

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



Waveguide Electromechanical Relay Switches Technical

PEWGS6060

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: <100 msec max
- +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 PEWGS6060 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
Actuator Type
Actuator Options

SPDT/DPDT
Failsafe
Window Indicator, Manual Override

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
Switching Time		<100		ms
Input Power (CW)			5	kWatts

Click the following link (or enter part number in "SEARCH" on website) to obtain additional part information including price, inventory and certifications: [WR90 SPDT/DPDT Failsafe, X Band Waveguide Electromechanical Relay Switch, 8.2 GHz to 12.4 GHz, 5 KW, O-Ring Groove, 12V PEWGS6060](#)

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Input Power (Peak/Unpressurized)

123

kWatts

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	1.29 lbs [585.13 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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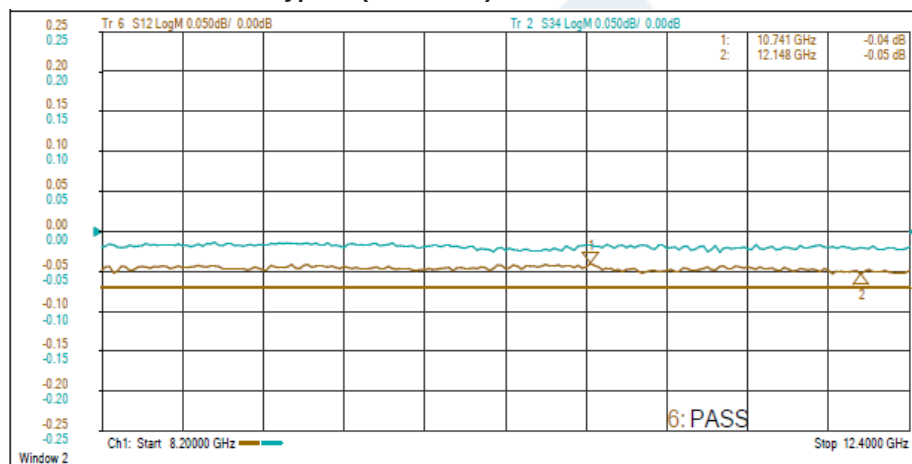


