



SP4T NO DC to 40 GHz Electro-Mechanical Relay
Switch, Up To 10W, 28V, 2M Lifecycles, 2.92mm

Electromechanical Relay Switches Technical Data Sheet

PE71S6431

Features

- Single Pole Four Throw Electromechanical Relay Switch
- DC to 40 GHz Frequency Range
- Normally Open Actuator
- 2M Lifecycle Rating
- Insertion Loss: 0.35 dB typ
- Isolation: 80 dB typ
- VSWR 1.4:1 typ
- +28 Volt DC Bias
- 9 Pin D-SUB Connector for DC Control
- 2.92mm Female Connectors
- -25°C to +65°C Operating Temperature
- Up to 10 Watt Average Power Handling
- 50 Ohm Design
- Hot Switching Capability - Consult Factory
- S-Parameter Data available upon request
- Rugged Design meets Mil-STD-202 Test Conditions

Applications

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

Description

The PE71S6431 is a Single Pole Four Throw (SP4T) electromechanical relay switch that operates across a wide frequency range of DC to 40 GHz and can handle up to 10 Watts of CW input power in a break before make condition. The 50 Ohm design is rated for 2 million lifecycles and features a Normally Open Actuator where the selected position remains active with constant voltage, all positions are open when voltage is removed. Impressive typical performance includes 0.35 dB insertion loss and 80 dB isolation. This switch requires +28Vdc bias voltage and operates over a temperature range of -25°C to +65°C. The rugged and compact package assembly supports 2.92mm female connectors and a 9 pin D-SUB connector for DC control. And for highly reliable operation, the model is guaranteed to meet MIL-STD-202 environmental test conditions for shock and random vibration.

Electrical Specifications

Switch Type SP4T
Actuator Type Normally Open
Switching Sequence Break before Make

Description	Minimum	Typical	Maximum	Units
Frequency Range	DC		40	GHz
Impedance		50		Ohms
Operating Voltage	26	28	30	Volts
Actuating Set Current @ 28 Volts At +20°C			140	mA
VSWR		1.4:1	1.7:1	
Insertion Loss		0.35	0.6	dB
Isolation	50	80		dB

Click the following link (or enter part number in "SEARCH" on website) to obtain additional part information including price, inventory and certifications: [SP4T NO DC to 40 GHz Electro-Mechanical Relay Switch, Up To 10W, 28V, 2M Lifecycles, 2.92mm PE71S6431](#)



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Input Power (CW)	90	Watts
Switching Time	20	ms Max

Performance by Frequency

Description	F1	F2	F3	F4	F5	Units
Frequency Range	DC to 6	6 to 12	12 to 18	18 to 34	34 to 40	GHz
VSWR, Max	1.25:1	1.4:1	1.5:1	1.9:1	1.95:1	
Insertion Loss, Max	0.2	0.4	0.9	1	1.95	dB
Isolation, Min	70	60	60	60	50	dB

Mechanical Specifications

Size

Body Material and Plating	Aluminum
Package Type	Connectorized
Operating Life	2,000,000 Cycles

Connectors

RF Connector Type	2.92mm Female
Control Connector	Solder Terminals

Environmental Specifications

Temperature

Operating Range	-25 to +65 deg C
Storage Range	-55 to +100 deg C

Humidity	Moisture Resistance
Shock	MIL-STD-202 Method 213, Cond. D 500G Non Operating
Vibration	MIL-STD-202 Method 204, Cond. D 10G RMS Non Operating

Compliance Certifications (see [product page](#) for current document)

Plotted and Other Data

Notes:

