

0 to 63 dB Programmable USB Controlled Step Attenuator with a 1 dB Step SMA Female to SMA Female from 100 MHz to 18 GHz

The FMAT8012 is an 7 Bit USB Controlled Solid State Programmable Attenuator which operates over a wide band frequency range of 100 MHz to 18 GHz. The 50 ohm solid state design supports a USB interface and MS .NET 4.0+ framework. A downloadable USB test software manual available. The FMAT8012 has an attenuation range that covers 0 to 63 dB in 0.5 dB steps. Attenuation steps are 0.5, 1, 2, 4, 8, 16, and 32 dB. Insertion loss is 4 dB typical with a maximum RF input power of +25 dBm. Additional typical performance includes +/- 0.5 dB attenuation accuracy, and switching speed of 0.35 microseconds. Operational temperature range is -40°C to +85°C, and the DC supply is +5 Vdc @ 2 mA nominal. The compact and rugged package design supports SMA female RF input/output connectors, and a USB Mini-B connector for DC and TTL controls. A 6' USB A to USB Mini-B cable is included.

Electrical Specifications (Values at 25°C, sea level)

Description	Min	Typ	Max	Unit
Frequency Range	0.1		18	GHz
Impedance		50		Ohms
Mean Attenuation Range	0		63	dB
Insertion Loss		4	7	dB
VSWR		1.5:1	2:1	
DC Voltage		+5		Vdc
DC Current		2		mA
Accuracy of Attenuation				dB
0.5 dB to 3.5 dB		±0.25		dB
4 dB to 14.5 dB		±0.5		dB
15 dB to 31.5 dB		±0.75		dB
32 dB to 63 dB		±1		dB
Step Size	1			dB
Switching Time		0.35	1	us
RF Input Power (Operating- Input Side)			24	dBm
RF Input Power (Operating-Output Side)			15	dBm
RF Input Power (No Damage- Input Side)			25	dBm
RF Input Power (No Damage-Output Side)			16	dBm

Performance by Frequency

Description	F1	F2	F3	F4	F5	Units
Freq. Range	0.1-0.1	0.1-3	3-6	6-12.4	12.4-18	GHz
Insertion Loss, Typ	2	2.7	3.2	4.5	6.4	dB
VSWR, Max	1.6	1.6	1.6	2	2	
VSWR, Typ	1.3	1.3	1.3	1.6	1.6	

Electrical Specification Notes:

0.5, 1, 2, 4, 8, 16, and 32 dB bit Attenuation Steps



Features:

- USB Controlled 7 Bit Solid State Programmable Attenuator
- Frequency Range 100 MHz to 18 GHz
- Attenuation Range: 0 to 63 dB in 0.5 dB steps
- Attenuation Steps: 0.5, 1, 2, 4, 8, 16, 32 dB
- Insertion Loss 4 dB typ
- Attenuation Accuracy +/- 0.5 dB typ
- Switching Speed 0.35 microseconds typ
- Max RF Input Power +25 dBm
- DC Voltage +5 Vdc
- DC Current 2 mA typ
- 50 Ohm Design
- -40°C to +85°C Operating Temperature
- SMA Female Connectors
- USB Mini-B connector for DC and TTL controls
- Rugged Mil Grade Package Design

Applications:

- Military & Commercial Communication Systems
- Microwave Radio Systems
- Radar Systems
- Test & Measurement
- Research & Development
- RF Wideband Front Ends

