
Model Family	BIRST eBIRST									
Configurations	24, 48, 72, 96, 120 or 144-Channel MUX with Terminations	Single or Dual 12-Channel MUX	6-Channel Untermated MUX with up to 16 Banks	6-Channel Terminated MUX with up to 14 Banks	4-Channel MUX with up to 16 Banks	4-Channel MUX with up to 16 Banks	4-Channel Untermated MUX with up to 16 Banks	4-Channel Terminated MUX with up to 14 Banks	Including Mixed Configurations of Microwave Switches	
Impedance	75 Ω	75 Ω	50 Ω	50 Ω	50 Ω	50 Ω	50 Ω	75 Ω	50 Ω, 75 Ω or Mixed	
Frequency Range	1 GHz	1 GHz	18 GHz, 26.5 GHz, 40 GHz, 50 GHz or 67 GHz	6 GHz, 18 GHz, 26.5 GHz or 40 GHz	0.2 dB (up to 3 GHz)	18 GHz, 26.5 GHz, 40 GHz, 50 GHz or 67 GHz	2.5 GHz			
Insertion Loss	3.5 dB	1.3 dB	0.5 dB (18 GHz), 1.7 dB (67 GHz)	0.2 dB (up to 3 GHz)	0.5 dB (18 GHz), 1.7 dB (67 GHz)	0.5 dB (18 GHz), 1.7 dB (67 GHz)	0.3 dB			
Max Power	0.5W (Limited by Termination Resistors)	400W	100W/1W per Termination (18 GHz), 1W (67 GHz)	250W (up to 3 GHz)	100W/1W per Termination (18 GHz), 1W (67 GHz)	100W/1W per Termination (18 GHz), 1W (67 GHz)	400W (up to 1 GHz)	Build Dependent		
Typical Operate Time	5ms	20ms	18ms	13ms	18ms	18ms	18ms			
Relay Type	Electro-mechanical	Microwave Relay	Microwave Relay	Microwave Relay	Microwave Relay	Microwave Relay	Microwave Relay			
Connector Type	F-Type	F-Type	SMA, SMA-2.9, SMA-2.4 or SMA-1.85	SMA or SMA-2.9 (40 GHz)	SMA, SMA-2.9, SMA-2.4 or SMA-1.85	SMA, SMA-2.9, SMA-2.4 or SMA-1.85	DIN 1.6/5.6	Various		
Enclosure Size	2U or 3U High, Full Rack Width, 500mm Deep	2U High, Full Rack Width, 500mm Deep	2U or 3U High, Full Rack Width, 500mm Deep	1U or 2U High, Full Rack Width, 500mm Deep	2U or 3U High, Full Rack Width, 500mm Deep	2U or 3U High, Full Rack Width, 500mm Deep	2U High, Full Rack Width, 500mm Deep	From 1U, Application Specific		

SIMULATION TOOL

Features	LXI Simulation Tool
	<ul style="list-style-type: none"> Simulates All Pickering PXI & LXI Switching Products More than 1000 Switching Product Configurations Available Develop Code Independently from the Application Hardware
Model Family	60-901
Capacity	Over 18 Simulated User Slots Available
Display	Dual Function LED Matrix shows IP Address and Switch Status
LAN Interface	RJ45 Connector
Connection Speed	100baseT
Power Supply	5V 1A DC In-line Power Supply Supplied
Enclosure Size	Width 94mm, Height 76mm, Depth 32mm

Pickering - LXI Solutions Map

Ethernet Controlled Switching for Test, Measurement and Data Acquisition

- General purpose
- Matrices
- Multiplexers
- 150+ Switching systems
- Chassis support for 1000+ modular solutions
- Custom designed and turnkey solutions
- Flexible microwave switch platforms
- Connectivity & Cables



LAN eXTensions for Instrumentation

Pickering's LXI Solutions Map is a single sheet reference to our range of LXI Switch Systems and LXI Modular Solutions, including their basic specifications and cabling options.



