

2x SP6T Electromechanical Switch Matrix, Terminated, DC to 40 GHz, Ethernet & USB control, 2.92mm Female Type



Electromechanical Relay Switch Matrices Technical Data Sheet

SML-2P12T-MK40G-UE-01

Features

- Two of Single Pole Six Throw (2xSP6T) with Terminated Electromechanical Switch
- DC to 40 GHz Frequency Range
- 2M Lifecycle Rating
- Insertion Loss less than 0.9 dB
- VSWR as low as 1.9:1 max
- Rugged Design meets Mil-STD-202 Test Conditions
- 220 Volt AC, 50 Hz
- USB or Ethernet for DC Command Control
- -25°C to +65°C Operating Temperature
- Up to 5 Watt Average Power Handling
- 50 Ohm Design

Applications

- Aerospace & Defense
- Test & Measurement
- Microwave Radio Systems
- Military & Commercial Communication Systems
- Research & Development
- Wireless Communications
- Enterprise
- IoT

Description

The SML-2P12T-MK40G-UE-01 is a switch matrix consisting of two Single Pole Six Throw (2xSP6T) electromechanical relays, designed for a wide frequency range from DC to 40 GHz. It handles up to 5W of average power and operates on a break-before-make basis. Rated for 2.5 million switching cycles, this switch features a latching actuator that maintains its position without a constant voltage supply. It delivers exceptional RF performance, with a typical insertion loss of 0.9 dB and isolation greater than 55 dB. The switch requires an AC 110V~265V power input and operates within a temperature range of -25°C to +65°C. The switch matrix is constructed in a compact, rugged metal case with all 2.92mm (f) RF connectors on the front panel. The switches are controlled via USB or Ethernet, allowing control directly from a PC, or remotely over a network. Full software support is provided, including our user-friendly GUI application for Windows and a full API with programming instructions for Windows and Linux environments (both 32-bit and 64-bit systems).

Electrical Specifications

Description	Minimum	Typical	Maximum	Units
Frequency Range	DC		40	GHz
Impedance		50		Ohms
VSWR			1.90:1	
Insertion Loss			0.9	dB
Isolation	55			dB
RF Input Power (CW) ¹			5	Watts
Switching Time			15	ms
Rated Voltage	110	220	265	Volts

1. Maximum power for any connected through path as stated; maximum power into any internal termination is 1W per port.

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Performance by Frequency

Description	F1	F2	F3	F4	F5	Units
Frequency Range	DC to 6	6 to 12.4	12.4 to 18	18 to 26.5	26.5 to 40	GHz
VSWR, Max	1.25	1.35	1.45	1.70	1.90	
Insertion Loss, Max	0.40	0.50	0.60	0.70	0.90	dB
Isolation, Min	80	70	65	60	55	dB
Input Power, Max (CW)	120	90	80	14	5	Watts

Electrical Specification Notes:

Average Power and Actuating Current values at 25°C.

Mechanical Specifications

Size

Length	9.01 in [229mm]
Width/Diameter	11.77 in [299mm]
Height	3.46 in [88mm]
Operating Life	2,500,000 Cycles

Connectors

RF Connector Type	2.92mm Female
RF Connector Specification	MIL C 39012
Control Connector	USB or Ethernet

Environmental Specifications

Temperature

Operating Range	-25 to +65 deg C
Storage Range	-55 to +85 deg C

Construction

Shock	Splashproof
Vibration	MIL-STD-202, Method 213B, Cond.C

Shock

MIL-STD-202, Method 204D, Cond.D

Vibration

Environmental Specification Notes:
Environmental specifications are guaranteed but not tested.

