

**WR-90 Waveguide Electromechanical Relay
Latching Switch SPDT 12.4 GHz Max Frequency,
5,000 Watts X Band UG-39/U Square Cover Flange**

The FMWGS6019 electromechanical WR-90 waveguide 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 latching TTL Logic controlled Self Cut Off 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 typ insertion loss, 105 dB typ Isolation, 1.06:1 typ VSWR, and an operating life of 250K cycles minimum. 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. The waveguide ports have Grooved UG-39/U Square Cover Flanges (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 10 pin MIL-SPEC DC bias connector with mate included.

Electrical Specifications

Switch Type	SPDT
Actuator Type	Latching
Switching Sequence	Break Before Make
Actuator Options	TTL Logic, Self Cut Off, Window Indicator, Manual Override
TTL Control	on: 2.4 to 5.5 Volts off: 2.4 to 5.5 Volts
TTL Control Current	1.2 mA at 5.5 Volts 1.2 mA at 5.5 Volts

Description	Min	Typ	Max	Units
Frequency Range	8.2		12.4	GHz
Impedance		50		Ohms
Operating Voltage	10	12	20	Volts
Actuating Current @ 12 Volts		295	1,000	mA
VSWR		1.06:1	1.1:1	
Insertion Loss		0.05	0.07	dB
Isolation	80	105		dB
Switching Time		60	80	ms
Input Power (CW)			5	KWatts
Input Power, Peak 10% Duty Cycle			123	KWatts



Features:

- 8.2 to 12.4 GHz SPDT Waveguide Switch
- Optional DPDT Configuration
- WR-90 Waveguide with O-Rings
- Insertion Loss: 0.05 dB typ
- Isolation: 105 dB typ
- +12 Vdc Nominal Voltage
- Input Power Rating up to 5 kW CW max
- Latching TTL Logic Self Cut Off Actuator
- Position Indicator and 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	4.8 in [121.92 mm]
Width/Diameter	2.25 in [57.15 mm]
Height	2.25 in [57.15 mm]
Weight	1.424 lbs [645.92 g]
Operating Life (Cold Switching)	250,000 Cycles
Operating Pressure	30 psig

Configuration

Waveguide Size	WR-90
Flange Type	Square Cover
Flange Designation	UG-39/U
Body Material and Plating	Aluminum, Chem Film
Body Plating Specification	MIL-DTL-5541 Type II Class 3

Mechanical Specification Notes:

Production Burn-In IAW MIL-DTL-55041 1500 cycles

Environmental Specifications

Temperature

Operating Range	-40 to +85 deg C
Storage Range	-55 to +100 deg C

Ingress Protection (IP) Rating	IP67
Humidity	0-100%, Fully Weatherized
ESD Sensitivity	ESD Sensitive Material, Transport material in Approved ESD bags. Handle in approved ESD Workstation.

