



WR90 SPDT/DPDT Failsafe, X Band Waveguide Electromechanical Relay Switch, 8.2 GHz to 12.4 GHz, 5 kW, O-Ring Groove, TTL, 12V

Waveguide Electromechanical Relay Switches Technical

PEWGS6062

Features

- 8.2 to 12.4 GHz SPDT Waveguide Switch
- Optional DPDT Configuration
- WR-90 Waveguide with UG O-Ring Grooves
- Failsafe Actuator and Position Indicator
- Insertion Loss: 0.05 dB typ
- Isolation: 85 dB typ
- Switching Time: <80 msec typ
- +12 Vdc Nominal Voltage
- Input Power Rating up to 5 kW CW max
- Unpressurized Power Rating up to 123 kW Peak
- Manual Override Access
- Fully Weatherized Package
- Quick Connect Circular DC Connector with Mate
- -40°C to +85°C Operating Temperature

Applications

- Electronic Warfare
- Electronic Countermeasures
- Microwave Radio
- VSAT
- Radar
- Space Systems
- Test Instrumentation
- Research and Development

Description

The PEWGS6062 WR-90 waveguide electromechanical switch operates across a wide frequency range from 8.2 GHz to 12.4 GHz and is configured for single pole double throw (SPDT) operation. A shorting plate on port 3 can be removed for optional double pole double throw (DPDT) operation. This innovative design features a failsafe actuator and patented motor drive with arc suppression. The motor drive housing supports a viewable position indicator window and a cover that can be removed for manual override access. Impressive typical performance includes 0.05 dB typ insertion loss, 85 dB typ Isolation and 1.06:1 typ VSWR. The design operates across a temperature range of -40°C to +85°C, requires +12Vdc nominal bias voltage, and has an input power rating of up to 5 kW CW maximum, and an unpressurized peak power rating of 123 kW. Operating life is 250K cycles minimum. The waveguide ports have UG O-Ring grooves with O-Rings included for pressurized operation. The rugged package design is fully weatherized for up to 100% humidity exposure and supports a quick connect circular 6 pin MIL-SPEC DC bias connector with mate included.

Electrical Specifications

Switch Type	SPDT/DPDT
Actuator Type	Failsafe
Actuator Options	TTL Logic, Window Indicator, Manual Override
TTL Control	on: 2.4 to 5.5 Volts
	off: 0 to 0.8 Volts
TTL Control Current	5 mA at 5.5 Volts
	5 mA at 0.8 Volts

Description	Minimum	Typical	Maximum	Units
Frequency Range	8.2		12.4	GHz
Impedance		50		Ohms
Operating Voltage	10.8	12	13.2	Volts
Actuating Current @ 12 Volts		250	300	mA
VSWR		1.06:1	1.1:1	
Insertion Loss		0.05	0.07	dB
Isolation	80	85		dB

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Switching Time	<80	ms
Input Power (CW)	5	kWatts
Input Power (Peak/Unpressurized)	123	kWatts

Electrical Specification Notes:

Active logic switch command duration must be maintained to keep switch in energized position.

Maximum switching rate not to exceed 30 per minute

Mechanical Specifications

Size

Length	2.25 in [57.15 mm]
Width/Diameter	2.37 in [60.2 mm]
Height	4.2 in [106.68 mm]
Weight	1.3 lbs [589.67 g]
Operating Life	250,000 Cycles
Operating Pressure	30 psig

Configuration

Waveguide Size	WR-90
Flange Type	UG O-Ring
Body Material and Plating	Aluminum, Black
Body Plating Specification	MIL-DTL-5541

Environmental Specifications

Temperature

Operating Range	-40 to +85 deg C
Storage Range	-55 to +100 deg C
Humidity	0 to 100% Fully Weatherized IAW IP67

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

Plotted and Other Data

Notes:

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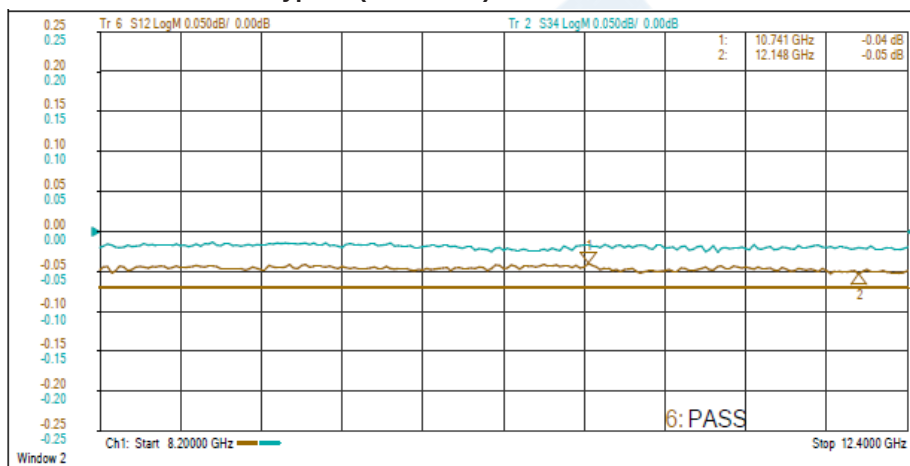


Waveguide Electromechanical Relay Switches Technical

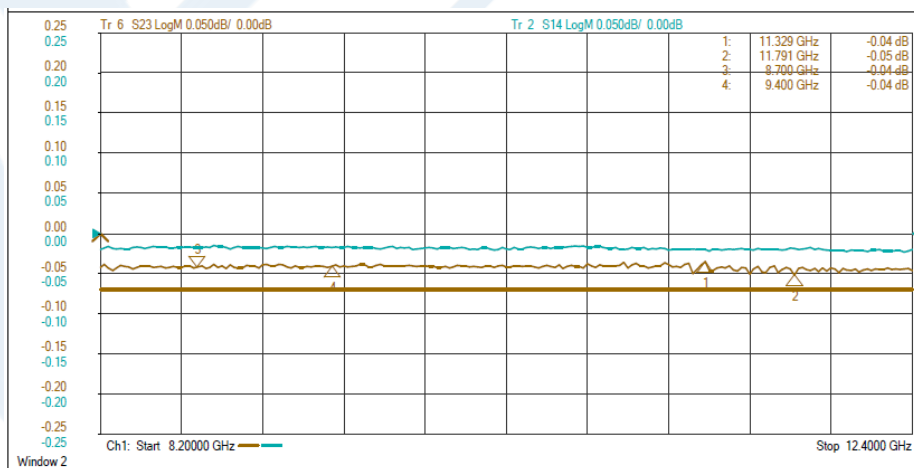
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Typical Performance Data

Typical (Position 1) Insertion Loss



Typical (Position 2) Insertion Loss



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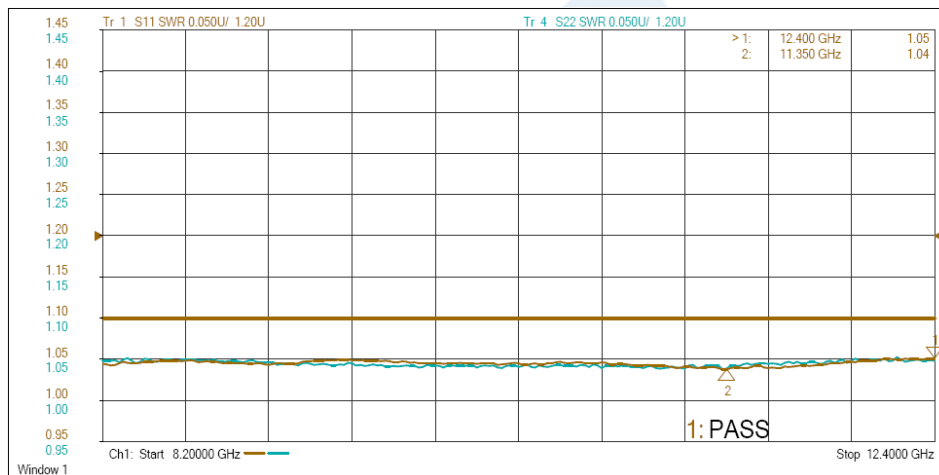
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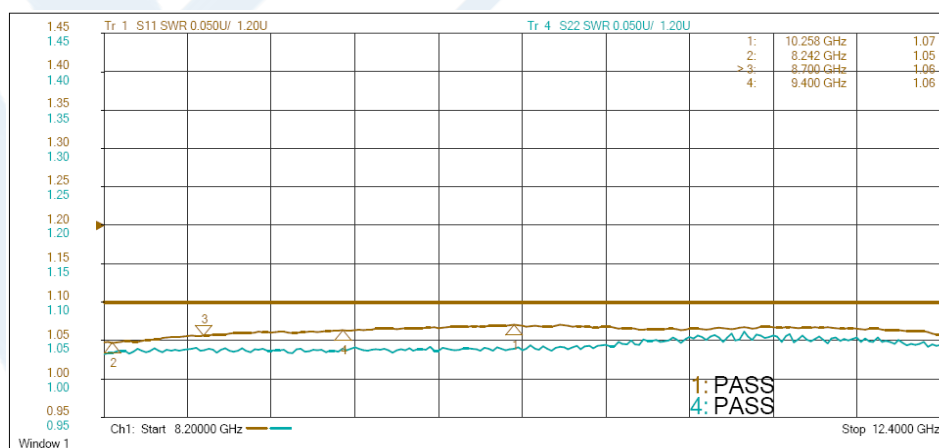
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**Typical (Position 1)
VSWR**



