

1x SP8T Electromechanical Switch Matrix, Terminated DC to 6 GHz, Ethernet & USB control, SMA Female Type



Electromechanical Relay Switch Matrices Technical Data Sheet

SML-1P08T-MA06G-UE-01

Features

- One of Single Pole Eight Throw (SP8T) Terminated Electromechanical Switch
- DC to 6 GHz Frequency Range
- 2M Lifecycle Rating
- Insertion Loss 0.3 dB typ
- VSWR as low as 1.3:1 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 32Watt 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-1P08T-MA06G-UE-01 is a Single Pole Eight Throw (SP8T) electromechanical relay switch matrix designed for a wide frequency range from DC to 6 GHz. It handles up to 32W of average power and operates on a break-before-make basis. Rated for 2 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 0.3 dB and isolation greater than 70 dB.

The switch requires a 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 SMA (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		6	GHz
Impedance		50		Ohms
VSWR			1.30:1	
Insertion Loss			0.3	dB
Isolation	70			dB
RF Input Power (CW) ¹			32	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 3	3 to 6				GHz
VSWR, Max	1.20:1	1.30:1				
Insertion Loss, Max	0.20	0.30				dB
Isolation, Min	80	70				dB
Input Power, Max (CW)	55	32				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	2,000,000 Cycles

Connectors

RF Connector Type	SMA 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

Environmental Specification Notes:

Environmental specifications are guaranteed but not tested.

Compliance Certifications

RoHS Compliant
REACH Compliant

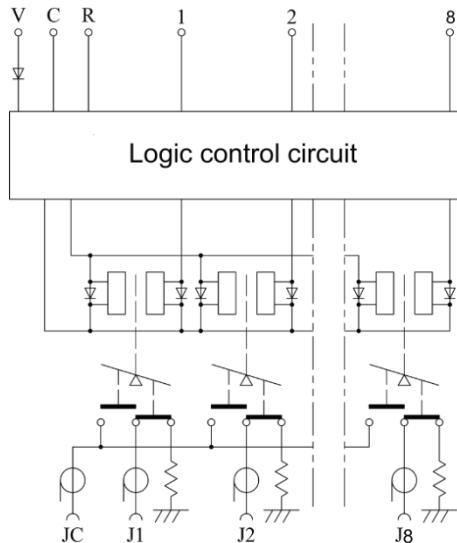
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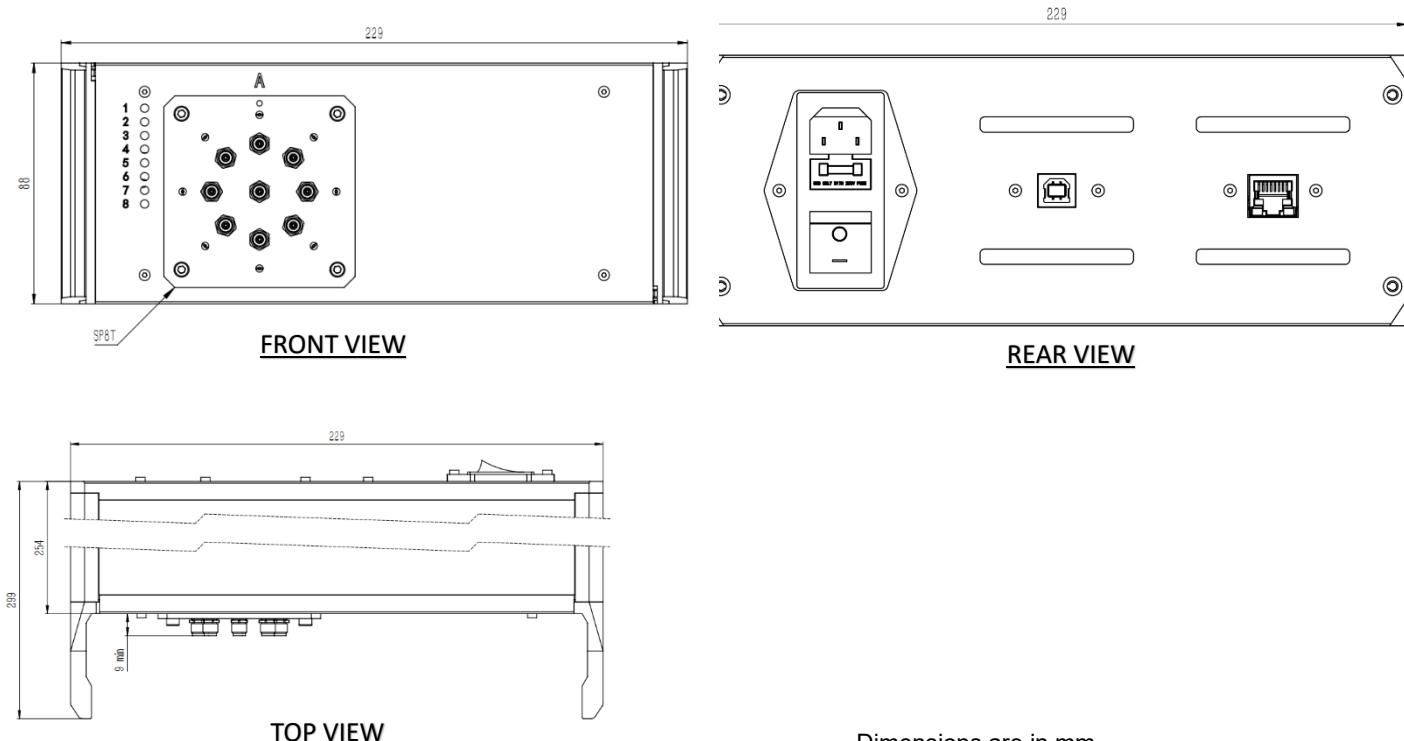
Schematic & Truth Table/ PIN Assignment:



