

WR-90 Waveguide Electromechanical Relay Failsafe, X Band Switch SPDT/DPDT 12.4 GHz Max Freq., 5,000 Watts CPR Flat, 12V, Indicators

The FMWGS6064 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 performance includes 0.05 dB insertion loss, 85 dB Isolation and 1.06:1 VSW. 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 of 250K cycles minimum. The waveguide ports have CPR-Flat Flanges. 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.



Features:

- 8.2 to 12.4 GHz SPDT Waveguide Switch
- Optional DPDT Configuration
- WR-90 Waveguide with CPR-Flat Flanges
- Failsafe Actuator and Position Indicator
- Insertion Loss: 0.05 dB typ
- Isolation: 85 dB typ
- Switching Time: <100 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

Electrical Specifications

Switch Type	SPDT/DPDT
Actuator Type	Failsafe
Actuator Options	Window Indicator, Manual Override

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		<100		ms
Input Power (CW)			5	kWatts
Input Power (Peak/Unpressurized)			123	kWatts

Mechanical Specifications

Size	
Length	2.25 in [57.15 mm]
Width/Diameter	2.41 in [61.21 mm]
Height	4.5 in [114.3 mm]
Weight	1.28 lbs [580.6 g]
Operating Life	250,000 Cycles
Operating Pressure	30 psig

Configuration

Waveguide Size	WR-90
Flange Type	CPR Flat
Body Material and Plating	Aluminum, Black
Body Plating Specification	MIL-DTL-5541

Applications:

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

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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

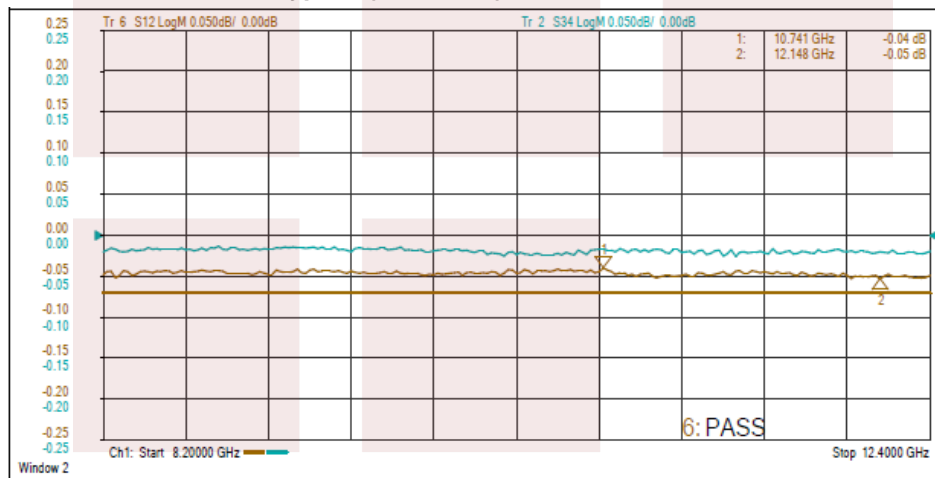
Compliance Certifications (see [product page](#) for current document)

Plotted and Other Data

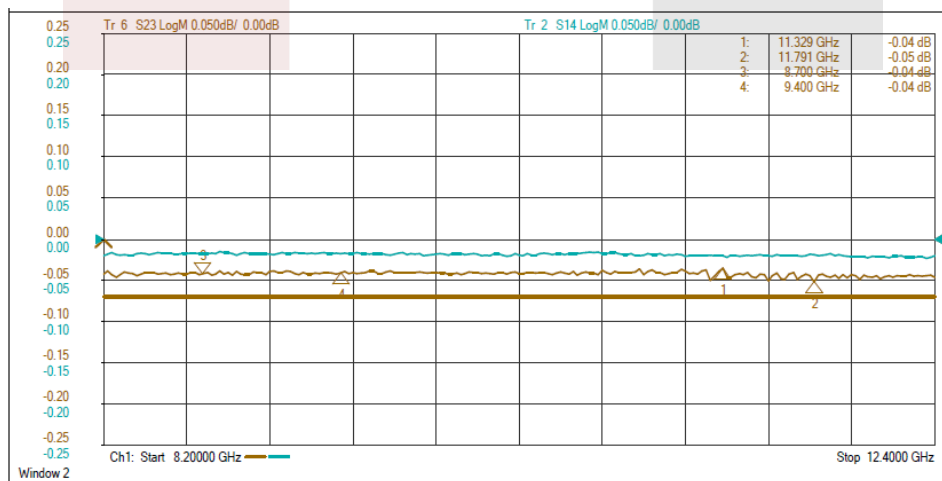
Notes:

Typical Performance Data

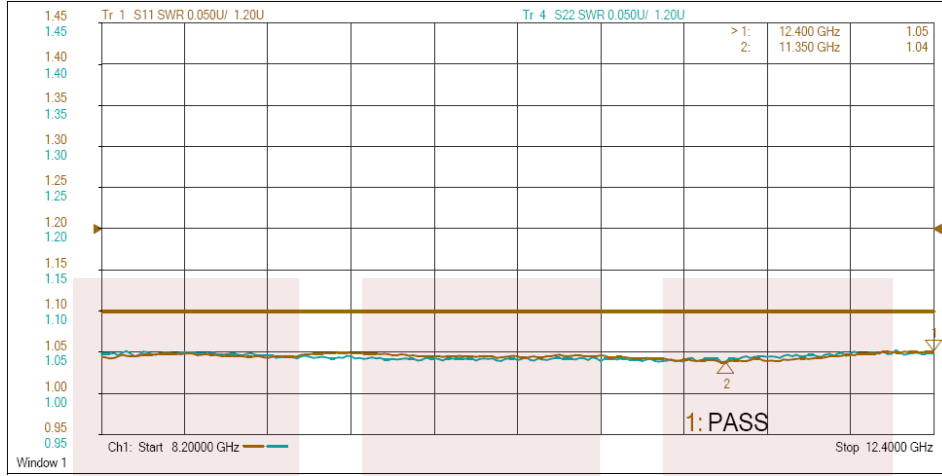
Typical (Position 1) Insertion Loss



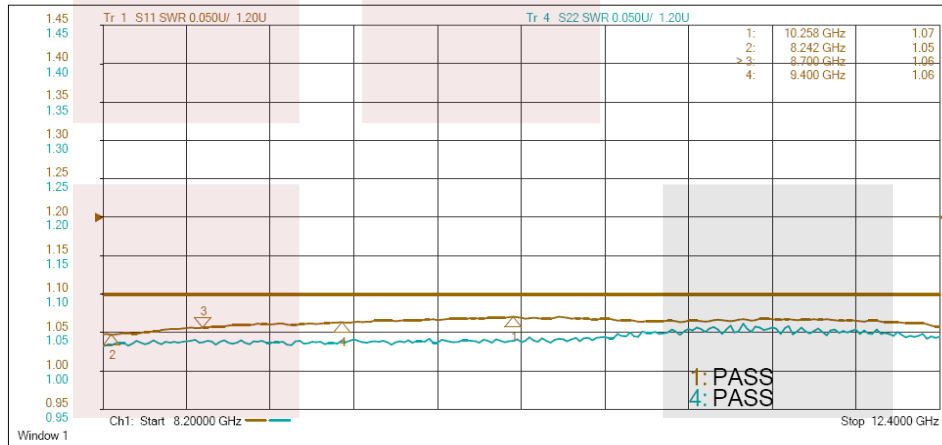
Typical (Position 2) Insertion Loss



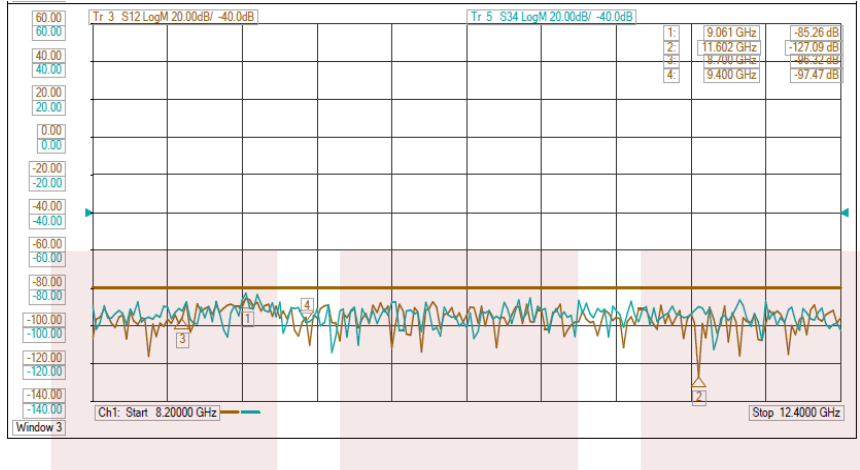
Typical (Position 1)
VSWR



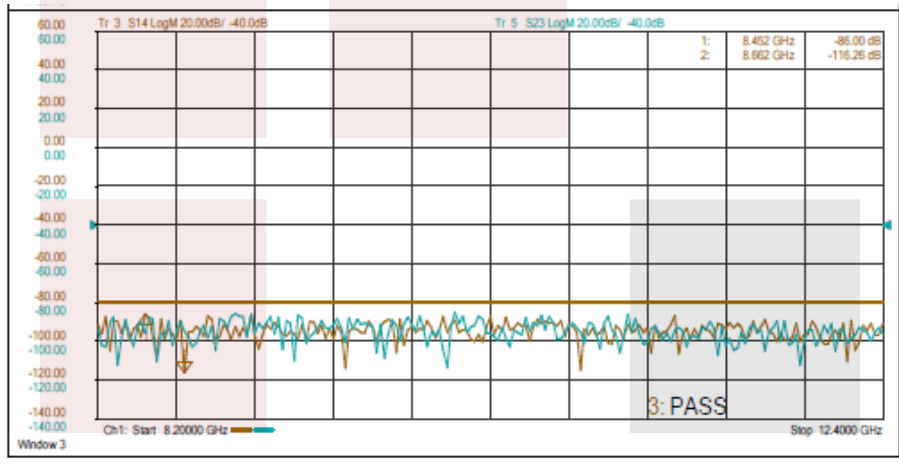
Typical (Position 2)
VSWR



