

Transfer Electromechanical Relay Failsafe Switch DC to 12.4 GHz, 2M Lifecycles, TNC, 50 Watts, 12V, Solder Pins

The FMSW6510 is a Transfer electromechanical relay switch that operates across a wide frequency range of DC to 12 GHz and can handle up to 50W of average power in a break before make condition. The design is rated for 2 million lifecycles and features a Failsafe Actuator. Impressive typical performance includes 0.2 dB insertion loss and isolation greater than 80 dB. This switch requires +12Vdc bias voltage and operates over a temperature range of -25°C to +65°C. The rugged and compact package assembly supports TNC female connectors and Solder Pins for DC control. And for highly reliable operation, the model is guaranteed to meet MIL-STD-202 environmental test conditions for shock and random vibration.

Electrical Specifications (TA = +25°C, DC Voltage = +12 Vdc)

Description	Transfer Failsafe			Units
	Min	Typ	Max	
Switch Type	Transfer			
Actuator Type	Failsafe			
Frequency Range	DC		12.4	GHz
Operating Voltage		+12		Volts
Actuating Current @ +12 Volts			380	mA
VSWR		1.3:1	1.7:1	
Insertion Loss		0.2	0.6	dB
Isolation	60	80		dB
Input Power (CW) (at 12.4 GHz)			50	Watts

Performance by Frequency

Description	F1	F2	F3	F4	F5	Units
Frequency Range	DC - 2	2 - 4	4 - 8	8 - 12		GHz
VSWR, Max	1.2:1	1.3:1	1.5:1	1.7:1		
Insertion Loss, Max	0.2	0.4	0.5	0.6		dB
Isolation, Min	80	80	70	60		dB

Mechanical Specifications

Size	
Length	2.52 in [64.01 mm]
Width/Diameter	3.12 in [79.25 mm]
Height	1.75 in [44.45 mm]
Weight	0.4 lbs [181.44 g]

Connectors

RF Connector Type	TNC Female
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Environmental Specifications

Temperature	
Operating Range	-25 to +65 deg C
Storage Range	-55 to +100 deg C



Features:

- Transfer Electromechanical Relay Switch
- DC to 12 GHz Frequency Range
- Failsafe Actuator with Self Cut-Off
- 2M Lifecycle Rating
- Insertion Loss 0.2 dB typ
- Isolation > 80 dB typ
- VSWR as low as 1.25:1 max
- +12 Volt DC Bias
- Solder Terminal Pins for DC Control
- TNC Female Connectors
- -25°C to +65°C Operating Temperature
- Up to 50 Watt Average Power Handling
- 50 Ohm Design
- Hot Switching Capability - Consult Factory
- S-Parameter Data available upon request
- Rugged Design meets Mil-STD-202 Test Conditions

Applications:

- Aerospace & Defense
- Test & Measurement
- Microwave Radio Systems
- Military & Commercial Communication Systems
- Research & Development
- SATCOM
- Wireless Communications
- Enterprise
- IoT

Fairview Microwave
301 Leora Ln., Suite 100
Lewisville, TX 75056
Tel: 1-800-715-4396 / (972) 649-6678
Fax: (972) 649-6689
www.fairviewmicrowave.com
sales@fairviewmicrowave.com