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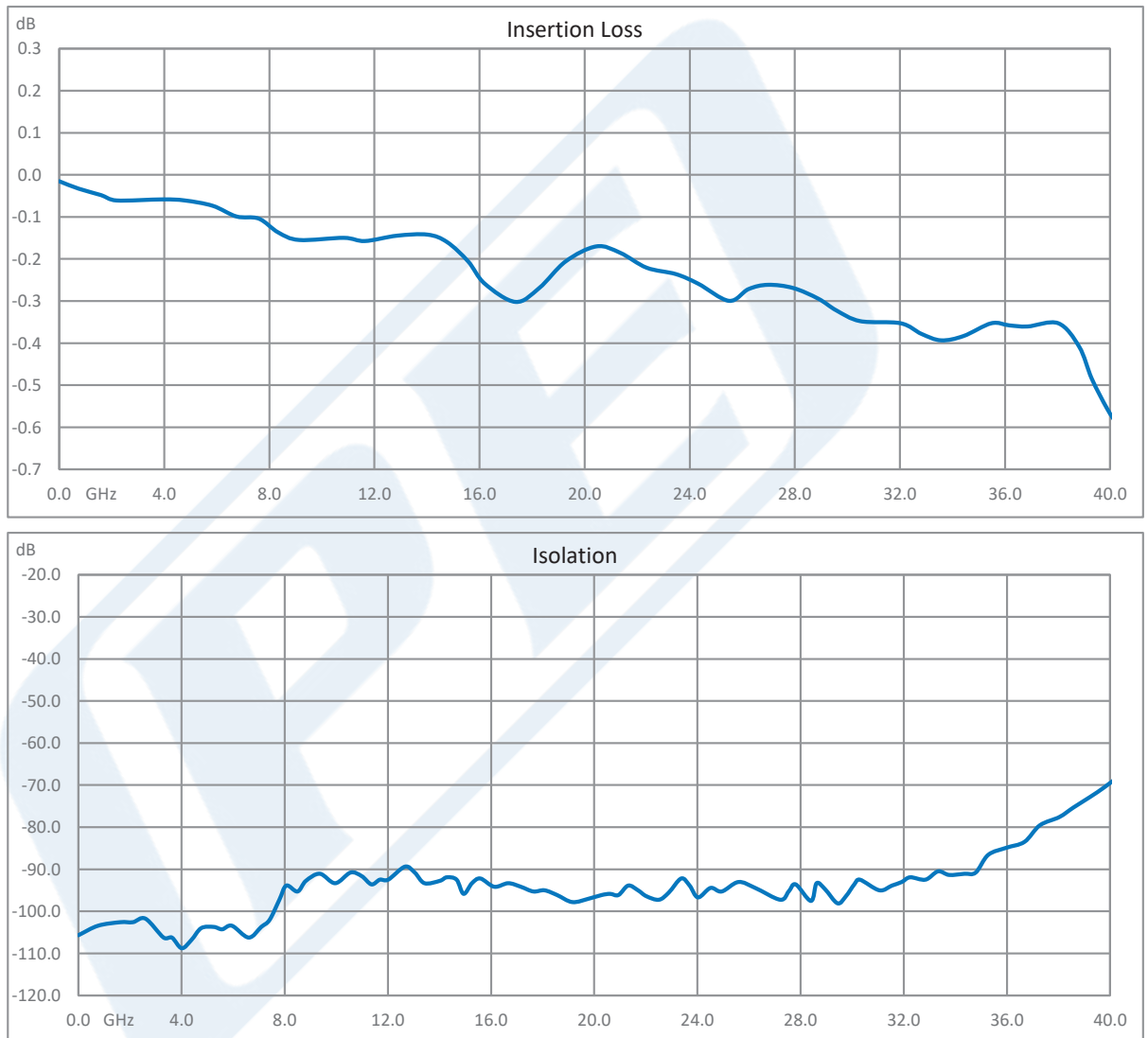


