

### WR-90 Waveguide Electromechanical Relay Failsafe, X Band Switch SPDT/DPDT 12.4 GHz Max Freq., 5,000 Watts UG O-Ring, 12V, TTL, Indicators

The FMWGS6062 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	Min	Typ	Max	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		<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



#### 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

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**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

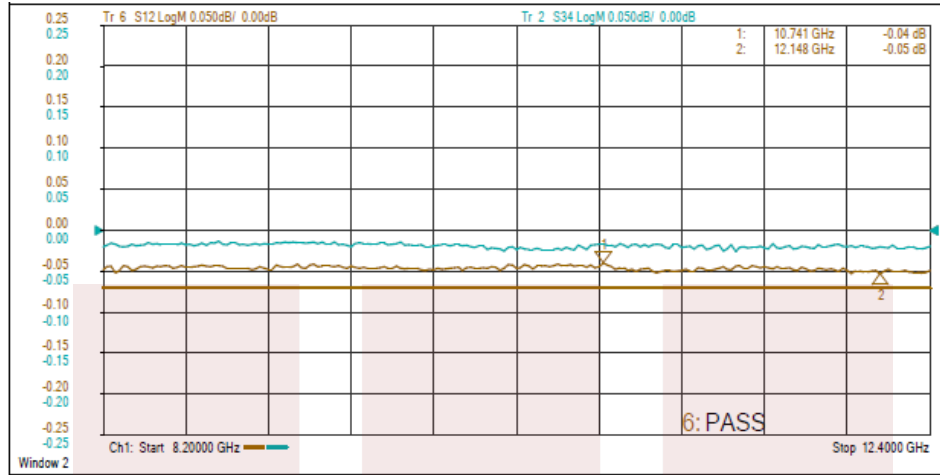
**Compliance Certifications** (see [product page](#) for current document)

**Plotted and Other Data**

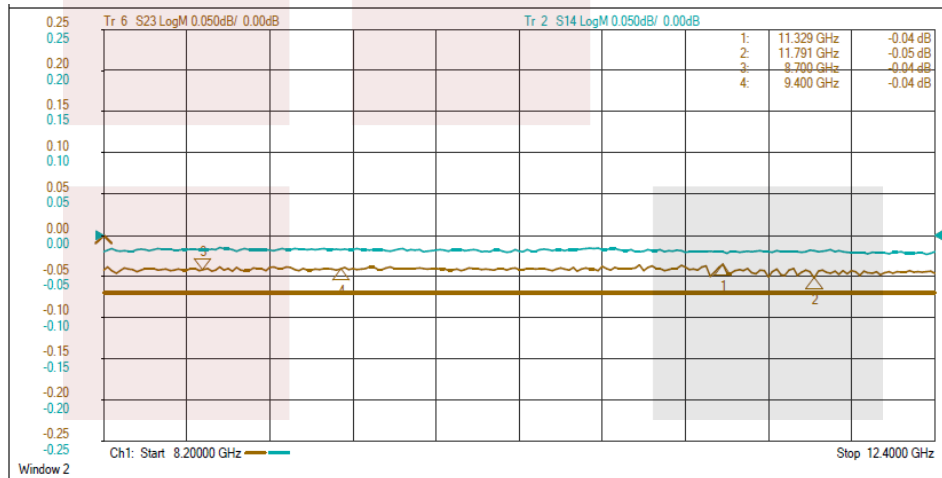
Notes:

**Typical Performance Data**

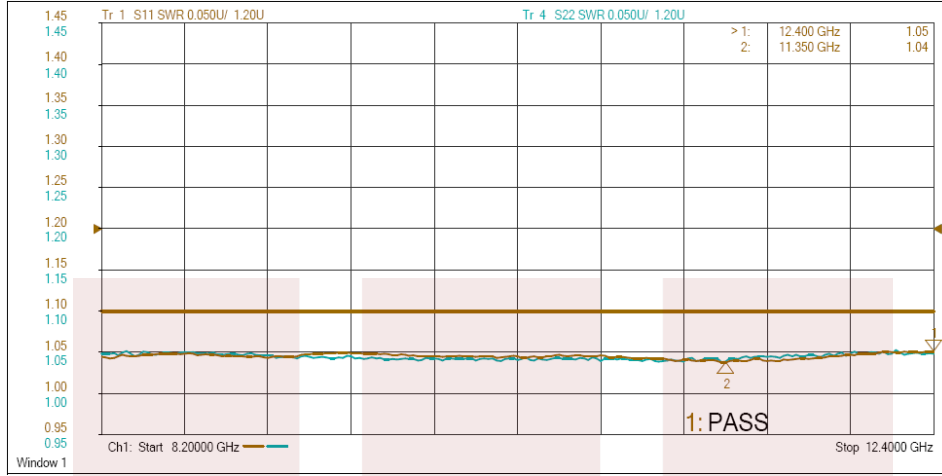
**Typical (Position 1) Insertion Loss**



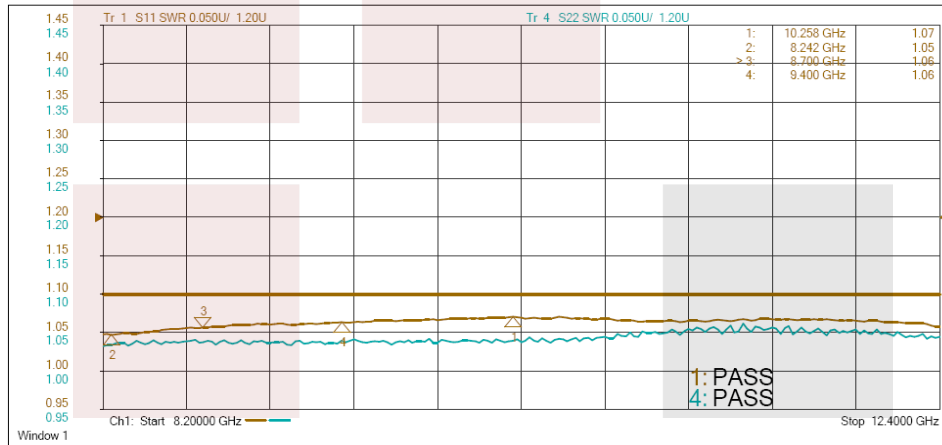
**Typical (Position 2) Insertion Loss**



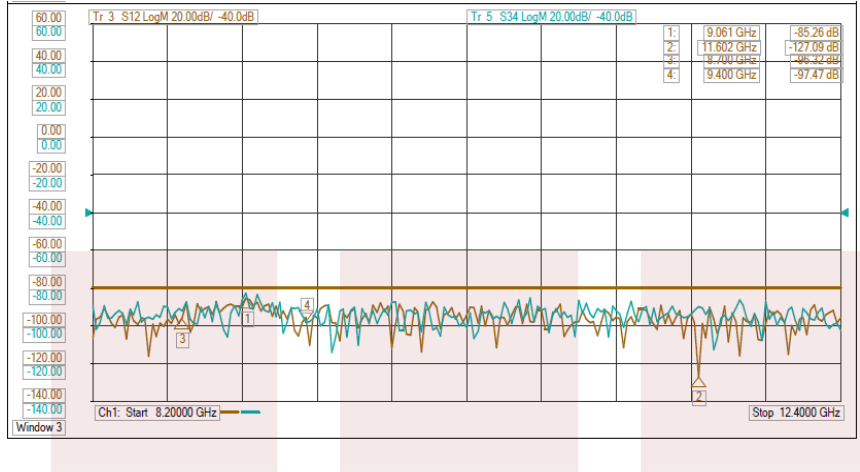
**Typical (Position 1)**  
**VSWR**



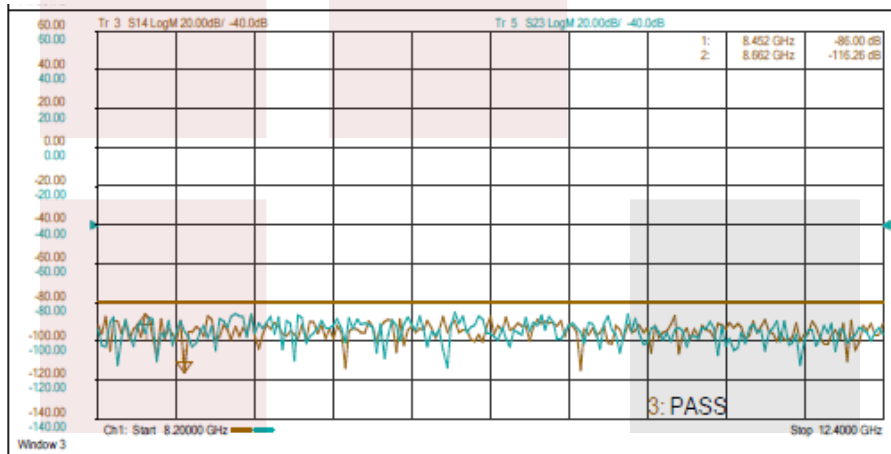
**Typical (Position 2)**  
**VSWR**



**Typical (Position 1)**  
**Isolation**



**Typical (Position 2)**  
**Isolation**



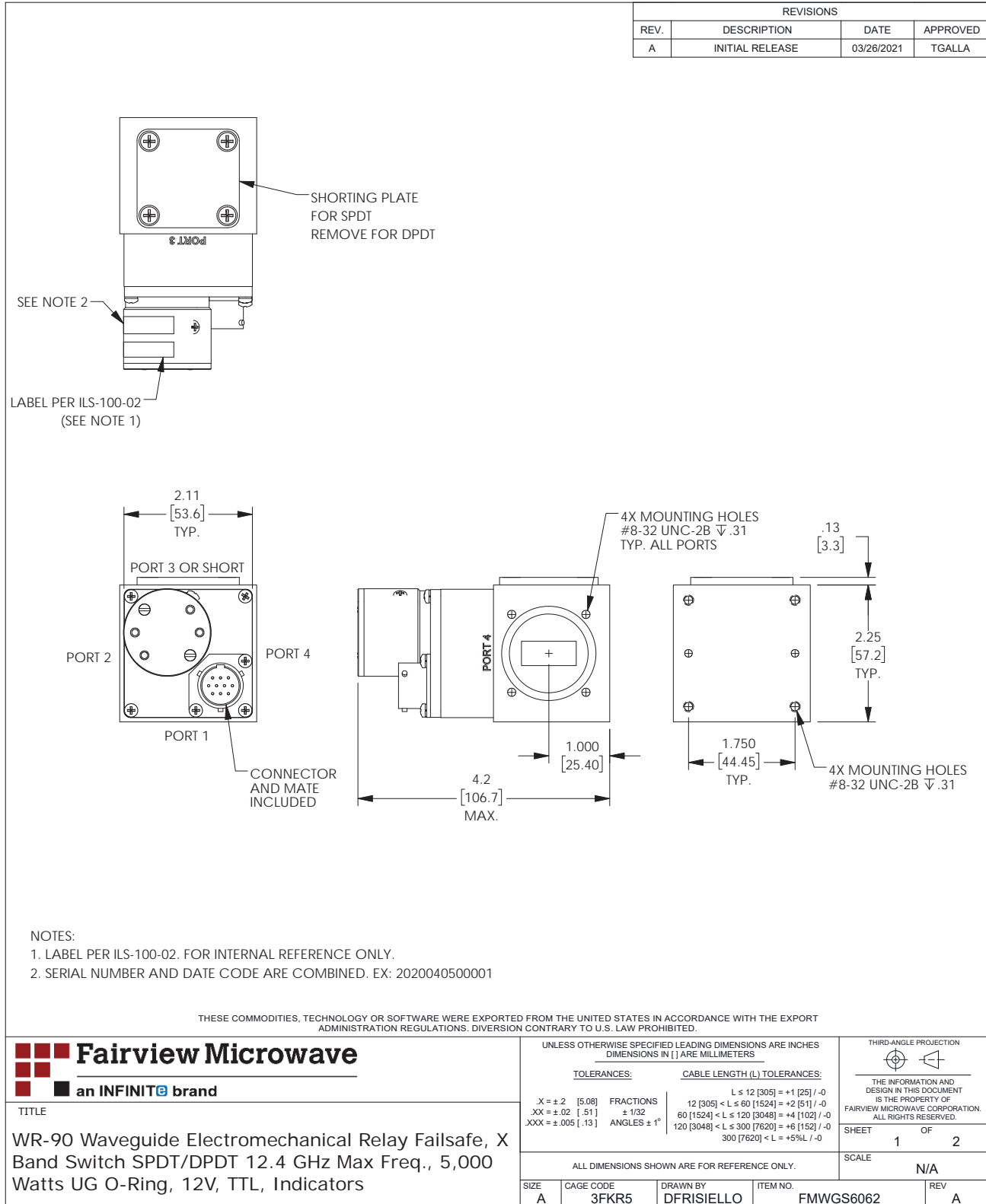
WR-90 Waveguide Electromechanical Relay Failsafe, X Band Switch SPDT/DPDT 12.4 GHz Max Freq., 5,000 Watts UG O-Ring, 12V, TTL, Indicators from Fairview Microwave is in-stock and available to ship same-day. All of our RF/microwave products are available off-the-shelf from our ISO 9001:2008 certified facilities in Lewisville, Texas. Fairview Microwave is RF on-demand.

