

SP4T, Electromechanical Relay Normally Open Switch, DC to 43 GHz, 12VDC, 10W, Indicators, TTL, Diodes, D-Sub, 2.92mm

Electromechanical Relay Switches Technical Data Sheet

PE71S7290

Features

- Single Pole Four Throw (SP4T) Electromechanical Relay Switch
- DC to 43 GHz Frequency Range
- Normally Open Actuator
- TTL Logic Control
- Indicators
- Suppression Diodes
- 2M Lifecycle Rating
- Insertion Loss 0.6 dB typ
- Isolation > 70 dB typ
- VSWR as low as 1.25:1 max
- 15 Pin D-Sub Connector for all DC Command Control Functions
- +12 Volt DC Bias
- 2.92mm Female Connectors
- -25°C to +65°C Operating Temperature
- Up to 10 Watts 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

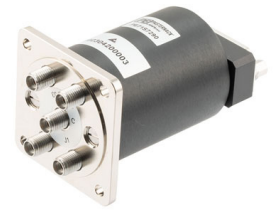
The PE71S7290 is a Single Pole Four Throw (SP4T) electromechanical relay switch that operates across an ultra wide frequency range from DC to 43 GHz and can handle up to 10 Watts of Average Power in a break before make condition. The 50 Ohm design is rated for 2 million lifecycles and features a Normally Open Actuator where the selected position remains active with constant voltage, all positions are open when voltage is removed. Additional features include TTL logic control, Indicators to monitor the switch position, and Suppression Diodes which limit voltage spikes or reverse current. Impressive typical performance includes 0.6 dB insertion loss and isolation greater than 70 dB. This switch requires +12 Vdc 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 15 Pin D-Sub connector for all DC command control functions. And for highly reliable operation, the model is guaranteed to meet MIL-STD-202 environmental test conditions for shock and random vibration.

Electrical Specifications (TA = 25°C, DC Voltage = 12 Vdc)

Switch Type	SP4T
Actuator Type	Normally Open
Actuator Options	Indicators, TTL Logic, Diodes
TTL Control	on: 2.4 to 5 Volts off: 0 to 0.8 Volts

Description	Minimum	Typical	Maximum	Units
Frequency Range	DC		43	GHz
Operating Voltage	11	12	13	Volts
Actuating Set Current			400	mA
VSWR		1.4:1	2.1:1	

Click the following link (or enter part number in "SEARCH" on website) to obtain additional part information including price, inventory and certifications: [SP4T, Electromechanical Relay Normally Open Switch, DC to 43 GHz, 12VDC, 10W, Indicators, TTL, Diodes, D-Sub, 2.92mm PE71S7290](#)



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Insertion Loss		0.6	1.6	dB
Isolation	40	85		dB
Input Power			10	Watts
Switching Time			20	ms

Performance by Frequency

Description	F1	F2	F3	F4	F5	Units
Frequency Range	DC to 6	6 to 12	12 to 18	18 to 28	28 to 34	GHz
VSWR, Max	1.25:1	1.4:1	1.5:1	1.8:1	1.8:1	
Insertion Loss, Max	0.2	0.4	0.5	0.9	1	dB
Isolation, Min	70	60	60	60	60	dB

Performance by Frequency

Description	F6	F7	F8	F9	F10	Units
Frequency Range	34 to 40	40 to 43				GHz
VSWR, Max	1.8:1	2.1:1				
Insertion Loss, Max	1.3	1.6				dB
Isolation, Min	50	40				dB

Mechanical Specifications

Size

Length	1.75 in [44.45 mm]
Width/Diameter	1.75 in [44.45 mm]
Height	2.5 in [63.5 mm]
Weight	0.22 lbs [99.79 g]
Finish	Electroless Nickel

Connectors

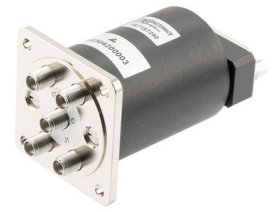
RF Connector Type	2.92mm Female
Control Connector	D-Subminiature

Environmental Specifications

Temperature

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

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Shock

MIL-STD-202 Method 213, Condition D, 500G (non operational)