Waveguide Electromechanical Relay Switches Technical

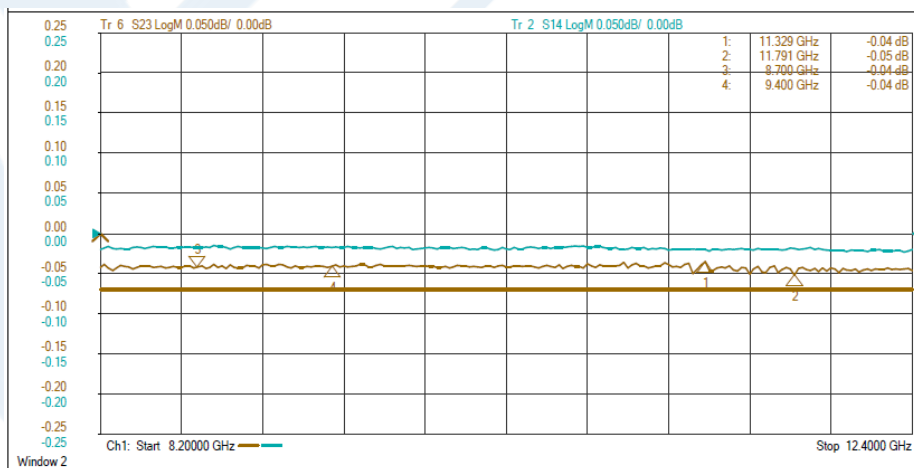
PEWGS6060

Typical Performance Data

Typical (Position 1) Insertion Loss



Typical (Position 2) Insertion Loss



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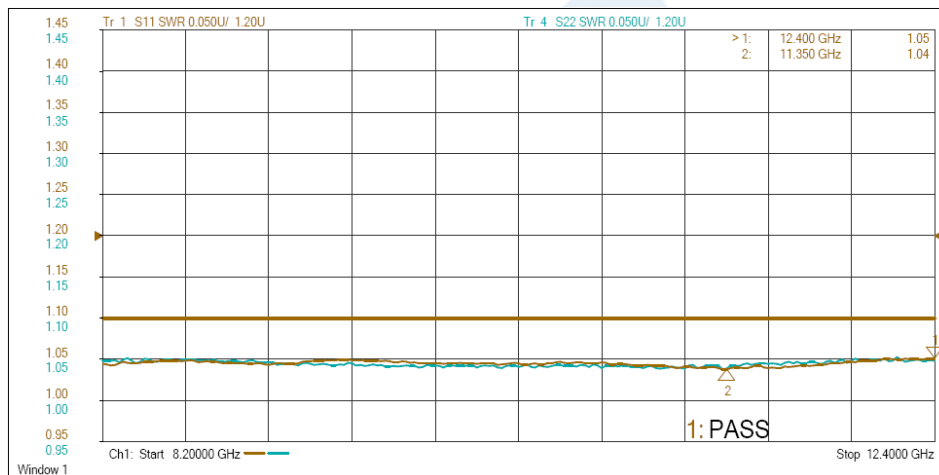
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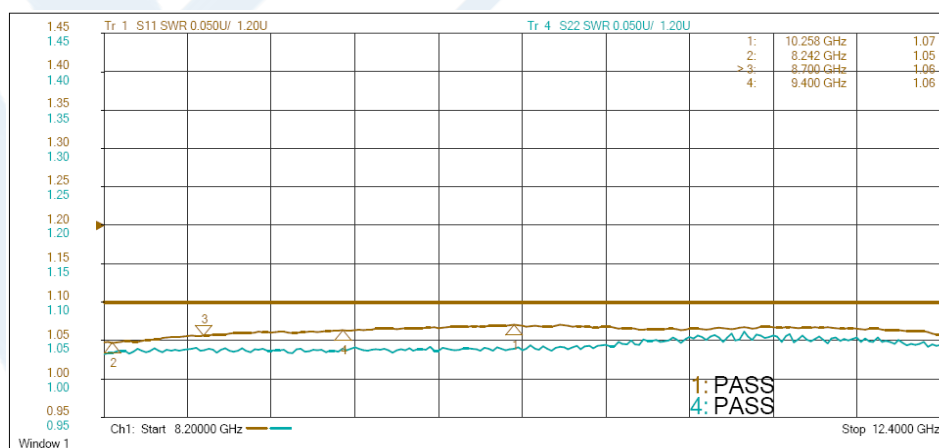
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**Typical (Position 1)
VSWR**



**Typical (Position 2)
VSWR**



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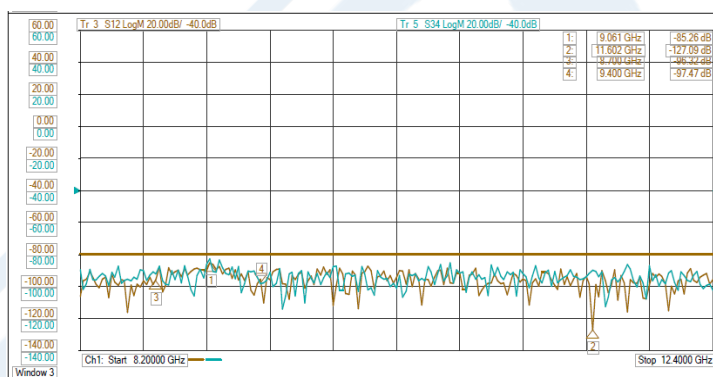
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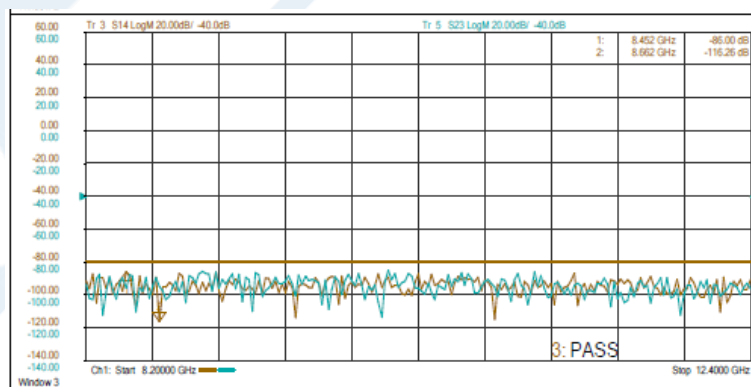