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Typical Performance Data



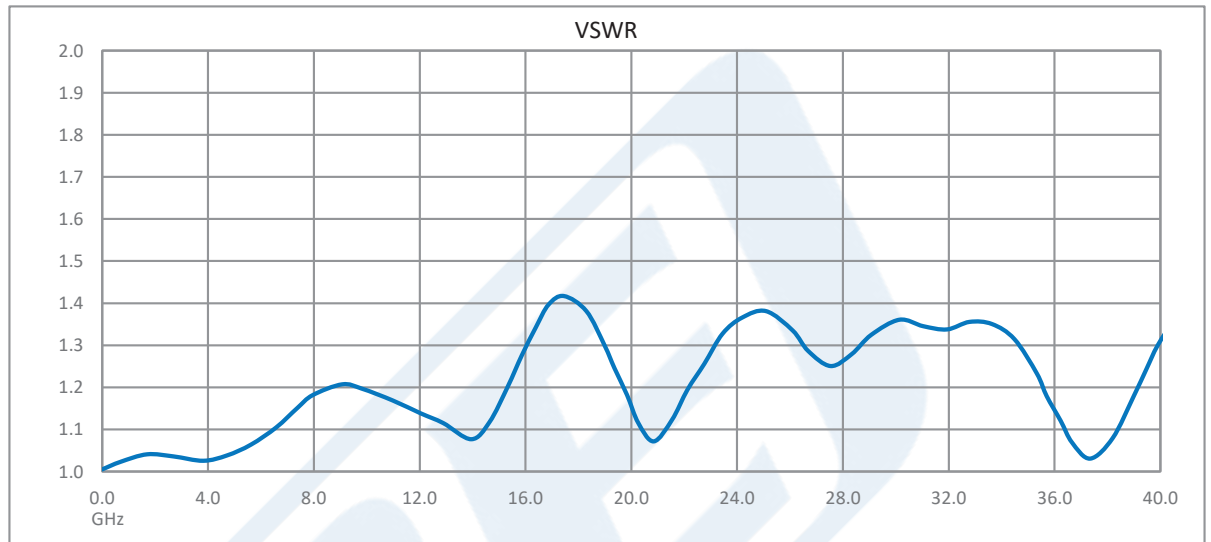
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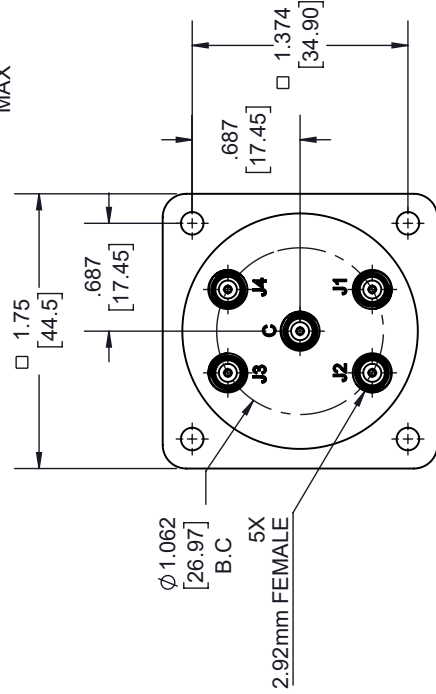
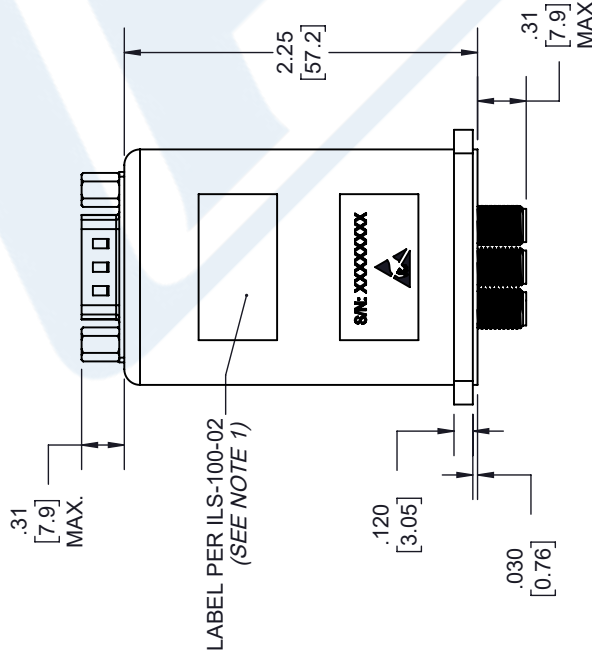
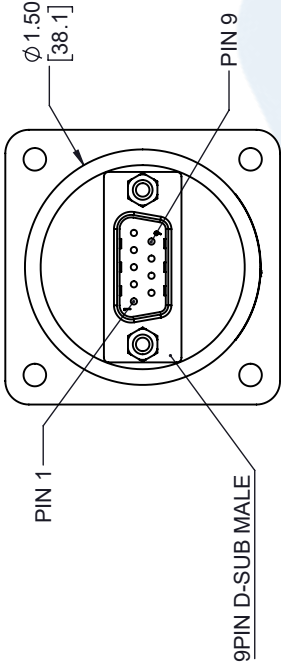
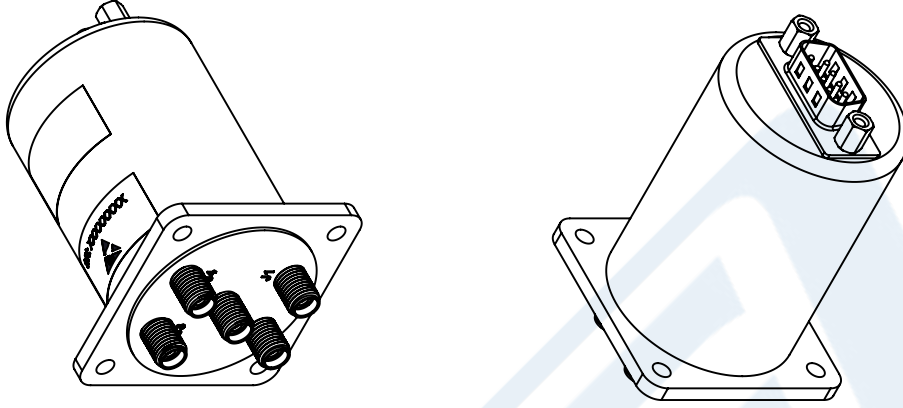
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PE71S6431 CAD Drawing