Compliance Certifications

RoHS Compliant
REACH Compliant

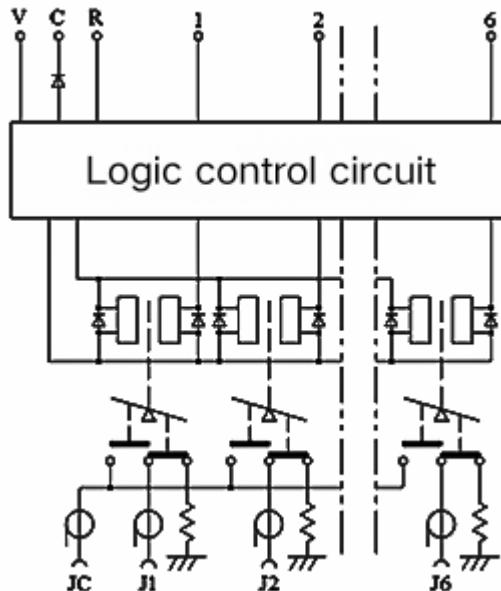
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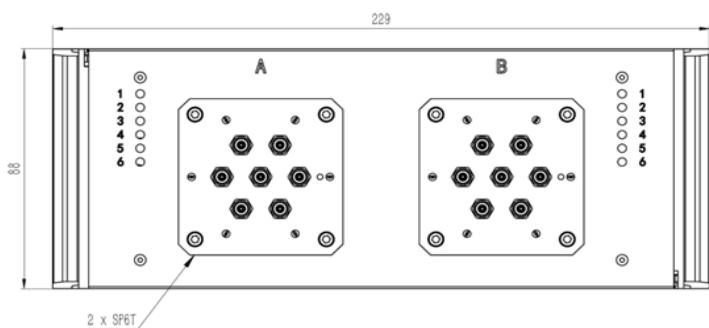
Schematic & Truth Table/ PIN Assignment:



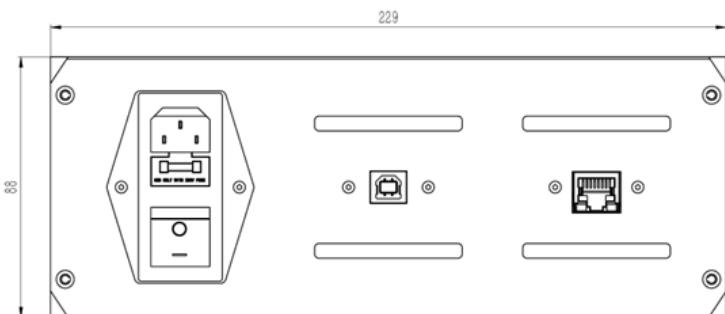
CONNECTIONS:

220VAC IN	IEC C14 Inlet
RF Switch (All ports)	2.92mm female
USB	USB type B receptacle
Ethernet	RJ45 socket

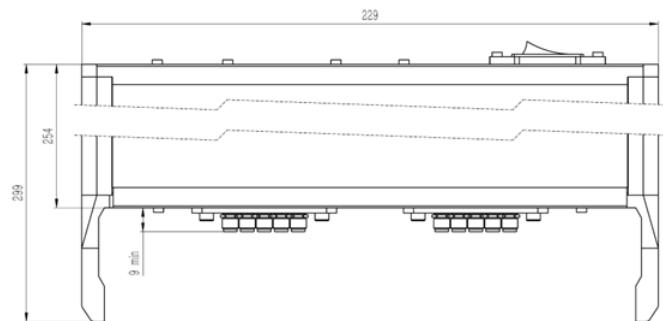
Outline Drawing:



FRONT VIEW



REAR VIEW



TOP VIEW

Dimensions are in mm

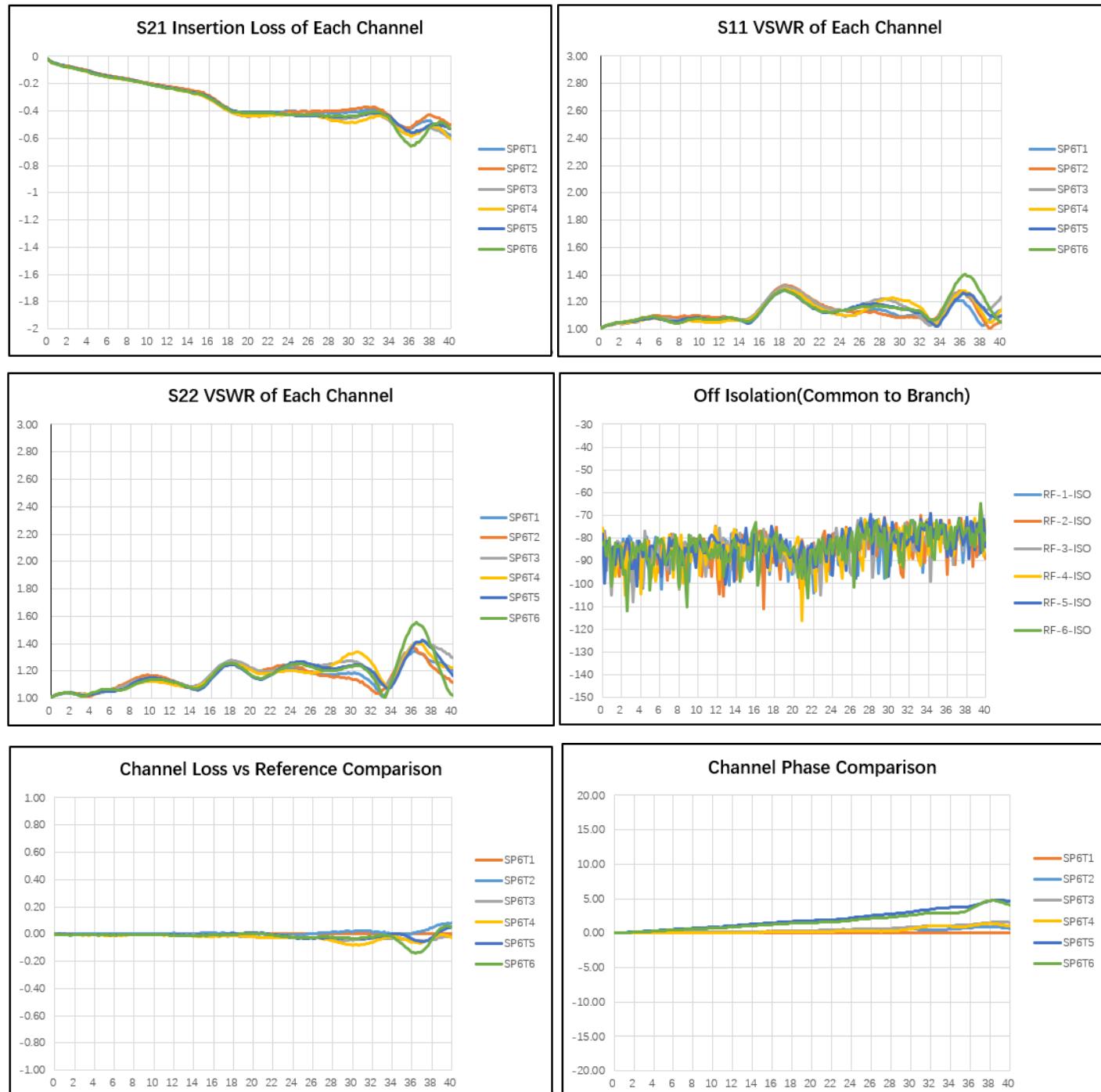
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Typical Performance Data:



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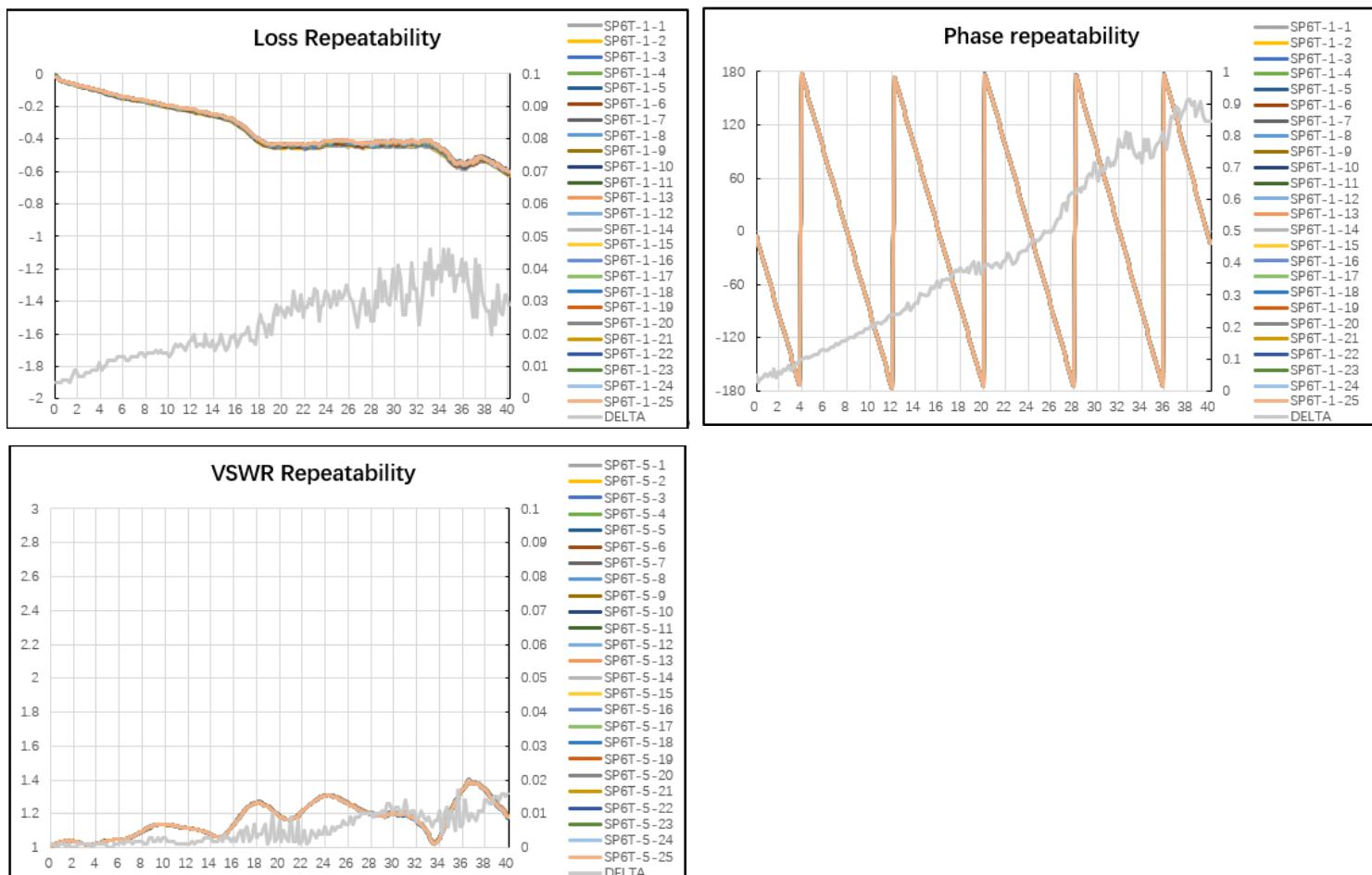


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Typical Performance Data:

RF Parameter Repeatability



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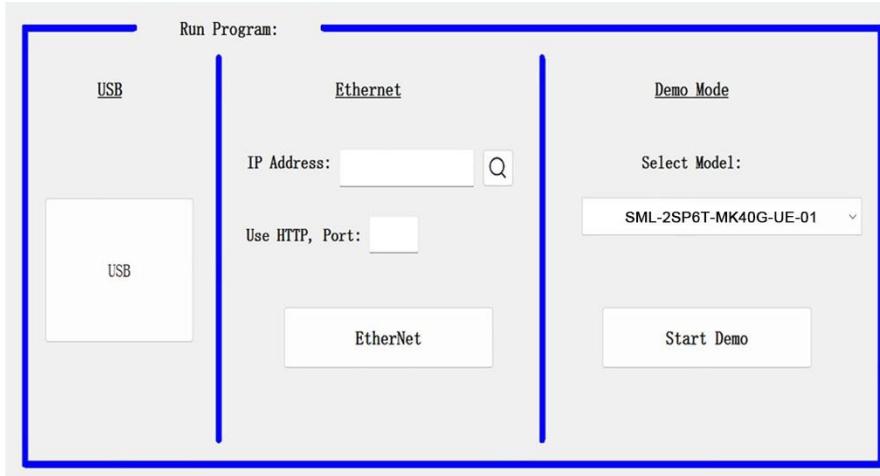