SUMMARY TEST DATA

Typical (Position 1) Isolation



Typical (Position 2) Isolation



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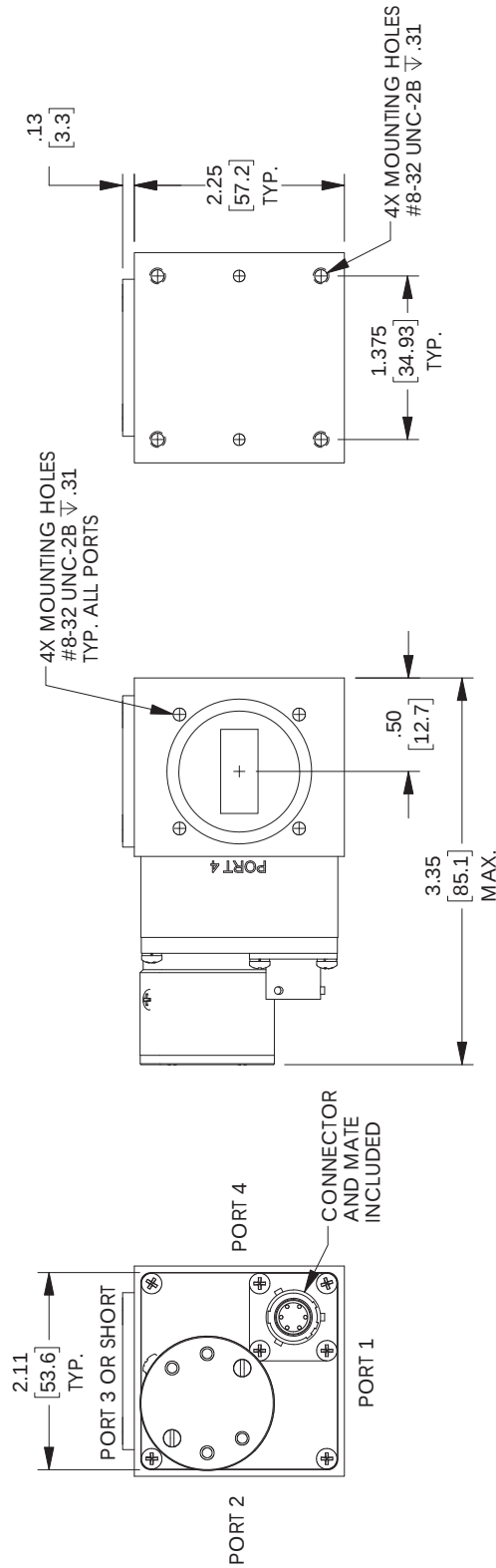
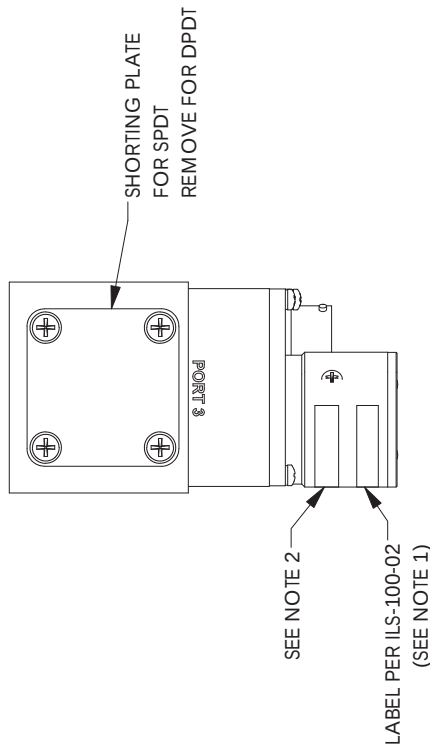
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PEWGS6060 CAD Drawing