Shock
Vibration

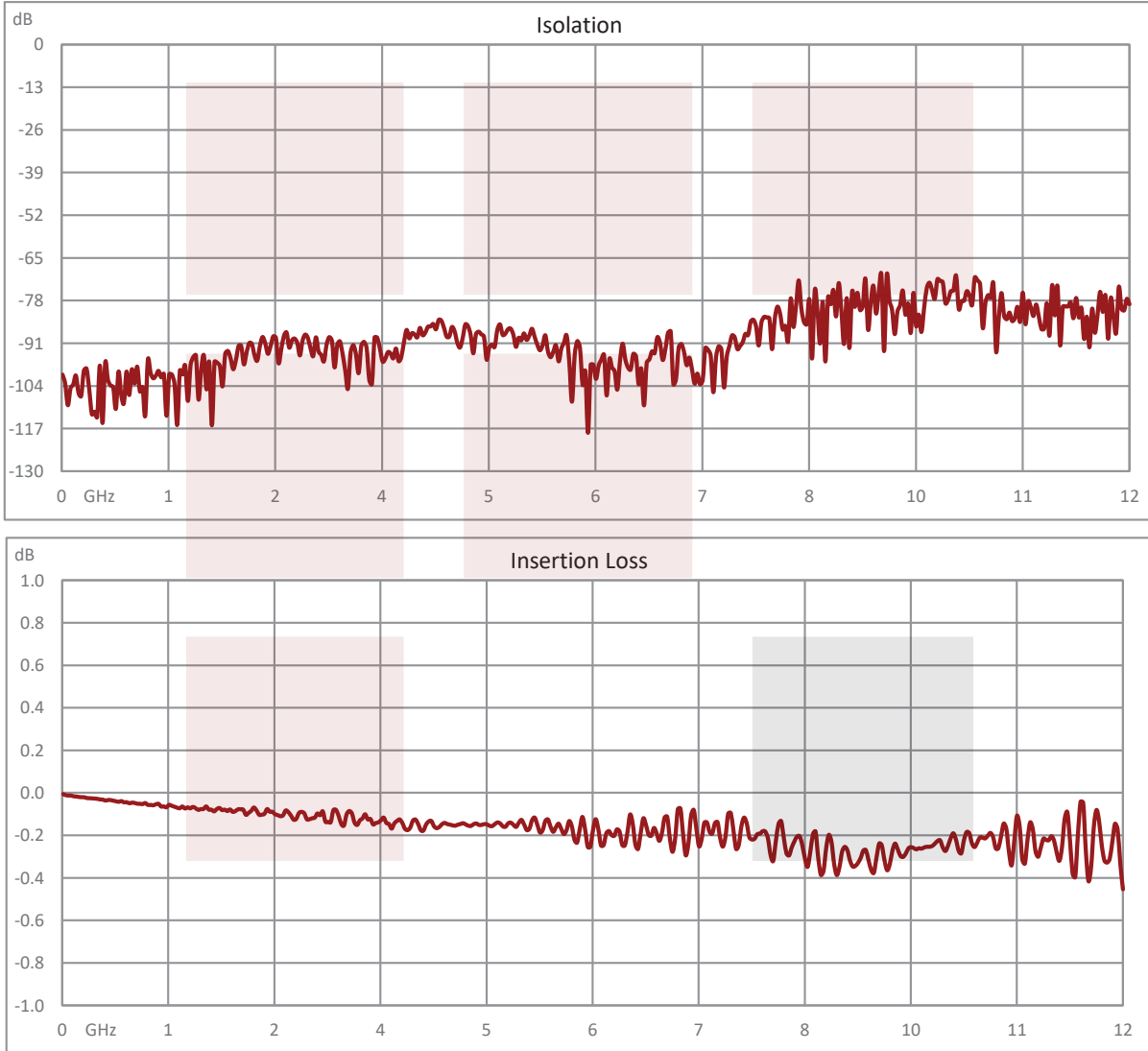
MIL-STD-202 Method 213, Condition D, 500G (non oper)
MIL-STD-202 Method 204, Condition D, 10G RMS (non oper)

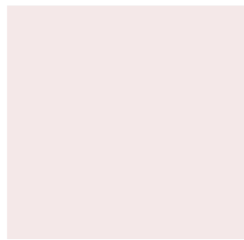
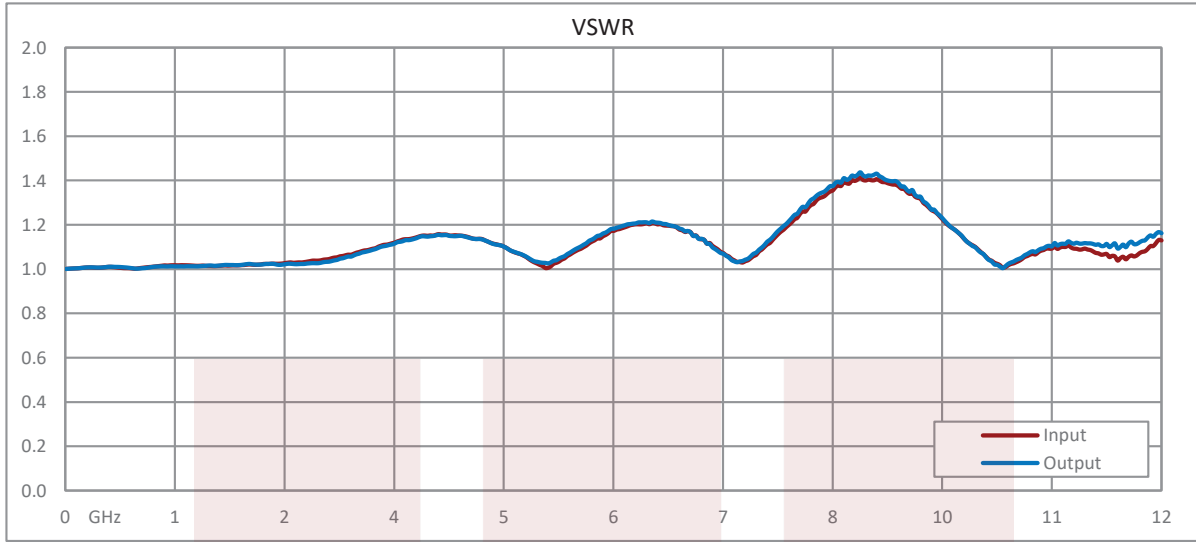
Compliance Certifications (see [product page](#) for current document)