**Typical (Position 2)
VSWR**



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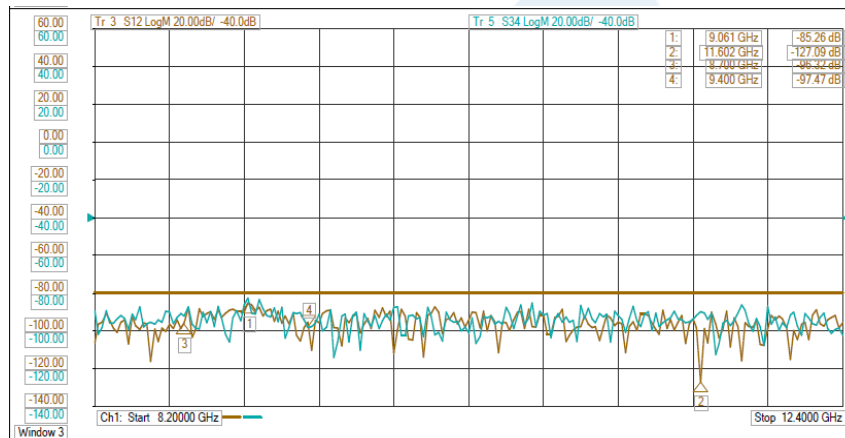


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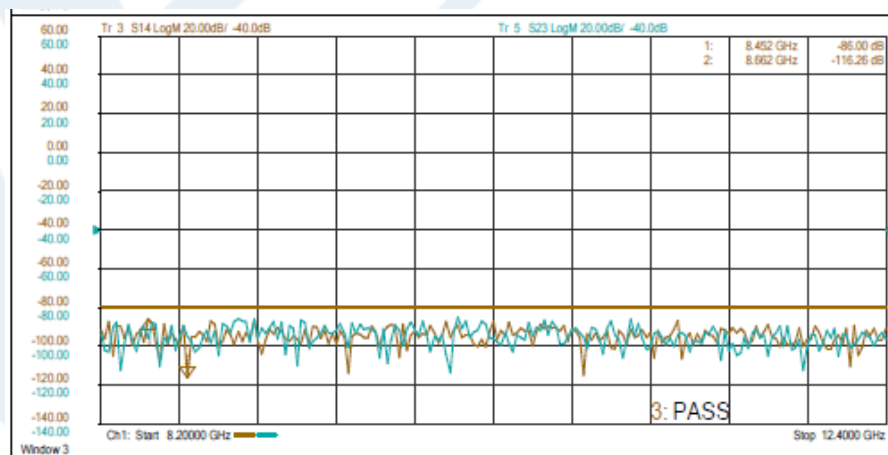
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**Typical (Position 1)
Isolation**



**Typical (Position 2)
Isolation**



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WR90 SPDT/DPDT Failsafe, X Band Waveguide Electromechanical Relay Switch, 8.2 GHz to 12.4 GHz, 5 kW, O-Ring Groove, TTL, 12V 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.