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



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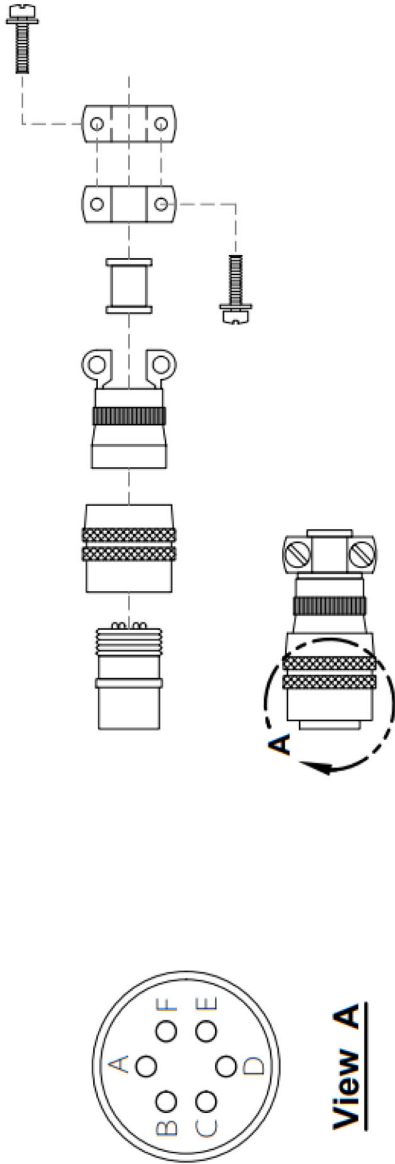
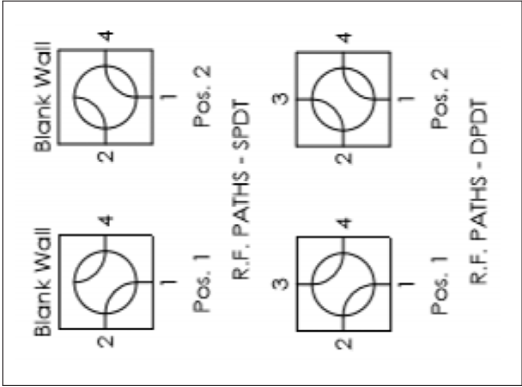
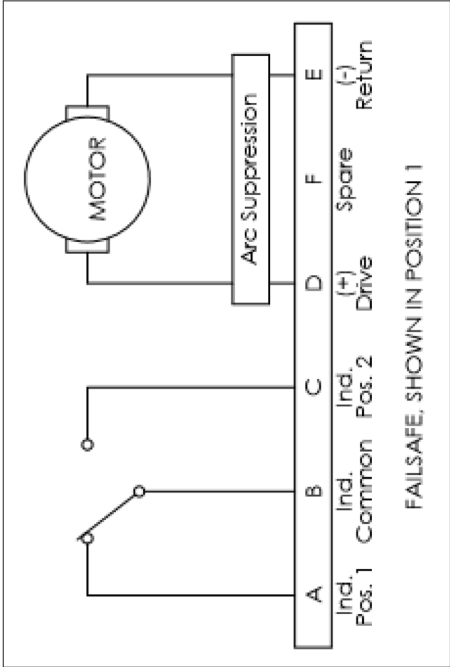
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