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Mechanical Specifications

Size

Weight	0.35 lbs [158.76 g]
Connector 1	SMA Female
Connector 2	SMA Female

Environmental Specifications

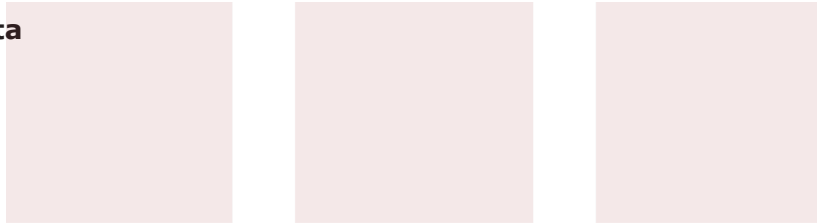
Temperature

Operating Range	-40 to +85 deg C
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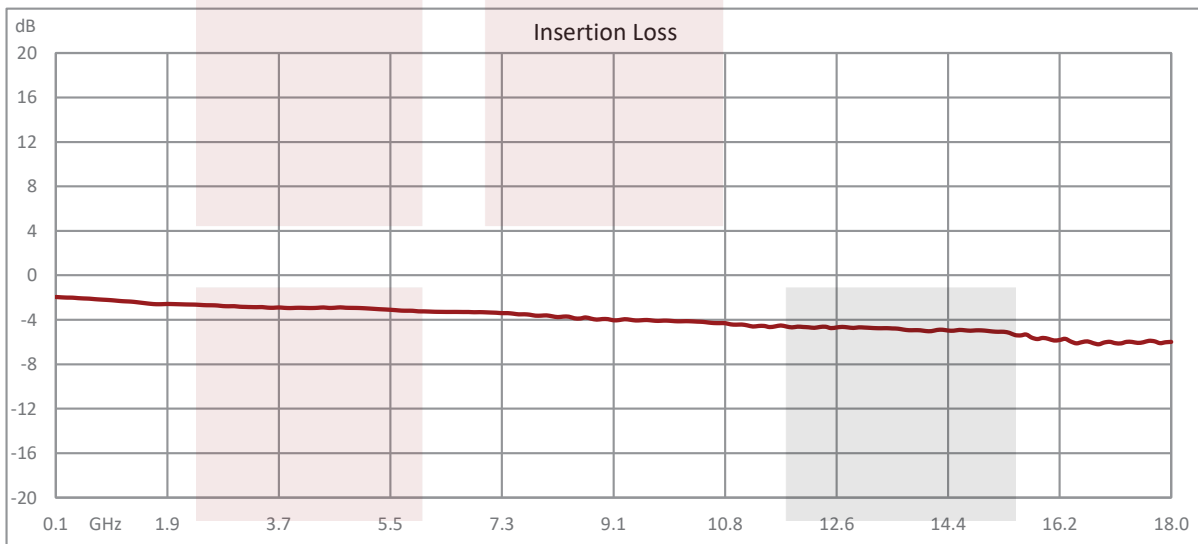
Compliance Certifications (see [product page](#) for current document)