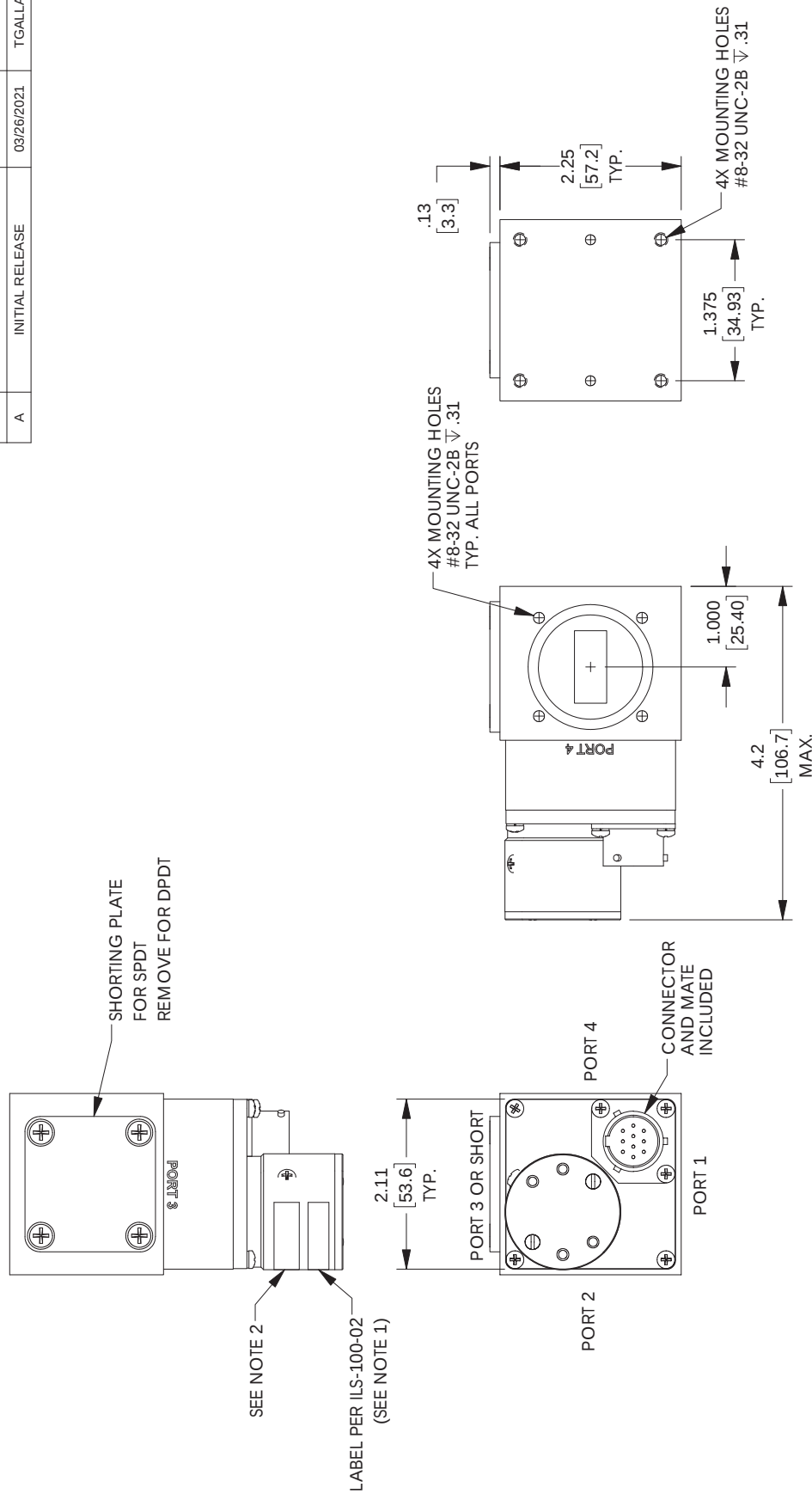
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REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
A	INITIAL RELEASE	03/26/2021	TGALLA



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

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2. SERIAL NUMBER AND DATE CODE ARE COMBINED. EX: 20200405000001

UNLESS OTHERWISE SPECIFIED
LEADING DIMENSIONS ARE INCHES
DIMENSIONS IN () ARE MILLIMETERS

TOLERANCES:		
X = ± 2	[.08]	FRACTIONS
XX = ± .02	[.51]	± 1/32
XXX = ± .005	[.13]	ANGLES ± 1°

CABLE LENGTH (L) TOLERANCES:

$$\begin{array}{l} L \leq 12 \quad [305] = +1 \quad [25] / -0 \\ 12 \quad [305] < L \leq 60 \quad [1524] = +2 \quad [51] / -0 \\ 60 \quad [1524] < L \leq 120 \quad [3048] = +4 \quad [102] / -0 \\ 120 \quad [3048] < L \leq 300 \quad [7620] = +6 \quad [152] / -0 \\ 300 \quad [7620] < L = +5\% / -0 \end{array}$$

ALL DIMENSIONS SHOWN
ARE FOR REFERENCE ONLY.