Vibration

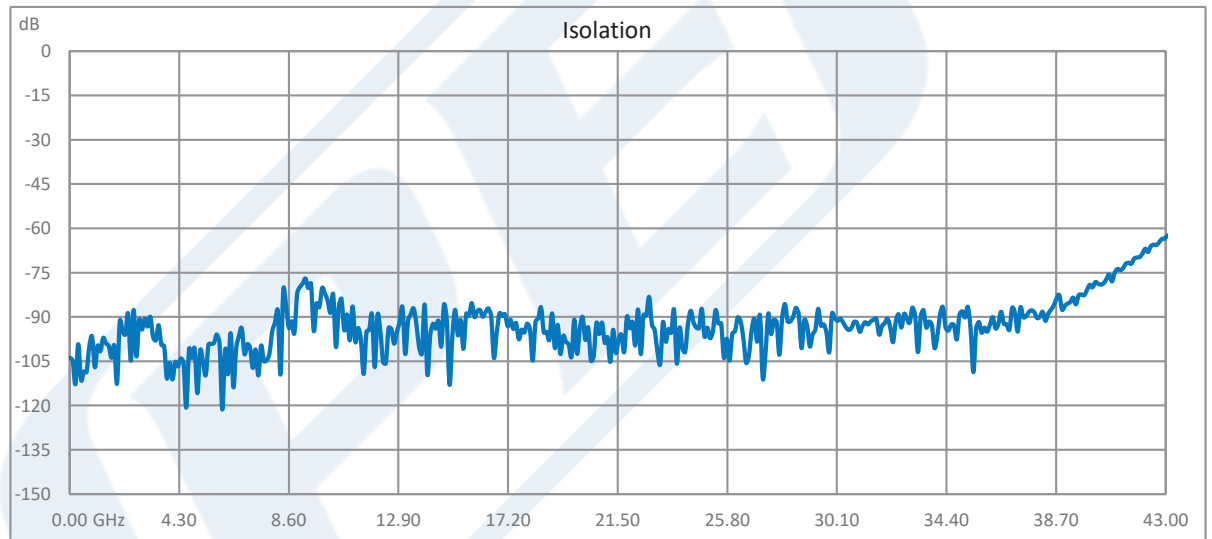
MIL-STD-202 Method 204, Condition D, 10G RMS (non operational)

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

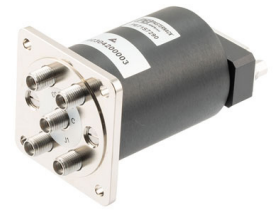
Plotted and Other Data

Notes:

Typical Performance Data



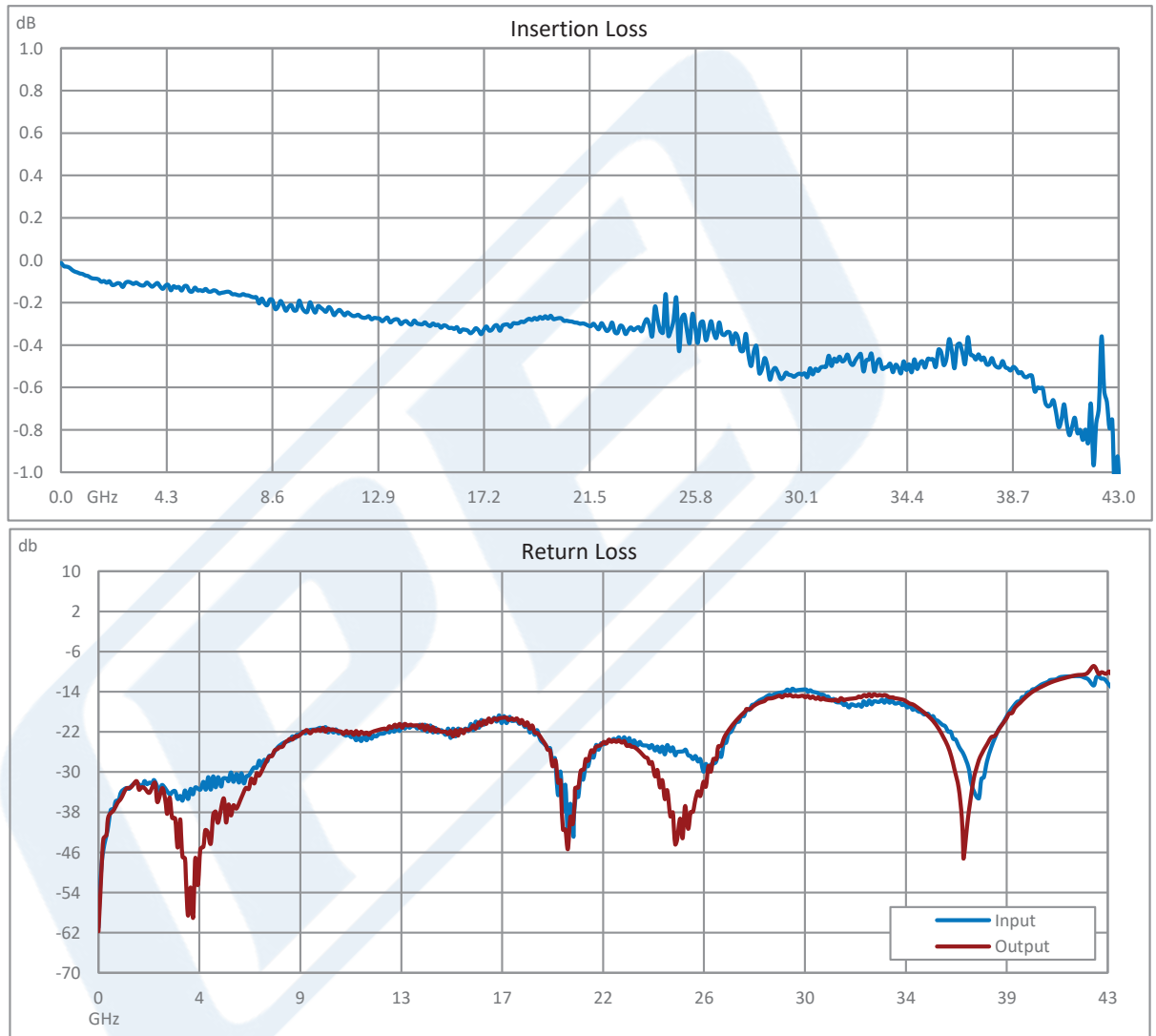
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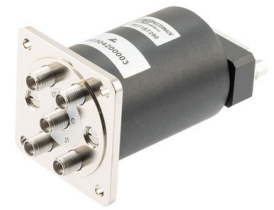
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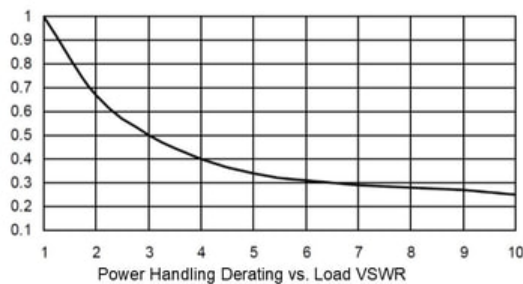