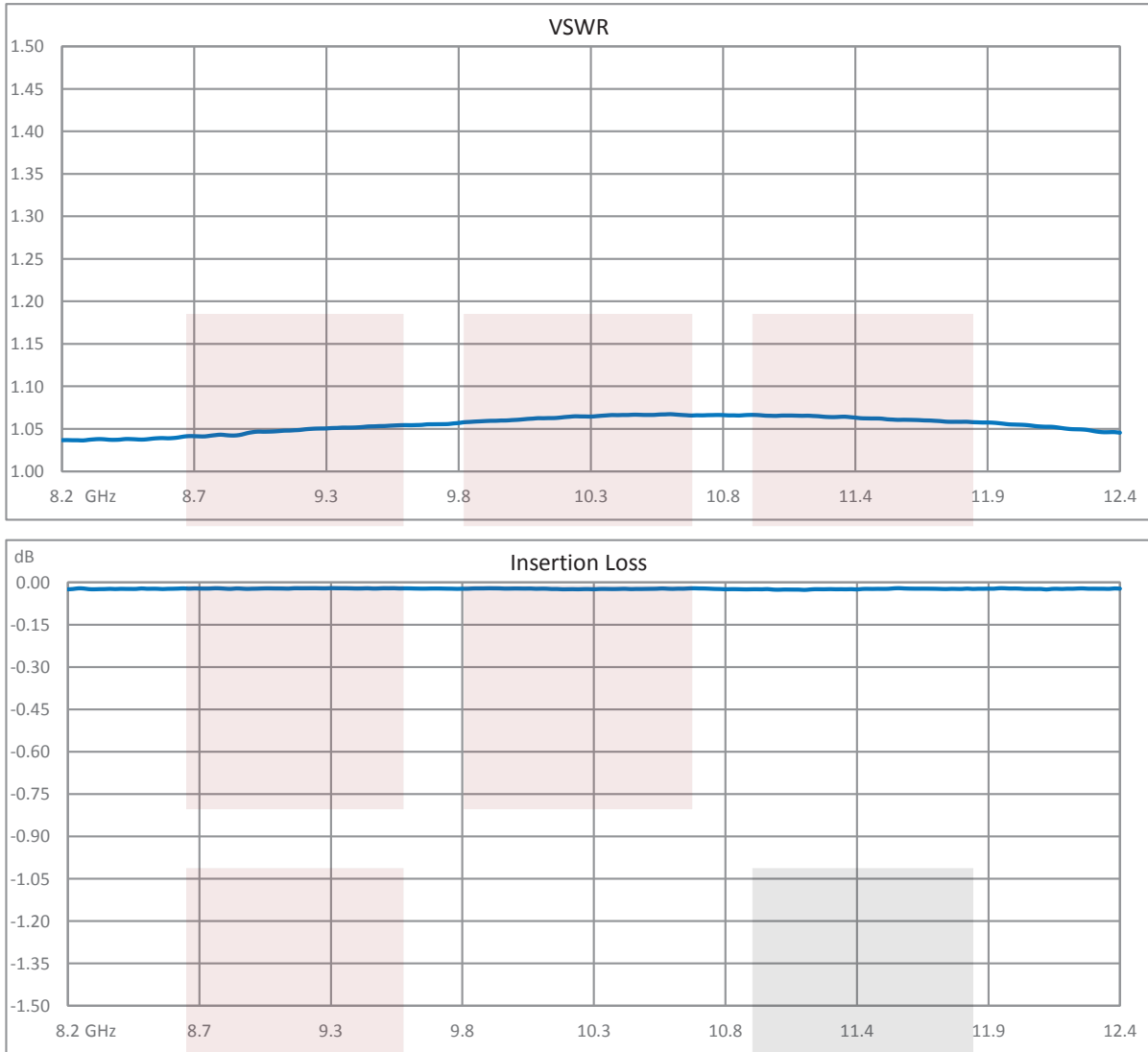


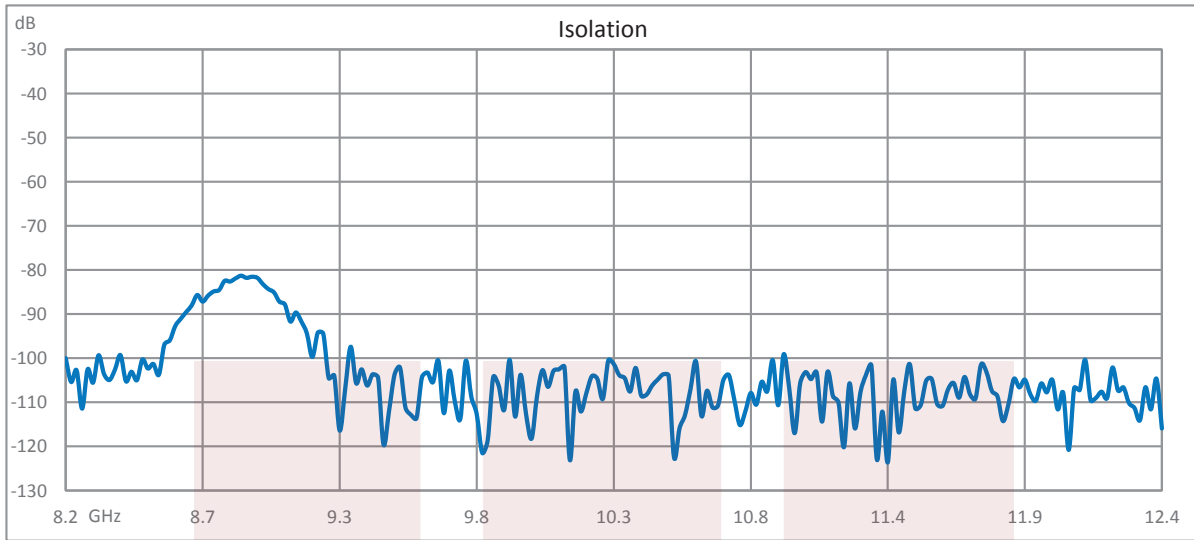
Compliance Certifications (see [product page](#) for current document)

Plotted and Other Data

Notes:

Typical Performance Data



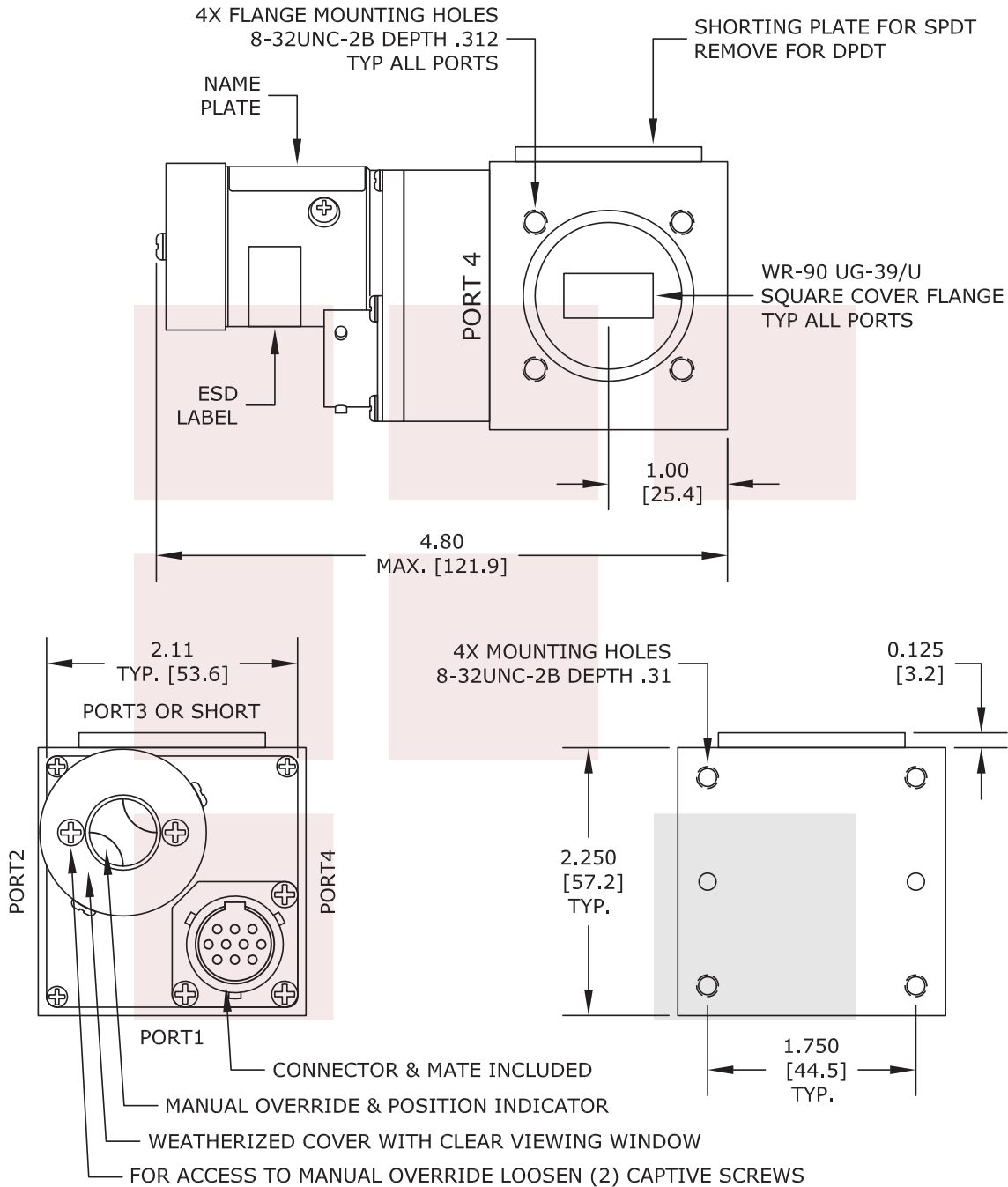


WR-90 Waveguide Electromechanical Relay Latching Switch SPDT 12.4 GHz Max Frequency, 5,000 Watts X Band UG-39/U Square Cover Flange from Fairview Microwave is in-stock and available to ship same-day. All of our RF/microwave products are available off-the-shelf from our ISO 9001:2008 certified facilities in Allen, Texas. Fairview Microwave is RF on-demand.