CONNECTIONS:

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

Outline Drawing:



Dimensions are in mm

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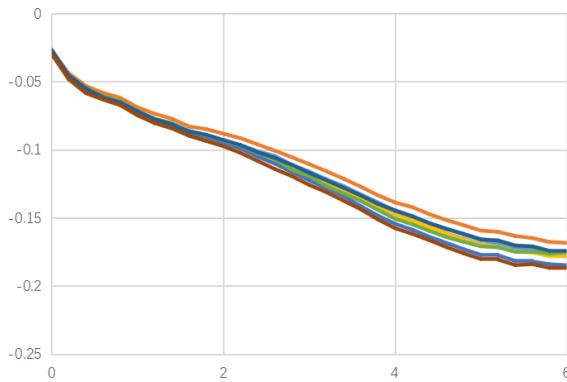


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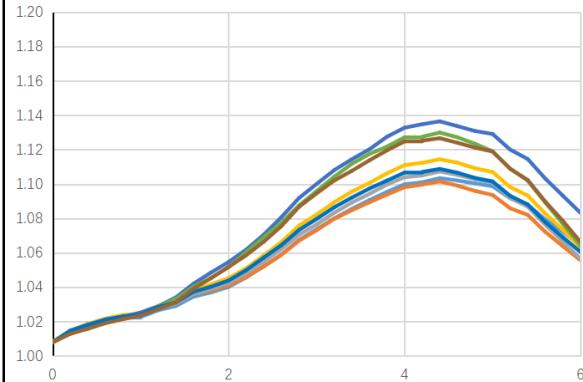
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Typical Performance Data:

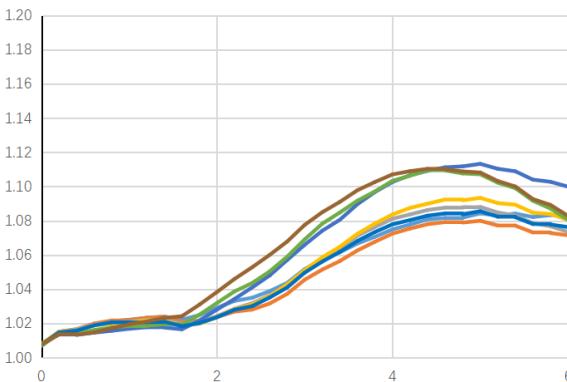
S21 Insertion Loss of Each Channel



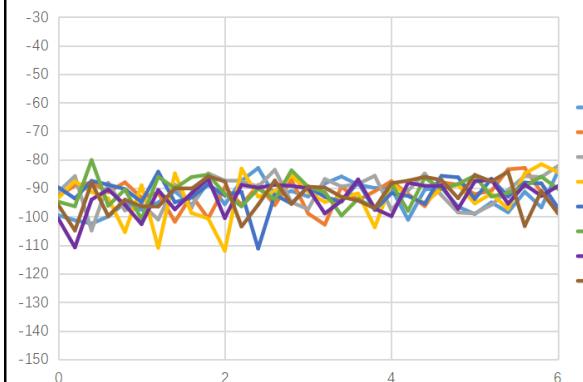
S11 VSWR of Each Channel



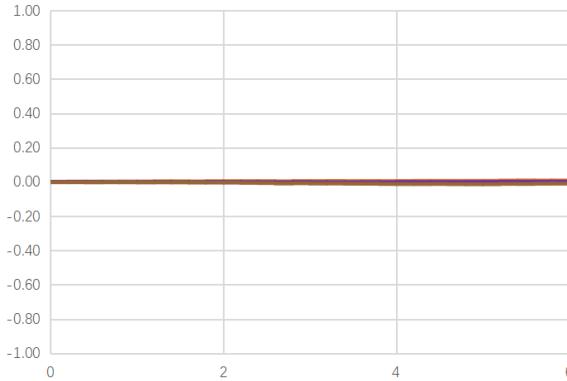
S22 VSWR of Each Channel



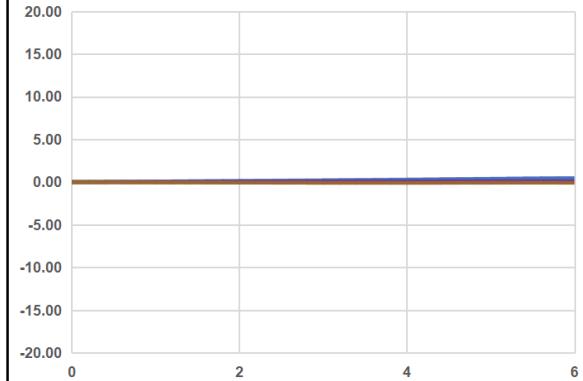
Off Isolation(Common to Branch)



Channel Loss vs Reference Comparison



Channel Phase Summary



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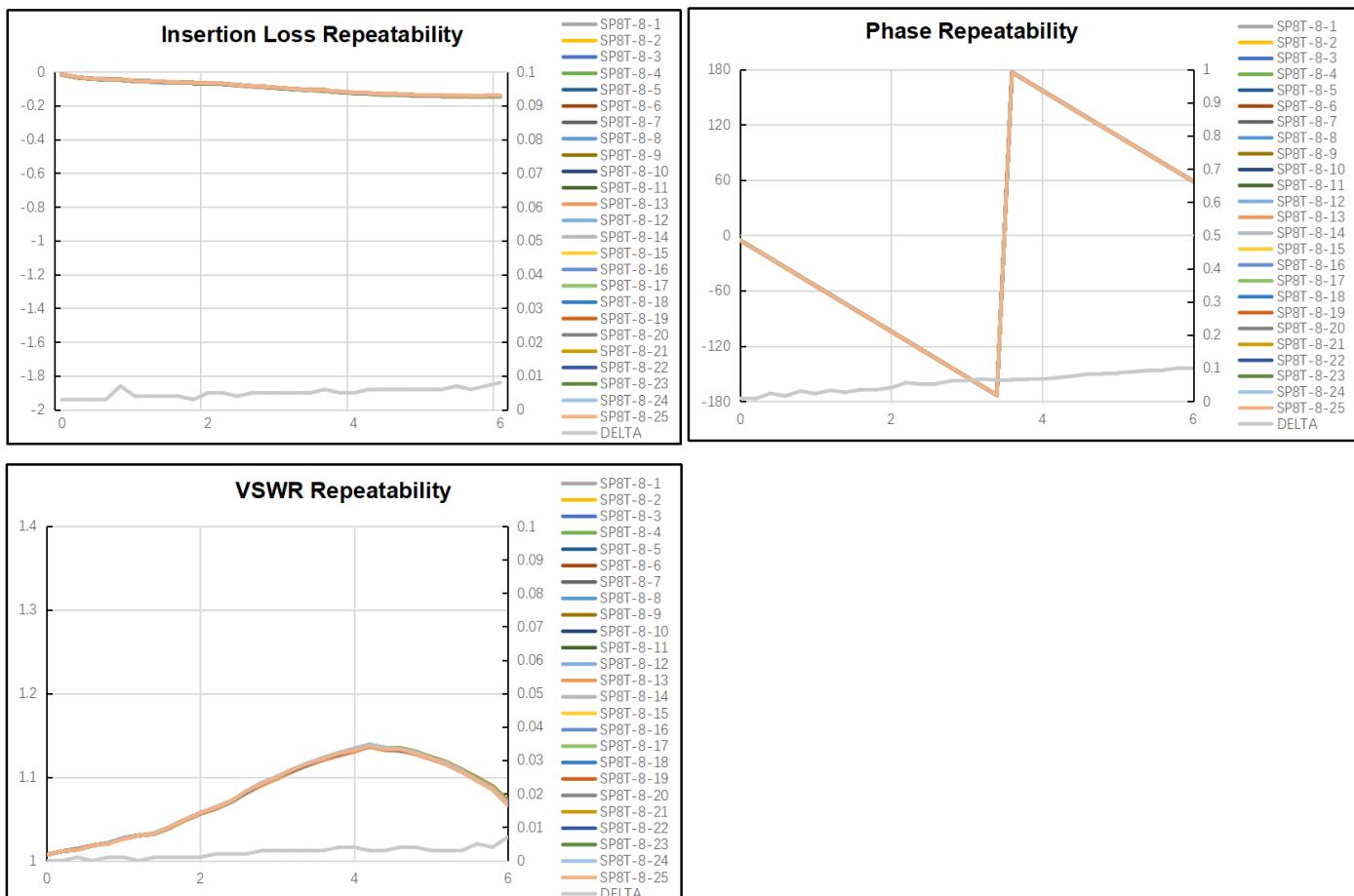


