

**WR-90 Waveguide Electromechanical Relay Failsafe,
X Band Switch SPDT/DPDT 12.4 GHz Max Freq.,
5,000 Watts UG O-Ring, 28V, TTL, Indicators**

The FMWGS6063 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 insertion loss, 85 dB Isolation and 1.06:1 VSWR. The design operates across a temperature range of -40°C to +85°C, requires +28Vdc 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 of 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	25.2	28	30.8	Volts
Actuating Current @ 28 Volts		140	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
- +28 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
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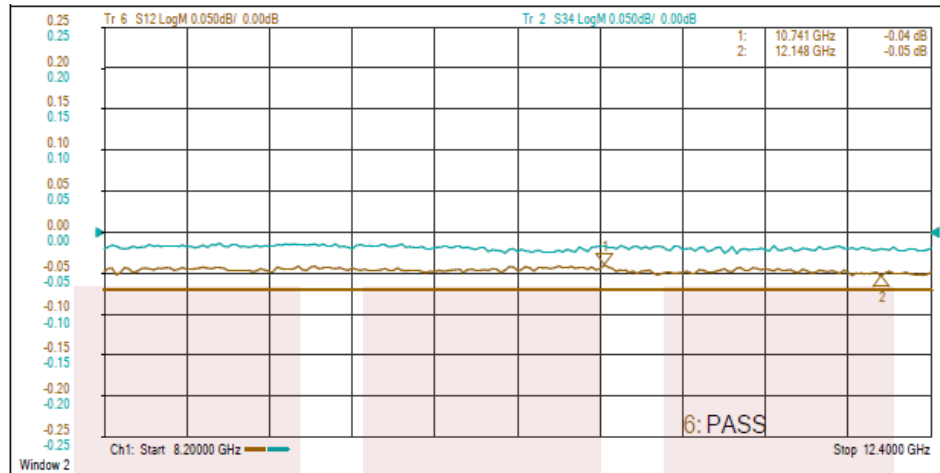
Compliance Certifications (see product page for current document)

Plotted and Other Data

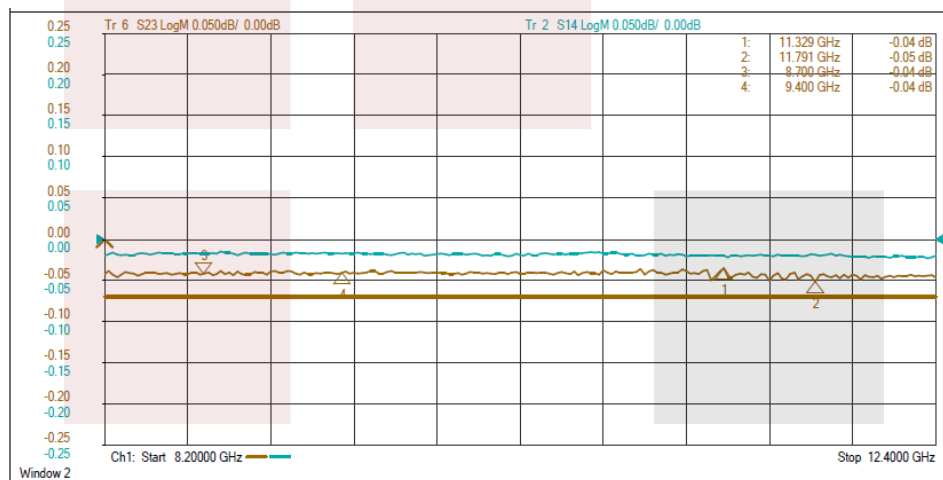
Notes:

Typical Performance Data

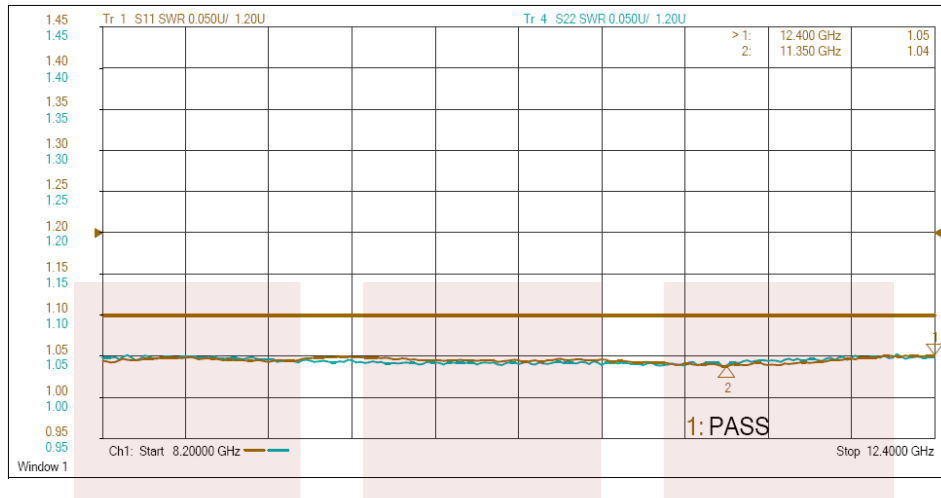
Typical (Position 1) Insertion Loss



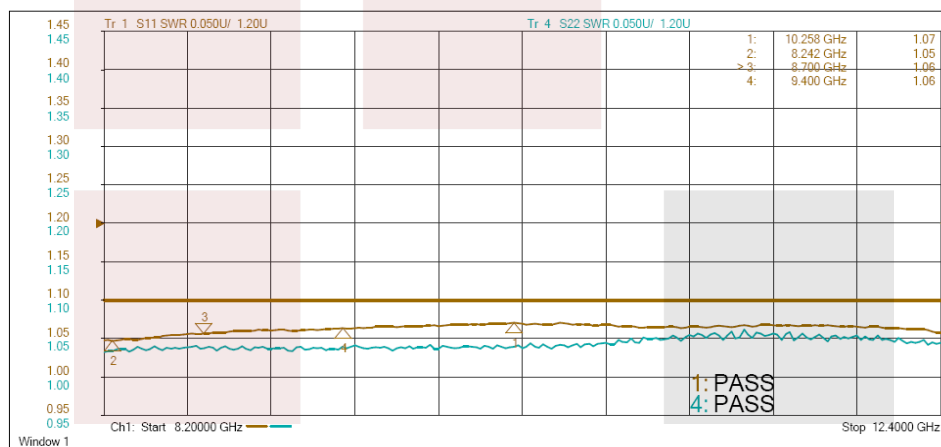
Typical (Position 2) Insertion Loss



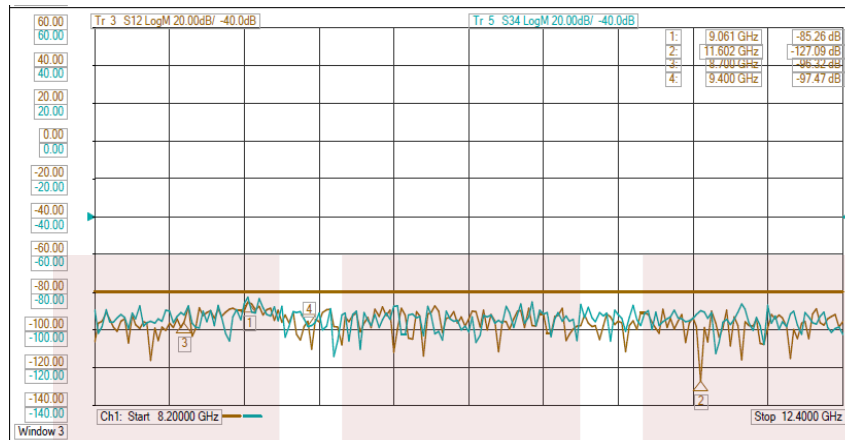
Typical (Position 1)
VSWR



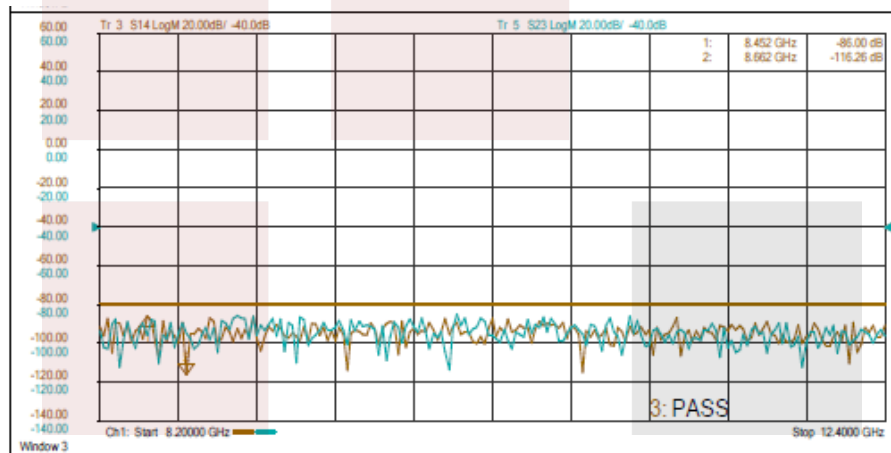
Typical (Position 2)
VSWR



**Typical (Position 1)
Isolation**



**Typical (Position 2)
Isolation**



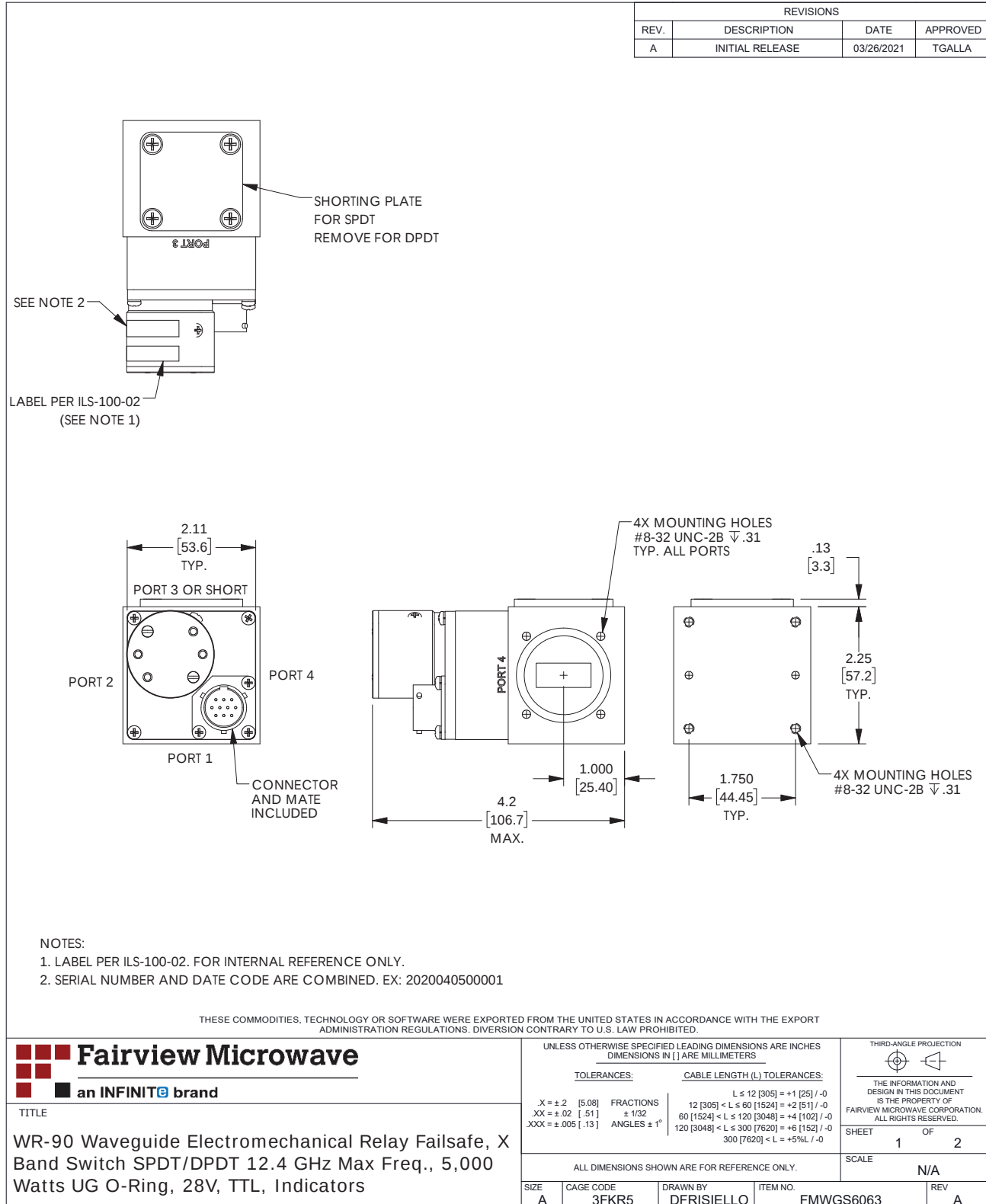
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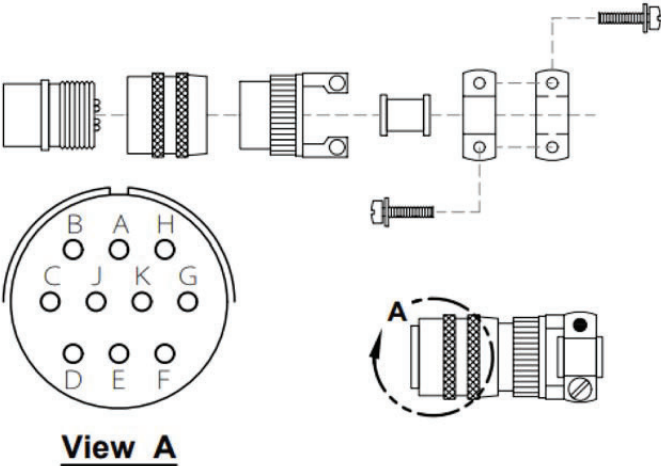