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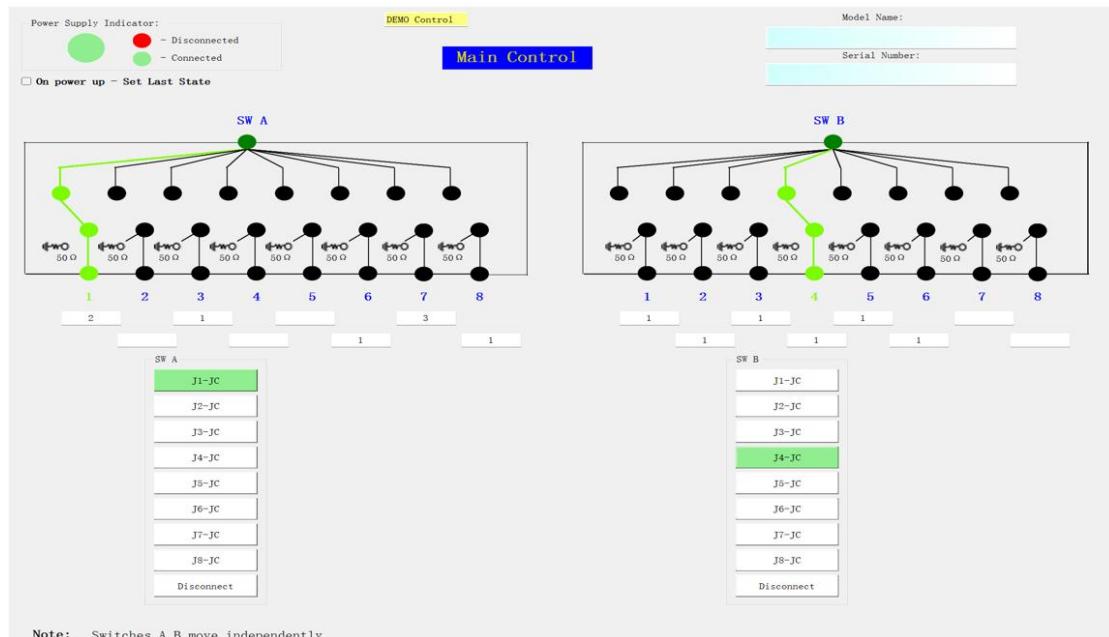
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GRAPHICAL USER INTERFACE (GUI) FOR WINDOWS - KEY FEATURES:

- Connect via USB or Ethernet
- Run GUI in “demo mode” to evaluate software without a hardware connection



- View and set switch states at the click of a button
- Configure and run timed switching sequences
- Set start-up switch state
- Configure Ethernet IP settings



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APPLICATION PROGRAMMING INTERFACE (API) FOR WINDOWS

Default Parameters for Device Serial Port Communication		Default Parameters for Device Ethernet Communication	
Baud Rate	115200	Mode	TCP Server
Data Bits	8	IP Address	192.168.0.7
Parity	None	Destination Port	20108
Stop Bits	1		

I. Query Commands	
Command Format	Command Description
MN	Query Model Number
SN	Query Serial Number
FV	Query Firmware Version
II. Switch Control Commands	
Command Format	SET: SWx: Jn
Description	Close the RF channel Jn-JC of Switch x.
Parameters	x: Switch number
	n: RF port number
Example	SET: SWA: J1
Success Response	SWA: J1
Command Format	SET: SWx: RST
Description	Reset (open) all RF channels of Switch x. (Applicable only to SPhT switch type)
Parameters	x: Switch number
Example	SET: SWA: RST
Success Response	SWA: RST
III. Others	
Error Command Response	Error Command

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ORDERING INFORMATION

Please contact ZOMWAVE's sales for price and availability: sales@zomwave.com

Model	Description
SML-2SP6T-MK40G-UE-01	USB & Ethernet controlled 2xSP6T switch matrix

Included Accessories	Description
	220-240V AC Power Cord
See Below	AC Power Cord (Select one power cord from below with each Switch Matrix box)
	A USB 2.0 A-to-B cable for data transfer and charging
	Ethernet cable: RJ45(Male) to RJ45(Male) Cat 5E cable

AC Power Cords	Description
	Power Cord for United States
	Power Cord for Europe
	Power Cord for United Kingdom
	Power Cord for Australia and China
	Power Cord for Israel

2. If you need a Power cord for a country not listed please contact sales@zomwave.com