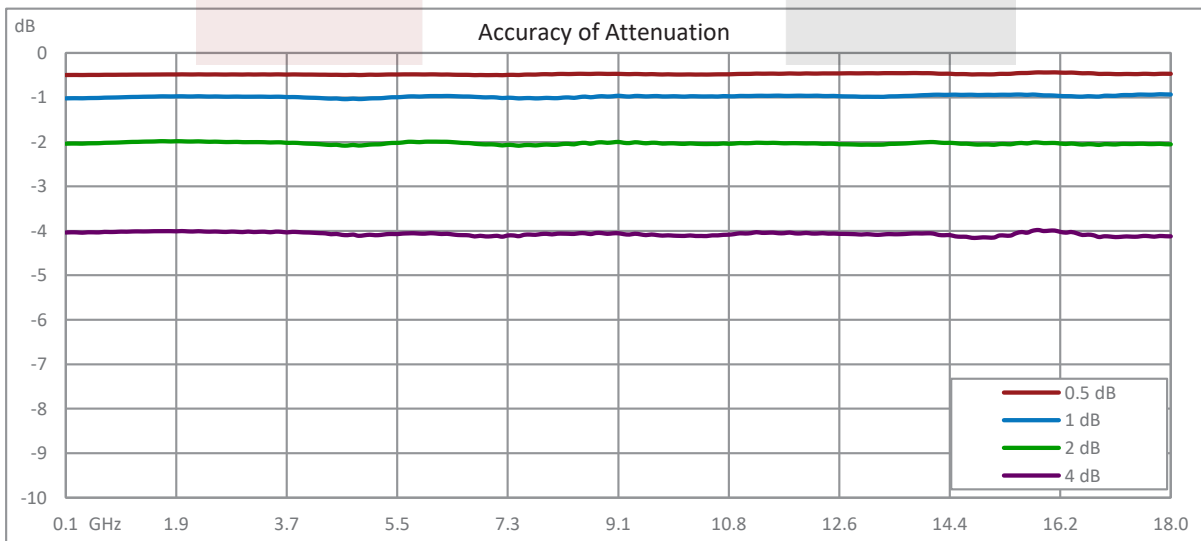
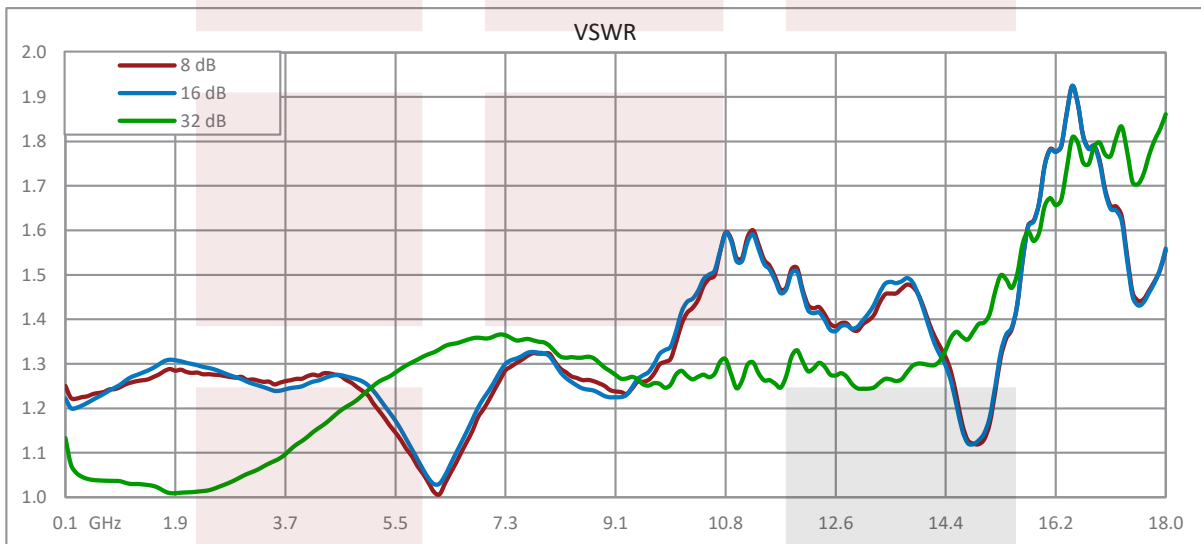
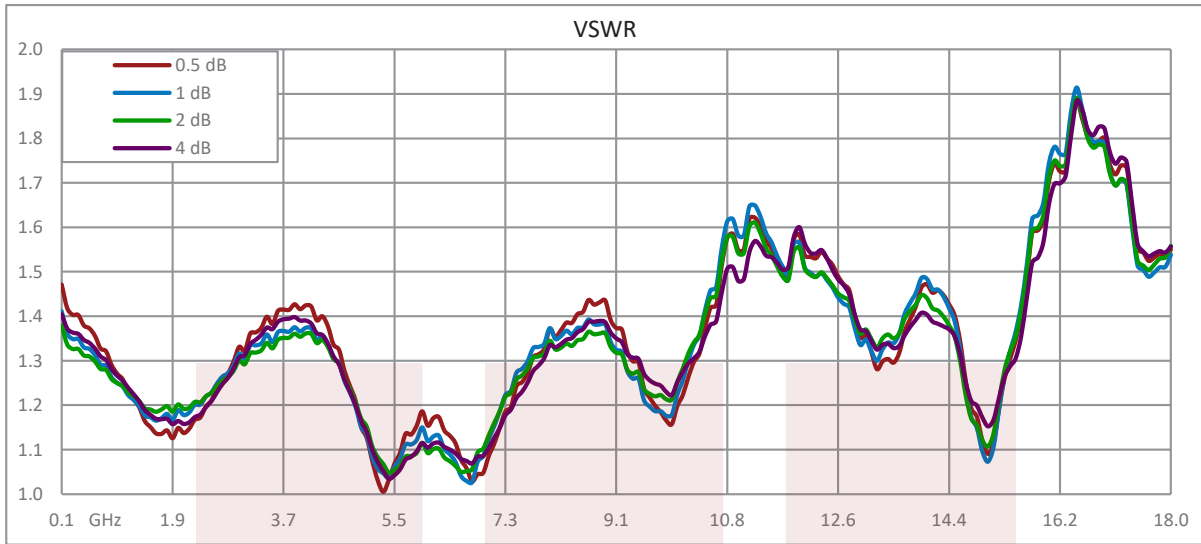
Plotted and Other Data