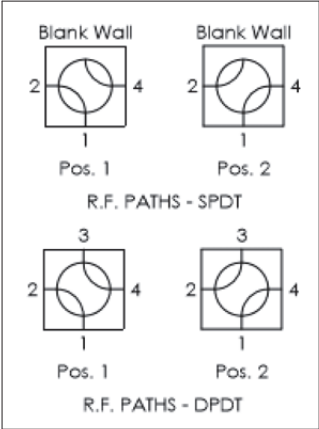
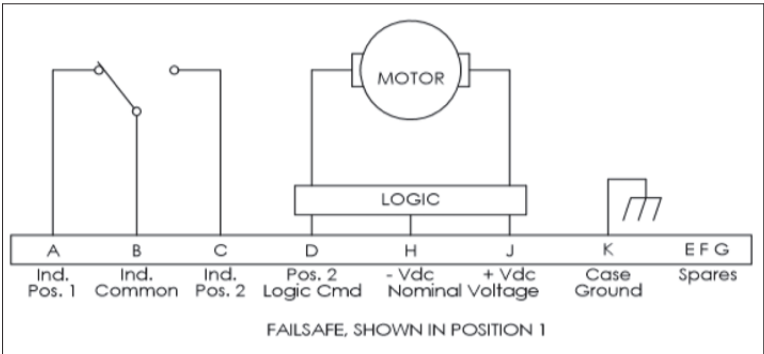
For additional information on this product, please click the following link: [WR-90 Waveguide Electromechanical Relay Failsafe, X Band Switch SPDT/DPDT 12.4 GHz Max Freq., 5,000 Watts UG O-Ring, 28V, TTL, Indicators FMWGS6063](#)

URL: <https://www.fairviewmicrowave.com/wr-90-waveguide-electromechanical-relay-failsafe-switch-spd-dpdt-12.4-ghz-fmwgs6063-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 = ± 2	[5.08]	FRACTIONS	L ≤ 12 [305] = +1 [25] / -0
.XX = ± 0.2	[.51]	± 1/32	12 [305] < L ≤ 60 [1524] = +2 [51] / -0
.XXX = ± 0.005	[.13]	ANGLES ± 1°	60 [1524] < L ≤ 120 [3048] = +4 [102] / -0
			120 [3048] < L ≤ 300 [7620] = +6 [152] / -0
			300 [7620] < L = +5%L / -0

ALL DIMENSIONS SHOWN ARE FOR REFERENCE ONLY.			
SIZE	CAGE CODE	DRAWN BY	ITEM NO.
A	3FKR5	DFRISIELLO	FMWGS6063

THIRD-ANGLE PROJECTION

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SHEET	2	OF	2
SCALE	N/A		
REV	A		

T-Rev.D