Plotted and Other Data

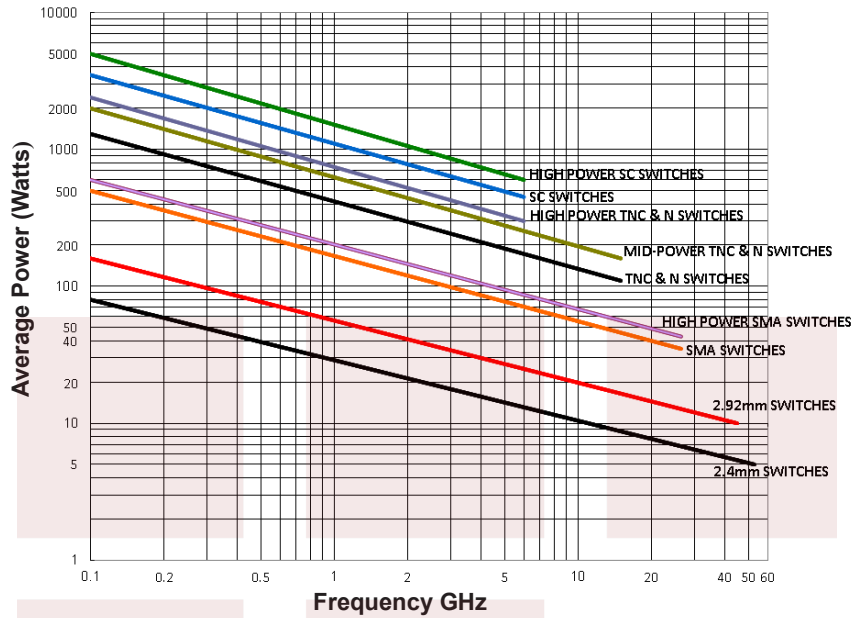
Notes:

Typical Performance Data





Power Handling vs. Frequency



Power Handling De-rating vs. Load VSWR



Power Handling Chart and Derating Curves based on the following Test and Environmental Conditions:
 Ambient temperature: 20-25°C
 Altitude: Sea Level to 1,000 feet
 Relative Humidity: 50-55%
 Load VSWR: ≤ 1.20:1
 Operation: Cold Switching

Transfer Electromechanical Relay Failsafe Switch DC to 12.4 GHz, 2M Lifecycles, TNC, 50 Watts, 12V, Solder Pins 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.

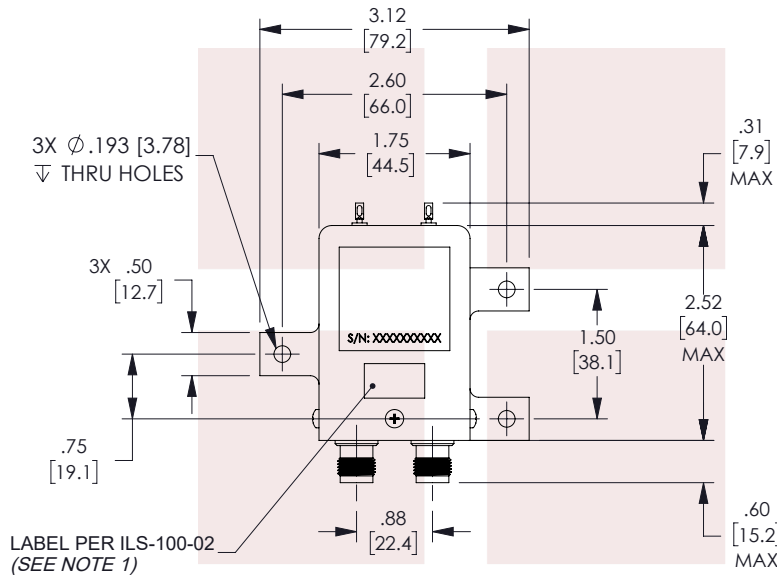
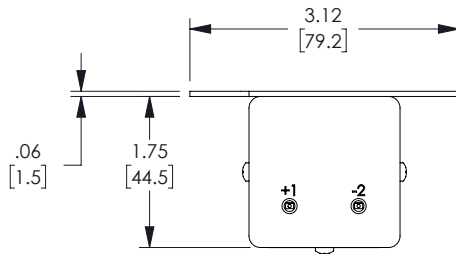
For additional information on this product, please click the following link: [Transfer Electromechanical Relay Failsafe Switch DC to 12.4 GHz, 2M Lifecycles, TNC, 50 Watts, 12V, Solder Pins FMSW6510](#)