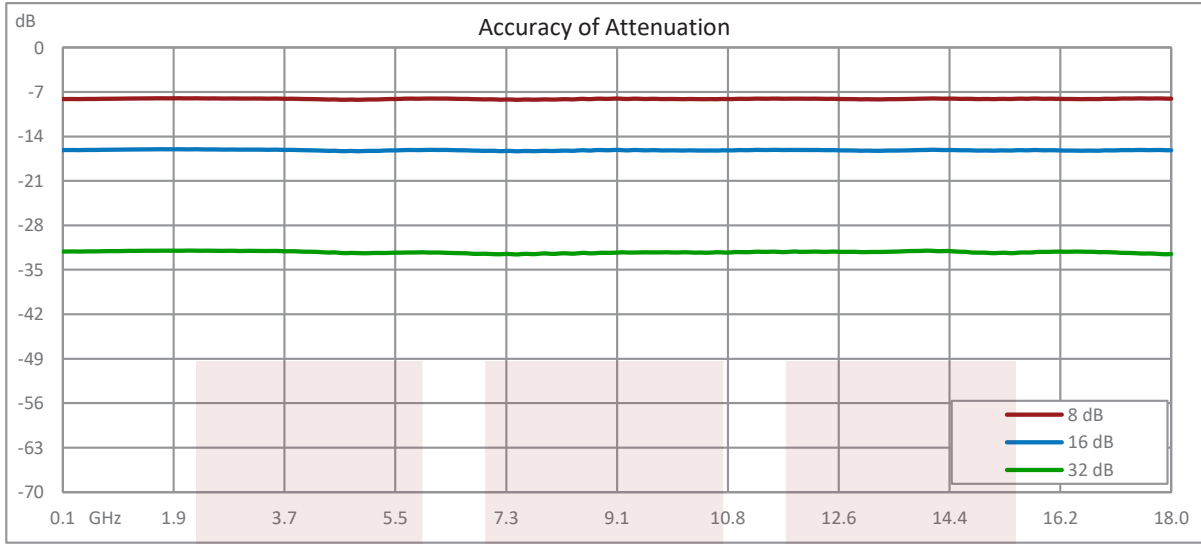
Notes:



Typical Performance Data







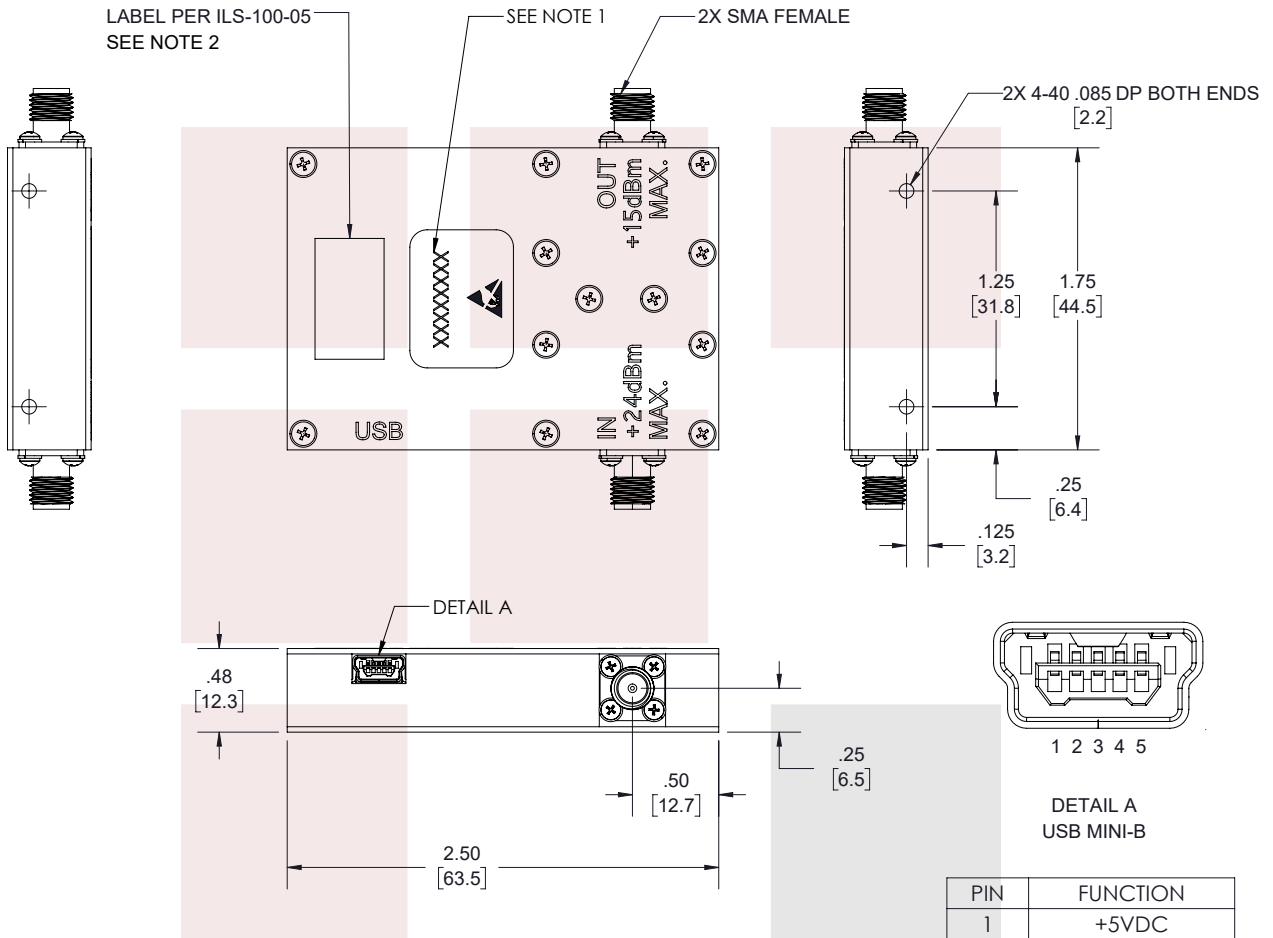
0 to 63 dB Programmable USB Controlled Step Attenuator with a 1 dB Step SMA Female to SMA Female from 100 MHz to 18 GHz from Fairview Microwave is in-stock and available to ship same-day. All of our RF/microwave products are available off-the-shelf from our ISO 9001:2008 certified facilities in Lewisville, Texas. Fairview Microwave is RF on-demand.

For additional information on this product, please click the following link: [0 to 63 dB Programmable USB Controlled Step Attenuator with a 1 dB Step SMA Female to SMA Female from 100 MHz to 18 GHz FMAT8012](https://www.fairviewmicrowave.com/0-to-63-db-programmable-usb-controlled-step-attenuator-with-a-1-db-step-sma-female-to-sma-female-from-100-mhz-to-18-ghz-fmat8012)

URL: <https://www.fairviewmicrowave.com/0-to-63-db-programmable-usb-controlled-step-attenuator-with-a-1-db-step-sma-female-to-sma-female-from-100-mhz-to-18-ghz-fmat8012-p.aspx>

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REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
A	INITIAL RELEASE	14-08-2021	TGALLA



NOTES:

- SERIAL NUMBER AND DATE CODE ARE COMBINED. EX: 202008280001.
- LABEL PER ILS-100-05. FOR INTERNAL REFERENCE ONLY. LABEL LOCATION SHOULD BE SAME AS SHOWN.

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PIN	FUNCTION
1	+5VDC
2	D-
3	D+
4	NO CONNECTION
5	GROUND

TITLE

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

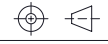
TOLERANCES:

.X = ±.2 [5.08] FRACTIONS ± 1/32
.XX = ±.02 [.51]
.XXX = ±.005 [.13] ANGLES ± 1°

CABLE LENGTH (L) TOLERANCES:

L ≤ 12 [305] = +1 [25] / -0
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

THIRD-ANGLE PROJECTION



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SHEET 1 OF 1

ALL DIMENSIONS SHOWN ARE FOR REFERENCE ONLY.

SCALE N/A

SIZE A	CAGE CODE 3FKR5	DRAWN BY MVEERAPPAN	ITEM NO. FMAT8012	REV A
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T-Rev.D