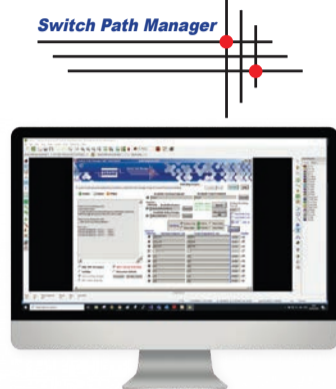
SWITCHING & SIMULATION SOLUTIONS FROM PICKERING INTERFACES

About Us

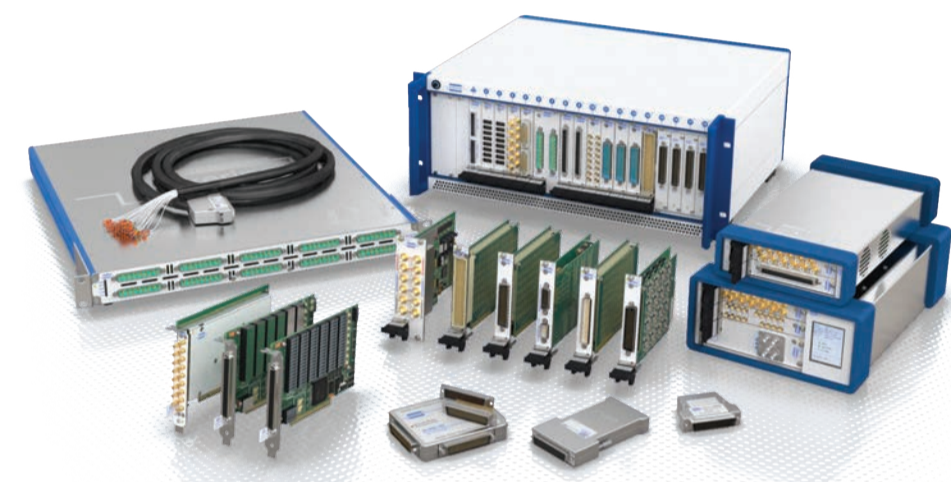
At Pickering, we understand that to design, deploy and sustain your test system can be challenging, and we believe in offering you the products and services to help your engineering team get the job done on time and budget. Since 1988, our core focus has and continues to be high-density modular switching and simulation systems for PXI, PCI, LXI and USB applications.

We offer the industry's deepest portfolio (over 1,000 products in PXI alone), but the value doesn't end there. Take a look at the benefits of working with Pickering:

- When our product range doesn't fit your application, we have the agility and expertise needed to develop a system to your specifications, often with little to no engineering cost.
- We can also help accelerate software development and test time by offering tools to help with your programming efforts. These include our Switch Path Manager signal routing software that simplifies coding of switching systems, and simulation tools that allow development to begin before your hardware is received.



- We know that maximizing uptime of your test system is important — with our BIRST and eBIRST diagnostic test tools, you can identify faulty or damaged relays in a matter of minutes.
- Our products have a history of longevity, typically 15–20 years, which is critical to many of our customers. All products manufactured by us come with a standard 3-year warranty* and include guaranteed long-term support.
- Our technical staff can address any hardware or software problems you may encounter with Pickering Products. We have multiple offices located around the world and provide access to support engineers that have many years' experience in functional test and are committed to responding in a timely fashion.
- All module and cabling manufacturing processes are done within our two factories on flexible manufacturing lines allowing us to offer simple customization to meet your needs. The chances are good that we can enhance your engineering team's effectiveness with our collaborative, creative and agile culture.



Learn more: pickeringtest.com/whypickering
Note*: Currently the 110 GHz products come with a 1-year Warranty

TURNKEY LXI ETHERNET MICROWAVE SWITCH & SIGNAL ROUTING SUBSYSTEMS

60-891 Integrated Solutions

Do you have limited engineering resources or demand performance that can only be delivered with a fully integrated solution?

We have the expertise and ability to turn your high-level requirements for a microwave switching subsystem into the fully integrated solution that you need. You provide us with your unique configuration and specification, and our engineers will work closely with you to provide a well-defined, fully integrated and supportable end product that will satisfy your microwave testing needs.