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Power Handling vs. Frequency

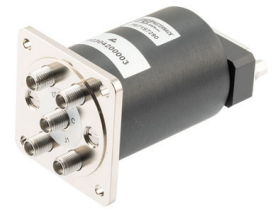


Power handling chart and derating curves based on the following conditions:

- Ambient temperature: 40°C or less
- Altitude: Sea level
- Load VSWR: 1.20:1 Maximum
- Relative Humidity: 40-50%
- Cold switching: RF signal off

Note: specifications subject to change without notice

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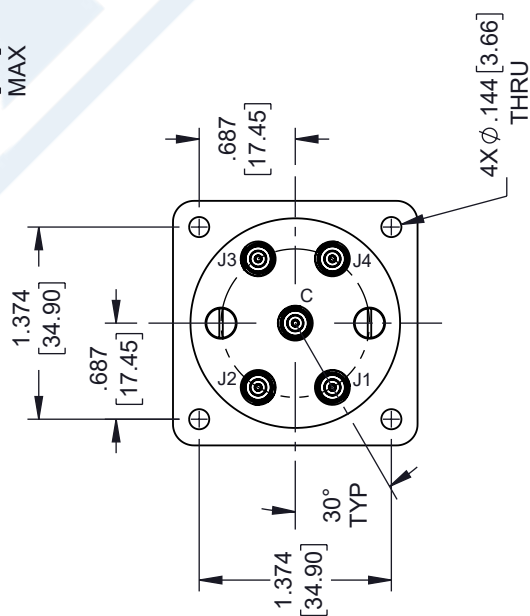
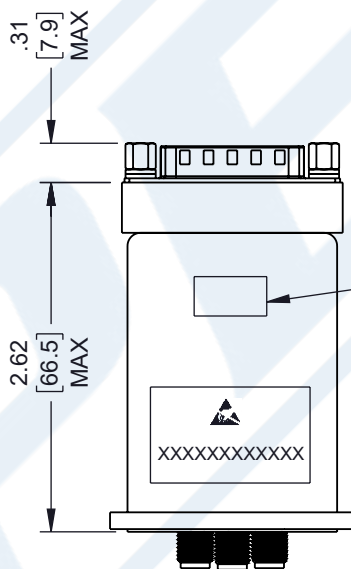
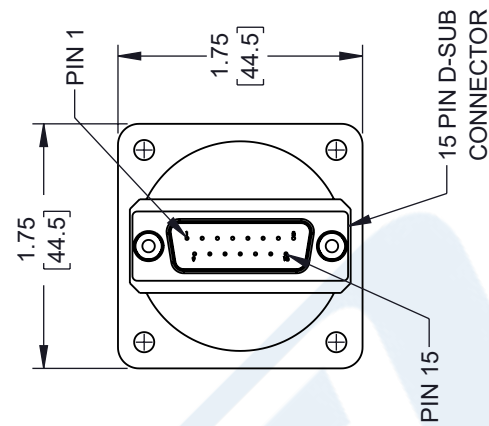
SP4T, Electromechanical Relay Normally Open Switch, DC to 43 GHz, 12VDC, 10W, Indicators, TTL, Diodes, D-Sub, 2.92mm from Pasternack Enterprises has same day shipment for domestic and International orders. Our RF, microwave and millimeter wave products maintain a 99.4% availability and are part of the broadest selection in the industry.