URL: <https://www.fairviewmicrowave.com/transfer-failsafe-12.4-ghz-electro-mechanical-relay-switch-50w-12v-tnc-fm-sw6510-p.aspx>

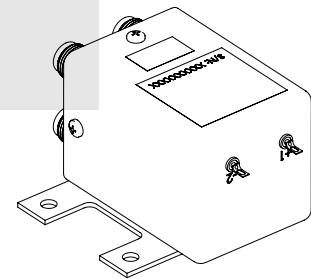
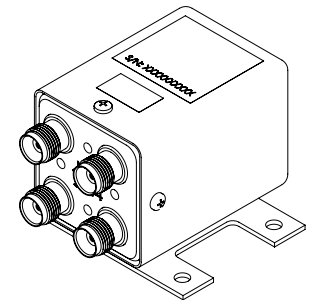
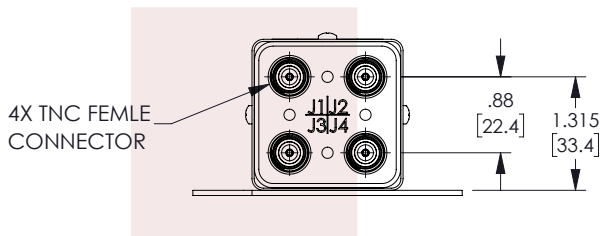
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REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
A	INITIAL RELEASE	05/19/2022	T.GALLA



LABEL PER ILS-100-02 (SEE NOTE 1)



NOTES:

- LABEL PER ILS-100-02. FOR INTERNAL REFERENCE ONLY. LABEL LOCATION FOR REFERENCE ONLY.

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TITLE

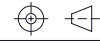
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UNLESS OTHERWISE SPECIFIED LEADING DIMENSIONS ARE INCHES DIMENSIONS IN [] ARE MILLIMETERS

TOLERANCES: CABLE LENGTH (L) TOLERANCES:

.X = ±.2 [5.08]	FRACTIONS	L ≤ 12 [305] = +1 [25] / -0
.XX = ±.02 [.51]	± 1/32	12 [305] < L ≤ 60 [1524] = +2 [51] / -0
.XXX = ±.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

THIRD-ANGLE PROJECTION



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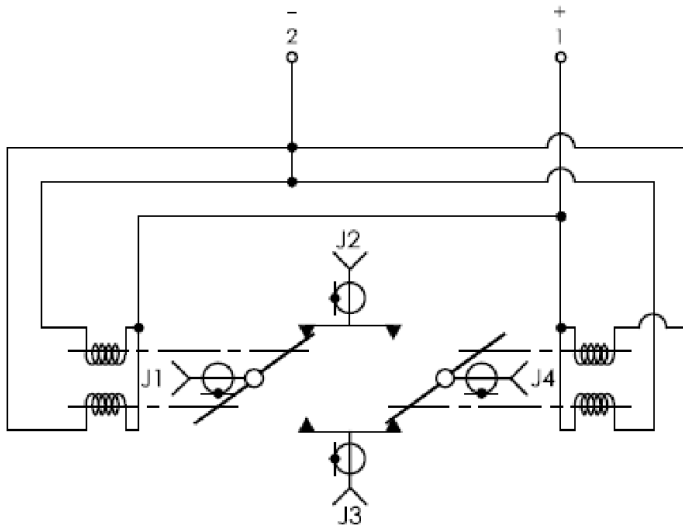
SHEET 1 OF 2

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SCALE N/A

SIZE A	CAGE CODE 3FKR5	DRAWN BY KGLEBOVA	ITEM NO. FMSW6510	REV A
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T-Rev.D



VOLTAGE	RF PATH
DE-ENERGIZED	J1-J2, J3-J4
ENERGIZED	J1-J3, J2-J4

SCHEMATIC



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	.XX = ±.02 [.51]	ANGLES ± 1°	12 [305] < L ≤ 60 [1524] = +2 [51] / -0 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.				SCALE N/A
SIZE A	CAGE CODE 3FKR5	DRAWN BY KGLEBOVA	ITEM NO. FMSW6510	REV A

T-Rev.D