- Designed and manufactured to your requirements by our switching experts
- **Compact rack-mount designs** incorporating an industry-standard LXI/Ethernet interface
- **Bandwidths from DC to 110 GHz @ 50 Ω**, with terminated or unterminated options, and **bandwidths up to 2.5 GHz @ 75 Ω**
- **Fast turnaround**, cost-effective Multiplexer, Matrix and complex routing solutions
- **Fully documented** to ensure performance repeatability in subsequent builds/orders
- **Familiar programming environment** using Pickering's standard switch API accelerates software integration
- Pickering can turn your custom-design into an 'off-the-shelf' product with **15+ years support**

For complex subsystems, our **Switch Path Manager** signal routing software can be used to significantly reduce integration time. Another important tool we offer is the **LXI hardware simulator**, this tool allows you to develop and test the system software independently from your application hardware.

Visit pickeringtest.com/turnkey to learn more.

Example Turnkey Microwave Switching Systems



12x12 Microwave Matrix

SP36T Microwave Multiplexer

LXI ETHERNET/USB MODULAR CHASSIS & ASSOCIATED MODULES

LXI USB
LXI/USB Modular Chassis:
2-Slot (60-104), 4-Slot (60-105) & 6-Slot (60-106)

7-Slot LXI/USB Modular Chassis (60-102D)

18-Slot LXI/USB Modular Chassis (60-103D)

In our PXI switching range, these include general purpose relays, matrices, multiplexers, RF switches and special switching functions such as fault insertion and serial communications. In our simulation range, these include a selection of modules such as programmable resistors, digital I/O, power supplies, battery simulators and attenuators.

For example, our 18-slot chassis can be fitted with a combination of high density relay modules, matrix modules, multiplexers, power relays, microwave relays and programmable resistors as shown above. Giving you enormous flexibility to define a switching/T&M system that exactly meets your requirements.

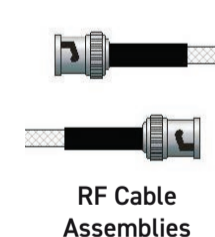
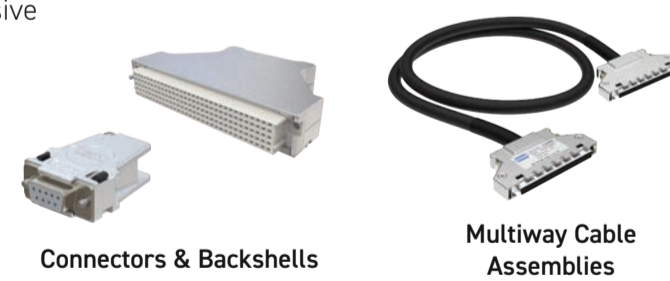
For more information go to: pickeringtest.com/lxi

CONNECTIVITY

Cables & Connectors

- To support our products we offer a comprehensive range of cable & connector solutions:
- 20+ connector product families
 - Over 1000 individual products
 - Customized cabling

For more information visit: pickeringtest.com/cables-connectors

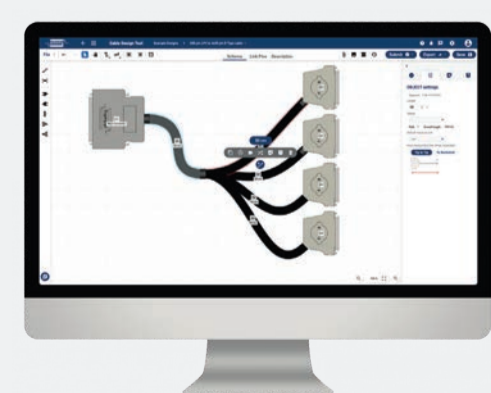


Cable Design Tool

Our Cable Design Tool is a free online tool that allows you to define a cable assembly to exactly meet your requirements.