SP4T NO DC to 40 GHz Electro-Mechanical Relay Switch, Up To 10W, 28V, 2M Lifecycles, 2.92mm

REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
A	INITIAL RELEASE	10/13/2020	T.GALLA



NOTES:
 1. LABEL PER ILS-100-02. FOR INTERNAL REFERENCE ONLY.
 LABEL LOCATION FOR REFERENCE ONLY.

UNLESS OTHERWISE SPECIFIED
 LEADING DIMENSIONS ARE INCHES
 DIMENSIONS IN [] ARE MILLIMETERS

TOLERANCES:
 .X = ±.2 [5.08] | FRACTIONS ± 1/32
 .XX = ±.02 [.51] | ANGLES ± 1°
 .XXX = ±.005 [.13] |
 CABLE LENGTH (L), TOLERANCES:
 L ≤ 12 [305] = +1 [25] / -0
 12 [305] < L ≤ 60 [1524] = +2 [51] / -0
 60 [1524] < L ≤ 120 [3048] = +4 [102] / -0
 120 [3048] < L ≤ 300 [7620] = +6 [152] / -0
 300 [7620] < L = +5% / -0

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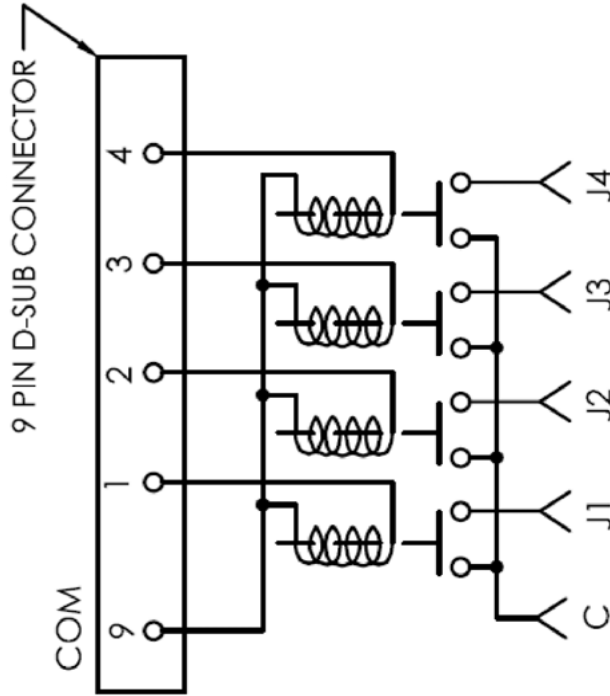
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REV A

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**RF POSITION
 SCHEMATIC**

TRUTH TABLE/PIN ASSIGNMENT:

TERMINALS D-SUB PIN ASSIGNMENT	RF PATH			
	J1	J2	J3	J4
1	ON	OFF	OFF	OFF
2	OFF	ON	OFF	OFF
3	OFF	OFF	ON	OFF
4	OFF	OFF	OFF	ON

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