THIRD-ANGLE PROJECTION

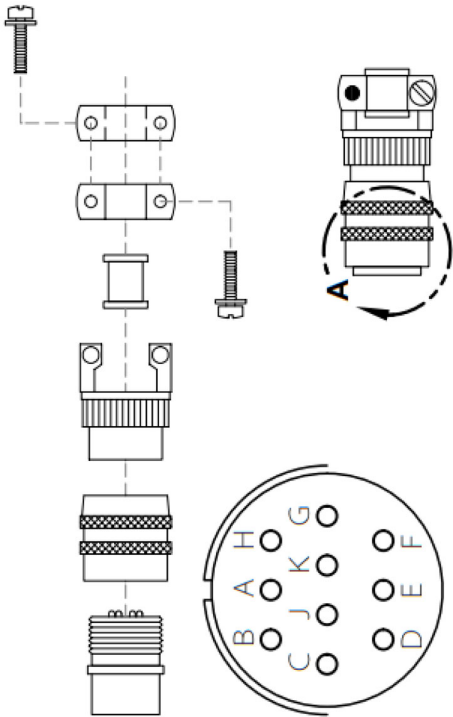
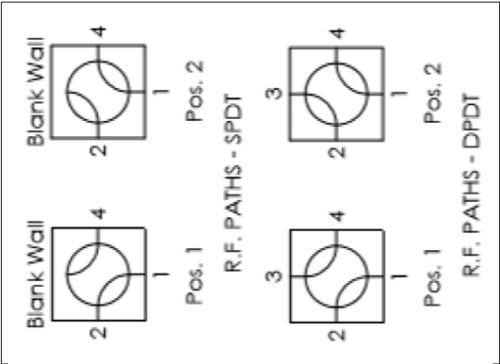
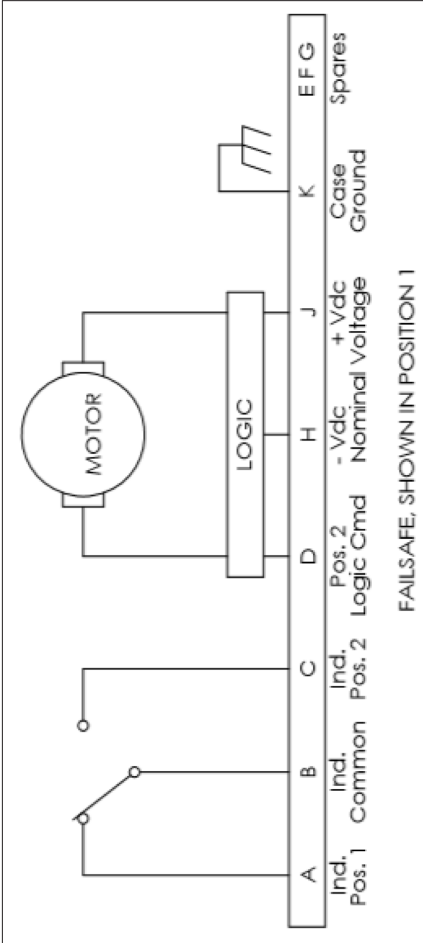
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SHEET 1

SCALE

SIZE	CAGE CODE	DRAWN BY	ITEM NO.
A	53919	DFRISIELLO	

T-Rev.D



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LEADING DIMENSIONS ARE IN INCHES
DIMENSIONS IN [] ARE IN MILLIMETERS

TOLERANCES:

FRACTIONS	
X = +2	[5.08]
XX = +.02	[.51]
XXX = ±.005	[.13]

ANGLES ±1°

CABLE LENGTH (L) TOLERANCES:

L	Tolerance
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 ≤ ∞	±.9% / -0

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THIRD-ANGLE PROJECTION	
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SHEET	2 OF 2
SCALE	N/A
REV	A

SIZE	CAGE CODE	DRAWN BY	ITEM NO.
A	53919	DFRISIELLO	PEWGS6062

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