**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 CPR Flat, 12V, 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.

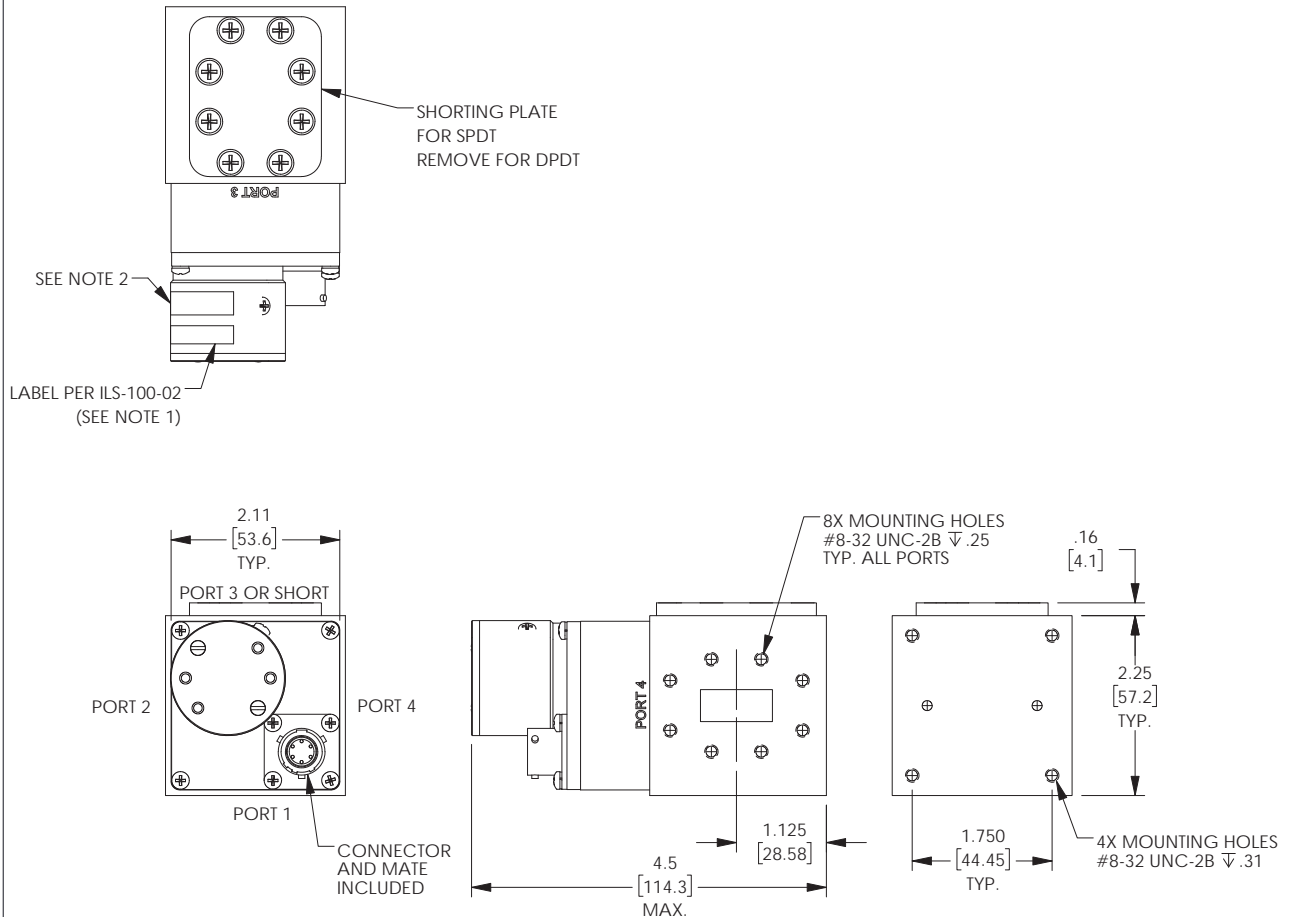
For additional information on this product, please click the following link: [WR-90 Waveguide Electromechanical Relay Failsafe, X Band Switch SPDT/DPDT 12.4 GHz Max Freq., 5,000 Watts CPR Flat, 12V, Indicators FMWGS6064](#)