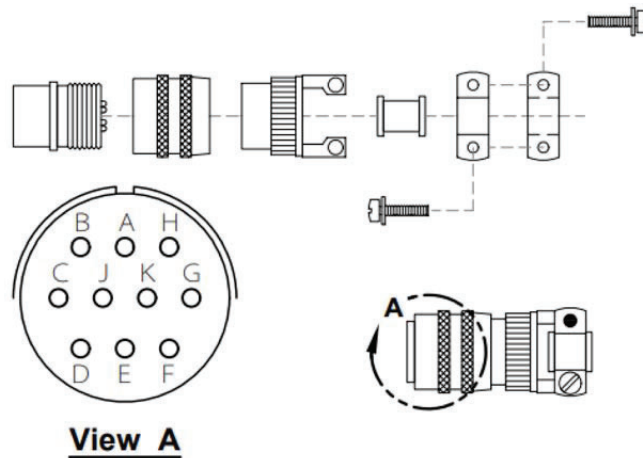
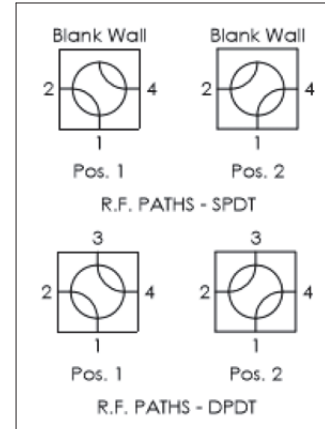
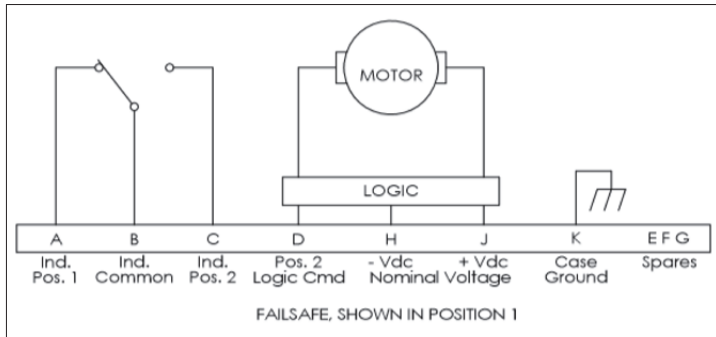
For additional information on this product, please click the following link: [WR-90 Waveguide Electromechanical Relay Failsafe, X Band Switch SPDT/DPDT 12.4 GHz Max Freq., 5,000 Watts UG O-Ring, 12V, TTL, Indicators FMWGS6062](#)

URL: <https://www.fairviewmicrowave.com/wr-90-waveguide-electromechanical-relay-failsafe-switch-spdt-dpdt-12.4-ghz-fmwgs6062-p.aspx>

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

TOLERANCES: CABLE LENGTH (L) TOLERANCES:

$X = \pm 2$ [5.08]	FRACTIONS	$L \leq 12$ [305] = +1 [25] / -0
$.XX = \pm 0.02$ [ .51]	$\pm 1/32$	$12$ [305] < $L \leq 60$ [1524] = +2 [51] / -0
$.XXX = \pm 0.005$ [ .13]	ANGLES $\pm 1^\circ$	$60$ [1524] < $L \leq 120$ [3048] = +4 [102] / -0
		$120$ [3048] < $L \leq 300$ [7620] = +6 [152] / -0
		$300$ [7620] < $L = +5\%L$ / -0

THIRD-ANGLE PROJECTION



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SHEET 2 OF 2

ALL DIMENSIONS SHOWN ARE FOR REFERENCE ONLY.

SCALE N/A

SIZE A	CAGE CODE 3FKR5	DRAWN BY DFRISIELLO	ITEM NO. FMWGS6062	REV A
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