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URL: <https://www.pasternack.com/sp4t-electromechanical-relay-normally-open-switch-43-ghz-12v-indicators-ttl-diodes-2.92mm-pe71s7290-p.aspx>

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A horizontal number line with tick marks labeled 1, 2, 3, 4, 5, and 6 from left to right.



EL PER ILS-100-02
SEE NOTE 1

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

CABLE LENGTH TOLERANCES:	
$X = \pm 2$	$[5]$
$XX = \pm .02$	$[.5]$
$XXX = \pm .005$	$[.13]$
FRACTIONS $\pm 1/32$	
ANGLES $\pm 1^\circ$	

ALL DIMENSIONS ARE FOR REFERENCE ONLY
AND SUBJECT TO CHANGE WITHOUT NOTICE

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Phone: 1.866.727.8376 | 1.949.261.1920

DESCRIPTION

SP4T, NO, 43GHz, 12VDC, indicators, TTL, diodes, 2.92mm, D-Sub

SCALE	SHEET
NONE	1 C

PE71S7290

CAGE CODE	DRAWN BY	ITEM NO.
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53919	BPUCHASKI
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>300 [7620] = +5% / -0

3.	
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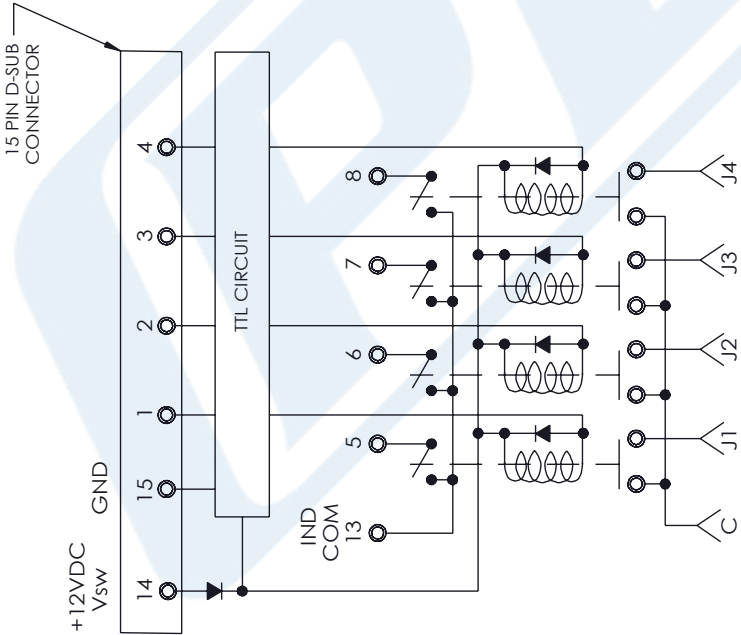
NOTES:

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

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PE71S7290 CAD Drawing

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12VDC, 10W, Indicators, TTL, Diodes, D-Sub, 2.92mm



TRUTH TABLE/PIN ASSIGNMENT:

TERMINALS LOGIC INPUT PINS	RF PATH				INDICATOR			
	J1	J2	J3	J4	5	6	7	8
1 ("1")	ON	OFF	OFF	OFF	ON	OFF	OFF	OFF
2 ("1")	OFF	ON	OFF	OFF	OFF	ON	OFF	OFF
3 ("1")	OFF	OFF	ON	OFF	OFF	OFF	ON	OFF
4 ("1")	OFF	OFF	OFF	ON	OFF	OFF	OFF	ON

PIN 13, IND COM
PIN 14, Vsw +12VDC
PIN 15, GND

RF POSITION
SCHEMATIC

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

TOLERANCES:

X = ±.2 [.5] FRACTIONS
XX = ±.02 [.5] ± 1/32
XXX = ±.005 [.13] ANGLES ± 1°

CABLE LENGTH TOLERANCES:

≤12 [305] = ±1 [25] / -0
>12 [305] ≤60 [1524] = +2 [51] / -0
>60 [1524] ≤120 [3048] = +4 [102] / -0
>120 [3048] ≤300 [7620] = +6 [152] / -0
>300 [7620] = +5% / -0

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Phone: 1.866.727.8376 | 1.949.261.1920

DESCRIPTION

SP4T, NO, 43GHz, 12VDC, indicators, TTL, diodes, 2.92mm, D-Sub

SIZE A
CAGE CODE 53919
DRAWN BY BPUCHASKI
ITEM NO. PE71S7290
REV A

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