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Typical Performance Data:

RF Parameter Repeatability



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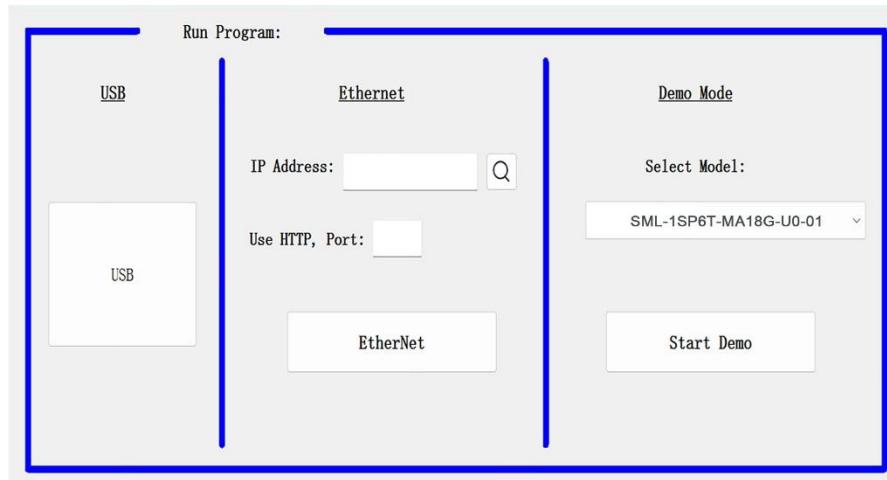


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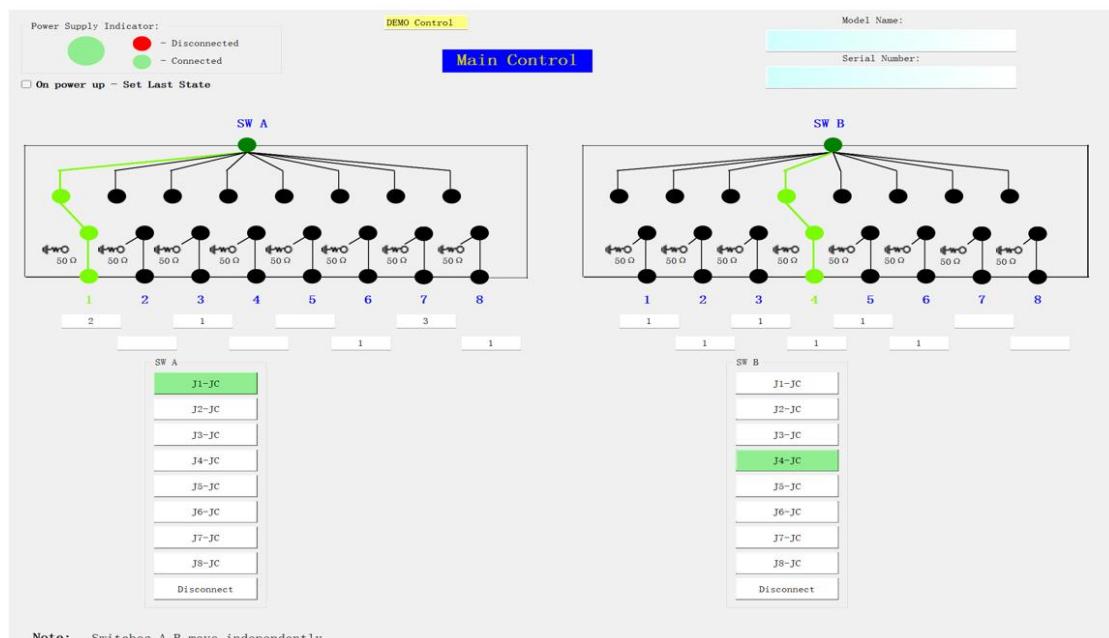
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GRAPHICAL USER INTERFACE (GUI) FOR WINDOWS - KEY FEATURES:

- 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	
Baud Rate	115200
Data Bits	8
Parity	None
Stop Bits	1

Default Parameters for Device Ethernet Communication	
Mode	TCP Server
IP Address	192.168.0.7
Destination Port	20108

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-1P08T-MA06G-UE-01	USB & Ethernet controlled SP8T 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