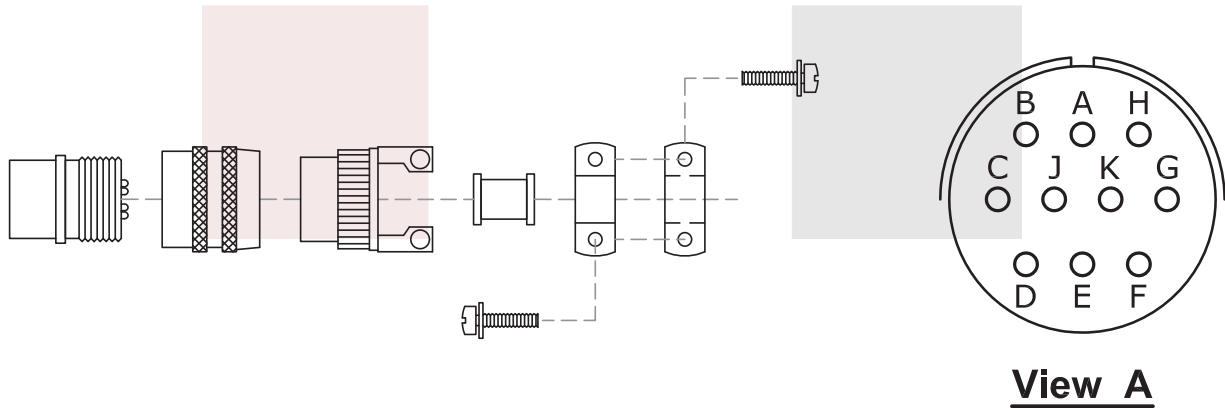
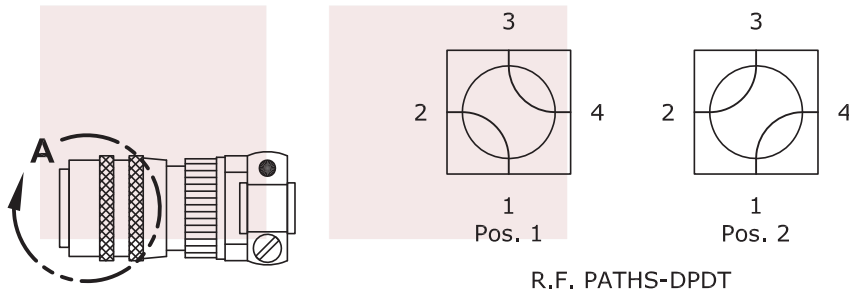
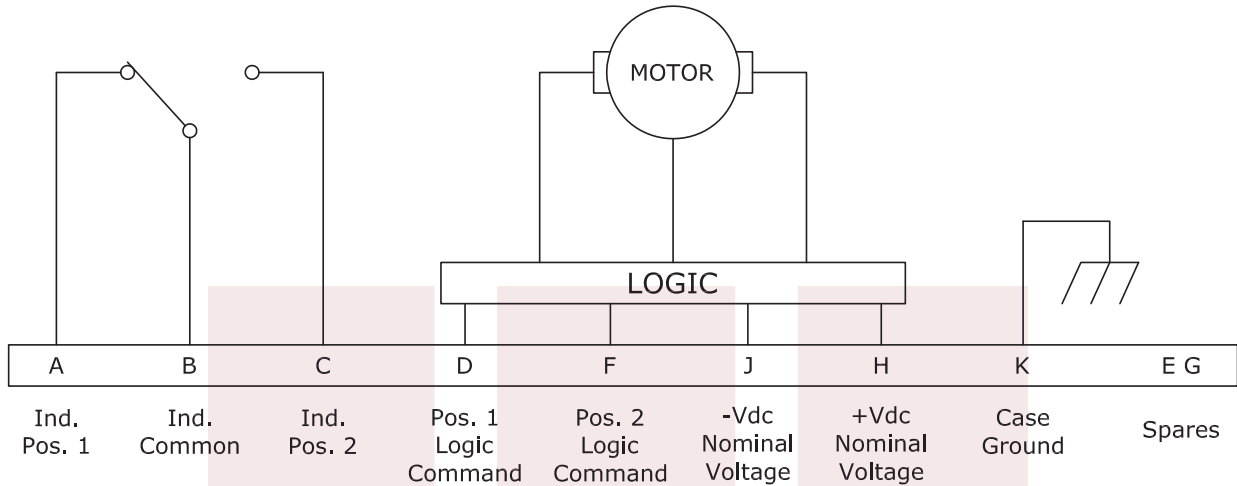
For additional information on this product, please click the following link: [WR-90 Waveguide Electromechanical Relay Latching Switch SPDT 12.4 GHz Max Frequency, 5,000 Watts X Band UG-39/U Square Cover Flange FMWGS6019](https://www.fairviewmicrowave.com/wr-90-waveguide-electromechanical-relay-latching-switch-spdt-12.4-ghz-fmw-gs6019)

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CAD FILE	013017	SHEET	SCALE	N/A	SIZE A 2233



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