URL: <https://www.fairviewmicrowave.com/wr-90-waveguide-electromechanical-relay-failsafe-switch-spdt-dpdt-12.4-ghz-fmwgs6064-p.aspx>

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



- NOTES:
 1. LABEL PER ILS-100-02. FOR INTERNAL REFERENCE ONLY.
 2. SERIAL NUMBER AND DATE CODE ARE COMBINED. EX: 2020040500001

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TITLE
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 DIMENSIONS IN [] ARE MILLIMETERS

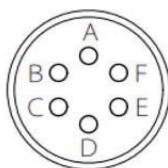
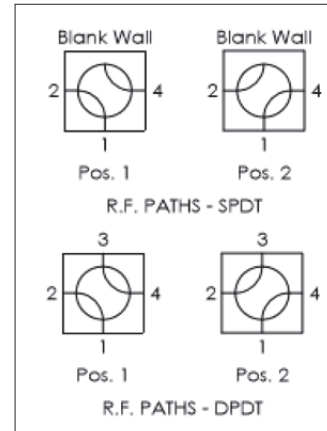
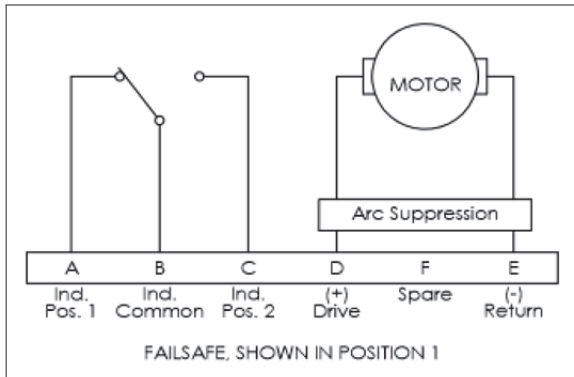
TOLERANCES:		CABLE LENGTH (L) TOLERANCES:	
.X = ± 2 [5.08]	FRACTIONS ± 1/32	L ≤ 12 [305] = +1 [25] / -0	
.XX = ± 0.02 [.51]	ANGLES ± 1°	12 [305] < L ≤ 60 [1524] = +2 [51] / -0	
.XXX = ± 0.005 [.13]		60 [1524] < L ≤ 120 [3048] = +4 [102] / -0	
		120 [3048] < L ≤ 300 [7620] = +6 [152] / -0	
		300 [7620] < L = +5%L / -0	

THIRD-ANGLE PROJECTION

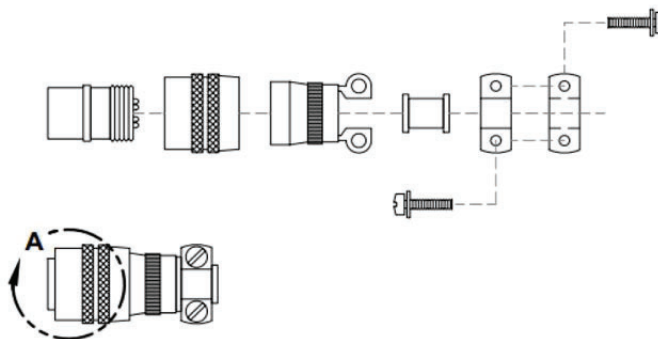
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ALL DIMENSIONS SHOWN ARE FOR REFERENCE ONLY.				SCALE	N/A
SIZE	CAGE CODE	DRAWN BY	ITEM NO.	REV	
A	3FKR5	DFRISIELLO	FMWGS6064	A	

T-Rev.D



View A



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		300 [7620] < $L = +5\%L$ / -0

THIRD-ANGLE PROJECTION



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SHEET 2 OF 2

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SCALE N/A

SIZE A	CAGE CODE 3FKR5	DRAWN BY DFRISIELLO	ITEM NO. FMWGS6064	REV A
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T-Rev.D