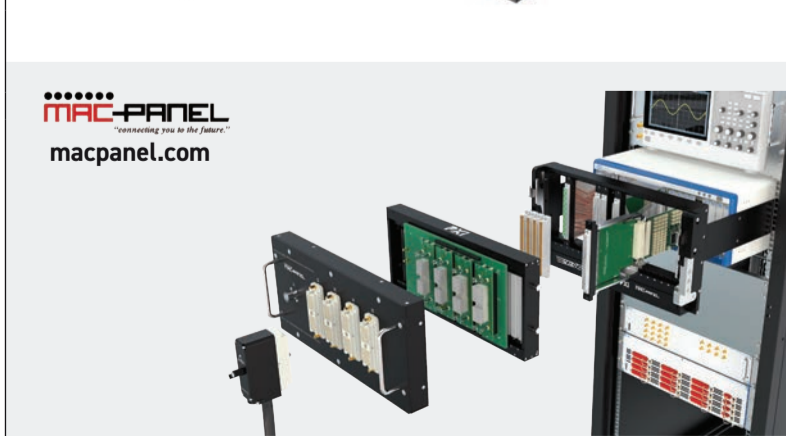
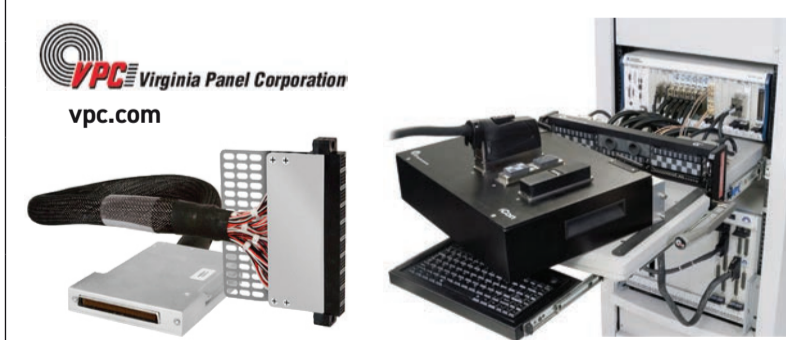
- Graphical design of customized cable assemblies
- Built-in library of standard cable sets can be used as the basis for customization, or cables can be defined from scratch
- The ability to store cable assemblies in the Cloud and develop them over time
- Each cable design has a PDF documentation file detailing all the specifications
- Allows detailed design including: connector types, wire type, pin definitions, pin & cable labelling, cable bundling, length selection, sleeving, comments, etc.
- Add your own connectors and wires
- Fully supported on major tablet operating systems

For more information visit: pickeringtest.com/cdt



Mass Interconnect

We recommend the use of a mass interconnect solution when an Interchangeable Test Adapter (ITA) is required to be used with a PXI based test system. The complete range of our PXI modules are fully supported by both VPC and MacPanel mass interconnect solutions.



FLEXIBLE LXI ETHERNET MICROWAVE SWITCH PLATFORMS

60-890 Microwave Switch

These flexible, configurable LXI microwave switch platforms may be specified with a mix of high-performance microwave relays up to 110 GHz bandwidth with 50 Ω impedance or up to 2.5 GHz with 75 Ω and a range of connector types.

- Available relays include Transfer, SPDT, SP4T, SP6T, SP8T, SP10T and SP12T in unterminated and terminated versions
- Flexibility in front-panel relay positioning helps minimize external interconnecting cable lengths
- **LED indication** of energized switch paths
- Compact **1U to 6U form factors**. An example is our LXI Microwave Multiplexers, offering the highest density configuration possible, packaging up to 16 multiplexers in a 2U high rack-mount enclosure
- Excellent RF and repeatability characteristics

Example 60-890 Switches



Microwave Switch Design Tool

There are times when a standard microwave switching product is not quite what you want. You may need a variety of switches in one unit that are not available in Pickering's standard range. A custom switching product can be designed using our **free online Microwave Switch Design Tool**.

With this tool, you can design your custom LXI switch assembly by using our built-in library of standard microwave switches. Once completed and approved, our engineers will generate a 3D model and provide a competitive quote ready for manufacture. We are excited about the features that this tool offers, including:

- Graphical design of customized LXI microwave assemblies including switches, LEDs and labels
- Built-in library of standard microwave switches and LXI boxes to be used as the basis for customization
- The ability to store assemblies in the Cloud and develop over time
- Each customized design can be exported as a pdf file detailing the specification
- Detailed design characteristics including the specific switches selected are provided
- Runs on modern browsers & supported on major tablet operating systems
- Built-in tutorials allow you to get quickly up to speed



To learn more or give the tool a try, go to: pickeringtest.com/msdt



Example Turnkey Microwave Switch Solutions from Pickering

Switching | Simulation | Programmable Resistors | Custom Design | Software | Reed Relays | Connectivity & Cables

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